

# THE EFFECTS OF BOMB BLAST IN SURABAYA ON MAY 13 2018 IN LQ 45 INDEX SHARES AND IT'S IMPACT ON INVESTOR

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## ABSTRACT

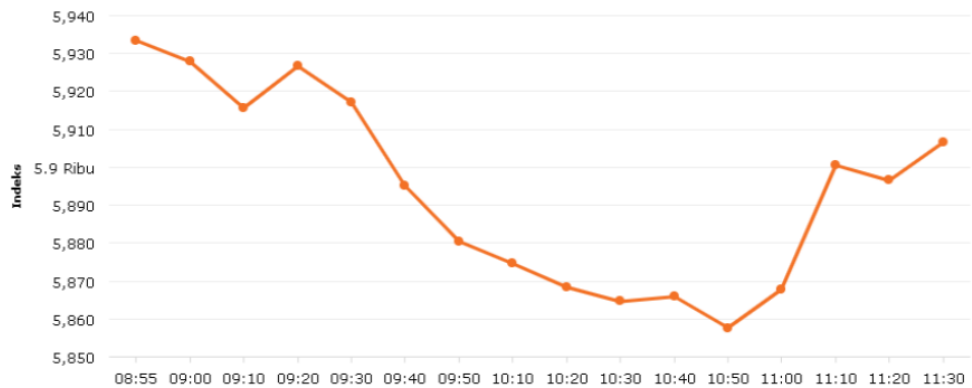
This study aims to determine the influence differences of bombing event in Surabaya in LQ45 stock returns and to determine the sentiment of investor against bombing event in Surabaya. The population of this research is companies listed on the Indonesia Stock Exchange and the sample in this study is 2018 LQ45 shares. Using the event study method to analyst bombing event in Surabaya. The results of this study indicate a difference in abnormal returns before the bombing in Surabaya and after the bombing in Surabaya. And it shows a decline in positive sentiment and become pessimistic feeling of investors towards the Surabaya Bombing, which determines the formation of prices on the stock market.

**Keywords: Terrorist attack, abnormal return, Event study**

## INTRODUCTION

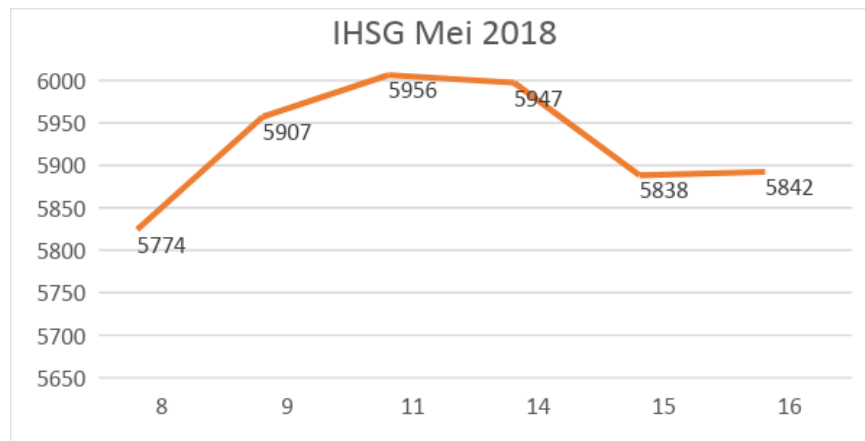
Terrorism crimes that occurred on May 13, 2018, which afflicted 3 churches in Surabaya, which is namely the Church of Santa Maria Immaculate, GKI Diponegoro, and the Pentecostal Church that affect 25 persons dead and 57 persons injured. In Indonesia, it became a special concern of the government and became threat to many countries. Terrorism is an organized crime that is sustainable and involves several countries. UU No. 5, 2018 said that terrorism is an act that uses violence or the threat of violence that provokes an atmosphere of terror or widespread fear, which can cause mass casualties, and cause damage or destruction of strategic vital objects, the environment, public or international facilities with ideological, political or security disturbances. The events of terrorism occurring in the country potential to have a negative impact on investment and the economy, along with indications of political and security instability in Indonesia. This terrorism event certainly becomes public information which has an important role in making investment decisions. **Johnston and Nedelescu (2005)** assert that in the medium term terrorism events can damage investor confidence.

