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Investor Sentiment Reaction in Southeast Asian Countries During the Covid-19 Pandemic Event

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Abstract

This research was conducted using the event study method. The purpose of this research is to see if there are differences in Investor Sentiment on LQ45, KLCI, and STI before the Covid 19 pandemic and after the Covid 19 pandemic. This research was conducted with an observation window of 145 days before and 145 days after the event. The type of data in this study is secondary data, which was obtained from the idx.co.id and Yahoo Finance sites. Investor Sentiment data were analyzed by paired t-test, where the normality test was conducted first. The results show that there are differences in Investor Sentiment between before the COVID-19 pandemic and after the COVID-19 pandemic.

Keyword: Covid 19 pandemic, event study, LQ45

1. INTRODUCTION

Past research has identified that there is a strong relationship between fundamental changes in the stock market and important events such as political events (Podgórski, 2020) geopolitical events (Schiereck et al., 2016); Tielmann & Schiereck, 2017); terrorist incidents (Bash & Alsaifi, 2019); environmental events (Pham et al., 2019); and disease outbreaks such as animal diseases, Ebola, SARS, and COVID-19 (Pendell & Cho, 2013) Chen et al., 2009; (Chen et al., 2009) ; (Ichev & Marinč, 2018) 2018; Al -Awadhi etc., 2020).

The emergence of the current COVID-19 pandemic caused financial markets to experience historic losses in the first quarter of 2020 at levels not seen since 1987 (BBC, 31st March 2020). For example, the Dow Jones, S&P and NASDAQ fell 3.5%, 3.3% and 3.7% respectively (BBC, 24th February 2020). This has led researchers to extensively investigate its influence on stock market returns. For example, Al-Awadhi etc. (2020) studied the impact of COVID-19 on the Chinese stock market using panel data regression.

Likewise, other research results found that COVID-19 had a negative effect on all companies in that market. Baig et al. (2020) investigated the impact of COVID-19 on the United States (US) equity market and found that it increased market liquidity and volatility. Using wavelet coherence analysis, Demir et al. (2020) found both negative and positive relationships between COVID-19 and cryptocurrencies. Additionally, Zhang et al. (2020) found that financial market risk and uncertainty increased following the outbreak of COVID-19.

News about the condition of the Indonesian economy which will experience a recession due to consecutive negative economic growth in Indonesia in the last two quarters of 2020 will certainly influence the market. Companies with good performance, for example companies that have high levels of liquidity, are also affected. In fact, shareholders are of course very concerned about company performance, one indicator of which is the liquidity of the public company in which they invest (Rura, 2010), dan menghindari kebangkrutan yang disebabkan likuiditas perusahaan (O. J. Abriyoso, 2018).

According to research by (Hardiyanti et al., 2021), there was a fairly large difference in abnormal returns and trading volume activity before and after the first case of Coronavirus Disease-19 patient in Indonesia was announced. These findings show that after the declaration of the first case of Coronavirus Disease-19 patient in Indonesia, the market sent a negative signal to investors, causing the share price of the LQ-45 company to fall and investors to sell shares of the LQ-45 company.

Investor sentiment is part of the expression of financial behavior. In several research results, sentiment is thought to have a relationship with returns and stock prices. (Faisal, 2017) used a large number of sentiment indicators to investigate the relationship between sentiment and equity returns and found a lot of strong evidence that sentiment is influenced by returns. Baker and Wugler (2007) studied the theoretical effect of investor sentiment on various types of shares. In financial studies, the issue of investor sentiment is debating the role and influence of asset prices. This research uses an index of investor sentiment in the market at large with a proxy for trading volume activity. (Faisal, 2017)

Issuers with high liquidity ratios also do not guarantee that investors will feel safe owning their shares. Mc Kinsey noted that in April 2020, the lives of the majority of Indonesian people experienced disruption and 83% of people chose to save their money because they were worried about the coming major crisis caused by this pandemic. On October 5 2020, 4 companies listed on the LQ45 stock index experienced quite deep declines. LQ45 is an index of listed companies consisting of 45 companies that are considered the most liquid. This was even seen from the beginning of October where weakness was indicated in 44 companies since trading opened. 7 months since the first Covid-19 case was recorded in Indonesia, it appears that the LQ45 movement is indicated to still be influenced by information about Covid-19. (O. Abriyoso et al., 2021)

The Singapore (Strait Time Index) and Malaysia (KLCI) stock exchanges were also affected by Covid-19. Bursa Malaysia shows that there have been significant changes in volatility during the pandemic and for the

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Singapore Exchange, it is also affected by changes based on the inherent impact of exchanges in other countries in Asia during the Pandemic.

