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Investor Reaction to Announcement of Increase Fuel Oil Price 2014-2015

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Abstract: ***During the year 2014-2015 world oil prices have fluctuated up and down tend to fall from around of 98 USD per barrel to around of 37 USD per barrel. But unlike the condition in Indonesia within the period of 2 years ie from 2014 until the end of 2015 there was 5 times the change in the price of fuel oil (BBM) where 3 times rise and only 2 times decline in fuel prices. Government policy to raise fuel prices both on November 18, 2014 and March 1, 2015 because government subsidies to its people are right on target, and misallocation of targeted State Income Budgets can be used to improve infrastructure, education and helping micro business actors or small and medium enterprises (SMEs). Given that oil serves as a fuel and industrial production process, the rise in oil prices causes the burden of production costs for the industry, thus weakening the fundamental aspects of the company. The impact of the company's stock price will tend to decrease. Especially for public land transportation such as buses and taxi companies are also affected by the fuel price hike, because it occurs throughout Indonesia will weaken the macro economy. The purpose of this research is to know the abnormal return around the day announcement of fuel price increase on November 18, 2014 and March 1, 2015, and then to compare abnormal return before and after the announcement of fuel price hike. In addition, researchers will also compare volumes of trading activity before and after the announcement of fuel price increases. The reaction of investors in Indonesian to the fuel price increase can be expected given the issue surrounding the fuel price hike has been circulated before the date of increase. The object of research will be conducted on stocks that joined in KOMPAS100 group to prove whether there is difference of abnormal return and trading volume of trading activity on before and after announcement of fuel price increase. The method used in this research is event study, where event study is study that studying market reaction to an event whose information is published as announcement. This study uses market-adjusted model to find the expected return value, which is then used to calculate the abnormal return. The first step is to determine the study period. The research period used is 81 trading days consisting of 70 days for the estimated period and 21 days of the event period. The estimation period used in this study is 60 days, t-60 to t-11 before the event day of November 18, 2014 and March 1, 2015.***

Keywords: Average Abnormal return(AAR), Average Trading Volume Activity (ATVA)

1. Introduction

1.1 Background

In 2014-2015 the Indonesian Government takes a policy to revise the fuel subsidy by raising the price of oil three times. The purpose and objective of the government to raise the price of fuel oil because the government burden for subsidies is increasing. If not limited, the allocation of funds for infrastructure development becomes smaller, in addition to subsidies to be not right on target. The government has decided on a policy to change the price of fuel oil by announcing the fuel price hikes that took effect from November 18, 2014 and from March 1, 2015.

The announcement of fuel oil price changes is one of the information absorbed by investorand used to analyze the market reaction. The price of fuel oil affects the macro economy, also affecting future profits of the company, which also goes on the stock price in stock exchange. Fuel oil is one commodity that plays a very important role in all economic activities. Changing in fuel prices is the determinant of the size of the budget deficit, the determinants of the ups and downs of prices of other materials such as basic commodities, industrial raw materials, purchasing power and changes in operating costs resulting in changes in the rate of returns to investments.

Fuel prices in Indonesia are set by the government, which subsidizes and regulates the sale of fuel oil in retail through PT. PERTAMINA. The government has a policy option to adjust subsidized fuel prices with the objective of allocating subsidized funds to be used for more productive purposes such as health education programs and expansion of infrastructure development so that it can absorb labor for the community. Therefore, the policy to change the price of fuel oil is very important in terms of the reaction of investors both in terms of information and investment decisions.

One of the most important breakthroughs in the development of corporate finance theory is the introduction of Efficiency Market Hypothesis by Fama in 1970. Since then efficient market theory has become a magnet for financial researchers to continue to test its validity. According to Random Walk Theory of Maurice Kendall (1953) that the stock price pattern is unpredictable because it moves randomly (random walk). The stock market is heavily influenced by market physiology following an illogical rule. A randomly moving stock price means that stock price fluctuations depend on new information to be received, but the information is not known when it will be received, so the information and stock price are unpredictable.

Stock prices in the stock market are the consensus price among investors and the price of a stock can occur several times a day with a wide range between the lowest market price and the highest market price. A wide market price range indicates that the market price does not reflect all information obtained by investors or in other words the market is inefficient. In an efficient market price fluctuations are very thin. The comparison between stock prices in the market and intrinsic value reflects the level of market efficiency.

