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Is there a short-term overreaction to pandemic COVID-19? A case study of the Indonesia Islamic Capital Market

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Abstract

COVID-19 is an event that has harmed various sectors, one of which is the capital market sector. The high uncertainty caused by the COVID-19 outbreak caused investors to react to this event, which could cause an overreaction phenomenon. The events taken in this study sample are two events related to COVID-19. This study aims to analyze the phenomenon of overreaction in Islamic stocks and the factors that influence the phenomenon of overreaction by using the two-sample difference test method and cross-sectional regression. The results showed that in the lockdown event (Event 2) was proven that there was a significant overreaction phenomenon in the winner stock category. The factors that influence the overreaction phenomenon in this event are proven to be significantly and negatively influenced by leverage and market capitalization. In contrast, trading volume significantly and positively influenced the overreaction phenomenon.

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Introduction

The extreme event currently is the outbreak of new pneumonia called the coronavirus disease 2019 (COVID-19). The World Health Organization (WHO) received the first case report in Wuhan, Hubei Province, on December 31, 2019. This condition only received public attention on January 20, 2020, when the Chinese government announced that virus transmission occurred through physical human-to-human contact (Yan, 2020). The spread of COVID-19, at an alarming rate, has resulted in enormous global economic shocks and the deepest recession conditions in many countries. The World Bank (2020) predicts a decline in global GDP in 2020 to reach 5.2 percent. Based on the World Bank report at the beginning of the year, along with the spread of the COVID-19 case, foreign capital flowed out of emerging market countries at a

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speed far exceeding the worst day of the global financial crisis, resulting in higher selling and buying price difference (spread), and weakening the value of the currency.

Indonesia's economy has also deteriorated due to the addition of COVID-19 cases. On March 2, 2020, the President of Indonesia officially announced the first case of COVID-19 in Indonesia. Within a month, the number of confirmed cases reached 1,677 with a 9 percent case fatality rate (WHO, 2020). The addition of cases continues to occur significantly, resulting in decreased economic growth in Indonesia. The initial projection of Indonesia's annual economic growth rate is 5 percent, but with the outbreak of COVID-19, the projection for Indonesia's economic growth is at 0 percent (World Bank 2020). The Indonesian capital market was also affected by COVID-19, as shown by the Jakarta Composite Index (IHSG), touching the lowest level of 3 937,517 on March 24, 2020, in the last seven years. Price movements continue to change in the outbreak of COVID-19. Figure 1 shows that Indonesia's movement of the composite stock index (IHSG) and the Islamic stock index (JII) have significant volatility. Before the COVID-19 outbreak, stock prices were relatively stable, but after the COVID-19 outbreak, the stock index fell extremely and rose again in a short time.

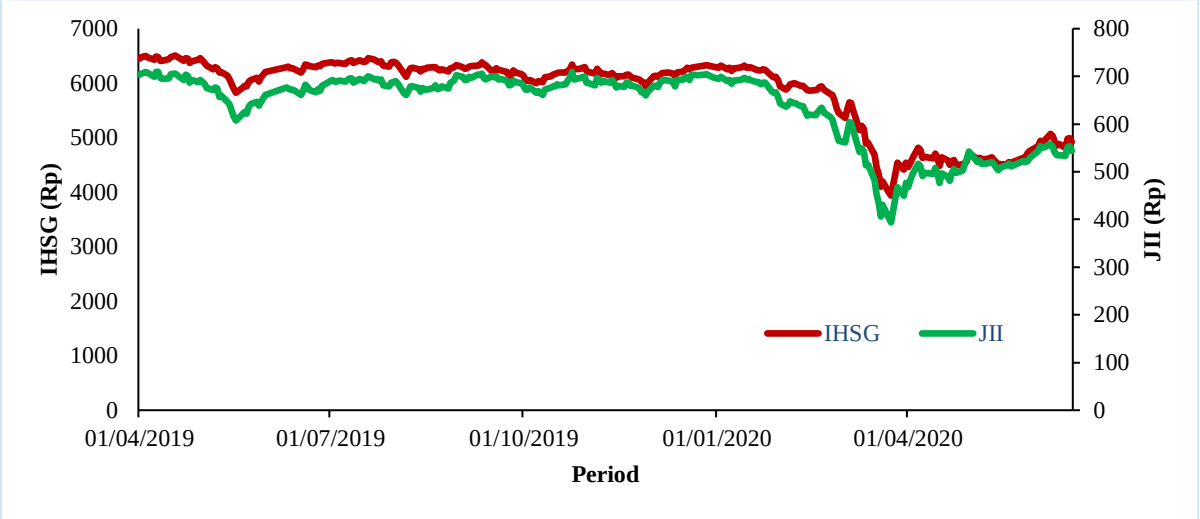

Figure 1. The movement of the IHSG and JII before and after COVID-19
Source: Yahoo Finance 2019-2020 (data processed)

Investor sentiment significantly affects the stock market. Investors will behave more optimistically when stock price trends rise, and there is less perceived risk. Stock price movements with a downward trend make investor sentiment relatively pessimistic regarding market conditions, and investors will tend to wait to enter the market until a price reversal occurs (Parveen et al., 2020). A study conducted by Zouaoui et al. (2011) shows that a market that is in crisis and with high volatility can lead to investor overreaction. Liu et al. (2020) conducted research showing that the outbreak of COVID-19 affected investor sentiment, resulting in stock market overreaction in countries affected by COVID-19, especially in Asia.

