



The COVID-19 Pandemic Affects Intellectual Capital on the Financial Performance of Pharmaceutical Companies in Indonesia

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Abstract—This study aims to examine the effect of Intellectual Capital (IC) on the financial performance of Return On Equity (ROE) of companies in the pharmaceutical sub sector. The population in this study is the financial statements of companies in the pharmaceutical sub sector listed on the Indonesian Stock Exchange during the 2017-2021 period. This study used purposive sampling with 8 companies and 40 observations. This study used quantitative data. Data collection techniques using documentation techniques. Data analysis techniques used in this research are classic assumption test, simple linear regression, F test and t test using the SPSS 21 version as a data processing program. The results showed that the intellectual capital had a positive and significant effect on financial performance. This finding indicates that the more efficient and effective a company is in managing its IC, the more it will improve the company's financial performance. The company's ability to generate profit with the total equity owned by the company is increasing with the company using and making the most of its IC. So this research proves that IC plays an important role in the formation of added value and contributes to improving the company's financial performance. This finding also confirms the resource based theory, that intellectual capital owned by companies is able to create competitive advantages for companies so that they can improve company performance for the better, one of which is increasing company profits.

Keywords: COVID-19 Pandemic; Financial Performance; Indonesia; Intellectual Capital; Pharmaceutical Companies

1. INTRODUCTION

The COVID-19 pandemic caused the global stock market to lose around US\$6 trillion in wealth in one week from 24-28 February 2020. The Indonesian economy experienced a 2.07% decline. Indonesia's export performance throughout 2020 also fell by 2.68% which was also followed by a decline in import performance of 17.34%. However, from the pharmaceutical, chemical industry, and traditional medicine sectors, it showed growth in 2020 of 9.39% compared to 2019 (BPS, 2021). The Covid-19 pandemic has also unexpectedly opened our eyes to the importance of medicines, medical devices and health workers. The race to develop a COVID-19 vaccine has prompted many countries to invest more in health research programs and procure vitamins, supplements and immune-boosting drugs (BKPM, 2022). This condition causes pharmaceutical companies to face moderate raised conditions where the demand for pharmaceutical products related to the handling of Covid-19 increases, on the other hand the demand for products that are not directly related to Covid-19 has decreased. Most of the national pharmaceutical raw materials are imported, both from China and India. As a result, when the pandemic case was at its peak which resulted in the two raw material supplying countries having to close access (lockdown), the supply of national pharmaceutical raw materials was hampered. This condition certainly disrupts the business processes of pharmaceutical companies and the impact on the financial performance of pharmaceutical companies.

Financial conditions during the COVID-19 Pandemic are very important to pay attention to for the survival of a company. So that companies must work more effectively and efficiently in improving their financial performance in order to obtain the maximum possible profit to assess the level of achievement of the company in the current year, as a basis for decision making and planning, and to know the contribution of a part to the alignment of company goals (Arifin & Afifatusholikhah, 2022). In line with that, financial performance in this study uses profitability, namely the ability of a company to generate profits over a certain period and also provides an overview of the level of management effectiveness in carrying out its operational activities (Aprilyani et al., 2021). Profitability is measured by Return On Equity (ROE). Referring to Hery's (2015) explanation that company management is increasingly able to provide returns for shareholders due to increasing ROE. Using ROE is proven to have a positive and significant effect on firm value, which means that the greater the results obtained, the better the financial performance is to seek profit from the capital owned (Shenurti, et al., 2022).

In financial performance, fluctuations in financial performance are a phenomenon. In 2017-2021, there have been fluctuations in financial performance in the last 5 years for pharmaceutical companies based on ROE calculations. Companies with DVLA issuer codes decreased in 2020, KLBF issuer codes decreased in 2018, PYFA issuer codes decreased in 2018, increased in 2020 and again decreased in 2021. Then the fourth issuer code, namely KAEF, MERK, SCPI and TSPC, decreased in 2019 but increased again in 2021. Whereas in the SIDO issuer code there is a continuous increase. This condition indicates that there are a number of factors that influence the fluctuations in the financial performance of pharmaceutical companies as measured by ROE.



