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Intellectual Capital and Company Size of state-owned company (BUMN) and Its Impact on Company Performance

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ABSTRACT

Purpose – This study aims to find empirical evidence of intellectual capital conditions and the size of state-owned company (BUMN) companies in the Building Construction Industry Sub-Sector and Their Impact on Company Performance. **Methodology–** This study is a causality research that aims to test hypotheses about the influence of several *independent* variables on *dependent variables* with a quantitative approach. The population used is state-owned companies in the building construction sub-sector listed on the Indonesia Stock Exchange (IDX) in 2021. The entire population was sampled in this study. **Findings –** In general, the four BUMN Tbk Building Construction Industry Sub-Sector experienced a decrease in probability performance. Pexists in 2020-2021 PT Waskita Karya (Persero) Tbk. has posted a loss. PT Wijaya Karya (Persero) Tbk. recorded the highest Return on Asset (ROA) achievement in the 2017-2021 period. The existence of intellectual capital in all components, namely value added capital employed (VACA), value added human capital (VAHU) and *structural capital value added* (STVA), has a positive and significant influence on ROA. While the size of the company (SIZE) has a negative and significant effect on ROA. VACA has the greatest influence on the performance of BUMN Tbk Building Construction Industry Sub-Sector compared to other variables.
Novelty/value –this study focuses on companies in the sub-sector of the building construction industry because of the relatively few studies in that sector. The object of research that limits the BUMN Tbk sub-sector of the building construction industry is a differentiator from previous research.
Keywords: *Intellectual capital*, firm size, company performance, BUMN Tbk

INTRODUCTION

According to Law No. 19 of 2003, State-Owned Enterprises, hereinafter referred to as SOEs, are business entities whose entire or most capital is owned by the state through direct participation derived from separated state assets. In addition to contributing to the development of the national economy, the establishment of SOEs is also intended to pursue profits. (https://jdih.kemenkeu.go.id). There are four state-owned companies listed on the Indonesia Stock Exchange (IDX) in the building construction industry sub-sector. The four SOEs Tbk are PT Adhi Karya (Persero) Tbk. (ADHI), PT PP (Persero) Tbk. (PTPP), PT Wijaya Karya (Persero) Tbk. (WIKA) and PT Waskita Karya (Persero) Tbk. (WSKT).

Along with the increasingly intense government program of rolling out infrastructure development (https://bpiw.pu.go.id), the opportunity for national construction business entities to get profits is increasingly wide open. In the 2023 State Budget, the government allocates an infrastructure budget of IDR 392 trillion. This value increased by 7.75% compared to the outlook for the 2022 State Budget of IDR 363.8 trillion. (https://dataindonesia.id). Figure 1, showing Indonesia's infrastructure budget in 2012 – 2023. Data shows that in general the budget continues to increase from year to year.

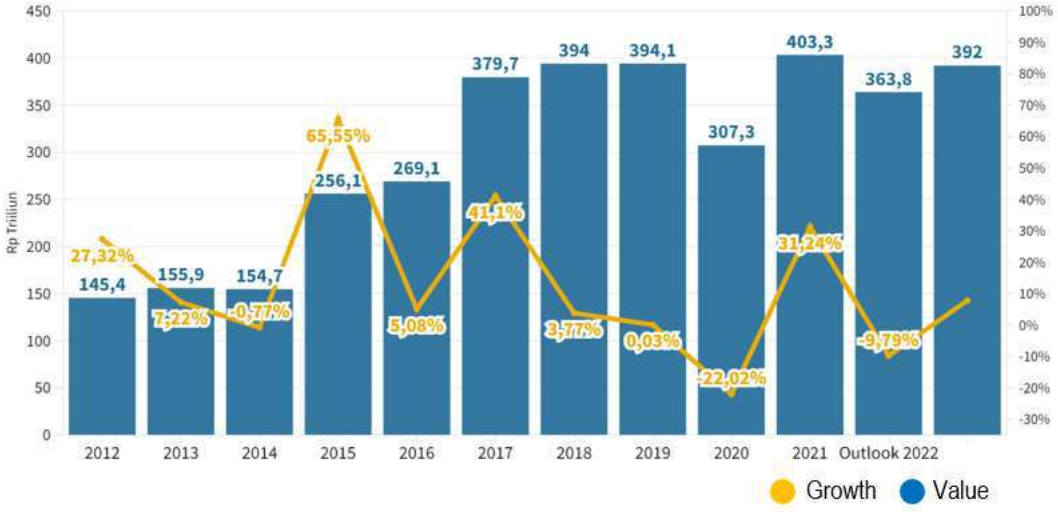

Figure 1. Indonesia's Infrastructure Budget (2012 - 2023)
Source: https://dataindonesia.id

As SOEs in the form of limited liability companies, the four BUMN Tbk have the main objective of pursuing profits as stated in Law No. 19 of 2003 Article 1 Paragraph 2. (https://jdih.kemenkeu.go.id). The probability performance of the four BUMN Tbk sub-sectors of the building construction industry as measured by Return on Assets (ROA) in 2017 – 2021 is shown as Figure 2.

