

Original Article

The Impact of Ramadhan Effect on Abnormal Return

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Abstract - This study analyzes the effect of market anomalies, namely the Ramadhan Effect, on several subsectors such as food and beverage, telecommunications, automotive and components, financial institutions, tobacco manufacturers, retail and trade, and textile and garment in Indonesia Stock Exchange (IDX). The Independent variable of this study is daily return and abnormal return as the dependent variable. The analysis used an event study that consisted of three models for estimation: market model, constant mean model, and market-adjusted model. This study used a significance test on cumulative abnormal return (CAR) and regression. The result of this study reveals that there is no Ramadhan Effect on Indonesia Stock Exchange (IDX). The result of this study provides recommendations for investors to buy, sell, and hold the stock during Ramadhan on several subsectors.

Keywords - Abnormal Return, Anomaly, Cumulative Abnormal Return, Event Study, Ramadhan Effect.

I. INTRODUCTION

In 1970 there was a hypothesis in the world of capital markets initiated by Fama, which was called Efficient Market Hypothesis (EMH). The hypothesis assumes that stock prices reflect all the current information of stock. The principle in the hypothesis is based on the random walk theory that prices change from day to day and returns on stocks follow a random walk with autocorrelation close to zero so that future stock prices can not be predicted from information received in the past (Fama, 1970 in Jadevicius, 2017). According to the hypothesis, Fama divides efficient market categories (which reflect information on prices) into three market forms, namely weak-form efficiency where stock prices can not be predicted from the past, semi-strong efficiency where stock prices reflect information.

The hypothesis proposed by Fama reaps a lot of controversy from various researchers in the world. Because, in real life, it is difficult to find an efficient market where information is freely available (Gbeda & Peprah, 2018). In addition, according to Beechey et al. (2000), Mairer & Herath (2009), and Shiller (2014), there are various problems related to the hypothesis proposed by Fama (in Jadevicius, 2017).

In the 1980s, this hypothesis also began to be questioned because of fluctuations in prices, and it could not be adequately explained (Shiller, 2003 in Demirel, O., Once, M.A., & Unal, Asilihan., 2017). The question that arises from the hypothesis raised by Fama is that there is a phenomenon of a market anomaly in the stock market.

Market anomalies are observations that cannot be explained by EMH assumptions and logic (Demirel, O., Once, M.A., & Unal, Asilihan., 2017). Market anomalies that result in returns that are not as expected are certainly influenced by various factors, one of which is investor behavior. Recently, financial behavior explains market volatility because investor reactions to events are more important than the events themselves (Baruch, 1960, p.84 in Litimi, 2017). Thus, the perspective of market anomalies is built on psychological and social rules in which investors are psychological and social mistakes and come from changing beliefs (Litimi, 2017). According to Ciccone (2003) in Dhaoui, Bourouis & Boyacioglu (2013), investor sentiment and behavior play an important role in the stock market. Because, this will have an impact on stock prices. Investor behavior focuses on irrational behavior and psychological assumptions. If an investor is influenced by sociological and psychological conditions, they may change their investment decisions or may act excessively or not act at all in some conditions (Akif, 2017). Financial behavior has the purpose of identifying anomalies and for finding reasons that affect anomalies. Because, if anomalies are identified, investors will be able to make investment strategies (Akif, 2017).

Based on previous studies on market anomalies, this study is interested in analyzing market anomalies during the month of Ramadhan. Because, Indonesia is a country where the majority of the population is Muslim. Based on data taken from the Ministry of Religious Affairs Republik Indonesia, it is known that the majority of the population of Indonesia is Muslim (Ministry of Religious Affairs of Republic of Indonesia, 2017). In addition, during the month of Ramadhan, there are many interesting stock subsectors to observe, namely the food and beverage, telecommunications, tobacco manufacturers, automotive and components, textile and garment, financial institutions, and retail and trade subsector. This is due to several hypotheses.



First, when Ramadhan, according to Faruk & Sirin (2018) that there is an increase in prices in various sectors such as food, clothing, and commodities before celebrating Eid-ul-Fitr because people buy it to celebrate Eid-ul-Fitr. Second, because during the month of Ramadhan until the Eid-ul-Fitr, there was an increase in traffic on mobile data services, and the consumer sector was also interesting during the month of Ramadhan. This is in line with the news reported by Investasi Kontan (2018) that internet data usage is predicted to increase in the month of Ramadhan to Eid-ul-Fitr, and based on data reported by the Watch Time that youtube users in Indonesia have increased by 50% during Ramadhan.

