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Effects of the Announcement of the Covid-19 Status Change on Stock Prices in the LQ45 Index of the Indonesia Stock Exchange in the Period of February - August 2020

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Abstract

This study aims to show the response of the stock price before and after the announcement of the Covid-19 status change from endemic to pandemic by WHO on March 12th, 2020. This research can be measured using abnormal returns and trading volume activity with the event study approach. The samples in this study are the shares of the LQ45 index issuers in the period of February 2020 - July 2020 selected using purposive sampling technique. In this study, the period used was 5 days before the announcement, 1 day at the time of the announcement, and 5 days after the announcement. The results of this study show that there was no significant difference on abnormal returns before and after the announcement of the Covid-19 status change towards the LQ45 stock index. Furthermore, there was no significant difference on trading volume activity before and after the announcement of the Covid-19 status change towards the LQ45 stock index.

Keywords
covid-19 pandemic; abnormal return; trading volume activity; event study; stock price

I. Introduction

At the end of 2019, there was an outbreak of a new disease called the 2019-nCov corona virus. The corona virus is a type of virus that has been identified as the cause of respiratory tract disease, which was first detected in the city of Wuhan, China. The corona virus is thought to have spread from animals to humans, then from humans to humans. The corona virus is a family with viruses such as SARS and MERS. Symptoms experienced by humans when exposed to the corona virus are fever, respiratory problems, coughs, colds, sore throat, fatigue, and lethargy. The most critical condition for being exposed to the corona virus is that the body temperature can increase dramatically by more than 38℃. On March 12th, 2020, the World Health Organization (WHO) announced that change of the corona virus from epidemic to pandemic status. According to the health minister in Indonesia, the corona virus first entered Indonesia on February 14, 2020, through foreigners from Japan. The infected patients are two people from Depok City. The patient is being treated at RSPI Sulianti Saroso. Because the spread of the corona virus is very fast, every day after there are Indonesian citizens who are infected, the number infected with the corona virus always increases every day.

The corona virus is an unexpected pandemic event which has caused a reaction to the capital market in Indonesia. As a result of the announcement, the JCI fell by 5.01% to the level of 4,895.75. Several shares of large companies included in the LQ45 index also recorded a decline. Events that affect the capital market in principle contain information. The information absorbed by the market will be used by investors to determine their

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investment decisions, so that investors will strive to obtain complete and accurate information (Suganda, 2018). If the study involves the speed at which the market reacts to absorbing information, it is called the efficiency testing of the semi-strong form market (Sunaryo, 2019). In the semi-strong form market, there is an event study methodology that can be used to test the efficiency of the semi-strong form market.

Therefore, if the announcement contains information, the market will react to the announcement received. This is because an efficient market will react quickly to information related to phenomena. This market reaction can be measured using abnormal returns. In addition to observing abnormal returns, market reactions can also be observed through stock trading volume activity as seen from the value of stock trading volume or trading volume activity.

II. Review of Literature

This literature review refers to previous research from various international and national countries. The equation in the variables studied is the condition of Covid-19 which is associated with the capital market. With this literature review, it helps to see that existing research becomes a reference that can help carry out research. This literature review took the reference of previous research as many as 8 researchs. The research was 5 international journals and 3 national journals. In international journals, the research taken is the journal of Senol and Zeren (2020) whose research examines the global market, one of which takes the Morgan Stanley Capital International (MSCI) index. The results of the study stated that the MSCI Index has a long-term relationship with Covid-19. The second research taken is the Khanthavit study (2020) this research examines several countries, namely France, Germany, Italy, Spain, UK, US, China, Philippines, and Thailand.

The study found significant negative reactions to Covid-19. The third research that was taken was the research of Khan et al. (2020) which has a research objective to determine the impact of the Covid-19 pandemic on the stock markets of sixteen countries. The research revealed that investors in these countries did not react to media news about Covid-19 in the early stages of the pandemic. However, once human-to-human transmission has been confirmed, all stock market indices react negatively to news in the short and long event windows. The fourth study by Heyden and Heyden (2020) which aims to study the short-term market reaction of US and European stocks during the start of the Covid-19 pandemic. The study found that the stock market reacted significantly negatively to the announcement of the first death in a given country. The fifth study, namely He et al. (2020) whose research has the aim of empirically studying the market performance and trends of the Chinese industry's response to the Covid-19 pandemic.