Figure 2. ROA Period 2017 – 2021
Source: Indonesia stock exchange, processed

WIKA has experienced an increase in ROA in 2017-2019. WIKA also recorded the highest ROA achievement in 2017-2021. However, WIKA then experienced a decrease in ROA until 2021. In general, it can be seen that the four SOEs Tbk experienced a decrease in probability performance. Even in 2020-2021, WSKT posted a loss, resulting in a negative ROA value. This decrease in profitability indicates a decrease in change performance. The purpose of establishing a company is to provide benefits and added value for all stakeholders, especially companies and investors. So that this decrease in profitability is a problem that has an impact on companies and investors.

Research related to the identification of factors that affect the company's financial performance has been carried out by several previous researchers. Gantino, Tiurma, Setiyati, &; Saudi (2021) has conducted research on coal mining and infrastructure sub-sector companies listed on the Indonesia Stock Exchange for the 2014-2018 period. The results showed that *intellectual capital* has a positive & significant influence on the company's financial performance as measured by ROA (Gantino *et al,* 2021). In the company Bank BUMN Tbk, Kurniasih and Heliantono (2016) also proved that *intellectual capital* in the *Capital Employed Efficiency* (CEE) component has a positive & significant effect on the company's financial performance as measured by ROA in 2013-2015. This is different from research conducted by Arslan and Zaman (2014) related to the influence of *intellectual capital* on the financial performance of oil and gas sector companies in Pakistan. According to Arslan and Zaman (2014), *intellectual capital* in the CEE component has a negative & significant effect on the company's financial performance as measured by the ratio of Return on *Equity (ROE) and Return on Investment (ROI).*

Kurfi, Udin and Bahamman (2017) have conducted research on the effect of company size on financial performance. The results of research on Nigerian food product companies in 2010-2014 show that company size has a positive & significant effect on the company's financial performance as measured by ROA (Kurfi et al., 2017). Research related to the effect of company size on financial performance was also conducted by Salim, Sudjono and Suratno (2022), on building construction industry sub-sector companies listed on the IDX in 2017-2021. The results showed a different influence. According to Salim *et al.* (2022), company size has a negative & significant effect on the company's financial performance as measured by ROA.

The difference in research results and the relatively small amount of research in building construction industry sub-sector companies are the background for this research. This research is a development of research that has been conducted by Kurniasih and Heliantono (2016) and Salim *et al.* (2022). The object of research that limits the SOE (BUMN) Tbk sub-sector of the building construction industry is a differentiator from previous research. The formulation of the problem studied in this study is a) What is the state of intellectual capital and the size of BUMN Tbk companies in the building construction industry sub-sector? b) How does intellectual capital and company size affect the financial performance of state-owned companies in the building construction industry sub-sector?

This research is expected to add insight and knowledge and complement theoretically learned references for academics. In addition, this research is also expected to provide practical benefits for companies in managing *intellectual capital* and company size. Investors are expected to get reference benefits before making investment decisions.

LITERATURE REVIEW

According to*ignalling theory*, companies will perform actions that provide guidance to investors on how management views the company's prospects (Brigham and Houston, 2014). This theory was first expressed by Spence (1973) who explained that the owner of the information (signal sender) provides a signal or signal in the form of information that reflects the condition of a company that is beneficial to the investor (signal receiver). According to Handini (2020), investors' responses to positive and negative signals greatly affect market conditions, they will react in various ways in response to these signals. Companies that have a high value from companies that have a low value, can be distinguished according to this theory.

As one of the stakeholders, investors have the right to get information about the prospects of the company. Companies must be accountable to stakeholders as described in stakeholder theory (Freeman, 1984). According to Ghozali and Chariri (2007) *stakeholder* theory is a theory that states that companies are not entities that only operate for their own interests, but must provide benefits to all stakeholders (shareholders, creditors, consumers, suppliers, government, society, analysts, and other parties). This

stakeholder group is a consideration for company management in disclosing or not information in the company report.

