CHAPTER III

RESEARCH METHOD

3.1. Type of Study

In this research, the researcher used event study to analyze the impact of the stock price in Indonesia Stock Exchange and Philippine Stock Exchange because of the actual influencing news. Event study was described as technique of empirical financial research that enabled an observer to assess the impact of a particular event on a firm's stock price. Event study is a method used to test the market efficiency in semi-strong form. It serves to know how the market responds to a specific event (Bodie, Kane, & Marcus 2002). It was also supported by Jogiyanto (2003), he said that event study is a technique for knowing the market reaction on an event where the information is published as an announcement. Evidence-based research studies had been widely used to examine the effect of an event on the reaction of the stock market.

3.2. Population and Sample

3.2.1 Population

The population of this research was the total stocks listed in Indonesian Stock Exchange (IDX) which was 569 stocks from all sectors and from Philippine Stock Exchange (PSE) which was 324 stocks from all sectors.

3.2.2. Sample

This research was done by purposive sampling method. The sample of this research was all stocks incorporated in LQ45 for Indonesian Stock Exchange (IDX), and PSE Composite Index (PSEi) for Philippine Stock Exchange. LQ45 index is consisted of 45 stocks that meet a number of specific criteria. One of the key criteria was these stocks are among the most liquid traded on the IDX. While Philippine Stock Exchange Composite Index (PSEi) consisted of 30 stocks that were carefully selected to represent the general movement of the stock market.

The reason of researcher to choose LQ45 and PSEi was because both indices were one of the best stock index and one of the stock price measurement indices in the Indonesia and Philippine that showed the movement of stock prices on both Indonesia and Philippine.

According to Wibowo (2014) the categories of the stock categorized in LQ45 were the stock that has the following requirement:

- Capitalization rate

- Liquidity

- How long the company listed in the IDX

- Company performance and performance stability

According to the official website of Philippine Stock Exchange, the companies in PSEi should meet three criteria:

- The company's free float level must be at least 12%

- The company must rank among the top 25% in term of median daily value in nine out of the twelve months period in review

- Ranking of TOP 30 qualified companies based on full market capitalization

The characteristic used in the selection of the sample in this research were:

a. Stock listed in Indonesian Stock Exchange that categorized in LQ45 Index from the date of September 8th until October 6th, 2014.

b. Stock listed in Philippine Stock Exchange was categorized in PSEi Index in the date of August 4th until September 6th, 2017.

c. The chosen stocks must provide a complete data in that period, which is in the t-10 until t+10 of the announcements.

3.3. Type and Source of Data

This research used quantitative exploratory type of research which means the data of this research mostly numerical data. This research used the secondary data. The secondary data of this research was the historical price of each sample stocks. The historical prices of the sample stocks were taken from Indonesian Stock Exchange (IDX) and Philippine Stock Exchange (PSE).

3.4. Research Variable

3.4.1. Announcement of Hosting International Sporting Events

The announcement of XVIII ASIAN Games was taken place in Seoul, South Korea when the closing ceremony of XVII ASIAN Games and the announcement of XXX SEA Games took place in Malaysia. The time in this study, the XVIII ASIAN Games and XXX SEA Games were announced on:

Table 3.1 List of Date Event

Date	Announcement of International Sporting Event
20th of September 2014	Announcement of XVIII ASIAN Games
18th of August 2017	Announcement of XXX SEA Games

3.4.2. Abnormal Return

According to Jogiyanto (2003), there are several steps to calculate abnormal return:

1. *Actual return* is calculated using the following formula:

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

Where:

Ri(t)   = *actual return* of stock (i) at the day t

Pi(t)   = stock price (i) at the day t

Pi(t)–1   = stock price (i) before the day t

2. Brown & Warner (1985) estimated the *Expected Return* using the estimation model as follows:

a. Mean Adjusted Model

This model assumes that the expected return has a constant value equal to the average return of the prior realization during the estimation period.

a.   Market Model

The calculation of the expected return with the market model is done in two stages: First, establishing the expected model using realization data during the estimation period. Second, using this expected model to estimate the expected return in the window period. Expected models can be formed using the OLS (Ordinary Least Square) regression technique.

b. Market-adjusted Model

This model assumes that the best estimator in estimating the return of securities is the market index return at the moment. This model does not use the estimation period to form the estimation model, since the estimated security return is equal to the market price index return.