III. Research Method

This study uses a quantitative research method with the event study approach. Event studies investigate the market's response to the information content of an announcement or publication of a particular event (Tandelilin, 2010). Based on the goals of this research can be said as descriptive research. Based on the research strategy, this research uses a case study research strategy. According to Sekaran and Bougie (2016: 98), case studies focus on gathering information about a particular object, event, or activity, such as a particular business unit or organization. Based on the unit of analysis, this study uses an organizational analysis unit because it examines companies including LQ45 listed on the Indonesia Stock Exchange. Based on the implementation time, in this study the

implementation time was longitudinal. According to Sekaran and Bougie (2016:105) longitudinal research that is wants to study phenomena at more than one time to answer research questions such as before and after.

The variables used to measure the response of the capital market in this study are abnormal return and trading volume activity. The abnormal return uses an adjusted market model. Therefore, there is no need to use an estimation period to form an estimation model, because the estimated security return is the same as the market index return (Hartono, 2017: 667).

In this study, the stages of research start from identifying events, determining the research period, determining the research sample, collecting data, formulating hypotheses, analyzing data, and drawing conclusions. The research period was 11 days, divided into 5 days before the event, 5 days after the event, and 1 day at the time of the event. The population in this study include the companies included in the LQ45 index listed on the Indonesia Stock Exchange in the period of February 2020 - July 2020. Purposive sampling technique is used with the criteria of companies that do not carry out corporate actions during the study period. The sample obtained is 45 companies included in the LQ45 index for the period of February 2020 - July 2020. This study uses secondary data by taking data sources from Yahoo Finance and IDX. There are 2 hypotheses in this study, (H1) there is a significant difference in abnormal returns before and after the announcement of the change in the status of Covid-19 from an epidemic to a pandemic by WHO on the LQ45 stock index. For (H2), there is a significant difference in trading volume activity before and after the announcement of the COVID-19 status change from an epidemic to a pandemic by WHO on the LQ45 stock index. At the data analysis stage, this research stage performs data analysis by calculating actual returns, calculating expected returns, calculating abnormal returns, calculating trading volume activity, conducting normality tests using the Kolomogorov Smirnov test, and testing hypotheses using the Paired Sample t-test if the data is normally distributed or use the Wilocoxon Signed Rank Test if the data is not normally distributed.

IV. Result and Discussion

4.1Abnormal Return

To get the abnormal return, it is necessary to calculate the actual return and expected return first. In this study, using the market adjusted model. The following is an example of calculating abnormal returns at PT Aneka Tambang Tbk. two days before (t-2) the announcement of the COVID-19 pandemic status by WHO.

a. Actual Return

$$Ri,t = \frac{(Pi,t - Pi,t-1)}{Pi,t-1}$$

$$Ri,t = \frac{(575 - 555)}{555}$$

$$Ri,t = 0{,}036036$$

Actual return that occurs two days before (t-2) the announcement event is 0.036036. This means that return obtained by investors based on historical data calculations two days before (t-2) the announcement event is 0.036036.

b. Expected Return

$$Rm,t = \frac{(\text{IHSG t} - \text{IHSG t} - 1)}{\text{IHSG t} - 1}$$

$$Rm,t = \frac{(5220{,}83 - 5136{,}81)}{5136{,}81}$$

$$Rm,t = 0{,}016356$$

Expected return obtained two days before (t-2) the event is 0.016356. This means that return expected by investors two days before (t-2) the event at the PT Aneka Tambang Tbk company is 0.016356.

c. Abnormal Return

$$ARi,t = Ri,t - Rm,t$$

$$ARi,t = 0{,}0360356 - 0{,}016356$$

$$ARi,t = 0{,}01968$$

Based on the results of the calculations that have been carried out, the abnormal return of 0.01968 in the shares of PT. Aneka Tambang Tbk. two days before (t-2) the announcement of the COVID-19 pandemic status by WHO. It can be interpreted that the shares of PT. Aneka Tambang Tbk. Experiencing an excess return of 0.01968 than the expected return two days before the event (t-2).

4.2 Trading Volume Activity

The following is an example of calculating trading volume activity at the company PT Aneka Tambang Tbk. two days before (t-2) the announcement of the COVID-19 pandemic status by WHO.

$$TVA = \frac{\sum \text{company shares } j \text{ traded at the time } t}{\sum \text{ the company shares } j \text{ outstanding at the time } t}$$

$$TVA = \frac{76.294.500}{24.030.764..725}$$

$$TVA = 0.003174868$$

Based on the results of calculations that have been carried out, the value of trading volume activity is 0.003174868 in PT. Aneka Tambang Tbk. two days before (t-2) the announcement of the COVID-19 pandemic status by WHO. It can be interpreted that the ratio between the number of shares traded at a certain time with the shares outstanding at a certain time in the shares of PT. Aneka Tambang Tbk. of 0.003174868.

