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# The Effect of Ramadan on the Indonesian Sharia Stock Index

**Ulfiya Husen[1], Indo Yama Nasarudin [2], Faizul Mubarok[3]**

**Abstract**

*As the most prominent Muslim majority country globally, Ramadan is a viral religious celebration in Indonesia. This study aims to determine the effect of the month of Ramadan on the performance of Islamic stocks in food and beverage companies. This study uses the event study method with a paired sample t-test as a test instrument. Sharia stock performance uses variable returns, abnormal returns, trading volume activity, and variability of securities returns from 2013-2020 during Shaban, Ramadan, and Syawal. This study indicates that the return variable and trading volume activity have a significant difference at the moment and after the month of Ramadan. In contrast, the other tests have no difference. Directly, during the month of Ramadan, the level of public consumption increases along with increasing needs. Indirectly, the traditions of the month of Ramadan also affect performance in the capital market. This phenomenon will affect sentiment in stock transactions based on the festive atmosphere brought by the month of Ramadan.*

**Keywords:** *Ramadan; Event Study; Return; Abnormal; Trading.*

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## INTRODUCTION

Every year, before the fasting month (month of Ramadan), the price of nine essential commodities and meat usually increases quite significantly (Hidayat, 2016). The increase can have become a natural thing because of the large number of requests rather than supply. The price of food and beverages will increase in price before the fasting month until Eid al-Fitr can no longer be avoided (Yang,

[1]Universitas Islam Negeri (UIN) Syarif Hidayatullah Jakarta, Indonesia
[2]Universitas Islam Negeri (UIN) Syarif Hidayatullah Jakarta, Indonesia
[3]Universitas Islam Negeri (UIN) Syarif Hidayatullah Jakarta, Indonesia
e-mail : fayzmubarok@uinjkt.ac.id

2016). Distributors who see an opportunity for an increase in the demand curve ahead of Ramadan can predict in general that meat and vegetable commodities in traditional markets also experience a significant increase in prices (Al-Khazali, 2014; Engkus, 2018).

Ramadan generates a festive mood, allows investors to tend to be optimistic when evaluating investments, and investors generally feel better when trading in the month of Ramadan (Al-Hajieh, Redhead, & Rodgers, 2011). During the month of Ramadan, the capital market undergoes significant changes in trading activities, including reduced trading hours on the capital market, which has the potential to reduce trading volume because people are more devoted much time to religious activities (Alrashidi, Ahmed, & Beneid, 2014; Białkowski, Etebari, & Wisniewski, 2012; Shah, Qureshi, & Aslam, 2017). The public will concentrate more on investing in the capital market after Ramadan ends, and investors try to profit from the month of Ramadan by buying shares before Ramadan and selling them after Ramadan (Akhter, Sandhu, & Butt, 2015; Sonjaya & Wahyudi, 2016).

Investors can make information on an event originating from internal or external to the issuer (Bose, MacDonald, & Tsoukas, 2019; Grundy & Verwijmeren, 2020). Events originating from internal conditions can be in dividend announcements, issuance of financial reports, and stock splits, while external events are generally economical and non-economic (Basdas & Oran, 2014; Lam, Sami, & Zhou, 2012). Testing the market reaction to an event can use the event study method (Law *et al.*, 2020).

The event study is a research methodology that uses financial market data to measure an event's impact, reflected in prices and transaction volume (Li, Shen, & Cincotti, 2017). Investors' abnormal returns can show the Ramadan effect (Winkasari, Soesetio, & Ningsih, 2019). Trading Volume Activity (TVA) can show the Ramadan effect (Sonjaya & Wahyudi, 2016). The amount of TVA around the event is an instrument that serves to measure the market reaction (Wahyudi & Sani, 2014).

TVA can be used to assess whether events that contain information result in the level of demand for shares to be higher than the level of stock offering so that the volume of stock trading during Ramadan is an effect of the active site of the transaction (Hassan & Kayser, 2019; Tuyon & Ahmad, 2016). Return

compares stock prices in the current and previous periods (Fauzi & Wahyudi, 2016). Trading volume activity is an indicator used to see the market reaction to the information reflected in stock trading (Audrino, Sigrist, & Ballinari, 2020). Security return variability is an analysis used to see whether, in the aggregate, it assesses informative information that results in returns. In the context of the efficient market hypothesis, no investor can outperform the market because the information is available to all investors (Malini, 2019). No investor can take advantage of the information in predicting future profits because prices are random and unpredictable (Lekhal & El Oubani, 2020).

