Analysis of the Ramadan Effect in Indonesia Stock Exchange

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Abstract

The purpose of the present study was to find out the return during Ramadan, which is different from returns in other periods in the Indonesia Stock Exchange. We analyzed three months of observations; one month before Ramadan (Sha'ban), Ramadan, and one month after Ramadan. Hypothesis testing using paired sample *t*–test was used to determine whether there were any differences between Ramadan with Sha'ban and also between Ramadan with Shawwal. The results of this study showed that there is no difference between returns in Ramadan with the returns in other months (one month before Ramadan and one month after Ramadan) in the Indonesia Stock Exchange. So, based on the period of this research, it can be concluded that there is no Ramadan effect in the Indonesia Stock Exchange.

Keywords: **Ramadan effect, abnormal return, market efficiency, and calendar anomaly**

JEL Classification : G12, G14, G15

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A capital market is an infrastructure of the financial sector that is essential for supporting a country's economic system. The capital market can also encourage the creation of efficient allocation of funds because with capital markets and excess funds, investors can choose alternative investments that have the most optimal return (Tandelilin, 2001). An investment is the commitment of funds or other resources conducted at the moment, with the purpose of acquiring some profits in the future. The fundamental thing in the process of an investment decision is to understand the relationship between the expected returns and risks of an investment. The relationship between risks and returns that are expected from an investment is linear.

In order to optimize the returns, an investor can observe the daily stock price changes. The price behavior is seasonal, so it gives an opportunity to the investors to be able to join certain trading patterns. By understanding the return stock seasonal pattern, it is hoped that the investors can take the decision to buy or sell a stock at the right time (Alteza, 2007). According to Mulatsih, Maskie, and Susanto (2009), the price reflects a joint agreement between all market participants about the value of assets based on the information available. If the price of formed stocks already reflects all the available information in the market, the market is said to be efficient. An important aspect of judging market efficiency is how fast new information absorbed by the market is reflected in price adjustment towards a new balance.

The content of information and market efficiency are two things that are related. The efficiency of market information can be tested to see through the content of the announcement of a market reaction. Market reaction is demonstrated by price changes in the relevant securities. This reaction can be measured by using abnormal returns. An announcement containing information will give abnormal returns in the market. On the other hand, an

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announcement that does not contain information will not give abnormal returns in the market (Jogiyanto, 2005).

Based on the market efficiency theory, it is not possible for investors to predict stock prices and the returns in the future using the share prices from the past. In fact, the price of a new equilibrium can be predicted based on trading activity every day in the capital market. Such a capital market is considered inefficient.

Some studies found evidence that is opposed to the market efficiency theory in which there are deviations when the stock is not in accordance with the available information in the market. This condition of the market is an anomaly. Anomalies in markets are incidents or events that are not anticipated and make investors offer a chance to obtain abnormal returns. Many researchers have tested various types of anomalies in markets. One of them is seasonal or calendar anomalies in which irregularities are associated with a season. Among seasonal anomalies which have been researched, many of them focused upon testing the events. The events which are not fixed, like Ramadan, have received less attention, and hence, these need to be further examined. According to Seyyed, Abraham, and Al-Hajji (2005), events that periodically change in their calendarization every year, like Ramadan, can potentially have significant effects upon an economy.

Seasonal anomaly is one type of market anomaly where share prices companies with high season sales tend to rise during the festive season. The Ramadan effect is demonstrated by the differences between stock returns of other months with stock returns of Ramadan. During the month of Ramadan, returns were found to be higher than returns in other months in a year (Al-Hajieh, Redhead, & Rodgers, 2011; Bialkowski, Etebari, & Wisniewski, 2012). The research about the effect of Ramadan by Akrami, Garkaz, and Mehrazin (2012) on Tehran Stock Exchange used period data of three months: one before Ramadan, one during Ramadan, and one after Ramadan. The results showed the existence of a significant difference in abnormal returns between before Ramadan and after Ramadan. So, it can be said that Ramadan had an influence on abnormal returns.

