



Market Overreaction on LQ45 Stock Index before and after Asian Games 2018

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Abstract

This study aims to see the impact of the implementation of Asian games 2018 event towards stock price movement. This study tested the occurrence of market reaction before and after the implementation of Asian games 2018 event. This study is an event study using explanatory methodology with quantitative approach. The population that is used in this study is companies that are listed on Indonesia Stock Exchange. Samples that are used in this study are 45 companies indexed by LQ45. Data sources that are used are from Indonesia Stock Exchange which is IDX Composite and Closing price one week before and one week after Asian Games 2018. Hypothesis is tested using Paired Sample T-Test to see the difference of abnormal return before and after Asian games 2018 for both winner stock portfolio and loser stock portfolio. The result of this study shows that market overreaction does not occur. Loser stock portfolio does not sustain price reversal to turn into winner stock portfolio and vice versa. This indicates that there is no anomaly occurs in efficient market over the event, winner stock remains to be winner stock and loser stock remains to be loser stock.

Keywords

Market Overreaction, Price Reversal, Winner-Loser Portofolio, Asian Games 2018

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1. Introduction

Efficient capital market introduced by Fama (1970) explains that if a market is said to be efficient if there is no investor is able to obtain abnormal return in a long term period of time. However, the efficient market does not always occurred because there are always anomalies such as market overreaction. De Bondt and Thaler (1985) stated that overreaction hypothesis is a phenomenon of inefficiency capital market because of the overreaction towards an information. It is said that investor tends to set the price too high due to the information that is considered as good news and on the contrary investor tends to set the price too low due to the information that is considered as a bad news.

Market efficiency Hypothesis has become one of the most dominant theme in financial research. Overreaction phenomenon often occurs at winner and loser stock, it is because of reversal only occurs at loser stock or winner stock (Rosenberg *et al.*, 1985). Hsieh dan Kathleen (2011) shows that there is a reversal of average of the loser stock than winner stock indicates that there is a quick correction to loser stock than winner stock, this phenomenon shows that the investors quickly decide to purchase or to sell the stocks. Ali *et al.* (2011) found a strong evidence that supports the overreaction hypothesis in Malaysia's stock. The strongest reactions occurred in a period of one to four weeks. Stock loser sustain larger and higher reversal and return with low volume transactions.

Market overreaction is derived from psychology research that is conducted by Kehneman and Tversky, 1982) that found the result that the people have the possibility to overreact towards an event which is dramatic. An event basically contain of information which is absorbed by the market and is used by the investors in taking investment decision. The current researches find that the worst stock return in the previous period (loser) surpasses the best stock in the next periods. (Zarowin, 1990).

An event that currently held in Indonesia is Asian Games 2018 which is held on August 18th to September 2nd. This is a special event for Indonesia due to successful return to host after earlier in the year 1962 to host the 4th Asian Games (accessed on <http://asiangames2018.id>). The event that is held in Jakarta and Palembang city has become the spotlight of the world due to the totality of Indonesia in providing the best service in welcoming foreign guests. It is certainly expected to give a positive impact to the economy of Indonesia, Indonesia Capital market is one of them.

Research on one of capital market anomaly which is market overreaction has been a lot done. One of the methodologies that can be used is event study where the researcher sees an event influences capital market movement in a country. Hartono (2005) stated that an event study research is a research with a single event. The events can be micro or macro event or can be an economical event or non-economical event.

Agrawal and Kamakura (1995) do an event study on celebrity endorses. The result of the study indicates that the market reacts positively which reflects in a negative result in the implementation of the event. However, average of the investors makes some positive assessment on an abnormal return in sponsor company which is observed on the day the event is held. Some studies which also used event study to test market overreaction Indonesia are Sabina and Sulasmiyati (2017) who tested the impact of USA's general election in 2016 and Trump effect. The result was there is no market overreaction occurred in manufacture sector. otherwise, Heindarto's research (2015) which used 100 days of Jokowi-JK's work as an event showed there was a market overreaction occurred in two sectors of Indonesia stock exchange.

