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Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía, Lingüística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Stock market reaction towards SPECT events using CAPM adjusted return

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Abstract

The aim of the research is to analyze the market reaction towards Tax Amnesty Policy. The indicators used in study are abnormal return and trading volume activity. Event study method is used to examine the market's reaction and measure the differences before and after the announcement of the tax amnesty policy. The samples are all companies listed in LQ-45 sector. Abnormal return is calculated using CAPM Adjusted Return technique. The results showed that there are no significant differences in abnormal returns before and after all events. The trading volume activity also showed no significant difference before and after all events.

Keywords: Event, market, tax, trading, reaction.

Reacción del mercado de valores hacia los eventos de SPECT utilizando el retorno ajustado del CAPM

Resumen

El objetivo de la investigación es analizar la reacción del mercado hacia la Política de Amnistía Fiscal. Los indicadores utilizados en este estudio son el rendimiento anormal y la actividad de volumen de negociación. El método de estudio de eventos se usa para examinar la reacción del mercado y medir las diferencias antes y después del anuncio de la política de amnistía fiscal. Las muestras son todas empresas listadas en el sector LQ-45. El retorno anormal se calcula utilizando la técnica de retorno ajustado CAPM. Los resultados mostraron que no hay diferencias significativas en los rendimientos anormales antes y después de todos los eventos. La actividad de volumen de negociación tampoco mostró diferencias significativas antes y después de todos los eventos.

Palabras clave: Evento, mercado, impuestos, comercio, reacción.

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1. INTRODUCTION

Indonesia is a developing country that continues to develop in order to become a developed country. To be able to do the development, of course, required a large enough entrance. Source of revenues of the state of Indonesia is divided into two, namely Tax Revenue and Non-Tax State Revenue.

The state revenue is allocated to several interests such as central government expenditure, transfers to the regions and others. Based on Financial Statements of the Central Government, the largest revenue is in the tax revenue section with an average of 78.42% of total state revenues over the last four years from three sources. While non-tax state revenues and grants only have a small portion of state revenue. Based on the explanation can be said that the state revenue in the form of tax is a very important acceptance for the Republic of Indonesia.

One of the policies of the government in encouraging the tax revenue is published the Law of the Republic of Indonesia Number 11 the Year 2016 concerning Tax Amnesty issued by the President of the Republic of Indonesia namely Mr. Joko Widodo on July 1st, 2016 in Jakarta. The law contains general provisions, principles and objectives, subjects and objects of tax amnesty and others.

This tax amnesty policy is believed to have a positive impact on the Jakarta Composite Index in the long term, as the capital market is believed to be the investment destination of fresh funds that will enter Indonesia. In addition, the potential for increased state revenues is also believed to be able to finance infrastructure development that is currently underway to go.

Data from Indonesian Stock Exchange stated that foreign funds entering the stock market (JCI) has reached Rp 9.5 trillion in just a period of 9 working days of the stock (June, 27th 2016 – July, 15th 2016). This resulted in an increase of the JCI from 4,836.052 points to

5,110.178 points at the close of Friday, July, 15th 2016. Overall, it shows that a listed company, is one of the instruments that investors use to repatriate.

Based on the data of Directorate General of Taxes, the achievement of tax amnesty in the first period claimed the highest in the world. The total funds of Indonesian citizens brought back to Indonesia (repatriation) reached Rp 137 trillion. While the total ransom money reached Rp 97.2 trillion or more 50% of the target of 165 trillion to 31 March 2017 and the declaration of property reached Rp 3.620 trillion. The composition of assets based on Letter of Submission of Treasuries submitted until March 2017 reached 4.884 trillion of which 3.701 trillion is the domestic declaration, 1.037 trillion is an overseas

.declaration and 147 trillion is the result of repatriation. While the composition of realization based on the Tax Payment Receipt of 135.346 trillion with details of 114.231 trillion is a ransom payment, 1,748 is the payment of proof of the beginning and 19,366 is the payment of arrears. The total fund has reached 82.027% of the target set. The support of the capital market industry to the tax amnesty program has had a tremendous impact.

Based on Clara and Firli (2017) research, the occurrence of significant differences in average abnormal return an average trading volume activity before and after the first event. But Lasmanah and Bagja (2014) said that there is no significant difference in average

abnormal return before and after the event. Research on studies on the events was done by Chandra et al. (2016); Chandra (2013; 2015) and Mahmood et al. (2011) each of which shows mixed results.

The Overreaction Hypothesis predicts that corrective cumulative abnormal returns will be negative following good news, whereas the Uncertainty Information Hypothesis predicts that corrective cumulative abnormal returns will be positive following the favorable news.

Overreaction theory and signalling theory describe the investors' reaction to information in an event. The investor will take action immediately if there are good or bad news in overreaction theory. The firm will send to the investors a signal containing information by adopting a financial policy in signalling theory. This study aims to see the investors' reaction can be done well with the expected theory.

