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Dadang Prasetyo Jatmiko (UK), Viktor Manahov (UK), Nnamdi Obiosa (UK)

Does capital market reaction to non-economic factors generate abnormal returns?

Abstract

This study investigates the capital market reaction to Eid al-Fitr and Christmas non-economics factors. The authors use 23 shares (2008-2010) and 28 shares (2011-2013) of retail companies listed on the Indonesian Stock Exchange (IDX). The authors apply the event study method to examine the capital market reaction and the t-test method to analyze the market responses: the average abnormal return and trading volume activity. The authors empirical findings demonstrate that, in the first period, there is an abnormal return in the first day before the event date; but, there is no average difference between average abnormal return before and after the event-day in the first and the second periods. However, the authors haven't found a significant difference in average trading volume activity before and after the event-day in the first period, but it finds a significant difference in the second period.

Keywords: event study, Indonesian Stock Exchange, Eid al-Fitr, Christmas.

JEL Classification: G12, G30, C14.

Introduction

The purpose of this study is to investigate the capital market reaction to the information content of Eid al-Fitr and Christmas by using the event study method towards selected sample based on judgment criteria. To our knowledge this research is the first study to examine Eid al-Fitr and Christmas impact to the capital market.

We investigate whether the information content in two different periods has an effect to the Indonesian Stock Exchange (IDX). By using the Single Index Market Model (Sharpe, 1964), this study estimates the expected return and abnormal returns on the retail shares and also examines the difference of average abnormal return and average trading volume activity the days around those events. The Single Index Market Model is an instrument to analyze the capital market reaction towards information content. It compares between the current numbers of shares traded in a particular company and a particular time, with the total number of share listed. The purpose is to conclude whether the capital market reacts to the information content or not, and whether the market is in semi-strong form efficiency (Cowles, 1933; Fama, 1965).

Previous studies on the topic focused on the impact of dividend announcement tested on several stock markets of the world (Ahmad and Chaudhary, 2006; Hossain et al., 2006; Lyroudi et al., 2007; Thirumalvalavan and Sunitha, 2006; Malhotra et al., 2007; Taneem and Yuce, 2009; Shantanu, 2011; Sharma, 2011; Yakubu et al., 2014; Rani et al., 2013).

In contrast to all previous studies our experiment focuses on Eid al-Fitr and Christmas events that have different characteristics and their influence to the capital market. The Christmas date is always constant in every year, which is on the 25th of

December, while Eid al-Fitr has its special characteristic, every year it is shifted from 9 till 10 days from the previous year. This study assumes that the events have information content and have a potential to cause capital market reaction. So, it examines whether in the first period, when the events are close one to another and can be put in the same event windows have a different effect to the capital market in the second period when the events are not close one to another, not in the same windows, but still in the estimation period.

1. Background

Non economics factors do not have a direct relationship with capital market performance; nevertheless these factors sometimes can be triggers to the capital market reaction. The forms can be political events: parliamentary election, president inauguration, and also events caused by human being or natural disaster. As a rule, the capital market response is estimated by detecting the availability of abnormal return during the date, and significant change in trading volume activity. Several studies have been conducted to investigate if an event has information content, and if the market is rapidly to response to absorbing the abnormal return and create a new equilibrium price, so the market is in the semi-strong form efficiency. Hence, the event study methodology can also be used to test the efficiency of the market.

Yakubu et al., (2014) examined the market's reaction to dividend initiation announcements on Gana Stock Exchange by collecting data from 1990-2012. They used event study method and collected daily stock prices to calculate the abnormal returns. Their results demonstrated that the estimated of daily abnormal return (AR) and average abnormal return (AAR) were significant in the level of 5%: day 0 & day +1, and significant of 1%: day -5, -2 & +2. It implies d that these dividend initiation announcements are greeted positively by investors.

Joanna, L.H. & Stephenson, E.F. (2013) analyzed whether the Costa Concordia sinking affected to the stock price of the ship's operator, Carnival Cruise Lines. In order to accomplish their research aim, they collected daily data from 1st September 2011 to 27th January 2012, thereby giving them 102 observations of the daily percentage change in stock prices for the two cruise lines (Carnival and Royal Caribbean) in Royal Caribbean Stock Exchange. By using event study method and specifying the time period includes 93 days before the Costa Concordia sinking and nine days for the event window, they have obtained interesting results. The result showed that there is an abnormal loss of 14.1% on the first day of trading after the accident; two other days exhibit statistically significant abnormal returns, a gain of 3.9% on the third day after the accident and a decline of 3% on the seventh day after the sinking. In addition, for the over the nine-day event window, Carnival's cumulative abnormal loss of 13.7%. The result implied that there is a market reaction because of the sinking accident.

Rani et al. (2013), examined the abnormal returns towards India based mergers and acquisitions during 2003-2008. Their study used 623 samples out of 5504 population during January 2003 to December 2008 of Thomson SDC Platinum Mergers and Acquisitions Database listed on Bombay Stock Exchange. They used event study method. The Results showed that there is a significant abnormal return on the event date, and the cumulative average abnormal return (CAAR) for merger and acquisition company activities is 2 percent (significant at 1 percent) over the event window of 11 days (-5, +5). It implied that there is also a capital market reaction because of the company's actions.

