ANALYSIS OF PROFITABILITY, WORKING CAPITAL, INVENTORY BEFORE AND AFTER THE COVID-19 PANDEMIC: EMPIRICAL STUDY FROM THE PHARMACEUTICAL INDUSTRY

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ABSTRACT

This study intends to investigate the impact of working capital turnover and inventory turnover on profitability, as well as to demonstrate the differences in working capital turnover and inventory turnover before and after Covid-19. The study was carried out at pharmaceutical sub-sector companies that are listed on the Indonesia Stock Exchange. The causality effect is estimated using panel data regression estimation in the EViews 10 program, while the comparative objective is analyzed using various tests in the SPSS 26 program. The research variable causality test results show that partial working capital turnover affects profitability while inventory turnover does not. Working capital turnover and inventory turnover, on the other hand, have a positive and significant effect on the profitability of pharmaceutical sub-sector companies. Furthermore, there was no significant difference in working capital turnover and inventory turnover before and after the Covid-19 pandemic, according to the comparative test results.

Keywords: COVID-19, Profitability, Working Capital, Inventory

INTRODUCTION

Covid-19 has spread throughout the world, including Indonesia, since its inception in Wuhan, China. The covid-19 pandemic has not only had a negative impact on health, but it has also crippled the global economy. Since the emergence of covid-19, there has been an increase in the demand for medicines, multivitamins, hand sanitizers, masks, and other drugs related to covid-19 handling. The announcement of the first two positive cases in March 2020 sparked panic buying among the general public, resulting in excessive purchases. Some people use this phenomenon to stockpile goods, causing scarcity and price increases of up to threefold.

The company's management is attempting to increase the amount of inventory in order to meet the demand for these medicines; however, in order to increase a certain amount of inventory, the company must have adequate working capital (Banerjee et al., 2021; Othuon et al., 2021; Rey-Ares et al., 2021a). Working capital is defined by Djarwanto (2011) as the excess of current assets over short-term debt; this excess is referred to as net working capital. The number of current assets derived from long-term debt and own capital constitutes this excess. The turnover of working capital is one of the tools used to determine the success of working capital management. The availability of working capital is critical to a company's survival; the better a company's working capital turnover, the more efficient its use of working capital will be and will drive profitability for the company. The higher the company's profitability ratio, the better (Boisjoly et al., 2020; Enqvist et al., 2014). Profitability is a company's ability to make a profit on sales, total assets, and own capital (Qusibah & Yusra, 2019).

Inventory is a set amount of goods that must be kept on hand by the company at a specific location (Kasmir, 2016). Inventory turnover is defined as a ratio that shows how many inventory items are replaced in a given period. The more sales there are, the more inventory items are replaced in one period.

However, not all pharmaceutical industries can survive the Covid-19 pandemic. Currently, the pharmaceutical industry is in the Moderate Raised phase, which means that only products directly related to Covid-19 have seen a significant increase, while other products not related to Covid-19 have seen no growth or even losses. Hospital
visits by chronic patients decreased significantly, and dental practices were also closed for a period of time (source: https://ekonomi.bisnis.com). The following are the changes in the profitability of pharmaceutical sub-sector companies before and after the emergence of Covid-19:

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>KAEF</td>
<td>0,053</td>
<td>0,053</td>
<td>0,082</td>
<td>0,260</td>
<td>-0,00 37</td>
<td>-0,0000 68</td>
<td>decreased due to Covid-19</td>
</tr>
<tr>
<td>KLBF</td>
<td>0,154</td>
<td>0,147</td>
<td>0,140</td>
<td>0,124</td>
<td>0,127</td>
<td>0,125</td>
<td>increase due to covid-19</td>
</tr>
<tr>
<td>SCPI</td>
<td>0,095</td>
<td>0,089</td>
<td>0,082</td>
<td>0,080</td>
<td>0,134</td>
<td>0,099</td>
<td>increase due to covid-19</td>
</tr>
<tr>
<td>SIDO</td>
<td>0,157</td>
<td>0,165</td>
<td>0,197</td>
<td>0,226</td>
<td>0,241</td>
<td>0,311</td>
<td>continue to increase</td>
</tr>
<tr>
<td>SDPC</td>
<td>0,015</td>
<td>0,014</td>
<td>0,018</td>
<td>0,0058</td>
<td>0,0032</td>
<td>0,00697</td>
<td>continues to decrease</td>
</tr>
<tr>
<td>TSPC</td>
<td>0,079</td>
<td>0,062</td>
<td>0,07</td>
<td>0,067</td>
<td>0,092</td>
<td>0,09</td>
<td>tends to fluctuate</td>
</tr>
</tbody>
</table>

After the emergence of Covid-19, it was discovered that the Kimia Farma company's profitability was negative, implying that the company suffered losses, as explained in the media by the Corporate Secretary of PT Kimia Farma Tbk Ganti Wibowo https://stocksetup.kontan.co.id May 2021. "The decline in distribution performance was caused by a decrease in hospital visits as a result of the Bed Occupancy Rate. This had an impact on hospital distribution sales, as well as retail, as customer visits to outlets decreased, and clinical services were also limited due to restrictions on physical contact between health workers and patients ".