**Pergerakan IHSG (14 Mei 2018)**



**Chart 1. IHSG Movement on May 14, 2018**

The cause of the incident of 3 bombs attack at the same time, the IHSG or JCI (Jakarta Composite Index) had a negative impact, which was experienced a drop. Monday (5/14) the JCI fell to its lowest level to 5,853,877 points at 10:53 WIB. It fell 102,955 points (1.73%) from the closing last weekend. However, after that the Jakarta stock exchange index was able to reverse up to the level of 5,906.68 at 11:30 WIB. As a result, the decline in the index in the first session today was not too deep and only 50.12 points (0.84%) from last Friday's closing.



**Chart 2. IHSG Movement on May 8 – 16, 2018**

There was an increase in JCI on May 8, 9 and 11, 2018 before the terror bombing in Surabaya on May 13, 2018. After the bomb terror incident, on May 14 and 15 2018, there was a drastic decline. From 5956 points it decreased to 5838 points on May 15, 2018 but is increased on May 16, 2018 on 5842 points. The LQ45 index is an index that has recognized a good level of liquidity and market capitalization and driving stock which is a large market capitalized stock on the IDX. If the LQ45 index is affected by a bombing in Surabaya, this indicates that the indexes on other are also affected by bombs in Surabaya May 13, 2018.

**Aurangzeb and Dilawer (2012)** conducted a study on the impact of terrorism on stock returns in Pakistan, in their study, four types of terror were used, that is bombing, armed isolation, murder and hostage taking, the study showed that stock returns reacted negatively to terrorist activities that occurred. **Handoko and Supramono (2017)** showed that there was a negative sentiment over the bombing on January 14, 2016, and there was even an overreaction in the group of companies with less good fundamentals. **Utama and Hapsari (2012)** analyze capital market reactions due to terrorist bomb attacks based on industry types and foreign share ownership.

### **Sentiment of Investors**

Investors in investing their funds need a variety of information that is useful for predicting the results of their investments in the capital market. **De Long et. al (1990)** said that in the market there are two types of investors: rational investors which are free of sentiment and irrational investors are likely to experience sentiment. Both types of investors compete with each other in the capital market in determining prices and stock returns. The dominance of investor sentiment will lead to the formation of inefficient capital markets. **Mehrani et al (2016)** suggested that investor sentiment is the feeling of an individual who is optimistic or pessimistic over a situation. **Baker and Wurgler (2006)** said that one of the most appropriate definitions for investor sentiment is the tendency to speculate. Both definitions emphasize that investor sentiment is a feeling that drives investor speculation.

Capital market conditions refer to the assumption that investors act rationally. The capital market as one of the economic instruments is strongly influenced by various events that have information content. An event will have information content if the event can affect the stock price which then causes investors to change and reconsider their decision. The terrorism bombings that occurred in Indonesia pose a threat and a bad feeling for investors. Investors will have negative sentiment and quickly sell their shares which will have an impact on the decline in stock prices. **Utama and Hapsari (2012); Kumar and Liu (2013); Aurangzeb and Dilawer (2012); Baker (2014); Najaf (2017); Handoko and Supramono (2017)** who found a negative correlation with investors about terrorism events.

### **Stock Return**

Return is the profit gained by investors from investment. Return can be either a realized return or an expected return. Investors are motivated to invest, one of which is to buy company shares in the hope of getting investment returns that are in accordance with what they have invested. According **Jogiyanto (2014: 236)**, returns are wages, or rewards in the form of profits or losses that will be received as a result of investment decisions on certain stocks. Can be formulated as follows:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