Event study is a study that studies the market reaction to an event whose information is published as an announcement. If an announcement contains information, it is expected that the market will react at the time the announcement is received by the market. Testing information content is intended to see the reaction of an announcement. Such information will affect investor decision making as reflected in market reaction indicated by the price changes of a security or group of securities. An event has an information content and is responded by the market resulting in a significant impact on returns and trading activities. Therefore, the market reaction of an event is measured using abnormal return and trading volume activity.

In this study, the object of research are stocks that are included in the index group KOMPAS100. Considering the KOMPAS100 index for both events will be compared the sampling criteria i.e. companies listed on the Indonesia Stock Exchange which entered in KOMPAS100 for 2 periods of fuel price increase incidents in 2014 - 2015. To avoid the occurrence of confounding effect that is unbiased information between information about the increase in fuel with corporate action information then the samples taken for this study are companies with no corporate action (dividend payout) in the period August 2014 until July 2016. Shares included in KOMPAS100 represent approximately 70-80% of the total IDR 5,505 trillion (position dated May 16, 2016) of the capital value.

1.2 ResearchObjectives

The author conducted a study on of fuel price increases in Indonesia 2014-2015, where in that period occurred as much as two times the increase in fuel prices with the aim are:

- Analyzing information content of increases fuel price announcement on November 18, 2014 viewed from *abnormalreturn* to shares of KOMPAS100 group, and the sector most significantly affected by the information.
- Analyzing information content of fuel price announcement events on March 1, 2015 viewed from abnormal returns to shares of KOMPAS100 group, and the sectors most significantly affected by the information.

1.3 Research Methodology

The selection of an event window is an empirical problem, a window that is too long will absorb the impact of other economic, non-economic and political events that are unattractive in the study and the too short window will not be able to analyze the effects of an event. Research conducted at the event study (an event study) is an observation that saw the rise and fall of stock prices to see the abnormal return obtained by investors resulting from information in stock exchange. Mac Kinlay (1997) says the benefit of event study is to provide rationality in stock exchange, that the influence of an event / announcement will soon be reflected quickly on stock prices in stock exchange.

Suparsa and Ratnadi (2014), in his research where the observation period is one of the influencing factors of the research results. In this study, the length of the observation period is 21 days, ie from t-10 to t + 10.

In accordance with the previous researcher's suggestion to get more accurate result, this research uses event study analysis method with the same time as Suparsa and Ratnadi (2014) plus the estimated period of 60 days. The research period used is 81 trading days consisting of period estimation (period estimation) and event period (event period). The estimation period used in this research is for 60 days, t-71 until t-11 before the event day of fuel price hike on 18 November 2014 and fuel price increase on March 1, 2015

2. Review of Related Literatures

2.1 Summary of Related Literatures

In a competitive market, the equilibrium price of an asset is determined by the available bid and aggregate demand. This equilibrium price reflects consensus among all market participants about the value of the asset based on available information. If a new relevant information enters the market related to an asset, this information will be used to analyze and interpret the value of the asset in question. The result is the possibility of a shift into the new equilibrium price. This equilibrium price will persist until another new information changes it back to the new equilibrium price.

According Hartono (2013: 548) the form of market efficiency can be reviewed from the availability of information only or seen not only from the availability of information, but also seen from the sophistication of market participants in decision-making based on the analytical information available. Efficient market in terms of information only called market efficiency in information. An efficient market in terms of sophistication of market participants in making decisions based on available information is called market efficiency by decision.

According to Husnan (2015: 236), an efficient capital market is a capital market whose prices of securities reflect all relevant information. The quicker the information is reflected in the price of securities, the more efficient stock exchange. The prices quickly adjust when there is new information, and after adjustment the investors will not be able to get abnormal rewards from each action.

In the efficient market concept, a price change of a stock's securities in the past cannot be used in predicting future price changes. Changes in stock prices in efficient markets follow a random walk pattern, where stock price estimation cannot be done by looking at the historical prices of the stock, but rather based on all available and emerging information on the market. Information entering the market and relating to a stock securities will result in a possible shift in the new equilibrium price. If the market reacts quickly and accurately to an incoming information and immediately establishes a new equilibrium price, then such market conditions are called efficient markets (Hartono, 2013: 547).

