Analysis of Ramadan Effect on Indonesian Islamic Stock Market: Jakarta Islamic Index (JII) (2016-2020)

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

This study aims to determine the effect of Ramadan on the Indonesian Islamic stock market: Jakarta Islamic Index (JII) (2016-2020) which by looking at the difference in return and trading volume activity between Ramadan and non-Ramadan months, this study also aims to determine the difference between the beginning, middle and end of Ramadan. The sample in this study were thirty companies listed on the Jakarta Islamic Index (JII) during Sha'ban, Ramadan and Shawwal from 2016-2020. The data used in this study is secondary data, and the data analysis technique used is the one-way ANOVA test and the Kruskall-Wallis test.
The results of this study indicate that Ramadan does not have a positive effect on the Indonesian Islamic stock market: Jakarta Islamic Index (JII), which is indicated by no significant difference in returns and trading volume activity between Ramadan and non-Ramadan. Furthermore, there is no significant difference in return and trading volume activity at the beginning, middle and end of Ramadan.

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1. INTRODUCTION

As the times progressed, the investment alternatives available were also growing, and the investor was more selective in investing. The presence of the Islamic capital market is starting to be considered important for investors, especially in Muslim countries. Countries with a Muslim majority generally have two categories of financial systems, namely conventional and sharia. The sharia system is a financial principle that is taught in accordance with Islamic law. In investing, this principle requires that investments be made in an ethical manner where profits cannot be generated from illicit activities such as investing in interest (riba), uncertainty (gharar) based financial institutions and other institutions involved in the production of alcohol, gambling and pornography [1,2].

Based on the Fig. 1, the market capitalization of the Jakarta Islamic Index increases from year to year. This shows that investors' interest in Islamic stocks is growing from time to time. Seeing these phenomena, the author assumes that the existence of the Islamic stock market is important in Indonesia and will make a major contribution to the economy and in the future will make a major contribution to the world.

An individual's decision making is influenced by many factors. The performance and actions of each individual will be influenced by their feelings [4]. One study showed that investors tend to be influenced by feelings and emotions and their financial decisions are not completely rational [5],

therefore moods and emotions have an important role in investor behavior [6]. One of the factors that influence a person's mood, feelings and emotions is religion.

Religion brings peace of mind to a person and influences many aspects of people's lives such as preferences, decision-making and moods [7,8]. Religious beliefs play an important role in people's lives, behavior and decisions. This will lead to the assumption that religion can influence one's investment decisions [9].

Ramadan creates a positive mood and social interaction among Muslims [10]. There is also literacy related to Ramadan, where the effects of Ramadan such as social empathy, feeling happy and peaceful, positive investor mood, health problems, and encouragement to do good deeds and prevent evil deeds [11]. Other research also mentions that Muslims experience a series of emotions and moods, making them feel happier and satisfied in the moment of Ramadan, a positive mood resulting in increased investment possibilities [5].

Fig. 2 shows that although the stock price looks volatile, the graph shows an upward trend. Seeing this and Indonesia itself, which has a majority Muslim population, it is suspected that Ramadan will have a positive impact on the Islamic stock market in Indonesia. Previous research has also shown that Ramadan has a different impact on the market. As research conducted by Hijazi [13] shows that Ramadan has a positive effect on Palestine Exchange

Fig. 1. Jakarta Islamic Index (JII) Market Capitalization
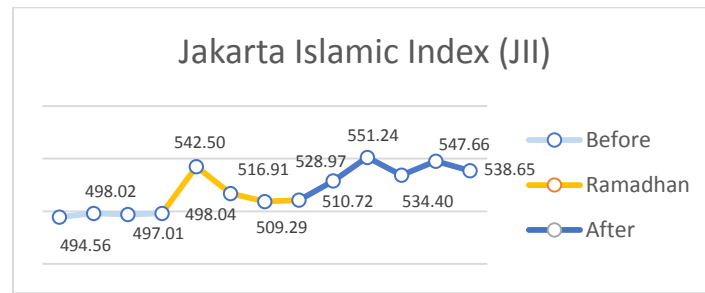*Source: https://www.ojk.go.id/ [3]*

