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Market's Reaction and Covid-19 Pandemic

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Abstract

The corona virus (Covid-19) is causing global disruption. There is evidence from case studies that COVID-19 has had a substantial impact on the capital market. The present worldwide epidemic of COVID-19 has a detrimental effect on financial markets, including traditional stock markets and commodities markets. The goal of this research is to empirically assess the impact of COVID-19 on the functioning of the capital market by analyzing trading volume activity and average stock price movement. Descriptive statistical tests, normality tests, and Wilcoxon Signed Rank Test hypothesis testing were utilized to analyze the study data. The results of the research indicate that there is no significant difference in trading volume activity before and after the first case of COVID-19 was found in Indonesia and before and after the PSBB policy was announced to be implemented. In contrast, the study findings indicate that there are substantial changes in the average closing stock prices before and after the first case of COVID-19 was found in Indonesia and before and after the PSBB policy was implemented. Thus, the findings of this research show that information about the first instance of COVID-19 and the announcement of the adoption of the PSBB policy affect the capital market's response to stock price fluctuations. This discovery is anticipated to give a contribution that may assist investors in adjusting to the execution of a superior investing plan.

Keywords: Performance of Indonesia Composite Stock Price Index, Trading Volume Activity, Closing Price, COVID-19 Pandemic

Introduction

The coronavirus (COVID-19) epidemic has had a significant effect on the lives of millions of people and has had a significant influence on the financial markets from all angles (Pan et al., 2021; Iqbal & Bilal, 2021; Zhang et al., 2021). The COVID-19 pandemic has not only had a direct influence on the tragedy of deaths and illnesses, but it has also had a very substantial effect on the decisions investors have made and how the market has reacted to information on the COVID-19 pandemic. Additionally, investor groups in various nations have various preconceived notions on the precision and forecast accuracy of pandemic information, which may result in either an overreaction or an underreaction to the information (Jiang & Zhu, 2017; Borgards et al., 2021).

The market reaction to the COVID-19 pandemic has been the subject of numerous studies, including those conducted in the stock markets of the United States and Europe (Xu, 2021), the stock markets of Asia (Sun et al., 2021; Nguyen & Dinh, 2021), the stock markets of Australia (Naidu & Ranjeeni, 2021), and cross-border stock markets (Naidu & Ranjeeni, 2021). (Heyden & Heyden, 2021). However, the research indicators that are used to identify the impact of the covid pandemic are different from one another. These research indicators include the announcement of the first case, the announcement of the first death, or even the announcement of the first policy that is related to the pandemic. Even though the research method that is used

is the same, which is in the form of case studies, the research indicators that are used are different. This indicator, on the other hand, provides the influence of research findings that are not too dissimilar to gauge the correctness of research outcomes.

On March 2, 2020, a patient in Indonesia was found to be infected with COVID-19 for the very first time. The Indonesian government has established a number of different measures in an effort to slow the spread of this virus. These policies include the enforcement of restrictions on community activities and the adoption of large-scale social restrictions, which are both known as PSBB (PPKM). The PSBB was first put into effect on April 10, 2020, and its validity period lasted until June 03, 2020. This was followed by the deployment of the transitional PSBB, which lasted from June to September 2020. After it was determined that the COVID-19 case was effectively under control, the government enacted a program called the Enforcement of Community Activity Restrictions (PPKM).

The influence of the policies and events caused by this epidemic tend to have a detrimental effect on the capital market's response. Despite this, there were other industries that were met with favorable responses, such as the health industry. This is because of the growing public awareness about health, the requirement for vitamins and hospitals, as well as optimism about the implementation of the COVID-19 vaccine, which resulted in an increase in sales within the company, which in turn resulted in health stock issuers experiencing a strengthening during the COVID-19 pandemic. The response of the market will have an impact on the movement of the composite stock price index (CSPI), which may be determined by calculating the trading volume activity and the average stock price at the close of the trading day. The JCI is often consulted by investors in order to ascertain the path that should be followed in terms of investment policy, as well as the times at which they should purchase and sell their investment instruments. Therefore, it is extremely essential for investors who want to engage in the capital market to pay attention to the movement of the JCI so that they do not make a mistake in deciding the direction of investment strategy. This will ensure that they do not lose money.

The purpose of this research is to collect empirical information to determine whether or not there are meaningful changes in the trading volume activity and closing stock prices. Before and after the first case of COVID-19 was found in Indonesia, as well as before and after the implementation of the PSBB policy on companies engaged in the health sector on the Indonesia Stock Exchange, there was a period of time where the Indonesia Stock Exchange did not require health-related companies to have a PSBB policy.

