Stock market responses to Covid-19: Evidence from Jakarta Islamic Index

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Abstract

Purpose – This study examines the effect of Covid-19 in Indonesia on the value of abnormal returns, trading volume activity, and efficiency of the Jakarta Islamic Index (JII), the Indonesian Islamic stock market.

Methodology – This study employed the event study model to measure the relationship between important events related to the Indonesian Covid-19 pandemic on stock returns and the stock trading volume of JII indexed companies. Using research analysis techniques in the form of a market-adjusted model, this study determines the period of events before, during, and after the event.

Findings – This study found that the global Covid-19 announcement, announcement of the new normal, and announcement of the Covid-19 vaccination gave a significant abnormal return reaction to the JII index and did not provide a significant trading volume activity reaction.

Implications – Indonesia's Islamic stock market, which falls into the semi-strong efficient category, responds quickly to important public information such as Covid-19-related announcements. Investors showed high sensitivity to major news, but trading volumes did not change significantly, indicating a cautious adjustment strategy. The different reactions across sectors, especially industry and energy, highlight the need for investor portfolio diversification. It is important for policymakers to provide clear and timely communication to maintain market stability during crises. Further research is required to understand the long-term impact and extend the coverage of international Islamic stock markets.

Originality – This study examines several important Covid-19 events that occurred in Indonesia on stock returns and trading volumes in the Indonesian Islamic stock market.

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Introduction

The capital market is one of the markets that contributes to the economic development of a country with its function as a liaison institution between investors and companies through a securities trading scheme (Farooq et al., 2024). Things in the capital market provide an opportunity for investors to obtain profit expectations in the form of returns on investments that have been made from various securities (Tandelilin, 2010).

Close to 2019, on December 31st, the world was officially alerted to the outbreak of Covid-19, a disease that originated in Wuhan, Hubei Province, China. By April 2021, this outbreak had

spread to 223 countries, causing widespread concern. As of June 24, 2021, the virus had infected over 180 million people globally, resulting in more than 3.9 million tragic deaths (Worldometer, 2021). The impact of Covid-19 triggered significant unrest among the public, leading many nations to implement strict lockdown measures as the primary strategy to curb virus transmission (Puarattanaarunkorn et al., 2023). In addition to public health measures, governments worldwide have implemented economic policies to address the ensuing global economic crisis (Rahman et al. 2021).

The Covid-19 outbreak has an impact on the capital market industry, which is indicated by the weakening of stock prices, the implementation of new trading hours on the Indonesia Stock Exchange (Muhaimin et al., 2021), and the implementation of the Indonesian Stock Exchange trading halt policy that occurs when the value of the Composite Stock Price Index decreases by more than 5% to reduce the pressure of concerns that occur in the capital market over the Covid-19 outbreak, which is not yet known when it ends (Selasi, 2020).

Figure 1. JII index movement from March 2019 to February 2021
Source: Indonesia stock exchange (2022)

The Jakarta Islamic Index, which consists of 30 Islamic-classified issuer stocks with the highest capitalization rate and the highest number of daily transactions in the market, experienced a sharp decline in points that occurred during the first case of Covid-19 Indonesia in March 2020 and created a volatile trend that occurred before Covid-19 patients were confirmed in Indonesia until April 2020 (see Figure 1) when Covid-19 has occurred and new confirmed cases continue to grow in Indonesia (Otoritas Jasa Keuangan, 2019). As confirmed cases of Covid-19 and the growth of cases affected activities in the Indonesian capital market, which was marked by the continued decline of the Jakarta Composite Index (JCI) (Sugianto, 2020; Widnyana & Warmana, 2022).