Law *et al.* (2020) found no difference in abnormal returns on the UK soft drink industry levy announcement. The month of Ramadan does not significantly affect stock market returns and volatility, Hassan and Kayser (2019). There is no significant difference in abnormal returns, security return variability, or trading volume activity before and after the 2019 presidential election results Nugraha and Suroto (2019). Saragih, Sadalia, and Silalahi (2019) before and after the presidential election showed that abnormal returns, trading volume activity, and security return variability were significantly different from the 2014 presidential election but not significant in the 2004, 2009 presidential elections. Winkasari *et al.* (2019) there is no difference in abnormal returns in the month of Ramadan compared to other months. Shah *et al.* (2017) there is a significant difference in return and volatility in the month of Dzulhijjah on the Islamic Global Equity Index. However, there is no significant difference in return and volatility in the month of Ramadan on the Islamic Global Equity Index.

Akhter *et al.* (2015) there is the influence of the month of Dhul Hijjah on the stock market returns of Malaysia, Turkey, Morocco, and Egypt. Chrisnanti (2015) shows no difference between actual return, expected return, abnormal return, and security return variability before and after the merger, but there are differences in trading volume activity before and after the merger. Alrashidi *et al.* (2014) there is no significant difference in volatility or return. Dewi, Gumanti, and Singgih (2013) there is no significant difference in abnormal returns. The Ramadan event does not always affect the average abnormal return. Białkowski *et al.* (2012) there is no significant difference in return and trading volume activity in the month of Ramadan. Al-Hajieh *et al.* (2011) there is a significant difference in stock returns in the month of Ramadan.

Based on the background explained, this study aims to analyze using all variables, namely return, abnormal return, trading volume activity, and security return variability, by seeing whether there are differences in the period before-at the moment, after-at the moment, and before-after the month of Ramadan can see the comparison. Then, a broader and more recent observation period to know the state of Ramadan's month's influence. The stocks studied used Islamic stocks listed on the Indonesian Sharia Stock Index (ISSI) in the food and beverage sector, which did not use the Index and the sector in the previous study.

Research related to event studies regarding the effect of Ramadan has been done, but from research that is only limited to abnormal returns and trading volume activity and stocks that are non-stock objects on the Indonesian Islamic stock index (ISSI). Therefore, this study examines abnormal returns and trading volume activity, and returns and security returns. Then the observation in the period before, at the moment, after, and before-after the month of Ramadan can compare using the latest data and more extended observations.

This research contributes, first, to providing insight into the performance of developing Islamic stocks in Indonesia with a case study of the month of Ramadan. Second, it provides an overview of the performance of shares in the month of Ramadan so that it becomes a consideration in determining the allocation of funds to invest so that it is right on target. Third, in addition to the literature review for further research related to comparing Islamic stocks' performance.

## LITERATUR REVIEW

The grand theory of this research uses the theory of market efficiency. A good capital market is an efficient capital market. An efficient capital market is a market where the prices of securities reflect all relevant information. Information will be relevant if the information can make the capital market react, where the sooner the information is reflected in securities, the more efficient the capital market is. An efficient market will have security prices that are quickly evaluated in the presence of important information relating to securities. A market is efficient if no one, either individual investors or institutional investors, can obtain abnormal returns after adjusting for risks and using existing trading

strategies. When market conditions react quickly and accurately to reach a new equilibrium price that fully reflects the available information, efficient market conditions react quickly and accurately.

The event study aims to examine an announcement's information content and test the semi-strong form market's efficiency (Antoniadis, Gkasis, & Sormas, 2015; Basdas & Oran, 2014). Testing the information content and testing the market's semi-strong form's efficiency are two different tests (Tran & Leirvik, 2019). Testing the information content is intended to see the reaction of an announcement. It tested the information content to see the market reaction to an announcement to accept it (Irmayani & Purbawangsa, 2019). Changes in the price of security indicate a market reaction. This reaction can be measured using return as the value of price changes or using abnormal returns. If there is an abnormal return, an announcement that contains information will give an abnormal return to the market (Suryanto, 2015).