Investor sentiment towards market information can cause capital market anomaly, namely market overreaction. Investors tend to overreact to extreme events and new information and leave older information, leading to an unfair advantage for investors. De Bondt and Thaler (1985) conducted the first study to analyse market overreaction. This research shows that there is an overreaction from investors to unexpected information so that stock prices move beyond the theoretical value that should occur. The market will react to information of good value by setting a stock price that is too high whereas to bad information the stock price will be too low. Then, an extreme movement of stock prices is found in the opposite direction so that the decline

in stock prices that previously had a positive return (winner) and an increase in stock prices that previously had a negative return (loser).

The phenomenon of overreaction due to COVID-19 is an event of market inefficiency that may occur in any stock market, including the Indonesian Islamic stock market. The possibility of overreaction is supported by a study conducted by Fatima et al. (2019), who concluded that the volatility reaction of Islamic stocks due to shocks is terrible. In line with this, Mujadiddah et al. (2020) found a phenomenon of overreaction in Islamic stocks in Indonesia due to a bad incident, namely the bombing in Surabaya. The development of the Islamic stock market in Indonesia is quite good, as shown by as many as 462 out of 668 listed companies, including Islamic stocks, in 2019 (OJK 2020). The reference for the movement of Islamic stocks can be described by the Jakarta Islamic Index (JII), the first Islamic stock price index published on July 3, 2000. The Islamic index consists of 30 Islamic stocks that are liquid and undergo evaluation every six months.

Islamic stocks are stocks whose operations are regulated according to sharia principles. The operational arrangements for Islamic stocks are listed in the Fatwa DSN MUI NO 80/DSN-MUI/III/2011 which explains that the prohibition of behaviour that contains elements of *maisir, dharar, riba, maksiat dan kezhaliman, gharar, talaqqi al-rukban, tanajusy/najsy, ghisysy, bai' al-ma'dum, taghir, risywah, ghabn, tadlis,* dan *iktikhar maisir, dharar, riba, gharar, talaqqi al-rukban, tanajusy/najsy, ghisysy, bai' al-ma'dum, taghir, risywah, ghabn, tadlis, iktikhar,* immorality and tyranny. The implication of a prohibition on applying these elements prevents the occurrence of insider trading practices, misleading information, and front running. Applying sharia principles should make the Islamic stock market more efficient than the common stock market (Alam et al., 2017). The applied regulation can encourage investors to behave following efficient market mechanisms.

However, in practice, Islamic stocks have the opportunity to experience market inefficiency. The investors find it difficult to determine their benchmark standards for investment following rules and regulations of Islamic shariah for the stock market (Alam et al., 2017). This is supported by the results of a study by Tanjung and Siregar (2018) which states that the returns of stocks listed in JII fluctuate greatly so that investors get returns in the form of large profits and losses in one day. Fatima et al. (2019) also found that Islamic stock returns significantly react to negative (bad) events. Mujadiddah et al. (2020) also found the inefficiency of Islamic stocks, which conducted research on short-term overreaction to specific events in stocks listed on JII. The study also analyzed the factors influencing the overreaction phenomenon in these events. The results of these studies indicate that the bombing incident in Surabaya resulted in excessive stock reactions.

The outbreak of COVID-19, which spreads rapidly and infects almost all countries, including Indonesia, creates adverse economic shocks. The negative impact of this event can be seen in the decline in Indonesia's economic growth rate, which is projected to be 0 percent by the World Bank (2020). The Indonesian capital market has also been affected by fluctuating price movements of company shares, including Islamic stocks. Internal and external factors can influence stock price movements that illustrate investor behaviour. Internal factors can include company size and trade volume (Nasir et al., 2018), while external factors include currency exchange rates, inflation and the global financial crisis (Kurniadi et al., 2013). These factors can be information obtained by investors in reacting to the COVID-19 event.

Based on previous studies, testing the phenomenon of overreaction of the common stock market and Islamic stocks to an event can be explained by an event study approach. Boubaker et al. (2015) found an overreaction phenomenon in the Egyptian stock market by testing the daily abnormal return of stocks during the 100-day trading period before and after the event. The focus of events in this study consists of terrorist attacks, conflicts in the Middle East region, privatization of BUMN, and the formation of new governments. The research findings state that

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there is an overreaction phenomenon in the sample of events except for the privatization of BUMN and the formation of a new government. Cumulative abnormal return is the dependent variable, and the independent variable consists of market capitalization, information leakage, and abnormal returns. The variable size of the company is significantly negative, which indicates that the smaller the company's size, the easier it is to experience overreaction. Leakage of information significantly positively affects overreaction in the event of a terrorist attack.