Sharma, R. (2011) investigated the impact of annual dividend announcements on stock price behavior in India. He used 20 sectors in the period starting in July 1997 till December 2007. He collected data from the Prowess database given by Centre for Monitoring Indian Economy (CMIE), and event study methodology to examine the capital market reaction. The event window was 12-day before and after the announcement of dividend on shares. His result implied that the dividend announcements have not resulted into any non-random behavior in the stock return series surrounding the announcement day. Therefore, it indicated that the Indian stock markets are efficient in its semi-strong form efficiency.

Swanson, E. (2011), re-examined the Operation Twist using a modern by using high-frequency event study approach. The six major announcements from the Wall Street Journal in the late 1961 and early 1962 that mentioned utilize of Federal Reserve or the Treasury. His recent event study analysis of Operation Twist has resulted in a statistically

significant effect on longer-term Treasury yields, and the impact was moderate in size with the amount of about 15 basis points.

Ganguli, S.K. (2011) aimed to find out if the participants of the Indian stock market can estimate positive earning by turnaround companies based on publicly available information at the micro level as well as with reference to macro variables of the economy. He used sample of 49 companies out of 58 population turnaround companies spanning over a period of five years and six months (April 1, 2004 to September 30, 2009 from the Centre for Monitoring Indian Economy (CMIE)). The event study methodology, with the estimation window is 150-day, i.e., -178 days to -29 days. His result showed on the announcement date; abnormal return is found to be 2.12%. Also, there is an abnormal return for the next eight consecutive days, and total cumulative abnormal return during the period (day 0 to +8 days) is 9.31%. It implied that the market reacts to the information content given by the announcement.

In Indonesia, there are several studies to use event study methodology to examine the capital market reaction towards the information content of noneconomic factors. A study conducted by Danuparata and Wahyoto (2008) examined the market reaction to bomb explosion at JW Marriot. The result showed that there is no significant abnormal return on the days around the event. Another study conducted by Luhur, S. (2009) investigated the capital market reaction towards Indonesian president election 2004 that showed the significant abnormal returns days around the event.

2. Hypothesis development

2.1. The event study process. Event study is a study to examine the market reaction toward a published event; this method is used to examine the information content of the event, and to investigate if the market is in semi-strong form efficiency (Cowles, 1933; Fama et al., 1969; Sharma, 2011). It is also a statistical technique to determine the stock price effect of occurrences such as earning's announcements, merger and so forth (Mitchell and Netter, 1994; Corrado, 2011). It has also made its own way into leading business journals (Myers and Bakay, 1948; Barker, 1956, 1957, 1958; Ashley, 1962). In addition, the abnormal return can be used to measure the value of security price changes. If the abnormal return arises because of the information content, thereafter the security price changes will give a significant abnormal return to the market, and vice versa. The process of event study method is as follow:

- a) Collect relevant sample from the capital market;
- b) Determine event date;
- c) Determine estimation period, for instance 10 to 30 days around the event.

- d) Obtain return of each sample every day within the estimation period;
- e) Obtain abnormal returns;
- f) Obtain average abnormal returns for the total sample every day;
- g) Obtain cumulative abnormal return from the daily abnormal return;
- h) Conclude the result.

2.1. Prediction about the events. This study considers three main hypotheses while examining the Eid al-Fitr and Christmas by applying the event study method and t-test to determine whether there is a significant average different between two samples in two periods.

Hypothesis 1 (H1). There is a significant abnormal return on the retail shares industry listed on the Indonesian Stock Exchange (IDX) days around Eid al-Fitr and Christmas in the first and second periods.

Hypothesis 2 (H2). There is a significant average abnormal return on the retail shares industry listed on the Indonesian Stock Exchange (IDX) days around Eid al-Fitr and Christmas in the first and second periods.

Hypothesis 3 (H3). There is a significant average abnormal return on trading volume activity of the retail shares industry listed on the Indonesian Stock Exchange (IDX) days around Eid al-Fitr and Christmas in the first and second periods.

3. Data

This study draws its population and sample from the Indonesian Stock Exchange (IDX) and uses daily data from the published and unpublished directories.

The population is all of the retail companies listed on the IDX. In the first period it covers the year of 2008, 2009 and 2010, the reasons are because the event-date between Eid al-Fitr and Christmas of those are close one to another. The period of the second one covers the year of 2011, 2012 and 2013. During those years, the days of the events are not close one to another, but they still can be elaborated in the estimation period.

The selection of samples in this study is by using the purposive sampling (non probability sampling/ judgment sampling). The criteria of selections are as follow:

- a) The company should be a retail business listed on IDX during the first and second periods;
- b) In the first month of the estimation period (September), the company has to establish its transaction data, such as stock price and stock volume;
- c) During 10 days before and 10 days after the event, the company has to have its transaction data, such as stock price and stock volume.

As a result, for the first period, the study obtains 23 shares, and for the second period it attains 28 shares of retail companies. The estimation period for this study is 100 days before the event window and 110 days after the event date. The event date for the first period is the 20th of December, and in the second period, the event date is the 24th of December. Also, the event window which is used is 10 days after and before the event date.