Efficiency market theory was first discovered in a study conducted by Bachelier in 1900 who wanted to know whether stock prices fluctuate randomly or not. In 1905 Pearson introduced a random-walk pattern, but at that time was known as the drunkard walk concept. However, Bachelier's research and Pearson's drunkard walk concept

was ignored and no further study until the 1930s. In 1953, Kendall first used and introduced the term random-walk in the financial literature (Yalcin, 2010). Fama then discussed some empirical evidence supporting the random-walk theory in his doctoral dissertation and pioneered the emergence of the theory of EMH (Efficiency Market Hypothesis) in 1970. The EMH theory introduced by Fama became a popular and widely used theory in various studies on market anomalies recently.

2.2 Theoretical Framework

Announcement of fuel price hike dated November 18, 2014 and March 1, 2015 caused the fluctuation of stock prices in Indonesia Stock Exchange. Despite fluctuations in stock prices on the stock exchange, it is not known whether these events contain information content. If the event contains the content of information, it will show the existence of Abnormal return. Stock exchange reaction to the fuel price hike can be expected given the issue surrounding the fuel price hike has been circulated before the date of increase. If the abnormal return that occurs can quickly return to the normal return position, it means the market is efficient half strong. But if the abnormal return lasts for several days, then the market is inefficient half strong.

Market efficiency can also be measured by examining trading volume activity occurring in traded stocks. If the volume of trade increases after the event, then the market reacts quickly and that means the market is efficiently half strong.

To see stock exchange reaction to the information content in an event can be measured by using the return as the value of price change or by using Abnormal return which is the difference between the actual return with the return expected by the investor (Hartono, 2013: 610) In addition to using the abnormal return, information reactions can also be seen through the movement parameter of trading volume activity in the market i.e. trading volume activity.

Based on the facts and phenomena that occur both abroad and in the Republic of Indonesia, it is very interesting to do research to test whether there are significant differences abnormal return on shares KOMPAS100, before and after the event announcement of fuel price hike year 2014 and 2015. The use of sub average abnormal return (AAR) to see the movement of abnormal return of KOMPAS100 group shares around the announcement of fuel price hike. As described above can be compiled the framework of this research is presented in Figure 1 below:

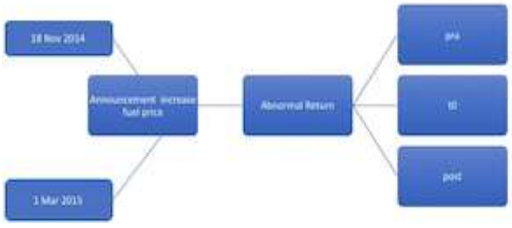

Figure 1: Framework

3. Discussion

Statistical test of abnormal return has the purpose to see the significance of abnormal return in the event period. The significance in question is that the abnormal return is statistically significant not equal to zero (positive for good news and negative for bad news). The t-test is used for this purpose, one sample t-test to test at t-0, while to compare the abnormal return before and after the announcement of the fuel price increase using paired sample t-test. To compare TVA before and after the announcement of fuel price increase also use paired sample t-test.

In general, the t test that tests the null hypothesis (h0) that the value of a parameter equal to zero is by dividing the abnormal return value by the standard error of the estimate. To test the null hypothesis which states that the average abnormal return is equal to zero, t test is used, whereas as standard is used Abnormal Return Standard (SAR). In this study, the t test used to test the null hypothesis which explains that the average abnormal return equal to zero is as follows:

$$Sie = \sqrt{\frac{\sum_{i=1}^{k}(ARit-AARit)^2}{(k-1)}} \cdot \frac{1}{\sqrt{k}} \quad (1)$$

T calculate is standardization for abnormal return, because according to Gujarat (1997) every standardized variable has the important character that is the average value is zero and the variance is one. These guidelines are used to determine the standardization of abnormal returns. The standardization is to divide the value of abnormal return with standard error estimation.