$R_{it}$  = Company stock return i in period t

$P_{it}$  = Company Stock Price i in period t

$P_{it-1}$  = Company Stock Price i in period t-1

### **Abnormal Return**

According to Jogiyanto (2016: 647), abnormal return or excess return is the excess of the real return happens to normal returns. Normal return is expected return (return expected by investors). The form of abnormal return is divided into two: positive abnormal return and negative abnormal return. Positive abnormal returns occur when actual returns have a difference more than the expected return, and vice versa, which occurs in negative abnormal returns. Investors respond to positive abnormal returns by buying these securities in the hope of getting profits later on. Different things happen when negative abnormal returns, so investors are more likely to sell ownership of securities. Abnormal Return can be formulated as follows:

$$AR_{it} = R_{it} - E(R_{it})$$

$AR_{it}$  = Abnormal Return brokerages to-i in the event period to t

$R_{it}$  = Return brokerages to-i in the event period to t

$E(R_{it})$  = Return expectations of securities to-i in the event period to t

## **METHODOLOGY**

### **Design Research**

This research is used event study method. Event Study is a measurement the impact of an event. This research was conducted to find out the investor's response to various types of events that occur in the capital market. The event used in this study was a bombing that occurred in Surabaya on May 13, 2018. If the information had an effect on the capital market, it was indicated by a change in prices of stocks. Investor sentiment can be measured by using stock returns as a change in stock prices also by using abnormal returns.

The period of events taken by this study (Event Date), which is May 13, 2018 where the exact occurrence of the bombing occurred in 3 churches in Surabaya. However, on May 13, 2018 is a Sunday on which the stock market does not operate. Then the set Event Period is 3 days before the bombing in Surabaya (t-3) and 3 days after the bombing in Surabaya (t+3).

### **Data and Data Collection Methods The data**

Data used in this study is secondary data obtained from [finance.yahoo.com](http://finance.yahoo.com), [www.idx.co.id](http://www.idx.co.id) and mass media. Which consists of stock summaries and financial statements of companies listed on LQ45.

## **Measurements**

The impact of bombings in Surabaya on investors can be seen through average abnormal return (AAR) on stocks included in the LQ45 index. Overreaction analysis is done by looking at AAR for shares listed in LQ45 during the event window. The event window research is 3 days before the event, and 3 days after the event.

## **Population and Sampling Method**

Population of this study was 45 companies listed in the LQ45 index in May 2018. LQ45 is a collection of companies that have high liquidity in Indonesia. The sampling method used is the purposive sampling method with the selected criteria as follows not distributing by dividends, not holding a GMS, not being mergers and acquisitions, not doing stock split, no corporate actions. The sample chosen is not affected by other actions after the bombing in Surabaya. Based on these criteria, from 45 companies obtained 34 companies to be the sample of this study.

## **Analysis Techniques**

### **Normality Test**

According to Ghazali (2013: 90) suggests that the normality test aims to determine whether each variable is normally distributed or not. The normality test is needed because to test other variables by assuming that the residual value follows a normal distribution. The normality test in this study uses the Smirnov Kolmogorov Test method. The purpose of this test is to find out whether the sample used in this study is normally distributed or not. Test criteria:

- a) If  $p\text{-value} > 0.05$ , then the normal data distribution and the different test used are parametric tests (paired sample t-test).
- b) If  $p\text{-value} < 0.05$ , then the data distribution is not normal and the different test used is the non-parametric test (Wilcoxon sign test).

### **Paired Sample Test**

The aim of this study is to determine whether there is a significant difference between the acquirer's financial performance before and after the acquisition. To see these differences, the data obtained will be processed and analyzed using a paired sample test.

The paired sample test was used to evaluate certain treatments in two observations, between before and after certain treatments. This test using a significance level of  $\alpha = 5\%$ , then if the probability  $<$ significance level has been set  $\alpha = 5\%$ , then the independent variable

has a significant effect on the dependent variable, meaning there are differences that are statistically significant financial ratio between before and after the acquisition. Thus the testing steps are carried out as follows:

1. Formulating Hypotheses
2. Determining critical areas with  $\alpha = 5\%$  and  $\alpha = 10\%$ .
3. Calculate using SPSS software.
4. Comparing probability and predetermined significance level (5%) and (10%).