One form of information market efficiency testing is the semi-strong form test. This test finds out how quickly the security price reflects the published information (Mallikarjunappa & Dsouza, 2013). The market is efficient if no investors use the information to obtain abnormal profits for an extended period (Lalwani, Sharma, & Chakraborty, 2019). When new relevant information enters the market with an asset, that information will analyze and interpret that asset's value. As a result, there is a possibility of a price shift to the new equilibrium price. This equilibrium price will remain until another new information can change the new balance price. If the returns, abnormal returns, trading volume activity, and security return variability experience differences between before-at-the-moment, at the moment after, and before-after month of Ramadan, it can be concluded that these events contain information to cause market reactions.

Law *et al.* (2020) analyze the soft drink industry channels in the UK. The results showed no difference in abnormal returns on the announcement of retribution for the soft drink industry in England. Hassan and Kayser (2019) analyzed data on stock returns, volatility, and trading volume on the Dhaka Stock Exchange (DSE) with Ramadan's month. This study concluded that the month of Ramadan does not have a significant relationship with stock market returns and volatility. However, Ramadan has a significant negative impact on DSE daily

trading volume. Ramadan may be due to decreased trading and banking hours as well as investors' religious perceptions.

Nugraha and Suroto (2019) analyzed Indonesian capital market investors' reactions to the announcement of the 2019 presidential election results. The one-sample t-test showed that there were no positive and significant abnormal returns around the event. Paired sample t-test results showed no significant difference regarding abnormal returns, security return variability, and trading volume activity before and after the event.

Saragih *et al.* (2019) analyzed the presidential election's effect on abnormal returns, trading volume activity, and variability of securities returns in the banking industry during the 2004, 2009, and 2014 presidential elections. The results showed that abnormal returns significantly affected the 2014 presidential election but not significantly in the 2004 and 2009 elections. Trading volume activity significantly affects the 2009 presidential elections, but not significantly in the 2014 and 2009 elections. Security return variability significantly affects the 2004 presidential elections but not significant in the 2009 and 2014 elections.

Shah *et al.* (2017) analyzed the months of Ramadan and Dzulhijjah on stock returns and volatility of the Islamic Global Equity Index. The results showed that there were significant differences in return and volatility in the month of Dzulhijjah. However, there is no significant difference in returns and volatility during the month of Ramadan. Akhter *et al.* (2015) investigated stock market anomalies in six Islamic countries with return and volatility variables. Empirically, the Dzulhijjah effect negatively affects Malaysian stock market returns and does not affect other countries' stock markets. Dzulhijjah harms the volatility of the Turkish, Moroccan, and Egyptian stock markets. Alrashidi *et al.* (2014) aim to determine changes in stock market returns and volatility of Islamic mutual funds during Ramadan's month. The results show that the volatility of stock returns decreased drastically during the month of Ramadan. The reason for the decrease in volatility is due to the speed of economic activity during the month. Other results found that there is no significant difference in volatility or stock returns.

Białkowski *et al.* (2012) investigated stock returns during Ramadan's month in 14 Muslim majority countries. The results show that stock returns

during Ramadan are nearly nine times higher and less volatile. There is no real difference in recorded trading volume. These results are consistent with the idea that Ramadan positively affects investor psychology. It promotes feelings of solidarity and social identity among Muslims worldwide, leading to optimistic confidence in investment decisions. Al-Hajieh *et al.* (2011) analyzed anomalies in the Middle East Islamic stock market. The results showed that there was a significant difference in returns during the month of Ramadan. A significant and positive calendar influence is associated with the entire Ramadan period in most countries and general mood or investor sentiment.

$H_1$: There is a difference in the average return of the period before-at the moment, after-at the moment, and before-after the month of Ramadan.

$H_2$: There is a difference in the average abnormal return of the period before-at the moment, after-at the moment, and before-after the month of Ramadan.

$H_3$: There is a difference in average trading volume activity of the period before-at the moment, after-at the moment, and before-after the month of Ramadan.

$H_4$: There is a difference in average security return variability of the period before-at the moment, after-at the moment, and before-after the month of Ramadan.