On the contrary, Akrami et al. (2012) and Shah, Rehman, and Ahmed (2014) tested the Ramadan effect in the Karachi Stock Market using monthly data for 3 years and found that returns in the Karachi Stock Market did not seem significant during Ramadan. The study showed that religious factors were not related to the financial market and the markets remained the same for Ramadan as the other months in one year. So, it can be concluded that the Ramadan effect is not significant for the Karachi Stock Market. Ramadan is one of the famous religious events and is celebrated every year by Muslims around the world, including in Indonesia, which has the largest Muslim majority in the world. In the month of Ramadan, investors look for fast profits in the beginning of the fasting month, buying good shares from the beginning of Ramadan and selling it at the end of Ramadan or even after the day of Eid al-Fitr holidays. Muslim investors believe that with good behavior, they will receive goodness twice in Ramadan. Several factors such as the level of consumption and the mood of investors cause the absence of difference in returns during Ramadan as compared to other months. So, the result is that the investors get higher returns during Ramadan (Al-Khazali, 2014).

From the other economic perspective, even though Muslims are fasting, the expenditures generally increase. For the companies in the retail sector, Ramadan is the month that brings most profits. Many new traders show up during Ramadan and the existing traders increase the stocks of their goods (Syuhud, 2011). Expenditure of a variety of consumer goods is higher during Ramadan than in other months.

This research was meant to find out whether returns in Ramadan are different from the returns in other months in the Indonesia Stock Exchange. This research can be used to know that there is a pattern in change of stock prices during Ramadan, and it also explains its implications for investors. Investors can buy the stock prices of companies which can give the best abnormal returns during the month of Ramadan.

Literature Review

(1) Market Efficiency : According to Gumanti and Dan Elok (2002), in market efficiency, we learn the concept of how far and how fast information can affect a market that reflects in the change in security price. The relationship

between security price and information is the main key to measure the efficiency of the market (Jogiyanto, 2014). An efficient market can be categorized into three types according to the efficient market hypothesis. The three types of efficient markets are :

(i) weak efficient market, that is, when prices from security fully reflect past information,

(ii) semi-strong efficient market, that is, when prices of a security fully reflect all published information including information available in public financial company reports and,

(iii) strong market efficient, that is, when prices of a security fully reflect all available information, including private information. Each relates to how deep the information is absorbed by the market.

(2) Market Anomalies : Discussions concerning an efficient market on trial cannot be separated from discussions that are anomaly related to the efficient market hypothesis. Jones (1997) stated that anomalies are the techniques or strategies that appear contradictory to efficient markets. Anomalies cause market movements that are no longer random, but structured at a certain time. Anomalies that can be predicted by investors give higher abnormal returns.

We can find things in anomalies that are not supposed to happen if efficient market really exists. This means that some events can be used to get abnormal returns. In other words, it is possible for investors to get abnormal returns by taking advantage of certain or any seasonality events. Seasonality is a repeatable tendency of financial instruments to move in relation to a particular influencing factor. That factor could be the time of year, inflation, interest rates, and others (Selvarani & Shree, 2009). In finance theory, we know at least four types of anomalies in capital markets. These four are company anomalies, seasonal anomalies, anomalies incident, and accounting anomalies (Gumanti & Dan Elok, 2002).

(3) Ramadan Effect : Ramadan is the ninth month in Islamic calendar when Muslims fast, are social, are inclined towards religion, and are dominated by positive emotions. According to Seyyed et al. (2005), an event whose calendar date changes every year, like the Ramadan, has the potential to significantly influence a country's economy. Ramadan gives an unique opportunity to examine and determine the possibility of patterns in returns and volatility which is associated with other months in a year. The change in market returns and the volatility during Ramadan are caused by conditions which are different from conditions in other months.