Fig. 2. Jakarta Islamic Index Stock Price Around Ramadan 2020
Source: https://investing.com/ [12]

(PEX); then Munusamy [6] showed that Ramadan had a positive effect on the Islamic market in India, Wasiuzzaman [14] showed that Ramadan had a positive effect on the stock markets of Saudi Arabia and Iran. Furthermore, another study that has different results, Akbalik [15] shows that Ramadan has no impact on stock returns in Istanbul, Hassan [9] also shows that Ramadan has no impact on returns and trading volume on the Dhaka Stock Exchange. Based on the various phenomena and results of previous studies, researchers are interested in conducting this research.

This study will only measure the effect of Ramadan on the Jakarta Islamic Index (JII). The Jakarta Islamic Index (JII) is a list of the thirty most liquid Islamic stocks in Indonesia. JII contains bluechip stocks (Listyaningsih & Krishnamurti, 2017). Therefore, JII was chosen to be the object of research because JII contains bluechip stocks that are dominantly contributing to the Indonesian Islamic stock market and already represent the movement of all Islamic stocks in Indonesia.

This research was conducted with two test models. Model 1 to see the difference between the month of Ramadan vs. non-Ramadan. Then model 2 to see the difference during Ramadan, between the beginning, middle and end of Ramadan. Furthermore, this research will only be measured using return and trading volume activity.

2. LITERATURE REVIEW

2.1 Behavioural Finance

Behavioral finance is the study of the influence of psychology on the behavior of financial practitioners and their subsequent effects on the market [16]. Behavioral finance reveals that a

person's actions and performance are influenced by their feelings [4]. Behavioral finance is concerned with the soul of investors and their role in financial decision making and humans have emotions that can influence their decisions, such decisions often tend to be inefficient and irrational and can lead to disaster in the stock market, behavioral factors are also responsible for market anomalies and disturbances, these factors emerge from time to time in the form of stock market bubbles [17]. This research is related to behavioral finance because this study aims to see the market reaction shown by changes in investors' moods caused by religious moments.

2.2 Mood and Investment

Investment decisions are influenced by many things, one of which is mood. Good or bad a person's mood will affect the behavior that will be carried out. The performance and actions of each individual will be influenced by their feelings [4]. People's moods play an important role in their decision-making process [18]. One study showed that investors tend to be influenced by their feelings and emotions and decisions related to finances are not completely rational [5]. Past research has found that people make positive decisions when they are in a good mood [19].

Other research also shows the same thing, namely public sentiments cause emotional fluctuations for investors and affect their decision making [20], then other research also shows that feelings of mood or feelings of investors have a causal impact on the global financial crisis [21]. From this research it can be illustrated that investors have a big role in the economic crisis that occurred, stock trading that occurred at that time resulted in the crisis, and stock trading was influenced by the mood and feelings of investors at that time. Therefore moods and emotions have an important role in investor behavior [6].

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2.3 Ramadan, Mood and Investment

Faith in religion plays an important role in people's lives, behavior and decisions [9]. Religion provides a valuable form of social support, encourages optimistic beliefs, and contributes to the happiness of believers [22]. This shows that religion has a big impact on an individual's mood. Previous literature also states that religiosity and social norms can influence investment decisions of individuals, financial institutions and companies [23-27]. Religion brings peace of mind to a person and affects many aspects of people's lives such as preferences, decision making and mood [7,8].

Ramadan is a religious activity owned by Muslims. Muslims will fast for a whole month as a form of their religious observance. Ramadan has effects such as social empathy, feeling happy and peaceful, positive investor mood, health problems, and encouragement to do good deeds and prevent evil deeds [11]. Ramadan creates a positive mood and social interaction among Muslims [10]. Other research also mentions that Muslims experience a series of emotions and moods, making them feel happier and satisfied in the moment of Ramadan, a positive mood results in increased investment possibilities [5].