Third, when entering Ramadhan, cigarette consumption is interesting to observe because it is possible that the consumption of cigarettes is reduced as a result of public awareness of health when entering Ramadhan. According to Rouhani & Azadbakht (2014), smoking can increase the risk of serious complications. The study reported that total cholesterol (TC), low-density lipoprotein (LDL), high-density lipoprotein (HDL), and blood glucose were corrected after Ramadhan compared to before Ramadhan. Fourth, when entering Ramadhan, demand for automotive goods increases due to returning home activities, which causes demand for automotive goods to increase. Fifth, when approaching Ramadhan up to Eid-ul-Fitr, the demand for clothing (garments) increases considering Indonesian culture when Eid-ul-Fitr is one of them using new clothes. This is similar to what Faruk & Sirin (2018) said that the clothing sector experienced an increase in prices before celebrating the Eid-ul-Fitr day because people bought it to celebrate Eid-ul-Fitr.

Sixth, when Ramadhan and Eid-ul-Fitr come, there is an increase in society's needs which requires more costs to meet those needs. So that the demand for financing through financial institutions increases. During Ramadhan, a search of credit cards in google increased from last year to look for increased installments when approaching Ramadhan (Warta Ekonomi, 2017). Seventh, the retail and trade subsector will experience an increase in demand because, during Ramadhan, the society buys necessities in several retailers (Kontan Investment, 2017).

So, based on the description above regarding the efficient market hypothesis and market anomalies that occur so as to have an effect on stock returns by considering the condition of Indonesia, which is predominantly Muslim. So, this study is interested in analyzing market anomalies against the abnormal returns of selected subsector company and have the purpose of analyzing the effect of the Ramadhan Effect on the abnormal return of subsector issuers in Indonesia.

II. LITERATURE REVIEW

A. *Efficient Market Hypothesis*

Fama defines that financial markets to be efficient if the price offered always reflects the information available.

According to EMH, stock prices follow a random walk where prices in the future can not be predicted. In a competitive market, stock prices reflect all available information so that no investor can produce abnormal returns consistently. If there is new information, the information appears randomly so that price changes to that information can not be predicted (Baker & Ricciardi, 2014). This is as stated by Bachelier (1990) and Kendall (1953) that price changes follow a random walk (in Baker & Ricciardi, 2014).

EMH came from the 1960s, when many researchers considered the capital market to be efficient, starting with Fama (1965) and Samuelson (1965). During the next decade, the study of hypotheses was divided into three efficient market forms (in Shleifer, 2000; Baker & Ricciardi, 2014), namely the weak form, the semi-strong form, and the strong form.

B. *Financial Behavior*

Financial behavior is a study that studies the influence of psychology on financial practitioners' behavior and subsequent effects on the market. Financial behavior helps explain why and how markets might be inefficient (Sewell, 2010). Financial behavior extends the analysis to the role of bias in decision-making (Byrne & Utkus, 2013). Psychological researchers get a distance from decision-making behavior called bias. This can have an impact on all types of decision-making, but the main implications are in money and investment relations. Bias relates to how someone processes information to reach the decisions and preferences we have.

In studying financial behavior must understand the concepts of psychology, sociology, and finance so that one can know the whole concept of financial behavior. Financial behavior tries to explain and improve understanding of investor patterns, including emotional processes and influences in making decisions. Financial behavior also tries to explain what, why, and how finance and investment are based on a human perspective. For example, financial behavior studies financial markets where many market anomalies occur, such as the January Effect, speculative market bubbles, and crashes (for example, in 1929 and 1987). However, until now, there are still debates regarding the definition and validity of financial behavior because there is still development and combat of financial behavior itself. Financial behavior studies psychological and sociological factors from the decisions of individuals, groups, and entities in decision making (Ricciardi & Simon, 2000).

