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Share Return and Volume Trading Activity Coal Mining Companies Listed on IDX Before and After the Announcement of Covid 19

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ABSTRACT: *At the beginning of 2020 there was a health problem that shocked the world and had an impact on human life in various fields. This novel coronavirus disease in humans is called Coronavirus Disease (Covid-19) caused by SARS-CoV2 which belongs to the large family of coronaviruses. On January 30, 2020, WHO declared Covid-19 a Public Health Emergency of International Concern (PHEIC). Then President Joko Widodo officially announced the first case of Covid-19 in Indonesia on March 2, 2020.*
The results of the study show that the shares of coal mining companies tend to have a strong tendency to experience turmoil in social events even though over time they are also dragged down by market conditions. The stock returns of coal companies were not significant during the trading period 7 and 14 days before and after the event but began to be significantly affected in the 21- and 28-day periods before and after the event. The trading volume of coal mining shares was significant when the WHO announced the COVID-19 pandemic, but it was not significant when the announcement was made by the President of the Republic of Indonesia. The research time affects the decision on a hypothesis that is taken, in this study the longer the data collection time used, the more significant the effect. The differences in the different test methods used give different hypotheses decision results.
KEY WORD*: Abnormal Return, Trading Volume Activity, Event Study, Different Test, Covid 19*

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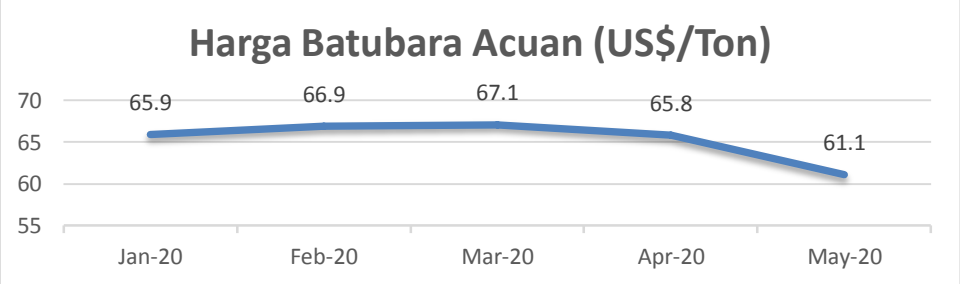
I. INTRODUCTION

The World Health Organization (WHO) on December 31, 2019, stated that there were cluster cases of pneumonia with unclear etiology or origins in Wuhan City, Hubei Province, China. On January 7, 2020, China identified the pneumonia of unknown etiology as a new type of coronavirus (novel coronavirus). NCP (Novel Coronavirus Pandemic) began to become a global pandemic and became a health problem in several countries outside the China and has become a health problem throughout the world. This pandemic continues to grow until there are reports of new deaths and cases outside China. On January 30, 2020, WHO declared Covid-19 a Public Health Emergency of International Concern (PHEIC). On March 2, 2020, the President of the Republic of Indonesia, Joko Widodo, officially announced that the first case of covid 19 had entered Indonesia.

One of the economic sectors that may be affected by the COVID-19 outbreak is the mineral and coal mining business (Syafardi, 2020). In addition to sales volume, pressure on coal demand also resulted in a decline in the four coal price indexes commonly used in world coal trade, namely: the Indonesia Coal Index (ICI), which experienced a 2.66% decline in the average monthly index; the Newcastle Export Index (NEX), which experienced a 0.66% decline in the average monthly index; Platt's 5900, which saw an average monthly index decline of 2.75%; and the Global coal Newcastle Index (GCNC), which experienced a 1.77% decline in the average monthly index. The decline in coal prices from the four world coal price indices will definitely lead to a decrease in the *Harga Batubara Acuan* (HBA) because the HBA value is obtained from the average of the four world coal price indices in the previous month.

Figure 1. *Harga Batubara Acuan* (HBA) 2020



II. LITERATURE REVIEW

2.1 Signal Theory

According to Fahmi (2012: 100), signalling theory is a theory that discusses the ups and downs of prices in the market so that it will have an influence on investor decisions so that information that occurs from the condition of a company's shares always has an effect on investor decisions as the party who catches the signal. This signal is in the form of information about what management has done to realize the owner's wishes. The credit default swap market shows that dealers are exploiting investors' informational advantages (Marsh and Wagner, 2016). Other studies have shown that before earnings announcements, bond trading activity increases due to information asymmetry of new signals (Wei and Zhou, 2016). High frequency changes in the 14th century are correlated with macroeconomic announcements (Bailey et al., 2012) and research models suggest investors react to new market signals (earnings announcements) (Garcia et al., 2014). This study also shows a significant causal effect on financial and aggregate market prices (Dougal et al., 2012) and how management disclosure sends signals that affect investors (Koonce et al., 2016).