Table 1. Return On Equity (ROE) of Pharmaceutical Companies for the 2017-2021 Period

| Issuer Code | 2017 | 2018 | 2019 | 2020 | 2021 | Average |
|----------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| DVLA | 0,15 | 0,17 | 0,17 | 0,12 | 0,11 | 0,14 |
| KAEF | 0,10 | 0,13 | 0,00 | 0,00 | 0,04 | 0,06 |
| KLBF | 0,18 | 0,16 | 0,15 | 0,15 | 0,15 | 0,16 |
| MERK | 0,25 | 2,25 | 0,13 | 0,13 | 0,19 | 0,59 |
| PYFA | 65,47 | 0,07 | 0,07 | 0,10 | 0,03 | 13,15 |
| SCPI | 0,41 | 2,32 | 0,13 | 0,09 | 0,19 | 0,63 |
| SIDO | 0,18 | 0,23 | 0,26 | 0,29 | 0,36 | 0,27 |
| TSPC | 0,11 | 0,10 | 0,10 | 0,13 | 0,13 | 0,11 |
| Average ROE Per Year | 8,36 | 0,68 | 0,13 | 0,13 | 0,15 | |

Due to the uncertain conditions caused by the COVID-19 pandemic, Intellectual Capital (hereinafter referred to as IC) is needed to maintain the company's performance and competitiveness (Leon, 2021). IC as a company resource that can increase the company's excellence. According to (Xu & Liu, 2021) to improve sustainable financial performance, companies must realize the importance of IC because it has a positive impact on financial performance in the future. Through the application of IC, companies create competitive advantages that lead to operational efficiency and customer loyalty. IC is an intangible asset that has a direct relationship with knowledge, information, intellectual property, and experience that can be used to create wealth and competitive advantage (Salvi, et al., 2020). The dependence on raw materials for the Indonesian pharmaceutical sector originating from abroad requires the contribution of IC components, namely Human Capital, Structural Capital and Capital Employees in order to be able to improve financial performance by optimizing IC. This IC component is capable of producing added value which acts as an indicator of the success of the company's operations (Muamilah & Jannah, 2022). In line with what (Edvinsson & Malone, 1997) stated, IC is something that cannot be seen but has a major contribution to financial value.

Resource Based Theory (RBT) states that there are tangible and intangible resources (Soewarno & Tjahjadi, 2020). The intangible resource i.e. IC. IC has become a core part of the company to strive in all conditions and generate long-term profits, as a strategic asset based on relevant knowledge in producing performance (Hasan & Miah, 2018) and maintaining company efficiency and productivity (Mohapatra et al., 2019). RBT in Wernerfelt's (1984) view, that companies will be more superior in business competition and get good financial performance by owning, controlling, and utilizing important strategic assets (tangible and intangible assets).

Previous empirical studies that have been conducted to examine IC on the financial performance of pharmaceutical companies during the COVID-19 pandemic in Indonesia show that there is a research gap, namely research results showing that IC has a positive and significant effect on financial performance (Wardifa & Yanthi, 2022), IC simultaneously affects financial performance (Monica et al., 2021), on the other hand IC has a positive and insignificant impact on financial performance (Muamilah & Jannah, 2022), while IC has an insignificant effect on financial performance (Paryati, 2022) and IC has no effect on financial performance (Afriana, 2021).

This research was carried out referring to the gaps in previous research, so this study aims to add to the empirical literature in viewing the COVID-19 pandemic affecting IC on the financial performance of pharmaceutical companies.

2. RESEARCH METHODS

2.1 Basic Research Framework

This study uses a quantitative approach research method, aims to explain and examine the effect of IC on financial performance. The research was carried out using secondary data in the form of annual financial reports of pharmaceutical sub-sector manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2017-2021 period. The research framework in the study is explained in the figure as follows:

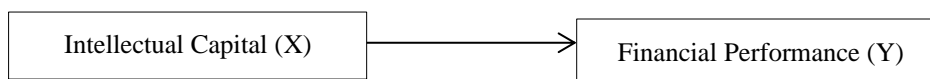


Figure 1. Research Framework

The hypothesis in this study is:

1. H_0 = IC has no significant effect on financial performance
2. H_a = IC has an significant effect on financial performance

2.2 Research Variable

This study uses the dependent variable (Y) financial performance and the independent variable (X) Intellectual Capital.