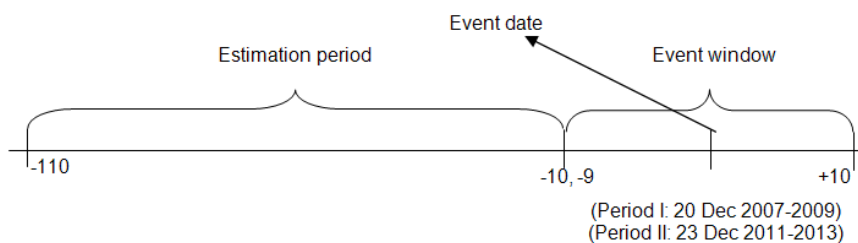


Fig. 1. Estimation period and event window

Furthermore, the capital market reaction and the semi-strong efficient market in this study can be identified by using two variables: abnormal return (ar), and trading volume activity (TVA). The abnormal return during +10, +9, +8...-9, -10 is measured by obtaining an excess return between realized return (Ri) and expected return (Ei). In order to estimate Ei, this study uses single index market model (SIMM), the formula is:

$$E_{i,j} = \alpha_1 + \beta_i R_{mj} + \varepsilon_{i,j}$$

Where, $E_{i,j}$ = expected return; α = intercept; β_i = coefficient of Beta; R_{mj} = return of market index; ε_j = residual.

If the abnormal return arises during the +10, +9, +8...-9, -10, it can be concluded that the market reacts to the information, content, and if the reaction is quick, then it can be categorized as the semi-strong efficient market. Similarly, the trading volume activity (TVA) during the +10, +9, +8...-9, -10 can be measured by comparing the number of shares traded in a particular period to the total number of shares of the same company in the same time. If there are changes in trading volume activity whether it is negative or positive, it can be concluded that the market reacts to the information content. In order to calculate average trading volume activity before and after the event, there are steps as follow:

- ◆ Calculate TVA before and after the event;
- ◆ Calculate the standard deviation for TVA before and after the event;
- ◆ Calculate t-test ($\alpha = 5\%$).

$$TVA = \frac{\sum \text{Number of shares traded}}{\sum \text{Number of shares listed}}$$

4. Event result and discussion

Our results can be used to take a conclusion whether the events around Eid al-Fitr and Christmas have information content and cause market to react that makes investors affected and eventually influence to their investment decision. Besides, this study also examines whether the market in the first and second periods are in semi-strong form efficiency that is reflected by how fast the market creates a new equilibrium price as a reflection of security prices towards the information content. In addition, this study also investigates the difference between average abnormal return and trading volume activity the days around Eid al-Fitr and Christmas.

4.1. Event study analysis. 4.1.1. Test of Hypothesis 1. The H1 relates with the availability of significant abnormal return on the retail shares in the first and second periods. Abnormal return is the excess of realized return and expected return. It is a signal if there is any information content from a particular event. In order to investigate the availability of abnormal return, the one sample t-test is used. This test states “there is no difference between average abnormal return and null”. The statistical result for the H1 of the first period can be seen in the table below:

Table 1. One sample t-test result for the first period

No	AAR	CAAR	t	sig (2-tailed)	Significant/No
10	-0.00838	0.013582	-1.656	0.112	No
9	0.007181	0.021962	1.491	0.15	No
8	0.004169	0.014781	0.922	0.366	No

7	-0.00951	0.010612	-1.755	0.093	No
6	0.009932	0.020122	1.622	0.119	No
5	-0.03257	0.01019	-1.802	0.085	No
4	0.010282	0.04276	0.7	0.491	No
3	-0.00033	0.032478	-0.054	0.958	No
2	0.020395	0.032808	0.97	0.342	No
1	-0.00374	0.012413	-1.605	0.123	No
0	0.009946	0.016153	2.0742	0.053	No
-1	0.015931	0.006207	2.276	0.033*	Significant
-2	0.004293	-0.00972	1.453	0.16	No
-3	0.003333	-0.01402	0.814	0.424	No

There is a significant abnormal return in the first period on the first day before the event date. This significant abnormal return shows that the Indonesian Stock Exchange (IDX) reacts to the information content caused by the events. The market response is rapid to absorb the information content and to create new equilibrium prices, as can be seen that there is no abnormal return on the days after the events. It means that the market is in semi-strong form efficiency. Also, it can be concluded that there is a significant abnormal return on the retail shares in the first period.

Our empirical findings are in line with Luhur, S. (2009) who examined the capital market reaction towards Indonesian president election 2004 that showed significant abnormal returns days around the event. This result is different with the research result of Danuparata and Wahyoto (2008) who investigated the market reaction towards bomb explosion at JW Marriot that showed there is no significant abnormal return on the days around the event.

The significant abnormal return on the days around Eid al-Fitr and Christmas arises because of the Indonesian Capital Market; especially retail shares are consistent to absorb the information content produced by the events. The information content is good news to the market; hence it gives a positive response reflected by abnormal return which is 2.276.