However, until now the research studies that have been conducted have produced varying results, whether they support the above opinions or contradict them. Several studies have shown that Ramadan has a significant positive impact on stock returns [13,6]. Other research also shows that Ramadan has a positive impact on stock returns but has a negative impact on stock trading volume [28]. Furthermore, research shows that it has no impact on returns but has a negative impact on daily trading volume [9].

Other contradicting research shows that Ramadan has no impact on stock returns [15]. There are also studies that show that Ramadan has no impact on stock returns or trading volume [29].

3. RESEARCH METHODS

The sample in this study was taken using purposive sampling, namely thirty companies listed on the Jakarta Islamic Index (JII) during Sya'ban, Ramadan and Shawwal from 2016-2020. The data used is the daily data of the stock. The data analysis technique in this study used the One-way Anova and Kruskal-Wallis tests.

One-way Anova test was used to compare the mean scores of two or more groups [30-32]. In contrast to the t-test, which is limited to examining differences between the means of two groups, ANOVA can examine differences in means by any number of groups [33]. It is said that when all groups have the same number of observations, it is said to be "balanced". Balance is not a big problem for one-way ANOVA [32], based on this it can be concluded that the test can be carried out even though there are differences in the number of data items in each group.

The Kruskal-Wallis test is a non-parametric test to see the difference in the mean scores of two or more groups [33,32]. This test is an alternative to the one-way ANOVA test [30,31], this test is carried out if the data used does not meet the assumption of normality.

This research has two test models, model 1 aims to determine the difference between Ramadan and non-Ramadan, because Ramadan itself is an event or moment that occurs for a whole month, the comparison is made with one month before, one month during and one month after Ramadan, which is measured by looking at the difference between the return and trading volume of stock activity. The research will be projected in the hijri calendar into the months of Sha'ban (before), Ramadan (during) and Shawwal (after). This observation period was chosen so that the results of the study would not be affected by other events.

In model 2, it is stated that during Ramadan, there is an increase in social interaction, especially at the beginning and end of Ramadan [34]. The month of Ramadan is considered to consist of three parts, equal in length but differing in the rewards, characteristics and intensity of the promised worship. The Prophet Muhammad said that "the first part (1-10 days) of Ramadan brings Allah's Mercy, the middle (11-20 days) brings Allah's forgiveness and the last part (21-30 days) brings deliverance from hell fire" [5]. Seeing this, the mood and emotions of Muslims will occur slowly in Ramadan. The writer suspects that there will be mood swings in three sub periods: the beginning, the middle and the end of Ramadan. In addition, previously there were studies that tested the difference in effects

on the market in the first 10, second and third days of Ramadan [5].

In model 1, the number of observation days consists of Sha'ban: 94 days, Ramadan: 89 days and Syawal: 89 days. Then in model 2 consists of the beginning: 33 days, the middle: 33 days and the end: 23 days. The number of observation days is obtained from the number of exchange days that occur in the months of Sha'ban, Ramadan and Shawwal from 2016-2020.

Return and Trading Volume Activity is measured using the following formula:

3.1 Return

$$R_{it} = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Information:

$R_{i,t}$: *Return i at time t*
P_t : *The price of the security for time t*
P_{t-1} : *The price of the security for time t-1*

3.2 Trading Volume Activity

$$\text{TVA}_{i,t} = \frac{\sum \; Shares \; i \; traded \; at \; time \; t}{\sum \; Shares \; i \; outstanding \; at \; time \; t}$$

Information:
$\text{TVA}_{i,t}$: Trading volume activity of stocks i at time to t

3.3 Hypotesis

The decision to invest or carry out investment activities is influenced by various factors, both internal and external. Moods and emotions have an important role in investor behavior [6]. Religion brings peace of mind to a person and affects many aspects of people's lives such as preferences, decision making and mood [7,8].

Ramadan is a holy month for Muslims, in this month the activities of faith and social interaction will increase. Ramadan creates a positive mood and social interaction among Muslims [10]. There is also literacy related to Ramadan, where the effects of Ramadan such as social empathy, feeling happy and peaceful, positive investor mood, health problems, and encouragement to do good deeds and prevent bad deeds [11]. A positive mood results in the possibility of investing being increased [5]. Previous literature

also states that religiosity and social norms can influence investment decisions of individuals, financial institutions and companies [23-27].