On the basis of the explanation of the phenomenon, differences in research results and explanations related to the reaction theory of investors, it will be interesting to be discussed more deeply related to the reaction of the capital market to the establishment of tax amnesty policy on companies listed on the Indonesia Stock Exchange. The main purpose of this discussion is to know what the impact of this policy on capital markets in Indonesia.

2. LITERATURE REVIEW

Based on Law No. 11 the Year 2016, tax amnesty is the abolition of taxes that should be owed, not subject to sanctions tax administration and criminal sanctions in the field of taxation, by way of disclosing assets and paying the ransom. The taxpayer is obliged to deliver a statement of assets for the unreported assets located in Indonesia. Meanwhile, assets that come from abroad must be repatriated or reinvested to Indonesia for three years pursuant to Article 12 of Law No. 11 of 2016.

An efficient market is a condition where investors can obtain relevant and trustworthy information easily so that it is reflected in the stock price. Efficient market hypothesis means that security price in the financial market has reflected all available information. There are three types of efficient market hypotheses namely the weak-form hypothesis, the semi-strong-form hypothesis and the strong-form hypothesis (Clara and Firli, 2017).

The presence of information contained in an event can certainly affect investors' decisions. Investors are often studying the same events with the impact of the stock price so that investors can make decisions quickly. But if the event (information) that happens is an event that has never been encountered, it is necessary to analyze the information content test in the event to determine the negative and positive impact of the existence of an event.

Non-economic environments can influence, although not directly related to the dynamics of capital markets, cannot be separated from stock exchange activity. An example is a political event occurring in a country. As a financial instrument that has an important role in the economy of the country, the capital market is inseparable from the influence of the political environment, not infrequently political events are factors causing the rise and fall of stock prices. In this regard, investors will certainly use information related to political policies taken by the government of a country as a consideration before taking a decision related to its investment.

SPECT events are events that occur due to policies or phenomena in the social, political, economic, cultural and technological fields. Those SPECT events, directly and indirectly, will affect the economic situation of a country. When the situation is conducive, the economy will tend to be stable and develop. Conversely, the volatility of the economic situation will disturb the economy as the investors are not daring enough to invest due to the higher risk which might come. The stock exchange is not only about counting the financial report and technical analysis, which can be predicted through the historical graphic. Beyond that, the political situation will determine the investors in deciding whether to sell or buy stock in the exchange.

Abnormal return or excess return is the excess of the actual return occurs to the normal return. The normal return is the expected return (return expected by the investor). Thus the abnormal return is

the difference between the actual return that occurs with the expected return.

It is important to understand that the interpretation of results from sales samples is difficult and cannot be inferred regardless of the findings. In particular, if the investor looks at the negative abnormal return immediately after the event, it can conclude that the event has provided further warnings of negative upcoming information and is therefore sold to avoid the inevitable loss. On the other hand, the positive abnormal returns observed after the sale may indicate that events took their "abnormal" profit "off the table" before stock prices peaked. Finally, there is no abnormal return indicating that investors are selling after all the positive excess yields have been squeezed out of the investment. In short, the results obtained from the sales sample can be interpreted as supporting the hypothesis. Thus, it presents the results of the sales samples for the sake of completeness and is not used as the basis for any conclusions (Ziobrowski et al., 2011).

The activity of available stock trading in the stock exchange called Trading Volume Activity (TVA). TVA is the ratio between the number of stocks traded and the number of stocks circulated in a certain period. The magnitude of TVA's average change between before and after the event is a small size due to the occurrence of events on stock trading volume (Imelda et al., 2014).

The development of stock trading volume reflects the strength of supply and demand, which is a manifestation of investor behavior.

Rising trading volume is an increase in trading activity of investors in the stock. The increasing volume of supply and demand of a stock, the greater the effect on the fluctuation of stock prices in the stock and the increasing volume of stock trading shows increasingly favorable shares by the public that will bring the effect on rising prices or stock returns.

The Overreaction Hypothesis postulates that investors overreact to unexpected events by setting too low (high) security prices in response to unfavorable news (profitable). Over time, security prices will ultimately reflect fundamental value as investors process the new information. Corrective and reversal changes in security pricing will follow the investor's exaggerated reaction to the arrival of unexpected new information. Consequently, in contrast to the instantaneous price adjustments implied by Efficiency Market Hypothesis, the price of securities will rise gradually after an overreaction to bad news, and gradually declines after an overreaction to the good news according to Overreaction Hypothesis. One of the implications of Overreaction Hypothesis is that an investor can create a contrarian trading rule that involves buying losers and winning sales to produce an abnormal return (De Bondt and Thaler, 1985).

The Uncertainty Information Hypothesis shows that the arrival of unexpected information, good or bad, raises uncertainty and risks in equity markets. In response to rising uncertainty, investors act rationally by initially setting stock prices below their fundamental value. A trend of upward correction in the price of the security will then follow as the initial uncertainty gradually eases and the price rises

to their fundamental value. The stock price pattern predicted by Uncertainty Information Hypothesis indicates that the abnormal return is generally positive (or at least not negative) during the correction period after the unfavorable or profitable news (Brown et al., 1988).

