

The impact of COVID-19 related news to stock performance on pre-crisis, crisis, and post-crisis: study case in Indonesia's finance sector and SRI-KEHATI index

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Abstract. The COVID-19 pandemic has impacted the investment climate in the Indonesian capital market, influencing investors' decisions in choosing resilient stocks during the crisis. Socially responsible stocks are perceived to be more reliable during a crisis than other stocks. This study aims to assess the difference in abnormal returns before and after the five events related to COVID-19 news, using the Banks Sub-Sector representing the finance sector and SRI-KEHATI Index stocks. A purposive sampling technique was used to select samples of 41 stocks of the Banks Sub-Sector and 11 stocks of the SRI-KEHATI index. Data analysis employed various statistical tests, including paired-sample Wilcoxon signed-rank test and paired-sample t-test. The findings of this study indicate various significant abnormal returns and trading volumes for the two classifications. Moreover, this research is intended to explore investor sentiment when facing news that contains content related to the pre-crisis, crisis, and post-crisis situation of COVID-19 in Indonesia, considering previous research conducted reviews of investor sentiment in making general investment decisions has been done. The research results show that investors react differently to each news related to COVID-19. Furthermore, each piece of news triggered both positive and negative investor sentiment.

1 Introduction

Investors are recognized for gathering, digesting, and applying the information for asset allocations. Financial markets provide a platform for information competition. With the introduction of computerized trading, there is a greater demand for timely and accurate information for investing decisions. Real-time market data and news that influence trading decisions have gained relevance because of electronic trading. Financial market participants struggle with one another for information, and as textualization tools proliferate, more investors are turning to the sentiment in business news when making investment decisions [1].

According to the theoretical models of noise and liquidity traders [2], also tied to investor psychology, news can influence the stock market. Alternatively, news can impact the stock market by providing financial information about asset values. When news is made public, there is less information asymmetry, and market prices swiftly adjust to the new information flow [3]. The association between market reactions and various news kinds, such as macroeconomic, environmental, corporate governance, and earning news, has been empirically demonstrated in several studies [4]–[6]. The reaction of stock prices to news is considerably more evident during market difficulties. The current

COVID-19 pandemic began in 2020 has become one of unexpected global financial turbulence brought on by a non-financial occurrence that could be analysed in sentiment analysis. Some financial economists have referred to COVID-19 as an "exogenous shock" or even a "black swan," which refers to a rare event that significantly affects stock markets but cannot be foreseen [7].

The effect of COVID-19 on the stock market has been the subject of increasing research. For instance, [8] demonstrate that COVID-19 had the most significant impact on the financial markets compared to other pandemics like the Spanish flu and SARS. In their study of the market's response to monetary policy changes made in response to the COVID-19 pandemic crisis, [9] demonstrate the value of quantitative easing. While prior studies have shown a connection between public measures of COVID-19 attention and the financial markets, there is no evidence to support the impact of news sources on the larger market. Numerous analyses of investor responses during the COVID-19 timeframe produced contradictory findings. Using the Google Search Volume Index for phrases associated with the coronavirus disease (COVID-19) and COVID-19 vaccination, respectively, [10] investigate the association between optimistic and pessimistic investor sentiments and stock market performance. When [11],

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use the Wuhan lockdown date as the event date and employ the event study methodology, they discover that the average abnormal return and cumulative abnormal return are significantly negative. Furthermore, the average trading volume exceeds previous levels within two days of the outbreak.

This study specifically contributes by assessing investor perceptions of various COVID-19-related news stories from the pre-crisis, crisis, and post-crisis of COVID-19 in Indonesia. Five significant events pertaining to the event date of COVID-19 were the focus of the event analysis. The five news topics are: The World Health Organization (WHO) classifies the COVID-19 outbreak as a pandemic; the Indonesian government announced the issuance of social distancing policy; the announcements of Indonesia's first vaccination program; news about the massive COVID-19 outbreak caused by the Delta variant; and the announcement of Indonesia's social restriction policy's termination.

COVID-19 spread harms practically every industry in Indonesia. The banking industry is one industrial sector severely affected by the COVID-19 outbreak [12], [13]. On the other hand, the prior research proves that securities with strong ESG performance are likewise defensive against the COVID-19 era [14], [15].

This study aims to evaluate stock market investors' sentiment about COVID-19 related news in the financial sector stocks and the SRI-KEHATI index. A study of the five events was done to examine whether any differences in the average abnormal returns and trading volume before and after the event date.