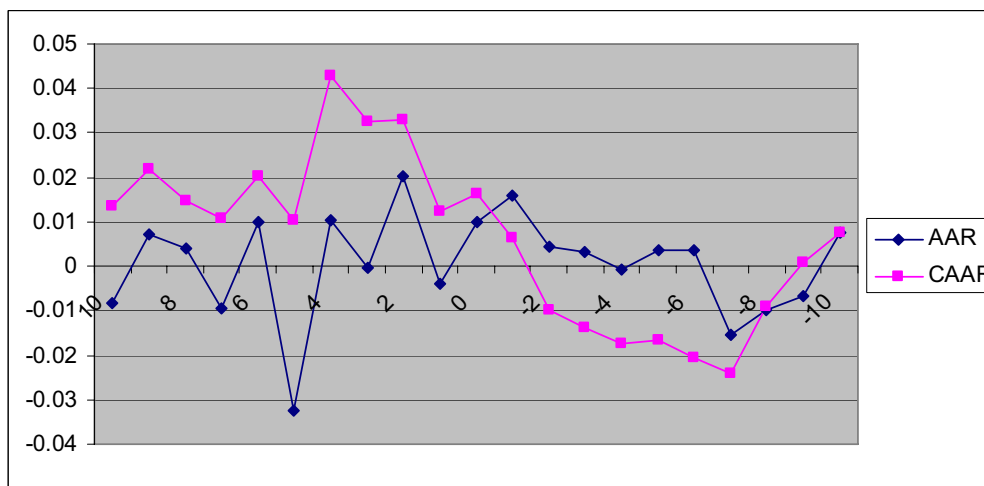


Fig. 2. Average abnormal return and cumulative average abnormal return in the first period

We also estimate the cumulative average abnormal return (CAAR) to investigate the implications of shareholder’s wealth on the average abnormal return the days around the events. Figure 2 illustrates that the wealth of shareholders increases on the second day before the event till the d-day. Also, it shows that on the second, third and fourth day after the event-date, there is a market fluctuation trend but it is not significant enough.

It happens because the market is in uncertain condition, and there is much uncertainty relevant and irrelevant information around Eid al-Fitr and Christmas days.

The table below presents the result of one sample t-test for the second period.

Table 2. One sample t-test result for the second period

No	AAR	CAAR	t	sig (2-tailed)	Significant/No
10	-0.002271179	-0.03474	-0.376	0.71	No
9	-0.002726929	-0.03247	0.636	0.53	No
8	0.005782393	-0.02974	0.933	0.359	No
7	-0.008193429	-0.03552	-0.0817	0.421	No
6	0.004057964	-0.02733	0.667	0.51	No
5	0.013107821	-0.03139	1.475	0.152	No
4	0.005567179	-0.04449	0.76	0.454	No
3	-0.019593607	-0.05006	-2.079	0.047*	Significant
2	0.001040393	-0.03047	0.103	0.919	No
1	-0.014777179	-0.03151	-2.627	0.014*	Significant

0	0.003779821	-0.01673	1.105	0.279	No
-1	0.003789571	-0.02051	0.865	0.395	No
-2	-0.006152964	-0.0243	-1.436	0.162	No
-3	-0.00507	-0.01815	-1.592	0.123	No
-4	-0.002468	-0.01308	-1.085	0.287	No
-5	0.004156964	-0.01061	0.954	0.349	No
-6	-0.010227714	-0.01477	-1.582	0.125	No
-7	-0.004894714	-0.00454	-1.063	0.297	No
-8	-0.00033475	0.000356	-0.105	0.917	No
-9	-0.003597821	0.00069	-1.025	0.314	No
-10	0.004288286	0.004288	0.998	0.327	No

Table 2 shows that there are abnormal returns on the first date after the event which is -2.627 and on the third date after the event that is -2.079. Hence, it can be concluded that there are significant abnormal returns on the retail shares in the second period on the retail shares listed on the Indonesian Stock Exchange (IDX). In this period, the market does not respond to the good news in the information content, since the results are negative abnormal returns. It happens because the market trend in the second period is in a bearish trend. This result shows that the events in the second period have information content, but the capital market does not react quick to create new equilibrium prices because abnormal returns still arise on the days after the event. Therefore, it can be concluded that this market in the second period is not in the semi-strong form efficiency.

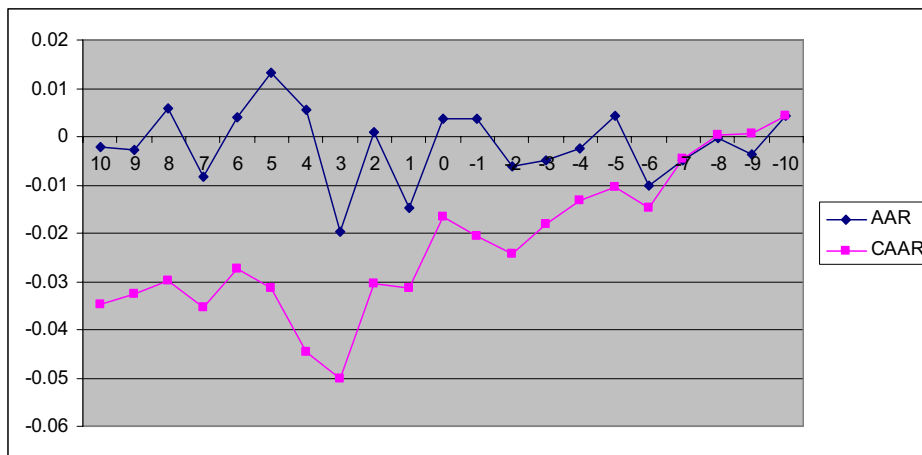


Fig. 3. Average abnormal return and cumulative average abnormal return in the second period

The wealth of the shareholders is relatively constant the days before, on the event date, and after the events, it can be said that the wealth of the shareholders does not change because the event dates are not close one to another.