Standard error estimation is a standard error when estimating abnormal return value. The problem that arises is the standard error value estimation how that can be used. There are three ways to determine the standard estimation used, namely as follows:

1) Based on the standard deviation of the return-return during the estimation period (average value of return)
2) Based on the standard deviation of return-return during the estimation period (predicted return value)
3) Based on the standard deviation of the day t-day return-returns cross-section over the period of the event.

The first and second ways require estimation periods, so it can only be applied to the model-adjusted model and market model. The third way is done in aggregate for all sections (cross-section). This third way requires only an event period and does not require an estimation period therefore it is only suitable for market-adjusted model models.

2.3 Hypothesis

The first hypothesis is to calculate the abnormal return of stocks incorporated in the KOMPAS100 index. Abnormal return is the difference between actual return with expected return. The first hypothesis will test whether there is a significant abnormal return during the fuel price hike on November 18, 2014. Abnormal return test is done by finding the difference between the results obtained with the expected

results of investors. Abnormal return obtained by investors has two directions, namely positive and negative. To see whether the abnormal return of stock at the time of announcement of fuel price increase on November 18, 2014, will be searched by using one sample t-test formula. This test is to compare the abnormal return of the average stock with the value of stock returns zero (no abnormal return of shares). The abnormal return formula is as follows:

$$AR_{i,t} = R_{i,t} - E(R_{it}) \quad \text{.....(2)}$$

In this research expected return $E(R_{it})$ is calculated by using Market Adjusted Model. The Market Adjusted Model considers that the best estimate to estimate the return on securities is the market index return at that time. Using this method, it is not necessary to use the estimation period to form the estimation model, since the estimated security return is the same as the market index return (Hartono, 2013: 621). The main reason for the market-adjusted model method was chosen because of its simplicity and will not result in a bias in the calculation of abnormal return, which is due to parameter estimation errors as can occur in both other methods (Yuba, 2006). But in addition to its simplicity, this method also has the disadvantage that there is no adjustment to risk, except for the overall market movement, and the adjustment is equal to each share (DeBondt and Thaler, 1985). The formula for finding the expected return is as follows:

$$E(R_{i,t}) = R_{m,t} \quad \text{.....(3)}$$

Statistical test of abnormal return has the purpose to see the significance of abnormal return in the event period. The significance in question is that the abnormal return is statistically significant not equal to zero. After the result of abnormal return calculation in the event period is obtained, then the stock return aggregation (during the period under study, from first to last) and time aggregation.

Aggregation for abnormal return securities individually requests abnormal return cross section testing for each period. To find the abnormal return significance, it is necessary to calculate $CAAR_t$, where $CAAR_t$ is a cumulative abnormal return calculated by cross section, by the formula:

$$CAAR_{nt} = AAR_t + AAR_{t+1} \quad \text{.....(4)}$$

To see whether the abnormal return of stock before the announcement of fuel price increase will be searched by using one sample t test. This test is to compare the average abnormal share returns with stock return 0 (no abnormal return of shares). In Table 1, the result of calculation of t-count in the event of fuel price hike on 18 November 2014 and its significance level. In this calculation using only the level of significance of 5% only, with consideration with the figure has identified the significance value. From 21 days trading, almost all trading days showed a significant abnormal return.

Table 1: Diff test average abnormal return 18 Nov 2014

Period	*AAR 18 Nov 2014*	*T-hitung*	*Significant*
t-10	-0.00125	-0.47760	NotSignificant
t-9	0.00314	1.39702	NotSignificant
t-8	0.02971	17.10748	Significant 5%
t-7	-0.02732	-12.78297	Significant 5%
t-6	-0.10145	-47.30167	Significant 5%
t-5	0.01182	4.82395	Significant 5%
t-4	-0.03450	-13.91333	Significant 5%
t-3	0.01023	4.67440	Significant 5%
t-2	-0.04258	-17.01416	Significant 5%
t-1	-0.00319	-1.66521	NotSignificant
t0	-0.04207	-18.85794	Significant 5%
t+1	-0.02290	-8.11907	Significant 5%
t+2	0.00296	1.58136	NotSignificant
t+3	-0.04640	-19.01779	Significant 5%
t+4	0.00590	2.96816	Significant 5%
t+5	0.01750	5.86836	Significant 5%
t+6	-0.02794	-11.63166	Significant 5%
t+7	0.00504	2.52338	Significant 5%
t+8	0.01013	4.24738	Significant 5%
t+9	0.06124	18.75881	Significant 5%
t+10	-0.06519	-29.80905	Significant 5%

Average abnormal return of stock for 21 day observation on fuel price hike 18 Nov 2014 obtained t-count with 5% significance level of 17 trading days while not significant for only 4 trading days. Thus, H0 is rejected, and Hypothesis 1 of this study is accepted.