From both Overreaction Hypothesis and Uncertainty Information Hypothesis, it follows that corrective cumulative abnormal stock returns will be positive in response to bad news. The Overreaction Hypothesis predicts that corrective cumulative abnormal returns will be negative following good news, whereas the Uncertainty Information Hypothesis predicts that corrective cumulative abnormal returns will be positive following the favorable news. Thus, the Overreaction Hypothesis and Uncertainty Information Hypothesis offer competing, alternative predictions about corrective stock returns following favorable political or economic news, and an empirical test of post-event cumulative abnormal stock returns following favorable news can empirically determine which hypothesis is more consistent with investors' reactions to new information (Mehdian et al., 2008).

Signalling theory based upon the problems of asymmetrical information between managers and investors. These models are based on the idea that the top executives of the firm that have inner information, have a motive to transfer this knowledge to the external investors so that the stock price will rise. However, managers cannot simply announce the good news to the investors, since they will face it with suspicion. One solution to this problem (for the underestimated firms) is to send to the investors a signal containing this information,

by adopting a financial policy. To the external users what makes the signal credible is its cost. Managers would not announce the good news that they have because all companies could do this without being valid. Instead of this, the administration increases the leverage of the firm. The firms that want to send the signal that they have good prospects to increase their leverage. In contrast, the overestimated firms are not willing to undertake the burden of lending because in this way they face the risk of bankruptcy. Furthermore, the precision of the signal is significant as well (Markopoulou and Papadopoulos, 2009).

There are several studies that underlie this study. In abnormal return test, Chandra et al. (2016); Clara and Firli (2017) and Imelda et al. (2014) proved that there are significant differences of abnormal return before and after event tested, whereas Chandra (2013; 2015); Lasmanah and Bagja (2014); Mahmood et al. (2011) showed insignificant results in some test events. In Trading Volume Activity test, Chandra et al. (2016); Chandra (2013) and Clara and Firli (2017) show there are significant differences before and after event tested whereas Chandra (2015); Imelda et al. (2014) and Lasmanah and Bagja (2014) showed insignificant results in some of the events tested.

3. HYPOTHESIS

Based on the explanation above, several hypotheses can be drawn for this research including:

1. There are abnormal returns of stocks during implementation the tax amnesty policy.

2. There are significant differences in abnormal return of stocks before and after implementation the tax amnesty policy.

3. There are significant differences in the trading volume activity of stocks before and after implementation the tax amnesty policy.

4. RESEARCH METHOD

4.1 Population and Sample

The population used in this research was all the companies listed in Indonesia Stock Exchange. While the sample taken was the companies listed on LQ-45 from February 2017 to July 2017. This period was the period where tax amnesty event took place. There were 45 companies listed on LQ-45 which were taken as the sample. These 45 companies were taken as the 45 best companies that represented all the existing companies from all sectors with the best liquidity.

4.2 Type and Source of Data

The type of data used was secondary data which was the data of companies' stocks listed on LQ-45 on Indonesia Stock Exchange. The

source of the data was from the records of LQ-45 companies' stock price movement which were obtained from www.idx.co.id that covered the closing price, trading volume and tradable shares.

4.3 Research Period

For event study, research period was divided into two, which are window period and estimation period. The window period and estimation period for this research are as follows:

Figure 1. Event Study of Research Period
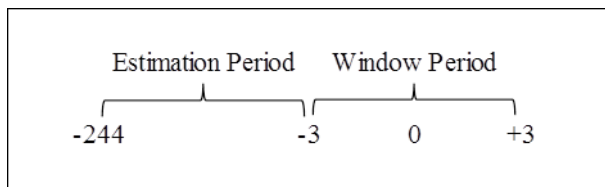
Source: Processed Data, 2017

The figure 1 shows that:

Estimation period is started from day -3 to day +3 from each event which was total 249 trade days to be observed per event.

1. Event day is determined to consist of five events which are the enactment of laws on June, 28th 2016, the first period begins in June, 1st 2016, end of the first period on September, 30th 2016, end of the second period on December 31st 2016 dan end of the third period on March, 31st 2017.

2. Event periods are 3 days before and after the event. This length of the period was used to portray the actual investors' reaction. If the time used is too long, there might be influences from other events that affect this research just like a stock split, acquisition or other international events.

4.4 Data Analysis Technique

Event study can be considered to be a semi efficient market hypothesis test. Event study is a study that studies the market reaction to an event whose information is published as an announcement. If the announcement contains information, then the market is expected to react at the time the announcement is received by the market. Event study methodology has been used to measure the economic impact and the scope of other events (Clara and Firli, 2017).

