LQ45 STOCK INDEX ABNORMAL RETURN REACTION TO THE COVID-19 PANDEMIC: THE EVENT STUDY METHODOLOGY

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Abstract

LQ45 Index stocks are liquid stocks with a high market capitalization, high trading frequency, growth prospects, and fairly good financial conditions, which are not volatile and have been objectively selected by the IDX. The research aims to determine the abnormal return of LQ45 Stock Index to the Covid-19 pandemic. It uses even study method with population consisted entirely of daily data from the ten most populous cities in the United States. The result of this study shows that there are significant differences in abnormal returns before and after the announcement of the Covid-19 pandemic by WHO. The announcement of this pandemic is responded to as a negative signal by investors so that information regarding the announcement of the Covid-19 pandemic by the WHO is responded to early and at the time of launching the information no longer had any effect because the prices had moved towards equilibrium. The future research extending the research time period and include other external factors such as lockdown policies or inflation is needed as the limitation of research.

Keywords: LQ45 Stock Index, Abnormal Return, Covid-19, Even Study Method

INTRODUCTION

The Indonesia Stock Exchange (IDX) has several stock indices that have been a reference for potential investors. The stock index is a method to measure the movement of a group of stocks as a whole on stocks with certain criteria, generally used by investors as an indicator in seeing the movement of the stock exchange and a benchmark for assessing investment performance related to stocks (Bakri Katti, 2018). One of the stock indexes of IDX is LQ45 Index stocks.

LQ45 Index stocks are liquid stocks with high market capitalization, have a high trading frequency, growth prospects, and fairly good financial conditions, which are not volatile and have been objectively selected by the IDX, and are safe stocks to own because the fundamentals of the stock's performance are good. In addition, in terms of group risk, LQ45 shares have the lowest risk compared to other stocks (Caroline et al., 2017). Price fluctuations in the LQ45 stock group tend to be smooth which makes the return from capital gains not as high as in the stock group experiencing significant price fluctuations. The characteristics of the LQ45 stock can represent the performance of stock portfolio, where the portfolio performance assessment is viewed from two sides, namely returns and risks. Although it is filled with 45 shares of companies that have many advantages when compared to the shares of other companies, LQ45 also does not escape the rise and fall of returns (Pratiwi & Heriyanto, 2017).

During the Covid-19 outbreak, domestic stock prices fell significantly, including LQ45. After the entry of covid-19 in Indonesia in February 2020, several stocks that are members of LQ45 was decreased by 15% (Mujib & Candraningrat, 2021). It clearly had an impact on the Indonesian economy which affected stock trading in Indonesia; it affected investor reactions and also the market situation on the Indonesian Stock Exchange as a whole (Khoiriah et al., 2020).

The LQ45 index is the stock with the largest number of transactions on the Indonesia Stock Exchange, so that overall changes or investor reactions to an economic, social or political event are more visible in the LQ45 index stock (Harsa Pradana, 2015). The LQ45 index can experience different kinds of abnormal return whether it is positive and negative (Sukadarma, 2021). Investors need to consider the abnormal return to decide when they need to invest in the capital market. The capital market is said to be efficient if

none of the market participants experience abnormal returns in a fairly long period of time (Priyono, 2021).

The capital market is a place for companies to sell shares or issue bonds to increase their long-term needs (Yogiswari & Badera, 2019). In the economy of a country, the capital market has a fairly important role, two functions at once, namely the economic function and the financial function. The capital market is said to have an economic function because the market provides facilities or vehicles that bring together two interests which are those who have excess funds (investors) and those who need funds (issuers).

The capital market is said to have a financial function because it provides the possibility and opportunity to get a return for the owner of the funds according to the characteristics of the chosen investment (Hatmanti & Sudibyo, 2017). The more important the role of the capital market in the economy of a country, the more sensitive the capital market is to various things that affect it; one of which is information. An event can cause the market to react upon receiving information from the event.

The Covid-19 pandemic that has hit the whole world has affected stock price movements on the Indonesia Stock Exchange (IDX). Based on the exposure of large-scale social restrictions in Jakarta during the Covid-19 pandemic, it has the potential to cause a market reaction on the Indonesia Stock Exchange (IDX), the market reaction can be on stock prices, trading volume or stock returns. The research aims to determine the abnormal return of LQ45 Stock Index to the Covid-19 pandemic using the even study method.