Wernerfelt (1984) first pioneered *Resources Based Theory* which views that company resources and capabilities are important for companies because they are the principal or basis of the company's competitiveness and performance. This theory illustrates that companies can increase competitive advantage by developing resources so as to direct the company to value creation. According to Belkaoui (200: 7), companieswill excel in business competition and get good financial performance by owning, controlling and utilizing important strategic assets, namely by uniting tangible assets and intangible assets.

According to Ulum (2009), some researchers (for example Bukh, 2003) say that *intellectual capital* and intangible assets are the same and often replace (*overlap*). While other researchers (eg Edvinsson and Malone, 1997; Boekestein, 2006) states that *intellectual capital* is part of *intangible assets*. Bis based on the *signaling theory* approach that intellectual capital disclosure can be a signal to investors about the company's financial performance that has an impact on the added value of the company so that it can be used as a benchmark in investing the capital of stakeholders which automatically has an impact on company value.

Intellectual Capital measurement found by Pulic (1998) is by using the main components of Value *Added Intellectual Coefficient* (VAIC) which can be seen from company resources, namely *physical* capital (VACA- value added capital *employed*), human capital (VAHU - *Value added human* capital) and *structural capital* (STVA- *structural capital value added*). This approach is relatively easy and quite possible to do, because it is constructed from the accounts in the company's financial statements (balance sheet, profit and loss).

The size of the company reflects the size or number of assets owned by the company and has an influence on the value of the company (Horne &; Wachowicz, 2008). The size of the company indicates that the company is increasing, so investors will give a positive response and the value of the company will increase. According to Brealey *et al*. (2007), companies with large assets will use the available resources as much as possible to generate maximum business profits and companies with small assets also generate profits according to their resources.

Handini (2020) defines that a company's financial performance is the result of many individual decisions made continuously by management, as an achievement that has been realized through work that has been done optimally which includes income statements, balance sheets, and capital change statements. Financial performance can be used as a measuring tool to determine the company's performance and an indicator to evaluate the performance of managers in a certain period. One of thelats used to evaluate a company's performance is the Return *on Asset (ROA)* profitability ratio analysis. According to Sihombing (2018), the profitability ratio is measured using the relationship between net profit and assets, in other words, ROA measures the company's ability to generate net profit based on a certain level of assets. Profitability is an important measure to assess a company that influences investors to make decisions.

Research on intellectual capital has been conducted by Gantino et. al (2021). The results show that *intellectual capital* in coal mining and infrastructure sub-sector companies listed on the Indonesia Stock Exchange for the 2014-2018 period has a positive & significant effect on the company's financial performance as measured by ROA. In the company Bank BUMN Tbk. for the period 2013-2015, according to Kurniasih and Heliantono (2016) stated that *intellectual capital* in the *Capital Employed Efficiency* (CEE) component has a positive & significant effect on ROA.

Overseas research was conducted by Chowdhury, Rana, Akter and Hoque on textile industry companies in Bangladesh in 2018. According to Chowdhury et. al (2018), in the period 2013-2018, *intellectual capital* in the *Capital Employed* Efficiency (CEE) and *Structural Capital Efficiency (SCE)* components had a positive & significant effect on ROA. Fathi, Farahmand and Khorasani (2013) examined companies in Iran listed on the Tehran Stock Exchange (TSE), classified in three different industry sectors observed

over a ten-year period from 2001 to 2010. According to Fathi et. al (2013) there is a significant positive relationship between *intellectual capital* in all components (VACA, VAHU, STVA) on ROE and ROA financial performance.

Analysis of the effect of company size on the performance of Nigerian food products companies in 2010-2014 was conducted by Kurfi et.al in 2017. According to Kurfi et.al (2017), company size has a positive and significant effect on the company's financial performance as measured by ROA. Research by Sudiyatno, Puspitasari, Suwarti, and Asyif (2020) also shows that company size has a positive and significant effect on ROA. The samples used in the study were manufacturing companies listed on the Indonesia Stock Exchange from 2016 to 2018. Sugosha & Artini (2020) found that company size has a positive and significant effect on the company's financial performance as measured by Return on Equity (ROE). Research conducted on the Pharmaceutical Industry on the Indonesia Stock Exchange for the period 2013-2018

Based on the study above, the hypothesis of the influence of intellectual capital (*VACA, VAHU, STVA) and company size (Asset*) on the company's financial performance (ROA) in the research of BUMN Tbk companies in the building construction industry sub-sector is:

H1: *Physical capital* (VACA) has a positive and significant effect on the company's financial performance (ROA).

H2: *Human capital* (VAHU) has a positive and significant effect on the company's financial performance (ROA).

H3: *Structural capital* (STVA) has a positive and significant effect on the company's financial performance (ROA).

H4: Company size (SIZE) has a positive and significant effect on the company's financial performance (ROA).

