

## Capital Market Reactions Towards Improvement In United States Bonds Yields

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### **ABSTRACT**

The aim of this study is to analyze the market and trade movements toward the increase in United States bond yields. Event study is used as methodologies in this study. 43 companies are used as the sample of the research. The indicators of market reaction used in this research are abnormal return and trading volume activity. The window period used in this study is 7 days. The study found that there are negative significant abnormal return at  $t_{+1}$  period, which is in line with the signaling theory explaining that the event of the increase in United States bond yields is hoped to have the negative information content and also found no change in trading volume activity before and after the event. The result shows that Indonesian capital market gives the reaction toward the increase in United States bond yields, it indicates that the increase in United States bond yields has the information content but still considered as a bad news.

**Keywords:** *abnormal return, trading volume activity, increase in US bond yields, Indonesian capital market*

## PRELIMINARY

Capital market is a place where various parties sell stocks and bonds as additional funds or to strengthen the company's capital (Fahmi, 2015). When investing in the capital market, the basic things need to be considered are information about the past and the present, and opinions which is market responds to inform the price changes. According to Hartono (2017), in an efficient market concept, the alteration of stock prices in the past cannot be used in estimating future price. Alteration of stock prices inefficient market follows a random walk pattern, where the stock price estimation cannot be done by looking at the historical prices of the stock, but rather based on all information available and appearing on the market. Information about the market and dealing with a stock will affect the possibility of a shift in the new equilibrium price. The market reacts quickly and accurately toward incoming information and immediately sets up a new equilibrium price.

According to Fama (1965), in Natasya & Suganda (2013), an efficient market occurs when prices fully reflect all information publicly. In fact, prices do not always reflect all available information. Therefore, testing of the information content needs to be done. Testing the information content is carried out to see whether there is a capital market reaction toward an announcement is categorized into an event study.

Event study is a methodology to investigate market reaction to an event whose information is published as an announcement (Hartono, 2017). Market reaction is measured by abnormal return and trading volume activity. Event study can be used to test the information content of an event that can be used to measure the level of semi-strong form market efficiency. If the market reacts quickly to information that has been published, the market called as an efficient market.

Testing of event studies to investigate market efficiency in a semi-strong form requires events that are considered important to react. One of the major events related to the capital market is the increase in US bond yields. On April 25, the 10-year US Treasury bond yield gives high return of 3.035% (the strongest level) for two weeks was triggered by a rally in oil prices that pushed inflation expectations (id.investing.com). The increase in US bond yields reached the highest level in four years.

The increase in US bond yields caused Indonesian stocks to plunge in trading on Wednesday, April 25, 2018. The Composite Stock Price Index (CSPI) dropped to 2.4 percent, or down 150 points compared to Tuesday's closing on April 24, 2018 (bareksa.com). The incident also caused the JCI to touch its lowest level in 2018 with a level of 6,070.79 intraday, which was then closed at the level of 6,079.85. The LQ45 index even experienced a deeper correction of 1.61% (www.cnbcindonesia.com). In addition, all sectoral indices were all weakened, namely trade (-2.52%), basic industries (-1.25%), property (-2.96%), consumer (-3.0%), mining (- 3.4%), agribusiness (-2.46%), manufacturing (-2.36%), various industries (-1.44%), infrastructure (-3.11%) and finance (-3.19%) (KOMPAS.com).

Based on signaling hypothesis, the rising of United States bond yields is a negative signal. This is because the return obtained from US 10-year bonds reached 3.035%, touching the highest level in the past four years. As a result, US government bonds are seen as more attractive by market participants. So that investors, especially foreign investors, tend to choose to invest their excess funds in US bonds rather than investing their excess funds in the stock market which has a higher risk of bonds. This was indicated by the sales made by foreign investors which recorded net selling of Indonesian shares worth Rp1.96 trillion on April 25, 2018 (bareksa.com). Thus, with the occurrence of United States bond yields, the negative market will be reacted to the Indonesian capital market which can be reflected in abnormal returns. This research is expected to provide results in accordance with the hypothesis signal, because the increase in

US bond yields is an event that has a negative impact on the capital market in Indonesia. So, the researchers hope that the results of this study of the Indonesian capital market will react negatively to the United States bond yields. Therefore, the researchers consider the incidence of increasing United States bond yields is appropriate to test the market efficiency of the half-strong form.