The inefficiency of Islamic stocks was also found by Mujadiddah et al. (2020), who researched the phenomenon of short-term overreaction to certain events on stocks listed on JII. The dependent variable in the study is cumulative abnormal return, and the independent variables include abnormal returns, information leakage, trading volume, company size, and type of state-owned company. The results showed an overreaction phenomenon in the winner portfolio due to specific events, including the United States presidential election, Donald Trump and the Surabaya bombing. The information leakage factor has a significant negative effect on winner stocks in the Trump election event, while the type of state-owned company harms winner stocks in the Surabaya bombing event. Previous research used the dependent variable cumulative abnormal return to see the factors that affect the overreaction. Hatem (2015) tested the factors that affect cumulative abnormal return (CAR). The results show that the level of profit, firm size, and managerial ownership significantly negatively affect the cumulative abnormal return. At the same time, the significant positive leverage affects the cumulative abnormal return.

Based on previous research, in this study, to analyze the factors that influence overreaction, the cumulative abnormal return was selected as the dependent variable. While for abnormal return, information leakage, market capitalization, stock trading volume, and leverage as independent variables. This study hypothesises that Abnormal Return when the event occurs is negatively related to the winner stock portfolio, while the loser stock portfolio is significantly positive. Information leakage has a significant positive relationship for both winner and loser stocks. Market capitalization and stock trading volume have a significant negative relationship between winner and loser stocks. Lastly, the company's leverage can have a significant negative or positive relationship for both winner and loser stocks.

There have been several studies that discuss the phenomenon of overreaction to Islamic stocks, such as Boubaker et al. (2015), Fatima et al. (2019), Mujadiddah et al. (2020), and Utama (2021). However, those that discuss the Covid-19 event are still limited. The development of the Islamic stock market is increasing, as indicated by the increase in companies listed in Islamic stocks and the existence of Islamic stock indices. Apart from applying the applicable Fatwa DSN MUI, there is still a possibility of a reaction to the inefficiency of the Islamic stock market against adverse events, especially the COVID-19 event. Therefore, this study was conducted to analyze the reaction of Islamic stocks listed in JII to the COVID-19 event, which allows the overreaction phenomenon to occur, and the variable factors that influence the overreaction, including the abnormal return, information leakage, market capitalization, stock trading volume, and leverage.

Methodology

Data

The study uses daily secondary data from August 9, 2019, to June 18, 2020. The selection of time range is based on before and after the Covid-19 event. It aims to compare the effect of the presence of the event on the stock. The sample of events is the announcement of the first case on December 31th, 2019 (Event 1) and the announcement of the COVID-19 and lockdown transmission by the Chinese Government on January 20, 2020 (Event 2). The data used in this study is the daily closing price data for shares that are consistently listed in The Jakarta Islamic

Index (JII) during the study period that total of 27 stocks, the JII index, trading volume, the number of outstanding company shares, the company's long-term debt, and the company's total equity. Long-term debt and equity data are needed to determine the company's leverage and describe the borrowed funds' condition. Variable data sources were obtained from the Indonesia Stock Exchange (IDX), Yahoo Finance, and each company's financial statements.

This study employed quantitative methods to analyze the effect of the event and the factors that affect the overreaction phenomenon. The quantitative methods used in this study are the pairwise two-sample difference test method and cross-sectional regression (CSR). The software used in this analysis is *R studio* and *Microsoft Excel 2013*.

Model development

The steps of the analysis were conducted following research conducted by Farag and Cressy (2010), Boubaker et al. (2015) and Mujadiddah et al. (2020) by estimating returns during the test period.

Determination of the winner and loser stock portfolio

1. Daily returns
   The return variables used are stock returns (R_t) and market returns (R_m). The variable is defined as the first difference in the natural logarithm of closing price over two trading days (Boubaker et al., 2015)
   $$R_{it} = Ln\ P_{it} - Ln\ P_{it-1} \quad \text{and} \quad Rm_t = Ln\ Pm_t - Ln\ P_{mt-1}$$

2. Stocks abnormal returns
   Abnormal returns (AR_t) in the test period are defined using the market-adjusted model. In contrast, the expected return is the value of the market return index in the same period (Mujadiddah et al., 2020).
   $$AR_{it} = R_{it} - Rm_t$$

3. Cumulative abnormal returns
   Cumulative abnormal returns ($CAR_{i,t}$) is the sum of abnormal returns from stock i. The stock portfolios are determined from CAR's value with a period of 10 daily calculations before the event occurred. The highest CAR value defines the category for the winner, and the loser is defined by the lowest CAR value (Boubaker et al., 2015).
   $$CAR_{it} = \sum_{\tau=1}^{t} AR_{it}$$

Determination of the overreaction indicators

1. Average Abnormal Returns
   The overreaction hypothesis testing is done by performing a different test to compare the average abnormal return (AAR) value of Islamic stocks on each winner and loser portfolio between the periods before and after the event. The following is the formula for calculating the AAR value (Musnadi et al., 2018):
   $$AAR_t = \frac{\sum_{i=1}^{I} AR_{it}}{I}$$

2. Cumulative Average Abnormal Returns
   Indicators of information leakage (leak) of an event can be determined by the value of the cumulative abnormal return (CAAR) three days before the event occurred (Boubaker et al., 2015). Determination of this period is a time that can show information leakage and cause inefficient markets. The following is the formula for determining the CAAR value (Boubaker et al., 2015):

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$$CAAR_t = \sum_{i=1}^{I} \frac{CAR_{it}}{I}$$

Analysis method

The research stage consisted of two steps: determining the overreaction indicators and the factors that influence the reaction. The period used in this study is 100 days before (t-100) to 100 days after (t + 100) the event occurred. The purpose of choosing the calculation period is to reduce the problem of autocorrelation between stock's return data (Farag & Cressy, 2010). Table 1 provides detailed events and periods in the research.

