The Influence of Government Information and Response Related to COVID-19 in Indonesia Stock Market

Agus Diemas Prayoga[1], Sung Suk Kim[2]
[12]*Universitas Pelita Harapan*
*Corresponding sungsuk.kim@uph.edu

Abstract

COVID-19 is a global health pandemic that is currently sweeping the world and had huge impact on the world economy. Currently, all countries, including Indonesia, are paying attention to how the development of this pandemic is, as evidenced by the many media that inform the development of the pandemic and the response given by the government in overcoming it. This study was conducted with the aim of investigating how the influence provided by government information and policies related to COVID-19 on returns and stock volatility in Indonesia. Empirical findings from this study show that information on the COVID-19 pandemic (GSVI Covid), the number of positive cases, death rates, and the government tightening index during the pandemic, seem to have a negative effect on stock returns and vice versa have a positive effect on volatility. Meanwhile, with the information on the COVID-19 vaccine (GSVI Vaksin), fiscal policy in the form of growth in government spending, as well as monetary policy in the form of growth in the money supply is said to have a positive influence on stock returns, as well as reduce excessive volatility in the market.

1.   INTRODUCTION

At the end of 2019 to be precise at the beginning of December 2019, a new virus called "COVID 19" began to spread, causing various phenomena to occur. With its rapid spread, the virus causes a high mortality rate in the community, especially for the elderly and people most vulnerable to health problems. This has led to the implementation of social distancing restrictions both at the National and International levels and also more than two billion people around the world self-isolate at home, with tremendous social, political and economic consequences (Basuony et al., 2021).

This COVID-19 virus was first discovered in Wuhan and since its emergence has had such a profound impact on people's lives, and has also changed the economic order around the world (Zandi et al., 2020). In Indonesia itself, the announcement of the first

case of COVID-19 in early March 2020 by President Jokowi has made the public panic, surprised and has a significant influence on the Indonesian economy which can be seen from the Indonesian capital market which has become ravaged (Sugianto, 2020). Not to mention the *World Health Organization* (WHO) which on March 11, 2020 declared the outbreak of this Corona virus (COVID-19) as a global pandemic (Cucinotta & Vanelli, 2020). The existence of this certainly makes people more afraid and causes a sense of worry for investors in running their business and investing during this pandemic.

The COVID 19 pandemic is not the first pandemic and is known to threaten public health around the world, but pandemics such as the outbreak of black death, the Spanish influenza virus, MERS, bird flu, SARS, and Ebola. Was known in advance that it occurred once. Endangers human health. It is well known that the plague outbreak kills almost one-third of Europe's population, and that plague outbreaks also affect the economic aspects of Europe (Alfani & Murphy, 2017). Then another deadly virus, the Ebola virus that occurred in West Africa, especially Liberia, then spread to several countries. De La Fuente et al. (2019) discovering how the Ebola epidemic dealt a severe blow to Liberia, with high deaths causing greater disruption to the mobilization of labor groups to plant and harvest, thereby reducing rice planting area as well as rice yields. Then (Kentikelenis et al., 2015) discussed also how the Ebola epidemic that occurred caused Guinea, Liberia and Syria into economic downturn so that the IMF intervened to provide assistance to help the recovery of the economy.

In Indonesia, in an effort to overcome this virus in several major cities, the government has implemented measures to break the chain of spread of COVID-19. Such as large-scale social restrictions (PSBB) implemented in several levels have caused restrictions on human movement in carrying out daily activities, business or schools. This step, of course, can reduce the number of additional positive cases that occur, but at the same time it also almost paralyzes the economy in Indonesia. PSBB caused recreational places, entertainment centers, restaurants, shopping centers, and even entrances to and out of Indonesia to be closed by the government to prevent the spread of COVID-19. In addition to the tourism sector which has been worst affected by the closure of exits and entry to Indonesia, other sectors such as business and finance are also affected considering that it limits the movement of business planning that has been planned at the beginning of the year for both investors and business people. This condition certainly makes investors must always monitor aspects and information related to COVID-19 such as the level of spread of COVID-19, tightening indexes from the Government, developments related to vaccines, and others, and do not forget to find loopholes to maintain the sustainability, continuation and smooth running of their business. Of course, every progress, development and other information submitted either by the Indonesian government or world news is certainly very important for investors to determine the next step during this pandemic, whether they have to wait, advance or even survive.

As it goes by, entering the beginning of 2021, the entry of the COVID-19 vaccine into Indonesia brings a breath of fresh air to the people of Indonesia (Putra, 2020). The first vaccination was received by the President of the Republic of Indonesia Mr. Jokowi on January 13, 2021, which was then followed by several figures or public figures of Indonesia and then continued by giving vaccines to health workers which are expected to help Indonesia to immediately overcome COVID-19. Not only that, of course, the emergence of this has made the government begin to compile a process of implementing activities whose purpose is to immediately restore the economy. Of course, the entry of

this vaccine can make people calmer and can make investors more confident to invest, even then the tension of public concerns has increased again with the presence of new variants of COVID-19 entering Indonesia, such as the Delta Variant which began to be detected starting May 3, 2021 and the Omicron variant which began to be detected in Indonesia since November 27, 2021, which according to (Pratama, 2021) the existence of this, of course, will reduce the movement of economic activity that has previously increased so that it also results in investments made by the community also slowing down.

Based on the following presentation, the author sees many aspects of the pandemic that seem to affect stability and performance in the stock market in Indonesia, so therefore researchers try to connect previous studies to create a new study that examines how the influence is produced if these conditions are faced with stability and performance or Volatility and *Returns* in the Indonesian stock market.

Again reminded, the following part of the discussion of this journal is the discussion of literature review, then continued with the presentation of data in the research and empirical methods yang formed then followed by a discussion of the results of the research and will be closed with the conclusion of the results of the study.

2.   RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1. The Effect of Covid-19 Pandemic Aspects on Stock Returns

A pandemic is said to be a widespread spread of disease outbreaks that occur due to the spread of infection from human to human. The crisis that occurred due to a pandemic is said to have had a huge negative impact on the health, economy, society, and security of the national and global community. In addition, the existence of a pandemic is also said to cause significant political and social disturbances (Qiu et al., 2017).

Zhou & Kan (2021) in its research which examined the effects caused by the COVID-19 pandemic since the start of the pandemic until the last time the study was conducted illustrated that the COVID-19 pandemic has very serious consequences in various aspects of society, especially economic aspects where income, work patterns, working hours occur which causes a decrease in welfare that occurs in all layers or all social groups in community.

However, the arrival of the first COVID-19 virus vaccine in early 2021 and the policies issued by the government in an effort to reduce the impact felt by the public are expected to bring fresh air for recovery, normalization and stability of the economy and stock market. It is hoped that the existence of vaccines and government assistance in the form of policies can have another positive impact on the economy and may even have a positive impact on the stock market. This is of course because this will allow the economy to move out of various restrictions and lockdowns due to COVID-19. It can be seen from some of the hardest-hit countries such as China, the country of origin of COVID-19 which can be said to have succeeded in controlling COVID-19 much more effectively than other countries. Although later in the end there appeared some new COVID-19 variants that re-increased the anxiety and worry of people in the world.

2.1.1 COVID-19 Information On Stock Returns

The COVID-19 pandemic is said to have caused a feeling of fear for the public, especially investors because it will provide a negative view that can affect the rate of return on stocks (*Return*) because generally an investor has a very sensitive nature and

does not like an uncertainty. Investors will try to mask feelings of anxiety over the conditions that have occurred by looking for news related to the COVID-19 pandemic. Of course, this is done by investors to ascertain the questions that arise from their feelings of fear of such uncertain conditions. Wang et al. (2021) AAD gives a simple statement on what affects the movement of the stock market, saying that the stock market will quickly reflect on how sentiment as well as investors' views on a condition. Thus, when a new news is announced to the market, investors can quickly react to the information and the reaction can be reflected in the stock price. This is supported by (Jeon et al., 2021) which in his research shows how the ability to search for news online can affect abnormal stock returns and trading volumes, which is shown that the intensity of online news searches can predict abnormal stock returns and trading volumes, and the sensitivity of stock returns.

These studies were then strengthened from the results of research conducted by (Chundakkadan & Nedumparambil, 2021) & (Khalid et al., 2021) where they show that the large amount of information about the COVID-19 pandemic or searches related to this information provide negative sentiment for the public which encourages a decrease in performance or returns (Returns) in the stock market. The influence of the public response related to the rampant news about the COVID-19 pandemic is also explained in the study by (Chavali et al., 2021) which mentioned that people tend to temporarily stop their investment activities and choose to focus more on things that are their basic needs, which also has an impact on the performance of stocks in Indonesia. So that based on this, a hypothesis was formed as follows:

H1: Information about the COVID-19 pandemic had a negative impact on stock returns.

2.1.2 COVID-19 Vaccine Information Against Stock Returns

Information related to the COVID-19 pandemic is referred to as information that provides negative sentiment for the public and can worsen stability and performance in the stock market, but it is different from information related to the COVID-19 vaccine which is actually considered to provide positive sentiment and is awaited by the public. This is because the vaccination information is expected to change views and reduce the feeling of fear felt by investors over the COVID-19 pandemic that has occurred. Investors are expected to be more optimistic about the stock market and have a positive impact on stock returns.