There are some basic steps to do event study analysis (Schweitzer, 1989; Sitthipongpanich, 2011):

1. Identification of the event. Identify the event and the date on which it occurred and selecting sample firms/stocks.

2. Identifying the timeline of an event study.

3. Estimating the expected return for each sample stock over an estimation period.

4. Estimation of abnormal returns. Examining the returns on a firm's stock around the date selected and separating out the portion of the total returns that is a reaction to the event.

5. Grouping of the abnormal returns. The abnormal returns for the firms under study are grouped for analysis to calculate the cross-section average and cumulative abnormal returns for the firms.

6. Analysis of the data. Interpret the abnormal returns data.

4.5 Hypothesis Testing

There are some steps and formulas used to test the hypothesis based on previous research, those are (Chandra, 2015; Sitthipongpanich, 2011):

4.5.1 Hypothesis I

Hypothesis I was aimed to examine the existence of abnormal return. The formula used is as follows:

4.5.1.1 Actual Return

$$R_{it} = \frac{P_t - P_{t-1}}{P_{t-1}} \tag{1}$$

R_{it} :   Actual return of stock i at period t

P_t :   Closing price at period t

P_{t-1} :   Closing price at period t-1

4.5.1.2 Market Return

$$R_{mt} = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}} \tag{2}$$

R_{mt} :   Market return at period t

$IHSG_t$:   Stock price index at period t

$IHSG_{t-1}$:   Stock price index at period t-1

4.5.1.3 Expected Return

4.5.1.3.1 Mean Adjusted Return

$$E(R_{it}) = \bar{R}_i \tag{3}$$

$E(R_{it})$: Expected return

$\bar{R}_i$: Average actual return of stock i

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The mean return is the average return over the estimation period. Each stock can use the average return during the estimation period as its own expected return. This model does not count the market return.

4.5.1.3.2 Market Adjusted return

$$E(R_{it}) \quad = \quad R_{mt} \quad \text{——————————————} \quad (4)$$

$E(R_{it})$:   Expected return

R_{mt} :   Market return at period t

The expected return is the market return at the same period of time, assuming that all stocks, on average, generate the same rate of return. This model does not pay attention to the trend between the actual return and market return.

4.5.1.3.3 Market Model Adjusted Return

$$E(R_{it}) \quad = \quad \alpha_i + \beta_i . R_{mt} \quad \text{——————————————} \quad (5)$$

$E(R_{it})$:   Expected return

α_i :   Intercept of time series regression of stock i

β_i :   Slope of time series regression of stock i

R_{mt} :   Market return at period t

The expected return is computed based on a single factor market model. The parameters of the market model, i.e. α and β, are estimated using Ordinary Least Square (time series) regression between the actual return (R_{it}) and market return (R_{mt}) over the estimation period. This model does not pay attention to risk-free rate and systematic risk.

4.5.1.3.4 Capital Asset Pricing Model Adjusted Return

$$E(R_{it}) \;=\; R_{ft} + \beta_i\,(R_{mt} - R_{ft}) \;\;\text{————————}\;\; (6)$$

$$\beta_i \;=\; \frac{Cov(R_i R_m)}{Var(R_m)} \;\;\text{————————————}\;\; (7)$$

$E(R_{it})$:   Expected return

           R_{ft} :   Risk free rate at period t, can be obtained from Bank Indonesia Rate

β_i :   Systematic risk

R_{mt} :   Market return at period t

R_i :   Actual return of stock i

R_m :   Market return

Using the Capital Asset Pricing Model (CAPM), the expected return is the outcome of the risk-free rate return (R_{ft}) plus market risk premium. β_i of the model measures the risk of stock (i), assuming that an investor requires a higher return to compensate higher risk. This model does not pay attention to company size and book to market equity ratio.

4.5.1.3.5 Fama-French Three Factor Model

$$E(R_{it}) = \begin{array}{c} R_{ft} + \beta_i\,(R_{mt} - R_{ft}) \\ + S_i\,.\,SMB_t + H_i\,. \\ HML_t \end{array} \quad\text{———————} \tag{8}$$

$E(R_{it})$: Expected return

      R_{ft} :   Risk free rate at period t, can be obtained from Bank Indonesia Rate

β_i :   Systematic risk

R_{mt} :   Market return at period t

S_i :   Regression coefficient of stock i for SMB

SMB_t :   Small, Minus and Big of firm size at period t

H_i :   Regression coefficient of stock i for HML

      HML_t :   High, Minus and Low of book to market equity ratio at period t

This method is an extension of the CAPM-adjusted return, combining more risk factors, i.e. a market excess return

factor $(R_{mt} - R_{ft})$, a factor for size (small minus big, SMB) and a factor for book to market equity ratio (high minus low, HML). SMB is the difference between average returns of small stock portfolios and those of big stock portfolios. HML is the difference in average returns between high and low book to market stock portfolios. This method uses monthly returns over a long period of time.