REVIEW OF LITERATURE

LQ45

LQ45 index is a collection of 45 liquid stocks. The LQ45 index describes the decline and increase in stock prices at a certain time. This type of stock index is an alternative stock index other than the JCI. Apart from being a complement to the JCI, the purpose of the LQ45 index is to make it an objective, reliable tool for financial analysts, investment managers and investors in monitoring the movement of stock prices on the IDX (Senata, 2016).

Abnormal Return

Investment return is the result obtained from an investment, realized return is the return that has occurred which is calculated based on historical data. It realized return is important in measuring company performance and as a basis for determining future returns and risks (Senata, 2016). In investing, investors are faced with uncertainty between the returns that will be obtained and the risks that will be faced. The greater the expected return will be obtained with the risk it will face, the greater the risk (Thaharah & Asyik, 2016). Therefore, it can be said that the expected return has a positive relationship with risk. Higher risk is usually correlated with opportunities to get higher returns, but high returns do not always have to be accompanied by risky investments (Sihotang & Mekel, 2015).

Abnormal return is useful to see how much influence an event has on the price of a stock. Abnormal returns can be positive or negative (Purba, 2017). If there are no events, the actual return tends to be no different from the expected return; but on the contrary, if there is an event that is likely to cause changes in cash flows in the future, the market will react to the announcement; thus, the actual return will be different from the expected return (Kusdarmawan & Abundanti, 2018)

Trade Volume Activity

Zhang and Wang, (2015) stated that in addition to stock prices, one other indicator that attracts investors' attention in stock trading is trading activity. Stock trading volume is the sum of every transaction that occurs on the stock exchange at a certain time for certain shares. Trading volume is also one of the factors that influence stock movements. The higher the activity, the better the stock's performance because a large trading volume indicates that the stock is being favored by investors (Sprenger et al., 2014).

Event Study

An ESA is a statistical technique created and modified by financial economists that anticipates the stock price effect of events such as mergers and earnings announcements. The ESA begins with the question, 'How do certain events affect stock prices?' As a result, ESA begins by formulating a hypothesis (KESUMOJATI et al., 2017). With the established hypothesis, the ESA event is defined. An ESA typically contains three components, depending on the expected return modeling technique, estimates, events, and date windows (Basdas & Oran, 2014). An event date is simply the time when a specific event occurred.

The date of any event must be determined precisely. Using daily data makes detection of Anomaly Returns (ARs) easier.

Many ESA methodologies are econometric procedures that show facts relating to the impact of certain events on stock prices over a or several periods (Putra, 2015). In this econometric methodology, the first step is to calculate AR, which shows the market reaction to any event. AR is an important aspect of ESA because any new information is easily reflected in the stock price. The ESA implementation is divided into seven parts in this study. First, the date of the event is set (Suwendra, 2018). The research event date is on March 11th, 2020, the day the Covid-19 virus was declared as a pandemic by the World Health Organization. The length of the small period to be monitored, or the event window, is determined after the event date is determined. The event window is usually extended to include several days before and after the event. When looking at daily data in an ESA implementation, it is clear that event windows such as -1 +1, -3 +3, -5 +5, -10 +10, and -20 +20 are commonly used. The length of the event window before and after the event date depends on the decision of the researchers. As a result, various event windows were investigated. A single event date, six separate event windows, and a normal return estimation window are all defined in the study (Wijayanti, 2020).

Figure 1
Event Date, Event Window, Forecast Window

Explanation: a) $t=0$ → Event date: The day on which the Covid-19 virus was declared a pandemic by WHO; b) $t=-50$ → Pre-event window: The day on which the first patient with the Covid-19 virus was announced in Indonesia; c) Event window -1 +1, -5 +5, -8 +8; d) -10 → Estimate window.

RESEARCH METHOD

Market reaction tests are known as event studies. Furthermore, event studies are a type of empirical test that examines how quickly prices respond to new information to determine the efficiency of the half-strong form (Sugiono, 2016). There are several stages in

conducting an event study, including: a) determining the date and location of certain events; b) determining the time frame for the event study (event window), i.e., the period of time that will be observed around the event; c) calculating returns for a certain period of time, then perform statistical tests on them.

Many event studies have been conducted to find out how an event affects the price of company securities at the time of event (Rohayah & Arinda, 2017). Since an event has economic value, the market reacts as a result. It can change the value of the company. If an event occurs, new information about the value of the company will be made available to the public, and the share price of the previous period will be adjusted to reflect the new information.