4.3 Statistik Deskriptif Abnormal Return

Descriptive statistical results of abnormal returns on LQ45 index stocks in the research period 5 days before and 5 days after (05 March 2020 – 19 March 2020) the announcement of the status change to a Covid-19 pandemic by WHO can be seen in table 1.

Table 1. Descriptive Statistics Abnormal Return LQ45 Index Return Before and After Announcement of Changes in Covid-19 Status by WHO

Day	N	Minimum	Maximum	Mean	Std. Deviation
T-5	45	-0.06952	0.04527	-0.0057653	0.01954651
T-4	45	-0.05251	0.03215	-0.0096742	0.01939087
T-3	45	-0.10970	0.02127	-0.0281616	0.02948188
T-2	45	-0.06574	0.09302	0.0032349	0.02936995
T-1	45	-0.08399	0.04095	-0.0200631	0.03190559
T+1	45	-0.06849	0.22664	-0.0066900	0.05204085

T+2	45	-0.02580	0.01681	-0.0210004	0.00799272
T+3	45	-0.02007	0.10250	-0.0112364	0.02316814
T+4	45	-0.04136	0.07854	-0.0230431	0.02604570
T+5	45	-0.01799	0.15139	-0.0082769	0.03169015

4.4 Statistik Deskriptif Trading Volume Activity

Descriptive statistical results of trading volume activity on LQ45 index stocks in the research period 5 days before and 5 days after (05 March 2020 – 19 March 2020) the announcement of the status change to a Covid-19 pandemic by WHO can be seen in table 2.

Table 2. Descriptive Statistics Trading Volume Activity LQ45 Index Return Before and After Announcement of Changes in Covid-19 Status by WHO

Days	N	Minimum	Maximum	Mean	Std. Deviation
T-5	45	0.0002425	0.0132455	0.001539440	0.0020777625
T-4	45	0.0002506	0.0066479	0.001204099	0.0011763106
T-3	45	0.0003824	0.0060810	0.001863190	0.0014215998
T-2	45	0.0003884	0.0088200	0.002079409	0.0018744922
T-1	45	0.0003525	0.0103274	0.002093882	0.0021300568
T+1	45	0.0005050	0.0125390	0.002893192	0.0025258183
T+2	45	0.0000772	0.0061582	0.001328206	0.0010986835
T+3	45	0.0001679	0.0073968	0.001661930	0.0014084923
T+4	45	0.0002374	0.0058117	0.001842084	0.0012502676
T+5	45	0.0000326	0.0046115	0.001077280	0.0011366531

4.5 Normality Test

The results of the normality test for abnormal returns and trading volume activity using the Kolmogorov-Smirnov test during the test period are as follows:

Table 3. Results of Normality Test for Kolmogorov-Smirnov Average Abnormal Return and Trading Volume Activity Before and After the Event

		Abnormal Return Before	Abnormal Return After	Trading Volume Activity Before	Trading Volume Activity After
N		5	5	5	5
Normal Parameters[a,b]	Mean	-.012085867	.001756004	.001760538	-.014049378
	Std. Deviation	.012273 4973	.000381 3595	.000698 7544	.007493 3174
Most Extreme Differences	Absolute	.178	.211	.254	.246
	Positive	.142	.188	.254	.223
	Negative	-.178	-.211	-.164	-.246
Test Statistic		.178	.246	.211	.254
Asymp. Sig. (2-tailed)		.200[c,d]	.200[c,d]	.200[c,d]	.200[c,d]

Table 3 shows that the abnormal return and trading volume activity, in the period before and after the announcement of the Covid-19 status change from epidemic to pandemic by WHO, have a significance value for abnormal returns before and after the event, both of which get the same results as the Asymp. Sig (2-tailed) value is 0.200. Furthermore, the significance value for trading volume activity before and after the event got the same result as the Asymp. Sig (2-tailed) value, i.e., 0.200.