2.2 Stock Price

Stocks are the most important and popular capital market instruments. Shares, according to Hamilton (1922), are a form of security that shows the holder has a proportional ownership in the issuing company. Companies sell them to raise funds for the development of their business operations. Stocks are bought and sold primarily on stock exchanges, although there are also private sales, and they are the basis of almost every portfolio (Siegel, 2008). While the IDX (2019) defines shares as a sign of a person's or business entity's capital participation in a company or limited liability company. On the other hand, stocks are an investment instrument that is chosen by many investors because they are able to provide an attractive level of profit.

2.3 Abnormal Return

According to Akbar et al. (2019), abnormal returns are results that are not as expected (abnormal) because there is a summary of the actual results (stock returns) that are different from the expected returns (expected returns). Meanwhile, according to Hartono (2013: 94), abnormal returns are the excess of actual returns (actual returns) over normal returns. Normal returns are expected returns or returns expected by investors. Thus, the abnormal return is the difference between the actual yield that occurs and the expected return.

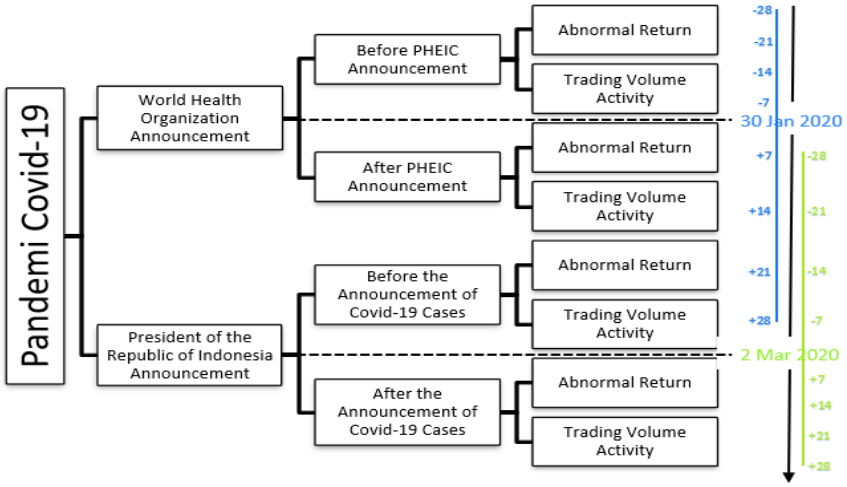
2.4 Trading Volume Activity

Trading Volume Activity is defined as the number of shares traded on a certain day (Halim and Hidayat, 2010). Active trading of a stock, that is, with a large trading volume, indicates that the stock is favoured by investors, which means the stock is trading quickly. There is a possibility that the dealer will change his shareholding position when the stock trades higher or the dealer does not need to hold the stock for too long. Trading volume will lower the cost (stock option contract) of owning the stock, thereby lowering the spread. Thus, the more active the trading of a stock or the greater the trading volume of a stock, the lower the cost of owning the stock, which means it will narrow the bid ask spread of the stock.

2.5 Research Framework

The announcement of the COVID-19 pandemic has attracted the attention of all countries in the world. WHO announced PHEIC on January 30, 2020, then Mr. Ir. H. Joko Widodo as President of the Republic of Indonesia announced the occurrence of the first case of Covid-19 in this country on March 2, 2020. Based on the theory and results of previous research regarding the impact of Covid-19, the researchers conducted research on Covid-19, especially on stock returns and transaction volume of share sales in coal mining companies listed on the IDX with a framework like Figure 2.

Figure 2. Research Framework



2.6 Hypothesis

According to Sugiyono (2017) the hypothesis is a temporary answer to the problem formulation. Because it is still temporary, it is necessary to prove the truth through the empirical data collected. Furthermore, the hypothesis serves to provide limits and reduce the scope of research, to facilitate data collection and processing, to determine the type, number and relationship of research variables, to determine the dependent variables that must be controlled (Narimawati, 2007). the following hypotheses for this study:

Hypothesis 1 (H1): Is there a significant difference in stock returns before and after the announcement of the COVID-19 pandemic PHEIC by WHO in coal mining companies listed on the IDX?