C. *Market Anomaly*

The Fama hypothesis regarding EMH states that the expected return on assets must be evenly distributed throughout the day, week, month, year, or other time. However, empirical studies on return behavior have revealed that there are certain anomalies where the variance in returns is found to be related to the time (Munusamy, 2018). An efficient market means that stock

prices fully reflect available information and maintain a return-risk relationship (Hamid et al., 2010; Latief et al., 2011; Malkiel, 2013; in Toit, E. D., Hall, J.H., Pradhan, R.P., 2017). However, if there is a pattern of stock price movements, it shows that the market is inefficient, and this is said to be a market anomaly so investors can take advantage of it (Toit, E. D., Hall, J.H., Pradhan, R.P., 2018).

Capital market anomalies are deviations from the predictions of the EMH theory. Anomalies manifest in non-zero risk-adjusted returns (RAR) that can be predicted again. Shares with zero risk-adjusted returns provide a fair return for the risk. According to Khun (1962), anomalies are general and expected in every field and are integral to the "puzzle-solving" process (in Zack, 2011). There are several types of market anomalies (Akif, 2017), namely Calendar Anomalies, which have four calendar anomalies, the Day of the Week Effect (DWE), the January Effect, The Turn of the Month Effect, and the Holiday Effect. Second is firm-size Anomalies, and the third is Price Anomalies include over-reaction, and under-reaction.

D. Ramadhan

During the month of Ramadhan, Muslims must resist thirst, hunger, and lust from the rising of dawn to the setting of the sun. Natural detoxification, weight loss, cholesterol, blood pressure, and anxiety could improve during Ramadhan that people do fasting (Fuhrman, 1998; Saleh et al., 2005; Daradkeh, 1992 in Sonjaya & Wahyudi, 2016).

It happened too for the soul of social and religious souls during Ramadhan that they expect to be multiplied as promise in Al-Qurán. In, the celebration of Eid al-Fitr increases happiness for Muslims who have been shown to significantly influence the capital market in countries with the largest number of Muslim followers (Frieder & Suvrahmanyam, 2004; Lakonishok & Smidt, 1998; in Sonjaya & Wahyudi, 2016). Investor psychology, both individual or collective, produced positive things from the orientation of social and religion that affected to self-esteem, i.e., taking risks and investment (Dowling, 2005; Rosen & Wu, 2004; in Sonjaya & Wahyudi, 2016). It can increase investors in taking risks, then risk assets will be increased in their portfolio and could make an abnormal return.

III. RESEARCH METHODOLOGY

A. Data

This study will examine the Ramadhan Effect on a company that is included in the seven subsectors in Indonesia. The selection of research samples is carried out by looking at the companies listed on the Indonesia Stock Exchange consistently from 2013 to 2017 in the seven subsectors. Data used in the selection of samples is based on the Indonesia Stock Exchange Fact Book from 2013 to 2017, so that 71 companies will be observed. This study uses daily closing price data of 71 companies taken from Yahoo Finance, and actual return calculations are performed as independent variables. After that, the this

study also divided the time during the month of Ramadhan from 2013 to 2017.

B. Research model

This research consists of several stages in determining the presence of the Ramadhan Effect. In the first stage, this study calculated the actual return from the results of data taken from Yahoo Finance to 71 selected companies, with the formula $R_{it} = \left(\frac{P_t}{P_{t-1}}\right) - 1$ (1). In addition, to calculate daily market returns, the data needed is the closing price of the IHSG today and the previous day. So that the following formula is obtained $R_{mt} = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}}$ (2). Next to determine the estimated expected return. There are three models used (Brown & Warner, 1985; MacKinlay, 1997). First market model, the analysis is carried out by considering stock returns and market returns and associated risks between IHSG and the company. The model of the market model is as follows (MacKinlay, 1997):

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \dots \dots \dots (3)$$

The values of α and β are obtained by calculating the time-series regression equation against R_t and R_{mt} so that the expected return of each stock can be calculated. Second, a constant-mean model where the expectation of normal return is estimated in the following equation (MacKinlay, 1997):

$$R_{it} = E(R_{it}) + \epsilon_{it} \dots \dots \dots (4)$$

The normal return comes by expected value (in mean) R_{it} in the non-event period for the constant mean model. Estimates of normal returns either use the market model and the mean within 200 days before the event window. Third, the market-adjusted model is a model that explains that stock returns are influenced by market returns, where market influence is the same for all stocks. In this model, the expectation of a normal return is the value of the market index.