Table 1. Index value

Index	Index Value (2 January 2020)	Index Value (2 March 2020)	Change(%)
Jakarta Islamic (JKII)	694,39	562,00	(19,49)
ISSI (JKISSI)	186,71	155,31	(17,27)
S&P /TSX 60 Shariah	148,04	146,28	(0,29)
DSEX Shariah	1.009,41	1.030,16	2,64
FTSE Shariah India (FTSWIND)	3.037,85	2.650,62	(12,18)
FTSE Shariah China (FTSWCHN)	3.149,23	3.011,70	(2,38)
FTSE Bursa Malaysia Hijrah Shariah (FTFBMHS)	13.277,45	12.254,75	(7,25)
Dow Jones Islamic Market World (DJIMI)	4.339,00	4.116,64	(4,27)

Source: Data processed from Investing (2022)

The choice of the Indonesian state was driven by two additional factors. First, Indonesia is the third country most affected by the Covid-19 outbreak compared to other countries in Asia,

with recorded cases of 2.9 million cases (World Health Organization, 2020). On the other hand, based on data released by John Hopkins University, Indonesia received the title of one of the countries with the best handling of Covid-19 in the world. Second, Indonesia's stock market is among the most influential in the world, making it an attractive candidate for studying its market reaction. ISSI is the benchmark for Indonesia's Islamic stock price index, which fell by more than 17.27% from January 2, 2020, to March 2, 2020, exceeding the decline in the FTSE Sharia India (FTSWIND) in the same period (see Table 1).

Literature Review

This literature review provides insights into stock market reactions during the Covid-19 pandemic, drawing on previous research. Orhun (2020) examined the impact of two significant events: the official announcement of the Covid-19 virus on December 31, 2019, and the Wuhan city quarantine on stock market returns. The study revealed that both events resulted in significantly negative abnormal returns. Ashraf (2020) explored how the first confirmed case of Covid-19 in 64 countries and the growth rate of cases affected the stock markets in those countries. The findings show that both events lead to negative responses in the stock market. These studies have highlighted the importance of these events during the Covid-19 outbreak.

Rahman (2021) conducted research in Australia and examined the stock market reaction to non-economic factors related to the Covid-19 outbreak. The study considered two negative events: when Covid-19 was declared a public health emergency and when it was declared a pandemic. It also investigated events with positive sentiments, such as the announcement of an economic stimulus package by the Prime Minister of Australia. The results indicate that events with negative sentiment had a negative impact on the stock market, while those with positive sentiment, such as the JobKeeper stimulus package, led to positive market reactions.

However, these previous studies had limitations such as focusing on the initial impact of Covid-19 and local government policies. In contrast, this study comprehensively examined various significant events during the Covid-19 outbreak. Chen et al. (2007) studied the impact of non-economic factors, specifically a viral outbreak (SARS), on hotel stocks in Taiwan. The results show a significant negative impact on abnormal stock returns. In this study, all sectors listed on the Jakarta Islamic Index were considered, providing a broader perspective for investors to make informed decisions. Unlike Orhun (2020), who covers multiple countries, this study focuses solely on Indonesia.

Return is the percentage of income derived from the initial investment capital. Investment income is the yield obtained from stock trading activities, which can be referred to as capital gain (profit) and capital loss (loss) (Siegel, 2021). Profit is obtained from the investment activities carried out, whereas failure caused by risk can result in a loss. This investment income reflects the performance of the investment over a certain period and is an important indicator for investors to evaluate the success of their investments (Bui & Krajcsák, 2024).

The capital market serves as a platform for the exchange of securities, including long-term financial instruments, such as bonds, rights, warrants, stocks, and other investment products. In event study tests, abnormal returns serve as a parameter for evaluating market efficiency. If investors achieve abnormal returns in the long term, this suggests market inefficiency due to the inability to reach a new balance following an event (Siegel, 2021). Trading volume activity, measured by changes in trading volume, is another crucial parameter in event studies (Fatmawati & Asri, 1999). This involves comparing the number of shares traded at a specific time to the number of shares outstanding within a certain period. Any observed change indicates that events can affect stock trading in the market. Weston and Copeland note that stock trading volumes increase when more investors engage in transactions. This rise in trading volume provides insights into investor behavior and their reactions to events, helping investors decide on investment activities. Białkowski et al. (2012) investigated stock returns and volatility during Ramadan using an event study. The results show that there is a relationship between certain moments/month and stock returns and volatility.