Literature Review

According to Hartono (2017), the capital market is the same as the market in general, in that it is a meeting place for sellers and buyers who are exposed to the risk of profit and loss. In the meanwhile, Samsul (2006) views the capital market as a location where supply and demand for long-term financial instruments, namely those with a maturity of more than one year, may come together. "The capital market is an activity dealing with the public issuing and trading of securities, public corporations linked to the securities they issue, as well as institutions and professions associated to securities," as stated in Law no. 8 of 1995 on the Capital Market. On the secondary market, transactions involving trading of securities are often conducted. The Indonesia Stock Exchange is now the only secondary market in the country of Indonesia.

According to Sunaryo (2021), shares are securities that are an indication of ownership of a person or entity in a corporation and are issued by a business entity in the form of a Limited Liability Company (PT) or another entity known as the issuer. Sunaryo defines shares as follows: Ordinary shares, also known as common stock, are the kind of shares that are most actively traded on the Indonesia Stock Exchange. According to Hartono (2017), ordinary shares

are defined as shares that are issued by firms but do not have priority rights. Shareholders of the company have rights that include the right to elect the board of directors of the company (control rights), the right to receive a share of the company's profits, and the right to get the same percentage of ownership if the company issues additional shares. These rights are collectively referred to as shareholder rights (preemptive rights).

According to Hartono (2017), the JCI is the price movement of all ordinary shares. It is possible to calculate the JCI by comparing the total market value to the total number of shares multiplied by the share price, and then dividing the result by the total base value recorded on August 10, 1982. Investors will find it much simpler, with the help of the JCI, to identify the course of investment policy that has to be carried out. According to Sunaryo (2019), the JCI's purpose is to aid investors in establishing market direction markers, measure profit levels, and serve as a benchmark for the performance of portfolios. Because of this, the movement of the JCI is something that investors need to pay close attention to and try to comprehend. The movement of stock prices on a daily basis is due to the fact that it is impacted by the daily fluctuations in trading volume and stock prices. The responses of the market to new information are often the source of fluctuations in trading volume as well as stock prices.

Market reaction is the response of the market to available information. The market reaction will have an influence on the volume of stock trading carried out by investors in the capital market. Sinurat & Ilham (2021) explain that stock trading volume is a measure of the size of shares traded on the Indonesia Stock Exchange which can reflect the strength of demand (bid) and supply (ask). The forces of demand and supply will then provide investors with an overview of the state of the market. If the volume of stock trading in the capital market increases, it can be said that the condition of the capital market is in a strengthening condition and vice versa, if the volume of trading shares in the capital market decreases, it can be said that the condition of the capital market is in a weakening condition. Coulling (2013) defines trading volume as a market driving fuel that can inform when investors enter and leave the capital market. Thus it can be concluded that volume is a very important indicator in the capital market. The size of the stock trading volume can be seen through trading volume activity or what is known as trading volume activity (TVA). Sinurat& Ilham (2021) explain that trading volume activity is an indicator used to see the reaction of the capital market to an information through the movement of trading volume activity. Suganda (2018) suggests that trading volume activity can be calculated using the formula:

$$TVA = \frac{\text{The volume of shares traded at time t}}{\text{The volume of shares i outstanding at time t}}$$

Coulling (2013) defines stock prices as the main indicator that can reveal what has happened before so that investors can predict what might happen next. Stock prices are classified by four indicators which include open, high, low, and close. Efendi & Dewianawati (2021) define the opening as the initial trading price for the company in a certain period, the highest as the highest trading price for the company in a certain period, the lowest as the lowest trading price for the company in a certain period, and closing as the last trading price for the company. in a certain period. According to Heliani et al. (2021), to calculate the average closing share price can be done with the following formula:

$$\text{Average Closing Share Price} = \frac{\text{Total closing share price}}{\text{Total days}}$$

Trading volume and stock prices have a complementary relationship and cannot be separated from one another. Coulling (2013) describes the price relationship without volume as an

analysis that cannot explain the situation in detail. This is because the prices formed in the market have the possibility to be manipulated. Therefore, volume is needed to validate the price movements that occur in the market. In addition, the relationship between volume and price can also be used to confirm the trend. This is reinforced by the principle put forward by Dow, namely that volume should confirm the trend. Murphy (2018) explains the principle put forward by Dow where if volume increases followed by price increases and decreases when prices fall then this will confirm a bullish trend (up) and if volume increases when prices decline and decreases when the price rallies then this will confirm the occurrence of a bearish trend (down).

Empirical studies on trading volume activity during the COVID-19 pandemic show different results. A study conducted by Saputra et al. (2021) showed that there were significant differences in the volume of stock trading in the pharmaceutical sector before and after the first case of COVID-19 was identified in Indonesia. Likewise, research conducted by Susanti et al. (2020) also shows that there are significant differences in companies that are members of the High Dividend 20 index before and after the first case of COVID-19 was identified in Indonesia. Based on this discussion, the proposed hypothesis is as follows:

H1: There is a significant difference between the performance of the JCI in the health sector before and after the first case of COVID-19 was identified in Indonesia as measured by trading volume activity.