Table 1. List of events and periods in the research

No	Events	Estimation Period (t-100)	Event Period (t=0)	Test Period (t+100)
1	Announcement of the first case to WHO (*Event* 1)	09/08/2019	02/01/2020	02/06/2020
2	Announcement of the COVID-19 and lockdown transmission by the Chinese Government (*Event* 2)	27/08/2019	20/01/2020	18/06/2020

The stages of determining the overreaction indicator consist of forming a winner-loser stock portfolio and testing samples with different tests by comparing the average abnormal return value before and after the event. The next stage is to analyze the regression model of the factors influencing overreaction. The regression model used in this study is as follows:

$$CAR_i = \alpha + \beta_1 AR_{i(0)} + \beta_2 Leak_i + \beta_3 Ln\_Mcap_{\ i} + \beta_4 LTV_i + \beta_5 Lev_i + e_i$$

Where $CAR_i = \sum_{t=1}^{100} CAAR_{it} / 10$ (Boubaker et al. 2015). $AR_{i(0)}$ is initial abnormal return on event day (t=0). $Leak_i$ is cumulative average abnormal returns three days before the event date as a proxy for the leakage of information stock i. $Ln\_Mcap_{\ i}$ s the natural logarithm of the free float market capitalization of a firm i day before the event. LTV_i is trading volume stock i with value TV_t / TV_{t-1}. Lev_i is a leveraged firm with value long-term debt/total equity (Hatem, 2015). α is intercepted. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ is estimated parameters. e_i is a white noise error term of stock.

Results and Discussion

Analysis of overreaction

This study was conducted using two events related to the COVID-19 pandemic. The period in this study is 201 days, divided into three parts. First, 100 days before the event occurs is used to form a winner-loser stock portfolio. Second, one day is used for the day the event occurred. Finally, 100 days after the event occurred were used to test the factors influencing the overreaction phenomenon. The estimation period in this study was used 100 days before the event. Therefore, each event has 10 stocks that are included in the portfolio of both winners and losers. The list of company stocks that fall into this category can be seen in table 2.

The threatened economic condition and the decline in the stock price index due to the unexpected COVID-19 event and containing pandemic uncertainty will end up in the spotlight of investors in making investment decisions. Investors will overreact to receiving information depicted by fluctuations in the abnormal return of shares. Figure 2 below shows the abnormal

return movement of Islamic stocks in Indonesia for 201 days around the COVID-19 incident. The lockdown announcement by the Chinese government on January 20, 2020 (Event 2), caused panic among Islamic stock investors, which was indicated by the abnormal return of Islamic stock portfolios, both winners and losers, which fluctuated considerably compared to before the event. This event is a phenomenon that causes an unexpected change in investors' analysis. Investors tend to take actions that cause extreme speculative shocks in response to the COVID-19 condition. The investor's response led to an overreaction in Islamic stocks in Indonesia, which was shown a price reversal one day after the Announcement was made public.

Table 2. List of winner-loser stocks per event

No	Events	Winner	Loser
1	Event 1	ADRO, AKRA, BRPT, CPIN, ITMG, KLBF, LPPF, PTBA, PTPP, SCMA	AKRA, CTRA, INTP, ITMG, JSMR, LPPF, PTPP, SCMA, UNTR, WIKA
2	Event 2	ADRO, BRPT, BTPS, CPIN, ERAA, INCO, ITMG, LPPF, SCMA, TPIA	ADRO, BTPS, CTRA, ERAA, ICBP, ITMG, LPPF, PTPP, SCMA, WIKA