Covid-19, identified as a new coronavirus, such as SARS-CoV and MERS-CoV, is a zoonotic virus that originated in animals and subsequently infected humans. Understanding the impact of Covid-19 events on stock returns and trading volume is critical for assessing market reactions during this global health crisis (Hsu & Liao, 2022). The pandemic caused unprecedented volatility in financial markets, leading to significant fluctuations in stock prices. Analyzing these changes helps investors and policymakers develop strategies to mitigate risks and manage economic instability (World Health Organization 2020).

Research Methods

This study is a quantitative approach that uses the Event Study method. The event study method is used to analyze the effect of an event on stock price movements in the capital market, which is carried out both before, during, and after the event (see Table 2). Measuring and determining the effect of an event on the value of a company is generally described by the value of the stock price and the transaction volume (MacKinlay, 1997). Secondary data were the types of data used in this study. The forms of data contained in this study are the date of the event, the JII indexed company (Jakarta Islamic index), the daily stock price history, and the trading volume of the JII indexed company's stock.

Table 2. Summary of event dates

Name of the Event	Description
Event 1: 31 December 2019	The World's First Covid-19 Announcement Event
Event 2: 2 March 2020	The Announcement of the First Covid-19 Case in Indonesia
Event 3: 7 April 2020	The First PSBB (Social Distraction) Event in Indonesia
Event 4: 15 May 2020	New normal in Indonesia
Event 5: 11 January 2021	Covid-19 Vaccination in Indonesia

Source: Authors' own work

Event Study Analysis

The event study is the method chosen in this study, analyzing the abnormal return value around the event and trading volume before and after the event. According to Tandelilin et al. (2010): Daily stock price history and stock trading volumes of JII-indexed companies. An event study can assess the impact of a specific event and follow Bialkowski et al. (2012) method to investigate the impact of Covid-19 on stock returns and trading volume. Data sources were obtained from the official websites of the President of the Republic of Indonesia, the Indonesia Stock Exchange, and the Ministry of Health of the Republic of Indonesia.

In this study, the event period was determined to be 13 days for each event to be studied. It starts six days before the event occurs (t-6), when the event date (t+0), and six days after the event occurs (t+6). The return calculation method was used to calculate abnormal returns. There are 3 types of estimation models can be used: the mean-adjusted model, market model, and market adjustment. In this study, the market-adjusted model was chosen. The market-adjusted model calculation method, expected return, is the income level of the market index (Ryandono et al., 2021). According to Hendricks and Singhal (1996), the calculation method is as follows: Expected Return = MarketReturn.

$$RMt = \frac{JIIt - JIIt-1}{JIIt-1}$$
(1)

Abnormal return is the value of the difference between the actual return and the expected return. Therefore, from this understanding, it can be understood that abnormal returns are the excess of the value of the actual return that occurs over the normal and expected returns.

$$ARit = Rit - Rmt$$
(2)

The activity trading volume can be calculated by comparing the number of shares traded or traded at a certain time with the number of companies that share outstanding shares in a certain

period. If the results change, it can be concluded that the events that occur can affect stock trading in the market.

$$TVA = \frac{\Sigma \text{ shares of issuers traded day to t}}{\Sigma \text{ shares of issuers listed on the Indonesia Stock Exchange}}$$

(3)

Here, the dependent variables are the average stock market abnormal return and the average trading volume activity for the event window specified above. The independent variables in this study are the Jakarta Islamic Index and some events that have been explained previously.

Robustness Test

The robustness test is used to test the resistance of the method or the results obtained using this method. In this study, a robustness test was conducted to test the strength of the measurement of an event's impact. The test is carried out by tracing the significant values of the average abnormal return and average trading volume activity in a sectoral analysis, which is divided into 4 sectors namely energy, industry, primary consumption, and infrastructure in the five events studied in this study.