Furthermore, to test the significance of abnormal return during fuel price increase need to be tested by using one sample t test. In principle, this test is to compare the average abnormal return of stocks with stock return 0 (no abnormal return of shares). Table 4.7 shows the average abnormal return starting from 10 days before the fuel price hike up to 10 days after the fuel price increase. T-count of each trading day appears to vary positively and negatively with 5% significance level.

From Table 2 that the average abnormal return of stock for 21 day observation on the incident of fuel price hike of March 1, 2015 obtained t-count with 5% significance level of 14 trading days while not significant as much as 6 trading days only. The largest T-count fell on the fifth day of the stock trading day. The average abnormal return of fuel price increase on March 1, 2015 is 0.00158. Thus, H0 is rejected, and Hypothesis 2 of this research is accepted, meaning there is a significant abnormal return on the incident of fuel price increase on March 1, 2015.

Table 2: Diff test average abnormal return 1 Mar 2015

Period	*AAR 1 Mar 2015*	*t-hitung*	*significant*
t-10	0.03605	18.03343	Significant 5%
t-9	-0.06275	-5.12863	Significant 5%
t-8	0.03182	2.70456	Significant 5%
t-7	-0.00002	-0.00468	NotSignificant
t-6	0.02174	8.17362	Significant 5%
t-5	0.01631	8.13357	Significant 5%
t-4	0.00341	1.44250	NotSignificant
t-3	-0.01504	-4.91904	Significant 5%
t-2	0.02147	4.36097	Significant 5%
t-1	-0.00368	-1.00158	NotSignificant
t0	-0.02255	-7.05316	Significant 5%

t+1	0.02076	3.61811	Significant 5%
t+2	-0.00441	-1.22183	NotSignificant
t+3	-0.05287	-8.60623	Significant 5%
t+4	0.01971	2.15824	Significant 5%
t+5	0.02065	11.12895	Significant 5%
t+6	-0.04083	-5.25617	Significant 5%
t+7	-0.00503	-1.03690	NotSignificant
t+8	0.02929	6.31580	Significant 5%
t+9	0.01838	6.60726	Significant 5%
t+10	0.00068	0.25257	NotSignificant

2.4 Analysis

Data analysis in this research will be done separately for each announcement of fuel price hike so that the result can be known in detail to then taken conclusion in general. Before further testing will be tested normality first so as not to violate the basic assumptions of statistical tools used. Data to be tested to find out whether the data meet the rules of statistics are stock return data and trading volume activity for 81 trading days. The test was performed using SPSS-16 statistical tools.

Based on the calculation with SPSS-16, the asympton sig value is generated. (2-tailed) average return of KOMPAS100 group stocks for fuel price hike 18 November 2014 is 0.658, and fuel price hike of 1 March 2015 is 0,458. Thus, for both events it has a significance value greater than 0.05 and this means that all data on average return on the event of increase in fuel is normally distributed.

To find out what sectors are affected to the announcement information of fuel price hike both announcement of fuel price hike on November 18, 2014 and announcement of fuel price increase on March 1, 2015, then calculated based on segmentation of shares that are in the same sector then sought t- to determine whether there is an abnormal return and what level of significance.

For companies belonging to the property sector significantly affected by the announcement of fuel price hike November 18, 2014 and March 1, 2015. WaskitaKarya, Tbk, AdhiKarya, Tbk and WijayaKarya, Tbk is the 3 most significant companies affected by the information announcement of fuel price hike dated November 18, 2014 and March 1, 2015. It is very possible construction company is very dependent on direct costs such as fuel for heavy equipment and transportation.