Acharya et al. (2020) develop research on asset pricing perspectives to estimate the value of cures by compiling "indicators of vaccine progress". In their research, they predicted that the rate of decrease in the expected time of vaccine deployment per year led to an increase in stock market returns. Then Hong et al. (2021) & (Ngwakwe, 2021) suggests that the arrival of the vaccine will shift the movement of stock prices to pre-pandemic levels. Both studies state that the presence of a vaccine in a pandemic can improve performance in a slumped stock market, which indicates that the existence of this COVID-19 vaccine has a significant influence on stock performance. Moreover (Jiang et al., 2021) also shows that the large search for COVID-19 vaccine information online can cause a surge in stock prices because the sentiment generated by the information is positive. Thus a second hypothesis was formed for that is:

H2: Covid-19 Vaccine Information has a positive impact on stock returns.

2.1.3 Government Stringency Index during the COVID-19 Pandemic on Stock Returns

The Government Stringency Index is a measurement that shows how the government responds in response to an event. In the context of the COVID-19 pandemic, the role of this index is to measure the amount of efforts or interventions made by the government in suppressing the growth rate of the COVID-19 pandemic that occurs so that the ongoing pandemic can quickly pass.

Yang & Deng (2021) and (Saif-Alyousfi & Abdulazeez, 2021) in his research shows a positive influence on the sustainability of people's lives in the midst of a pandemic, but has a bad effect on the stock market. It said government intervention measures, such as social distancing policies, testing and contact tracing, magnified the negative effects of COVID-19 on stock returns. This is because the amount of government intervention in a pandemic can be interpreted that the pandemic that occurs is also in a condition that cannot be controlled so that it can create negative sentiment for investors not to carry out investment activities temporarily. But it is also stated that if the level of government tightening is high, then bad public sentiment can be stabilized by the issuance of policies that are in the nature of assistance to the community. So that the third hypothesis was formed:

H3: The Government Stringency Index has a negative impact on stock returns.

2.1.4 Number of COVID-19 Cases and Death Rates Against Stock Returns

The number of Positive cases and the death rate of a pandemic is one of the indicators that shows how big and dangerous a pandemic is and how long the pandemic is likely to last.

Robin (2021) in his research shows that the high number of Positive cases and Death Rates from COVID-19 makes investors feel more anxious and afraid which ends up harming or reducing the return rate of stocks. Moreover (Hung et al., 2021) mentioned that the reason underlying the results of the decline in stock market performance during the COVID-19 pandemic was due to the decline in investor confidence in the preventive measures taken by the government due to cases that did not fall further, making the stock price lower which resulted in many investors attracting capital flows in the stock market.

In other studies conducted by (Abu et al., 2021) in Nigeria, it states that the number of positive cases from COVID-19 has a significant negative influence while the death rate has no significant effect. This indicates that the negative sentiment given by the surge in the number of positive cases is greater when compared to the movement of the death rate. Based on this, the next hypothesis appears, namely:

H4: The number of Positive Cases and Death Rate of COVID-19 has a negative impact on stock returns.

2.1.5 Fiscal Policy during the COVID-19 Pandemic on Stock Returns

Fiscal policy is an economic policy in which the policy will regulate how the government budgets, especially in terms of revenues and expenditures whose purpose is to direct the macroeconomics to a point in the desired condition (Imas & Munawar, 2017). Generally, the fiscal policy issued by the government has various objectives that focus on

driving the country's economic activity, such as efforts to increase economic growth, income equality, and price stability (Husriah, 2020).

Putri (2021) in her research shows that Fiscal Policy which is proxied by the state budget deficit and government debt has a negative and significant effect on prices and returns in the stock market. This is because if the state income is not enough to meet the needs of the country which eventually causes a deficit financed through debt, if the deficit continues to grow without being balanced with adequate infrastructure development, it will reduce investors' interest in investing. In addition, the amount of government debt if the portion is too large, it will have a bad impact on the national economy. If government debt exceeds a safe ratio, it will lead to default and eventually the country will find it difficult to attract investors to invest.

On the other hand, the research conducted by (Menike, 2020) in Sri Lanka, empirical results were obtained showing that the choice of government tax instruments had a significant influence on stock returns and all taxes jointly suppressed investors' investment performance. Government spending as a variable of fiscal policy has a positive impact on investment performance, which implies that a persistent increase in government spending can lead to an increase in the company's profits and returns to investors, which causes the stock price to rise. It is reinforced by (Rizvi et al., 2021) which from the results of his research showed the results that during the COVID-19 pandemic the presence of Fiscal Policy by the government certainly brought an economic stability which ultimately had an impact on the stock market which became increasing. Moreover (Haldar & Sethi, 2022) also got the results of his research which said that the presence of Fiscal Policy in the form of allocation of funds for the provision of health facilities, labor, and other assistance during the COVID-19 pandemic produced sentiment and could reduce the impact felt by the community. Then came the hypothesis formed, namely:

H5: Fiscal Policy during the COVID-19 pandemic has a positive impact on stock returns.

2.1.6 Monetary Policy during the COVID-19 Pandemic on Stock Returns

Monetary policy is said to be an instrument that can be taken by the country's central bank where the focus of the issued policy includes things such as regulating the amount of money in circulation and interest rate management (Antasari & Akbar, 2019). In contrast to Fiscal policy, monetary policy is a policy related to maintaining the stability of the Rupiah currency, while Fiscal policy focuses more on managing and maintaining the welfare of sectors of money turnover players.

In her research (Menike, 2020) points out that in the context of the case in Sri Lanka the rate cut is a very sensitive public information and along with the increase in the circulation of money among the public under the monetary policy dimension has a positive impact on the investment performance of investors. This is expected, because the increased circulation of money in the economy will encourage investors to make investments as additional funds are available. Further, as the theory explains, a decrease in interest rates increases the value of stock prices in the basic stock valuation model and persuades investors to make purchase decisions, so that funds flow into the stock market from less profitable investments.

In terms of the COVID-19 pandemic, (Haykir & Ozturk Cetenak, 2021) In a study conducted in Turkey, it was said that the reduction in interest rates as Turkey's monetary policy during the COVID-19 pandemic had an impact on stock returns, liquidity, and

volatility on the Istanbul exchange. This is illustrated by investors reacting positively to the rate cuts that occur, which in turn can build stability in the stock market. In line with this study (Prabheesh et al., 2021) also examined the role of monetary policy during the COVID-19 pandemic for the Indonesian stock market, where results were obtained, namely in most economies, monetary policy transmission was found to be effective in stabilizing the Indonesian economy, especially in the stock market. Monetary policy in the midst of this pandemic is said to have encouraged economic actors to start being optimistic again in making investments but still using a cautious approach. Maka formed a new hypothesis:

H6: Monetary Policy during the COVID-19 pandemic has a positive impact on stock returns.

2.2. The Effect of COVID-19 Pandemic Aspects on Stock Volatility

In line with the previous discussion, it is believed that news regarding the COVID-19 pandemic causes fear for investors and provides a negative view of the stock market which in turn will also cause very sensitive market volatility because investors do not like the uncertainty over the conditions of the COVID-19 pandemic. (Wang et al., 2022) through his research measured how the interaction between online daily content news against the stock market and found that high levels of media pessimism give negative sentiment to market prices followed by returns to fundamentals, and unusually high or low pessimism predicts high or low market trading volumes. (Jeon et al., 2021) researching how online informations can influence stock market movements. Research has found that information about stocks helps predict market volatility. The study that will be studied further in this study is to reveal how the impact given by aspects of the COVID-19 pandemic, be it information related to the development of the pandemic, the control carried out by the government, to the policies issued by the government during the COVID-19 pandemic on stock volatility in Indonesia. A recent literature review, in accordance with the mood sensitivity hypothesis, this study will present strong evidence for the impact of the pandemic on the stock market through investor sentiment. These findings are in line with existing studies that argue that investor sentiment plays a key role in the market (Hirshleifer et al., 2020).

2.2.1 COVID-19 Information On Stock Volatility

The COVID-19 pandemic is said to have caused financial markets to experience dramatic movements due to the stock market reaction related to the news of the COVID-19 pandemic which caused uncertainty and brought economic losses, which caused the market to be very volatile and unpredictable. Research by (Baek et al., 2020) shows that during the COVID-19 pandemic trading decisions based on sentiment can cause unstable trading and excessive volatility in the stock market. Then Latoeiro et al. (2013) in his research, it provides detailed evidence that an increase in stock information searches on the Google search engine is followed by a temporary increase in volatility, volume, and a decrease in cumulative returns. In addition, the high volume of information searches on market indices led to a decrease in the returns of indices and stock index futures resulted in an increase in implied volatility.

This is evidenced by the existence of research from (Chundakkadan & Nedumparambil, 2021) and (Meher et al., 2021) which states that the large number of searches for information related to the COVID-19 pandemic indicates that the community is in a state of uncertainty which will bring excessive volatility. So the next hypothesis was formed, namely:

H7: COVID-19 information has had a positive impact on stock volatility.