Other study which tested occurrence of market overreaction but without using event study methodology is Jemmy (2012) the movement of basic and chemical Industry in period of 2006-2012. The result of this research said that there was price reversal occurred on some stocks but there is no the occurrence of market overreaction. The research with the same result was also obtained by Pratama (2016) with market overreaction in manufacture sector in Indonesia.

This is an interesting research because this is the first research which aims to see the impact of Asian games 2018 event towards the movement of the stock prices in the Indonesia capital market. ASIAN GAMES 2018 is chosen because it is considered as a dramatic event that give a positive impression for the majority of citizens of Indonesia and the world as well. This event has become a spotlight of the world due to the totality that is shown by Indonesia, it is then able to influence the movement of the stocks in the capital market of Indonesia. Thus, this study presented a research question *"Is the implementation of Asian Games 2018 event able to make the occurrence of market overreaction either on a winner stock or a loser stock?"*

2. Literature Review

2.1. Event Study

Event Study is a study that focuses on market reaction to an event that is published as an announcement. If the event contains influential information, it is expected that there will be a market reaction to the event (Hartono, 2016). According to Kritzman (1994), event study aims to see the relation between an event and securities market which in this case means the value of the security and its return.

Event study quantifies the magnitude of the unexpected impact on the expected return and the risk of an event (Fama *et al.*, 1969). This theory stated that securities price is the present value of expected future cash flows and at certain times will reflect all available information about the current and future profit potential. If there is new information that is produced by an unexpected event, it is believed that it will affect the current and future profits of the company, there will be a change in the securities price when the market is aware of the event. Therefore, the share price is considered a reliable indicator of the company value (Agrawal and Kamakura, 1995).

The Amount of securities price changes after an event will be relative to the price before the event so that it will reflect an unbiased market estimation of the economic value of the event (Brown dan Warner, 1985). The Magnitude of the effect of an event on the value of a company can be measured by abnormal returns that indicate the basic movement before and after the event occurs (Dyckman, 1984). Event Study is considered the most efficient way to be used, with a few exceptions, the evidence is sufficient to support the testing on an efficient market (Gumanti and Utami, 2002).

2.2. Efficiency Market Hypothesis

Efficiency Market Hypothesis (EMH) is stated for the first time by Paul Samuelson (1965). It is said that information-efficient market, the price changes cannot be estimated because it will fluctuate randomly. Furthermore, Fama (1970) says that the price completely reflects all available information. EMH has been expanded in many other directions, including the merger of non-traded assets such as human capital, country-dependent preferences, heterogeneous investors, asymmetric information, and transaction costs. But generally, it relates to the establishment of expectation rationally by investors, marketing aggregate information efficiently, and equilibrium prices combine all information that is available instantly (Lo, 2004).

Capital market research regarding market efficiency is stated by Fama (1997). It is said that when stock prices are efficient, information will be a major interest to investors, managers, compilers of accounting standards, and other capital market participants. This is because the stock price will determine the allocation of company wealth for investors. An efficient Capital market has efficiently implications for the allocation of resources and productions (Ratmono and Cahyonowati, 2005). Beaver (2002) also classifies some researches regarding market efficiency into three sectors which are post-earnings announcement drift, market to book ratios, contextual accounting issues. On the other hand, Kothari (2000) classifies return predictability research sector by using few indicators on univariate mispricing as a part of market efficiency research.

According to Hartono (2014:236), return consists of two components, namely capital gain (loss) and yield which is the form of stock dividends. Every Investor certainly wants a high return, but in a competitive market, a price will be affected by demand and offer to reach market equilibrium. The Market equilibrium reflects the agreement between market participants related to the value of an asset from existing information. The new information that is responded by the market will create a new equilibrium point. Therefore, the investors will race to find information that is relevant to the market. This condition then creates an efficient market hypothesis.