1. Intellectual Capital (IC)

IC in this study was measured using the VAIC method developed by (Pulic, 1998) with three components, namely:

a. *Value Added Capital Employed (VACA)*

VACA is a comparison between value added (VA) and company equity (CE). VA is calculated by adding up operating profit (OP), employee cost (EC), depreciation (D) and amortization (A). Or in the income statement it can be seen as comprehensive income. This ratio shows from each CE unit to the company's VA. VACA shows the level of IC on the utilization of CE / capital available in the company to increase the company's VA.

$$VA = OP + EC + D + A \tag{1}$$

$$VACA = VA / CE \tag{2}$$

b. *Value Added Human Capital (VAHU)*

VAHU shows the contribution made by each rupiah invested in Human Capital/HC (employee expenses, including salaries and benefits) to the organization's VA. The relationship between VA and HC indicates the ability of HC to create value for the company. VAHU is an indicator of the quality of the company's human resources.

$$VAHU = VA / HC \tag{3}$$

c. *Structure Capital Value Added (STVA)*

STVA measures the amount of Structural Capital (SC) to produce 1 rupiah from VA and is an indication of how successful SC is in value creation.

$$STVA = SC / VA \tag{4}$$

$$SC = VA / HC \tag{5}$$

So that the VAIC calculation formulation is:

$$VAIC = VACA + VAHU + STVA \tag{6}$$

VAIC indicates the intellectual capability of the organization. VAIC is the combined result of the three components of IC measurement.

2. Financial Performance

This study uses profitability with the Return On Equity (ROE) indicator with the formula::

$$ROE = \frac{\text{Earning After Tax}}{\text{Total Equity}} \tag{7}$$

2.3 Data Collection Techniques

This study analyzes descriptive statistics by measuring and observing through the mean, standard deviation, minimum value and maximum value. In addition, this study also used the classical assumption test to determine the feasibility of the regression model and whether the regression model found violations of the classical assumptions (Ghozali, 2018). The tests that must be carried out are the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. The technique used in testing the research variables is simple linear regression analysis with the aim of knowing the relationship between the dependent variable and the independent variable (Ghozali, 2018). The simple linear regression equation that can be used in this study is as follows.

$$Y = a + bx \tag{8}$$

with:

Y = Financial Performance

a = Constant Value

b = Regression Coefficient of Independent Variables

X = Intellectual Capital

3. RESULTS AND DISCUSSION

In this study, samples were taken using a purposive sampling technique with a non-probability sampling method, namely a sample collection technique where there is no equal opportunity for all elements of the population sampled. The sample criteria used in this study are as follows.

Table 2. Research Sample Criteria

| Research Sample Criteria | Number |
|---|--------|
| Pharmaceutical sub-sector companies listed on the Indonesia Stock Exchange during the 2017-2021 research year. | 10 |
| Pharmaceutical sub-sector companies that do not publish financial reports on the Indonesia Stock Exchange consecutively during the 2017-2021 research year. | (1) |



| Research Sample Criteria | Number |
|-----------------------------|--------|
| Value Added suffered a loss | (1) |
| Total Sample Companies | 8 |

Based on the results of the sample selection, 8 pharmaceutical sub-sector companies were obtained for the 2017-2021 period, namely:

Table 3. List of Company Samples

| Issuer Code | Company Name |
|-------------|--|
| DVLA | Darya Varia Laboratoria, Tbk |
| KAEF | Kimia Farma (Persero), Tbk |
| KLBF | Kalbe Farma (Persero), Tbk |
| MERK | Merck, Tbk |
| PYFA | Pyridam Farma, Tbk |
| SCPI | Merck Sharp Dohme Pharma, Tbk |
| SIDO | Industri Jamu & Farmasi Sido Muncul, Tbk |
| TSPC | Tempo Scan Pacific, Tbk |

3.1 Statistical Descriptive Analysis

Descriptive statistical analysis aims to determine the general description and pattern of data distribution of all the variables used in the study. The software used in the descriptive statistical analysis is IBM SPSS Statistics 21. The results of the descriptive statistical analysis are presented in tabular form which shows the results of measuring the average value, standard deviation, minimum value and maximum value for numerical data.

Table 4. Results of Descriptive Statistical Analysis

| | N | Minimum | Maksimum | Average | Standard Deviation |
|-----|----|---------|----------|---------|--------------------|
| ROE | 40 | 0,0021 | 65,4718 | 1,8875 | 10,3221 |
| IC | 40 | 1,3641 | 429,3 | 14,4373 | 67,2999 |

In Table 4 it can be explained that IC as an independent variable has a minimum value of 1.3641 and a maximum value of 429.3. The mean is 14.4373 with a standard deviation of 67.2999. Then ROE as the dependent variable has a minimum value of 0.0021 and a maximum value of 65.4718. The mean is 14.4373 with a standard deviation of 67.2999. The standard deviation value is greater than the average value, this shows that the IC and ROE data are spread more varied