2.2.2 COVID-19 Vaccine Information Against Stock Volatility

After it is mentioned that the large amount of information about the COVID-19 pandemic can provide excessive volatility, then contrary to this, it is stated that the existence of COVID-19 vaccine information will actually reduce excessive volatility in the Indonesian stock market. Acharya et al. (2020) in the research he conducted, has explored how a successful vaccination program can affect global wealth. In addition in the research conducted by (Rouatbi et al., 2021) also said that the existence of COVID-19 mass vaccination activities will certainly be able to help stabilize global equity markets. But to the best of our knowledge, how vaccine information plays a role in global market volatility until now there has been no detailed research.

So, considering this, there is a hypothesis to see how covid-19 vaccine information in Indonesia can help stabilize the stock market by reducing the volatility of the existing market, the hypothesis built is as follows:

H8: COVID-19 vaccine information negatively affects stock volatility.

2.2.3 Government Stringency Index during the COVID-19 Pandemic against Stock Volatility

The pandemic presents enormous challenges, causing a lot of uncertainty and causing a high volume of investment transactions that occur. The crisis is international but has strong local impacts as it threatens people's livelihoods and cripples markets and economies (Goodell, 2020). Globally in response to the COVID-19 pandemic, governments have been rapidly imposing social distancing and social isolation to contain the spread of the disease, especially after the declaration of the pandemic by the World Health Organization (WHO).

Ibrahim et al. (2020) in his research shows that the existence of a public health crisis and the rampant government actions in responding to this have significantly affected the volatility of the stock market. This is because the government's response to certain health crises affects the level of risk or uncertainty for investors. So extreme and rigorous government actions can also be counterproductive and lead to increased market volatility. This is made clear by (Saif-Alyousfi & Abdulazeez, 2021) during the COVID-19 pandemic, the government has issued control measures that are in the nature of prohibitions whose purpose is to stop the spread of the COVID-19 virus. However, this high government intervention can cause a sense of uncertainty and negative sentiment because the pandemic seems difficult to control, which in turn will increase volatility in the stock market. So that the next hypothesis is as follows:

H9: The Government Tightening Index during the COVID-19 pandemic had a Positive impact on Stock volatility.

2.2.4 Number of COVID-19 Cases and Deaths Against Stock Volatility

The number of Positive cases and death rates from a pandemic is something that can increase fear and worry for the community, especially investors. Fear will result in uncertainty which in turn causes an ups and downs in the volume of transactions that occur. Robin (2021) in his research shows that the fear and uncertainty resulting from the high number of Positive cases and Death Rate will provide excessive volatility in the stock market. That goes hand in hand with the statement (Hung et al., 2021) which states

that this can cause an ups and downs in investor confidence in carrying out investment activities which ultimately leads to movements in the volume of transactions in the market. In addition in the study (Abu et al., 2021) it was also conveyed that the high number of positive cases and death rates of COVID-19 will increase fear, anxiety and panic for the public, especially investors, which will increase the movement of activity in the stock market. Therefore, the next hypothesis formed to see whether the number of positive cases and death rates from the COVID-19 pandemic really caused stock market instability, namely:

H10: The Number of Positive Cases and Death Rate of COVID-19 has a Positive impact on stock Volatility.

2.2.5 Fiscal Policy during the COVID-19 Pandemic on Stock Volatility

Husriah (2020) posits that the purpose of issuing a fiscal policy is to direct the country's economy to a better state which in turn is to improve the welfare of the people. When linked to the context of the pandemic, fiscal policy is generally issued to ensure the survival of the people.

Menike (2020) shows that government spending as a variable in fiscal policy has a good impact on improving investment performance, which implies that the increase in expenditures made by the government can be done due to the improvement of the country's economy which can reduce investors' sense of concern in making an investment, which ultimately leads to a decrease in volatility in the stock market. Haldar & Sethi (2022) and (Rizvi et al., 2021) also conveyed the results of research which during the COVID-19 pandemic was said to be different levels of volatility in the stock market, where stock market volatility became lower when compared to before the issuance of these policies. Thus, the next hypothesis was formed, namely:

H11: Fiscal Policy during the CIVID-19 pandemic had a negative impact on stock volatility.

2.2.6 Monetary Policy during the COVID-19 Pandemic against Stock Volatility

Antasari & Akbar (2019) In his research stated that the purpose of regulating the amount of money in circulation and interest rate management is to create an economic stability, where if the circulation of money is controlled this can avoid inflation in a country. In addition in other studies (Menike, 2020) shows that an increase in the circulation of money among the public can improve the investment performance of investors because the increase in the circulation of money in the economy will reduce the panic of investors in investing, which has an impact on reducing volatility in the stock market.

Then if it is associated with the COVID-19 pandemic, (Haykir & Ozturk Cetenak, 2021) conducted research in Turkey, and it was found that the reduction in interest rates as Turkey's monetary policy during the COVID-19 pandemic had an impact on volatility on the Istanbul stock exchange. This is illustrated by investors becoming calmer and starting to trade more cautiously, this influence is said to provide stability in the stock market by lowering volatility on the exchange. Prabheesh et al. (2021) also examined the role of monetary policy during the COVID-19 pandemic for the Indonesian stock market, and obtained the result that monetary policy was found to be effective in stabilizing the Indonesian economy, especially in the stock market and reducing excessive volatility. Maka then formed the next hypothesis:

H12: Monetary Policy during the COVID-19 pandemic has had a negative impact on stock volatility.

3. DATA AND RESEARCH MODEL

Research Model

In the process of finding out how the COVID-19 pandemic affects the stock market in Indonesia, this study first uses individual stock price index data from companies that have been listed on the Indonesia Stock Exchange. The companies that were used as the object of this study were 663 companies. The data on the individual stock price index on the Indonesia Stock Exchange was obtained from https://finance.yahoo.com/ for the time period 2 March 2020 – 28 February 2022 which in that period amounted to 486 trading days. The reason for choosing the research period is because this period is the date since the announcement of the first COVID-19 case in Indonesia.

For data related to investors' attention to the covid-19 pandemic and vaccines, it will be proxied using the large number of search volumes on the topic, which is known as the *Google Search Volume Index* (GSVI) and obtained from https://trends.google.com/. According to (Alfarisy, 2020) almost 90% of internet users today rely heavily on Google in searching for information. Moreover (Widarini et al., 2021) in his research also said that social media and online information from Google is information that is currently highly trusted by the public, especially information related to COVID-19 which so that people's behavior can change depending on the sentiment of the information they read. In this study, the keywords used on Google's web search were "*Covid + coronavirus + covid-19 + delta + omicron*" and "*vaccine + stage 1 / stage 2 / stage 3 + dose 1 / dose 2 / dose 3 + booster + astrazeneca + pfizer + sinovac + sinopharm + moderna*" as keywords of investors' attention to pandemic information and COVID-19 vaccines that will then be associated with behavior in the stock market.

Government Stringency Index data is obtained from the OxCGRT (Oxford COVID-19 Government Response Tracker) website, namely https://covidtracker.bsg.ox.ac.uk/. This government tightening index is a measurement built on the basis of nine indicators of the government's response to the pandemic including workplace closures, travel bans, and school closures, where the measurements are then rescaled to values from 0 to 100 with a value of 100 stating the strictest conditions.

In addition, in the process of testing whether the number of cases and deaths that exist can affect public sentiment on the stock market, this study also used the number of COVID-19 cases after daily deaths obtained from https://covid19.go.id/. Finally, data on the growth of broad money supply (M2) which is a proxy for monetary policy and data on the growth of the amount of government spending that is used as a proxy for fiscal policy in Indonesia during this pandemic period is obtained from the Central Statistics Agency (BPS) on the web https://www.bps.go.id/.

Because this study is to analyze data related to the influence given by aspects of the COVID-19 pandemic which is seen from each individual stock in Indonesia with different time periods, the data used in this study is panel-shaped data. The reason for using this panel-shaped data is to see the impact or influence felt by each individual in several different periods, and this cannot be obtained by using cross section data or time series data separately.