According to information from https://investasi.kontan.co.id media in November 2021, Kalbe Farma Tbk's corporate profit increased by 5.85%. KLBF's sales growth this year is even more impressive, with an increase in sales of 11.72% year on year to IDR 19.08 trillion, he said, adding that before covid-19, its profitability always decreased, but after covid-19, its profitability increased.

Researchers have investigated several factors identified in previous studies. Working Capital Turnover, Inventory Turnover, and Profitability are the financial factors in question (Mun & Jang, 2015; Tarkom, 2022; Ukaegbu, 2014). Susmiandini & Khodijah (2015) has demonstrated that simultaneously working capital turnover and inventory turnover have a significant effect on Return on Assets (ROA). This finding is supported by his research on manufacturing companies in the textile and garment sector (Wairooy, 2019), which demonstrates that the simultaneous turnover of working capital and inventory turnover has a positive and significant effect on the company's profitability. However, the findings contradict the findings of the study (Suraya & Ratnasari, 2019), which found that the variables of working capital turnover and inventory turnover have no effect on the company's profitability. Based on this occurrence, it is necessary to conduct research that focuses on the intended fundamental factor. As a result, the purpose of this study is to look into the impact of working capital turnover and inventory turnover on profitability, as well as to demonstrate the difference in working capital turnover and inventory turnover before and after covid-19. This is very relevant to the liquidity theory (Gryglewicz, 2011) which asserts that companies with higher working capital turnover and inventory turnover ratios tend to have higher liquidity, which can lead to higher profitability.

**RESEARCH METHODS**

This study's data came from the Indonesian Stock Exchange. The collected data were used to empirically test hypotheses about the effect of working capital and inventory turnover on profitability, as well as differences in working capital and inventory turnover before and after covid-19.

This study's population consists of pharmaceutical subsector companies listed on the IDX. Purposive sampling was used to select the sample. The sampling criteria are pharmaceutical subsector companies listed on the IDX, companies that have posted complete financial statements from 2016 to 2021, and companies that have seen an increase or decrease in profitability since the covid-19.

A panel data regression model was used to analyze the study's data (Hadya et al., 2017; Yusra...
et al., 2019). Two reasons motivate the author to use this model (Rey-Ares et al., 2021b). First, Panel data models, for example, can reduce friction bias and control unobservable heterogeneity. Second, dynamic panel data models can address the issue of data endogeneity because dependent variables (profitability) can also be the driving force for several independent variables in the model.

As a result, the following equation depicts the basic specifications of the research model:

$$\text{PROF}_i = \alpha + \beta_1 \text{WCT}_i + \beta_2 \text{ITO}_i + \epsilon_i$$

PROF is the dependent variable (profitability); WCT is the first independent variable (working capital turnover); ITO is Inventory Turnover; \(\alpha\) is a constant; \(\beta_1, \beta_2\) refers to the coefficient of independent variable regression; and finally, the disturbance factor is random \((\epsilon)\) which is normally distributed with an average of 0 and a variance of \(\sigma^2\).

**RESULTS AND DISCUSSION**

**Descriptive Statistics of Research Variables**

This study's data is described using descriptive statistics. Descriptive statistics provide an overview of data based on mean, maximum, minimum, and standard deviation values, which are used to determine whether or not variables are normally distributed. During the research period, namely before and after Covid-19 in the 2016-2021 range, descriptive statistical analysis was performed on the samples used in this study, namely 6 pharmaceutical subsector companies.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>Mean</th>
<th>Max</th>
<th>Min</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>36</td>
<td>0.101672</td>
<td>0.311</td>
<td>-0.003700</td>
<td>0.077668</td>
</tr>
<tr>
<td>WCT</td>
<td>36</td>
<td>0.416111</td>
<td>39.77000</td>
<td>-198.5</td>
<td>3.526188</td>
</tr>
<tr>
<td>ITO</td>
<td>36</td>
<td>6.767139</td>
<td>14.26</td>
<td>3.29</td>
<td>2.246496</td>
</tr>
</tbody>
</table>

Source: output E-Views 9

According to table 3, there were 36 samples in each of the variables studied. In the variable ROA, PT. Kimia Farma Tbk experienced the lowest value of 0.0037 in 2020. This occurred because the company suffered losses at the start of Covid-19, so the ROA value was negative. The Sido muncul Herbal and Pharmaceutical Industry experienced the highest value of 0.311 in 2021. The average (mean) ROA value is 0.101, with a standard deviation of 0.077. Based on these values, the mean exceeds the standard deviation, implying that the data on the ROA variable varies less.