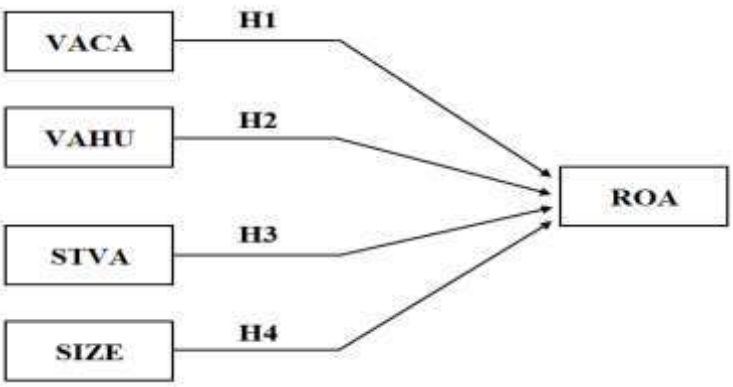

Figure 3. Framework

METHOD

This research is a causality research that aims to test hypotheses about the influence of several *independent* variables on *dependent variables* with a quantitative approach. The population used in this study is state-owned companies in the building construction sub-sector listed on the Indonesia Stock Exchange (IDX) in 2021. The entire population was sampled in this study. The data taken is in the form of annual financial statements that have been published in the period 2017 to 2021 along with their records.

The dependent variable used in this study is the profitability ratio measured by Return on Assets (ROA), which is formulated:

$$ROA = \frac{Earning\ After\ Tax}{Total\ Asset} \times 100\% \quad (1)$$

While *the independent variables* of this study consist of *intellectual capital* and company size.

Intellectual capital is proxied based on value added capital employed (VACA), value added human capital (VAHU) and *structural capital value added* (STVA). The following is the formulation of the *calculation of Intellectual capital*.

a. **VACA = VA / CE(** 2)

   VA = Output - Input

   Output (OUT) = Sales + Total other income

   Input (IN) = Total expenses - Salaries expenses

   Capital Employed (CE) = Total assets - Current liabilities

b. VAHU = VA / HC (3)

   Human Capital (HC) = Salaries expense

c. STVA = SC / VA (4)

   Structural capital (SC) = VA - HC

The size of the company is proxied using the number of assets owned by the company and is formulated as follows:

Firm Size = Ln (Total Assets) (5)

Before panel data regression analysis is carried out, descriptive analysis is carried out first. Descriptive analysis in this study is seen from the average value, minimum value and maximum value of the variable. Multiple linear regression analysis is used to find the influence of the *independent* variable on the *dependent variable*. There are several tests conducted before testing the regression equation, which are as follows:

a. **Data normality.** According to Ghozali (2018), the normality test was carried out to test the normality of the distribution in the regression model on confounding variables or residual variables. A good regression model should be normally distributed. Testing the normality of data in this study using the *Shapiro Wilk* test by comparing *the p value* with a significance level of 5%. If the *p value* > 5%, then the data is normally distributed.

b. **Multicollinearity.** The multicholinerity test aims to test whether in the regression model there is a correlation between independent variables (Ghozali, 2018). A good regression model should have no correlation between independent variables. In this study, the multicolonierity test was based on the values of *Tolerance* and *Variance Inflation Factor* (VIF). *Tolerance* measures the variability of selected independent variables that are not explained by other independent variables. The value of VIF is equal to 1/ *tolerance.* If there is no independent variable that has a *tolerance* value of less than 0.10 or a VIF value of more than 10, then there are no symptoms of multicholinerity among independent variables.

c. **Autocorrelation**. The autocorrelation test aims to test whether there is a high correlation between residuals. This happens because successive observations over time are related to each other. So that the fault of the confounding is not free from one observation to another. A good regression model is free from autocorrelation symptoms (Ghozali, 2018). To test the presence or absence of autocorrelation, a run test was used in this study. A regression model is free from autocorrelation if the value of Asymp.Sig (2-tailed) is greater than the significance level of 0.05.

d. **Heteroscedasticity.** The heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residual of one observation to another (Ghozali, 2018). A good regression model is one in which homoscedasticity or heteroscedasticity does not occur. The method to test heterokedasticity in this study is the Glejser Test. If the $_{calculated}$ t value is smaller than the $_{table}$ t or the significance value is greater than 0.05 then it can be concluded that heterokedasticity does not occur.