Empirical Models
Empirical Model of Covid-19 Pandemic Aspects of Stock Returns

In testing how the influence of aspects of the COVID-19 pandemic on the rate of *return (Return)* of individual company stocks, in this study estimated a model similar to the previous research model that was once used by (Kaplanski & Levy, 2010), that is :

$$R_{it} - rf_{it} = \alpha + \beta_1 \, GVSI \, Covid_t + \beta_2 \, GVSI \, Vaksin_t + \beta_3 CASE\_DEATH_t +$$
$$\beta_4 GOV\_INDEX_t + \beta_5 M2_t + \beta_6 EXPENSE_t + \beta_7 \, (Rm_t - rf_t) + \beta_8 \, (B/M)_{it} +$$
$$\beta_9 \, Size_{it} + \beta_{10} \, Mon_{it} + \varepsilon_{it} \qquad (1)$$

Where $(R_{it} - rf_{it})$ is the daily rate of return of the company's individual shares in Indonesia at the time t. $(Rm - rf)_t$ adalah Market return. (B/M) is the Book to market rasio (*BMRatio*). Company size (*Size*) which is measured by *Market Capitalization* (*MarketCap*). (*Mon*) (Carhart, 1997) is the Momentum measured by *Short-Term Reversal* $(R_{i\,t-1})$. $(GVSI \, Covid_t)$ is a search volume index for keywords related to the COVID-19 pandemic in Indonesia at the time of t (*GsviCovid*). $(GVSI \, Vaksin_t)$ is a search volume index for keywords related to COVID-19 Vaccines in Indonesia at t time (*GsviVaksin*). $(CASE\_DEATH_t)$ is the number of positive cases and deaths in Indonesia at the time of t (*Case* dan *Death*). (GOV_INDEX_t) is the Indonesian government's stringency index in its efforts to respond to the pandemic at t time (*GovStringency*). $(M2_t)$ is the growth of the wide money supply in Indonesia at t time as a form of monetary policy issued in the midst of the COVID-19 pandemic (*M2*). $(EXPENSE_t)$ is the growth of government spending in time t as a form of Fiscal policy issued in the midst of the COVID-19 pandemic (*GovExpenditure*).

3.2.2 Empirical Model of Covid-19 Pandemic Aspects of Stock Volatility
Then to test how the influence of these aspects of the COVID-19 pandemic on volatility in the stock market, a model was formed with the use of dependent variables and the same controls on the model related to the rate of *Return* previously described, so that this second model became:

$$Vol_{it} = \alpha + \beta_1 \, GVSI \, Covid_t + \beta_2 \, GVSI \, Vaksin_t + \beta_3 CASE\_DEATH_t +$$
$$\beta_4 GOV\_INDEX_t + \beta_5 M2_t + \beta_6 EXPENSE_t + \beta_7 \, (Rm_t - rf_t) + \beta_8 \, (B/M)_{it} +$$
$$\beta_9 \, Size_{it} + \beta_{10} \, Mon_{it} + \varepsilon_{it} \qquad (2)$$

Where (Vol_{it}) is the level of volatility of the individual shares of the company i in Indonesia at the time t (*DailyVol*). $(Rm - rf)_t$ adalah Market return. (B/M) is the Book to market rasio (*BMRatio*). Company size (*Size*) which is measured by *Market Capitalization* (*MarketCap*). (*Mon*) (Carhart, 1997) is the Momentum measured by *Short-Term Reversal* $(R_{i\,t-1})$. $(GVSI \, Covid_t)$ is a search volume index for keywords related to the COVID-19 pandemic in Indonesia at the time of t (*GsviCovid*). $(GVSI \, Vaksin_t)$ is a search volume index for keywords related to COVID-19 Vaccines in Indonesia at t time (*GsviVaksin*). $(CASE\_DEATH_t)$ is the number of positive cases and deaths in Indonesia at the time of t (*Case* dan *Death*). (GOV_INDEX_t) is the Indonesian government's stringency index in its efforts to respond to the pandemic at t time (*GovStringency*). $(M2_t)$ is the growth of the wide money supply in Indonesia at t time as a form of monetary policy issued in the midst of the COVID-19 pandemic (*M2*). $(EXPENSE_t)$ is the growth of government

spending in time t as a form of Fiscal policy issued in the midst of the COVID-19 pandemic (*GovExpenditure*).

3.3 Operationalization of Variables

The focus of this study is to examine how the effect of independent variables or aspects of the COVID-19 pandemic includes the number of searches for information about the pandemic and COVID-19 vaccines, the number of positive cases and deaths from COVID-19, Government Stringency Index as well as the money supply and the amount of state expenditure which is a form of monetary and fiscal policy issued by the government during the COVID-19 pandemic can affect the daily rate of return as well as the volatility of the company's individual stock price index on the Indonesia Stock Exchange. So the bound variables used are 'Daily Return' and 'Volatility'.

The return is calculated based on the difference between the value of the *Adjusted Closed* index today and the previous day. As for daily volatility in the stock market, this study uses the measures once proposed by (Garman & Klass, 1980), in previous studies, namely:

$$Vol_{i,t} = 0.511\ln\left(\frac{h_{i,t}}{l_{i,t}}\right) - 0.019\left[\ln\left(\frac{c_{i,t}}{o_{i,t}}\right)\ln\left(\frac{h_{i,t}\,l_{i,t}}{o^2_{i,t}}\right) - 2\ln\left(\frac{h_{i,t}}{o_{i,t}}\right)\ln\left(\frac{l_{i,t}}{o_{i,t}}\right)\right] - 0.383\left[\ln\left(\frac{c_{i,t}}{o_{i,t}}\right)\right]^2$$

(3)

where $Vol_{i,t}$ is the volatility of the i-th individual company at time t. While h, l, o, and c are successively the highest, lowest, opening, and closing price indices.

Related control variables Fama & French (1993) argues that the risks of investing in ordinary shares can be shaped more simply as risks associated with the company's market, size, and book-to-market ratio. This study measured all three types of risks by using coefficient estimation on the return of excess markets ($Rm_t - Rf_t$), the size of the investment portfolio (SMB_t), and *book to market* investment portfolio (HML_t) from three-factor regression.

4.   RESULTS

In Table 1 is indicated the statistical descriptive result of each variable used from the dependent variable to its control variable. In the table, it is shown that the average daily return produced is relatively small, namely at 0.062% accompanied by a maximum value of 17.47% and the minimum value at -6.897%, this figure is quite large for the size of the daily Return. It is estimated that this is because the period used in this study is the COVID-19 period, starting from March 2, 2020 to February 28, 2022, which is also indicated by the large standard deviation value. In addition, it can be seen that the difference between the maximum Return and the minimum Return is too far, so it can be said that the market fluctuations in that period are indeed very large.

Then on Table 1 is also addressed to GSVI which is a daily search index for keywords related to the COVID-19 pandemic and vaccine, where the value is a normalized search volume value whose value ranges between 0 and 100, where the value of 100 indicates the highest search peak for that keyword, and 0 indicates the absence of searches for that keyword. For the Covid GSVI index, it can be seen that the minimum value is 11, which is the period when new COVID-19 cases are few and people are not very concerned about it, and while the maximum value is 100 which happened during the

early months when COVID-19 cases in Indonesia began to soar where at that time the majority of residents in unison found out things related to the pandemic, which then experienced a decline until finally the search increased again when delta and omicron cases began to be found in Indonesia. As for the GSVI Vaksin index itself, which initially searched a little and even the minimum value was four when the initial case was in the first place, and until finally the search began to soar until it reached a maximum value of 100 when the Indonesian government began to carry out a mass vaccination program for the community.

Descriptive Statistics

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Return	325.134	0,00062	0,03535	-0,06897	0,17470
DailyVol	325.134	0,02054	0,02241	0	0,11369
Market Return	325.134	0,00057	0,01332	-0,06579	0,10191
Momentum	325.134	0,00424	0,08081	-0,02188	0,37805
MarketCap	325.134	2,82125	0,88883	0,74440	4,98009
BMRatio	325.134	0,99367	0,91298	0,000001	3,59108
GsviCovid	325.134	26,62757	17,28233	11	100
GsviVaksin	325.134	25,45267	26,64264	4	100
Case	325.134	7725,947	12150,84	0	64718
Death	325.134	209,589	352,6303	0	2069
Gov Stringency	325.134	65,22051	8,00740	28,7	80,09
M2	325.134	0,02070	0,02102	-0,01653	0,05317
Gov Expenditure	325.134	0,06272	0,25503	-0,3714	0,7977

In addition, it is also shown that the variable number of cases (*Case*) and the number of deaths (*Death*) both have maximum values respectively are 64,718 and 2,069, where the highest number of cases occurred in the early period of 2022, precisely in mid-February 2022 where at that time the omicron variant was indeed said to provide a very high level of spread. As for the highest number of deaths, it occurred in mid-2021 when the delta variant was high in Indonesia, where the variant based on health institutions was said to have a high mortality rate.

The Government Stringency Index is a measurement used to see the magnitude of the government's response in an effort to overcome and reduce the impact of the ongoing pandemic. In Table 1, it is shown that the average index in Indonesia over the past two years is at 65.22, which shows that so far the government has always been alert to the surges in cases that may occur, as can be seen from the social restrictions that continue to be carried out. The minimum value of this index is at 28.7, which is the period when COVID-19 does not yet exist in Indonesia, and the highest number is at 80.09 when the early months of COVID-19 spread in Indonesia, which in that period had caused a total lockdown until there were restrictions on entering and leaving the country.

The variables of money supply (M2) and government expenditure (Expense / Expenditure) are successively used as proxies of monetary and fiscal policies carried out

by the government. Here the growth of money supply during the COVID-19 pandemic is analogous to an effort made to maintain the stability of the rupiah value, and the growth of government spending is analogous to the amount of stimulus provided by the government to reduce the impact felt by the community. The growth value of the money supply is seen at around 2% for each month, while the growth of government spending is seen to have a relatively large minimum and maximum value, namely at -37.14% and 79.77%. The maximum figure occurred in the COVID-19 year because in that period many health facilities, medical personnel, and others were developed, and the minimum figure occurred in the second year of COVID-19 where, in this period the focus was towards the maintenance and procurement of vaccines.