The Ramadan effect is one of the seasonal anomalies. In Ramadan, the stock returns are different from that in other months. In Ramadan, the stock returns are higher than they are in other months in a year (Białkowski, Bohl, Kaufmann, & Wisniewski, 2012). This finding was supported by Al-Hajieh et al. (2011), who stated that stock returns in Ramadan were significantly higher than what they were in other months in four of the six Middle East countries that were examined for the study.

The positive mood of Ramadan influences investors to act optimistically while transacting in capital markets. Hopefully, it will make a positive return in Ramadan. Different moods have the potential to make a different impact on retail investors as well. This can influence their capital market activities.

Investors look for quick profit returns in Muslim countries from the beginning of Ramadan. They buy blue chips from the very beginning of Ramadan, and then sell it at the end of Ramadan. They even sell these during Eid al-Fitr. Muslim investors believe that by good behaviour, they will receive twice as much in Ramadan than in other months. Investors get higher returns in Ramadan (Al Khazali, 2014). The phenomenon of people's increasing consumption during Ramadan is a seasonal behavior. Even though Muslims are fasting ; generally, Ramadan expenses increase because of their increased consumption, especially consumption of food and drink (Amelita, 2014). The increased selling in Ramadan happens because of the welcoming Eid al-Fitr factor. Muslims buy not only food and drinks, but also other necessities.

Ramadan is the month that brings many advantages to issuers in the retail sector. Many new merchants come up. The existing traders increase their supplies. The number of people consuming more basic needs is higher in Ramadan as compared to other months (Halari, 2013). Commodity sales increase as well. It is used to get higher profits during Ramadan (Bukhari, Jalil, & Rao, 2011).

The existence of the Ramadan Effect is important for stock holders and investors, because it can be used as the right guidance to buy or sell stocks. In other words, market patterns can help investors get abnormal returns (Akrami et al., 2012).

(4) Abnormal Returns : Abnormal returns is the difference between expected returns with actual returns, or the difference between real returns with expected returns (Jogiyanto, 2014). Abnormal returns do not only have a positive value or shape advantage, but it can emerge negatively as a total loss of the value of shares (Fitriyani & Maria, 2013). To estimate expected returns, the estimation model with the average (mean-adjusted model), model market and market-adjusted model can be used.

(5) Returns in Ramadan : Ramadan effect is one of the seasonal or calendar anomalies. There is a difference in stock returns in Ramadan compared with the other months beside Ramadan. Ramadan has higher returns than other months in a year. According to Al-Hajieh et al. (2011), market returns on the first and last day of Ramadan showed high level of significance statistically in various years. According to the authors, the strong effect on the first and last day of trades affected the shares volume daily average and returns were found to be higher during Ramadan. The positive mood makes investors more optimistic during Ramadan. Mood differences can have different impact on the retail investors and this is why they affect capital market trading activity.

Bialkowski et al. (2012) found strong evidence of the effects of Ramadan. During the holy month of Ramadan, the average returns are significantly higher than the average returns for the rest of the year. The optimism of retail investors and decision-making for shares increases. Investors find quick profits by buying stocks early in Ramadan and sell these at the end of Ramadan or after Eid al-Fitr.

Bialkowski et al. (2013) stated that the holy month of Ramadan has a strong impact on return and volatility in capital markets, especially in countries with Muslim populations. Investors can derive profit from the existence of this anomaly by buying shares in the first holy month of Ramadan or by delaying selling after Ramadan. Religious activities during Ramadan affects the mood of investors, which has an impact on the decision-making process and risk assessment, which in turn impacts the markets (Al-Ississ, 2010).

According to Akrami et al. (2012), there are significant differences in abnormal returns during Ramadan, before Ramadan, and after Ramadan. This condition can be beneficial for shareholders as it acts as guidance for buying or selling of shares. The differences of abnormal returns shows that there is a certain pattern in certain markets.

Hypothesis

On the basis of the problem's background and theories discussed, the hypothesis that can be formed is that there is a difference in returns during Ramadan from other months (one month before and one month after Ramadan) in the Indonesia Stock Exchange.