4.5.1.4 Abnormal Return

$$AR_{it} = R_{it} - E(R_{it}) \ ———————————— \quad (9)$$

AR_{it} :   Abnormal return of stock i at period t
R_{it} :   Actual return of stock i at period t
$E(R_{it})$:   Expected return of stock i at period t

4.5.1.5 Average Abnormal Return

$$\overline{AR_i} = \frac{\sum_{i=1}^{n} AR_i}{n} \qquad ——————————— \quad (10)$$

$\overline{AR_i}$:   Average abnormal return of stock i
AR_i :   Abnormal return of stock i
n :   Number of samples

4.5.1.6 Standard Deviation of Abnormal Return

$$\sigma_i \quad = \quad \sqrt{\frac{\sum (AR_i - \overline{AR_i})^2}{n-1}} \quad \text{_____} \quad (11)$$

σ_i :   Standard deviation of stock i

AR_i :   Abnormal return of stock i

$\overline{AR_i}$:   Average abnormal return of stock i

n :   Number of samples

4.5.1.7 Standardized Abnormal Return

$$SAR_{it} \quad = \quad \frac{AR_{it}}{\sigma_i} \quad \text{_____} \quad (12)$$

SAR_{it} :   Standardized abnormal return of stock i at period t

AR_{it} :   Abnormal return of stock i at period t

σ_i :   Standard deviation of stock i

4.5.1.8 Average Standardized Abnormal Return

$$\overline{SAR_t} \quad = \quad \frac{\sum_{t=1}^{n} SAR_t}{n} \quad \text{_____} \quad (13)$$

$\overline{SAR_t}$: Average standardized abnormal return of stocks at period t

SAR_t : Standardized abnormal return of stocks at period t

n : Number of samples

4.5.1.9 Standard Deviation of Standardized Abnormal Return

$$\sigma_t \;=\; \sqrt{\frac{\sum (SAR_t - \overline{SAR_t})^2}{n-1}} \qquad \rule{3cm}{0.4pt} \quad (14)$$

σ_t : Standard deviation of standardized abnormal return at period t

SAR_t : Standardized abnormal return of stock at period t

$\overline{SAR_t}$: Average standardized abnormal return of stock at period t

n : Number of samples

4.5.1.10 One Sample t-Test

$$t_{statistic} \;=\; \frac{\overline{SAR_t}}{\sigma_t / \sqrt{n}} \qquad \rule{3.5cm}{0.4pt} \quad (15)$$

$t_{statistic}$: Value of t statistic for one sample t-test

$\overline{SAR_t}$: Average standardized abnormal return of stock at period t

σ_t : Standard deviation of stock at period t

N : Number of samples

Statistic test with α = 5%

4.5.2 Hypothesis II

Hypothesis II is related to the test of differences between the stock return before and after the event. The formula used is as follows:

4.5.2.1 Cumulative Abnormal Return

$$CAR_{before} = \sum \overline{AR_{t\,before}} \quad\text{\textemdash\textemdash\textemdash\textemdash\textemdash} \quad (16)$$

$$CAR_{after} = \sum \overline{AR_{t\,after}} \quad\text{\textemdash\textemdash\textemdash\textemdash\textemdash} \quad (17)$$

CAR : Cumulative abnormal return

$\sum \overline{AR_t}$: Total average abnormal return of stocks at period t

4.5.2.2 Difference of Cumulative Abnormal Return

$$d_p = CAR_{before,p} - CAR_{after,p} \quad\text{\textemdash\textemdash\textemdash\textemdash\textemdash} \quad (18)$$

d_p: Difference of cumulative abnormal return at window period p

$CAR_{before,p}$: Cumulative abnormal return at window period p before event

$CAR_{after,p}$: Cumulative abnormal return at window period p after event.

4.5.2.3 Average Difference of Cumulative Abnormal Return

$$\overline{d_p} \qquad \frac{\sum_{p=1}^{n} d_p}{n} \underline{\hspace{6cm}} \qquad 19)$$

$\overline{d_p}$: Average difference of cumulative abnormal return at window period

d_p: Difference of cumulative abnormal return at window period p

n :Number of samples

4.5.2.4 Standard Deviation of Cumulative Abnormal Return Difference

$$\sigma_{d_p} = \sqrt{\frac{\sum\left(d_p - \overline{d_p}\right)^2}{n-1}} \underline{\hspace{4cm}} (20)$$

σ_{d_p}:   Standard deviation of cumulative abnormal return difference

d_p: Difference of cumulative abnormal return at window period p

$\overline{d_p}$:   Average difference of cumulative abnormal return at window period

n: Number of samples

4.5.2.5 t-Test: Paired Two Sample for Means

$$t_{statistic} = \frac{\overline{d_p}}{\sigma_{d_p}\Big/\sqrt{n}} \underline{\hspace{6cm}} \quad (21)$$

$t_{statistic}$:   t statistic for t-test: paired two sample for means

$\overline{d_p}$:   Average difference of cumulative abnormal return at window period