This study contributes to the literature in several ways. First, it documents how stock markets reacted to the 5 events related to COVID-19. Second, this article tries to analyse two types of classifications that have opposite characteristics, which are the Banks Sub-Sector representing the classification of the finance sector that is considered the most vulnerable to crises, including the pandemic crisis. The determination of the Banks Sub-Sector is based on several considerations, which are: stocks of companies operating in the Banks Sub-Sector control most of the total listed shares in the finance sector with a percentage of 44%; and four out of ten top market capitalization stocks in Indonesia are occupied by stocks in the Banks Sub-Sector. Therefore, a decline in the performance of Banks Sub-Sector stocks due to a decrease in their fundamental value could have an impact on other stocks in the finance sector. Besides, the SRI-KEHATI index is considered the most defensive and sustainable against crises. We analyse how positive and negative sentiments are captured from the average abnormal return and trading volume before and after the event date.

2 Study Literature

2.1 Saliency and Information Views

The saliency perspective and the information view are two hypotheses that have been documented in the literature as having an impact on market participants'

behavior in capital markets. According to the information view, media lowers the cost of information acquisition, causing investors to make better judgments [16]. According to [17] research, media coverage of earning notices considerably lessens information asymmetry, which is consistent with this argument. Additionally, according to [18], organizations that disseminate information online contribute to lessening information asymmetry. According to the information view, news emotion is unlikely to create a large change in stock prices because it reduces knowledge asymmetry.

On the other hand, the saliency theory argues that media attention draws investors' attention to specific stocks [16]. Demand for certain stocks rises as a result of greater media attention to those stocks. The efficient market hypothesis is challenged by the saliency view because investors can use the media to obtain risk-adjusted returns that are higher than the market.

2.2 Impact of the COVID-19 Pandemic on Financial Sector, Empirical Studies.

According to [19], there was a reduction in the number and average amount of syndicated loans made to banks that were more severely impacted by the pandemic, which was followed by an increase in interest rate differentials and a quicker decline in maturity. These results demonstrate both the pandemic's detrimental effects and the banks' rapid action. All banks are projected to see a decline in risk-weighted asset prices, capital adequacy ratios, and interest revenue, either at the individual bank or sectoral levels, according to a report by [20] in Bangladesh.

According to a recent study conducted in Indonesia, the nation's banking system is today more susceptible to crises [21]. Another study conducted in Indonesia reveals that (Non-Performing Loan) NPLs have increased in tandem with the COVID-19 pandemic's emergence, along with a decline in loan demand, a decline in bank deposits, and a rise in loan interest rates. It was also assumed that the capital in the banking sector (i.e., the Capital Adequacy Ratio) is still at a high level. Herewith, it is thought to be adequate to maintain the stability of banks in 2020. However, the level of bank capital has the potential to decline if economic growth is unable to be restored.

They further estimate that COVID-19 pandemic has more of an impact on loan problems than liquidity, especially with regard to the ability of borrowers, both companies and households, to repay their loans. It will have an impact on the increased level of non-performing loan or non-performing financing. In the meantime, net income tends to experience a substantial decrease due to an increase in provisions [22].

2.3 Impact of The COVID-19 Pandemic on ESG Good Performance Stocks: Empirical Studies

The ongoing impact of the pandemic is expected to have a negative effect on stock returns. However, companies

with high ESG (Environmental, Social, and Governance) performance are likely to be less affected by the pandemic's negative impact, as noted by [23]. Additionally, companies with strong financial performance tend to have better ESG performance, according to [24]. Moreover, [25] highlighted that many companies across different countries have continued their social responsibility activities during the pandemic to attract stakeholder interest, and [26] added that companies' commitment to social responsibility during the crisis can protect their value.

Investing in voluntary activities during the pandemic can also result in higher stock returns and increased stakeholder support, as noted by [27]. However, [28] found no significant relationship between Corporate Social Responsibility and stock returns during the pandemic and argued that protecting stakeholder interests during the crisis may not necessarily improve a company's performance. Therefore, the value of companies is still at risk due to the ongoing pandemic. Furthermore, [29] argued that ESG practices may not effectively mitigate the financial losses caused by the pandemic. Thus, negative perceptions about non-financial performance may divert companies' attention from enhancing their financial performance.

According to [30], investing in ESG activities is more costly than it would be beneficial during the COVID-19 pandemic. Furthermore, financial constraints might cause additional difficulties for businesses to invest in sustainability initiatives during the COVID-19 pandemic [31]. These considerations suggest that pandemic-affected businesses may find it difficult to participate in sustainability initiatives and may set aside a long view in favor of the short-term gain during the crisis. It is in line with [32] claims that businesses prioritize the short term in their strategy and may temporarily divert attention from sustainability initiatives until the economy improves.