The event study methodology is based on the Efficient Market Hypothesis (EMH) developed by Fama et al. (1969) and Fama (1970). According to this, a market is said to be efficient if "prices fully reflect all available information". One important assumption is that capital markets are efficient enough to react to events (new information) regarding the expected future profits of the affected companies. Efficiency is classified as "weak form" when the information set includes past prices, "semi-strong form" when the information set includes all publicly available information and "strong form" when the information set includes all publicly and privately available information. Event studies rely largely on the analysis of so-called "normal" and "abnormal" returns estimated on the basis of asset pricing models.

Unexpected events put more pressure on financial markets, and market participants may lose their ability to rationally assess the implications of events. Other research concluded that there were significant differences in TVA before and after the announcement of the first case of Covid-19 in LQ45 companies listed on the IDX. This shows that the Covid-19 that hit Indonesia since March 2 2020 had quite an influence on the decline in TVA. TVA after the announcement of the first case of Covid-19 was recorded to be much lower than before Covid-19 occurred. (Wahyuningsih et al., 2020)

The impact of non-economic events on the Greek financial system was examined by Veraros et al., (2004). The influence of the candidacy of Athens (winner) as the host city of the 2004 Olympic Games on the stock exchanges of Greece and Italy (loser), is examined. The results reveal significant positive results on the Athens Stock Exchange as a whole, as well as on infrastructure-related industries. No significant influence was identified on the Milan Stock Exchange.

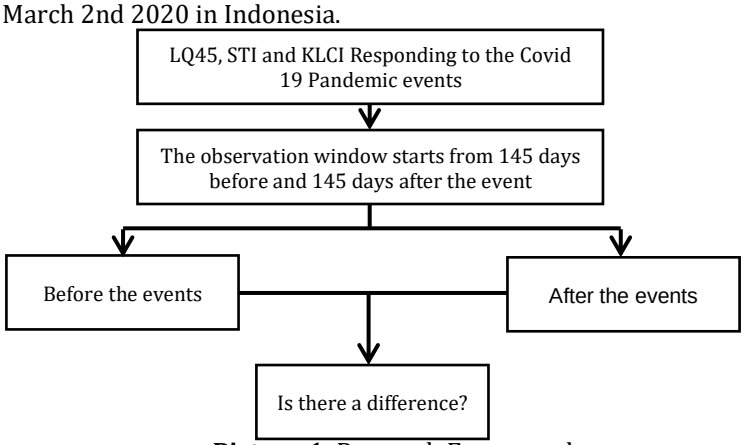
Kollias et al., (2009) empirically examined the effectiveness of anti-terrorism policies on domestic investment expenditure, using annual budget data for the 1974-2004 period. The results seem to indicate that the policy had a weak negative impact on internal terrorist acts.

Athanassiou et al., (2006), analyzed the impact of shocks related to external national security, military tensions and conflicts on domestic market volatility. The findings show that border tensions (along Greek airspace) and the threat of military escalation that could lead to armed conflict, influence stock market behavior.

Investor sentiment is an individual's feeling of being excessively optimistic or pessimistic about a situation, which determines the formation of prices on the stock market. Investor sentiment is seen as mass psychology, reflected in asset price movements in the market. Investor sentiment is considered as investors' confidence in price movements, seen from **Trading Volume Activity**. (Faisal, 2017)

Research Framework

An event that is considered to have important elements for the market will be responded to by the market because this will encourage economic activity, whether the information is positive or negative. Therefore, we would like to know the response shown by Investor Sentiment from LQ45, to the Covid-19 Pandemic event which was first recorded on March 2nd 2020 in Indonesia.



Picture 1. Research Framework

Source: Processed Research Data (2020)

Based on the description above, a hypothesis is proposed, including the following:

H1: There is a difference in LQ45 Investor Sentiment between before and after the Covid-19 Pandemic.
H2: There is a difference in STI Investor Sentiment between before and after the Covid-19 Pandemic.
H3: There is a difference in KLCI Investor Sentiment between before and after the Covid-19 Pandemic.

2. RESEARCH METHODS

This type of research is quantitative with an event study method. Event study is basically a research method in the field of finance, especially to examine the stock market's reaction to an event or event in the past which could influence market value. Event studies are also useful for examining the content of an event. If an event is

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considered to have content that influences the market, then the market will immediately react to the event. The operationalization of this variable contains definitions of a concept to be reduced to the variables that want to be studied in research, and also aims to avoid errors in interpretation of the research**.** Calculating the value of Trading Volume Activity can be done using the following stages:

TVA = Number of Shares traded /
Number of Shares Outstanding

Picture 2. Trading Volume Activity

Likewise with TVA Singapore and Malaysia which use the same formula and obtain their respective data from these exchanges. The data used in this research is secondary data consisting of data about all companies registered in LQ-45, STI and KLCI obtained from the IDX.co.id site and the Yahoo Finance site. The population of this study is the TVA value of companies listed on LQ-45, STI and KLCI. The reason for the research in choosing TVA LQ-45, STI and KLCI is because this index is filled with shares that are most actively traded on each country's stock exchange and are the most liquid so that they better represent the characteristics of that country's stock market.