Hypothesis 2 (H2): Is there a significant difference in stock returns before and after the announcement of the first Covid-19 case in Indonesia by the President of the Republic of Indonesia in coal mining companies listed on the IDX?

Hypothesis 3 (H3): Is there a significant difference in stock returns before the announcement of the PHEIC by WHO compared to after the announcement of the first Covid-19 case in Indonesia by the President of the Republic of Indonesia in coal mining companies listed on the IDX?

Hypothesis 4 (H4): Is there a significant difference in the trading volume activity before and after the announcement of the COVID-19 pandemic PHEIC by WHO in coal mining companies listed on the IDX?

Hypothesis 5 (H5): Is there a significant difference in the trading volume activity before and after the announcement of the first Covid-19 case in Indonesia by the President of the Republic of Indonesia in coal mining companies listed on the IDX?

Hypothesis 6 (H6): Is there a significant difference in the trading volume activity before the announcement of the PHEIC by WHO compared to after the announcement of the first Covid-19 case in Indonesia by the President of the Republic of Indonesia in coal mining companies listed on the IDX?

III. METHODOLOGY

The type of data used in this study is secondary data obtained from stocks listed on the Indonesia Stock Exchange (IDX). In this study, the model used to estimate the expected return is a market adjusted model, which is a model that explains that stock returns are influenced by market returns. Companies that meet the sampling criteria using purposive sampling technique are 21 companies with the following criteria:

1. Companies that are sampled are companies that are included in the category of the coal sub-sector mining sector at the time of the announcement of the covid 19 pandemic.
2. During the event period, the companies whose shares are included in the sample category do not carry out stock splits, dividend announcements, mergers, rights issues and other corporate actions during the research time window.

In this study using data obtained from the website https://finance.yahoo.com/. The stock price used is at the time of closing or commonly called the closing price and data used is daily data. Meanwhile, trading volume activity data is taken from the daily share sales transaction volume of mining companies that have been listed the Indonesia Stock Exchange. The data used are 7, 14, 21 & 28 days before and after the announcement of the PHEIC by WHO on January 30, 2020, and 7, 14, 21 & 28 days before and after the announcement of the first Covid-19 case in Indonesia by the President of the Republic of Indonesia on 2 March 2020.

The research design according to Iqbal Hasan (2004:31) is a plan and structure of an investigation that is made in such a way that answers to the questions in the research can be obtained. So that the indicators in this study can be measured clearly and significantly, the authors provide an operational description as follows:

1. Abnormal Return is the difference between the actual return that occurs and the expected return

$$ARi,t = Ri,t – E[Ri,t]$$

ARi,t = Abnormal return of securities I in period t
Ri,t = the actual return of the security I in period t
E[Ri,t] = Expected return of securities I onperiod t

2. Actual Returns are returns that have occurred or been realized and are calculated using historical data

$$Ri,t = (Pi,t - Pi,t-1) / (Pi,t-1)$$

Ri,t = Daily stock return of security i in period t
Pi,t = Daily share price of security i in period t
Pi,t-1 = Daily share price of security i in period t-1

3. Expected Return is the expected return or rate of return using historical data

$$Rmt = (IHSG_t – IHSG_{t-1}) / (IHSG_{t-1})$$

Rmt = Market return of event period t
$IHSG_t$ = Composite Stock Price Index in period t (now)
$IHSG_{t-1}$ = Composite Stock Price Index in period t-1 (previous period)

4. Trading Volume Activity is all shares traded divided by all outstanding shares

$$TVA = (\sum SP) / (\sum SB)$$

TVA = Trading Volume Activity
$\sum SP$ = Number of shares traded
$\sum SB$ = Number of shares outstanding

The data analysis method used is the t-test analysis model and in processing the data in this study using SPSS 26 software. First, after the collected data will be analysed in stages through descriptive statistics, then statistical testing is carried out through the normal distribution test using the Kolmogorov-Smirnov test. Furthermore, testing the hypothesis of each research variable using the paired sample t-test if the data collected is normally distributed and the Wilcoxon Signed Rank analysis test model if the data is not normally distributed.