The exploration of ESG variables in this research can be reflected through the utilization of the SRI-KEHATI Index. SRI-KEHATI is an index which consists of companies that have applied the principles of responsible investment and also applying Environmental, Social and Governance (ESG) optimally. SRI-KEHATI Index was built according to United Nation Principles for responsible investment and have collaboration with Indonesian Stock Exchange to publish its index. Since its launch in 2009, SRI-KEHATI index is the only index that emphasize the issues of ESG inside Indonesian capital market.

2.4 COVID-19 and Investor Sentiment

Financial and economic crises are substantially different from the COVID-19 pandemic. This phenomenon is naturally uncertain, which means that it is unclear when the crisis will end and when major or small economies will recover from the current crisis. On the other hand, financial and economic crises could cause many structural issues or flaws in finance and the economy. According to research, unexpected shocks can have an impact on stock market performance and investor sentiment. Investors' panic selling in response to the

crisis might be sparked by unexpected shocks, panic, and anxiety brought on by pandemics [33]. Fear of COVID-19 has been confirmed by [34] to make stock market volatility worse.

According to [35], investors' pessimism about the state of the economy and anxiety over the possibility of a lethal virus can result in negative abnormal returns (ARs). Strong sentiments make it difficult to arbitrage low returns on stocks, according to [36], and private capital flows are a good way to spread investor sentiment internationally. Earlier studies examined how earlier pandemics and crises affected the economy and stock markets. Based on the difference-in-differences method, [37] demonstrated how devastating pandemics, like the Severe Acute Respiratory Syndrome (SARS) outbreak, might weaken the integration of financial systems.

The effect of the COVID-19 pandemic on financial markets was the subject of numerous studies. The COVID-19 and lockdowns caused considerable output cutbacks due to disruptions in the global supply chain and drastic reductions in the labor force. According to [38], The spread of COVID-19 outbreak has impacted to financial markets in the global scale.

According to [35], the disastrous SARS-CoV-2 outbreak had immediate effects on 21 top stock market indices, causing significant and quick volatility throughout stock markets, particularly those of Asian nations, once the COVID-19 pandemic was declared. The pandemic greatly increased stock market volatility, with the exception of the Chinese stock markets. According to research by [39], it is investigated at how the infectious disease affects stock market movements in the US, UK, China, and Japan.

Table 1. Event date related to the COVID-19 pandemic.

Event	Date	Event-Date
1	3 Feb 2020	WHO declares the COVID-19 outbreak as a PHEIC.
2	21 March 2020	The government of Indonesia announces the social distancing policies.
3	21 Jan 2021	The government of Indonesia announces the first vaccination program.
4	21 June 2021	Massive spread of COVID-19 caused by the Delta variant.
5	27 Dec 2022	The government of Indonesia announced the end of the social restriction policy in Indonesia

By referring to past phenomena that have existed, the event study approach can be used to analyze the efficacy of an event on company stocks' returns and capture investors' reactions to media stories. As a result, it plays a part in explaining the effect of information disclosure on stock returns, as well as a vital reaction owing to financial investors' assessments and expectations that are influenced by announcements or phenomena. By reviewing the five events presented in Table 1, we formulated ten research hypotheses consisting of:

H1a : There is a difference between the abnormal returns before and after event 1 on Banks Sub-Sector stocks.

H1b : There is a difference between the abnormal returns before and after event 1 on SRI-KEHATI index stocks.

H2a : There is a difference between the abnormal returns before and after event 2 on Banks Sub-Sector stocks.

H2b : There is a difference between the abnormal returns before and after event 2 on SRI-KEHATI index stocks.

H3a : There is a difference between the abnormal returns before and after event 3 on Banks Sub-Sector stocks.

H3b : There is a difference between the abnormal returns before and after event 3 on SRI-KEHATI index stocks.

H4a : There is a difference between the abnormal returns before and after event 4 on Banks Sub-Sector stocks.

H4b : There is a difference between the abnormal returns before and after event 4 on SRI-KEHATI index stocks.

H5a : There is a difference between the abnormal returns before and after event 5 on Banks Sub-Sector stocks.

H5b : There is a difference between the abnormal returns before and after event 5 on SRI-KEHATI index stocks.

3 Methodology

3.1 Event Study

The event study is based on the assumption of an efficient market hypothesis, which shows that the market is reasonable, also the effect of events can immediately be reflected in the asset prices of financial markets. Thereby, it has a role to explain the effect of information disclosure on stock returns and the essential reaction due to financial investors' evaluations and expectations that are affected by announcements or events. As a result, the changes in stock asset demand and supply are causing stock prices to fluctuate irregularly. Based on the assumption of rationality of financial markets, the event study methodology is widely employed to measure the effectiveness of an event on a firm's stock returns and capture reactions to media reports and events [40].