3.2 Classical Assumption Test

The classical assumption test in this study aims to determine and test the feasibility of the model used in this study. The classic assumption test in this study includes: 1) The Normality Test is intended to test whether in the regression model, the confounding or residual variables have a normal distribution. In this study, testing was carried out using the Kolmogorov-Smirnov approach with Asymp. Sig. (2-tailed) IC is 0.890 and ROE is 0.230, and the unstandardized residual variable is 0.577 and is greater than alpha 0.05, meaning that each variable is normally distributed. 2) Multicollinearity Test, namely to find out whether the regression model found a strong correlation between the independent variables. In this study the independent variable IC has a Tolerance value of > 0.10 and a VIF value of < 10, so that there are no cases of multicollinearity in the regression model or the non-multicollinearity assumptions are met. 3) Heteroscedasticity Test is used to determine whether in the regression model there is an inequality of residual variance between observations. In this study, the Scatter Plot shows the data points spread above and below the number 0 on the Y axis and do not form a specific pattern. This means that the variance of the data is identical/homogeneous or there is no case of heteroscedasticity in the regression model. 4) Autocorrelation is a situation where there is a correlation from the residuals for one observation with another observation arranged according to a time series. In this study, the Durbin Watson (d) value was 2.198, so that $dU < d < (4 - dU) = 1.7906 < 2.198 < 2.2094$, so it can be concluded that there is no autocorrelation in the regression model. Thus, the non-autocorrelation assumption is fulfilled.

3.3 Simple Regression Analysis

This analysis aims to determine whether or not there is an influence of IC on ROE.

Table 5. Results of Simple Linear Regression Analysis

| | Model | Unstandardized Coefficients | | Standardized Coefficients |
|---|------------|-----------------------------|------------|---------------------------|
| | | B | Std. Error | |
| 1 | (Constant) | -,324 | ,085 | |
| | IC | ,153 | ,001 | ,999 |



Table 4 shows the regression equation model $\hat{Y} = -0.324 + 0.153X$ which explains that IC has a positive effect on ROE.

3.4 Simultan Test (F Test)

Table 6. Results of F Test

| | Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|------------|----------------|----|-------------|-----------|-------------------|
| 1 | Regression | 4144,830 | 1 | 4144,830 | 14993,283 | ,000 ^b |
| | Residual | 10,505 | 38 | ,276 | | |
| | Total | 4155,335 | 39 | | | |

In Table 6, obtained a significance value of 0.000 less than $\alpha = 0.05$, so H_0 is rejected, which means that IC has an significant effect on ROE.

3.5 Parsial Test (t Test)

Table 7. Results of t Test

| | Model | t | Sig. |
|---|------------|---------|------|
| 1 | (Constant) | -3,809 | 0 |
| | IC | 122,447 | 0 |

From the results of the t test in Table 7, it is known that IC has a significance value of 0.000 which is less than 0.05, then H_a is accepted which means that IC has a significant effect on ROE.

3.6 The Effect of Intellectual Capital on Financial Performance

Based on the results of the research data analysis found that IC as measured by VAIC has a positive and significant effect on financial performance as measured by ROE, so that H_a can be accepted. This finding indicates that the more efficient and effective a company is in managing its IC, the more it will improve the company's financial performance. The company's ability to generate profit with the total equity owned by the company is increasing with the company using and making the most of its IC. So this research proves that IC plays an important role in the formation of added value and contributes to improving the company's financial performance.

The findings of this study confirm the resource based theory which states that IC plays an important role in developing a company's competitive advantage to achieve good financial performance. IC owned by pharmaceutical sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the 2017-2021 period was able to create a competitive advantage for the company thereby improving the company's financial performance, which can be seen from the increase in company profits. The existence of the use of IC, increasing sales and the use of company resources more efficient and economical. The better the company is in utilizing the IC that is owned, it can increase the company's profitability. In addition to confirming the resource based theory, the results of this study are also in line with several empirical studies that have been conducted, namely (Wardifa & Yanthi, 2022) and (Monica et al., 2021).

4. CONCLUSION

The conclusion in this study is that intellectual capital has a positive and significant influence on financial performance. This finding indicates that the more efficient and effective a company is in managing its IC, the more it will improve the company's financial performance. The company's ability to generate profit with the total equity owned by the company is increasing with the company using and making the most of its IC. So this research proves that IC plays an important role in the formation of added value and contributes to improving the company's financial performance. This finding confirms the resource based theory, that intellectual capital owned by companies is able to create competitive advantages for companies so that they can improve company performance for the better, one of which is increasing company profits.

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