Several studies have shown that Ramadan has a significant positive impact on stock returns, namely research conducted on the Palestine Exchange (PEX) [13], India's Islamic market [6], Saudi Arabia and Iran capital markets [14],14 Muslim-majority countries during 1989-2007 [35] and the Tunis Stock Exchange (TSE) [28]. Where all the research was conducted in a Muslim-majority country. Other research shows that there is high liquidity (trading volume activity) during or around the month of Ramadan [7]. Further research conducted in Islamic Middle Eastern markets shows that some years the trading volumes are significantly higher, but in other years they are significantly lower [34].

Based on this, the authors suspect that Ramadan will have an impact or reaction on the Indonesian Islamic stock market, namely that there will be differences in the return and trading volume of stock activity on the market, where the return and trading volume of activity during Ramadan will be higher than in other months, because Indonesia is a one of the largest Muslim countries in the world, so Ramadan will affect the mood of more people than any other country. When investors' moods and emotions become more positive, investors will be more confident in investing, thus it will affect the existing Islamic stock prices and the volume of stock trading that occurs.

Based on this, the authors have hypotheses in this study as follows:

H_1 : There is a significant positive return difference between Ramadan and non-Ramadan (Sha'ban-Sawwal) on the Jakarta Islamic Index (JII).

H_2 : There is a significant positive difference in trading volume activity between Ramadan and non-Ramadan (Sha'ban-Sawwal) on the Jakarta Islamic Index (JII).

Previous research mentioned an increase in social interaction, especially at the beginning and end of Ramadan [34]. Where these social interactions will affect mood, the increase indicates that a person's mood becomes more positive, which will affect investment decisions. Previously mentioned, the beginning of Ramadan brings God's Mercy (1-10 days), the middle of

Ramadan brings God's forgiveness (11-20 days), and the end of Ramadan will be kept away from hell fire (21-30 days) [5]. In these three sections, there will be different intensity of worship due to different charitable rewards that will be received. Previous research has shown that there is an increase in returns but there is no significance in the first 10 days of Ramadan in 12 Islamic countries, then there is no significant effect on returns in the second 10 days of Ramadan, and there is a significant effect in the third 10 days for Saudi Arabia [5]. Therefore, the authors suspect that there will be a difference or increase in positive mood changes caused by the intensity of worship and the rewards of worship received in the three sub-periods, therefore setting the following hypothesis:

H_3 : There is a significant positive difference in return between the beginning, mid and end of Ramadan on the Jakarta Islamic Index (JII)

H_4 : There is a significant positive difference in trading volume activity between the beginning, middle and end of Ramadan on the Jakarta Islamic Index (JII)

4. EMPIRICAL RESULTS

4.1 Model 1

In model 1, the return data is tested using one-way ANOVA because the data is normally distributed and homogeneous, while for the trading volume activity data, the test uses the Kruskall-Wallis test because the data are not normally distributed and are not homogeneous.

Table 1 descriptive statistical shows the highest mean (average) occurred in the month of Shawwal at 0.25%, followed by Ramadan at 0.13% and the lowest mean occurred in the month of Sha'ban at 0.0004%. Meanwhile, the highest trading volume activity mean (average) occurred in the month of Shawwal at 0.24%,

followed by Sha'ban at 0.21% and the lowest mean occurred in the month of Ramadan at 0.19%.

Based on Table 2, the one-way ANOVA test shows a significance value of 0.643. This shows that there is no significant difference in returns between Sha'ban, Ramadan and Shawwal where the significance value is greater than 0.05.

Based on Table 3 the Kruskal-Wallis test shows a significance value of 0.235. This shows that there is no significant difference in trading volume activity between Sha'ban, Ramadan and Shawwal, where the significance value is greater than 0.05.

4.2 Model 2

In model 2, the return and trading volume data is tested using one-way ANOVA because the data is normally distributed and homogeneous.