## RESEARCH METHOD

This study uses daily historical data on food and beverage companies in the Indonesia Sharia Stock Index (ISSI) for the period 2013-2020 during the months of Sha'ban, Ramadan, and Shawwal, which to compare with each other. This study only focuses on the effects of Ramadan, although other factors influence stock movements. The companies studied were seven consisting of Akasha Wira International Tbk (ADES), Wilmar Cahaya Indonesia Tbk (CEKA), Indofood CBP Sukses Makmur Tbk (ICBP), Indofood Sukses Makmur Tbk (INDF), Mayora Indah Tbk (MYOR), Nippon Indosari Corpindo Tbk (ROTI), and Ultra Jaya Milk Industry Tbk (ULTJ). This research is as a comparative research and event study research using the variable Average Return (AR), Average Abnormal Return (AAR), Average Trading Volume Activity (ATVA), and Average Security Return Variability (ASRV) with different t-test with tools analysis of paired sample t-test.

Realized return is using historical data. Realized return is the return that has occurred. $R_{it}$ is the actual stock price i on day t, $P_t$ is the stock price i on day t, and $P_{t-1}$ is the stock price i on day t-1.

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

Abnormal return is the difference between the actual return that occurs with the expected return. An announcement that contains information will provide an abnormal return to the market. $R_{it}$ is the abnormal return of stock i on day t, $R_{it}$ is the actual return of stock i on day t, and $E[R_{it}]$ is the expected return of stock i on day t.

$$AR_{it} = R_{it} - E[R_{it}]$$

Expected returns use the Single Index Market Model (SIMM). The expected return is the return expected by investors in the future. Where $E[R_{it}]$ is the expected return of stock i on day t, $\alpha_i$ is the expected value of stock return on market return, $\beta_i$ is the stock coefficient i, and $R_{mt}$ is the market return of the market index.

$$E[R_{it}] = \alpha_i - \beta_i[R_{mt}]$$

The market return is the level of the profit shown in the form of a market index. $R_{mt}$ is the market return on day t, $ISSI_t$ is the market index on day t, and $ISSI_{t-1}$ is the market index on the previous day t.

$$R_{mt} = \frac{ISSI_t - ISSI_{t-1}}{ISSI_{t-1}}$$

Trading Volume Activity (TVA) is an instrument used to see the capital market's reaction to information through parameters of movement of trading volume activity in the market.

$$TVA = \frac{\sum company\ shares\ i\ that\ are\ trading\ at\ time}{\sum company\ shares\ i\ that\ were\ outstanding\ at\ time\ t}$$

Security Return Variability (SRV) is used to validate the aggregate market assessing information as informative or not, where the information causes changes in returns. $AR_{it}$ is the abnormal return of stock i on day t, $AAR_{it}$ is the average abnormal return of stock i on day t, and N is the amount of data.

$$SRV = \frac{AR_{it}^2(N-1)}{(AR_{it} - AAR_{it})^2}$$

## RESULTS AND DISCUSSION

The descriptive statistics results explain the value of the Average Return (ARi) for the period before the minimum value is -0.002989, the maximum value is 0.002353, the mean is 0.000004, and the standard deviation is 0.001854. Average Return (ARi) at the moment when the minimum value -0.001848, the maximum value was 0.001883, the mean was 0.000729, and the standard deviation was 0.00146. Average Return (ARi) in the period after obtaining a minimum value of -0.003801, a maximum value of 0.000609, a mean -0.001701, and a standard deviation of 0.002019.

**Table 1.**

**Descriptive Statistics**

| Variable | Period | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Average Return (ARi) | Before | -0.002989 | 0.002353 | 0.000004 | 0.001854 |
| | At the moment | -0.001848 | 0.001883 | 0.000729 | 0.00146 |
| | After | -0.003801 | 0.000609 | -0.001701 | 0.002019 |
| Average Abnormal Return (AAR) | Before | -0.000152 | 0.000117 | -0.00001 | 0.000092 |
| | At the moment | -0.000107 | 0.000112 | -0.00002 | 0.000085 |
| | After | -0.002683 | 0.000171 | -0.00032 | 0.001043 |
| Average Trading Volume Activity (ATVA) | Before | 0.044072 | 0.681326 | 0.24485 | 0.227652 |
| | At the moment | 0.058603 | 0.546108 | 0.20743 | 0.183906 |
| | After | 0.069515 | 0.685799 | 0.29884 | 0.243803 |
| Average Security Return Variability (ASRV) | Before | 33.84774 | 1186.977 | 385.778 | 435.3255 |
| | At the moment | 42.36599 | 4080.054 | 908.932 | 1497.65 |
| | After | 52.15997 | 3855.136 | 855.206 | 1434.78 |