Results and Discussion

Event 1 (31 Dec): Over the 13-day observation period coinciding with the global announcement of the Covid-19 pandemic by the United Nations, significant negative abnormal returns occurred at t+1 and t+6, with significance levels of -0.010 and -0.017, respectively. These results highlight the swift response of stocks listed on the Jakarta Islamic Index for information dissemination. The significantly negative abnormal return during this event indicates that the official global announcement of Covid-19 contained negative elements, signifying bad news (see Table 3). This aligns with the findings of Chen et al. (2007), Drakos (2010), and Tay et al. (2016), who demonstrate that information with negative elements leads to negative market responses, as evidenced by significant negative abnormal returns.

Table 3. Summary of abnormal return and trading volume activity

Event Period	AAR Before	AAR After	ATVA Before	ATVA After
Event 1: 31 December 2019	-0.001007	0.003997	0.0019467	0.002465
Event 2: 2 March 2020	-0.003208	-0.003044	0.001935	0.002218
Event 3: 7 April 2020	0.003446	-0.003243	0.0031483	0.003498
Event 4: 15 May 2020	0.017	0.004028	0.0035033	0.003485
Event 5: 11 January 2021	0.0082	0.0026	0.0070533	0.007005

Source: Authors' own work

The results revealed that there was no significant difference in trading volume activity values between the periods before and after the global Covid-19 pandemic announcement. This implies that the event did not disrupt the investment activities in the capital market. The observed increase in trading volume of 23.7% (from 0.0019 to 0.0024) before and after the event is driven by investor-buying activity. Investors take advantage of lower stock prices for long-term investment. This value may be due to doubts about vaccination that causes pessimism from investors, coupled with the impact of the Covid-19 incident that has occurred in the past year (Al-Qudah & Houcine, 2021).

Event 2 (2 Mar): During the 13-day observation period following the first Covid-19 case in Indonesia, statistical tests showed no significant abnormal returns. This suggests that the event did not establish a new market equilibrium. These results align with the findings of Agung and Susilawati (2021), who indicated the absence of significant abnormal returns in the raw material sector during the announcement of the Covid-19 event. The negative abnormal returns before and after the event signify that they carry a negative sentiment. Despite the lack of significant changes in trading volume before and after the event, there was a 15% increase in the average volume (from

0.0019350 to 0.0022183), reflecting investors' selling actions. This was likely a precautionary measure investor took to manage their portfolios in the prevailing uncertain situation. The Jakarta Composite Index (JCI) weakens by 1.68% at t-0, serving as a proxy for expected returns and investor sentiment.

Event 3 (7 Apr): The first large-scale social restriction (Pembatasan sosial berskala besar, PSBB) event in Indonesia was not deemed significant by investors, as no significant abnormal returns were observed during the 13-day observation period. However, the average abnormal return decreased from 0.0034 to -0.0032 before and after the event, respectively, indicating that investors had negative perceptions of the event's information. Investors may have anticipated a decline in company performance due to the PSBB policy. Similar to Event 1, there was no significant change in the trading volume activity before or after the event, signifying that it did not disrupt investment activities in the capital market. The 9.67% increase in average trading volume (from 0.031 to 0.034) was likely driven by investors' selling actions, as indicated by the analysis of negative abnormal returns that increased both before and after the event.

Event 4 (15 May): Statistical tests conducted over a 13-day observation period revealed a significant abnormal return value around the event, particularly at t+6, with a significance level of -0.012. This indicates that the market responded to the announcement of the new normal. The average abnormal returns decreased by 7% after the event, suggesting that investors responded negatively to the new normal announcement, resulting in declining stock prices and corresponding abnormal returns. Investors have adopted a wait-and-see approach, reflecting uncertainty during the new normal period, as economic performance remains unpredictable (Pransuamitra, 2020).