The aim of the study is to analyze market and trade movements that are affected by an event. So the researcher uses the event study method. Researchers used April 25, 2018 as  $t_0$  because on that date the United States bond yield reached 3%. This study uses the company contained in the LQ45 index as a sample. This is because the companies listed in the LQ45 index have high liquidity, large capitalization, good fundamentals and performance. Based on the background that has been stated, the formulation of the problem is “how the reaction of the Indonesian capital market to those reflected in the increase in bond yields The United States is reflected in abnormal returns and trading volume activity?.” This research is expected to be able to provide empirical evidence about the events under study and contribute knowledge to investors or other people in need, and can provide benefits to academics, especially related to the capital market.

## THEORETICAL BASIS

### *Signaling Theory*

According to Brigham & Houston (2010), signaling theory is an action taken from company management to provide guidance for investors regarding the company's prospects. Meanwhile, according to Scott (2012), states that the signal is an action taken by high type managers which will not be rational if done by low type managers. Based on this understanding, signaling theory is an action taken by the management that makes information related to the investor's decision in seeing the condition of the company.

Signaling theory emphasizes the importance of information that has been issued by the company to decisions by parties outside the company. Information is an important element for investors and business people because information essentially provides information, records or descriptions for the past, present and future conditions for the survival of a company and how the market effect. Complete, relevant, accurate and timely information is needed by investors in the capital market as an analytical tool for making investment decisions (Hartono, 2017). Lack of information to external parties makes it difficult for them to assess company prospects. This is due to information that is good news and bad news.

### *Capital Market Efficiency*

An efficient market is a market where the price of securities equals the investment value over time (Sharpe, 1995). That is, every security is sold at a fair price every time. According to Fama (1970), a market is said to be efficient if securities prices reflect in full the available information. Fama (1970), classifies efficient market forms into three efficient market hypotheses (EMH), as follows.

#### 1. Efficient in Weak Form

The efficient market in a weak form means that all past (historical) information will be reflected in the prices formed now. Therefore, historical information such as prices and trading volumes, as well as past events can no longer be used to predict future price changes, because it has been reflected in

current prices. The implication is that investors will not be able to predict stock market value in the future using historical data, as is done in technical analysis.

## 2. Efficient in Half Strong Form

The efficient market in the form of semi-strong means that the half-strong stock market price means that the stock market prices formed now reflect historical information coupled with all published information such as earnings, dividends, announcement of stock split, issuance of new shares, financial difficulties experienced by the company, and other published events that have an impact on the company's cash flow in the future. The efficient market is half strong form, abnormal returns only occur around the announcement of an event as a representation of the market response to the announcement. A market is declared efficient in a half-strong form if the information is absorbed or responded quickly by the market in one to two spots of time or day around the announcement. Abnormal returns that occur in more than three time spots reflect some of the market's late response in absorbing or interpreting information, and thus are considered inefficient markets in a semi-strong form.

## 3. Efficient in Strong Form

The efficient market in strong form means that the stock market price that is formed now reflects historical information plus all published information plus unpublished information. In an efficient market, there will be no strong investor who can get abnormal returns.

### *Abnormal Return*

According to Tandelilin (2010), securities price in an efficient market must reflect information about risks and expectations on the future returns.

#### 1. Mean Adjusted Model

Mean adjusted model assumes that the expected return is constant in equal value to the previous mean return realization during the estimation period. If the market is efficient and returns vary randomly around the true value, then the mean return in the previous period can be used as an expectation return. The model formula is as followed (Hartono, 2017).

$$E[R_i, t] = \frac{\sum_{j=t_1}^{t_2} R_{i,j}}{T} \dots\dots\dots (1)$$

Explanation:

$E[R_i, t]$ : return securities expectation to i in the event period of t.