Efficiency market hypothesis is divided to three forms such as Weak-form market efficiency, Semi-strong form market efficiency, Strong form market efficiency (Fama, 1994 and Hartono, 2014). The ease of accessing information is a key of creating an efficient market. An efficient market means the ease of obtaining information cheaply. This allows no investors to take advantage of the information they have (Tandelilin, 2010).

2.3. Capital Market Anomaly

Capital market anomalies are a form of deviations that occur in the market efficient which are not supposed to happen. Some of anomalies found in the capital market such as (Jones, 1996 and Dinawan, 2007):

- a. Price Earning (P/E) effect is an anomaly where the stocks with low P/E shows a higher risk-adjusted return than the stocks that have high P/E
- b. Size effect is an anomaly where the small size company's risk-adjusted return is higher than a large size company.
- c. January effect is an anomaly which stated that stocks return in January tend to be higher than in previous months.
- d. Neglected firm effect explains that the stock market investment in a company that is not known well will give an abnormal level of profit because it tends to be ignored by investors, this causes information is not widely available.

e. Reversal effect is an effect of the average reversal of stock returns which is also known as winner-loser anomaly. This anomaly explains the tendency of the stocks that have a bad performance (loser) to turn into stocks that have a good performance (winner) in the next period and vice versa.

2.4. Overreaction Hypothesis

DeBondt and Thaler (1985) say that basically, overreaction hypothesis states that market has overreacted to an information. The market participants tend to set stock prices too high toward information that is considered as good information and vice versa. The stock portfolio is divided into two groups such as the winner portfolio and the loser portfolio.

Overreaction occurs due to asymmetry of information which is the gap in information that the investors receive. This affects the investor's behavior in making investment decision that will be taken. The investors who receive information will be rational in making a decision, while the investors who don't receive any information tend to be irrational in making an investment (Pratama et al., 2016). Overreaction to a stock causes the stock is unable to be judged according to its circumstances, if the investors finally realize their mistake then it will create an opposite stock movement which is improving stock conditions after the emergence of new information (Fitriyani and Sari, 2013).

A simple stock market investment strategy is essentially motivated by cognitive psychology in intuitive predictions. This strategy is based on an idea that many investors are decision maker. Some researches show that in some cases, investors have tendencies to overreact when obtaining the latest information that is "overweight" compared to the previous information that is "underweight". It is assumed that the consequences of investors' overreaction to income, stock prices may depart from the fundamental values. The prices that are initially biased because of their excessive optimism-pessimism, the stock "loser" category will become more attractive investment than the previous stock that is in "winner" category (De Bondt and Thaler, 1987).

This winner-loser is contrary to the efficient market hypothesis. It is said that the stocks that is initially give a positive (winner) or negative (loser) profit rate will get a reversal in the next period. The cause of this anomaly is known as overreaction hypothesis. Abnormal return is used in overreaction study to know how rational the investors in a country can be. if there is a significant abnormal return, it indicates that the investors are starting to act irrationally in making stock investment decisions. The Investors who make a decision irrationally are indicator of the occurrence of overreaction in Indonesia (Pratama et al., 2016).

Overreaction hypothesis stated that the stock which has a bad performance during the previous period of time will surpass the market during the next time period of time (Clare and Thomas, 1995). Reversal effect is another designation for winner-loser anomaly which has tendency of bad performing stock portfolio (loser) to turn into a good performing stock portfolio (winner) in the next period (Sabina and Sulasmiyati, 2018).

H₁ There is a market overreaction on the winner's stock portfolio that is influenced by the Asian Games 2018 event.

H₂ There is a market overreaction on the loser's stock portfolio that is influenced by the Asian Games 2018 event.