4.2. Empirical Results

To see how the influence of each variable included in the aspects of the COVID-19 pandemic that has been selected on the Indonesian stock market both in terms of return and in terms of volatility, in the process a Hausman Test was carried out to determine which regression model is suitable from the data currently used in the study, and the results show that the Fixed-Effect model is more suitable for the data. Then to ensure that the regression model is correct, a Redundant Fixed-Effect Test is carried out again, the purpose of which is to ascertain whether the panel data used is a different or the same individual, and the results show that the individual of the panel data used is a different individual, so the model to be used is a Fixed-Effect model. In the process of processing data, classical assumption testing was also previously carried out, where 3 violations of classical assumptions were found, namely Heterokedasticity, Autocorrelation and Cross Sectional, which were then handled using Driscoll-Kraay Errors Standard.

4.2.1 Regression Analysis of the Effect of Aspects of the COVID-19 Pandemic on Stock Returns

Table 2 shows the results of data processing to see the effect of independent variables on the return rate of stocks. For the first regression the results showed that the search volume level related to covid-19 pandemic information (GSVI Covid) had a negative and statistically significant coefficient with an alpha of 5%. This finding shows that information about the COVID-19 outbreak really affects the performance of the stock market in Indonesia, where the influence given is negative, so that the greater the level of public concern for information about the COVID-19 outbreak is said to be able to make the rate of return in the stock market decrease. Therefore, as hypothesized in the hypothesis of one before, it is proven that the information of the COVID-19 outbreak has generated negative sentiment in the market and as a consequence the performance in the stock market has decreased. In the same direction as (Chundakkadan & Nedumparambil, 2021) which shows that in 59 countries including one of them in Indonesia, it can be seen that attention to the COVID-19 pandemic that is sweeping the world has created negative sentiment for market participants which ultimately results in pressure on the stock market. And also on other studies (Khalid et al., 2021) also showed similar results where it was said that the news related to the COVID-19 pandemic made the stock's return rate lower and harmed investors.

Furthermore, for the second regression in Table 2, an analysis was also carried out to see how the sentiment generated by the COVID-19 Vaccine information to the Indonesian stock market, and it was shown that the COVID-19 Vaccine information (GSVI Vaksin) provided a positive coefficient which was also statistically significant in

alpha 5% of the *Return* rate , because of this, it can be said that with the emergence and circulation of the COVID-19 Vaccine, it can reduce the feeling of fear felt by the public and of course this is a turning point in improving performance in the Indonesian stock market. So that more and more people are concerned about information related to the COVID-19 Vaccine, causing people's views to be more optimistic about the stock market so that it can then cause the stock market to return to normal. So this confirms that the information about the COVID-19 Vaccine can make the Indonesian people calmer and have an effect on investors will be even more optimistic in trading stocks so that in the end it has a positive impact on the rate of return on the stock exchange, in accordance with the second hypothesis formed. This is consistent and corroborates the statement in the research conducted by (Hong et al., 2021) and (Jiang et al., 2021) which states that the arrival of vaccines, will cause a shift in stock prices to pre-pandemic levels which of course is in line with the resulting Return rate which will improve, as well as a surge in stock prices.

Then in Table 2, it is also shown the influence of the number of cases and deaths from COVID-19 shown in the third and fourth regressions, negative coefficients are generated for both variables but here it is seen that the variable that has a significant effect (in alpha 5%) is only the variable number of COVID-19 cases (*Case*) and while for the number of deaths due to COVID-19 here it has not had a significant influence on the rate of *Return* . However, it can be said that it is true that the high number of Positive cases and death rates actually gives a bad sentiment in the community, although from the results it can be seen that people are actually more concerned and sensitive to the surge in the number of cases that occur very quickly when compared to the number of deaths that may not move as fast as that (Robin, 2021). So that this result is in accordance with what has been hypothesized in hypothesis three, namely it is proven that the number of Positive Cases of COVID-19 causes excessive concern for the public, especially investors and causes a decrease in the daily rate of return of stocks in Indonesia. Similar studies have been conducted by (Al-Awadhi et al., 2020), (Anh & Gan, 2020), (Singh et al., 2020), (Hung et al., 2021), (Khan et al., 2020), (Chia et al., 2020), (Kotishwar, 2020), (Gherghina et al., 2020), (Jelilov et al., 2020), (Apergis & Apergis, 2020), (Camba & Camba, 2020) previously, the results also showed that the growth of positive cases was indeed seen to have a significant negative impact on stock market returns. This can be interpreted if the growth of confirmed cases increases, then at that time it can be seen that *the* stock market return has decreased.

Meanwhile, for the Government Stringency Index variable still in Table 2, the fifth regression is shown that the magnitude of the reaction issued by the government in dealing with the COVID-19 pandemic has a negative impact on the daily rate of return of stocks on the Indonesian stock exchange. This is shown from the regression results that provide a negative and significant coefficient to alpha of 10%. So it can be said that large government intervention measures can be interpreted if the pandemic that occurs is also in a condition that cannot be controlled and the existence of this can make the public, especially investors, reluctant to carry out investment activities temporarily which results in a decline in performance in the stock market. All of that goes hand in hand with the statement (Yang & Deng, 2021) in his research, which mentioned that social distancing policies, which include workplace closures, travel bans, and school closures, will magnify the negative effects of COVID-19 on stock returns, which can be said to be the fourth

hypothesis built in this study is proven. Similar results are also shown by (Raifu et al., 2021), (Gu et al., 2022) and (Mishra et al., 2022).

In the seventh regression, the results were shown where the amount of growth in government spending during the COVID-19 pandemic which was used as a variable representing fiscal policy during the COVID-19 pandemic seemed to have a positive impact on investment performance, the resulting coefficient was positive with a significant probability value against alpha 10%. So this implies that an increase in government spending, which is a form of fiscal policy from the government in an effort to overcome the COVID-19 pandemic, is said to be able to cause an increase in profits and company returns to investors, which causes the stock price to rise. (Menike, 2020) conducted research in Sri Lanka, and got empirical results that Government Spending as a fiscal policy variable has a positive impact on investment performance, which implies that a persistent increase in government spending can lead to an increase in the company's profits and returns to investors, which causes the stock price to rise.

Tabel 2. Regression results for the dependent variable *Daily Return*

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GsviCovid	-0,00001 (0,013)**							-0,00001 (0,015)**
GsviVaksin		0,00001 (0,018)**						0,00001 (0,013)**
Case			-0,00002 (0,020)**					-0,00002 (0,018)**
Death				-0,00002 (0,957)				-0,00001 (0,099)*
Gov Stringency					-0,00004 (0,098)*			-0,00008 (0,097)*
M2						0,00295 (0,073)*		0,00393 (0,119)
Gov Expenditure							0,00009 (0,098)*	0,00022 (0,140)
Market Return	0,44333 (0,000)	0,44436 (0,000)	0,44445 (0,000)	0,44426 (0,000)	0,44427 (0,000)	0,44439 (0,000)	0,44426 (0,000)	0,44435 (0,000)
Momentum	-0,00231 (0,482)	-0,00219 (0,508)	-0,00216 (0,514)	-0,00262 (0,512)	-0,00216 (0,510)	-0,00217 (0,510)	-0,00216 (0,512)	-0,00238 (0,469)
MarketCap	0,00070 (0,000)	0,00075 (0,000)	0,00074 (0,000)	0,00072 (0,000)	0,00072 (0,000)	0,00072 (0,000)	0,00072 (0,000)	0,00075 (0,000)
BMRatio	-0,00125 (0,000)	-0,00132 (0,000)	-0,00130 (0,000)	-0,00128 (0,000)	-0,00128 (0,000)	-0,00128 (0,000)	-0,00128 (0,000)	-0,00132 (0,000)
Constant	0,00009 (0,858)	0,00048 (0,644)	-0,00027 (0,555)	-0,00039 (0,392)	-0,00036 (0,844)	-0,00033 (0,485)	-0,00039 (0,388)	0,00045 (0,827)
R-Squared	0,0287	0,0286	0,0286	0,0286	0,0286	0,0286	0,0286	0,0288
F-Value	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

Note : * Signifies $p < 0.10$ and ** signifies $p < 0.05$

Then in the context of the COVID-19 pandemic, (Rizvi et al., 2021) and (Haldar & Sethi, 2022) mentioned that the existence of fiscal policy during the COVID-19 pandemic can bring economic stability and with the help of data allocation for the provision of health facilities, labor, and so on creates good sentiment because it is considered to be able

to reduce the impact felt by the community and there is an end to improve performance in the stock market. Research results by (Rizvi et al., 2021) and (Haldar & Sethi, 2022) this is in line with the results obtained in this study, so that taking this into account, it can be said that it can be proven that the existence of fiscal policy channeled through the large growth of government spending during this pandemic can improve performance in the Indonesian stock market, this is in accordance with what has been formulated in the fifth hypothesis formed in this study.