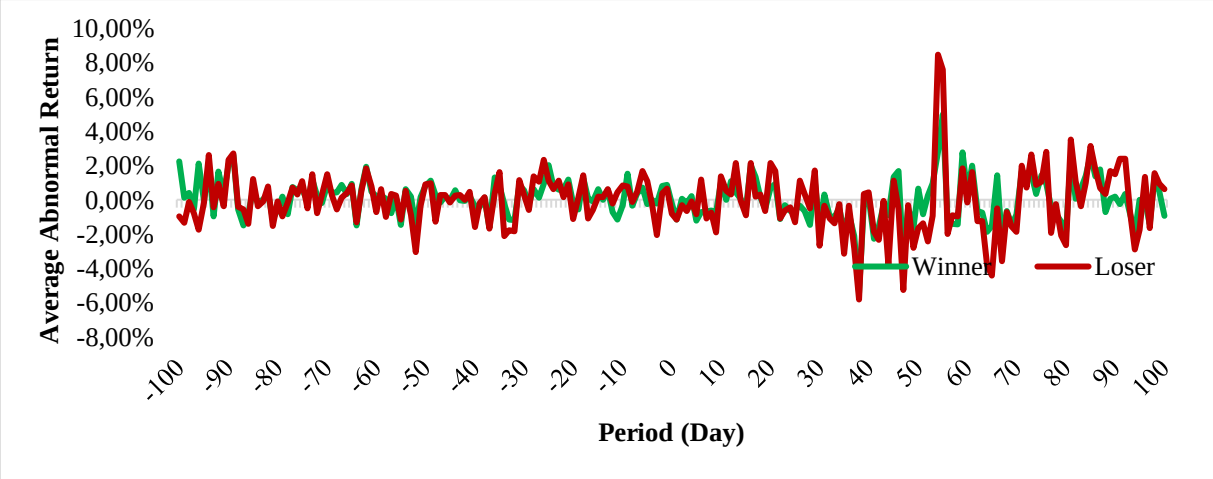

Figure 2 The movement of winner and loser stocks on the announcement lockdown (Event 2)
Source: Yahoo Finance 2020 (data processed)

According to Mujadiddah et al. (2020), testing the overreaction hypothesis in this study uses the value of the average abnormal return (AAR). The test period used was the AAR value before and after the event occurred for each type of portfolio in each event. If there is a difference between these periods, the Islamic stock overreaction will occur in that event. The test analysis tool used is the paired two-sample difference test for parametric data and the Wilcoxon Signed Rank test for nonparametric data. The results of the significance of the overreaction test can be seen in Table 3.

Table 3. Test results for different samples of COVID-19 events

No	Event	*P-value*	
		Winner	***Loser***
1	Event 1	0.155	0.376
2	Event 2	0.02723*	0.1197

Source: Yahoo Finance 2020 (data processed)
Description: * indicate significance at the 5% levels.

Based on Table 3, the results obtained in the pairwise two-sample difference test method of the overreaction hypothesis show that only event 2 causes the Indonesian Islamic stock

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market to experience an overreaction phenomenon. The significant Islamic stock portfolio overreaction was only to winner stocks, namely stocks with a positive return value, while loser stocks did not occur significantly. This result is evidenced by the p-value, which is lower than the significance level, 5 percent. This shows that in the event of the Announcement of the transmission of COVID-19 and the lockdown by the Chinese government (Event 2), it can be categorized that is negative news. This indicates that investors responded to the event by selling winner shares. Statistical testing showed that the winner's stock portfolio experienced a significant overreaction at the 95% confidence level.

The next result that the difference test can explain is that the Islamic stock market is relatively efficient. The research sample that experienced overreaction was only winner stocks on event 2. Market efficiency also indicates that the Islamic stock market in Indonesia is quite stable because the stock prices received by investors illustrate the available information (Fama, 1970). According to the Fatwa DSN MUI NO 40/X/2003, the price of traded shares must be fair, which means that the price must represent the actual value of the issuer's economic, political, and other conditions. Therefore, these results follow the theory of Islamic stocks, which states that Islamic stocks are more efficient and avoid efficient market anomalies.

The Islamic stock market's stable condition describes a market condition called disclosure. The information available can be reflected in the stock price because investors know for sure the cause of price fluctuations from existing information, both fundamental and technical. Market efficiency also creates free market conditions, and there is no intervention from certain parties that affects stock prices. The COVID-19 pandemic, through testing in the short-term period carried out in this study, indicated an overreaction so that the ideal conditions of the Islamic stock market were not achieved. The implication is that there may still be transactions prohibited by Islamic law on sharia shares.

The Islamic stock market in Indonesia is not entirely separated from the efficient market anomaly. The results of different tests in this study show an overreaction phenomenon in Event 2. The implication is that sharia principles in Islamic stocks still prohibit transactions. The difference between the information and the share price can be caused by disseminating misleading information (Mujadiddah et al., 2020). The act of misleading information is a transaction that presents incorrect information that affects stock prices to obtain a profit above normal profit. This transaction is in the tadlis category and is prohibited in the MUI DSN Fatwa Number 80 of 2011. The violation of the fatwa is proven in the short term. Therefore, long-term transactions must be carried out to prevent these actions in Islamic stocks.

Data exploration analysis

Data exploration using descriptive statistics must be done before testing the factors that affect overreaction. Table 4 shows the results of descriptive statistics for all variables in the stock portfolio that experienced overreaction. It aims to see the events' conditions adjusted to the data collected. The variables used include cumulative abnormal return (CAR), abnormal return (AR), information leakage (Leak), market capitalization (Ln_Mcap), trading volume (LTV), and company leverage (Lev).