There are several stages of testing carried out to choose which model is right to use for panel data processing, among others.

a. *Test Chow*. Aims to choose *a common* effect or *fixed effect* model that is more appropriate to be used in panel data regression. If the *probability* value F > 0.05, then the more appropriate model used is the *common effect*. Conversely, if the probability value F < 0.05, then the more appropriate model used is the *fixed effect*.

b. *Hausman* test. This test is to determine the *most appropriate fixed* effect or *random effect* model used in estimating panel data. If the *probability cross-section random* value < 0.05 then the more appropriate model to use is the *fixed effect.* Conversely, if the probability value of *random cross-section* > 0.05, then the more appropriate model used is the *random effect*.

c. Test Lagrange Multiplier Test. Testing to determine the best method of regression panel data, whether to use *a common* effect or *random effect*. If the probability chi square < 0.05, it means that a more appropriate regression model to use is the *random effect model*. Conversely, if the probability chi square > 0.05, then a more appropriate regression model is used is the *common effect*.

The basis for making the final decision is that if there are two models selected based on the three tests above, then the model is a regression model that is more appropriate to use. In general, the equation used for panel data regression is as follows:

$$ROA = \alpha\ 1 + b\ 1\ VACA + c\ 1\ VAHU + d\ 1\ STVA + e\ 1\ SIZE + \varepsilon_{1} (6)$$

The coefficient of determination R^2 (R squared) measures how far the model is able to explain the variation of the dependent variable (Ghozali, 2018). If the coefficient of multiple determinations or R2 is closer to one, the better the model estimates the data. The F test is used to test the influence of the independent variable on the dependent variable simultaneously, whether all independent variables included in the model have an influence together on the dependent variable (Ghozali, 2018). If the F value is $_{calculated}$ > the F_{table} value, or the significant value < 0.05, it is concluded that all independent variables have a simultaneous influence on the dependent variable. Finally, to determine the effect of the independent variable partially on the dependent variable, a t test was performed. If the calculated t value > the table t value, or the significant value < 0.05 means that the independent variable has a significant influence on the dependent variable.

RESULT AND DISCUSSION

A. Overview of Research Objects

The value added capital employed (VACA) of the four SOEs Tbk sub-sector of the building construction industry is presented in figure 4. VACA experienced a decline in the 2017-2020 period. VACA experienced an increase in 2021, except for WSKT which continued to decline during the 2017-2021 period. This shows that in general, the value added that can be generated on physical capital + financial assets tends to decrease. The highest VACA is indicated by ADHI and the lowest is indicated by WIKA.

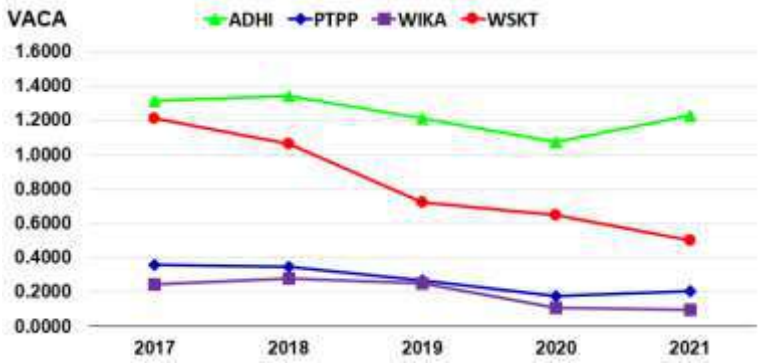

Figure 4. VACA Period 2017 – 2021
Source: Indonesia stock exchange, processed

Figure 5 shows the *Value added human capital* (VAHU) of the four SOEs Tbk sub-sector of the building construction industry. VAHU WIKA experienced a sharp increase in the 2017-2019 period, but experienced a drastic increase afterwards. Meanwhile, ADHI, PTPP and WSKT experienced a decrease in the 2017-2020 period, then increased in 2021. WSKT experienced a sharp decline between 2019 and 2020 but then experienced a drastic increase in the following year. The increased VAHU indicates an increase in added value generated by the company with the use of salary expense. The highest VAHU is indicated by WIKA and the lowest is indicated by WSKT.