Table 2 of the sixth regression tries to give a description of the influence exerted by the growth rate of money supply in Indonesia as a proxy of Monetary Policy during the COVID-19 pandemic. From the regression results, it is shown that M2 growth has a positive and significant influence on alpha 10%, which means that the growth of the money supply in Indonesia during this pandemic has positively affected the return rate (*Return*) of stocks, in line with his research (Menike, 2020) shows that even in the context of the case in Sri Lanka, the increase in the circulation of money among the people under the dimension of monetary policy has a positive impact on the investment performance of investors. This is expected to happen because the increased circulation of money in the economy will encourage investors to make investments because additional funds are available. In other studies, (Haykir & Ozturk Cetenak, 2021) also revealed that monetary policy in the form of a reduction in interest rates had a positive impact on investors' investment performance. Because it is described with investors reacting positively to the rate cut that occurs, which in the end can build stability in the stock market. Then (Prabheesh et al., 2021) also revealed that in general monetary policy was found to be effective in stabilizing the economy especially in the stock market. Monetary policy in the midst of this pandemic is said to have encouraged economic actors to start being optimistic again in making investments but still using a cautious approach. Therefore, this supports the sixth hypothesis built, namely Monetary Policy in the midst of a pandemic, which is measured by the growth of broad money supply (*M2*) which has a positive impact on stock performance on the Indonesian stock exchange.

In addition, to strengthen the argument of the results of a separate regression of each independent variable, it is also shown with the results indicated by the regression which includes all its independent variables simultaneously and is accompanied by its control variables, where the results also show that the COVID-19 information (GSVI Covid), the number of positive cases (*Case*) and the government tightening index (*Gov Stringency*)) correctly negatively affects the return rate of stocks and while the Vaccine information (GSVI Vaccine) has a positive effect, this is in line with the previous four results on regressions to one, two, three and five. The different results were indicated by the number of deaths which previously on the fourth regression had no significant effect, but after being combined with other independent variables it became significant with the influence exerted being negative. So with this result for the variable number of deaths, it can also be said to be in accordance with what is hypothesized in the third hypothesis, which is proven that the number of Positive Cases of COVID-19 causes unrest and fear for the community which ultimately causes a decrease in the performance (*Return*) of stocks in Indonesia. In addition, it can be seen that there are differences in results for the variables of Government Expenditure (*Gov Expenditure*) and Money Supply (*M2*) which previously in the sixth and seventh regressions had a significant positive influence, but when included simultaneously with other variables it became insignificant again. This

means that the influence exerted by the two variables on the rate of *Return* is not large enough when compared to other independent variables.

4.2.2 Regression Analysis of the Effect of Aspects of the COVID-19 Pandemic on Stock Volatility

In addition to the influence of aspects of the COVID-19 pandemic on the level of Return, Table 3 also shows the results of estimates from each independent variable on market volatility to ascertain whether the unrest, fears, and improvements of the COVID-19 pandemic can affect the stability or movement of activity in the Indonesian stock market.

Table 3. Regression results for Daily Volatility's dependent variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GsviCovid	0,00004 (0,006)**							0,00003 (0,015)**
GsviVaksin		-0,00003 (0,000)**						-0,00002 (0,002)**
Case			2,93e-08 (0,044)**					1,23e-08 (0,047)**
Death				1,57e-06 (0,000)**				6,77e-07 (0,319)
Gov Stringency					8,72e-07 (0,098)*			0,00001 (0,059)*
M2						-0,00283 (0,072)*		-0,01260 (0,211)
Gov Expenditure							-0,00139 (0,021)**	-0,00036 (0,613)
Market Return	0,01546 (0,459)	0,01300 (0,600)	0,01304 (0,590)	0,01383 (0,567)	0,01332 (0,585)	0,01348 (0,573)	0,01275 (0,588)	0,01526 (0,483)
Momentum	0,02703 (0,000)	0,02677 (0,000)	0,02669 (0,000)	0,02666 (0,000)	0,02669 (0,000)	0,02669 (0,000)	0,02668 (0,000)	0,02715 (0,000)
MarketCap	0,00106 (0,000)	0,00091 (0,000)	0,00098 (0,000)	0,00098 (0,000)	0,00101 (0,000)	0,00101 (0,000)	0,00100 (0,000)	0,00096 (0,000)
BMRatio	-0,00056 (0,005)	-0,00035 (0,086)	-0,00046 (0,028)	-0,00046 (0,030)	-0,00049 (0,016)	-0,00049 (0,020)	-0,00048 (0,022)	-0,00043 (0,022)
Constant	0,01694 (0,000)	0,01747 (0,000)	0,01786 (0,000)	-0,01776 (0,000)	0,01799 (0,000)	0,01811 (0,000)	0,01814 (0,000)	0,01732 (0,000)
R-Squared	0,0139	0,0143	0,0131	0,0136	0,0128	0,0128	0,0131	0,01540
F-Value	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,00000

Note : * Signifies $p < 0.10$ and ** signifies $p < 0.05$

From the table, it can be seen for the first regression that the results show that the search volume related to the COVID-19 outbreak information (GSVI Covid) has a positive and statistically significant effect which shows that the rise of searches related to the COVID-19 outbreak indicates that the community is in an anxious condition, causing a lot of activity to occur in the stock market, so that the volatility will increase. These results are similar to those from previous studies (Chundakkadan & Nedumparambil, 2021) which suggests that the negative sentiment generated by the existence of information regarding the COVID-19 pandemic has generated excessive volatility in the stock market.

This is in accordance with the seventh hypothesis built in this study where information related to the COVID-19 outbreak has a positive impact on stock volatility. This result is consistent with literature that argues that investor sentiment during the COVID-19 pandemic can explain volatility in the stock market (Baek et al., 2020).

As for the effect of Vaccine information (GSVI Vaksin) on volatility, it can also be seen in Table 3 on the second regression where the resulting coefficient is negative and statistically significant. This shows that with the large amount of information related to the COVID-19 Vaccine, it reduces the feeling of fear and anxiety from the public which in the end can make people more optimistic and more careful in trading stocks, which in turn reduces the volatility of the stock market. The findings are reinforced by the same results from the study conducted by (Hong et al., 2021) and (Rouatbi et al., 2021) previously, which stated that the existence of a COVID-19 vaccine provided stability in the stock market. So this supports the eighth hypothesis built in this study where information related to the COVID-19 outbreak has a negative impact on stock volatility.

Then for the third and fourth regressions in Table 3 trying to show how the influence given the number of Positive cases and the death rate from the COVID-19 pandemic, in the results it is seen that the two variables have a significant influence at alpha 10%, with a positive coefficient value, it makes it clear the assumption that the large number of Positive cases and the death rate can make an increase in fear, uncertainty and concern in the community, especially investors, which ultimately brings excessive volatility in the stock market. As stated (Hung et al., 2021) in his research which states that the rise and fall of investor confidence in carrying out investment activities can eventually cause movements in transaction volumes in the stock market. In line with the results obtained in this study, based on the results of the study conducted by (Ashraf, 2020) it was also produced that the growth of positive cases of COVID-19 is indeed seen to have a significant positive impact on market volatility, because the high number of Positive Cases will make people more uneasy. This is also shown in research by (Abu et al., 2021) which is based on the results of research showing that when the growth of deaths due to COVID-19 increases, volatility will increase due to an increase in fear. This is also in accordance with the research results of the (Gherghina et al., 2020), (Apergis & Apergis, 2020) and (Kotishwar, 2020).

For the Government Stringency Index variable still in Table 3, the fifth regression shows that the rampant government action or response as an effort to overcome the pandemic can significantly affect stock market volatility. It can be seen from the results of the regression that the government tightening index provides a positive and statistically significant coefficient. This is because the government's response to certain health crises affects the level of risk or uncertainty for investors because it can push the country's economy into recession because it can threaten people's livelihoods and paralyze markets and the economy. On research (Saif-Alyousfi & Abdulazeez, 2021) it was stated that although the intervention carried out by the government during the COVID-19 pandemic was a good goal, the sentiments formed among the community remained bad, due to a sense of uncertainty. This answers what has been compiled in hypothesis 10 that it is proven that the government's tightening index has an impact that can increase volatility in the Indonesian stock market.

In addition, the seventh regression in Table 3 also provided data processing results showing how the influence exerted by the growth of government spending (*Gov Expenditure*) which was used as a proxy of Fiscal Policy during the COVID-19 pandemic

resulted in a negative and statistically significant coefficient at alpha 5%. It justifies the notion that the issuance of a fiscal policy is generally to steer the country's economy to a better state. According to (Menike, 2020) In his research, government spending as a fiscal policy variable has a good impact on improving investment performance, it implies that the increase in expenditure made by the government can be done due to the improvement of the country's economy which can reduce investors' sense of concern in making an investment, which ultimately leads to a decrease in volatility in the stock market. In the context of the COVID-19 pandemic (Haldar & Sethi, 2022) and (Rizvi et al., 2021) provides an explanation of where the stock market condition has become more stable since the issuance of Fiscal policy by the government. This is in accordance with the hypothesis that has been built on the 11th hypothesis.