$R_{i,j}$ : return securities expectation to i in the estimation period of j.

T: duration of estimation period, is from  $t_1$  to  $t_2$ .

#### 2. Market Model

This model calculates abnormal returns using OLS (Ordinary Least Square) regression to describe the relationship between securities returns and market returns. To calculate abnormal returns with market models, the values of  $\alpha$  and  $\beta$  are looked for using data from a period of time that is not related to the event of study. The formula of the market model is as followed (Tandelilin, 2010)

$$R_i = \alpha_1 + \beta_1 \cdot R_m + e_i \dots\dots\dots (2)$$

Explanation:

$R_i$ : securities return i.

$\alpha_1$ : intercept in the regression for securities i.

$\beta_1$ : regression coefficient that states slope of regression line.

$R_m$ : market return

$\epsilon_i$ : Regression error.

### 3. Market-adjusted model.

Market-adjusted model assumes that the best estimator estimates the return of a security is the market index at that time (Hartono, 2017). Thus, if using a market-adjusted model there is no need for an estimation period because the security returns are estimated equal to the market return. In market-adjusted models calculation of abnormal returns is done by eliminating the influence of the market on daily returns. The formula of the market adjusted model is as followed

$$AR_{i,t} = R_{i,t} - R_{m,t} \dots \dots \dots (3)$$

Explanation:

$AR_{i,t}$ : Abnormal return on securities i on day t.

$R_{i,t}$ : Return from securities i on day t.

$R_{m,t}$ : Return on the day t

### *Trading Volume Activity*

Trading Volume Activity is the ratio between the number of activities traded at a certain time (Husnan, 2005). The number of activity issued is reflected in the number of shares when the company is issuing shares, arguing that TVA can be measured with the following formulation.

$$TVA = \frac{\text{volume saham i yang diperdagangkan pada waktu t}}{\text{volume saham i yang beredar pada waktu t}} \dots \dots \dots (4)$$

**Tabel 1.****Previous Research**

The following preceding research in this study.

No	Researcher	Title	Result
1.	Natasya & Suganda (2013)	Content of Information Free shares Announcement: Empirical Study on Indonesian Stock Exchange	<ol style="list-style-type: none"> <li>1. There is a significant reaction from market participants which is reflected from abnormal returns that have significant negative value.</li> <li>2. The activity of stock trading volume has decreased after the announcement of bonus shares although not statistically significant.</li> </ol>
2.	Purba & Silalahi (2017)	Impact of the Quick Count of the 2014 Presidential Election on Prices of USD Exchange Rate, Abnormal Return and Stock Trading Volume Activity.	<ol style="list-style-type: none"> <li>1. It was found that there were significant differences in abnormal mean returns before and after the presidential election events 2014.</li> <li>2. the volume of stock volume trading (TVA) before and after the presidential election 2014.</li> </ol>
3.	Laksana (2014)	The Influence of 2013 Subsidized Fuel Prices on Abnormal Return and Trading Activity Volume Shares in Companies Entering the LQ45 Index.	<ol style="list-style-type: none"> <li>1. There were no significant differences in abnormal returns before and after the announcement of the fuel price hike on June 22, 2013.</li> <li>2. There were significant differences in trading volume activity before and after the announcement of the fuel price hike on June 22, 2013.</li> </ol>

**RESEARCH METHODS***Samples*

The samples used in this study are all companies included in the LQ45 index on April 20 2018 to April 30 2018.

1. Listed in the index LQ45 period February 2018-July 2018.
2. Do not experience suspend and delisting in the research period.
3. No other events during the period of the research period.
4. Company shares are stocks that have not slept or have transactions for the past year. This is because sleep stocks do not have abnormal returns.

Based on the sample criteria, a sample of 42 companies will be used in this study as follows.