Methodology

This research can be categorized as an event study because it examined market reaction which is demonstrated by abnormal returns because of the Ramadan Effect. Event study is the study that ascertains the market reaction to an

event when its information is published as an announcement. Market reaction is demonstrated by the change of stock prices of the relevant securities. This reaction can be measured by using returns as the value price change or using abnormal returns. An announcement that has the content of information will give abnormal returns to the market. But if it does not, it will not give an abnormal return to the market.

Populations in this research were companies listed on Kompas Index 100 for the period from 2009-2014. Due to data limitation, the period from 2009-2014 was chosen by us. We selected the populations that were included in the calculation of the Kompas Index 100 based on the idea that stocks in this index could represent the descriptions of price movements and active trading stocks which could influence the capital markets in Indonesia.

Purposive sampling method was used. Sampling criteria in this study were :

(i) Stocks that were consistently and successively listed in the Kompas Index 100 for 12 observation periods from February 2009 to January 2015;

(ii) No corporate actions such as stock split, rights issue, bonus shares, and stock dividend distribution were taken in the three-month observation period. According to Darmaji and Fakhruddin (2012) these types of corporate actions affect stock prices. This was done to make sure that the reaction was the impact of the monitored event and not of other events ; 14 companies were selected after purposive sampling.

The present study used the documentation technique to collect data. The data of this study were collected from online media statistics, the names of companies which were registered in the Kompas Index 100, and the daily stock price movement such as KSEI report, Yahoo Finance report, and the report of the Indonesia Stock Exchange (IDX).

The variable that was used in this research is abnormal returns. Abnormal returns is the difference between the expected returns and the actual returns. According to Jogiyanto (2014), the formula of abnormal returns is as follows :

$$RTNi,t = Ri,t - E[Ri,t] \quad (1)$$

where :
$RTN_{i,t}$: abnormal returns securities to - i towards to - t event period,
$R_{i,t}$: actual returns to securities to - i towards to - t event period,
$E[R_{i,t}]$: expected returns securities to - i towards to - t event period.

Steps in analyzing the Ramadan Effect are described as follows :
First, we collected information data for Sha'ban, Ramadan, and Shawwal months during the period of observation, that is, from 2009 to 2014 (refer to Table 1). Second, we collected the closing share price everyday of the stocks during the period from 2009-2014 adjusted between Islamic calendars. Third, we counted the actual return (R_{it}) of each company researched during the period of observation using the data of share prices on market closing every day. Fourth, we counted expected return [$E(R_{it})$] of every share using the market adjusted model during this period of observation. Market return used in this research is Jakarta Composite Index (IHSG). This method is chosen for this research because it is considered easier as it follows market price and it does not need the determination for period estimation (Jogiyanto, 2014). Other methods have more difficulty in return forecasting and the length of the period of estimation.

Table 1. Observation of Category of Month

Monthsh	Category of Months
Sha'ban	Non Ramadan
Ramadan	Ramadan
Shawwal	Non Ramadan

The market-adjusted model can be counted using this formula as follows:

$$E(R_{i.t}) = R_{m.t} \quad (2)$$

where,
$E(R_{i.t})$: realization return securities to - *i* towards to - *t* event period,
$R_{m.t}$: market return on period *t*.

$$R_{m.t} = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}} \quad (3)$$

where,
$R_{m.t}$: market return on period *t,*
IHSG : Jakarta Composite Index on period *t*,
$IHSG_{t-1}$: Jakarta Composite Index on period *t*-1.