After Fiscal Policy, in the sixth regression, it is also shown how the effect of Monetary Policy represented by the growth of the money supply in Indonesia, it can be seen that the *M2* coefficient is negative with a significant probability value against alpha 10%, this indicates that the growth of the money in circulation can achieve a stability in activity in the stock market, as stated by (Menike, 2020) that an increase in the circulation of money among the public can improve the investment performance of investors because the increase in the circulation of money in the economy will reduce the panic of investors in investing, which has an impact on reducing volatility in the stock market. Prabheesh et al. (2021) also examined the role of monetary policy during the COVID-19 pandemic for the stock market, and obtained the result that monetary policy was found to be effective in stabilizing the Indonesian economy, especially in the stock market and reducing excessive volatility. Thus, the 12th hypothesis in this study is proven which is that Monetary Policy through the growth of the money supply can reduce excessive volatility in the stock market.

Then similar results are shown by the eighth regression in Table 4.3 where the conclusions obtained are in the same direction as the results of the previous seven regressions, which is indeed proven that by being separated or unified, independent variables of COVID-19 outbreak information (GSVI Covid), number of positive cases (Case), number of deaths (Death) and government tightening index (Gov Stringency)) remains positively influential on volatility in the stock market, while for Vaccine information (GSVI Vaccine) shows a negative influence. It's just that there are slightly different results for the independent variables of government expenditure growth (Gov Expenditure) and the growth of the money supply (M2) which when regression is carried out separately from other variables both have a significant effect, but when combined the two become insignificant. This is thought to happen because the roles of other independent variables are more conspicuous so that the influence given by the two variables becomes covered. However, overall the existence of this eighth regression can still clarify the results that have been previously interpreted.

4.2.3 Regression Analysis of the Effect of Aspects of the COVID-19 Pandemic on Each Industry

Table 4 shows how each variable affects the Return rate for each industry. In the table, the results are shown in line with the previous findings, where information related to the COVID-19 pandemic is also seen to create negative sentiment for the majority of industry groups and cause a decrease in the level of return in the stock market, although it does appear that some industries that are not so affected such as the Financials, Information Technology, and Materials Industries . In addition, the emergence of

information related to the COVID-19 vaccine has also made the pressure on the stock market look less and less for almost all industries except Industrials, which is said to have a positive influence on the return rate.

Table 4. Each industry's regression results for the Daily Return dependent variable

Variables	Communication Services	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Information Technology	Materials	Real Estate	Utilities
Number of Groups	38	91	80	50	99	19	116	21	76	73	6
Observation	18.468	44.226	38.880	24.300	48.114	9.234	56.376	10.206	36.936	35.478	2.916
GsviCovid	-0,000010 (0,063)*	-0,000060 (0,001)**	-4,95e-06 (0,006)**	-0,000017 (0,054)*	-5,10e-07 (0,981)	-0,000104 (0,015)**	-0,000035 (0,018)**	0,000029 (0,324)	-0,000014 (0,421)	-0,000026 (0,011)**	-7,21e-06 (0,083)*
GsviVaksin	0,000035 (0,064)*	1,30e-06 (0,091)*	0,000016 (0,013)**	1,98e-06 (0,092)*	0,000021 (0,023)**	9,13e-06 (0,081)*	0,000020 (0,125)	0,000055 (0,057)*	0,000041 (0,006)**	0,000010 (0,041)**	0,000071 (0,024)**
Case	-3,13e-08 (0,048)**	-4,55e-08 (0,053)*	-1,48e-08 (0,052)*	-4,55e-09 (0,090)*	-1,81e-08 (0,677)	-8,45e-08 (0,051)*	-5,76e-08 (0,028)**	-4,69e-08 (0,334)	-1,92e-08 (0,1324)	-3,76e-08 (0,034)**	-9,13e-08 (0,081)*
Death	-3,57e-06 (0,500)	1,55e-06 (0,125)	-2,03e-07 (0,084)*	-3,46e-07 (0,840)	2,18e-06 (0,258)	-2,23e-06 (0,034)**	1,81e-06 (0,185)	-3,54e-06 (0,201)	-1,96e-06 (0,087)*	-2,56e-07 (0,083)*	-4,31e-06 (0,062)*
GovStringency	-2,57e-06 (0,096)*	-0,000022 (0,053)*	-0,000013 (0,006)**	-0,000070 (0,076)*	-0,000019 (0,064)*	-1,95e-06 (0,981)	0,000043 (0,219)	0,000174 (0,045)**	-0,000038 (0,384)	-0,000035 (0,030)**	-7,02e-06 (0,931)
M2	0,017185 (0,040)**	0,002771 (0,084)*	0,031674 (0,017)**	0,018583 (0,381)	0,022454 (0,033)**	0,014989 (0,066)*	0,008142 (0,057)*	0,017864 (0,513)	0,004320 (0,080)*	0,019178 (0,164)	0,059042 (0,075)*
GovExpenditure	0,001033 (0,044)**	0,000747 (0,043)**	0,000040 (0,096)*	0,000157 (0,906)	0,000556 (0,071)*	0,002881 (0,023)**	0,000079 (0,936)	0,000779 (0,685)	0,001173 (0,244)	0,000465 (0,627)	0,001961 (0,030)*
MarketReturn	0,483029 (0,000)	0,316714 (0,000)	0,484777 (0,000)	0,504811 (0,000)	0,461229 (0,000)	0,603234 (0,000)	0,401942 (0,000)	0,430179 (0,000)	0,582715 (0,000)	0,347082 (0,000)	0,623587 (0,000)
Momentum	0,009692 (0,119)	-0,017582 (0,000)	-0,019925 (0,001)	0,000525 (0,942)	0,008176 (0,212)	-0,002411 (0,870)	-0,003293 (0,402)	0,037354 (0,000)	-0,014248 (0,012)	-0,004746 (0,386)	-0,016814 (0,178)
MarketCap	0,000619 (0,278)	0,001379 (0,002)	0,000458 (0,105)	0,001201 (0,029)	0,000620 (0,064)	0,000149 (0,830)	0,000300 (0,409)	-0,000180 (0,832)	0,001546 (0,000)	0,000871 (0,071)	-0,002289 (0,0073)
BMRatio	-0,003065 (0,000)	-0,000484 (0,167)	-0,002511 (0,000)	-0,000965 (0,011)	-0,001869 (0,000)	-0,005848 (0,007)	-0,002186 (0,000)	-0,001547 (0,035)	-0,001808 (0,000)	0,000029 (0,905)	-0,008523 (0,001)
Constant	0,000168 (0,966)	-0,002696 (0,330)	0,002798 (0,238)	0,003731 (0,331)	0,001411 (0,651)	0,002283 (0,722)	0,000558 (0,826)	-0,009552 (0,149)	0,002433 (0,439)	0,000546 (0,849)	0,019603 (0,019)
R-Squared	0,0313	0,0164	0,0441	0,0398	0,0299	0,0594	0,0235	0,0330	0,0493	0,0208	0,0716
F-Value	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

Table 5. Each industry regression results for daily volatility dependent variables