Based on the analysis above, it implies that in the first period the market reacts rapidly to the information content and it shows that it is in the semi-strong market efficiency, while on the second period it does not show the same condition. Also, in the test of H1 in the first period there is a consistency

of the market to absorb the information content that brings good news, while in the second period is not.

4.1.2. Test of Hypothesis 2. Test of H2 relates with the test of different in average abnormal return on the days before and after Eid al-Fitr and Christmas in the first and second periods on the retail shares listed on Indonesian Stock Exchange (IDX). This test compares between mean differences with standard error mean by using paired sample t-test as a tool to measure by the help of SPSS 18. The result of test of H2 for the first period is as follow:

Table 3. Paired sample t-test result in the first period

Before		After	
Day	AAR	Day	AAR
-10	0.007401826	1	-0.003735913
-9	-0.0035	2	0.020394609
-8	-0.009810522	3	-0.000332696
-7	-0.015248391	4	0.010281652
-6	0.00372687	5	-0.032571652
-5	0.003721087	6	0.009931826
-4	-0.000556348	7	-0.009507478
-3	-0.00333217	8	0.004169
-2	0.004293304	9	0.007180913
-1	0.015931087	10	-0.008381565
Average	0.000621348	Average	-0.00025713
Std. dev	0.00903	Std. dev	0.01462
Sign	0.893		
α	0.05		

The average AAR on the days before the event date is 0.000621348, and for the days after the event date the average AAR is -0.00025713. It means there is a downgrade of mean AAR on the days before and after the event date. There is no significant difference between average AAR on the

days before and after the events in the first period since the sign $> \alpha$. In consequence, there is no significant difference of average AAR on the retail shares listed on Indonesian Stock Exchange (IDX) in the first period.

The average AAR on the days before the event date is 0.000621348, and for the days after the event date the average AAR is -0.00025713. This finding suggests that there is also a downgrade of mean of AAR on the days before and after the event date. There is no significant difference between average AAR on the days before and after the events in the first period since the sign $> \alpha$. It implies that there is no significant difference of average AAR on the retail shares listed on Indonesian Stock Exchange (IDX) in the first period.

This phenomenon occurs because the market responses to the information content rapidly and the investors have expected that these events bring good news, so they give a positive response immediately or in other words the positive information content brought by the events do not change the preference of investors about their investment decisions.

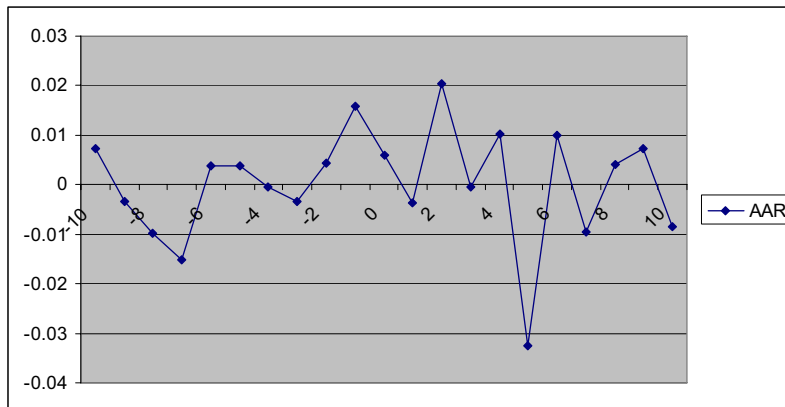


Fig. 4. Average abnormal return in the first period

Figure 4 above indicates that there is a downtrend. As can be seen that the days before the events are higher than the days after the events, but it is not statistically significant because the shares do not react to the events.

The result of paired sample t-test of AAR in the second period can be seen below:

Table 4. Paired sample t-test result in the second period

Before		After	
Day	AAR	Day	AAR
-10	0.004288286	1	-0.014777179
-9	-0.003597821	2	0.001040393
-8	-0.00033475	3	-0.019593607
-7	-0.004894714	4	0.005567179
-6	-0.010227714	5	0.013107821
-5	0.004156964	6	0.004057964
-4	-0.002468	7	-0.008193429

-3	-0.00507	8	0.005782393
-2	-0.006152964	9	-0.002726929
-1	0.003789571	10	-0.002271179
Average	-0.002051114	Average	-0.001800657

Table 4 illustrates that there is a downgrade of mean of average AAR the days before and after the event date. The downgrade is from -0.00205114 to -0.001800657, and there is no significant difference between average AAR before and after the event date since the sign $> \alpha$. Hence, the hypothesis is rejected which means that there is no significant difference of average AAR on the retail shares listed on the Indonesian Stock Exchange (IDX) the days around Eid al-Fitr and Christmas. It happens because the market responses the information content quickly, and the investors give a positive response immediately so that the positive information (good news) produced by the events does not make any different between the average AAR.