3. Methodology of Research

3.1. Research Design

This Study is an Event study where the event that is used as an influence is Asian Games 2018 held on August 18th to September 2nd, 2018 in Jakarta and Palembang, Indonesia. This research is an explanatory research using quantitative approach. The type of data that is used in this study is quantitative, in the form of IDX Composite and the development of companies' stock prices indexed by LQ45 in a week before and a week after Asian Games 2018. Data sources are secondary data that is obtained from the official website of Indonesia Stock Exchange. The Population in this study is all companies listed on the Indonesia stock exchange. There are 45 companies that the stocks are indexed by LQ45 which provided the sample in this research.

3.2. Variable and Measurement

a. Actual return

Actual Return is the return calculation on each stock of the difference in daily stock price, here is the formula:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \quad (1)$$

Annotation:

R_{it} = Actual Return

P_{it} = ClosingPrice(t)

P_{it-1} = Closing Price (t-1)

b. Abnormal Return

Abnormal return is the excess of return that is actually occurred toward a normal return. Abnormal return is calculated by looking the difference between the actual return with the expected return, here is the formula:

$$AR_{it} = R_{it} - E[R_{it}] \quad (2)$$

Annotation:

AR_{it} = Abnormal Return

R_{it} = Actual Return

$E[R_{it}]$ = Expected Return

c. Market Return

Market return is the return calculation of the stock market value. Market Adjusted Model considers that the best prediction to estimate return of a securities is market index so that market return can be used as expected return measure. here is the formula:

$$R_{mt} = \frac{IHSG_{it} - IHSG_{it-1}}{IHSG_{it}} \quad (3)$$

Annotation:

R_{mt} = Market Return

$IHSG_{it}$ = IHSG closing price (t)

$IHSG_{it-1}$ = IHSG closing price (t-1)

d. Cumulative Abnormal Return

Cumulative Abnormal Return (CAR) is abnormal return summation. This calculation is used to see market overreaction and price reversal. Here is the formula that is used to calculate CAR:

$$CAR_{it} = \sum_{t=t1}^{t2} AR_{it} \quad (4)$$

Annotation:

CAR_{it} = Cumulative Abnormal Return (CAR)

AR_{it} = Abnormal Return

4. Data Analysis

Classification of winner-loser stock portfolio using CAR value before Asian Games 2018 event. Companies' stock that have positive CAR value are classified as winner portfolio, otherwise, companies' stock that have negative CAR are classified as loser portfolio. Research hypothesis is tested by using compare means test in SPSS 20 application with paired sample T-Test. This test is used to see any significant difference in CAR before and after Asian Games 2018 event. The significance of the changes CAR value indicates occurrence of overreaction because it is said that the investors act irrationally in determining stock prices.

5. Findings and Discussions

5.1. Data Description

Companies' stocks listed on the Indonesia stock exchange which are the 45 companies indexed by LQ45 are divided into 2 stock portfolios which are winner-loser stock portfolio. Winner portfolio is a group of stock that has positive CAR value before Asian Games 2018 event otherwise Loser portfolio is a group of stock that has negative CAR value before Asian Games 2018 Event. Based on the result of CAR calculation before and after Asian Games 2018 event, there are 29 companies' stocks that have negative stock value before Asian Games 2018 event. These stocks are classified as loser stock portfolio that is showed in the table below:

Table 1. CAR loser stock portfolio

NO	CODE	BEFORE	AFTER	NO	CODE	BEFORE	AFTER
1	ADHI	-0,073600	-0,041719	16	INCO	-0,058876	-0,150088
2	ADRO	-0,013139	-0,026771	17	INDF	-0,003048	-0,005611
3	AKRA	-0,006551	-0,162348	18	INDY	-0,002085	-0,047355
4	ANTM	-0,015359	-0,051167	19	INKP	-0,037627	0,021544
5	BBNI	-0,030787	0,024508	20	JSMR	-0,027219	-0,018766
6	BBRI	-0,014340	-0,021241	21	KLBF	-0,026829	0,022007
7	BBTN	-0,040013	0,020123	22	MEDC	-0,068843	-0,109046
8	BJBR	-0,102081	0,001612	23	PTBA	-0,138055	-0,065524
9	BKSL	-0,064240	-0,120991	24	PTPP	-0,055688	-0,057888
10	BMRI	-0,019304	-0,040459	25	SCMA	-0,027379	0,040495
11	BRPT	-0,056021	-0,081846	26	UNTR	-0,019029	-0,011760
12	BSDE	-0,048506	-0,038377	27	WIKA	-0,027662	-0,044800
13	ELSA	-0,020386	-0,027571	28	WSBP	-0,022381	-0,040942
14	GGRM	-0,032784	0,004499	29	WSKT	-0,051840	-0,021103
15	HMSP	-0,008364	0,047239				