This research used Market Adjusted Model which had the assumption that the expected return of all shares was equal (close to equivalent) with expected market return. Market adjusted model formula is stated as follow:

$$E(Rit) = RM(t) = \frac{Market(t) - Market(t)\text{-}1}{Market(t)\text{-}1}$$

Where:

RM(t)   = *market return* at the day t

Market(t)   = Market price day t

Market(t)-1 = Market price before day t

E (Rit)   = *Expected Return* for the stock (i) at the day t

3. Calculates *Abnormal Return* shares during the event period. *Abnormal return* is the difference between actual return with expected return (Jogiyanto, 2003). The formula is:

$$ARit = Rit - E\ (Rit)$$

Where:

ARit   = *Abnormal Return* stock (i), at the day ke-t

Rit   = *Actual Return* for stock (i), at the day-t

E (Rit) = *Expected Return* for stock (i), at the day-t

4. Calculates *Average Abnormal Return*.

$$AAR(t) = \frac{\sum ARi(t)}{k}$$

Where:

AAR(t)   = *Average Abnormal Return* at the day-t

ARi(t)   = *Abnormal Return* for stock (i) at the day-t

K   = The number of securities affected by the event announcement

5. Calculates *Cumulative Average Abnormal Return (CAAR)*

In this research, the researcher cumulates the Average Abnormal Return 10 days before the announcement and 10 days after announcement.

$$CAARn(t) = AARt + AAR\ (t\text{-}n\ and\ t\text{+}n)$$

Where:

CAARn(t)   = *Cumulative Average Abnormal Return* for stock (i) at the period n.

AARt   = *Average Abnormal Return* at the day t

AAR (t-n and t+n) = *Average Abnormal Return* at the day t that cumulated by

CAAR on before or after the period.

3.5. Data Analysis Technique

3.5.1. Statistics Descriptive Analysis

This analysis was used to know the mean, the minimum, and the maximum, also the standard deviation from *the cumulative average abnormal return* on the 10 days before the announcement, the day of announcement, and the 10 days after the announcement of both the announcement of XVIII ASIAN Games and XXX SEA Games.

3.5.2. Normality Test

Normality test used in this research was *the Kolmogorov-Smirnov* test. This normality test used the significance of 0.05. According to Priyatno (2008), normality test is used to know whether the population data is normal or not. The guidance in this normality tests are as follows:

a. If the value of significance ≤ 0.05, the data distribution is not normal.

b. If the value of significance or the probability value > 0.05, the data distribution is normal.

3.5.3. T-Test

In this research, the hypothesis testing used paired t test to know any differences in *the cumulative average abnormal return* in Indonesia Stock Exchange and Philippine

Stock Exchange before and after the announcement of XVIII ASIAN Games and XXX SEA Games. This research was analyzed using *IBM SPSS Statistics 24* and *Microsoft Excel 2016*.

The hypotheses were $H_1 0$, $H_2 0$ H1, and H2, as follow:

$H_1 0$: *Cumulative average abnormal return* does not have difference in the LQ45 index before and after the announcement of XVIII ASIAN Games.

$H_2 0$: *Cumulative average abnormal return* does not have difference in the PSE index before and after the announcement of XXX SEA Games.

$H_1 a$: *Cumulative average abnormal return* has difference in the LQ45 index before and after the announcement of XVIII ASIAN Games.

$H_2 a$: *Cumulative average abnormal return* has difference in the PSE index before and after the announcement of XXX SEA Games.

Define significant level (α) = 5%

Define criteria for decision making of H1 and H2:

1. If probability ≤ 0.05, H0 is rejected and Ha is accepted which means that there is a significance effect in the day of announcement.
2. If probability ≥ 0.05, H0 is accepted and Ha is rejected which means that there is no significance effect in the day of announcement.