Hinkle, et al. (1979) said that the statistical technique of analysis of variance is robust against unfulfilled assumptions or assumption violations, except in cases of unequal sample size and variance. Anderson (cited by Kerlinger and Pedhazur, 1973) states that the T test and F test have proven themselves to be strong and robust statistics. Therefore, ignoring the assumptions underlying the two statistical tests will not have much effect on the conclusions of the study. Based on the explanation above, hypothesis testing will be carried out in 2 ways, namely the Wilcoxon Signed Rank Test because the data is not normally distributed and the Pair-sample T-test on the basis of Kerlinger and Pedhazur research where the amount of data being tested is large. A large number of researchers assume that if the number of sample data is more than 30, then the data is normally distributed. An explanation of the testing stages is presented as follows:

1. Descriptive analysis test is to analysis is carried out when all data has been collected by describing the data as it is without drawing inference or without making generally accepted conclusions. The function of descriptive statistics is to provide a description or description of a data seen from the average value (mean), standard deviation, variance, maximum, minimum, sum, range, kurtosis and skewness (distribution of distribution).
2. Normality test using the Kolmogorov-Smirnov test because this test is more sensitive to detect normality than the graph method. The sample is normally distributed if the asymptotic sig > the confidence level used in this test is 95% or = 5%. On the other hand, it is said to be abnormal if the asymptotic sig < confidence level = 5%.
3. Hypothesis testing which in this study uses paired sample t-test if the data is normally distributed and Wilcoxon Signed Rank analysis if the data is not normally distributed, to analyse differences in abnormal returns and trading volume activity before and after the announcement of the Covid-19.
4. Hypothesis testing using the results of the different tests carried out will then draw conclusions on the hypothesis whether there are differences in abnormal returns and trading volume activity.

IV. RESEARCH RESULT AND DISCUSSION

4.1 Abnormal Return of WHO Announcement

After carrying out a descriptive test and then continuing the Kolmogorov-Smirnov normality test in both periods of abnormal return, both before and after the announcement by WHO, it is known that all values are the same. From the calculation, it is known that all periods and timescales of data measurement are carried out to obtain Asymp results. Sig. (2-tailed) is 0.000. which means that it is below the 0.05 confidence scale so that the data is not normally distributed and then the hypothesis test is carried out by using the non-parametric

Wilcoxon signed rank test. but because the amount of data being tested is large, namely H7 = 105, H14 = 210, H 21 = 315 and H28 = 420 data, a paired t test is carried out and compares the two results as shown in table 1.

Table 1. Hypothesis Test 1 (H1)

	Wilcoxon Signed Ranks Test		*Paired Samples T Test*	
	Asymp. Sig. (2-tailed)	Hypothesis	*Sig. (2-tailed)*	Hypothesis
AR WHO 7	,684	Not significant	,674	Not significant
AR WHO 14	,064	Not significant	,776	Not significant
AR WHO 21	,016	Significant	,571	Not significant
AR WHO 28	,039	Significant	,701	Not significant

Source: Data Processing Results (2021)

The results of the H1 hypothesis test can be seen in table 1 where from the table it can be seen that the abnormal return when the WHO announcement was made did not occur significantly. There are significant indications in the 21- & 28-day period using the Wilcoxon Signed Ranks Test method, this is because the test base refers more to nonparametric differences in the number of positive and negative data values used in the testing process. The longer the time used for testing, the more significant the results will be.

4.2 Abnormal Return of President Republic of Indonesia Announcement

From the Kolmogorov-Smirnov normality test, it is known that the results for all test periods get the Asymp value. Sig. (2-tailed) is 0.000. The K-S test value below 0.05 is considered as data that is not normally distributed, so for testing the hypothesis using the nonparametric Wilcoxon Signed Ranks Test. the data that has been tested for normality is then carried out with a different test to be able to determine the hypothesis.

Table 2. Hypothesis Test 2 (H2)

	Wilcoxon Signed Ranks Test		*Paired Samples T Test*	
	Asymp. Sig. (2-tailed)	Hypothesis	*Sig. (2-tailed)*	Hypothesis
AR President RI 7	,422	Not significant	,150	Not significant
AR President RI 14	,831	Not significant	,578	Not significant
AR President RI 21	,041	Significant	,026	Significant
AR President RI 28	,070	Not significant	,037	Significant

Source: Data Processing Results (2021)

The H2 hypothesis regarding the return of coal mining stocks listed on the IDX during the announcement of the COVID-19 pandemic by the President of the Republic of Indonesia can be seen in table 2. From the table it is known that in the Wilcoxon Signed Ranks Test all periods rejected H0 and accepted H2 where there was no difference. significant at the time of the event. Meanwhile, in the Paired Samples T Test for a period of 21 and 28 days, there was a significant difference in the stock returns of coal mining companies listed on the IDX during the announcement of the COVID-19 pandemic by the President of the Republic of Indonesia.