**Tabel 2.**  
**Data Sample**

No	Share code	Share's Name
1	ADRO	Adaro Energy Tbk
2	AKRA	AKR Corporindo Tbk
3	ASII	Astra International Tbk
4	BBCA	Bank Central Asia Tbk
5	BBNI	Bank Negara Indonesia (Persero) Tbk
6	BBRI	Bank Rakyat Indonesia (Persero) Tbk
7	BBTN	Bank Tabungan Negara (Persero) Tbk
8	BJBR	BPD Jawa Barat dan Banten Tbk
9	BMRI	Bank Mandiri (Persero) Tbk
10	BMTR	Global Mediacom Tbk
11	BRPT	Barito Pacific Tbk
12	BSDE	Bumi Serpong Damai Tbk
13	BUMI	Bumi Resources Tbk
14	EXCL	XL Axiata Tbk
15	GGRM	Gudang Garam Tbk
16	HMSP	H. M. Sampoerna Tbk
17	ICBP	Indofood CBP Sukses Makmur Tbk
18	INCO	Vale Indonesia Tbk
19	INDF	Indofood Sukses Makmur Tbk
20	INDY	Indika Energy Tbk
21	INTP	Indocement Tunggul Prakasa Tbk
22	JSMR	Jasa Marga (Persero) Tbk
23	KLBF	Kalbe Farma Tbk
24	LPKR	Lippo Karawaci Tbk
25	LPPF	Matahari Department Store Tbk
26	MNCN	Media Nusantara Citra Tbk
27	MYRX	Hanson International Tbk
28	PGAS	Perusahaan Gas Negara (Persero) Tbk
29	PTBA	Tambang Batubara Bukit Asam (Persero) Tbk

No	Share code	Share's Name
30	PTPP	PP (Persero) Tbk
31	PWON	Pakuwon Jati Tbk
32	SCMA	Surya Citra Media Tbk
33	SMGR	Semen Indonesia (Persero) Tbk
34	SRIL	Sri Rejeki Isman Tbk
35	SSMS	Sawit Sumbermas Sarana Tbk
36	TLKM	Telekomunikasi Indonesia (Persero) Tbk
37	TPIA	Chandra Asri Petrochemical Tbk
38	TRAM	Trada Alam Minera Tbk
39	UNTR	United Tractors Tbk
40	WIKA	Wijaya Karya (Persero) Tbk
41	WSBP	Waskita Beton Precast Tbk
42	WSKT	Waskita Karya (Persero) Tbk

Source: Data Processed, 2018

### *Research Data*

This study uses quantitative data types with secondary data sources. Secondary data is the source of data obtained indirectly by researchers. Quantitative data used is the stock price at daily closing price, the Composite Stock Price Index (JCI), and the stock trading volume. The period used in this study is the window period because researchers use market-adjusted models. The window period in this study is 7 exchange days, namely 3 days before ( $t-3$ ) and 3 days after ( $t+3$ ). The selection of  $t_0$  was carried out on April 25, 2018. This was because at that time the 10-year United States bond yield reached 3%. The improvement in United States bond yields reached the highest level of United States treasury yields in the past four years.

### *Research Variable*

This study uses abnormal return data and Trading Volume Activity (TVA). Abnormal return is an excess of the actual return that occurs to the normal return (Tandelilin, 2010). Stock trading volume is the ratio between the number of shares traded at a certain time to the number of shares outstanding at a certain time (Husnan 2005).

### *Data Analysis*

This study uses several stages in data analysis. The stages used in this study are as follows.

1. Normality Test.

Normality Test (Ghozali, 2013), aims to see whether in the confounding or residual variable regression model has a normal distribution. Data normality in this study was tested using One Sample Kolmogorov-Smirnov (K-S). A data is classified as a normal distribution data if the p-value is% 0.05%, while the data is not normally distributed, if the p-value is  $\leq 0.05\%$ .