Through this research, we are interested in conducting a paired-sample t-test or Wilcoxon signed-rank test to determine the level of significance of the difference between two paired samples [41], which are the average abnormal return and average trading volume in $t - 10$ (Before) and $t + 10$ (After) news media reports in connection with the timeline of distribution to the mitigation of COVID-19 pandemic in Indonesia. The result of trading volume test will be used as robustness in order to strengthen our argument. The outputs and interpretation of the robustness test will be used to achieve optimal level of relevance of our study. To

obtain the average abnormal return and average transaction volume, we use :

3.1.1. Average Abnormal Return Formula

$$AAR_t = \frac{\sum_i AR_{i,t}}{N_t} \quad (1)$$

Additional Information:

AAR_t = Average Abnormal Return over period t

$AR_{i,t}$ = Abnormal Return on stock i in period t

N_t = Total period t considered

3.1.2. Average Volume Transaction Formula

$$AVT_t = \frac{\sum_i VT_{i,t}}{N_t} \quad (2)$$

Additional Information:

AVT_t = Average Volume Transaction over period t

$VT_{i,t}$ = Volume Transaction on stock i in period t

N_t = Total period t considered

Before testing the paired-sample t-test, we conducted a normality test to determine whether to use a parametric or non-parametric test, which could maintain the relevance level of the data output. In practice, our test would be classified into 41 stocks of the Banks Sub-Sector and 11 stocks of SRI-KEHATI index. Herewith, we use the Shapiro-Wilk test, which is more appropriate for testing samples under 50 or small sample sizes [42]. If the test result shows $P > 0.05$, then the null hypothesis is accepted, which indicates that the data is normally distributed. On the other hand, if test results show $P < 0.05$, then the null hypothesis is rejected, and the data will be declared not distributed normally. In its implementation, normally distributed data will be tested by utilizing parametric tests in the form of *paired-sample t-tests*. In contrast, data that is not distributed normally will be tested by utilizing non-parametric tests in the form of *Wilcoxon signed-rank tests* as an alternative. Test results showing $P < 0.05$ indicate a significant difference between samples tested on $t - 10$ (Before) and $t + 10$ (After) news media reports related to the COVID-19 pandemic in Indonesia (accepted). In addition, the $P > 0.05$ result indicates that there is no significant difference between samples tested at $t - 10$ (Before) and $t + 10$ (After) news media reports related to the COVID-19 pandemic in Indonesia (rejected).

4 Result and Discussion

4.1 Event 1: The WHO Declares The COVID-19 Outbreak as a Public Health Emergency of International Concern (PHEIC)

Table 2. Paired-sample test – Abnormal Return, Event 1

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	0.0014	0.0087	-0.0007	0.0063	0.513

SRI-KEHATI	-0.0028	0.0046	-0.0216	0.0058	0.743
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*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

Table 3. Paired-sample test – Trading Volume, Event 1 (in 000)

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	8,802	22,213	8,544	24,046	0.019**
SRI-KEHATI	17,807	19,924	24,649	31,503	0.079*

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

The market is responding to the heavy burden on banks to receive the COVID-19 pandemic impact. The decline in the national economy will reduce creditors' ability to repay the credit in banks or non-banking financial institutions. There are two things that are concerned, which are the decline in third-party funds in the form of savings, time deposits, and other public savings. Second, it is expected to increase the creditors' non-performing loan ratio, which increases the bank's non-performing loans.

Environmental transparency and GHG emissions are the environmental factors that strongly influence firms' financial performance. During a financial crisis, firms holding green patents tended to have higher environmental transparency than during the other periods' understudy [43]. On the other hand, the costs generated by financial crises can lead firms to stop investing in CSR activities to survive, even for a short-term financial shock [44] Indeed, a financial crisis can lead to a significant decline in the number and scope of CSR activities. The decrease in CSR efforts and projects may result in their cancellation or postponement. To survive the pandemic phenomenon, the decrease in CSR projects may impact labor standards through downsizing [45]. Similarly, investors who believe businesses should only concentrate on their financial survival may view CSR initiatives as redundant or ineffective during a crisis [46].

Table 2 and 3 in consecutive order show the result of Paired-sample test of Abnormal Return and Trading volume for Event 1. In the test results of Table 2, descriptive statistical analysis of Banks Sub-Sector stocks' abnormal returns ($P = 0.513$) at $t - 10$ (Before) shows mean (μ) = 0.0014 and standard deviation (σ) = 0.0087, also $\mu = -0.0007$ and $\sigma = 0.0063$ at $t + 10$ (After) news media coverage related to WHO's statement which determined the COVID-19 pandemic as a concerning crisis. On the other hand, the analysis of SRI-KEHATI index ($P = 0.743$) at $t - 10$ (Before) shows $\mu = -0.0028$ and $\sigma = 0.0046$, also $\mu = -0.0216$ and $\sigma = 0.0058$ at $t + 10$ (After) in the corresponding time range. Furthermore, the trading volume variable test in event 1 shows that there is a significant difference between the trading volume of stocks classified into Banks Sub-Sector ($P = 0.019$) on $t - 10$ ($\mu = 8,802$, $\sigma = 22,213$) and $t + 10$ ($\mu = 8,544$, $\sigma = 24,046$); also SRI-KEHATI index ($P = 0.079$) on $t - 10$ ($\mu = 17,807$, $\sigma = 19,924$) and $t +$