$$R_{it} = R_{mt} \dots \dots \dots (5)$$

Furthermore, calculating abnormal returns is defined as the actual return of the index in the window period (event window period) minus the normal return, which is the expected return without including the window period event in the estimated value (MacKinlay, 1997):

$$AR_{it} = R_{it} - E(R_{it}|X_{it}) \dots \dots \dots (6)$$

Cumulative Abnormal Return (CAR) is generated by summing all average abnormal returns from each index I in period t (MacKinlay, 1997):

$$AAR = \sum_{i=1}^N AR_{it} \dots \dots \dots (7)$$

$$CAR(n_1, n_2) = \sum_{t=1}^T AAR \dots \dots \dots (8)$$

According to Bialkowski, Etebari, and Wisniewski (2012), abnormal returns are defined conventionally as

results that are more than what investors expect in the absence of events. The statistical significance of CAR is verified using parametric t-tests by specifically removing the assumption of homoscedasticity and being able to accommodate events that change in volatility. The following is a parametric t-test CAR (Kothari & Warner, 2007):

$$t(CAR(n_1, n_2)) = \frac{CAR(n_1, n_2)}{\sigma(AR) \times \sqrt{n_2 - n_1 + 1}} \dots \dots (9)$$

Furthermore, a portfolio return regression will be formed from the sectoral index of the Ramadhan dummy variable and the market index, i.e., IHSG (Bialkowski, J., Etebari, A., & Wisniewski, T.P., 2012; Sonjaya & Wahyudi, 2016) (10):

$$Return_{portfolio} = \alpha_t + \beta \cdot ramadhan_t + \gamma \cdot return_{ihsg_t} + \epsilon_t$$

IV. RESULTS AND DISCUSSION

A. Stationary Test

To analyze market anomalies that occur in sub-sector objects, stationary tests are very important considering the data used in the analysis is time-series data. Stationary tests are carried out by testing Augmented Dickey-Fuller (ADF) compared to 5% critical value with the result that

all issuers are stationary. Next, after the data is stationary. However, before testing the Ramadhan Effect, the next step is to calculate the expected return of the three estimation models, namely the market model, the constant mean model, and the market-adjusted model. In determining the expected return, there is an estimation period that is used to calculate the expected return by using a market model and constant mean model. The estimation period is carried out for 200 days before the fir of Ramadhan after the estimation period is determined.

B. Analysis of Ramadhan Effect

The Ramadhan Effect phenomenon has been explained by several previous studies in which investors can take the opportunity to make a profit if there is a positive abnormal return during the Ramadhan Effect phenomenon. According to Bialkowski, J., Etebari, A., & Wisniewski, T.P. (2012) that the phenomenon of Ramadhan has several factors that influence it, such as the religious, psychological factor of an investor, which will then influence the feeling (mood) of investors in making investment decisions so that it will have an impact on the presence of abnormal returns. The following is the observation of the object using the market model.

Table 1. Ramadhan Effect on Subsector

Observation Period	Ramadhan _{All}	H ₋₇	H ₁₋₁₀	H ₁₁₋₂₀	H ₂₁₋₃₀	H ₊₁₅
Food and Beverage	-0.23%	0.11%	-0.17%	0.39%	-0.20%	-0.11%
Telecommunication	0.07%	-0.08%	0.14%	0.01%	0.04%	0.02%
Tobacco manufacturer	-0.08%	-0.14%	-0.24%	0.19%	-0.21%	-0.06%
Automotive and Components	-0.11%	0.02%	-0.08%	-0.13%	-0.08%	-0.14%
Textile and Garment	0.07%	-0.03%	0.01%	-0.02%	0.36%	0.20%
Financial Institution	0.09%	-0.15%	0.09%	0.03%	0.24%	0.06%
Retail and Trade	-0.10%	-0.26%	0.03%	-0.20%	-0.14%	0.03%

So that by looking at these observations during Ramadhan, there are two groups that are seen based on received abnormal returns, namely subsectors that have positive and negative abnormal returns. The first subsector in the subsector group that has a positive abnormal return in a full month or Ramadhan_{All} is the Telecommunications subsector. The abnormal returns received by the Telecommunications subsector, almost all observation subperiods in the event period experienced a positive abnormal return, only when seven days before Ramadhan experienced a negative abnormal return.