Average Abnormal Return (AAR) in the period before the minimum value -0.000152, the maximum value was 0.000117, the mean was -0.00001, and the standard deviation was 0.000092. Average Abnormal Return (AAR) at the moment the period when the minimum value was -0.000107, the maximum value was 0.000112, the mean was -0.00002, and the standard deviation was 0.000085. Average Abnormal Return (AAR) for the period after obtaining a minimum value of -0.002683, a maximum value of 0.000171, a mean -0.00032, and a standard deviation of 0.001043.

Average Trading Volume Activity (ATVA) in the period before the minimum value -0.044072, the maximum value was 0.681326, the mean was 0.24485, and the standard deviation was 0.227652. Average Trading Volume Activity (ATVA) when the minimum value was 0.058603, the maximum value was 0.546108, the mean was 0.20743, and the standard deviation was 0.183906. Average Trading Volume Activity (ATVA) in the period after obtaining a minimum value of 0.069515, a maximum value of 0.685799, a mean of 0.29884, and a standard deviation of 0.243803.

Average Security Return Variability (ASRV) for the period before the minimum value was 33.84774, and the maximum value was 1186.977, mean 385.778, and standard deviation 435.3255. Average Security Return Variability (ASRV) at the moment when a minimum value of 42.336599, a maximum value of 4080.054, a mean 908.932, and standard deviation of 1497.65. Average Security Return Variability (ASRV) for the period after obtaining a minimum value of 52.15997, a maximum value of 3855.136, a mean of 855.206, and a standard deviation of 1434.78.

The normality test shows that all tested variables are generally by the sig (2 tailed) value of more than 5 per cent (Table 2).

**Table 2.**

**Normality Test Results**

| Variable | Period | Kolmogorov-Smirnov Test |
|---|---|---|
| Average Return (ARi) | Before | 0.999 |
| | At the moment | 0.489 |
| | After | 0.73 |
| Average Abnormal Return (AAR) | Before | 0.998 |
| | At the moment | 0.833 |
| | After | 0.093 |
| Average Trading Volume Activity (ATVA) | Before | 0.829 |
| | At the moment | 0.544 |
| | After | 0.712 |
| Average Security Return Variability (ASRV) | Before | 0.708 |
| | At the moment | 0.383 |
| | After | 0.221 |

## Analysis of Return

The results obtained based on the Paired T-Test showed no significant difference in Average Return (ARi) in the before-at the moment (0.447> 0.05) and the before-after period (0.8> 0.05). These results are in line with the research of Setiasri and Rinofah (2017), and Rusmayanti, Yusniar, and Juniar (2016), which states that the Composite Stock Price Index (IHSG) is the basis for calculating relatively stable returns. There is no difference in returns during the month of Ramadan with the months outside of Ramadan. Białkowski *et al.* (2012) stated that there is no influence of the month of Ramadan on the Indonesian stock market due to the Asian crisis, which coincides with the month of Ramadan. Therefore there is no effect of Ramadan on returns. However, the ARi at the moment-after period shows a significant difference (0.043 <0.05). This result is in line with (Hidayat, 2016), which states that before the month of Ramadan, the prices of nine staple foods and meat have increased significantly. This increase can be said to have become a natural thing because of many requests rather than supply.

## Analysis of Abnormal Return

The results obtained based on the Paired T-Test showed no significant difference in Average Abnormal Return (AAR) in the before-at the moment (0.884>

0.05), at the moment-after (0.456> 0.05), and before-after (0.434> 0.05). These results are in line with research by Dewi *et al.* (2013), which states that the events of Ramadan at different times and periods have different information content so that sometimes they affect. However, sometimes they also do not affect changes in stock prices in the capital market. Besides, each time and period has different characteristics that affect a study's results even though it examines the same event so that the market reacts differently to an event. Agustin and Mawardi (2015) state that there is no effect on abnormal returns because investors' behaviour in making decisions considers rationality and objective data, and rational action.