The normality test criteria are if the Asymp (2-tailed) value is greater than 0.05, the data is normally distributed, whereas if the Asymp (2-tailed) value is less than 0.05, the data is not normally distributed. Based on these criteria, the abnormal return and trading volume activity before and after the event were normally distributed. This can be seen in the significance value of both abnormal return and trading volume activity before and after the event showed the same result, i.e., 0.200.

4.6 Paired Sample T-Test

The results of hypothesis 1 testing (abnormal return) and hypothesis testing 2 (trading volume activity) using the paired sample t-test during the testing period are as follows:

Table 4. Results of Paired Sample T-Test Hypothesis 1

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Before - After	.0019635110	.0175054932	.0078286945	-.0197724297	.0236994517	.251	4	0.814

Table 4 shows that there was no significant difference in abnormal returns before and after the Covid-19 status change from epidemic to pandemic by WHO. This is because the paired sample t-test result was the Asymp. Sig (2-tailed) of 0.814, which is greater than the significance level of 0.05. Based on the results of the paired sample t-test, hypothesis 1 (H1) is rejected and hypothesis 0 (H0) is accepted.

Table 5. Results of Paired Sample T-Test Hypothesis 2

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Before - After	-.00000453	.0008629	.0003859	-.0010759	.0010669	-.012	4	0.991

Table 5 shows that there was no significant difference in trading volume activity before and after the Covid-19 status change from epidemic to pandemic by WHO. This is because the paired sample t-test result was the Asymp. Sig (2-tailed) of 0.991, which is greater than the significance level of 0.05. Based on the results of the paired sample t-test, hypothesis 2 (H2) is rejected and hypothesis 0 (H0) is accepted.

4.7 Discussion

The results of the abnormal return hypothesis test using the paired sample t-test method show that there was no significant difference in abnormal returns before and after the announcement of the Covid-19 status change from epidemic to pandemic by WHO on the LQ45 stock index. This study is in line with the research by Agustiawan and Sujana (2020) and Irmayani (2020), which showed that there was no significant difference in abnormal returns during the announcement of the emergency status of the Covid-19 pandemic. Since there was no significant difference in abnormal returns, this means that this event did not contain information or was not strong and informative enough to influence investors who invested in the LQ45 stock index. In the semi-strong efficiency market hypothesis, it was efficient because the efficiency of a semi-strong form market is proven when there are only one or two events that are proven to produce abnormal returns. Efficiency by decision is proven if the sign (positive or negative) or the amount of abnormal return is in accordance with the theory's predictions (Tandelilin, 2010).

Furthermore, the results of the trading volume activity hypothesis test using the paired sample t-test method show that there was no significant difference in trading volume activity before and after the announcement of the Covid-19 status change from epidemic to pandemic by WHO on the LQ45 stock index. This research is in line with the research by Agustiawan and Sujana (2020) and Rori et al. (2020), stating that there was no significant difference in trading volume activity before and after the announcement of the Covid-19 emergency status and the announcement of the large-scale social restrictions. In this study, the average results of the trading volume activity have increased quite a bit before and after the event. Before the event, the average trading volume activity was 0.001756004; while after the event, the average trading volume activity increased by 0.001760538. It can be seen from the average value of trading volume activity that buying and selling activities were carried out mostly after the announcement of the Covid-19 status change from epidemic to pandemic by WHO.

V. Conclusion

1. The lowest average abnormal return value occurred three days before the event of the Covid-19 status change from epidemic to pandemic by WHO (t-3), while the highest average abnormal return value occurred two days before the event (t-2). Furthermore, the lowest average abnormal return value occurred four days after the event of the Covid-19 status change from epidemic to pandemic by WHO (t + 4), while the highest average abnormal return value occurred one day after the event (t +1). The lowest average trading volume activity value occurred four days before the event of the Covid-19 status change from epidemic to pandemic by WHO (t-4), while the highest average trading volume activity occurred one day before the event (t-1). Furthermore, the lowest average trading volume activity value occurred five days after the event of the after the Covid-19 status change from epidemic to pandemic by WHO (t + 5), while the highest average trading volume activity value occurred one day after the event (t + 1).
2. There was no significant difference on the Abnormal Return before and after the announcement of the Covid-19 status change towards the LQ45 stock index listed on the Indonesia Stock Exchange for the period of February 2020 - July 2020.
3. There was no significant difference on Trading Volume Activity before and after the announcement of the Covid-19 status change towards the LQ45 stock index listed on the Indonesia Stock Exchange for the period of February 2020 - July 2020.

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