Research on stock market reactions due to an event can use an event study approach. The reaction of Islamic stocks can be seen from the cumulative abnormal return (CAR), so the CAR variable becomes an indicator variable for the overreaction phenomenon. The CAR value is obtained from the accumulation of abnormal returns of each stock during the study period. In the Announcement of the COVID-19 transmission and lockdown by the Chinese government (Event 2) for the winner stock portfolio, the average CAR value was -12.1 percent, with the lowest value of -52.69 percent obtained from sharia shares of PT. Matahari Department Store Tbk (LPPF) and the highest value of 1.95 percent obtained from sharia shares of PT. Barito

Pacific Tbk (BRPT). The average negative value of the CAR variable indicates that the overreaction occurs because there is an overreaction with the sale of stocks that are included in the winner stock portfolio in the estimation period (t-100). Selling shares in large quantities causes a decrease in stock prices, resulting in a negative return received. The company's CAR standard deviation value shows a value of 16.33 percent, which is much different compared to the average value. These results indicate that the CAR value has an extensive range of values.

Table 4. Overreaction portfolio descriptive statistics

Variable	Minimum	Maximum	Average	Standard Deviation
The Announcement of The Transmission of COVID-19 And The Lockdown By The Chinese Government (Event 2)				
CAR	-0.5269	0.0195	-0.121	0.1633
AR	-0.0251	0.0288	-0.0021	0.0189
Leak	-0.0154	0.0178	0.0018	0.0111
Ln_Mcap	29.36	32.77	31.19	1.108
LTV	0.3409	2.741	1.204	0.6526
Lev	0.0433	2.725	0.7087	0.9136

Source: Yahoo Finance, IDX, dan Financial Company Report 2020 (data processed)

Abnormal return (AR) is one variable affecting the overreaction phenomenon. This variable is the initial determinant of the overreaction. The AR value is the difference between stock returns and Islamic stock market returns, namely JII, when the event occurs (t = 0). During the Announcement of the COVID-19 transmission and lockdown, the AR value of winner shares had an average value of -0.21 percent, with the lowest value of -2.51 percent obtained from sharia shares of PT. Indo Tambangnya Megah Tbk (ITMG) and the highest value of 2.88 percent obtained from sharia shares of PT. Surya Citra Media Tbk (SCMA). The average AR value of the negative winner portfolio shares indicates a decline in stock prices due to significant sales when an event occurs (t = 0). Winner stocks that have the highest CAR value in the estimation period, which is 100 days before the event, experienced large sales when the event occurred (t=0). This is evidence of investors' overreaction due to the Announcement of the transmission of COVID-19, which can spread quickly between humans and the regional lockdown to prevent the spread of the virus. The spread of AR values in these events has a reasonably high vulnerability. This is evidenced by the large difference between the standard deviation value of 1.89 percent and the average value of -0.21 percent.

The leak variable reflects the occurrence of information leakage. These variables are obtained from the cumulative average abnormal return (CAAR) for each stock three days before the event occurred. In the event of the Announcement of the COVID-19 transmission and lockdown, the average value of this variable is 0.18 percent, and the lowest value of -1.54 percent is obtained from PT Adaro Energy Tbk (ADRO). In comparison, the highest value is owned by PT Barito Pacific Tbk (BRPT). by 1.78 percent. The spread of the leak value data has a range of values that are not much different. This is evidenced by the small difference between the standard deviation value of 1.11 percent and the average value of 0.18 percent.

Market capitalization (MCap) is the product of the stock price and the number of company shares outstanding when the event occurred. The market capitalization of a company can describe the size of the company so that the larger the market capitalization, the larger the company. At the time of the Announcement of the COVID-19 transmission and lockdown, the average market capitalization value was Rp. they are owned by sharia shares of PT Chandra Asri Petrochemical Tbk (TPIA). The standard deviation value shows a result of IDR 57 trillion. A fairly large comparison between the standard deviation value and the average value shows that the spread of market capitalization data has a wide range, so it can be concluded that the data consists of various company sizes.

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Trading volume is the number of shares of a company that are traded. LTV is a comparison of the value of the trading volume at the event (TV_t) with the trading volume the day before the event (TV_{t-1}). If the LTV value is more significant than one, the stock trading volume when the event occurs is greater than the previous day. Otherwise, the LTV value less than one indicates the trading volume when the event occurs is smaller than the previous day. At the time of the COVID-19 transmission and lockdown (Event 2), the average LTV value was 1.20, with the lowest value of 0.34 owned by PT Erajaya Swasembada Tbk (ERAA) sharia shares and the highest value of 2.74 owned by PT Surya Citra sharia shares. Media Tbk (SCMA). The LTV standard deviation value of 0.65 differs quite large from the average value, so it can be concluded that the data distribution range is relatively high.

The last variable in the model is leverage (Lev) which is the ratio between long-term debt and the company's total equity at the event. A company with an increased debt ratio allows going bankrupt if it cannot pay its obligations. However, if the debt is managed correctly, it can increase the company's wealth. In the Announcement of the COVID-19 transmission and lockdown, the average value of this variable is 0.708, with the lowest value of 0.043 being owned by PT Surya Citra Media Tbk (SCMA) and the highest value of 2.725 owned by PT Matahari Department store Tbk (LPPF). The standard deviation value of 0.913 is quite different from the average value. This shows that the spread of leverage data has a fairly high range.