10 ($\mu = 24,649$, $\sigma = 31.503$) in the relevant time range. By referring to the results of existing tests, it can be concluded that hypotheses H1a and H1b are rejected. In addition, it can also be seen that the mean abnormal return at $t + 10$ is smaller than $t - 10$ for the two stock classifications, which indicates that investors responded negatively to the impact of the COVID-19 Pandemic on the Banks Sub-Sector, as well as stocks of the SRI-KEHATI Index, although this is not statistically significant.

4.2 Event 2: The Government of Indonesia Announces The Social Distancing Policies.

President Joko Widodo reported the first case of COVID-19 in Indonesia on March 2, 2020. The president announced the information through a press conference at the Presidential Palace after the tracing process for the first and second patients with active cases of COVID-19 was implemented. After discovering the first case, the number of confirmed positive daily cases has slowly increased. It can be reflected in the announcement of daily cases reaching more than 100 for the first time on March 24, 2020. Furthermore, death cases have also been reported to have reached 55 patients out of 686 total positive cases of COVID-19 on that date. To mitigate and control the COVID-19 outbreaks in the broader community, the government proposes a social distancing policy to limit mobility and direct physical socialization between individuals. Due to this proposal, many investors are worried that the policy could lead to a paralyzed economy, which is evident in the implementation of lockdown policies in several regions of the world.

Table 4 Paired-sample test – Abnormal Return, Event 2.

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	0.0061	0.0219	-0.0092	0.0182	0.014**
SRI-KEHATI	-0.0075	0.0175	0.0113	0.0089	0.013**

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

Table 5 Paired-sample test – Trading Volume, Event 2 (In 000)

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	15,926	44,565	22,118	62,242	0.012**
SRI-KEHATI	37,417	37,961	60,574	65,634	0.003***

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

As shown in Table 4, descriptive statistical analysis of Banks Sub-Sector stocks' abnormal returns ($P = 0.014$) at $t - 10$ (Before) shows mean (μ) = 0.0061 and standard deviation (σ) = 0.0219, also $\mu = -0.0092$ and $\sigma = 0.0182$ at $t + 10$ (After) news media coverage related to the virus outbreak and issuance of social distancing policies by the government. On the other hand, the

analysis of SRI-KEHATI index ($P = 0.013$) at $t - 10$ (Before) shows $\mu = -0.0075$ and $\sigma = 0.0175$, also $\mu = 0.0113$ and $\sigma = 0.0089$ at $t + 10$ (After) in the corresponding time range. Furthermore, the trading volume variable test in event 2, as can be seen in Table 5 shows a significant difference between the trading volume of stocks classified into Banks Sub-Sector ($P = 0.012$) on $t - 10$ ($\mu = 15,926$, $\sigma = 44,565$) and $t + 10$ ($\mu = 22,118$, $\sigma = 62,242$); also SRI-KEHATI index ($P = 0.003$) on $t - 10$ ($\mu = 37,417$, $\sigma = 19,924$) and $t + 10$ ($\mu = 60,574$, $\sigma = 65,634$) in the relevant time range. By referring to the existing test results, it can be concluded that the H2a and H2b hypotheses are accepted. In addition, there was a decline in Banks Sub-Sector stocks' abnormal returns after the announcement of the social distancing implementation. Likewise, the mean trading volume before and after the second event is significantly different. The significant difference in trading volume and declining abnormal returns shows the negative sentiment of investors in Banks Sub-Sector stocks towards the government's announcement of social distancing, while contrary to SRI-KEHATI index stocks.

4.3 Event 3: The Government of Indonesia Announces The First Vaccination Program.

Table 6 Paired-sample test – Abnormal Return, Event 3.

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	0.0032	0.0202	-0.0018	0.0103	0.712
SRI-KEHATI	-0.0016	0.0052	-0.0025	0.0065	0.774

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

On January 13, 2021, President Joko Widodo became the first person to carry out the procedure for injecting the COVID-19 vaccine in Indonesia. The injection of the COVID-19 vaccine to the president marked the start of a series of vaccination activities to mitigate the COVID-19 pandemic in Indonesia. Furthermore, the presence of the vaccination program was also able to accelerate economic recovery in Indonesia after being hit by the crisis in the previous year. This news has certainly received a positive response from investors, considering the vaccination program is believed to be one of the main alternatives to stimulate the wheels of the economy through reopening opportunities to carry out business activities.