Fifth, we counted the abnormal returns in every company's share during the period of observation. According to Jogiyanto (2014), the formula for counting abnormal returns is as follows :

$$RTN_{i,t} = R_{i,t} - E[R_{i,t}] \quad (4)$$

where :
$RTN_{i,t}$: securities abnormal return to -*i* towards to -*t* event period,
$R_{i,t}$: actual return happened for securities to -*i* towards to -*t* event period,
$E[Ri,t]$: securities expected return to -*i* towards to -*t* event period,

Sixth, we counted the average of abnormal returns in every share for every monthly group during the period of observation with the following formula :

$$RARTNt1,tp = \frac{\Sigma^{tp}_{t=t1} RTN_{i,t}}{N}$$

where,
$RRTNt_{1,tp}$: average abnormal return from day to -*t*1 until day to -*tp*,
$RTN_{i,t}$: securities accumulative abnormal return to -*i* until day to -*t1* until day to -*tp,*
N : the number of days.

Seventh, we used statistic analysis tool paired sample *t*-test. This test is conducted for the value of an observation based on the sample from a population so it uses one sample *t*-test. This test is conducted to ascertain whether there is a difference in abnormal returns in research during the period of observation.

Formulating Hypotheses :

- **H01:** There is no difference in returns during Ramadan and other months in the Indonesia Stock Exchange.
- **Ha1:** There is a difference in returns during Ramadan and other months in the Indonesia Stock Exchange.

The hypothesis set is tested using paired sample *t*-test as the group samples for calculation for Ramadan and other months have the same number of members and were derived from the same population. The research is non-parametric type, so it did not need normality test. Therefore, after collecting the data, hypotheses testing could be done directly.

The test was done for the period of Ramadan, one month before Ramadan (Sha'ban), and one month after

Ramadan (Shawwal) during the period of observation. Steps in this testing were:

(i) Determine the level of significance (α), which is 5% with degree of freedom *(df)* for *n*-1.

(ii) Compare the probability *(p)* with α = 5%.

(iii) Draw conclusions on the following basis :

(a) If probability value *(p)* < 0.05, so Ho1 is rejected, (b) if probability value *(p)* > 0.05, Ho1 is accepted.

Eighth, based on the results of testing, if Ha1 is accepted and H01 is rejected, then it means that returns in Ramadan are not the same as in other months. If H01 is accepted and Ha1 is rejected, then it means that returns in Ramadan are the same as they are in other months. If returns in Ramadan are not the same as returns in other months (month after and/or before Ramadan), it can be concluded that there is Ramadan Effect.

Ninth, sensitivity test was conducted to find out how significantly Ramadan Effect can affect months besides Ramadan by using paired sample test for testing Ramadan with every month outside Ramadan. If there is Ramadan effect on the months after and before Ramadan, different tests need to be conducted during Hijri months. The results will show if there is any difference in these months, and it will be possible to ascertain whether the Ramadan Effect can affect months outside Ramadan from one month after and/or before Ramadan.

Analysis and Results

The results from abnormal returns testing by using paired sample *t*-test to prove that returns during Ramadan are not the same as returns in other months outside Ramadan considering the period from 2009-2014 are discussed in this section. The testing for Ramadan with Sha'ban and Shawwal shows the same results (Table 2), that is, accept Ho because sign.(2-tailed) value for testing of both pairs has higher scores at the significance level of 0.05. It means that there is no difference between Ramadan that is tested with each month before and after Ramadan. So, it can be said that there is no difference in returns in Ramadan and returns in other months in the Indonesia Stock Exchange. The results of the hypothesis test is that the absence of these differences shows that Ramadan Effect did not happen in the Indonesia Stock Exchange and it means that the hypothesis in this research is rejected.

This condition shows that capital markets did not react positively toward the Ramadan event. This is because investors assumed that Ramadan is not an important moment or good news since it occurs every year and it can also be because the sample used in this research is mostly shares from non-consumer goods companies. Consequently, prices of stocks of companies surveyed in this period were not affected by the presence of Ramadan and showed no difference from prices in other months. If the sample was derived from the consumer goods industry, Ramadan effect could have been observed because people tend to increase consumption of basic needs during Ramadan, which can generate the potential of Ramadan effect.