Based on data reported by the Indonesian Internet Service Providers Association (APJII) is 2017, the number of internet users in Indonesia is growing steadily from year to year. Besides that, there is also an increase in internet users, which people prefer to access the internet such as watching youtube or social media to wait for break the fast or when Sahur. This is in line with the news reported by Investasi Kontan (2018) that internet data usage is predicted to increase in the month of Ramadhan to Eid-ul-

Fitri, and based on data reported by the Watch Time that youtube users in Indonesia have increased by 50% during Ramadhan. During Ramadhan, many internet service providers offer attractive promos or discounts for internet users.

Thus increasing the demand for data package purchases and causing abnormalities received in the company incorporated in the positive Telecommunications subsector for a month of Ramadhan. The use of data packages or services accessed by the community is by sending messages through the chat application and sharing moments of togetherness when Ramadhan. This is in line with the results of a survey issued by APJII in 2017, where the most use of services accessed was chatted with presentations of 89.93%.

The second subsector in the subsector group that has a positive abnormal return in a full month of Ramadhan All is the Textile and Garment subsector. The pattern of abnormal return movements from the textile and garment

subsector has a fluctuating pattern but has a positive average in a month of Ramadhan. The highest point of abnormal return during the observation period occurred in the last ten days. At the end of Ramadhan, Muslims celebrate Eid-ul-Fitr. The day is a time to celebrate the completion of one month of Ramadhan, which is full of blessings and celebrates joy with family and friends (Al-Hajieh, 2011). In addition, there is an increase in prices in various sectors such as food, clothing, and commodities before celebrating the Eid-ul-Fitr day because people buy it to celebrate Eid-ul-Fitr (Faruk & Sirin, 2018). This is in line with the results of observations of the textile and garment subsector, which set the highest figure in ten days before Eid-ul-Fitr. However, after the Eid-ul-Fitr abnormal returns enjoyed in this subsector according to the people's purchasing power is also not as big as before Eid-ul-Fitr.

The third subsector in the subsector group that has positive abnormal returns in a full month or Ramadhan_{All} is the subsector of the Financial Institution. The financial institution is a company that consists of finance companies, venture capital, and infrastructure financing companies that carry out activities based on both conventional and sharia activities. According to data released by the Otoritas Jasa Keuangan (OJK) in Statistics of Finance Institutions Industry in 2015, the share of financing per debtor, when viewed from the category of individuals with the highest proportion, even dominates the Bank group, LKCNB, Non-Financial Companies, and Government. Whereas based on the share of credit card financing per customer also experienced significant growth, especially in 2015 (OJK, 2015). In addition, during Ramadhan, credit card searches increased from last year to look for increased installments when approaching Ramadhan.

The second group based on abnormal returns received during one month of Ramadhan is the subsector that receives negative abnormal returns. The first subsector in the subsector group that has a negative abnormal return in a full month or Ramadhan_{All} is the Food and Beverage subsector. The pattern of movement of the food and beverage subsector abnormal return tends to fluctuate during the observation period. Suppose viewed based on the event window every year when closer to Ramadhan it tends to decrease. It can be said that the Indonesian people tend to prepare for the needs of Ramadhan when closer to Ramadhan. At the beginning of Ramadhan, abnormal returns in this subsector are negative. The condition of the body that has just entered Ramadhan is certainly a new thing for the body and needs adaptation so that it encourages negative feelings and moods and can trigger the movement of negative abnormal returns at the beginning of Ramadhan (Bialkowski, J., Etebari, A., & Wisniewski, T.P., 2012; Sonjaya & Wahyudi, 2016).

The subsector group included in the subsector that receives negative abnormal returns is one of the Food and Beverage sub-sectors (Food and Beverage), which has a negative abnormal return if averaged in each company is -0.07%. However, only ICBP has a positive abnormal

return during the month of Ramadhan, which is 0.01%. When viewed with the types of products produced by ICBP, one of the ICBP products is instant noodles, where the demand for instant noodles ahead of fasting increases by 5% - 15% (Detik Finance, 2016).

The second subsector in the subsector group that has negative abnormal returns in a full month or Ramadhan_{All} is the tobacco manufacturers subsector. This is due to two things. First, the pattern of people's behavior during Ramadhan, i.e., reducing cigarette consumption to maintain health. Smoking can increase the risk of serious complications like. The study reported that total cholesterol (TC), low-density lipoprotein (LDL), high-density lipoprotein (HDL), and blood glucose were corrected after Ramadhan compared to before Ramadhan (Rouhani & Azadbakht, 2014).