Nevertheless, this positive sentiment seemed to fade after the publication of news media coverage containing the government's decision to extend the social distancing policy (Imposition of Restrictions on Community Activities) on January 21, 2021. The news contained the results of the government's evaluation of the first phase of the Imposition of Restrictions on Community Activities policy which still shows a positive trend of increasing daily cases of COVID-19 in most regions. As a result, the IDX Composite experienced a limited weakness of 15.86 points or 0.25% to IDR6,413.89. This weakening was caused by

profit-taking by investors due to the policy of extending the Implementation of Restrictions on Community Activities after the IDX Composite penetrated the price level of IDR 6,500 as a positive response to the initial vaccination program in Indonesia.

Table 7 Paired-sample test – Trading Volume, Event 3 (In 000)

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	122,287	349,306	63,756	137,861	0.001***
SRI-KEHATI	102,841	130,285	64,586	78,560	0.031**

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

As shown in Table 6, descriptive statistical analysis of Banks Sub-Sector stocks' abnormal returns ($P = 0.712$) at $t - 10$ (Before) shows mean (μ) = 0.0032 and standard deviation (σ) = 0.0202, also $\mu = -0.0018$ and $\sigma = 0.0103$ at $t + 10$ (After) news media coverage related to announcements to the first vaccination program in Indonesia. On the other hand, the analysis of SRI-KEHATI index ($P = 0.774$) at $t - 10$ (Before) shows $\mu = -0.0016$ and $\sigma = 0.0052$, also $\mu = -0.0025$ and $\sigma = 0.0065$ at $t + 10$ (After) in the corresponding time range. Furthermore, as can be seen in Table 7, the trading volume variable test in event 3 shows that there is a significant difference between the trading volume of stocks classified into Banks Sub-Sector ($P = 0.001$) on $t - 10$ ($\mu = 122,287$, $\sigma = 349,306$) and $t + 10$ ($\mu = 63,756$, $\sigma = 137,861$); also SRI-KEHATI index ($P = 0.031$) on $t - 10$ ($\mu = 102,841$, $\sigma = 130,285$) and $t + 10$ ($\mu = 64,586$, $\sigma = 78,560$) in the relevant time range. By referring to the results of existing tests, it can be concluded that hypotheses H3a and H3b are rejected. Although the abnormal return tests are not statistically significant, the decline of trading volume between before and after event 3 could refer to the tendency of investors to be still cautious about global and national economic conditions.

4.4 Event 4: News Regarding The Massive Spread of COVID-19 Caused by The Delta Variant.

On June 21, 2021, the government recorded that there were 14,536 additional cases which was the highest addition of patients during the COVID-19 pandemic in Indonesia (as of June 21, 2021). The spread of the Delta variant in Indonesia also supported the increase in positive COVID-19 cases. It is reinforced by the positive patient sampling in June, which shows a percentage of 90 percent increase in active cases caused by the delta variant. The outbreak of the delta variant in Indonesia was mainly due to the Eid holiday, which increased massive community mobility and the absence of a qualified health protocol implementation, which made the chain of transmission of the COVID-19 virus easier to form. It can be proven that after Eid, there were 988 family clusters infected with COVID-19.

At the opening market on June 21, 2021, the IDX Composite experienced a significant weakening,

reaching 2% in just 2 minutes after opening. It was due to the weakening of the IDX Composite, which reached 1.01% on Friday, June 18, 2021. In addition, an increase in domestic COVID-19 patients is also becoming the main sentiment for investors in making investment decisions. On Sunday, June 20, 2021, there was an increase in daily COVID-19 patients of 13,737. This number of additional daily cases was the highest during the COVID-19 pandemic that hit Indonesia (as of June 20, 2021). Nevertheless, the closing of the IDX Composite only weakened by 0.78%.