The results for trading volume activity show no significant difference before and after the event, indicating that the market did not react strongly to the new normal announcement. In the efficient market hypothesis, markets respond to information content and increasing stock prices typically result in higher trading volumes (Juniantara et al., 2023). However, the average trading volume activity after the event declined, signaling that investors perceived the event as negative news, leading to reduced trading activity. This decline in trading volume suggests that investors choose to adopt a wait-and-see approach rather than make immediate trades (Wu & Lin, 2017). Additionally, reduced trading volume might reflect a period of uncertainty or reassessment of investment strategies in response to new information.

Based on the efficient market hypothesis theory proposed by Fama (1970), the results of the analysis of Covid-19 events in Indonesia on the JII reaction showed significant results for several events. Weak-form efficiency posits that current and future stock prices cannot be predicted solely using past stock price data. Semi-strong form efficiency indicates that current prices reflect all publicly available information, whereas strong form efficiency asserts that stock prices incorporate all public and private information. This hypothesis provides investors with a reference for making investment decisions (Dupernex 2007). Abnormal return values that are considered significant do not last long; therefore, this study concludes that the Indonesian Islamic capital market is included in the semi-strong market category, as stated in other studies (Pratama 2015).

Robustness Test Result

Based on the analysis of the test data per sector, it is divided into four sectors: the energy sector, industry, primary consumption, and infrastructure. It was concluded that Indonesia's first PSBB event, Indonesia's New Normal, and Indonesia's Covid-19 vaccination plan had an impact on all testing sectors, and the results were in accordance with the calculations performed in the JII index analysis. However, there are differences in the results between the per-sector and index tests for the events contained in the study. The global announcement of Covid-19 in the sectoral analysis did not find significant abnormal returns, whereas in the JII index analysis, it was found that there were significant abnormal returns affecting the overall index return rate. This is because there are several samples of JII index companies that are not included in the calculation of sectoral analysis because of the irrational number of issuers when sectoral analysis is carried out. In the analysis of trade volume transactions, there is significant value in the sector analysis that occurs in the Industrial Sector, which is dominated by energy and mining companies. The increase in volume was influenced by an increase

in selling by investors, which caused the mining and industrial sectors to decline by 0.6% and 1.6%, respectively, at the end of the stock exchange on December 31, 2019 (Indonesia Stock Exchange, 2021). However, this does not have much impact on all issuers listed on the JII index; therefore, it does not result in a significant trading volume activity value on the index.

Conclusion

Based on the preceding chapters, several key conclusions can be drawn from this research. The global announcement of Covid-19 had a significant impact on the Islamic stock market, as evidenced by a notable abnormal return value during the study period. However, this event did not affect trading volume because there was no significant change in trading volume activity before and after the event. Notably, this event primarily influenced the trading volume activity within the industrial sector. The first Covid-19 case in Indonesia did not have a significant impact on JII in terms of returns and trading volume. However, specific sectors such as energy, industry, and primary consumption have experienced notable returns. Additionally, only the energy sector is affected by trading volume activity. Indonesia's initial implementation of the PSBB did not affect return values or trading volume activity in the Islamic stock market or in the several sectors examined in this study. This is corroborated by the absence of significant abnormal returns and trading volume activity during the research period.

The New Normal event had a discernible impact on the Islamic stock market, as evidenced by the significant abnormal return value. Investors consider an event to contain important information. However, this event did not influence the stock trading volume, which remained stable throughout the study period. The Covid-19 vaccination event affected the return value in the Islamic stock market, with a significant abnormal return value. Nevertheless, the stock trading volumes before and after the event showed no significant effect. Considering the reaction of the Syariah stock market to significant abnormal return values during various Covid-19 events, it can be inferred that these abnormal returns were short-lived and the market quickly reverted to its equilibrium state. Consequently, the Islamic capital market can be categorized as semi-strong. It is worth noting that this study has certain limitations, such as its reliance on a sample of issuers listed on the Indonesian stock exchange's Islamic stock market. Future research could expand this scope by including issuers from Islamic stock markets in other countries, thereby providing a more comprehensive and detailed perspective.

Author contribution
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