The study compares the timing of events for 9 days before and 99 days after the occurrence of the Covid-19 virus, researchers use incident studies to examine the LQ45 stock market reaction that occurs from day to day. The stock return of LQ45 shares is the subject of research. To calculate abnormal returns, researchers must first determine the actual and predicted returns (Zulfitra & Tumanggor, 2020).

The study population consisted entirely of daily data from the ten most populous cities in the United States. 50 Daily data points were collected before the Covid-19 Pandemic and 50 daily data points are collected during the Covid-19 Pandemic. The information is obtained by downloading it from Yahoo Finance. Furthermore, the t-test was used to test the research premise. The test is used to see if there is an average difference between two sets of samples that are suitable (related) (Sugiyono, 2014). It means, the sample is subjected to two different procedures.

RESULTS AND DISCUSSION

Descriptive analysis will describe the stock price conditions of 45 companies contained in the LQ45 index in Southeast Asia for a period of 9 and 5 days before and after the announcement of Covid-19 pandemic by WHO. The stock price volatility is as follows.

Table 1
Stock Price Volatility (Rupiah)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Hrg_Shmt_9	45	206.00	49500.00	5410.9778	8680.08364
Hrg_Shmt_t_5	45	200.00	50400.00	5578.5778	8862.21251
Hrg_Shmt_t0	45	186.00	45800.00	5103.3778	8157.95366
Hrg_Shmt_t5	45	154.00	39175.00	4440.1333	7175.07276
Hrg_Shmt_t9	45	121.00	39475.00	4023.3333	6962.87621
Valid (listwise)	N	45			

Resource: Processed Data from Yahoo Finance

From table 1 above, it shows that all stock prices experienced a sharp decline after the first pandemic case that occurred in Wuhan (t-9) then conditions continued to decline at t-5, t-0 t+5 and started to rise slightly at t+9 20 March 2020. Furthermore, the stock price volatility chart can be seen in Figure 2.

Figure 2
LQ45am Stock Price Volatility

The data in this study are described by looking at the Average Abnormal Return (AAR) for 50 and 10 days before and after the WHO announcement of covid. The average AAR value for each event is as follows.

Table 2
Abnormal Return

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ARR_t_9	45	-.13	.48	.0010	.08161
ARR_t_5	45	-.05	.03	-.0083	.01934
ARR_t0	45	-.08	.15	-.0164	.04045
ARR_t5	45	-1.13	-.69	-.7188	.08792
ARR_t9	45	-.09	.20	.0106	.09131
Valid N (listwise)	45				

Table 2 above shows the changes in AAR in the period of 9 and 5 days before and after the announcement of the Covid-19 pandemic by WHO. The AAR value for the 5-day period before the announcement of the Covid-19 pandemic by WHO (AAR t-5) decreased from the period of 9 days before the announcement of the COVID-19 pandemic by WHO (AAR t-9) where the average AAR t-9 is 0.0010 and down to -0.0083. The decline continued until the announcement (AAR t-0) and AAR t+5 still had negative abnormal returns of -0.0164 and -0.7188 while AAR t+9 had a positive value of 0.0106. Furthermore, the chart of Abnormal Return stock price volatility can be seen in Figure 3.

Figure 3
Abnormal Stock Return

Data Normality Test

Before conducting the one sample t-test and paired sample t-test, the data normality test will be carried out first. Data normally distributed are expected to represent population values so that the sample used as an estimator can represent the population when conclusions are drawn about the actual population value (Gujarati, 2007). Normality tests have been carried out on the data using the One Sample Kolmogorov-Smirnov test for AAR before and after the announcement of the Covid-19 pandemic by WHO. The basis for the decision of the Kolmogorov-Smirnov test is that the null hypothesis (H_0) is rejected if the probability is < 0.05 or the Kolmogorov-Smirnov count $>$ Kolmogorov-Smirnov table; then, the data distribution does not follow the normal distribution and vice versa. The results of the normality test showed that the AAR 9 days and 5 days before and after the announcement of the COVID-19 pandemic by WHO followed a normal distribution, with a probability value of > 0.05 .

Table 3
Result of One Sample Kolmogorov-Smirnov Test

AAR	Kolmogorov-Smirnov Statistic	Sig
AAR t-50	0,2990	4,8100
AAR t-10	0,1010	0,2000
AAR t-0	0,1080	0,2000
AAR t+10	0,4110	1,3450
AAR t+50	0,1600	0,5570

One Sample T-Test

The test of one sample t-test is to show whether there is AAR before and after the announcement of the Covid-19 pandemic by the WHO. If it is significant, it can be said that there is an abnormal return. The statistical results of the one sample t-test for H_1 can be seen in Table 4 below.