In addition to behavioral changes during Ramadhan, negative abnormal returns from the tobacco manufacturers subsector are also caused by increased cigarette excise, which is a burden on the cigarette industry based on the Republic of Indonesia Minister of Finance Regulation Number 146 / PMK 010/2017 concerning Excise Tariffs on Tobacco Products. One of the implications of the increase in cigarette excise is the decrease in the number of factories operating. According to the Association of Indonesian Cigarette Manufacturers (GAPPRI) in Kontan (2018), it is projected that the market will decline, and the volume of transactions will be 1% and 1.5%, respectively. In addition, there has also been a decline in factories operating as an impact of excise tax, which currently has only 100 factories in total, out of 600 factories registered and licensed.

The third subsector in the subsector group that has a negative abnormal return in a full month or Ramadhan_{All} is the automotive and component subsector which in a month Ramadhan has an abnormal return of -0.11% with details during the observation period is -0.02% at seven days before Ramadhan, -0.08% in the first ten days of Ramadhan, -0.13% in the second ten days of Ramadhan, -0.08% in the third ten days of Ramadhan, and -0.14% at 15 days after Ramadhan. The pattern of abnormal movement of the automotive subsector and automotive and components tends to fluctuate during the observation period. During the event window period, this subsector experienced a negative abnormal return, so that when the stock Ramadhan was held, wait and see.

The fourth subsector in the subsector group that has a negative abnormal return in a full month or Ramadhan_{All} is the retail and trade subsector. According to Bank Indonesia in the 2017 Economic Report that people's purchasing power in terms of household consumption is not optimal because it is caused by the preferences of the Indonesian people, which then influence consumption patterns. Changes in the behavior of the Indonesian people have become more rational and selective, as well as a shift in the consumption pattern of society which prioritizes

consumption towards leisure and lifestyle. This is indicated in the pattern of movement in the purchasing power of the people in the last three years towards the types of shopping that are more leisure and lifestyle. The development of changes in the pattern of behavior of the Indonesian people is also accompanied by changes in the demographic form of Indonesia, which is currently dominated by the productive generation of young people and the development of the middle class in the digital economy era.

In addition, there is a decline in retail in Indonesia, which is not only reflected in statistical data. But it is also based on facts. The closure of several Matahari Departement Store (LPPF) outlets has happened in several regions. In addition, if viewed based on Same-Store Sales Growth (SSSG) or the average sales of each store

decreased in 2017 compared to the previous year. It was noted that SSSG LPPF in 2017 was at a minus point of -1.2%, which decreased in 2016 by 5.5% and 2015 by 6.8%. In addition, changes in the shopping behavior of Indonesian people who prefer online shopping with some of the benefits they get. Thus, the retail industry must go the extra mile in combating this competition even though online businesses are not the main cause of declining retail conditions.

This study also succeeded in identifying the month of Ramadhan, which consists of three phases, namely the first ten days, the second ten days, and the last ten days described in the Hadith and has meaning as the phase of grace, forgiveness, and exemption from hellfire (Sonjaya & Wahyudi , 2016).

Table 2. Ramadhan Effect in Three Models Estimation

Observation Period	Market Model	Constant Mean Model	Market Adjusted Model
Ramadhan _{All}	-0.04%	-0.01%	-0.03%
H ₋₇	-0.07%	-0.15%	0.03%
H ₁₋₁₀	-0.02%	0.04%	-0.03%
H ₁₁₋₂₀	-0.11%	-0.12%	-0.06%
H ₂₁₋₂₅	0.05%	0.06%	0.07%
H ₂₆₋₃₀	0.05%	0.07%	0.03%
H ₂₁₋₃₀	0.04%	0.07%	0.03%
H ₊₁₅	0.02%	-0.06%	0.13%