The sample for this research was taken using a purposive sampling method or the sample was selected based on characteristics that matched the researcher's wishes. Therefore, a sample was selected with characteristics including: Companies in the index listed on each country's stock exchange, included in LQ45, STI and KLCI, during the research period.

The analytical method used is the paired t-Test, namely a sample with the same type of object but with different treatment or measurements. This data is processed using the help of the IBM SPSS 25 application and then analyzed. After getting the index data that we want to research, it is calculated using the following steps (Hartono, 2017) :

1. Calculate Investor Sentiment (TVA) using a predetermined formula.
2. Look for the average value of Investor Sentiment.
3. Finding Variance with formulas:

$$s^2 = \frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1}$$

4. Calculate the t value using the formula:

$$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$$

Picture 3. Calculating t Value

5. Hypothesis testing by paying attention to the differences in each sample. Testing uses paired sample t-test.

The research was conducted within a period of 145 days before the event and 145 days after the Covid-19 pandemic (t-145 and t+145) without including trading holidays on the stock exchange.

To test the hypothesis, a t test or paired sample t-test is carried out based on the calculation results so that the accepted hypothesis is known. If the calculated t result is greater than the t table, then H0 and the null hypothesis are rejected. This testing technique is carried out on three different market indices to test the hypothesis.

Hypothesis for data testing:

H0: There is no difference in LQ45 Investor Sentiment between before and after the Covid-19 Pandemic.

H1: There is a difference in LQ45 Investor Sentiment between before and after the Covid-19 Pandemic.

3. RESULT AND ANALYSIS

From the results of statistical calculations using the SPSS application, the average LQ45 Investor Sentiment before the pandemic was 27967.0690 and the average LQ45 Investor Sentiment after the pandemic was 196.3724. This average was obtained from a total of 145 data from before the pandemic on March 2 2020 and 145 data after the pandemic by reducing transaction holidays on the Exchange. From the calculation table, the standard deviation or standard deviation was also obtained at 41168.39525 before the pandemic and 100.15640 after the pandemic.

Furthermore, the average STI Investor Sentiment before the pandemic was 229755235.8621 and the average STI Investor Sentiment after the pandemic was 328129499.3103. This average was obtained from a total of 145 data from before the pandemic on January 23 2020 and 145 data after the pandemic by reducing transaction holidays on the Exchange. From the calculation table, the standard deviation or standard deviation was also obtained at 119841049.14649 before the pandemic and 167443777.94983 after the pandemic.

Finally, the average KLCI Investor Sentiment before the pandemic was 102517011.0345 and the average KLCI Investor Sentiment after the pandemic was 155745113.1034. This average was obtained from a total of 145 data from before the pandemic on January 25 2020 and 145 data after the pandemic by reducing transaction

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holidays on the Exchange. From the calculation table, the standard deviation or standard deviation was also obtained at 42358002.06566 before the pandemic and 83647043.06985 after the pandemic. More details can be seen from the table presented below:

Table 1. Research Descriptive Statistics

LQ 45 Descriptive Statistics					
Type	**N**	**Minimum**	**Maximum**	**Mean**	**ST.D.**
Before	145	1.00	99814.00	27967.0690	41168.39525
After	145	1.00	698.00	196.3724	100.15640
Valid N	145				
STI Descriptive Statistics					
Type	**N**	**Minimum**	**Maximum**	**Mean**	**ST.D.**
Before	145	.00	1409118300.00	229755235.8621	119841049.14649
After	145	.00	1472751700.00	328129499.3103	167443777.94983
Valid N	145				
KLCI Descriptive Statistics					
Type	**N**	**Minimum**	**Maximum**	**Mean**	**ST.D.**
Before	145	.00	366237100.00	102517011.0345	42358002.06566
After	145	.00	595843500.00	155745113.1034	83647043.06985
Valid N	145				

Source: Processed Research Data (2020)

Apart from that, it can also be seen that before the pandemic, the minimum or smallest LQ45 Investor Sentiment was 1.00 and the maximum or largest value was 99814.00. After the pandemic, the minimum or smallest LQ45 Investor Sentiment was 1.00 and the maximum or largest value was 698.00. For STI before the pandemic, the minimum or smallest value was 0.00 and the maximum or largest value was 1409118300.00. After the pandemic, the minimum or smallest STI Investor Sentiment was 0.00 and the maximum or largest value was 1472751700.00. For KLCI before the pandemic, the minimum or smallest value was 0.00 and the maximum or largest value was 366237100.00. After the pandemic, the minimum or smallest KLCI Investor Sentiment is 0.00 and the maximum or largest value is 595843500.00.