4.3 Abnormal Return Before WHO - After President Republic of Indonesia Announcement

After conducting the Kolmogorov-Smirnov normality test to determine the level of normality of data distribution before the announcement of the WHO and after the announcement of the President of the Republic of Indonesia. From the results of calculations both before the announcement of WHO and after the announcement of President RI, it is known that the Asymp value. Sig. (2-tailed) are all 0.000 for the tested data periods of 7, 14, 21 and 28 days. These results mean that the data is not normally distributed, and the test is continued with the Wilcoxon Signed Ranks Test nonparametric test method.

Table 3. Hypothesis Test 3 (H3)

	Wilcoxon Signed Ranks Test		*Paired Samples T Test*	
	Asymp. Sig. (2-tailed)	Hypothesis	*Sig. (2-tailed)*	Hypothesis
AR WHO & President RI 7	,067	Not significant	,087	Not significant
AR WHO & President RI 14	,027	Significant	,080	Not significant
AR WHO & President RI 21	,000	Significant	,001	Significant
AR WHO & President RI 28	,015	Significant	,021	Significant

Source: Data Processing Results (2021)

Testing the H3 hypothesis compares 2 similar events in the near future, namely when the WHO and the President of the Republic of Indonesia announced the COVID-19 announcement. From table 3, it is known that the Wilcoxon Signed Ranks Test for a period of 7 days rejected H0 and accepted H3 where there was no significant difference from the event and vice versa during the 14-, 21- and 28-day periods there was a

significant difference. While the Paired Samples T Test rejected H0 and accepted H3 during the 7- and 14-day periods and the opposite happened during the 21- and 28-day periods where there was a significant difference for abnormal returns of coal mining companies listed on the IDX at the time of the COVID-19 announcement by WHO compared to with the announcement of the President of the Republic of Indonesia.

4.4 Trading Volume Activity of WHO Announcement

Conducted the Kolmogorov-Smirnov normality test for stock trading volume data before and after the announcement of COVID-19 by the WHO. From this test, it is known that the normality test value for all test periods both before and after the announcement is 0.000, which means that the data is not normally distributed. Furthermore, to test the hypothesis of data that are not normally distributed, it can be done using the nonparametric Wilcoxon Signed Ranks Test.

Table 4. Hypothesis Test 4 (H4)

	Wilcoxon Signed Ranks Test		*Paired Samples T Test*	
	Asymp. Sig. (2-tailed)	Hypothesis	*Sig. (2-tailed)*	Hypothesis
TVA WHO 7	,075	Not significant	,031	Significant
TVA WHO 14	,001	Significant	,003	Significant
TVA WHO 21	,000	Significant	,000	Significant
TVA WHO 28	,000	Significant	,000	Significant

Source: Data Processing Results (2021)

The results of the H4 hypothesis test can be seen in table 4, in the table it can be seen that there is a significant difference for the trading volume activities of coal mining companies listed on the IDX. In the Wilcoxon Signed Ranks Test, it can be seen that in the 7-day period of events there is still no significant difference so that H0 is accepted and H4 is rejected, but in the 14, 21 and 28-day periods the hypothesis H0 is rejected and H4 is accepted. Furthermore, if you look at the results of the Paired Samples T Test, all test periods state that the hypothesis H0 is rejected and H4 is accepted, which means that there is a significant difference in trading volume activity during the announcement of the COVID-19 pandemic by WHO.

4.5 Trading Volume Activity of President Republic of Indonesia Announcement

Conducting the Kolmogorov-Smirnov normality test on stock trading volume activities before and after the announcement of the COVID-19 pandemic by the President of the Republic of Indonesia. From table 5.19 it can be seen that the results of the normality test for the period 7, 14, 21 and 28 days before and after the event. It can be seen from all the periods carried out, the Asymp value. Sig. (2-tailed) shows the result of 0.000 which is below the threshold value set at 0.05, which means that the data is not normally distributed. So for testing the hypothesis that data that are not normally distributed can use the nonparametric Wilcoxon Signed Ranks Test.