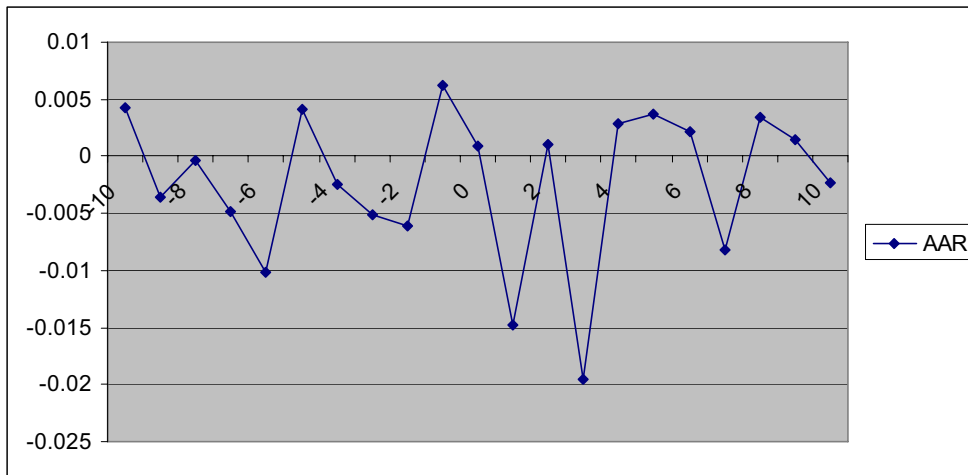


Fig. 5. Average abnormal return in the second period

Figure 5 illustrates that there is a downtrend for the days before and after the events, but it is not statistically significant.

4.1.3. *Test of Hypothesis 3.* The test of H3 relates with the test of difference in average trading volume activity (TVA) on the days around Eid al-Fitr and Christmas in the first and second periods. The TVA contains parameters of volume of shares traded and number of shares listed which can be used to examine the response of capital market in semi-strong market efficiency. It is a comparison between the volume of shares traded and the number of shares listed. This study compares the TVA for the days before and after the events by using SPSS 18 to operate paired sample t-test. The result for the first period is as below:

Table 5. Paired sample t-test result of TVA in the first period

Before		After	
Day	Average TVA	Day	Average TVA
-10	0.001111657	1	0.000473793
-9	0.001723876	2	0.000476025
-8	0.003357464	3	0.003899132
-7	0.000872811	4	0.000644377
-6	0.000581905	5	0.001011587

-5	0.000842971	6	0.000909003
-4	0.001305687	7	0.00055331
-3	0.00046382	8	0.000608163
-2	0.000819927	9	0.001407813
-1	0.000493665	10	0.000779446
Average	0.021	Average	0.011

Our empirical results in Table 5 demonstrate that the average TVA before the event date is 0.021, while after the event date is 0.011. It means that there is a downgrade of mean of TVA the days before and after the event date. Also, there is no significant difference of average TVA the days before and after the events in the first period because $sign > \alpha$. Hence this study accepts H_0 (null hypothesis) and rejects H_a (alternative hypothesis) because there is no significant difference of average TVA on the retail shares the days around Eid al-Fitr and Christmas. It occurs because the market reacts rapidly to information content of the events. This result is confirmed by the result of the research conducted by Danuparata and Wahyoto (2008) who investigated the market reaction towards bomb explosion at JW Marriot that showed there is no significant trading volume activity on the days around the JW Marriot bomb blast.

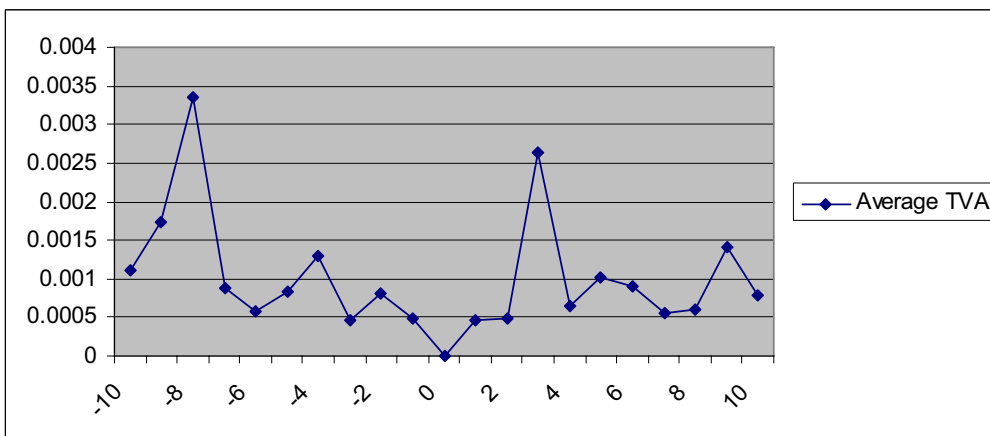


Fig. 6. Average TVA in the first period

Table 6. Paired sample t-test result of TVA in the second period

Before		After	
Day	Average TVA	Day	Average TVA
-10	0.000699689	1	0.000269786
-9	0.000253878	2	0.000597273
-8	0.000319105	3	0.00028508
-7	0.000673887	4	0.000568663
-6	0.000425537	5	0.001163818
-5	0.000328604	6	0.00122116
-4	0.000485502	7	0.001457887
-3	0.000728396	8	0.00115282
-2	0.000375425	9	0.000456827
-1	0.00032609	10	0.000872213
Average	0.005	Average	0.0008