**Table 3.**

**Result of Paired T-Test**

| Variable | Period | Sig. (2-tailed) |
|---|---|---|
| Average Return (ARi) | Before- At the moment | 0.447 |
| | At the moment-After | 0.043* |
| | Before-After | 0.8 |
| Average Abnormal Return (AAR) | Before- At the moment | 0.884 |
| | At the moment-After | 0.456 |
| | Before-After | 0.434 |
| Average Trading Volume Activity (ATVA) | Before- At the moment | 0.132 |
| | At the moment-After | 0.023* |
| | Before-After | 0.102 |
| Average Security Return Variability (ASRV) | Before- At the moment | 0.379 |
| | At the moment-After | 0.955 |
| | Before-After | 0.476 |

*significant at 5 percent

Siska and Arigawati (2020) stated that one of the Ramadan effect determinants is investors' religious factors, increasing risk-taking behaviour. Faih and Nafiah (2019) stated that companies do not respond to Ramadan's influence because investors predict that there will be an increase in demand in the food sector, food raw materials, and fashion, so provide significant benefits. Asih and Khamainy (2019) state that there are conditions where there are simultaneous regional head elections after Ramadan, which causes politics and security that are not conducive.

**Analysis of Trading Volume Activity**

The results obtained based on the Paired T-Test showed no significant difference in Average Trading Volume Activity (ATVA) in the before-at the moment (0.132> 0.05) and before-after period (0.102> 0.05). These results are in line with Siska and Arigawati (2020) stated that there was no Ramadan reaction effect on changes in the fluctuation in the amount of stock trading in the food sector. Setiasri and Rinofah (2017) stated that the leading cause of the insignificant volume of stock trading in the before-at-the-moment period is Indonesia's composition, which is still dominated by foreign investors, namely 64 and local investors only 36 percent. Foreign investors dominate the transaction value more on the Indonesia Stock Exchange, as much as 60 percent compared to domestic investors, which only 40 percent so that this dominance is more influenced by moving stock prices (Rusmayanti *et al.,* 2016).

Faih and Nafiah (2019) stated that investors predict that companies will experience an increase in the value of their stock prices, while those that are usually in demand by issuers tend to decrease compared to stocks from companies engaged in fashion retailers such as department stores, food raw materials, and telecommunications. These results indicate that trading volume activity does not always affect abnormal returns. Even though the trading volume activity has experienced significant changes, it does not mean that abnormal returns also experience significant changes.

**Analysis of Security Return Variability**

The results obtained based on the Paired T-Test showed that there was no significant difference in Average Security Return Variability (ASRV) in the before-at the moment (0.379> 0.05), at the moment-after (0.955> 0.05), and before-after (0.476> 0.05). This result aligns with Saragih *et al.* (2019) state that the condition is due to information uncertainty or asymmetrical information dissemination. This uncertainty results in not all investors having sufficient information to make decisions that will benefit investors due to an event. Investors also do not have the information to make investment decisions that are not supported by the proper distribution of information.

## CONCLUSION

The Paired T-Test results showed that the period before-at the moment of Ramadan's month with the variables of Average Return, Average Abnormal Return, Average Trading Volume Activity, and Average Security Return Variability had no significant differences. The moment-after month of Ramadan, there is a significant difference between Average Return and Average Trading Volume Activity. At the same time, there are no significant differences in the Average Abnormal Return and Average Security Return Variability. Before the month of Ramadan, there were no significant differences between the variables of Average Return, Average Abnormal Return, Average Trading Volume Activity, and Average Security Return Variability.

Events that can be used as information by investors come from internal and external conditions of the company. This information is to analyze and interpret the value of the assets concerned. Investors must know the market reaction to information to reach an equilibrium price. If the market reacts quickly and accurately to reach a new equilibrium price, it fully reflects the information available. Investors should not only refer to share prices based on anomalous phenomena. Investors should remain objective by using careful analysis, be it technical analysis or fundamental analysis, as a basis for making investment decisions in order to obtain maximum capital gains.

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