Cross-sectional regression test

Multiple regression analysis on the research model used aims to determine the factors influencing the overreaction of Islamic stocks in this event. After multiple regression assumptions such as normality, multicollinearity, heteroscedasticity, and autocorrelation, on the Announcement of COVID-19 transmission and lockdown events (Event 2) are fulfilled, it can be estimated that the results of the regression analysis. Table 5 shows the results of the cross-sectional regression (CSR) on Event 2.

Table 5. Estimated results of CSR for the winner stock on Event 2

Independent Variable	**Dependent Variable: CARi**	
	Coefficient	***P-value***
C	-2.069	(0.114)
AR	3.261	(0.249)
Leak	-3.101	(0.506)
Ln_MCap	0.071*	(0.096)
LTV	-0.151*	(0.051)
Lev	-0.089*	(0.058)
R-squared	0.865	
Adjusted R-squared	0.695	
Prob (*F-statistic*)	0.069*	

Source : Yahoo Finance dan IDX (2020) (data processed)
Description : ***, ** , dan * are significant at levels of 1%, 5%, and 10 %

Table 5 shows the estimation results on the Announcement of the lockdown using the multiple regression method of cross-section data. This estimate aims to look at the factors that influence overreaction on stocks included in the winner's portfolio at the time of the COVID-19 event. Statistical testing in the event of the Announcement of lockdown showed an R^2 value of 0.865. This value states that 86.5 percent of the variance in the dependent variable cumulative abnormal return (CAR) can be explained by factors in the model, and other factors outside the model explain the rest. The probability F-statistic value in the winner's Islamic stock portfolio model is 0.069, less than the significant level of 0.10. This shows that the independent variables

in the model together can explain the overreaction phenomenon. The high R^2 value and the significant statistical F result indicate that the model's factors affect the overreaction phenomenon. This proof can be seen through the t-statistic value, which can be used to explain the relationship between the independent variables to the overreaction phenomenon, which is explained through the cumulative abnormal return (CAR) variable. The model specification and the coefficient of each variable can be written as follows:

$$CAR_i = -2.069 + 3.261AR_{i(0)} - 3.101Leak_i + 0.071Ln\_Mcap_i - 0.151LTV_i - 0.089Lev_i + e_i$$

Based on the results in Table 5, the trading volume is the first variable affecting the overreaction phenomenon in the Announcement of the transmission of COVID-19, and the lockdown by the Chinese government (Event 2) is the trading volume (LTV). This variable is obtained by comparing the stock trading volume at the event (t=0) with the previous day's stock trading volume (t-1). This variable explains the effect of changes in stock trading volume on the phenomenon of Islamic stock overreaction, which is a winner portfolio. This variable has a significant negative relationship to this phenomenon with a coefficient value of -0.151. This means that the smaller the trading volume of shares at the time of the event compared to the trading volume of the previous day causes the stock to experience the phenomenon of overreaction easily. These results are consistent with the results of research conducted by Ali et al. (2011) and Sohail et al. (2017) that stocks with a smaller trading volume are increasingly prone to overreaction.

Another variable that affects the overreaction phenomenon in the Announcement of the transmission of COVID-19 is Leverage (Lev). This variable is the ratio between the long-term debt (long-term debt) and the company's total equity at the time of the event. This variable is negatively related and significantly influences the overreaction phenomenon with a coefficient value of -0.089. A company has an increase in the debt ratio, which allows the company to go bankrupt if it cannot pay its obligations so that the increase in the company's long-term debt will be responded to excessively by investors. This means that the greater the company's debt ratio, the more vulnerable the company's shares are to experiencing the overreaction phenomenon. The results of the research estimation are by the research hypothesis and in line with research conducted by Fauzi and Wahyudi (2016).

Market capitalization (MCap) is the last variable that affects the overreaction phenomenon during the Announcement of lockdown. This variable describes the size of a company obtained from the multiplication value of the share price and the company's number of shares in circulation. Market capitalization variables can explain the phenomenon of Islamic stock overreaction, a portfolio of winners during the COVID-19 event. This variable has a significant positive relationship to the dependent variable with a coefficient value of 0.071. The interpretation is that the greater the market capitalization, the more vulnerable the overreaction phenomenon is. These results align with Lerskullawat et al.'s (2018) and Fauzi and Wahyudi's (2016) research. They found that they reacted more to a significant stock market capitalization value when a stock market crisis occurred. This result differs from the research hypothesis, which states that market capitalization is negatively related to the overreaction phenomenon. The research hypothesis applies when market conditions do not experience a crisis, so the smaller the market capitalization value, the more prone to overreaction. The COVID-19 event is a different crisis event in ordinary conditions, even more severe than the previous global economic crisis, thus triggering pessimistic investors who do not want to take significant risks in placing their investment funds. Such actions of investors make investors choose companies with large market capitalizations so that the shares of large companies are more liquid during the COVID-19 pandemic. Therefore, the difference between the study's results and the research hypothesis is caused by the characteristics of the events that occurred and also due to the sample

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of Islamic stocks used in the study, which are companies with the largest capitalization in the last year.