PT. Kimia Farma Tbk experienced the lowest variable inventory turnover (ITO) value of 3.29 in 2019. PT Organon Pharma Indonesia experienced the highest value of 14.26 in 2021. The mean (average) value is 6.76, with a standard deviation of 2.24. Based on these values, the mean exceeds the standard deviation, implying that the data on the ITO variable varies less.

**Classical Assumption Test Results**

A normality test was conducted to analyze the sample data using the Jarque-Bera test. The test results are presented in the following diagram:
Based on the test results, it can be seen that the probability value of 0.38 is greater than 0.05. Thus it can be concluded that the regression model in this study is a normal distribution. The next stage is carried out multicollinearity test using the standard measurement of variance inflation factor (VIF).

The table above shows that there are no VIF values of more than 10, where the VIF values of working capital turnover (WCT) and inventory turnover (ITO) are 1.053. This explains that regression models are shown to have no multicollinearity problems. Therefore, it can be continued for the next stage of testing, namely the autocorrelation test.

An autocorrelation test research model is intended to find out the presence or absence of correlation between the disruptor variable in a certain period and the previous variable. The autocorrelation test in this study was carried out using Durbin-Watson testing with the following conditions:

\( a) \ 0 < 1.975 > 1.3537 \) means that there is no positive autocorrelation  
\( b) \ 4 -1.3537 > 1.975 < 4 \) means that there is no negative autocorrelation  
\( c) \ 1.5872 < 1.975 < 4 - 1.5872 \) means that the data is free from autocorrelation symptoms.

In the autocorrelation test results, it was seen that the Durbin-Watson value was 1.975215. This proves that the data is free from the symptoms of autocorrelation. Furthermore, in this study, a heteroskedasticity test will be carried out. A heteroskedasticity test is performed to test whether, in the regression model, there is a variance dissimilarity from the residual of one observation to another. The test was performed using the Glejser test.

Based on the table above, it can be seen that the obs* R-square value is 0.0895 (greater than 0.05). It can be concluded that there are no symptoms of heteroskedasticity in the regression model.
Furthermore, data analysis was carried out using panel data regression analysis using three estimation models, namely the Common Effect Model, Fixed Effect Model and Random Effect Model selected through the Chow test to choose between the CEM model and the FEM and the Hausman test to choose the best model between FEM and REM, the test results are as follows:

<table>
<thead>
<tr>
<th>Table 7. Chow Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects Test</td>
</tr>
<tr>
<td>Cross-section F</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
</tr>
<tr>
<td>Source: output E-Views 9</td>
</tr>
</tbody>
</table>

Based on the results of the Chow test in the table above, the probability value of the chi-square and cross-section F Cross-sections is obtained by 0.0000 < 0.05, so statistically, H0 is rejected and Ha is accepted. Then the right estimation model used in panel data regression is the Fixed Effect. Furthermore, the Hausman Test was carried out, the results were as follows:

<table>
<thead>
<tr>
<th>Table 8. Hausman Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Summary</td>
</tr>
<tr>
<td>Cross-section random</td>
</tr>
</tbody>
</table>

Based on the Hausman test results in the table above, a random cross-section probability value of 0.1083 > 0.05 was obtained, so statistically, H0 was accepted and Ha was rejected. Then the right estimation model used in panel data regression is the Random Effect Model. The results of the interpretation of the random effect model are as follows:

<table>
<thead>
<tr>
<th>Table 9. Random Effect Model Estimation Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>WCT</td>
</tr>
<tr>
<td>ITO</td>
</tr>
<tr>
<td>Source: Output E-Views 9</td>
</tr>
</tbody>
</table>

Based on the table above, the regression equation of this research panel data is:

\[
\text{PROF} = 0.068447 - 0.001082 \text{WCT} + 0.005061 \text{ITO}
\]

Based on the regression equation above, it can be explained that:

a. Based on the equation above, the value of the constant is 0.068447. It is argued that if the value of independent variables (WCT and ITO) is 0, then the ROA value is 0.067528 units.

b. The WCT coefficient value of -0.001082 and marked negative means that for every 1% increase in the WCT value, the ROA will decrease by 0.001082 units.

c. The value of the ITO coefficient is 0.005061 and has a positive sign, meaning that for every 1% increase in the ITO value, the ROA value will increase by 0.005061 units.