## 2. One Sample t-Test

One Sample t-Test is used to test whether a certain value used as a comparison differs significantly or not with the average of a sample. Certain values here are generally a parameter value to measure population (Santoso, 2013) One Sample t-Test in this study is used to test the presence or absence of abnormal returns in the window period. The One Sample t-Test statistic hypothesis in this study is as follows.

$$H_0 : \mu_1 = 0$$

$$H_1 : \mu_1 \neq 0$$

Explanation :

$\mu_1$ : Abnormal Return Share

## 3. Paired Sample t-Test

Paired Sample t-Test is a test conducted on two paired samples. Paired samples are a sample with the same subject but experience two different treatments and measurements (Santoso, 2013). Paired Sample t-Test in this study is used to determine whether or not there is a difference in Trading Volume Activity (TVA) before and after the announcement of changes in the stock price fraction. The Statistical Hypothesis in this study is as follows.

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 \neq \mu_2$$

Explanation :

$\mu_1$ : Average Trading Volume Activity (TVA) before announcement

$\mu_2$ : Average Trading Volume Activity (TVA) after announcement

## Stages of Data Analysis

Data Analysis obtained in the study this will be processed with One Sample t-Test and Paired Sample t-Test. The processed data is abnormal return data and Trading Volume Activity (TVA) data. Tests were carried out using Statistical Package for the Social Sciences (SPSS) 20.0 software. The data processing steps used in this study are as follows.

The steps for testing against hypothesis 1 are as follows.

1. Determine actual return in the estimation period with the following formula.

$$R_{i,t} = (P_t - P_{t-1} + D) / P_{t-1}$$

2. Determine expected return by using a market adjusted model with the following formula.

$$R_i = (IHSG_t - IHSG_{t-1}) / IHSG_{t-1}$$

3. Calculate abnormal return with the following formula.

$$AR_{i,t} = R_{i,t} - R_i$$

4. Tabs data on abnormal return variables using the Statistical Package for Social Science (SPSS) software version 20.0
5. Conducting hypothesis testing using One Sample t-Test. If the significance value is greater than  $\alpha$  then  $H_0$  is accepted, whereas if the significance value is smaller than  $\alpha$  then  $H_0$  is rejected.

The steps for testing against hypothesis 2 are as follows.

1. Calculating Activity Volume Trading with the following formula.  $TVA = \text{volume of shares traded} / \text{outstanding shares of stock outstanding}$
2. Calculate Average Trading Activity Volume with the following formula.  $ADVA = \sum TVA_i / \sum i$
3. Perform data tabulation of variable Average Trading Volume Activity using the Statistical Package for Social Science software ( SPSS) version 20.0
4. Perform a normality test using the Kolmogorov-Smirnov non-parametric statistical test.
5. Test hypotheses with Paired Sample t-Test if the data is normally distributed. If the significance value is greater than  $\alpha$  then  $H_0$  is accepted, whereas if the significance value is smaller than  $\alpha$  then  $H_0$  is rejected.

### *Hypothesis Testing*

Hypothesis that can be stated as the basis of this test is as follows.

- $H_{01}$ : There is no market reaction to the increase in bond yield The United States is reflected in the insignificant abnormal return in the event period.
- $H_{a1}$ : There is a market reaction to the increase in United States bond yields as reflected by a significant abnormal return in the period of the event.
- $H_{02}$ : There is no market reaction to the increase in bond yields. The United States is reflected in the insignificant difference in Trading Volume Activity before and after the event.
- $H_{a2}$ : There is a market reaction to the increase in United States bond yields as reflected in the significant difference in Trading Volume Activity before and after the event.

## **RESULT AND DISCUSSION**

This research wants to analyze whether the increase in United States bond yield has information content that causes the capital market to react more. On this research the reaction of capital market has been mirrored by abnormal return around the date event which was three days before the increase in United States bond yields that reach 3% up to the three days after the increase in United States bond yields reaches 3%. The calculation model that has been used for calculate abnormal return is market adjusted model. The hypothesis would be accepted if the value of abnormal return no same or different with 0 and stated significant if the level of significance less from 0.05. The calculation result of abnormal return is showed on this following table.