Source: Indonesia Stock Exchange, 2018 (processed by the researcher)

Based on the table above, there are only 8 (BBNI, BBTN, BJBR, GGRM, HMSP, INKP, KLBF, SCMA) of 29 companies' stocks that are classified to loser stock portfolio sustain price reversal to become winner stock portfolio after Asian Games 2018 event otherwise another 21 companies' stocks remain to be loser stock portfolio with a negative CAR value. CAR calculation other than shows that there are stocks which have negative value; it also shows that there are 16 stocks which have positive CAR value before Asian Games 2018 event. This group of stock is called winner stock portfolio that is showed on the table below:

Table 2. CAR winner stock portfolio

NO	CODE	BEFORE	AFTER	NO	CODE	BEFORE	AFTER
1	ASII	0,014297	-0,029704	9	MNCN	0,002406	-0,033026
2	BBCA	0,015307	0,044801	10	PGAS	0,007988	0,076391
3	EXCL	0,030348	-0,011031	11	SMGR	0,022783	0,108435
4	ICBP	0,026573	-0,012648	12	SRIL	0,066490	-0,011563
5	INTP	0,031308	0,154045	13	SSMS	0,045208	-0,022145
6	ITMG	0,005514	0,008286	14	TLKM	0,007753	0,089138
7	LPKR	0,037320	-0,057555	15	TPIA	0,014473	-0,020821
8	LPPF	0,023071	0,045664	16	UNVR	0,012973	-0,003884

Source: Indonesia Stock Exchange, 2018 (Processed by Researcher)

The Table above shows that there are 16 companies' stocks are categorized as winner stock portfolio before Asian Games 2018 event, there are only 7 of 16 companies' stocks remain as the winner stocks portfolio after Asian Games 2018 event otherwise there are 9 companies' stocks which have a positive CAR value before Asian Games 2018 event sustain price reversal and becoming a negative CAR value after Asian Games 2018 event, those companies' stocks which are categorized to loser stocks such as ASII, EXCL, ICBP, LPKR, MNCN, SRIL, SSMS, TPIA, UNVR.

5.2. Hypothesis Testing

Hypothesis testing using Paired Sample T-Test to see market overreaction that occur due to the Asian Games 2018 Event. Test result can be shown in the table below:

Table 3. Paired Sample T-Test

Portfolio	Mean	T	Sig.
Loserbefore-loserafter	-0,003748	-0,372	0,881
Winnerbefore-winnerafter	0,002464	0,153	0,712

Source: Indonesia Stock Exchange, 2018 (Processed by Researcher)

The table above shows the absence of market overreaction in both winner and loser stock portfolios. This can be seen at the significance level of 0.881 for the loser portfolio and 0.712 for the winner portfolio. Both of them are above the 0.05 or 5% so that it can be concluded that Asian Games 2018 event is unable to make any market overreaction that can reverse the companies' stocks price which was previously categorized as loser stock into winner stock (price reversal). Thus the proposed hypothesis cannot be accepted.

6. Discussions

The Implementation of Asian Games 2018 event in Indonesia is a special event for the country itself because it takes decades to be able to return to host the event. This event is certainly expected to have a positive impact on various sectors including the Indonesian capital market. The result of study showed that the stocks in the LQ45 index did not have a significant influence on the event. There are only 17 of 45 companies' stocks that have reaction in capital market. The stocks are divided into 2 stock groups which are 8 stocks in loser category and 9 stocks in winner category. Reaction on each stock is indicated by the reversal of the stock price for stocks that are categorized as winner become loser and loser become winner. This price reversal effect is then said to be a symptom of overreaction at each stock price.