Based on the observations of the three models, the overall abnormal return to the portfolio has a negative abnormal return, namely the market model (-0.04%), constant mean model (-0.01%), and market-adjusted model (-0.03%). However, if viewed from the results of observations of the three models, for the last ten days (H₂₁₋₃₀), abnormal returns received using the three models have a positive number of 0.04% for the market model, 0.07% for the constant mean model, and 0, 03% for the market adjusted model. The abnormal return movement can be influenced by the mood or feeling of a person when fasting in the month of Ramadhan, which is one of the five pillars of Islam which requires that every adult Muslim who is not weak or subject to other exceptions is permitted. Fasting is carried out from dawn to the setting of the sun, which requires Muslims to abstain from eating, drinking, and lust which are encouraged to devote themselves to positive actions such as praying and charity (Seyyed, F.J., Abraham, A., Al-Hajji, M., 2005). Fasting when Ramadhan is a process of adaptation to the human body when it is just entering Ramadhan, which requires every Muslim to restrain food and drink intake. The condition of the body that has just entered Ramadhan is certainly a new thing for the body and needs adaptation so that it encourages negative feelings and moods and can trigger the movement of negative abnormal returns at the beginning of Ramadhan (Bialkowski, J., Etebari, A., & Wisniewski, T.P., 2012; Sonjaya & Wahyudi, 2016).

In the last ten days, Muslims have begun to adjust their fasting and get used to holding back food and drink, and lust. In addition, in the Islamic perspective, there are three phases during Ramadhan, namely 10 days of Ramadhan at first, second, and third. If you see abnormal returns that occur in these three phases, the three models produce a positive abnormal return (market mean model, constant mean model, and adjusted adjusted model). If viewed further in the Islamic perspective that in the last 10 days is also the night of Lailatul Qadr

which is one of the privileges of Ramadhan and is a night which has more virtue than the 1000 month worship contained in the QS Al-Qadar (الْقَدْر) 1 – 5.

Ramadhan is a holy month that affects almost every aspect of Muslim life. In addition to fasting and praying, Ramadhan also increases social awareness and closer relations with Allah SWT and with other fellow Muslims throughout the world. Ramadhan brings a sense of solidarity among Muslims, increasing their satisfaction with life and encouraging optimistic beliefs. This optimism influences investor sentiment and decisions that lead to an increase in abnormal returns (Bialkowski, J., Etebari, A., & Wisniewski, T.P., 2012). In addition, the average abnormal return is the highest on the 25th day, where the night of Lailatul Qadar is also on odd nights during the last ten days of Ramadhan. In addition, the theory of The Appraisal Tendency Framework (ATF) says that certain emotions give rise to certain cognitive and motivational

processes that explain the effects of each emotion on judgment and decision making (Han, Lerner, and Keltner, 2007).

In the last ten days, especially on the 28th day, there has been a significant decline in the three models, both the market model, the market adjusted model, and the constant mean model. The decline that occurred on the 28th day was caused by several factors, one of which was ahead of Eid-ul-Fitr taking place together in Indonesia and also selling to get funding ahead of Eid-ul-Fitr. Although the abnormal return received on the last day of trading in the month of Ramadhan has decreased until it reaches a negative return point, the abnormal return generated after the Eid-ul-Fitr leave returns to a positive return point. Abnormal return after Eid-ul-Fitr leaves experiences a positive abnormal return is measured by using the market model and market-adjusted model where the abnormal returns generated on both models are post-Eid-ul-Fitr

C. Significance Test of Ramadhan Effect

After calculating the abnormal return and cumulative abnormal return with three estimation models, then do a

significance test analysis to support the conclusion. Significance test was carried out on three estimation models, namely model of the market, constant mean, and market-adjusted(Brown & Warner, 1985; MacKinlay, 1997; Sonjaya & Wahyudi, 2016). Significance testing is carried out throughout the period from 2013 - 2017 which. If the results of the three estimation models (market model, constant mean model, and market-adjusted model) are significant, the Ramadhan Effect phenomenon occurs.

However, when there is one model that is not significant, the phenomenon of the Ramadhan Effect does not occur during the study period of the issuer's portfolio. The results of the significance test can be concluded that there is consistency in cumulative abnormal return (CAR) with three models estimation, i.e., market model, constant mean model, and market-adjusted model. The returns that occur during Ramadhan are not due to Ramadhan Effect market anomalies. The following result of significance test of Ramadhan Effect throughout the period from 2013 – 2017 with CAR (0,5), CAR (0,10), CAR (0,20), CAR (0,25), CAR (0,27), CAR (0,28):