Table 4
One Sample T-Test Result

AAR	t-count	t-table	Sig	Conclusion
AAR t-9	2.963	2.22814	0.005	H_1 is accepted
AAR t-5	9.248	2.22814	0.000	H_1 is accepted
AAR t+5	52.173	2.22814	0.000	H_1 is accepted
AAR t+9	3.352	2.22814	0.002	H_1 is accepted

From these results, it can be concluded that investors have anticipated the announcement of the Covid-19 pandemic by the WHO. The existence of a significant positive abnormal return in the 9-day period before the announcement of the Covid-19 pandemic by the WHO indicated that investors had expected the announcement of the Covid-19 pandemic by the WHO to be responded negatively by the market. Thus, the announcement of the Covid-19 pandemic by the WHO was accepted as bad news by investors which could result in a decrease in the number of purchases of LQ45 shares so that the stock fell to its lowest point. It shows that market sentiment is negative because it is predicted that the company's performance will generate negative profits because of the company's policy of limiting companies between countries and on a domestic scale (Machmuddah, et al., 2020).

These results support the theory that states that crisis conditions, whether caused by disasters, pandemics, or financial crises, are bad news affecting the performance of all business sectors, including LQ45 sector companies. The result of the observation of abnormal return testing using this one sample t-test can be concluded, that in the observation period 9 and 5 days before the announcement of the Covid-19 pandemic by WHO and 9 and 5 days after the announcement of the Covid-19 pandemic by WHO, H1 was received.

Paired Sample T-Test

The test is carried out to see if there was a difference between the AAR before and after the announcement of the Covid-19 pandemic by the WHO. If the significance is <0.05 , it shows that there is indeed a difference between before and after the announcement of Covid-19 by WHO and H3 is accepted. The statistical results of the paired sample t-test are as follows.

Table 5
Paired Sample T-Test

AAR	t-count	t-table	Sig	Conclusion
AAR t-9→ AAR t+9	0.497	2.22814	0.621	H1 is rejected
AAR t-5→ AAR t+5	56.157	2.22814	0.000	H1 is accepted

The results showed that there is a difference in AAR in the and 9-day observation period before and after the announcement of the Covid-19 pandemic by the WHO, indicating that during that time, investors had high concerns related to the Covid pandemic, resulting in the release of shares and making stock prices fall. The response to this concern mainly occurred 9 and 5 days before the announcement from WHO but after the pandemic in Wuhan with the widespread increasing has weakened the sale of LQ45 shares (Phan & Narayan, 2020). It causes the company's performance to decline. Then, after the announcement from WHO, abnormal return conditions and stock prices still fell but not too sharply so that when compared to before the Covid-19 announcement by WHO, there were significant differences (Mazur et al., 2021). The difference in AAR that occurs is possible because in the AAR period t-5 investors respond to information indicated by abnormal returns, while in AAR+5 the return that occurs is a return to balance because market efficiency is based on the distribution of information where security prices are formed after everyone has information that is evenly distributed. In addition, the market will respond to incoming information and how that information can affect the movement of security prices towards the new equilibrium price (Rodda et al., 2021).

CONCLUSION

Based on the results of the study, it is clear that abnormal returns occurred in the 9- and 5-day observation period before and after the announcement of the Covid-19 pandemic by WHO. Meanwhile, for the following period, there is no high abnormal return. Furthermore, based on the paired sample t-test, it showed that there are significant differences in abnormal returns before and after the announcement of the Covid-19 pandemic by WHO. Abnormal returns and volume of stock trading transactions on the Composite Stock Price Index found that the market has a high level of volatility that tends to be very sharp and wild. Thus, the investors are increasingly cautious and take decisions to put their money in financial assets or in real estate done to reduce losses in large numbers due to market conditions that are difficult to predict. It is further explained that the Covid-19 pandemic also had a significant influence on the LQ45 Stock Price Index. The announcement of this pandemic is responded to as a negative signal by the investors so that information regarding the announcement of the Covid-19 pandemic by the WHO is

responded to early and at the time of launching the information no longer had any effect because the prices had moved towards equilibrium.

The study only estimates the observation period of 9 and 5 days before and after the announcement of the Covid-19 pandemic by WHO. Therefore, further researchers can extend the research time period. It has not considered the movement of its stock trading volume and other external factors that may have an effect. Therefore, other researchers may include other external factors such as lockdown policies or inflation.

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