Our experimental findings reported in Table 6 above indicate that the average TVA on the days before the event date is 0.005, while the average TVA on the days after the event date is 0.0008. There is a

rising of mean of TVA the days before and after the events, and from the paired sample t-test results above, there is a significant difference between average TVA the days before and after the event date because $\text{sign} < \alpha$. Therefore, the hypothesis statement saying that there is a significant difference in average TVA the days around Eid al-Fitr and Christmas for retail shares listed on the Indonesian Stock Exchange (IDX) is accepted. The activity of TVA itself can be affected by two assumptions:

1. Increase in demand of shares where a particular event brings a positive sentiment (good news) to the investors;
2. Increase in supply of shares where an event brings negative sentiment to the investors.

The result of this study is more likely to support the first assumption since the Eid al-Fitr and Christmas bring good news to the investors. Below is a chart of average TVA movement in the first period.

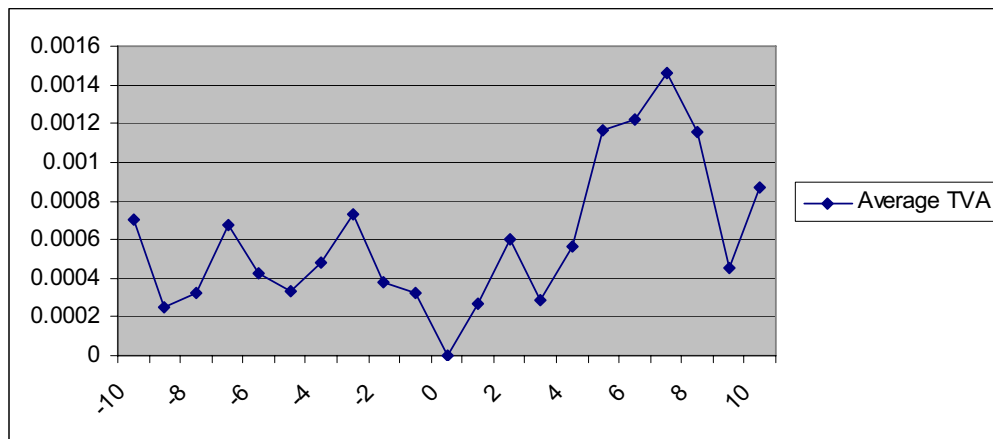


Fig. 7. Average TVA in the second period

Figure 7 clearly illustrates that there is a difference in TVA on the days before and after the event date, and there is also a significant increasing in TVA. It happens because the investors do not consider only by the range between one event, and another, but they also consider that the Christmas day is also close to the New Year eve.

Conclusions

The aim of this research is to investigate the capital market reaction to the information content of Eid al-Fitr and Christmas days. It also measures how fast the response of the market to the information content is to create new equilibrium prices. From the discussion above, it implies that in the first period there is a significant abnormal return on the first day before the event, and in the second period there are significant abnormal returns on the first and third days after the event date. The investors have to be more thorough for response to non-economic events, especially pertinent to those

events in order to maximize their wealth and to minimize their risks.

The results also show that, in the first and second periods, there is no significant difference of AAR. It happens because the investors may anticipate the information content quickly, and this information does not change the preference of their investment decisions.

Furthermore, our empirical findings demonstrate that there is no significant difference between average TVA for the days before and after the event date in the first period. In contrast, there is a significant difference of average TVA on the days before and after the event date on the second period.

From the analysis and discussion above, the result of this study is expected to be a reference for the investors to determine their investment decisions especially in relation with the retail shares listed on the Indonesian Stock Exchange (IDX).

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Appendix A

Table 1A. Samples in the first period

No	Code	Name of the company	Year
1	ALFA	Alfa Retailindo Tbk	2007
2	GRIV	Great River International Tbk	2007
3	HERO	Hero Supermarket Tbk	2007
4	MPPA	Matahari Putra Prima Tbk	2007
5	MTSM	Metro Supermarket Reality Tbk	2007
6	RALS	Ramayana Lestari Sentosa Tbk	2007
7	TKGA	Toko Gunung Agung Tbk	2007
8	ALFA	Alfa Retailindo TBK	2008
9	GRIV	Great River International Tbk	2008
10	MPPA	Matahari Putra Prima Tbk	2008
11	MTSM	Metro Supermarket Reality Tbk	2008
12	RIMO	Rimo Catur Lestari Tbk	2008
13	SONA	Sona Topas Tourism Inds. Tbk	2008

Table 1A (cont.). Samples in the first period

No	Code	Name of the company	Year
14	TKGA	Toko Gunung Agung Tbk	2008
15	ALFA	Alfa Retailindo TBK	2009
16	GRIV	Great River International Tbk	2009
17	HERO	hero Supermarket Tbk	2009
18	MPPA	Matahari Putra Prima Tbk	2009
19	MTSM	Metro Supermarket Reality Tbk	2009
20	RALS	Ramayana Lestari Sentosa Tbk	2009
21	RIMO	Rimo Catur Lestari Tbk	2009
22	SONA	Sona Topas Tourism Inds. Tbk	2009
23	TKGA	Toko Gunung Agung Tbk	2009