σ_{d_p} :   Standard deviation of cumulative abnormal return difference

n :   Number of samples

Statistic test with α = 5%

4.5.3 Hypothesis III

Hypothesis III is related to the test of differences between the trading volume activity before and after the event. The formula used is as follows:

4.5.3.1 Trading Volume Activity

$$TVA_{it} = \frac{Stock\ trading\ volume\ of\ stock\ i\ at\ period\ t}{Number\ of\ tradable\ share\ of\ stock\ i\ at\ period\ t} \quad \underline{\quad} \quad (22)$$

TVA_{it} :   trading volume activity of stock i at period t

4.5.3.2 Cumulative Trading Volume Activity

$$CTVA_{before} = \sum TVA_{t_{before}} \quad \underline{\quad\quad\quad} \quad (23)$$

$$CTVA_{after} = \sum TVA_{t_{after}} \quad \underline{\quad\quad\quad} \quad (24)$$

$CTVA$: Cumulative trading volume activity
TVA_t: trading volume activity of stock at period t

4.5.3.3 Difference of Cumulative Trading Volume Activity

$$d_p = CTVA_{before,p} - CTVA_{after,p} \quad \underline{\quad\quad} \quad (25)$$

d_p: Difference of cumulative trading volume activity at window period p

$CSRV_{before,p}$: Cumulative trading volume activity at window period p before event

$CSRV_{after,p}$: Cumulative trading volume activity at window period p after event

4.5.3.4 Average Difference of Cumulative Trading Volume Activity

$$\overline{d_p} = \frac{\sum_{p=1}^{n} d_p}{n} \qquad (26)$$

$\overline{d_p}$: Average difference of cumulative trading volume activity at window period

d_p: Difference of cumulative trading volume activity at window period p

n: Number of samples

4.5.3.5 Standard Deviation of Cumulative Trading Volume Activity Difference

$$\sigma_{d_p} = \sqrt{\frac{\sum (d_p - \overline{d_p})^2}{n-1}} \qquad (27)$$

σ_{d_p}: Standard deviation of cumulative trading volume activity difference

d_p: Difference of cumulative trading volume activity at window period p

$\overline{d_p}$: Average difference of cumulative trading volume activity at window period

n: Number of samples

4.5.3.6 t-Test: Paired Two Sample for Means

$$t_{statistic} = \frac{\overline{d_p}}{\sigma_{d_p}/\sqrt{n}} \underline{\hspace{6cm}} \quad (28)$$

$t_{statistic}$: t statistic for t-test: paired two sample for means

$\overline{d_p}$: Average difference of cumulative trading volume activity at window period

σ_{d_p}: Standard deviation of cumulative trading volume activity difference

n: Number of samples

Statistic test with $\alpha = 5\%$

5. EMPIRICAL RESULT ANALYSIS

5.1 Hypothesis I

Hypothesis I stated that there are abnormal returns of stocks during implementation the tax amnesty policy. The result is presented in Table 1.

Table 1. Summary of Abnormal Return Test

Window Period	Average Abnormal Return	Sig.	Result
Event I			
Day + 3	-0,0491	0,0000	Significant
Day + 2	-0,0423	0,0000	Significant
Day + 1	-0,0297	0,0000	Significant
Day	-0,0442	0,0000	Significant
Day - 1	-0,0399	0,0000	Significant
Day - 2	-0,0518	0,0000	Significant
Day - 3	-0,0456	0,0000	Significant
Event II			
Day + 3	-0,0331	0,0000	Significant
Day + 2	-0,0346	0,0000	Significant
Day + 1	-0,0264	0,0000	Significant
Day	-0,0491	0,0000	Significant
Day - 1	-0,0423	0,0000	Significant
Day - 2	-0,0297	0,0000	Significant
Day - 3	-0,0442	0,0000	Significant
Event III			
Day + 3	-0,0385	0,0000	Significant
Day + 2	-0,0349	0,0000	Significant
Day + 1	-0,0143	0,0000	Significant
Day	-0,0489	0,0000	Significant
Day - 1	-0,0238	0,0000	Significant
Day - 2	-0,0313	0,0000	Significant
Day - 3	-0,0201	0,0001	Significant
Event IV			
Day + 3	-0,0250	0,0000	Significant
Day + 2	-0,0220	0,0002	Significant
Day + 1	-0,0334	0,0000	Significant
Day - 1	-0,0382	0,0000	Significant
Day - 2	-0,0192	0,0000	Significant
Day - 3	-0,0084	0,0037	Significant
Event V			
Day + 3	-0,0351	0,0000	Significant
Day + 2	-0,0193	0,0000	Significant
Day + 1	-0,0333	0,0000	Significant
Day	-0,0322	0,0000	Significant
Day - 1	-0,0358	0,0000	Significant
Day - 2	-0,0183	0,0000	Significant
Day - 3	-0,0394	0,0000	Significant

Source: Processed Data, 2017

Based on the calculation of one sample t-test, it obtained significant results for all window period. That is the hypothesis stating

that there are abnormal returns of stocks during the implementation of the tax amnesty policy is accepted.