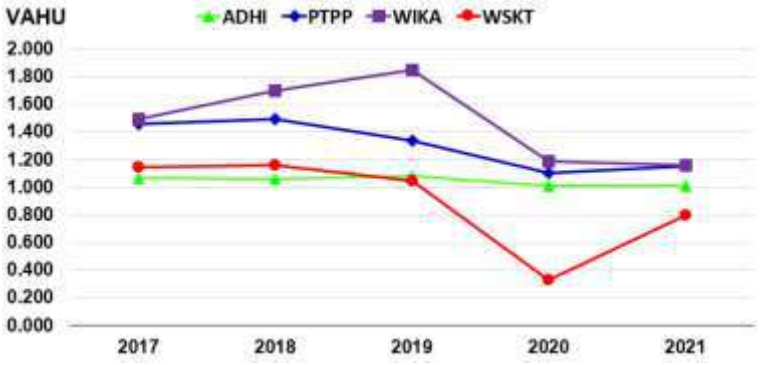

Figure 5. VAHU Period 2017 – 2021
Source: Indonesia stock exchange, processed

The structural capital value added (STVA) of the four BUMN Tbk sub-sectors of the building construction industry is presented in figure 6. The STVA graph that is almost close to ADHI, PTPP, WIKA and WSKT shows that the four SOEs Tbk have adjacent values. STVA WSKT experienced a sharp decline in the 2019-2020 period but then experienced a drastic increase in the following year. In 2020 and 2021, WSKT posted losses, although it managed to shrink losses in 2021. STVA that tends to decline shows that the company does not have good structural capital value-added efficiency. The decline in STVA also shows that knowledge in companies that are not human, such as company routines, procedures, systems, culture and databases, has not been able to make the company's value greater than its material value. The highest STVA is indicated by WIKA and the lowest is indicated by WSKT.

Figure 6. STVA Period 2017 – 2021
Source: Indonesia stock exchange, processed

The Company Size (SIZE) of the four BUMN Tbk sub-sectors of the building construction industry is presented in figure 7. SIZE continues to increase from year to year. Only WSKT experienced a decrease in SIZE from 2018 to 2021 and sharply decreased in 2020. Nevertheless, WSKT remains the company with the highest SIZE. While ADHI is the company with the lowest SIZE. The increasing SIZE indicates that the company continues to experience growth.

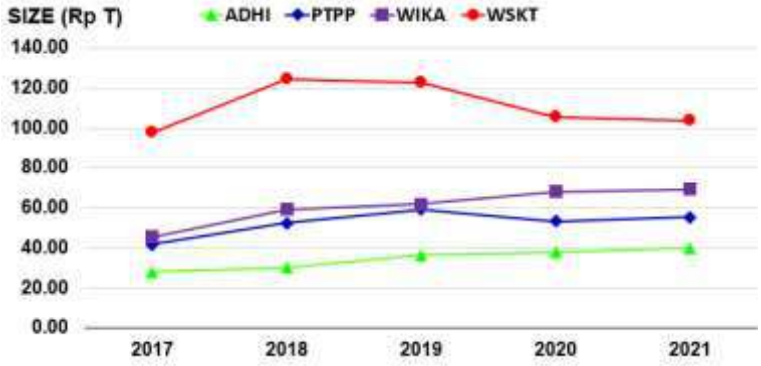

Figure 7. Firm Size Period 2017 – 2021
Source: Indonesia stock exchange, processed

B. Descriptive Analysis

The results of descriptive statistical variables of the study are shown in Table 1.

Table 1. Descriptive Statistic

Variable	Mean	Minimum	Maximum
ROA	0.0133	-0.0899	0.0429
VACA	0.6336	0.0964	1.3409
VAHU	1.1817	0.3291	1.8465
STVA	0.0425	-2.0387	0.4584
SIZE	64.7046	28.3329	124.3916

Source: Data processing results

The maximum ROA value was 4.29% experienced by WSKT in 2017. PT Wakita Karya Tbk (WSKT) throughout 2017 managed to record a net profit of Rp 4.20 trillion. The net profit was sourced from operating revenues of IDR 45.21 trillion, including Construction Services, Precast Sales, Toll Road Revenue, Hotel Revenue, Energy, Property Revenue and Building and Equipment Rentals. The largest operating revenue came from the Construction Services business amounting to Rp 42.34 Trillion or 93.66% of total operating revenue in 2017. However, the minimum ROA value of minus 8.99% was also experienced by WSKT in 2020. The company has recorded a loss of Rp 9.49. Operating revenue has tended to decline sharply since 2017. WSKT was only able to record revenue of IDR 16.19 Trilium in 2020. Construction Services business revenue of Rp 14.23 trillion or 87.92% of total operating revenue, became the main contributor to revenue.

The average VACA value is 0.6336. This means that every 100 rupiah of physical capital + financial assets is able to generate an added value of 63.36 rupiah. The minimum VACA value is 0.0964 experienced by WIKA in 2021. While the maximum VACA value of 1.3409 was experienced by ADHI in 2018. The average VAHU value is 1.1817. This means that for every 1 rupiah *of salary expense,* it is able to generate 1.1817 rupiah of added value. The minimum VAHU value is 0.3291 experienced by WSKT in 2020. The maximum VAHU value is 1.8465 experienced by WIKA in 2019. The average STVA value is 0.0425. This means that every 100 rupiah of knowledge value in a non-human company can generate an added value of 4.25 rupiah. The minimum VACA value is -2.0387 experienced by WSKT in 2020. WSKT has suffered a loss of IDR 16.19 trillion in 2020. While the maximum STVA value of 0.4584 was experienced by WIKA in 2019.