Decision making is based on a comparison between the p-value and the level of significance ( $\alpha = 0.05$ ) used in this study. The comparison is as follows:

- a) If:  $p\text{-value} > 0.05$  then  $H_0$  is rejected.
- b) If:  $p\text{-value (2-tailed)} < 0.05$  then  $H_0$  is accepted

## **RESULTS AND DISCUSSION**

### **Descriptive Statistics**

Based on data taken from the LQ45 index in May 2018 at the time before and after the bombing in Surabaya, data obtained variables used in this research is Abnormal Return and Average Abnormal Return. Descriptive statistical data serves to describe the characteristics of the sample used.

**Table 1. Descriptive Statistics of Abnormal Return**

**Descriptives**

		Statistic	Std. Error	
AR_Sebelum	Mean	-.397211472	,0421065903	
	95% Confidence Interval for Mean	Lower Bound	-.482877974	
		Upper Bound	-.311544970	
	5% Trimmed Mean	-.392815026		
	Median	-.400144304		
	Variance	,060		
	Std. Deviation	,2455215030		
	Minimum	-.9263947		
	Maximum	,0883006		
	Range	1,0146953		
	Interquartile Range	,2775707		
	Skewness	-.174	,403	
	Kurtosis	-.092	,788	
	AR_Sesudah	Mean	,007489837	,0040918486
95% Confidence Interval for Mean		Lower Bound	-.000835092	
		Upper Bound	,015814766	
5% Trimmed Mean		,006558719		
Median		,002203750		
Variance		,001		
Std. Deviation		,0238593725		
Minimum		-.0302523		
Maximum		,0694255		
Range		,0996778		
Interquartile Range		,0336079		
Skewness		,633	,403	
Kurtosis		-.065	,788	

Based on table 1 the descriptive results of the Abnormal Return research variable can be explained as follows:

- a. Abnormal Return before the bombing in Surabaya has a minimum value of -0.9263947 with a maximum value of 0.0883006. The average value of abnormal returns before the bombing in Surabaya was -0.397211472 with a standard deviation of 0.2455215030. The standard deviation value that is higher than the average indicates a high variation between the maximum and minimum values.
  
- b. Abnormal Return after a bomb in Surabaya has a minimum value of -0.0302523 with a maximum value of 0.0694255. The average value of abnormal returns after the bombing in Surabaya was 0.007489837 with a standard deviation of 0.0238593725. The standard deviation value that is higher than the average indicates a high variation between the maximum and minimum values.

**Table 2. Descriptive Statistics of Average Abnormal Return**

Descriptives			Statistic	Std. Error
AAR_Sebelum	Mean		-.011682690	,0012384291
	95% Confidence Interval for Mean	Lower Bound	-.014202293	
		Upper Bound	-.009163087	
	5% Trimmed Mean		-.011553383	
	Median		-.011768950	
	Variance		,000	
	Std. Deviation		,0072212207	
	Minimum		-.0272469	
	Maximum		,0025971	
	Range		,0298440	
	Interquartile Range		,0081638	
	Skewness		-.174	,403
	Kurtosis		-.092	,788
AAR_Sesudah	Mean		,000220289	,0001203485
	95% Confidence Interval for Mean	Lower Bound	-.000024562	
		Upper Bound	,000465140	
	5% Trimmed Mean		,000192904	
	Median		,000064816	
	Variance		,000	
	Std. Deviation		,0007017463	
	Minimum		-.0008898	
	Maximum		,0020419	
	Range		,0029317	
	Interquartile Range		,0009885	
	Skewness		,633	,403
	Kurtosis		-.065	,788

Based on table 2 descriptive results of the research variable Average Abnormal Return can be explained as follows:

- Average Abnormal Return before the bombing in Surabaya has a minimum value of -0.0272469 with a maximum value of 0.0025971. The average abnormal return value before the bombing in Surabaya was -0.011682690 with a standard deviation of 0.0072212207. The standard deviation value that is higher than the average indicates a high variation between the maximum and minimum values.
- Average Abnormal Return after a bomb in Surabaya has a minimum value of -0,0008898 with a maximum value of 0,0020419. The average abnormal return value after the bombing in Surabaya was 0,000220289 with a standard deviation of 0,0007017463. The standard deviation value that is higher than the average indicates a high variation between the maximum and minimum values.