Table 8 Paired-sample test – Abnormal Return, Event 4

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	0.0014	0.0087	-0.0007	0.0063	0.513
SRI-KEHATI	-0.0061	0.0045	-0.0041	0.0056	0.385

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

As shown in Table 8, descriptive statistical analysis of Banks Sub-Sector stocks' abnormal returns ($P = 0.513$) at $t - 10$ (Before) shows mean (μ) = 0.0014 and standard deviation (σ) = 0.0087, also $\mu = -0.0007$ and $\sigma = 0.0063$ at $t + 10$ (After) news media coverage related to the delta variant outbreak in Indonesia. On the other hand, the analysis of SRI-KEHATI index ($P = 0.385$) at $t - 10$ (Before) shows $\mu = -0.0061$ and $\sigma = 0.0045$, also $\mu = -0.0041$ and $\sigma = 0.0056$ at $t + 10$ (After) in the corresponding time range. Furthermore, the trading volume variable test for event 4, in Table 9, shows that there is a significant difference between the trading volume of stocks classified into Banks Sub-Sector ($P = 0.019$) on $t - 10$ ($\mu = 8,802$, $\sigma = 22,213$) and $t + 10$ ($\mu = 8,544$, $\sigma = 24.046$). On the other hand, the test shows that there is no significant difference between trading volume of SRI-KEHATI index ($P = 0.849$) on $t - 10$ ($\mu = 39,009$, $\sigma = 58,921$) and $t + 10$ ($\mu = 33,320$, $\sigma = 37,914$) in the relevant time range. By referring to the results of existing tests, it can be concluded that hypotheses H4a and H4b are rejected. In addition, the event 4 condition has become a pattern that after the celebration of a big day, there will be a significant spread of COVID-19. Therefore, the emergence of a new variant no longer has information content for investors.

Table 9 Paired-sample test – Trading Volume, Event 4 (in 000)

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	8,802	22,213	8,544	24,046	0.019**
SRI-KEHATI	39,009	58,921	33,320	37,914	0.849

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

4.5 Event 5: The Government of Indonesia Announced The End of The Social Restriction Policy in Indonesia.

Ahead of the new year 2023, news media presents news regarding the government's plan to repeal the social

distancing policy completely. The government took this decision as a reference for the sloping spread of the COVID-19 virus in Indonesia at the end of 2022. It can be proven through President Joko Widodo's statement, which indicates the ratio of the COVID-19 spread in Indonesia is only reached 1.7 patients per 1 million population on 27 December 2022. Therefore Mr. Mahfud MD (Minister of Politics, Law, and Human Rights) indicated that the Imposition of Restrictions on Community Activities would soon be repealed. Both foreign and domestic investors welcomed the plan to lift social distancing. On 27 December 2022, the IDX Composite experienced an increase of 1.28% due to investor optimism regarding the outlook for the Indonesian economy after the extermination of the social distancing policy. On the other hand, the news media also reported that China, as one of Indonesia's main partners, also relaxed its lockdown policy, thereby increasing economic enthusiasm between the two countries.

Table 10 paired-sample test – Abnormal Return, Event 5

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	-0.0047	0.0081	0.0012	0.0069	0.002***
SRI-KEHATI	-0.0014	0.0053	-0.0016	0.0041	0.929

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

Table 11 paired-sample test – Trading Volume, Event 5 (in 000)

Class	Before		After		Sig
	Mean	SD	Mean	SD	
Banks	35,029	45,824	37,871	70,194	0.121
SRI-KEHATI	27,217	25,212	24,804	28,324	0.113

*, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

As shown in Table 10, descriptive statistical analysis of Banks Sub-Sector stocks' abnormal returns ($P = 0.002$) at $t - 10$ (Before) shows mean (μ) = -0.0047 and standard deviation (σ) = 0.0081, also $\mu = 0.0012$ and $\sigma = 0.0069$ at $t + 10$ (After) news media coverage towards the lifting of the social restriction policy in Indonesia. On the other hand, the analysis of SRI-KEHATI index ($P = 0.929$) at $t - 10$ (Before) shows $\mu = -0.0014$ and $\sigma = 0.0053$, also $\mu = -0.0016$ and $\sigma = 0.0041$ at $t + 10$ (After) in the corresponding time range. Furthermore, the trading volume variable test for event 5 in Table 11, shows that there is no significant difference between the trading volume of stocks classified into Banks Sub-Sector ($P = 0.121$) on $t - 10$ ($\mu = 35,029$, $\sigma = 45,824$) and $t + 10$ ($\mu = 37,871$, $\sigma = 70,194$), also SRI-KEHATI index ($P = 0.113$) on $t - 10$ ($\mu = 27,217$, $\sigma = 25,212$) and $t + 10$ ($\mu = 24,804$, $\sigma = 28,324$) in the relevant time range. By referring to the results of existing tests, it can be concluded that hypotheses H5a is accepted, while H5b is rejected. In addition, event 5 conditions provide positive sentiment for investors in projecting Indonesia's economic growth in the post-crisis COVID-19 and

social distancing policy. Considering the economy was fully able to operate normally, investors resumed their accumulation of the Banks Sub-Sector stocks, which causes the mean abnormal return after the announcement was higher than before.