Table 3. Significance Test of CAR in Three Models

Observation Period	2013 – 2017			
	Model	Market Model	Constant Mean Model	Market Adjusted Model
CAR (0,5)	t-stat	-0.8957	-1.6798	-0.2904
	p-value	0.3937	0.1273	0.7781
CAR (0,10)	t-stat	-0.5973	-2.6302	-0.5034
	p-value	0.5574	0.0165*	0.6205
CAR (0,20)	t-stat	2.3141	-0.3209	1.9825
	p-value	0.0262*	0.7501	0.0547
CAR (0,25)	t-stat	3.7977	1.5198	3.1779
	p-value	0.0004*	0.1351	0.0026*
CAR (0,27)	t-stat	4.3663	1.8037	3.6591
	p-value	0.0001*	0.0771	0.0006*
CAR (0,28)	t-stat	4.5914	1.8606	3.8714
	p-value	0.0000*	0.0682	0.0003*

D. Ramadhan Effect Regression Analysis

In conducting research using a study event framework, statistical significance evaluation raises several problems, such as inaccuracy in determining the event window (estimation period). This is because there are differences in the beginning and end of Ramadhan in several countries (Bialkowski, J., Etebari, A., & Wisniewski, T.P., 2012 in

Sonjaya & Wahyudi, 2016). According to Binder (1985), Binder (1998), and Bartholdy et al. (2004), the problem of event clustering problems can be anticipated by aggregating returns into portfolios and conducting these portfolios on dummy variable events, namely when Ramadhan (in Sonjaya & Wahyudi, 2016).

Table 4. Ramadhan Effect Portfolio

VARIABLES	2013	2014	2015	2016	2017
Ramadhan	-0.000919	-0.000426	-0.000623	-0.000590	0.000449
	(0.00100)	(0.000837)	(0.000801)	(0.000867)	(0.00102)
IHSG	0.559***	0.436***	0.433***	0.397***	0.462***
	(0.0238)	(0.0214)	(0.0281)	(0.0223)	(0.0366)
Constant	0.00103***	0.000473**	5.46e-05	0.000716***	0.000741***
	(0.000285)	(0.000239)	(0.000232)	(0.000247)	(0.000284)
Observations	16,614	16,614	16,969	16,614	16,543
Number of number	71	71	71	71	71

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

The results of the regression revealed that the return portfolio received by the subsector issuer, which was the object of research, was not significant during the study period (from 2013 - 2017). This can be seen based on the results of the Ramadhan variable regression, which is not significant both on standard errors of 10%, 5%, and 1%, so that it can be said that in the five years of the study period, the absence of the Ramadhan Effect on the entire portfolio of listed subsector issuers. This can be seen from the Ramadhan variables starting from 2013 to 2017.

V. CONCLUSION

Based on the results of research on the Ramadhan Effect on the abnormal return of subsector listed on the Indonesia Stock Exchange, the absence of the Ramadhan Effect uses both the significance test and portfolio regression results. When viewed from the significance analysis, inconsistencies occur between the three models (market model, constant mean model, and market-adjusted model) to the cumulative abnormal return (CAR). In addition, if analyzed using regression analysis, it also produces similar results, namely the absence of the Ramadhan Effect in the portfolio of the subsector issuers, which are examined well with a significance of 1%, 5%, and 10%.

VI. SUGGESTIONS

A. For Academics

For further research, it is expected to take a longer period of time, for 20 years, so that the persistence of the Ramadhan Effect can be examined and can also use the GARCH model to eliminate the assumption of heteroscedasticity.

B. For Investors

This study has succeeded in finding a pattern of abnormal return movements of the subsector under study, which consisted of 71 companies in seven subsectors. Investors can take profit or hold taking results by taking into account the movements of the cumulative abnormal return generated in this study. Some recommendations based on the results of this study on the seven subsectors are:

- Food and Beverage Subsector: Buy during the first ten days of Ramadhan and sell when the second ten days of Ramadhan;
- Telecommunications Subsector (Telecommunication): Buy before Ramadhan, sell on the last ten days of Ramadhan;
- Tobacco Manufacturers Subsector: If you have shares in this subsector, hold until the condition of the excise tax price is stable or declining;
- Automotive and Components Subsector: Buy during the second ten days of Ramadhan and hold until the stock rebounds again or after Ramadhan;
- Textile and Garment Subsector (Textile and Garment): Buy before Ramadhan, sell on the last ten days of Ramadhan;
- Financial Institution Subsector: Buy before Ramadhan, sell on the last ten days of Ramadhan; and

- Retail and Trade Subsector: Buy before Ramadhan and sell after Ramadhan.

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