## Data Analysis Abnormal Return

### Normality Test

In this data normality test using method Kolmogorov-Smirnov Test. The choice of this method is based on the Kolmogorov-Smirnov test which is a method commonly used to test data normality. The purpose of this test is to find out whether the sample used in this study is normally distributed or not. The sample is normally distributed if the probability value  $>$  level of significance is set ( $\alpha = 0.05$ ). If the test results show the sample is normally distributed then the different test that will be used in this study is the parametric test, but if the sample is not normally distributed then the different test that will be used in this study is



the non-parametric test. The results of the normality test with the Kolmogorov-Smirnov test can be seen from Table 3 below:

**Table 3. Normality Test of Abnormal Return**

	Tests of Normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AR_Sebelum	,086	34	,200*	,980	34	,774
AR_Sesudah	,146	34	,066	,957	34	,200

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on Table 3 obtained the P-Value value for the abnormal return variable before the bombing in Surabaya of 0.200 followed by P-Value for the variable abnormal return after the bombing in Surabaya of 0.066. Because the value of P-Value on all variables obtained is greater than the significant level  $\leq 5\%$ , then  $H_0$  is rejected; which means the data is normally distributed.

### The Result of Differences Test

Hypothesis testing aims to answer the question whether when before, and after the bombing in Surabaya there was a difference in abnormal return. This analysis was conducted to test  $H_1$  to  $H_2$  which stated that the average abnormal return before the bombing in Surabaya had a difference with abnormal returns after the bombing in Surabaya which was measured using the Paired Sample Test as follows:

**Table 4. Abnormal Return Test**

		Paired Samples Test							
		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower Upper				
Pair 1	AR_Sesudah - AR_Sebelum	,4047013090	,2486867640	,0426494282	,3179303950	,4914722230	9,489	33	,000

Based on Table 4 Test results obtained for differences in the average abnormal return before, and after the bombing in Surabaya. The abnormal return before the bombing in Surabaya was 9.489 with a P-Value value of 0.00 ( $0.00 < 0.05$ ). Based on this, it shows that there is a difference between the abnormal return before the bombing in Surabaya and the abnormal return after the bombing in Surabaya.

### Analysis of Average Abnormal Return

#### Normality Test

In this data normality test using the method Kolmogorov-Smirnov Test. The choice of this method is based on the Kolmogorov-Smirnov test which is a method commonly used to test data normality. The purpose of this test is to find out whether the sample used in this study is normally distributed or not. The sample is normally distributed if the probability value > level of significance is set ( $\alpha = 0.05$ ). If the test results show the sample is normally distributed then the different test that will be used in this study is the parametric test, but if the sample is not normally distributed then the different test that will be used in this study is the non parametric test. The results of the normality test with the Kolmogrov-Smirnov test can be seen from Table 5 below:

**Table 5. Normality Test of Average Abnormal Return**

	Tests of Normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AAR_Sebelum	,086	34	,200 <sup>*</sup>	,980	34	,774
AAR_Sesudah	,146	34	,066	,957	34	,200

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on Table 5, the P-Value value is obtained for the average abnormal return variable before the bombing in Surabaya of 0.200 followed by P-Value for the average abnormal return variable after the bombing in Surabaya of 0.066. Because the value of P-Value on all variables obtained is greater than the significant level  $\alpha = 5\%$ , then  $H_0$  is rejected; which means the data is normally distributed.

### Differences Test Results

Hypothesis testing aims to answer the question whether when before and after the bombing in Surabaya there was a difference in average abnormal return. This analysis is conducted to test  $H_1$  to  $H_2$  which states that the average abnormal return before the bombing in Surabaya has a difference with the average abnormal return after the bombing in Surabaya which is measured using the Paired Sample Test as follows:

**Table 6. Differences of Average Abnormal Return Test**

		Paired Samples Test							
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
Lower	Upper								
Pair 1	AAR_Sesudah - AAR_Sebelum	,0119029797	,0073143166	,0012543950	,0093508940	,0144550654	9,489	33	,000

Based on Table 6 Test results obtained for differences in average abnormal return before, and after the occurrence of bombs in Surabaya. The value of t calculated on the average abnormal return before the bombing in Surabaya is 9.489 with the value of P-Value 0.00 ( $0.00 < 0.05$ ). Based on this, it shows that there is a difference between the average abnormal return before the bombing in Surabaya and the average abnormal return after the bombing in Surabaya.