The calculation of expected return using CAPM Adjusted Return assumes that risk-free rate and systematic risk factors need to be included as part of the investment itself. The result of negative abnormal return shows that the actual return is less than expected return. This means that the actual daily return is not able to cover the investment risk so the result of one sample t-test tends to show negative and significant results. This indicates that the alleged investor who states that there is indeed information on the tax amnesty policy. Although the results of the analysis show a negative abnormal return, it does not become a big problem because the goal of investing to get a long-term return is almost not always obtainable if the investment period is still less than one and a half years.

Day - 3 coincides with the Brexit incident where the British state wants to get out of the European Union. It will certainly shake the world capital market is no exception in Indonesia. The value of one sample t-test on day - 3 of -15.13 is almost close to the average of one sample t-test on the first event which is -16.14. This means that Brexit incident does have a significant impact on the Indonesian capital market. While the impact of tax amnesty in the Indonesia capital market can be quite significant.

After the passing of the regulation regarding tax amnesty on June, 28th 2016, activity in the capital market began to increase in the

next day. However, some investors have not and cannot understand the benefits of the tax amnesty itself. After the enactment of tax amnesty, i.e. on July, 1st 2016, activity in the capital market began to increase drastically, which can be seen in the test results in event II.

On August, 19th 2016, Bank Indonesia said it would replace the BI Rate to be BI 7-day (Reverse) Repo Rate. It aims to improve the Indonesian economy. So the impact when near the third event, the movement of the capital market is quite increased compared with the second event.

After the third event passes, the capital market activity can be said to be smoothly up to day + 3 on event V. On day – 3 in event IV, the t-test value shows the highest result of all test results. This could be the result of Turn-of-the-year Effect and January Effect. The month of December is the end of the tax year. Investors are likely to want to avoid large tax payments at the time of the annual. The Letter of Notification (SPT) submission so that by the end of the tax year investors will calculate their unfavorable investments and sell their stock loss so that it can be a deduction in their tax calculations.

In event V, the capital market situation is quite stable considering the closer the tax threshold of amnesty for the third period, the higher ransoms must be paid. Thus, capital market investors tend to apply for tax amnesty in the first and second periods.

The appearance of tax amnesty policy has made the stock prices fluctuate and hence created abnormal returns. This corresponded with the research done by Chandra et al. (2016) and Chandra (2015). Also, this result is in line with overreaction theory and signalling theory.

5.2 Hypothesis II

Hypothesis II stated that there are significant differences in abnormal return of stocks before and after implementation the tax amnesty policy. The result of the analysis was shown in Table 2.

Table 2. Summary of Hypothesis II Test

Event	t $_{statistic}$	Sig.	Result
I	-1.2060	0.3511	Insignificant
II	-1.1678	0.3633	Insignificant
III	0.5190	0.6555	Insignificant
IV	0.7731	0.5203	Insignificant
V	-1.2200	0.3468	Insignificant

Source: Processed Data, 2017

Based on the calculation of t-test: paired two sample for means, obtained results that are not significant for the five events. That is, there are no significant differences in abnormal return of stocks before and after implementation of the tax amnesty policy. The results showed similar results with the study from Chandra (2013); Clara and Firli (2017); Lasmanah and Bagja (2014) and Mahmood et al. (2011) on several events.

5.3 Hypothesis III

Hypothesis III stated that there are significant differences in the trading volume activity of stocks before and after implementation the tax amnesty policy. The result of the analysis was shown in Table 3.

Table 3. Summary of Hypothesis IV Test

Event	t statistic	Sig.	Result
I	1.0762	0.3944	Insignificant
II	0.2605	0.8189	Insignificant
III	0.9302	0.4505	Insignificant
IV	0.1035	0.9270	Insignificant
V	1.0628	0.3992	Insignificant

Source: Processed Data, 2017

Based on the calculation of t-test: paired two sample for means, obtained results that are not significant for the five events. That is, there are no significant differences in trading volume of activity of stocks before and after implementation of the tax amnesty policy. This is certainly in line with the second and third hypothesis which states there is no significant material. The results showed similar results with the study from Chandra (2015); Clara and Firli (2017) and Imelda et al. (2014) for several events.

Although the results of the analysis show that there is an abnormal return, the presence of tax amnesty does not seem to encourage stock price movements, only globally can have a significant impact. This is allegedly due to declared and repatriated assets, not

transferred by investors to the stock market, but to other assets. This is mirrored by TVA testing before and after events that do not make a significant difference.

6. CONCLUSION AND RECOMMENDATION

The research result shows that during the tax amnesty implementation, there was bad news about the ransom rate and the amount of funds to be opened by Directorate General of Taxes caused the existence of big negative abnormal returns. A significant difference of three days before and after the event was not caused by a negative abnormal return, but allegedly because of the repatriation policy by investors to other investment instruments.