Normality Test Results

According to (Wang & Ngai, 2020), to carry out a paired t-test, the data being tested must be normally distributed. So after carrying out a normality test on the research data, the following results were obtained:

Table 2. Normality Test Results

			Normality Value
N			145
Normal Parameters[a,b]	Mean		27967.0689655
	Std. Deviation		9552.71263267
Most Extreme Differences	Absolute		.091
	Positive		.080
	Negative		-.091
Test Statistic			.091
Asymp. Sig. (2-tailed)			.005[c]
Monte Carlo Sig. (2-tailed)	**Sig.**		**.168[d]**
	99% Confidence Interval	Lower Bound	.165
		Upper Bound	.171

a. Test distribution is Normal.
b. Calculated from data.

Source: Processed Research Data (2020)

Based on the table above, the following can be seen: For data before the pandemic event, from 145 data, the Kolmogorov-Smirnov statistical value and also the Monte Carlo significance value for LQ-45, STI, and KLCI during the observation window were 0.168. The data has a normal distribution if a significance value is greater than 0.05 (5%) (Rifa'i, 2020). Because the significance value obtained is 0.168 and the value is greater than 0.05, it can be concluded that the LQ45 Investor Sentiment data, STI and KLCI during the observation window during the pandemic event had a normal distribution.

Hypothesis Test Results

According to (Wong & Hooy, 2020), to carry out a t-test hypothesis test, it is necessary to look at the results of the significance calculation first, taking into account the form of the hypothesis prepared. More details can be seen in the following table:

Table 3. T test Result

Paired Samples Test for Trading Volume Activity							
Paired Differences of LQ-45							
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper			

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Before - After	27770.69655	41184.13982	3420.15665	21010.50019	34530.89291	8.120	144	**.000**
	Paired Differences of STI							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Before - After	-53228102.06897	84550575.25811	7021543.09422	-67106709.07265	-39349495.06528	-7.581	144	**.000**
	Paired Differences of KLCI							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Before - After	-98374263.44828	206286788.57382	17131185.34460	-132235337.24852	-64513189.64803	-5.742	144	**.000**

Source: Processed Research Data (2020)

From the table above it can be seen that the values in the table for Investor Sentiment (TVA) LQ45, STI, and KLCI using IBM SPSS between before and after the Covid 19 pandemic event have a significance value of 0.000. According to (Wong & Hooy, 2020) if the t-test significance value is greater than 0.05, then H0 is accepted and H1 is rejected. However, if the t-test significance value is smaller than 0.05, then H0 is rejected and H1 is accepted. The significance value of the three exchanges contained in the table is 0.000 and the value is smaller than 0.05 (0.000 < Sig. 0.05), so it can be concluded that H1 is accepted, namely the hypothesis which states that there are differences in Investor Sentiment, both from LQ45, STI, and KLCI between before and after the Covid 19 pandemic.

This means that, by using the paired t-test calculation method, it is proven that there is a significant difference between LQ45, STI, and KLCI Investor Sentiment before and after the Covid 19 pandemic event, the first case of which was announced respectively on March 2 2020 in Indonesia, as well as on January 23 2020 in Singapore and January 25 2020 in Malaysia, as seen from an observation window of 145 days before and 145 days after the event.

This finding is in line with research results from (Hardiyanti, 2020) which said that there was a significant difference between Joint Stock Investor Sentiment (IHSG) between before and after the Covid 19 pandemic event, where after the event, Investor Sentiment dropped significantly. Likewise, research conducted (Subrata & Werastuti, 2020) showed that the Covid 19 pandemic also had an influence on stock performance in Vietnam, where in that country, the sector that was hardest hit by the Covid 19 pandemic was the financial sector.

4. CONCLUTION

Based on the results of this research, it can be concluded that there is a significant difference in LQ45, STI and KLCI Investor Sentiment between before and after the Covid 19 pandemic. This can be seen from the proof of hypothesis 1 (H1), based on the assumption that the t-table significance value is 0.000 is smaller than 0.05 (0.000 < 0.05). Suggestions that can be given include: For further research, it is hoped to reduce the time or observation period, thereby reducing the possibility that there are other variables that are not studied but also influence Investor Sentiment. It is hoped that further research can also examine other variables besides Investor Sentiment, such as Abnormal Returns or other variables within the financial scope.

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