H2: There is a significant difference between the JCI performance in the health sector before and after the implementation of the PSBB policy as measured using trading volume activity.

Furthermore, the empirical study conducted by Heliani et al. (2021) show that there are significant differences in the closing stock prices of the banking sector before and after the COVID-19 pandemic. Research conducted by Rifa'i, Junaidi, and Sari (2020) also concluded that the JCI as measured by the average closing stock price showed a significant difference between before and after the COVID-19 pandemic. Based on this discussion, the proposed hypothesis is as follows:

H3: There is a significant difference between the JCI performance in the health sector before and after the first case of COVID-19 was identified in Indonesia as measured by the average closing share price.

H4: There is a significant difference between the performance of the JCI in the health sector before and after the implementation of the PSBB policy as measured by the average closing share price.

Methods

The form of research is a comparative study with case studies on the COVID-19 pandemic on the Indonesia Stock Exchange. The population in this study is the health sector on the Indonesia Stock Exchange. The total population in this study were 23 companies with a total sample of 17 companies using purposive sampling technique. The data in this study were obtained from the official website of the Indonesia Stock Exchange, namely www.idx.co.id. The data analysis technique used in this study was descriptive statistics, normality test was carried out using the One Sample Kolmogorov-Smirnov Test (One K-S), and hypothesis testing was carried out using the Wilcoxon Signed Rank Test.

Results and Discussion

Descriptive Statistical Analysis

The following are presented the results of descriptive statistical testing on the variable trading volume activity and stock price closing for fifteen days before and fifteen days after the first case of COVID-19 was identified in Indonesia and fifteen days before and fifteen days after the implementation of the PSBB policy:

Table 1. Descriptive Statistical Analysis Fifteen Days Before and Fifteen Days After the First Case of Covid-19 Was Identified in Indonesia

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TVA_Before	17	.000003064740	.003955883330	.00043111897882	.000955814874063
TVA_After	17	.000001398780	.003886565670	.00066411609529	.001150941295590
Price_Before	17	183.00	6748.00	1694.3529	1700.90064
Price_After	17	146.00	5892.00	1430.2353	1438.44228
Valid N (listwise)	17				

Source: SPSS 25 Processed Data, 2021

Table 2. Descriptive Statistical Analysis Fifteen Days Before and Fifteen Days After the Implementation of the PSBB Policy

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TVA_Before TVA_	17	.000001491120	.006234988600	.00118985986059	.002124937472668
After Price_Before	17	.000011171570	.004470520830	.00063572080235	.001189830480319
Price_After	17	139.00	5276.00	1388.9412	1276.87443
Valid N (listwise)	17	137.00	4958.00	1477.1176	1259.99171
	17				

Normality Test

The normality test is used to determine the normality of distributing research data. If the research data is normally distributed, then hypothesis testing is carried out with a paired sample t test, while if the research data is not distributed normally, then hypothesis testing carry out the Wilcoxon signed rank test. To test the normality of the activity volume trading data and the average closing stock price, the authors used the One Sample Kolmogorov-Smirnov Test normality test. The test results are presented in the following table:

Table 3. Normality Test Fifteen Days Before and Fifteen Days After the First Case of Covid-19 Was Identified in Indonesia

One-Sample Kolmogorov-Smirnov Test

		TVA_Before	TVA_After	Price_ Before	Price_ After
N		17	17	17	17
Normal Parameters[a,b]	Mean	.00043111897882	.00066411609529	1694.3529	1430.2353
	Std. Deviation	.000955814874063	.001150941295590	1700.90064	1438.44228

Most Extreme Differences	Absolute	.327	.371	.223	.221
	Positive	.288	.371	.223	.221
	Negative	-.327	-.282	-.187	-.186
Test Statistic		.327	.371	.223	.221
Asymp. Sig. (2-tailed)		.000[c]	.000[c]	.024[c]	.026[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Source: SPSS 25 Processed Data, 2021

From the above, it is known that the residual value in the variable trading volume activity and closing stock price before and after the first case of COVID-19 was identified in Indonesia to have a value smaller than the significance value of 0.05. Thus, it can be concluded that the trading activity volume and closing stock prices before and after the first case of COVID-19 identified in Indonesia were not distributed normally. Therefore, hypothesis testing will be carried out using the Wilcoxon signed rank test.