The average SIZE value is Rp 64.70 Trillion. The minimum SIZE value is Rp 28.33 Trillion experienced by ADHI in 2017. While the maximum SIZE value of Rp 124.39 trillion was experienced by WSKT in 2018. The maximum SIZE consists of Current Assets of Rp 66.98 Trillion or 53.85% and Non-Current Assets of Rp 57.40 Trillion or 56.15%.

C. Classical Assumption Test

The normality test was performed using the Shapiro–Wilk Test, showing a > z Prob value of 0.82147. The value is greater than 0.05 so it can be concluded that the data has been distributed normally. Thus the normal distribution conditions have been met.

Table 2. Multicollinearity Test Results

Variable	VIF	1/VIF
VACA	1.4900	0.6712
VAHU	4.1600	0.2403
STVA	3.6100	0.2768
SIZE	1.2500	0.7980

Source: Data processing results

The results of the multicolorarity test in Table 2, show that all independent variables have a value of VIF < 10, which means that there is no relationship between these variables. Thus the condition of variables free from multicolorarity has been met. The results of the autocorrelation test using the runs test, show the value of Prob > |z| amounted to 0.65. The value is greater than 0.05 so it can be concluded that the data does not experience symptoms of autocorrelation. Thus the condition of the variable free from autocorrelation has been met.

Table 3. Heteroscedasticity Test Results

Variable	Coefficient	t	Sign
VACA	0.3724	1.5000	0.1550
VAHU	0.8101	1.3700	0.1910
STVA	-0.0997	-0.2900	0.7780
SIZE	0.2145	0.9100	0.3750
Constanta	-7.4480	-0.9800	0.3430

Source: Data processing results

The results of the heteroscedasticity test using the Glejser test are shown in Table 3. The significance value of each variable is greater than 0.05 so that it can be concluded that the data does not experience symptoms of heteroscedasticity. Thus the condition of the variable free from heteroscedasticity has been met.

D. Regression Equation Test

Selection of the best model using the Chow test, Hausman test, and Lagrange Multiplier test. The results of the Chow test show a Prob > F value of 0.0000. This value is smaller than 0.05 so it is concluded that based on the Chow test, the Fixed Effect Model (FEM) was chosen as the best model. Furthermore, the Hausman test was carried out which resulted in a Prob > chi2 value of 0.0000. This value is smaller than 0.05 so it is concluded that based on the Hausman test, the Fixed Effect Model (FEM) was re-selected as the best model. Because there have been models selected twice, there is no need to continue with the Lagrange Multiplier test. Thus, Fixed Effect Model (FEM) was chosen as the best model for panel data regression equation test.

Table 4. Effect Test Results

Variable	Coefficient	t-statistic	Sign
VACA	5.2358	7.7100	0.0000
VAHU	2.9274	4.4000	0.0010
STVA	3.7074	12.1800	0.0000
SIZE	-1.4039	-2.2100	0.0480
Constanta	38.9090	1.9100	0.0810
R-squared	0.6143		
F-statistic		321.2400	0.0000

Source: Data processing results

Table 4 shows the results of the panel data regression equation test. The *R-squared* value of 0.7096 or 70.96% means that the influence of the variables in this study is 70.96%, while the remaining 29.04% is influenced by other variables outside this study. The panel regression model has a *Prob* (*F-Statistic)* value of 321.24 with a significance level of 0.0000 or less than 0.05. This means that the regression model built *is fit*. Together, the intellectual capital component (VACA, VAHU, STVA) and company size (SIZE) have a significant influence on the company performance (ROA) of BUMN Tbk Building Construction Industry Sub-Sector. The results of the influence test of each independent variable, produce a multiple linear regression equation as follows:

ROA = 38.9090 + 5.2358 VACA + 2.9274 VAHU + 3.7074 STVA – 1.4039 SIZE(7)

The constant value is 38.9090, with a significance of 0.0810, meaning that without the influence of VACA, VAHU, STVA &; SIZE, then the company's ROA performance is 38.9090. But the value of this constant is insignificant, since its significance value > 0.05.