Table 4 descriptive statistical shows that the highest mean (average) return occurred at the end of Ramadan at 0.26%, followed by mid-Ramadan at 0.10% and the lowest mean occurred at the beginning of Ramadan at 0.06%. Meanwhile, the highest trading volume activity mean (average) occurred at the end of Ramadan at 0.19%, followed by mid-Ramadan at 0.19% and the lowest mean occurred at the beginning of Ramadan at 0.06%.

Based on Table 5 the one-way ANOVA test shows a significance value of 0.866. This shows that there is no significant difference in return between the beginning, middle and end of Ramadan where the significance value is greater than 0.05.

Based on Table 6 the one-way anova test shows a significance value of 0.627. This shows that there is no significant difference in trading volume activity between the beginning, middle and end of Ramadan where the significance value is greater than 0.05.

Table 1. Descriptive Statistical – Model 1

Descriptives						
	Return			Trading volume activity		
	Sha'ban	Ramadan	Sawwal	Sha'ban	Ramadan	Sawwal
Minimum	-0.050999	-0.037636	-0.039748	0.001092	0.000731	0.000787
Maximum	0.089815	0.041809	0.053503	0.005689	0.004106	0.006680
Mean	0.00000371	0.00126883	0.00247408	0.00206723	0.00186294	0.00235535
Std.Deviation	0.02187623	0.01421796	0.01598061	0.00093173	0.00064197	0.00131654
N	94	89	89	95	89	89

Table 2. One-Way Anova Test – Model 1- Return

ANOVA					
Alldata return					
	Sum of squares	df	Mean square	F	Sig.
Between Groups	.000	2	.000	.443	.643
Within Groups	.085	269	.000		
Total	.085	271			

Table 3. Kruskal-Wallis Test – Model 1 – Trading Volume Activity

Test statistics[a,b,c]	
	AlldataTVA
Chi-Square	2.892
df	2
Asymp. Sig.	.235

Table 4. Descriptive statistical – Model 2

Descriptives						
	Return			Trading volume activity		
	Beginning	Middle	End	Beginning	Middle	End
Minimum	-0.030238	-0.037636	-0.015777	0.000959	0.000731	0.001221
Maximum	0.041809	0.023287	0.021642	0.003900	0.004106	0.002892
Mean	0.00060042	0.00099255	0.00262426	0.00177652	0.00191364	0.00191422
Std.Deviation	0.01598393	0.01440128	0.01151574	0.00056191	0.00078673	0.00052073
N	33	33	23	33	33	23

Table 5. One-Way Anova Test – Model 2- Return

ANOVA					
AlldataReturnRamadan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	2	.000	.144	.866
Within Groups	.018	86	.000		
Total	.018	88			

Table 6. One-Way Anova Test – Model 2- Trading Volume Activity

ANOVA					
AlldataTVARamadan					
	Sum of squares	df	Mean square	F	Sig.
Between Groups	.000	2	.000	.470	.627
Within Groups	.000	86	.000		
Total	.000	88			

5. DISSCUSSION

5.1 Analysis of Ramadan Effect on Indonesian Islamic Stock Market: Jakarta Islamic Index (JII)- Ramadan and Non-Ramadan

5.1.1 The first hypothesis

The first hypothesis in this study is that there is a significant positive difference returns between Ramadan and non-Ramadan (Sha'ban-Sawwal) on the Jakarta Islamic Index (JII). Based on Table 2, it shows that there is no significant difference returns between Shaban, Ramadan and Shawwal, therefore H_1 is rejected.

Based on the results of this study, ut shows that Ramadan does not have a positive effect on the Indonesian Islamic stock market from the aspect of return. This supports previous research with similar results conducted by Hassan [9], Lai [7], Akbalik [15], and Seyyed [29].

5.1.2 The second hypothesis

The second hypothesis in this study is that there is a significant positive difference in trading

volume activity between Ramadan and non-Ramadan (Sha'ban-Sawwal) on the Jakarta Islamic Index (JII). Based on Table 3, it shows that there is no significant difference in trading volume activity between Shaban, Ramadan and Shawwal, therefore H_2 is rejected.