Table 4. Normality Test Fifteen Days Before and Fifteen Days After the Implementation of the PSBB Policy

One-Sample Kolmogorov-Smirnov Test

		TVA_Before	**TVA_After**	**Price_Before**	**Price _After**
N		17	17	17	17
Normal Parameters[a,b]	Mean	.00118985986059	.00063572080235	1388.9412	1477.1176
	Std. Deviation	.002124937472668	.001189830480319	1276.87443	1259.99171
Most Extreme Differences	Absolute	.378	.356	.219	.204
	Positive	.378	.356	.219	.204
	Negative	-.288	-.300	-.164	-.144
Test Statistic		.378	.356	.219	.204
Asymp. Sig. (2-tailed)		.000[c]	.000[c]	.029[c]	.059[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Source: SPSS 25 Processed Data, 2021

Based on the table above, it is known that the residual value in the closing stock price variable after the implementation of the PSBB policy has a value greater than the significance value, which is 0.05. It can be concluded that the research data on closing stock prices after the implementation of the PSBB policy is normally distributed. The trading volume activity variable before and after the implementation of the PSBB policy as well as the closing stock price variable before the implementation of the PSBB policy produces a residual value that is smaller than the 0.05 significance value. Thus, it can be concluded that the trading volume activity data before and after the implementation of the PSBB policy as well as the closing stock price data before the implementation of the PSBB policy were not normally distributed. Therefore, hypothesis testing will be carried out using the Wilcoxon signed rank test.

Hypothesis Test

Hypothesis testing was carried out using the Wilcoxon signed rank test because the resulting residual value was abnormal, therefore a paired sample t test was used. Here are the results of hypothesis testing carried out:

Table 5. Test Wilcoxon Signed Rank Test Trading Volume Activity Before and After the First Case of Covid-19 is Identified in Indonesia

	TVA_After - TVA_Before
Z	-1.538[b]
Asymp. Sig. (2-tailed)	.124

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

Source: SPSS 25 Processed Data, 2021

From Table 5, it can be seen that the Z value in the activity volume trading variable is -1.538 with the Value of Asymp.Sig (2-tailed) is 0.124, thus it can be concluded that there is no significant difference between the performance of the JCI in the health sector before and after the first case COVID-19 was identified in Indonesia as measured using trading volume activity.

Table 6. Test Wilcoxon Signed Rank Test Trading Volume Activity Before and After PSBB Policy Enforcement

	TVA_After - TVA_Before
Z	-1.491[b]
Asymp. Sig. (2-tailed)	.136

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Source: SPSS 25 Processed Data, 2021

From Table 6, it is known that the Z value on the trading volume activity variable is -1.491 with the Asymp.Sig (2-tailed) value of 0.136. This shows that there is no significant difference between the JCI performance in the health sector before and after the implementation of the PSBB policy as measured using trading volume activity.

Table 7. Test Wilcoxon Signed Rank Test

Stock Price Closes Before After the First Case of Covid-19 is Identified in Indonesia

Test Statistics

	Price_After - Price_Before
Z	-3.621[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Source: SPSS 25 Processed Data, 2021

Based on Table 7, it can be seen that the Z value in the closing stock price variable is -3.621 with the value of Asymp.Sig (2-tailed) is 0.000. This shows that there is a significant difference between the performance of the JCI in the health sector before and after the first case of COVID-19 was identified in Indonesia as measured by using the closing share price.

Table 8. Test Wilcoxon Signed Rank Test Closing Stock Price Before and After the Implementation of the PSBB Policy

	Price_After - Price_Before
Z	-2.296[b]
Asymp. Sig. (2-tailed)	.022

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

Source: SPSS 25 Processed Data, 2021

Based on Table 8, it can be seen that the Z value of the closing stock price variable is -2.296 with the Asymp.Sig (2-tailed) value being 0.022. This indicates that there is a significant difference between the performance of the JCI in the health sector before and after the implementation of the PSBB policy as measured by the closing stock price.

Conclusion

The results showed that there was no significant difference in the trading volume activity variable before and after the first case of COVID-19 was identified in Indonesia and before and after the implementation of the PSBB policy. Furthermore, on the closing stock price variable, the results of the study show that there are significant differences before and after the first case of COVID-19 was identified in Indonesia and before and after the implementation of the PSBB policy. The average closing stock price in the health sector decreased after the first case of COVID-19 was identified in Indonesia. Thus, it can be concluded that information regarding the first identified COVID-19 case in Indonesia gave a negative reaction to the capital market. Meanwhile, after the implementation of the PSBB policy, the average closing share price in the health sector began to increase. Thus, it can be concluded that information regarding the implementation of the PSBB policy caused a positive reaction in the capital market. The limitation in this study lies in the sample of this study which only focuses on the health sector on the Indonesia Stock Exchange. The advice that the author can give to investors is that investors are expected to not only rely on information about the COVID-19 pandemic as a consideration for investment decisions. It is recommended that investors conduct an analysis first and seek in-depth information about the company's fundamentals before deciding to buy shares.

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