Table 5. Hypothesis Test 5 (H5)

	Wilcoxon Signed Ranks Test		*Paired Samples T Test*	
	Asymp. Sig. (2-tailed)	Hypothesis	*Sig. (2-tailed)*	Hypothesis
TVA President RI 7	,704	Not significant	,056	Not significant
TVA President RI 14	,819	Not significant	,082	Not significant
TVA President RI 21	,494	Not significant	,084	Not significant
TVA President RI 28	,226	Not significant	,085	Not significant

Source: Data Processing Results (2021)

The results of testing the H5 hypothesis in table 5 are regarding the trading volume activities of coal mining companies when the announcement of the COVID-19 pandemic was made by the president of the Republic of Indonesia, which can be seen in. From the table, we can see that the two test methods used, namely the Wilcoxon Signed Ranks Test and the Paired Samples T Test, show that the significance value is below 0.05, which means rejecting H0 and accepting H5. The four periods tested, namely 7, 14, 21 and 28 days showed that there was no significant difference in trading volume activity between before and after the announcement of the COVID-19 pandemic by the President of the Republic of Indonesia.

4.6 Trading Volume Activity Before WHO - After President Republic of Indonesia Announcement

Perform data normality test to be able to determine the method used in conducting hypothesis testing. Normality test using the Kolmogorov-Smirnov method with the amount of data for each period is 105, 210, 315 and 420 data. Based on the calculation results, it is known that all periods worth 0.000 are below the set standard, namely 0.05, which means that the data is not normally distributed. For data that are not normally distributed, the next test method uses the Wilcoxon Signed Ranks Test

Table 6. Hypothesis Test 6 (H6)

	Wilcoxon Signed Ranks Test		*Paired Samples T Test*	
	Asymp. Sig. (2-tailed)	Hypothesis	*Sig. (2-tailed)*	Hypothesis
TVA WHO & President RI 7	,417	Not significant	,505	Not significant
TVA WHO & President RI 14	,024	Significant	,095	Not significant
TVA WHO & President RI 21	,000	Significant	,005	Significant
TVA WHO & President RI 28	,017	Significant	,004	Significant

Source: Data Processing Results (2021)

The event in hypothesis H6 is a combination of two events, namely the comparison before the announcement of the COVID-19 pandemic by the WHO and after the announcement of the COVID-19 pandemic by the President of the Republic of Indonesia. In table 6 it can be seen that the test results for hypothesis H6 where when using the Wilcoxon Signed Ranks Test method in the 7-day period H0 is rejected and H6 is accepted, which means that the difference in trading volume activity is not significant, while in the 14-, 21- and 28-day periods the opposite occurs. Furthermore, for the Paired Samples T Test method in the 7- and 14-day period of testing the accepted hypothesis, the difference is not significant, while in the 21- and 28-day period the accepted hypothesis is that there is a significant difference before and after the event.

V. CONCLUSIONS

Based on the data analysis and discussion previously described regarding stock returns and trading volume activities of coal mining companies listed on the IDX before and after the announcement of the PHEIC from WHO and announcement first case covid 19 in Indonesia by President of the Republic of Indonesia, the following conclusions were drawn:

1. Abnormal returns of coal mining companies do not occur immediately during the announcement of the COVID-19 pandemic, shares of coal mining companies tend to be strongly affected by social events, although over time they are dragged along by market conditions.
2. The stock returns of coal companies were not significant during the trading period 7 and 14 days before and after the event but began to be significantly affected in the 21- and 28-day periods before and after the event.
3. Coal mining stock trading volume activity occurred significantly when the WHO announced the COVID-19 pandemic, it is estimated that this happened because there was another phenomenon that also influenced the January effect.
4. Coal mining stock trading volume activity did not occur significantly when the COVID-19 pandemic announcement was made by the President of the Republic of Indonesia, this seems to have happened because when the incident occurred the reference price for coal was increasing so investors preferred to wait for the situation before making a decision to trade their shares.
5. Stock returns and trading volume activities Coal mining companies' shares did not immediately have a significant impact when the WHO announced the COVID-19 pandemic, but the prolonged impact of the COVID-19 pandemic made market conditions generally decline until after the Indonesian president announced the official COVID-19 pandemic. enter Indonesia for the first time
6. The research time period affects the decision on a hypothesis taken, in this study the longer the data collection time used, the more significant the effect.
7. The difference in the different test methods used gives different results for the hypothesis, this is because each test method has a different calculation character.

VI. SUGGESTIONS

Based on the assessment and analysis carried out above, there are several suggestions that can be given, namely as follows:

1. The research time period needs to be considered because it is very influential on the hypothesis decisions taken
2. For further researchers who will conduct research with the same theme, it is recommended to take more variables with an appropriate observation time span in order to improve the quality and accuracy of the research results.
3. Investors are advised not to make the phenomenon of an event such as the announcement of covid 19 the only main guideline for investment decisions, so that investors can make more informed decisions regarding their investments.

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