Based on the results of this study, it shows that Ramadan does not have a positive effect on the Indonesian Islamic stock market from the aspect of trading volume activity. This supports previous research with similar results conducted by Hassan [9], Chaouachi [28] and Seyyed [29].

There is no significant difference in return and trading volume activity between Ramadan and non-Ramadan, presumably due to the climate of Indonesian society during the month of Ramadan, where previous research stated that there was an increase in social interaction during Ramadan [34]. In contrast to other Islamic countries, the characteristics of the Indonesian people are quite different. People flock to break the fast with relatives outside the home, previous research has also stated that commercial and religious activities increase after breaking the fast [29]. In addition, for the people of Indonesia, during the month of Ramadan before Eid al-Fitr, the majority of people will go to their hometown and has a unique THR culture that only exists in Indonesia, where adults will give money to their young relatives.

Based on the Populix survey, which shows Indonesian consumer spending soars by 50% during Ramadan. The survey shows that 43% of respondents have expenses ranging from 25-50% more during Ramadan than their usual monthly budget. In fact, there are also as many as 27% of respondents who have expenses greater than 50% during Ramadan than their usual monthly budget [36].

Seeing all these things the Indonesian people need a lot of money, instead of thinking about investing, the Indonesian people are more concerned with these costs, therefore there is no significant difference in return and trading volume activity.

5.2 Analysis of Ramadan Effect on Indonesian Islamic Stock Market: Jakarta Islamic Index (JII)- During Ramadan

5.2.1 The third hypothesis

The third hypothesis in this study is that there is a significant positive difference in returns

between the beginning, middle and end of Ramadan on the Jakarta Islamic Index (JII). Based on Table 5, it shows that there is no significant difference in returns between the beginning, middle and end of Ramadan, therefore H_3 is rejected.

5.2.2 The fourth hypothesis

The fourth hypothesis in this study is that there is a significant positive differences in trading volume activity at the beginning, middle and end of Ramadan on the Jakarta Islamic Index (JII). Based on Table 6, it shows that there is no significant difference in trading volume activity between the beginning, middle and end of Ramadan, therefore H_4 is rejected.

Based on the results of this research, it shows that Ramadan does not have a positive effect on the Indonesian sharia stock market, especially during the beginning, middle and end of Ramadan. This supports previous research with similar results conducted by Al-Khazali [5].

There is no significant difference in return and trading volume activity during the month of Ramadan, apart from differences in priority needs, where investment is not the main priority, fasting itself is one of the factors that worsen investment decisions, especially the first ten days of fasting, this is an early transition. from the habit of fasting, it is arguably the most difficult period to fast during Ramadan, the need for adaptation that is not easy, previous research also mentions that Muslims spend their daily time feeling hungry and this will adversely affect investors' moods [34], in addition it is also mentioned that fasting makes people more emotionally sensitive to the impact of external influences [34]. In addition to hunger, when fasting the sleep schedule changes suddenly, lack of sleep can make mood bad, previous studies have suggested that sudden delays in sleep have been associated with adverse mood swings that resemble depression [37,38]. Because the emotional resilience or mood of a person is different and for the people of Indonesia fasting and the moment of Ramadan itself is not too strong to trigger a good mood to invest.

6. CONCLUSION

Based on the results and discussion, the conclusions generated are as follows:

1. There is no significant difference in returns between Ramadan and non-Ramadan (Sha'ban-Sawwal)in the Indonesian Islamic stock market: Jakarta Islamic Index (JII) 2016-2020.
2. There is no significant difference in trading volume activity between Ramadan and non-Ramadan (Sha'ban-Sawwal)in the Indonesian Islamic stock market: Jakarta Islamic Index (JII) 2016-2020.
3. There is no significant difference in abnormal returns between the beginning, middle and end of Ramadan in the Indonesian Islamic stock market: Jakarta Islamic Index (JII) 2016-2020.
4. There is no significant difference in trading volume activity between the beginning, middle and end of Ramadan in the Indonesian Islamic stock market: Jakarta Islamic Index (JII) 2016-2020

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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