These results differ from the hypothesis, which states a significant relationship with CAR. The results showed that several variables did not affect the overreaction phenomenon, as follows abnormal return (AR) and Leakage (Leak). The abnormal return (AR) variable at the time the event occurred (t=0) did not affect the overreaction phenomenon that occurred in the COVID-19 announcement event. This is because when the overreaction phenomenon occurred during the COVID-19 event, investor decisions were not influenced by the returns obtained but by other factors that influenced the overreaction, including market capitalization, trading volume, and leverage as other factors outside the model. Furthermore, it was found that there was no influence of information leakage (leak) on the phenomenon of overreaction of winner portfolio sharia shares at the time of the Announcement of the COVID-19 transmission and lockdown (Event 2). This is not in line with previous research, namely Boubaker et al. (2015), which shows a significant leakage factor affecting overreaction. This is likely to happen because investors do not know information about unpredictable events such as COVID-19, so information leaks cannot be taken into account in the analysis of investor decisions. This follows research conducted by Mujadiddah et al. (2020) which shows that information leakage significantly affects sharia stock overreaction in predictable events, namely the election of Donald Trump as US President.

Meanwhile, in the Surabaya bombing incident, which was not previously predicted, the information leakage variable does not affect the overreaction phenomenon. Therefore, in the phenomenon of sharia stock overreaction to the COVID-19 incident, there was no leakage of information, so there was no violation of sharia principles transactions, namely misleading information. The differences in variables that affect the overreaction phenomenon in this study with previous studies are caused by the characteristics of the events studied, which cause differences in investor analysis in responding to these events when conducting Islamic stock transactions in Indonesia.

Conclusion

The overreaction phenomenon shows the inefficiency of a stock market. The COVID-19 event, which contains an element of uncertainty, has contributed to the volatility of Islamic stock price movements, causing investors to overreact in the short term. Investors are expected to invest by considering a more extended period, paying attention to internal and external factors, and practising transactions following sharia principles to minimize losses due to this uncertainty. The results show that the Islamic stock market in Indonesia is still inefficient, as evidenced by the incidence of excessive reactions (overreaction) to the Announcement of the transmission of COVID-19 and the lockdown by the Chinese government (Event 2). This phenomenon is evidenced by a different test on the average value of the abnormal share winners and losers before and after the event. The results of the different tests show that the significant overreaction phenomenon occurs only on stock winners with a real level used of 5 percent. Therefore, analysing the factors that influence overreaction is only performed on stock winners using the cross-section regression (CRS) method.

In the Announcement of the transmission of COVID-19 and the lockdown by the Chinese government (Event 2), the independent variables in the research model jointly affect the overreaction phenomenon, indicated by a significant F-stat value. However, individually by looking at the t-stat value, the variables that significantly influence overreaction include market capitalization, trading volume, and company leverage. Based on the results of this study, The crisis due to COVID-19 contains an element of uncertainty. It has a large impact so that investors pay close attention to and respond to information related to COVID-19. The

movement of Islamic stock prices during the COVID-19 pandemic experienced a sharp decline, but it has gradually recovered after some time or in the short term. Therefore, various policies carried out by the government are considered appropriate, especially policies on the capital market by imposing a trading halt to maintain stability to prevent the decline in stock indexes during the COVID-19 crisis. Then investors investing in the face of COVID-19 should consider a more extended period and not panic too much in responding to information related to COVID-19. In addition, Islamic stock investors are expected to pay attention to existing internal and external factors and carry out transactions that follow sharia principles to minimize losses due to these uncertainties.

Event 2 is an event related to COVID-19 that occurred abroad but caused an overreaction in the Indonesian Islamic stock market. The inefficiency of the Islamic stock market against COVID-19 is caused by the instability of the domestic market, which is still dependent on foreign investors. Foreign investors' confidence is still essential, so the Islamic stock market is less dependent on investors and more resistant to crisis shocks. The government is expected to encourage the contribution of domestic investors to the Islamic stock market both in quantity and quality. In addition, investors are expected to pay attention to the stock sector affected by COVID-19 to determine the right investment strategy.

During the COVID-19 crisis, many companies experienced increased leverage which caused adverse reactions from investors. Therefore, the company must be able to manage its obligations (debt) well so that acquiring the debt can help its operations and increase company profits. The Islamic stock market at the beginning of COVID-19 experienced a bearish condition, so the shares of large companies experienced a price decline even though the company's fundamental value was still good. This condition does not apply when an overreaction occurs in ordinary events where companies with small market capitalizations are the preferred stock traded. Therefore, this is an opportunity for investors, especially domestic investors, to enter the Islamic stock market, where there is a discount on the stock price of blue chip companies.

Author's Contribution

Widya Syafitri, Jaenal Effendi, Mohammad Iqbal Irfany: conceived and designed the work; analyzed and interpreted the data; drafted the work; substantively revised it, and approved the submitted version.

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Declaration of Competing Interest

We declare that we have no conflict of interest.

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