Investors can invest their declared funds into the capital market, especially in LQ-45 sectors. This is because the company is one of the sectors of the company that has the best liquidity of all companies. With a three-year assets placement policy, the researcher believes that their investments will give a good return in the future.

This research only took 3 days before and after the event. The purpose of this is already explained in the methodology section and became a limitation for this research. It was recommended for the next research to research the period in the examination of the consistency of this research.

This research only assessed the stock market reaction of tax amnesty policy in Indonesia and did not take into account other influences such as Brexit and The Simultaneously Head of Province Election. Therefore, it is necessary to do more research on factors other than economics that could affect the stock prices.

This research emphasizes more on stock price movements. Research on investor perception towards liquidity, solvability, asset productivity, financial performance, bid-ask spread, etc. was not done in this study. Also, this research cannot use Fama-French Three Factor Model. Therefore, it is necessary for the next researcher to expand the research and use the most update methodology to make the future research more brilliant.

References

BROWN, K., HARLOW, W., & TINIC, S. 1988. **Risk Aversion, Uncertain Information, and Market Efficiency.** Journal of Financial Economics. Vol. *22*: 355–385. Netherlands.

CHANDRA, T. 2013. **The Impact of Fuel Price Increase on Stock Price in Indonesia Stock Exchange.** Journal of Economics, Business and Accountancy Ventura. Vol. 16 N° 3: 385–398. https://doi.org/10.14414/jebav.v16i3.219. Indonesia.

CHANDRA, T. 2015. **Impacts of Indonesia's 2014 Presidential Election towards Stock Prices on Indonesia Stock Exchange.** International Journal of Business and Management. Vol. 10 N° 7: 172–183. https:// doi:10.5539/ijbm.v10n7p172. Canada.

CHANDRA, T., ERIANTO & RAHMAN, S. 2016. **Analysis of Changes Fuel Price During Presidential Joko Widodo 2014–2015 on Share Pice on Sub Sector Property in Indonesia**

Stock Exchange. International Journal of Economic Research - Serials Publications. Vol. 13 N° 4: 1521–1539. https://doi.org/10.13140/RG.2.2.27911.80800. India.

CLARA, Z., & FIRLI, A. 2017. **Terrorism Event Study: The Analysis of Abnormal Return And Trading Volume Activity Before, During and After Terrorism Act (A Case Study on Indonesia Terrorism Acts in 2005-2015).** International Journal of Economics, Commerce and Management. Vol. 2: 177–185. UK.

DE BONDT, W., & THALER, R. 1985. **Does the Stock Market Overreact?** The Journal of Finance. Vol. 3: 793–805. USA.

IMELDA, SIREGAR, H., & ANGGRAENI, L. 2014. **Abnormal Returns and Trading Volume in the Indonesian Stock Market in Relation to the Presidential Elections in 2004, 2009, and 2014.** International Journal of Administrative Science & Organization Bisnis & Birokrasi, Jurnal Ilmu Administrasi Dan Organisasi. Vol. 21 N° 2: 65–76. Indonesia.

LASMANAH & BAGJA, B. 2014. **Abnormal Return and Stock Trading Volume Analysis on the Company Taking Stock Split at Indonesia Stock Exchange Period 2010-2013.** International Journal of Science and Research (IJSR). Vol. 2 N° 4: 566–572. India.

MAHMOOD, S., SHEIKH, M., & GHAFFARI, A. 2011. **Dividend Announcements and Stock Returns: An Event Study on Karachi Stock Exchange.** Interdisciplinary Journal of Contemporary Research in Business. Vol. 3 N° 8: 972–981. UK.

MARKOPOULOU, M., & PAPADOPOULOS, D. 2009. **Capital Structure Signaling Theory: Evidence from The Greek Stock Exchange.** Portuguese Journal of Management Studies. Vol. 3: 217–238. Portugal.

MEHDIAN, S., NAS, T., & PERRY, M. 2008. **An Examination of Investor Reaction to Unexpected Political and Economic Events in Turkey.** Global Finence Journal. Vol. 18: 337–350. https://doi.org/10.1016/j.gfj.2007.06.002. Netherlands.

SCHWEITZER, R. 1989. **How do stock returns react to special events?** Business Review. pp. 17–29. Sweden.

SITTHIPONGPANICH, T. 2011. **Understanding the Event Study.**
Journal of Business Administration. Vol. 34 N° 130: 59–68.
Thailand.

ZIOBROWSKI, A., BOYD, J., CHENG, P., & ZIOBROWSKI, B.
2011. **Abnormal Returns From the Common Stock
Investments of Members of the U.S. House of
Representatives.** Business and Politics. Vol. 13 N° 1: 1–22.
https://doi.org/10.2202/1469-3569.1308. UK.