Hypothesis testing uses a group of stocks which is categorized as winner stock portfolio that has a positive CAR value and loser stock portfolio that has a negative CAR value. The test result showed that the overreaction phenomenon did not occur in the implementation of Asian Games 2018 event. The changes of CAR value before and after Asian Games 2018 event do not occur significantly. This means, on average, stocks that are classified as winner or loser stock portfolios do not have an overreaction to this event. The insignificant change in the CAR value before and after Asian Games 2018 event also explains that investors are still rational in determining stock prices on the stock exchange. De Bondt and Thaler (1987) said that the prices which were initially considered biased by the investors' excessive pessimistic-optimistic attitude were able to turn winner stocks into loser stocks and loser stocks turn into winner stocks. The results of this study do not indicate a stock price reversal where the winner stocks on average remain winner stocks and loser stocks remain loser stocks both before and after Asian Games 2018 event. This study shows that Asian games 2018 event is unable to make market overreaction because in the overreaction hypothesis it is confirmed that stocks with bad performance during the previous period of time will generally surpass the market during the next period of time (Clare and Thomas, 1995). This did not occur during before and after the implementation of Asian games 2018 in Indonesia. Capital market anomaly which is price reversal did not occur in the context of this study.

6. Conclusions, implications and limitations

6.1. Conclusions

This study shows that the implementation of Asian games 2018 event does not provide a significant influence in the Indonesia capital market, especially for companies' securities indexed by LQ45 on Indonesia stock exchange. It can be seen from the results of this study that the companies' stock prices which are indexed by Lq4 in the period of one week before and one week after Asian games 2018 did not sustain significant changes. The stocks group which is winner and loser remain the same without sustaining a reversal. This explains that the market does not show an overreaction in the period where the stocks portfolio that was previously a winner will remain a winner and the stocks portfolio that was previously a loser will remain a loser. It can be concluded from the result of the study that the overreaction phenomenon does not occur before and after Asian games 2018 event.

6.2. Implications

This study has theoretical and practical implication. In theory, it is said that overreaction hypothesis (De Bondt and Thaler, 1985; 1987) essentially occur due to information asymmetry. The gap of information that is received by investors has an impact on the investors' behavior in making investment decisions so that it can be said that the market will overreact to an information. Market participants tend to set stock prices too high towards information that is considered good and vice versa. The stock portfolio is then divided into two groups, the winner portfolio, and the loser portfolio.

The overreaction phenomenon will indicate a reversal of the stock price or known as a price reversal which is also said to be winner-loser anomaly. This phenomenon shows that a stock price reversal which was previously a winner stock category turned into a loser stock category, and the stock that was previously loser turned into a winner stock category. This study shows that information does not always make the market overreact. Inefficient capital market (Fama, 1970) said that prices fully reflect all available information. In capital market anomaly does not always occur such as price reversal which is the output of market overreaction. Practically this research indicates that the information does not always make investors become irrational in taking decisions. Winner stock price does not always turn into loser stock and loser stock price does not always turn into winner stock after the information is received. Investors' rationality in making an investment decision in uncertainty market will help reduce the occurrence of anomalies that may occur in the stock market especially when there is a major event that will give a different views upon the receipt of information.

6.3. Limitations

The time of this research was only one week before and one week after Asian Games 2018 event so that it is recommended for the further research to use quite a long time to see the possibility of market overreaction. This research also used 45 companies' stocks indexed by LQ45 on Indonesia stock exchange so that the writer wish for the next researcher to use companies' stocks in certain sectors such as infrastructure and tourism sector because one of the biggest effort of Indonesia to welcome the guests in Asian Games 2018 event is infrastructure improvements and the large number of foreign guests who come to this event.

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