Another thing that makes a significant abnormal return in the two periods of announcement of fuel price increase in 2014 and 2015, because the realization of fuel price hike which was originally already widely heard would rise IDR. 3,000, - it only increased about IDR.2.000,-. This makes the stock market remain passionate. In addition to pressing inflation, the government also issued a policy by raising the interest rate of Bank Indonesia's loan to 8%.

Table 3: Sector with top AAR significant

Sektor	Emiten	day Mon	AAR 18 Nov2014 sig 5%	AAR 1Mar2015 sig 5%
MISC-IND	2	21	1	1
AGRI	3	21	12	13
BASIC-IND	4	21	16	13
CONSUMER	6	21	15	16
INFRASTRUC	7	21	14	16
MINING	7	21	13	15
FINANCE	9	21	16	16
TRADE	12	21	15	15
PROPERTY	18	21	15	18

Two issuers included in MISC-IND sector consisting of PT. RejekiIsman, Tbk is a textile company that imports many textiles and textile products including apparel. While Gajah Tunggal, Tbk is a tire company that becomes the supplier of automotive industry. The two companies are significantly unaffected by the information on the fuel price hike, both announcing price increases of 18 November 2014 and 1 March 2015. Read more Table 4.8 shows the AAR list, t-count and its significance to two incidents of fuel price hike.

4. Conclusion

Announcement of the fuel price hike on November 18, 2014 and March 1, 2015 caused the abnormal return significantly and the most significant sector occurs abnormal return is the property sector shares. For the property sector, fuel price hike causes operational expenses such as heavy equipment and transportation fuels affected directly by impacts. The companies are WaskitaKarya, Tbk, AdhiKarya, Tbk and WijayaKarya, Tbk. While the relatively unstable is from the sector MISC-IND PT. RejekiIsman, Tbk is a textile company that imports textile and textile products including apparel and Gajah Tunggal, Tbk.

Based on the results of paired t-test before and after the announcement of fuel price hike on November 18, 2014 and March 1, 2015, showed no significant difference in average abnormal return and trading volume of stock trading activity, because the information is transparently accepted by the public especially investor very well and evenly thanks to electronic media and social media, so the turmoil that occurred the same between before and after the announcement of fuel price hike. Abnormal return for 10 days before the announcement of the increase of fuel (t-10 to t-10) obtained a different reaction which before the rise tends to occur negative reaction from investors, while on 10 days after the increase there tends to be a positive reaction from investors. Based on the results of the study there was no significant difference in average abnormal return before and after the increase in fuel prices.

Government policy to raise fuel prices on November 18, 2014 and March 1, 2015 contains information that causes fluctuations in stock prices in the Indonesia Stock Exchange. Based on the results of average abnormal return and average trading volume activity studies on the KOMPAS100 group stocks in the Indonesia Stock Exchange during the 21 days stock trading that the announcement of the fuel price increase during the two periods caused significant abnormal

return and trading volume activity. This fact is due to the event of announcement of fuel price increase containing the information content. Stock exchange reaction to information on the announcement of fuel price hike can be predicted considering the issue surrounding the fuel price hike has been circulated before the announcement date. This supports research conducted by Femianita and Asandimitra (2014).

5. Recommendations

Investor Reaction Research Against Announcement of Oil Fuel Price Increase Year 2014 - 2015 (A Case Study In Indonesia Stock Exchange for Stocks of KOMPAS100 Group is proven to contain information content that is relevant to capital market condition in Indonesia.This information is something always sought by market player's capital in the effort to make investment decisions Information about the announcement of fuel price increase resulted in differences in abnormal return and TVA significant especially property sector shares, so for investors who want to obtain excess return from the information cannot be obtained for long-term investment. the MISC-IND group can be an investment choice in the unstable state of fuel prices.

As previously mentioned, the results of this study are limited to a relatively short observation that is 21 days (for 10 days before up to 10 days after the fuel price increase) with a limited sample only on shares belonging to the KOMPAS100 group that have been reduced by the share dividends. In addition, the variables used as a basis for predicting fuel price increases are limited to abnormal returns and trading volume of trading activity only. To increase the accuracy of research results can increase the number of issuers to be sampled and increase the number of days of observation, although there will be shortcomings because of bias with other information.

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