VACA has a coefficient value of 5.2358 with a significance value of 0.0000, indicating that VACA has a positive and significant effect on ROA. Every 1 percent increase in VACA, the ROA will increase by 5.23 percent. VAHU has a coefficient value of 2.9274 with a significance value of 0.0010, indicating that VAHU has a positive and significant effect on ROA, meaning that ROA will increase by 2.92 percent for every 1 percent increase in VAHU. STVA has a coefficient value of 3.7074 with a significance value of 0.0000, indicating that STVA has a positive and significant effect on ROA. Every time there is a 1 percent increase in STVA, the ROA will increase by 3.70 percent. SIZE has a coefficient value of -1.4039 with a significance value of 0.0480, indicating that SIZE has a negative and significant effect on ROA. This means that ROA will decrease by 1.40 percent for every 1 percent increase in SIZE.

Based on the resulting regression coefficient value, it is known that VACA has the greatest influence on the performance of BUMN Tbk companies in the Building Construction Industry Sub-Sector.

E. Discussion

The results of this study show that VACA has a positive and significant effect on ROA. The results of this study support *stakeholder* theory and resource theory, and are in line with Fathi et. all (2013), Kurniasih & Heliantono (2016), Kurfi et. all (2017) and Chowdhury et. all (2018) which found that *value added capital employed* has a positive and *significant* effect on the company's financial performance. VACA has the largest contribution to measuring the performance of BUMN Tbk Building Construction Industry Sub-Sector compared to other VAIC components. VACA is also proven to have the greatest influence on company performance (ROA) in the sector. VACA is a ratio from VA to CE that describes how much added value a company generates from the capital used. In order for VACA to increase, the company must increase the value of *intangible assets* so that the value of *capital employed* will be relatively small.

It was found that VAHU had a positive and significant effect on ROA. The results of this study also support *stakeholder* theory and resource theory, and are in line with Ahangar (2011), Fathi *et al.* (2013), Arslan and Zaman (2015) who found that *value added human capital* has a positive and *significant* effect on the company's financial performance. The study also found that STVA had a positive and significant effect on ROA. The results of this study support *stakeholder* theory and resource theory, and are in line with Fathi *et al.* (2013), Arslan and Zaman (2015), Kurfi *et al.* (2017), Chowdhury *et al.* (2018) which found that *structural capital value added* has a positive and *significant* effect on the company's financial performance. According to *stakeholder* theory, value creation from company activities will improve company performance. *Stakeholders* will appreciate companies that have superior resources because they will help the company to meet the interests of all *stakeholders*.

In this study it was found that SIZE has a negative and significant effect on ROA. The results of this study do not support the*s ignalling theory* and are not in line with Kurfi *et al.* (2017), Sudiyatno *et al.* (2020) and Sugosha and Artini (2020) who found that company size has a positive and significant effect on the company's financial performance. But this study agrees with Hasanah and Enggariyanto (2018) and Salim *et al.* (2022) which found that company size has a negative and significant effect on the company's financial performance. Large companies should have greater opportunities to expand their business, so that they will generate higher profits. The absence of the influence of SIZE on ROA in BUMN Tbk Building Construction Industry Sub-Sector, shows that the management of sources of monetary funds and other physical assets has not been carried out optimally to produce good performance.

CONCLUSION

Based on the results in this study, it shows that the performance of the four BUMN Tbk sub-sectors of the building construction industry, as measured by the value of Return on Asset (ROA) probability, has decreased. The highest ROA in the 2017-2021 period was shown by WIKA, while the lowest ROA was shown by WSKT which posted a loss in 2020-2021.

Intellectual capital which includes VACA, VAHU, STVA, has proven to have a positive and significant influence on the financial performance of state-owned companies Tbk in the building construction industry sub-sector. Shows that the better the company manages intellectual capital, the greater the ROA generated by the company. VACA has the greatest influence compared to other VAIC components. To increase the value of VACA, the main attention of BUMN Tbk management in the building construction industry sub-sector needs to be devoted to the efficiency of Capital Employees. Company management needs to strive to shrink the value of physical capital, use assets, and enlarge *intangible assets.* VACA has the largest contribution to measuring the performance of BUMN Tbk Building Construction Industry Sub-Sector compared to other VAIC components. VACA is also proven to have the greatest influence on the company's financial performance (ROA) in the sector.

Unlike intellectual capital, SIZE turned out to have a negative and significant influence on the financial performance of state-owned companies Tbk in the building construction industry sub-sector. The company's financial performance will decrease every time there is an addition to the company's assets. As a state-owned enterprise, in addition to generating economic value, the company is also present to generate social value in order to support national development. However, BUMN Tbk sub-sector of the building construction industry is also required to be more creative so that it is able to generate economic value from other sectors, so that the addition of assets will be in line with the company's financial performance.

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