Ramadan effect was absent in Indonesia because the Indonesian capital market is still dominated by foreign investors. Foreign investors in the Indonesian capital market are mostly from the United States, England, Luxemburg, Japan, and Canada (Tim Studi, 2008). While the Indonesian population is approximately 240

Table 2. Results from Paired Samples Test

		t	*df*	Sig.(2-tailed)
Pair 1	AR_Ramadan - AR_Sha'ban	.223	83	.824
Pair 2	AR_Ramadan - AR_Shawwal	.333	83	.740

Source: SPSS output, 2015.

Figure 1. Foreign and Local Ownership Year of 2014

Source: PT KSEI, 2015.

million people, the number of new local capital market investors is just about 400 thousand people or 0.2% of the total population of Indonesia (PT KSEI, 2013). This is why, even though the majority of Indonesian population is Muslim, there are still very few people who invest in capital markets. Foreign investors who dominate the Indonesian capital market are mostly from non-muslims countries and more than half of the shareholders of local investors are derived from corporate investors (54 %), followed by individual investors of 16.5 % (PT KSEI, 2015).

Foreign and local investors who are more dominant keep activities in the stock market in Ramadan going just as in other months because investors are profit−oriented. Religious factors did not affect activities in the share market. Ramadan is the same as other months in one year and Ramadan is not an important event which can give higher profits to investors.

The proportion of foreign and local ownership of stocks in the Indonesian capital market shows that foreign investors dominated until the end of 2014 (Figure 1). The press release from PT KSEI (2015) stated that in the end of 2014 (the fourth quarter), the share ownership was still dominated by foreign investors with a total of 65% ownership, decrease of 1% from the previous period. Even so, the value of stock ownership by foreign investors increased from 1.842,79 trillion to 1.864,97 trillion rupiahs. A 12.67 trillion increase in the value of stock ownership by local investors from 1.014,08 trillion in the third quarter to 1.026,75 trillion rupiahs in the fourth quarter was reported, with the total ownership of 36%.

Research on the effects of Ramadan has been done in some other muslim countries and it showed different results. The results of this study support the research results obtained by Shah et al., (2014), who also observed that there is no difference in returns between Ramadan and that in months before or after Ramadan. This is because of fast growing economies of the world. The growth of the business world needs more business activities and working hours to compete with other countries to maintain the stability of the global markets. In addition, nowadays, people do not give much attention to religious things as they did in the past. Nowadays, money and profits are the most important things. With this kind of situation, people follow the same routine of business during Ramadan, so the activities of the capital market remained the same during this month as compared to other months in one year. Husain (1998) also supported this research which shows that there are no significant changes in the average returns during Ramadan.

Contrary to this research, Akrami et al. (2012) found that there was a significant difference in abnormal returns during Ramadan and months before and after Ramadan in the Tehran Stock Exchange during the time period from 2005-2010. The results of the study showed that there was calendar anomaly (Ramadan Effect) in the Tehran Stock Exchange. It means that capital markets in Iran were not efficient. The different outcomes can be because of the different characteristic and economic conditions of each nation (Sunariyah, 2006).

Conclusion

On the basis of this research, it can be concluded that there is no difference in returns in Ramadan from the returns obtained in other months in the Indonesia Stock Exchange. There is no Ramadan effect in the Indonesia Stock Exchange during the period of observation. The Indonesian capital market did not react positively to the existence of Ramadan.

Limitations of the Study and Scope for Further Research

The limitations of this research is that the sample used in this study are mostly shares of non-consumer goods companies. The companies surveyed in the period were not affected by Ramadan. Besides, the Indonesian stock market is still dominated by foreign companies, and the number of local investors is still small. This lead to the absence of the Ramadan Effect because even though the majority of the Indonesian population is Muslim, there are very few people who invest in the share market. The investors more pay attention to share fundamental factors and economic conditions in a macro way to anticipate various events that contain information. They don't focus on only one event. It is also important to pay attention to information relating to a company, increase in value and performance which is reflected in its share price. Further research can be conducted by using abnormal returns calculation, which is a mean adjusted model, and trading volume activity can be used for testing.

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