Furthermore, to find out the difference in working capital turnover and inventory turnover before and after Covid-19, a paired sample t-test analysis was carried out, the results of the different tests were as follows:
Based on Asymp. Sig (2-tailed) value in table 10 above the variable of working capital turnover before and after covid-19 has a significant value of 0.530 > 0.05 and a significant value of the inventory turnover variable before and after covid-19 of 0.084 > 0.05. These results concluded that there was no significant difference between the effect of covid-19 on working capital turnover and inventory turnover in pharmaceutical subsector companies listed on the IDX.

DISCUSSION
The effect of working capital turnover on profitability

Working capital turnover is a ratio used to measure the effectiveness of the company in managing capital, the faster the turnover of cash invested in working capital, the funds will quickly return to cash and the company's profitability will increase. Based on table 9, the results of the random effect model estimate obtained a t-statistical value of -6.88 and a probability value (sig.) of 0.000 < 0.05. So, it can be concluded that the turnover of working capital (WCT) has a negative and significant effect on the profitability of pharmaceutical subsector companies listed on the Indonesia Stock Exchange before and after Covid-19.

The results of this study are in line with those that also state that partial working capital turnover has a negative and significant effect on profitability, the results of this study are strengthened by and who say that working capital turnover negatively affects profitability.

Effect of inventory turnover on profitability

Inventory turnover is an efficiency ratio that shows how effectively the inventory can be managed by the company, this ratio is an indicator that determines the value of inventory quality and effective purchases in inventory management. In this ratio, there are two important things, namely the purchase of coals for inventory and sales. More goods sold means that inventory will run out quickly so that the capital invested in the inventory will return to cash and the profit that the company expects is quickly achieved.

Based on the results of the random effect model estimation, a t-statistical value of 1.64 and a probability value (sig.) of 0.1093 > 0.05 were obtained. Therefore, it can be concluded that the turnover of inventories has a positive and insignificant effect on the profitability of pharmaceutical subsector companies listed in Indonesia Stock Exchange before and after Covid-19.

The results of this study are in line with saying that inventory turnover does not have a significant effect on profitability, the results of this study are strengthened by Farooq (2019), he found that Inventory turnover does not have a significant effect on ROA. According to Wibowo & Rohyati (2018), Deslina & Irwan (2018) and Reimeinda et al (2016), inventory turnover has a positive effect on ROA.

Effect of working capital turnover and inventory turnover on profitability

The results of the estimation of the random effect model in Table 9 shows a statistical F value of 22.16 with a prob value. F or sig. F by 0.000001 is 0.05 less, so it can be concluded that simultaneously working capital turnover (WCT) and inventory turnover (ITO) have a positive and significant effect on the profitability of pharmaceutical subsector companies listed on the Indonesian stock exchange before and after Covid-19.

The results of this study are in line with those that say that the variables of working capital turnover, receivables turnover and inventory turnover have a positive and significant effect on
the company's profitability, the results of this study are strengthened by Permatasari, (2018), Pratiwi (2016), and Susmiandini & Khodijah (2015).

**Differences in working capital turnover and inventory turnover before and after covid-19**

Table 10 has shown the test results of the differences in working capital turnover variables and inventory turnover before and after covid-19. The results have concluded that there is no significant difference between the two variables before and after covid-19 in pharmaceutical sub-sector companies listed on the IDX. This means that covid-19 has not had a meaningful effect on statistical changes in working capital and inventories.

**CONCLUSION**

The findings revealed that working capital turnover has a negative and significant impact on profitability, while inventory turnover has a positive and insignificant impact. Meanwhile, the concurrent turnover of working capital and inventory has a positive and significant impact on profitability. Working capital and inventory turnover did not differ significantly before and after covid-19. Based on this conclusion, the company's management is expected to pay more attention to the constituent components of working capital, such as the use of excessive debt, which will harm the company's profitability. Further research can be conducted by re-identifying variables that can affect the company's profitability, particularly the fundamental variables that have a direct impact on the company's existence of COVID-19. The conclusion of this study confirms that there is a negative effect of working capital turnover on profitability. Of course, in the period studied, there are factors other than the working capital component that contribute to the company's profit, thus causing a negative influence. To provide a sharper analysis, it is better to examine the company's profit and loss, especially non-operating income.

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