Appendix B

Table 2B. Samples in the second period

No	Code	Name of the company	Year
1	ALFA	Alfa Retailindo Tbk	2011
2	GRIV	Great River International Tbk	2011
3	HERP	Hero Supermarket Tbk	2011
4	MPPA	Matahari Putra Prima Tbk	2011
5	MTSM	Metro Supermarket Reality Tbk	2011
6	RALS	Ramayana Lestari Sentosa Tbk	2011
7	RIMO	Rimo Catur Lestari Tbk	2011
8	SONA	Sona Topas Tourism Inds. Tbk	2011
9	TKGA	Toko Gunung Agung Tbk	2011
10	ALFA	Alfa Retailindo Tbk	2011
11	GRIV	Great River International Tbk	2011
12	HERO	Hero Supermarket Tbk	2012
13	MPPA	Matahari Putra Prima Tbk	2012
14	MTSM	Metro Supermarket Reality Tbk	2012
15	RALS	Ramayana Lestari Sentosa Tbk	2012
16	RIMO	Rimo Catur Lestari Tbk	2012
17	SONA	Sona Topas Tourism Inds. Tbk	2012
18	TKGA	Toko Gunung Agung Tbk	2012
19	ALFA	Alfa Retailindo Tbk	2013
20	GRIV	Great River International Tbk	2013
21	HERO	Hero Supermarket Tbk	2013
22	MPPA	Matahari Putra Prima Tbk	2013
23	MTSM	Metro Supermarket Reality Tbk	2013
24	RALS	Ramayana Lestari Sentosa Tbk	2013
25	RIMO	Rimo Catur Lestari Tbk	2013
26	SONA	Sona Topas Tourism Inds. Tbk	2013
27	TKGA	Toko Gunung Agung Tbk	2013
28	MAPI	Matahari Putra Prima Tbk	2013

Appendix C

Table 3C. Number of shares listed & market capitalization

LNo	Code name	Name of the company	Listing date	No. of shares listed	Market capitalization
1	ALFA	Alfa Retailindo Tbk	8-Jan-2000	468,000,000	865,800,000,000
2	GRIV	Great River International Tbk	3-Nov-1989	931,392,000	428,440,230,000
3	HERO	Hero Supermarket Tbk	21-Aug-1989	329,420,000	1,992,991,000,000
4	MPPA	Matahari Putra Prima Tbk	21-Dec-1992	2,705,994,000	2,760,113,780,000
5	MTSM	Metro Supermarket Reality Tbk	8-Jan-1992	58,212,000	56,756,700,000
6	RALS	Ramayana Lestari Sentosa Tbk	24-Jul-1996	7,032,000,000	5,063,040,000,000
7	RIMO	Rimo Catur Lestari Tbk	10-Nov-2000	340,000,000	23,800,000,000
8	MAPI	Mitra Adi Perkasa Tbk	10-Nov-2004	1,660,000,000	1,494,000,000,000
9	SONA	Sona Topas Tourism Industry Tbk	21-Jul-1992	331,200,000	81,144,000,000
10	TKGA	Toko Gunung Agung Tbk	8-Jan-1992	52,000,000	13,000,000,000

Appendix D

Table 4D. AAR paired sample t-test result for the first period

Paired samples statistics									
		Mean	N		Std. deviation	Std. error mean			
Pair 1	before	.0006	10		.903	.00286			
	after	-.0003	10		.01462	.00462			
Paired samples correlation									
		N		Correlation		Sig.			
Pair 1	before & after	10		-.405		.245			
Paired samples test									
		Paired differences					t	df	Sign. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% Confidence interval to the difference				
					Lower	Upper			
Pair 1	before after	.00088	.02006	.00634	-.01347	.01523	.138	9	.893

Appendix E

Tale 5E. AAR paired sample t-test result for the first period

Paired samples statistics									
		Mean	N		Std. deviation	Std. error mean			
Pair 1	before	-.0021	10		.00494	.00156			
	after	-.0018	10		.01002	.00317			
Paired samples correlation									
		N		Correlation		Sig.			
Pair 1	before & after	10		-.546		.103			
Paired samples test									
		Paired differences					t	df	Sign. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% confidence interval to the difference				
					Lower	Upper			
Pair 1	before after	-.00025	.01337	.00423	-.00981	.00931	-.059	9	.954

Appendix F

Table 6F. TVA paired sample t-test result for the first period

Paired samples statistics									
		Mean	N		Std. deviation	Std. error mean			
Pair 1	before	.0012	10		.00086	.00027			
	after	.0011	10		.00103	.00033			
Paired samples correlation									
		N		Correlation		Sig.			
Pair 1	before & after	10		0.801		.005			
Paired samples test									
		Paired differences					t	df	Sign. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% confidence interval to the difference				
					Lower	Upper			
Pair 1	before after	.00008	.00062	.0002	-.00036	.00052	.414	9	.688