## Analysis

Analysis is made based on abnormal returns of companies listed on the LQ45 index as companies that have high liquidity to see their influence on investor sentiment after the Surabaya Bombing which occurred on May 13, 2018. Table 4.6 shows that before and after the event The Surabaya bomb on May 13, 2018 in the LQ45 companies was obtained 0.027.

**Table 7. Significance of AAR LQ45 Before and After the Surabaya Bombing**

<b>Table Table Significance of AAR LQ45</b>		
<b>Period</b>	<b>AAR LQ45</b>	<b>T Calculate</b>
<b>Before the Surabaya Bombing event</b>		
t0	0.027247409	0.96250294
t1	0.028093584	0.977334049
t2	0.723856937	4.960961184
<b>After the Surabaya Bombing</b>		
t3	0.02739542	0.965113601 *
t4	0.041146205	1.182781034
t5	0.040352695	1.17132046

Significance of 0.05 (T Table 2.036933)

Based on the table it can be seen that after the Surabaya Bombing on May 13, 2018 the data has been processed again does not show negative sentiment from investors. However, there was a decrease in investor sentiment after the Surabaya Bombing incident. In the following period, investor sentiment returned to normal. It can be indicated that the LQ45 index represents 45 shares of the company that have high liquidity, so that when the Surabaya bombing occurs, investors are able to quickly make a sale transaction on the stock.

## Discussion

Based on the results of an analysis conducted by researchers, the calculated value on abnormal returns before and after the bombing in Surabaya is 9.489 with a P-Value value of 0, 00 ( $0.00 < 0.05$ ). This shows that there is a difference between abnormal return before a Bomb Event in Surabaya and an abnormal return after a Bomb Event in Surabaya.

Bombing events in Surabaya have important information for investors that will influence investors' decisions in investing. Information related to terrorism is considered a dramatic event that causes investors to panic and cause pressure to sell high shares. Rahmawati and Suryani (2005) also stated that an event that is considered dramatic by investors, can cause investors to overreact, which causes investors to do things that might be irrational to stock transactions.

Based on the results in table 7 before the event, the t-value at t2 or on May 11 2018 is 4.96 with this 2.04 t-table value showed high investor enthusiasm for LQ45 shares. After the event, the t-count on t3 or on May 14, 2018 shows a decrease of 0.96, this indicates a decrease in positive sentiment for investors towards LQ45 shares but does not reach negative results and returns to increase the next day.

The bombing incident in Surabaya that struck 3 churches on May 13, 2018 did not cause negative sentiment for investors. But investor enthusiasm in the LQ45 stock index experienced a significant decline and stabilized again in the next period. This condition can be seen from the abnormal return which indicates a decline in positive investor sentiment. This is in accordance with what was conveyed by Capital Securities' Head of Connection Research, Alfred Nainggolan, who said that while the bomb incident would not affect the stock market. Optimistic and negative investor or sentiments felt by investors in a week will be influenced by Bank Indonesia's policies regarding interest rates which will make positive sentiment. The Managing Director of the Indonesia Stock Exchange, Tito Sulistio, also said that the act of bombing in Surabaya did not have a major impact on the JCI and the event was only temporary.

## **CONCLUSION**

Based on data analysis and discussion, some conclusions can be obtained as follows:

- a. There is a difference between abnormal returns before the occurrence of bomb events in Surabaya with abnormal returns after the bombing in Surabaya on May 13, 2018.
- b. Decreased positive sentiment or decreased investor optimism which determines the formation of prices on the stock market following the bombing in Surabaya on May 13, 2018.

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