**Table3.****Hypothesis Test of Abnormal Return with Market-Adjusted Model**

Date	Day	T-count	AAR	CAAR	sig-2tailed	Information
20 April 2018	T- 3	1,477	0.00417	0.00417	0.147	no significant
23 April 2018	T- 2	-1,196	-0.00252	0.00166	0.239	no significant
24 April 2018	T- 1	-0,274	-0,00072	0,00093	0.785	no significant
25 April 2018	T 0	0.935	0.00241	0.00334	0.355	no significant
<b>26April2018</b>	<b>T+1</b>	<b>-2,472</b>	<b>-0,01166</b>	<b>-0,00832</b>	<b>0.018</b>	<b>significant</b>
27 April 2018	T +2	-1,154	-0.00407	-0,01239	0.255	no significant
30 April 2018	T + 3	-0,345	-0.00127	-0,01365	0.732	no significant

Source: Data Processed ( 2018 )

The significant abnormal returns found on period  $t_{+1}$ . It is showed with sig values.(2-tailed) that is smaller than 0.05 and the value is negative. It means that market reacts upon the increase in United States bond yields. The negative value on abnormal return shows the assume of the market that the increase in United States bond yields is a bad news. The result of hypothesis I is in line with signaling theory explaining that the event of the increase in United States bond yields is hoped for having the negative value of the information content. This finding gives an assumption that the United States bond is more interesting by the market participant. So the investor, particularly the foreign investors tend to invest their money to the bond of United States than invest to the stock exchange with the higher risk than bond. The following is a chart for Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR).

The indicator of testing hypothesis II is using trading volume activity (TVA). It compares the average TVA before and after the occurrence increase in United States bond that reach 3%. First step, do test normality for knowing data normally distributed or not. Following is table test normality.

**Table4. Test Normality**

<b>One-Sample Kolmogorov-Smirnov Test</b>			
		Before	After
N		3	3
Normal Parameters	Mean	0,0016516	0,0018100
	Std. Deviation	0,00037521	0,00019975
Most Extreme Differences	Absolute	0,200	0,265
	Positive	0,184	0,265
	Negative	-0,200	-0,198
Kolmogorov-Smirnov Z		0,347	0,460
Asymp. Sig. (2-tailed)		1,000	0,984

Source: Data Processed, 2018

The results test on average trading volume activity show that average trading volume activity before and after increase in United States bond yields distributed normal. This due to value significant on average trading volume activity before and after more than 5%. The testing of hypothesis II do with compare the average trading volume activity before increase in United States bond yields with average trading volume activity increase in United States bond yields. The hypothesis will be accepted if value trading volume activity before and after increase in United States bond yields different that showed with significant value less than 0.05.

**Table5. Trading Volume Activity**

Day to-	Average TVA (Before)	Dayto-	AverageTVA(After)
-3	0,00201	+1	0,00192
-2	0,00168	+2	0,00177
-1	0,00126	+3	0,00151
Average	0,000158		
Deviation Std	0,000193		
t-count		1,425	
Sig(2-tailed)		<b>0,290</b>	

Source: Data Processed (2018)

Based on the results of the paired sample test, seen that there was an increase in the average activity volume of stock trading before and after increase in United States bond yields. However, market not react significantly with the event, proved by sig value (2-tailed) more than 0.05 (0.290). The results reject the hypothesis II. It means that there is no difference in the average activity trading stock before and after increase in United States bond yields.

### CONCLUSION AND LIMITATION RESEARCH

The first result is that the event of the increase in United States bond yields is expected to have negative value information. The research suggests that bond owned by the government of United States is more interesting by the market perpetrator. So, the first hypothesis is accepted.

Then for the hypothesis II, the hypothesis is rejected. There is no difference in the average of trading stock activity that significant statistically on before and after the event of the increase in United States bond yields. However, there is an increase of average volume of trading stock activity shows that the increase of result return of bond is a bad signal that will be impacted to the selling stock activity even though it is showing the influence but it is not significant. This shows that there were some investors who responded to the increase in US bond yields, there were some investors who did not respond to the increase in US bond yields.

Limitations in this study were that the samples used were not fully free from corporate actions in the study period. This research only eliminates companies that make dividend actions and stock split actions. Suggestions for further research are that researchers can take care of companies that have corporate actions in the study period.

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