5 Conclusion

The influence of coverage contained in news media often has an impact on investors' decisions in the capital market. Basically, it can occur due to the long interval range of financial data published by public companies every period, so there is only some information that can be obtained to make decisions in the capital market. On the other hand, the news media regularly presents reasonable financial information, which could lead to building society's opinion. In practice, news media can bring positive or negative sentiments by using text, images, and video media, so the anxiety and emotions of investors can change along with the development of the information obtained. Content that contains information related to the development of the COVID-19 pandemic is the main topic that has been eagerly awaited by many parties. It is undeniable, the COVID-19 pandemic has become a phenomenon that has had a massive impact on the majority of investment decisions made by investors, considering that this event presents tremendous concerns that refer to public anxiety. In the stock market, public anxiety results in panic selling in most stocks listed on the exchange. It indicates an oversupply which refers to the fall in stock indicators in many countries, including Indonesia.

By reviewing existing phenomena, we aim to explore the impact of the information contained in content related to COVID-19 on investors' investment decisions in Indonesia. The key objective of this study is to find out whether there are differences between abnormal returns and trading volume on Banks Sub-Sector and SRI-KEHATI index before and after the news. Furthermore, we utilize 5 events which became the main timeline for reporting news regarding the development of COVID-19 in Indonesia. Herewith, investors' perspectives in dealing with pre-crisis, crisis, and post-crisis pandemic situations can be optimally reflected. As research output, we are expected to be able to contribute to answer questions related to: is there any difference between the abnormal returns before and after each COVID-19 related event on Banks Sub-Sector stocks and SRI-KEHATI index?

The impact of COVID-19 on the finance sector, especially the Banks Sub-Sector, can be seen through the high risk of distributed loans (loan risk). The presence of social distancing policies set by the government refers to the cessation of the economy and the low purchasing power of the community. As a result, the risk of credit default for businesses whose operations are restricted requires banking authorities in Indonesia to tighten provisions for bank operations by increasing the minimum capital reserve adjusted to the risk profile and restructuring bad debts. Furthermore, companies with high ESG profiles are also faced with a negative outlook due to the prolonged crisis, considering that the

activities carried out related to ESG cannot mitigate the operational and financial risks that occur. Therefore, previous research shows that companies will tend to be more defensive and prioritize short-term strategies to survive the COVID-19 pandemic crisis, so initiatives in carrying out long-term and sustainable strategies cannot be fully optimized until the business risks faced can be resolved and well controlled.

The results of our research show that the pre-crisis condition marked by the announcement from the World Health Organization (WHO) regarding the COVID-19 outbreak has received a negative response from investors in Indonesia. Even though active cases of COVID-19 have not been detected, investors have taken action to sell their stocks to protect assets. It can be reflected in the mean abnormal return of stocks in the Banks Sub-Sector and SRI-KEHATI index which decreased after the announcement was made, although this is not statistically significant. On the other hand, crisis conditions are marked by the reporting of the first active cases and the issuance of social distancing policies. Investor response regarding these two phenomena can be reflected in event 2, which shown by the mean abnormal return on stocks of Banks Sub-Sector has decreased, while the mean abnormal return on stocks classified as SRI-KEHATI index has been contradictory, and statistically significant. The results of this test strengthen the argument stated by [23], that company stocks with a high level of Environmental, Social, and Governance (ESG) are likely to be less affected by the pandemic's negative impact.

Furthermore, research on investor responses that refer to events 3 and 4 still reflects the negative sentiment caused by the COVID-19 outbreaks and the prolonged social distancing policy. As a result, investors who are still worried about global and national economic conditions have decided to "wait and see". Other than that, the insignificant statistics obtained in the test also prove that investors consider that these events are no longer have information content due to several mitigations that have been implemented by the government to deal with the COVID-19 crisis.

Post-crisis in this study is marked at event 5 which begins with news regarding the government's plan to completely abolish the social distancing policy in early 2023. As a result, investors appreciate Banks Sub-Sector stocks which can be proven through an increase in the mean abnormal return after the information channeled, as well as statistically significant. Investors assess the banking industry's more positive projections after the normalization of business policies and the reduced risk of loan solvency from borrowers.

In addition, our research facilitates several practical and theoretical contributions, which are: This research involves a study of the psychology of investors in dealing with the COVID-19 pandemic crisis based on three perspectives from the crisis phase; this research can be used by investors in sorting out information that has the potential to have a massive and significant impact on the capital market; this study specifically involves the Banks Sub-Sector and SRI-KEHATI index stock variables in Indonesia in order to find out whether the stock performance between the two classifications is

consistent or contradictory when faced with a crisis; and this research specifically examines and identifies the tendency of investors in Indonesia to make investment decisions when faced with an uncertain situation, considering that the sentiment of the COVID-19 pandemic crisis is also accompanied by commodity boom sentiment, global recession, and other non-financial sentiments.

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