Variables	Communication Services	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Information Technology	Materials	Real Estate	Utilities
Number of Groups	38	91	80	50	99	19	116	21	76	73	6
Observation	18.468	44.226	38.880	24.300	48.114	9.234	56.376	10.206	36.936	35.478	2.916
GsviCovid	0,000044 (0,017)**	0,000027 (0,054)*	0,000077 (0,000)**	0,000017 (0,044)**	0,000022 (0,115)	0,000216 (0,000)**	9,10e-06 (0,060)*	0,000128 (0,120)	0,000037 (0,038)**	0,000016 (0,031)**	0,000244 (0,000)**
GsviVaksin	-0,000066 (0,000)**	-0,000049 (0,000)**	-0,000022 (0,026)**	-0,000028 (0,037)**	-0,000046 (0,000)**	-0,000081 (0,001)**	-0,000034 (0,001)**	0,000016 (0,233)	-0,000018 (0,149)	-0,000060 (0,000)**	-0,000194 (0,000)**
Case	4,90e-08 (0,015)**	1,86e-09 (0,091)*	5,44e-09 (0,078)*	1,82e-08 (0,056)*	3,29e-08 (0,070)*	9,46e-08 (0,000)**	3,23e-08 (0,013)**	-4,30e-08 (0,271)	2,80e-08 (0,224)	1,57e-08 (0,021)**	8,51e-08 (0,026)**
Death	3,84e-07 (0,693)	5,63e-07 (0,043)**	1,38e-06 (0,083)*	1,68e-06 (0,130)	2,58e-06 (0,006)**	7,20e-06 (0,000)**	-5,78e-09 (0,909)	4,10e-06 (0,001)**	2,73e-06 (0,007)**	2,88e-06 (0,101)	7,19e-06 (0,000)**
GovStringency	0,000088 (0,085)*	0,000046 (0,043)**	0,000061 (0,061)*	0,000119 (0,005)**	0,000030 (0,336)	0,000137 (0,038)**	-3,30e-06 (0,920)	0,000123 (0,044)**	0,000069 (0,105)	6,81e-07 (0,098)*	0,000014 (0,802)
M2	-0,043901 (0,026)**	-0,022887 (0,046)**	-0,000075 (0,099)*	0,000720 (0,957)	-0,012018 (0,037)**	-0,034572 (0,121)	-0,019371 (0,091)*	-0,028672 (0,076)*	-0,031480 (0,030)**	-0,017595 (0,014)**	-0,019965 (0,043)**
GovExpenditure	-0,001172 (0,347)	-0,001360 (0,110)	-0,001029 (0,021)**	-0,000622 (0,053)*	-0,000388 (0,065)*	-0,001757 (0,025)**	-0,001372 (0,098)*	-0,002276 (0,028)	-0,000915 (0,345)	-0,001075 (0,041)**	-0,000350 (0,082)*
MarketReturn	-0,012003 (0,647)	0,014853 (0,497)	0,008545 (0,675)	0,003343 (0,902)	0,01629 (0,341)	0,004714 (0,879)	0,015309 (0,539)	0,031801 (0,304)	0,033898 (0,212)	0,024587 (0,217)	-0,023582 (0,465)
Momentum	0,031042 (0,000)	0,025654 (0,000)	0,026053 (0,000)	0,035688 (0,000)	0,027146 (0,000)	0,038028 (0,000)	0,023908 (0,000)	0,020654 (0,000)	0,024022 (0,000)	0,024278 (0,000)	0,036506 (0,01)
MarketCap	0,000542 (0,092)	0,001227 (0,000)	0,001426 (0,000)	0,001506 (0,000)	0,000813 (0,000)	0,000695 (0,037)	0,000444 (0,046)	0,001315 (0,015)	0,001226 (0,000)	0,000145 (0,647)	-0,000551 (0,384)
BMRatio	-0,002650 (0,000)	-0,001633 (0,000)	-0,000339 (0,464)	0,002061 (0,000)	-0,001093 (0,003)	-0,003299 (0,010)	-0,001356 (0,002)	-0,000420 (0,473)	0,000031 (0,935)	0,000651 (0,003)	-0,009675 (0,000)
Constant	0,013145 (0,000)	0,013378 (0,000)	0,016685 (0,000)	0,019779 (0,000)	0,014389 (0,000)	0,024056 (0,000)	0,020786 (0,000)	0,024690 (0,000)	0,021286 (0,000)	0,016751 (0,000)	0,034598 (0,000)
R-Squared	0,0392	0,0171	0,0187	0,0312	0,0252	0,0886	0,0130	0,0268	0,0144	0,0143	0,1196
F-Value	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

Note : * Signifies $p < 0.10$ and ** signifies $p < 0.05$

In addition to the two GSVI indices in Table 4, results are also given to see how the number of Positive Cases and Death Rate of COVID-19 affects the rate of Return, it can be seen that the Industry groups that have the most impact on the sentiment built by the surge in the number of Positive Cases are the Communication Services, Industrials, and Real Estate Industry groups. it is evident from its significant probability value against alpha 10% and it has little impact on the Financials, Information Technology and Materials Industry group which from the results of the value is not statistically

significant. As for the Mortality Rate, some of the industries that are seen to be affected are Consumer Staples, Materials, Real Estate, Utilities and a significant one is Health Care.

After examining how the influence of variables which are a measure of public concern for the magnitude of a pandemic, then in Table 4 it will also be shown how the relationship of variables related to the government's response and response in overcoming the COVID-19 pandemic to the level of stock returns in Indonesia. From the results, it was shown that there were four industries that were not affected by the implementation of the PSBB, the closure of places to eat, schools and tourism, namely Health Care, Industrials, Materials and Utilities. Here the thing that must be underlined is Health Care considering that the pandemic we are currently experiencing is a health crisis but in fact the Industry is less affected by social restrictions. This is expected to happen because even during the rampant establishment of large-scale social restrictions, still in the current conditions, people consider that the Health Industry is very important for sustainability in the midst of this pandemic. Then if you look at the side of Government Policy, Monetary Policy which is represented by the growth of money supply (M2) has less impact on the Information Technology and Real Estate Industries, the same thing while for Fiscal Policy which is proxied by using the growth of government spending, also has no impact on the two industries accompanied by two other industries, namely Industrials and Materials.

Then for the effect of each variable on the level of market Volatility for each Industry the results are shown in Table 4.5. It is pointed out that in addition to the Financial Industry, and Information Technology groups, the majority of Industries support the finding that the sentiment generated by the COVID-19 pandemic information is right to cause excessive volatility in the stock market. And on the contrary, covid-19 vaccine information has a significant negative influence, which with the presence of vaccines, the market will become more stable and volatility will decrease, this applies to the majority of industries except the Information Technology, and Materials industries.

To see how the number of Positive Cases and Covid-19 Death Rates affect Volatility, in Table 4. 5 shown results where, the number of Positive Cases really has a positive influence on the Volatility of the stock market, this applies to almost all Industries except Information Technology and Materials. And for the number of Death Rates, it can be seen that the industrial groups that are not affected are significantly different from before, which in this case the industrial groups that are not affected by the high mortality rate due to the COVID-19 pandemic are Communication Services, Energy, Industrials, and Real Estate. This is because the number of Positive cases and the death rate from a pandemic tends to provide fear and worry in society which can result in uncertainty which in turn causes an ups and downs in the volume of transactions that occur.

Then for the last three variables related to government responses and efforts, then in the detailed results of each industry in Table 4.5 it is shown that the government's response to a particular crisis affects the level of risk or uncertainty for investors which ultimately leads to an increase in market volatility. From the results, it can be seen that the industries that have the most significant impact from the government tightening index are Consumer Discretionary, Energy, Health Care and Technology Information, of which all four are significant in alpha 5%. It also shows that the majority of industries also show unidirectional results except for two industries, namely Energy and Health Care. In this regression, the majority of industry groups also show a negative relationship

between Fiscal Policy and volatility, which means that the greater the growth of government spending, the more calm people will be, so that unstable stock market movements become less and less.

5. CONCLUSION

In this study, it was shown that attention to information about the virus outbreak or the COVID-19 pandemic generally creates negative sentiment for market participants, which is said to have put pressure on the stock market, causing a decrease in the stock return rate. In addition, an inverse relationship is shown between the volume of covid-19 vaccine information searches and the rate of return where with the presence of information related to vaccines, it makes the pressure on the stock market decrease and market performance gradually improves. Then it was also explained how the relationship between search volume, both related to outbreak information and COVID-19 vaccine information, to stock market volatility. Here it is said that the sentiment generated by pandemic information creates excessive volatility in the market. This finding is consistent with the literature that states that investor sentiment can explain volatility in the market. This is contrary to the sentiment generated by vaccine information where with the vaccine it reduces feelings of fear and anxiety from the public which can then eventually make people more optimistic and more careful in trading stocks, and ultimately reduce the volatility of the stock market.

In addition, it is also shown how the Number of Positive Cases and the Death Rate of COVID-19 can reduce performance in the stock market, it is shown from research that obtained results that both the Number of Positive Cases and the Death Rate have a negative influence on the level of Stock Returns. On the contrary, when compared to market volatility, the two variables actually seem to have a positive effect. This happens because the high number of Positive Cases and Death Rates of a pandemic represents the magnitude of the pandemic that is happening, therefore the high generally can be unrest, fear and uncertainty in the community which results in a decrease in investment interest which results in a decrease in the level of stock returns and unstable movements in transaction volumes which ultimately bring excessive volatility in the market.

Then for variables related to the role of the government, it can be seen that the Government Stringency Index, which is a measure of the magnitude of the response issued by the government in suppressing pandemic numbers as measured by how the government carries out social restrictions, including workplace closures, travel bans, and school closures, shows that these efforts also have a negative impact on the rate of Return and positively for Market volatility. This is because the larger the government tightening index means that the efforts made by the government are getting tighter, which can be interpreted to mean that the pandemic response carried out has not provided positive results so that in the end it brings negative sentiment to the community. This is inversely proportional when compared to 2 policy variables, namely fiscal policy which is proxied with The Growth of Government Expenditure and Growth of Money Supply which is interpreted as a form of support provided by the government during the ongoing pandemic. Thetwo policies provide different results from the results obtained from the previous government tightening index variables, where here thesetwo policy variables are seen to have a positive influence on the return rate and negatively affect volatility. Because the growth of government spending is carried out, it can be regarded as the

ability of the state to be able to maintain and reduce the impact of the pandemic on its people, which can provide a sense of calm, and also in addition to that, the increase in the wide money supply also means an increase in money circulation in the economy which is said to encourage investors to invest because additional funds are available.

Based on the results obtained in this study, it can be said that it is good for the public, especially investors, to always be careful in following the development of the COVID-19 pandemic that is happening in carrying out an investment activity. Because when the volume of information searches related to the COVID-19 pandemic is high, as well as the number of cases and death rates, it can lead to a decrease in stability and performance in the stock market. In addition, the amount of the ban from the government also has the same effect, which if the government is rampantly carrying out prohibitions to overcome the pandemic, then investment activities should be postponed first.

Then in addition to information related to the development of the COVID-19 pandemic and the bans carried out by the government, investors also need to pay attention to how the assistance or policies provided from the government and vaccines are an answer to the health pandemic problem. Due to the vaccine and assistance from the government in the form of policies, it will be able to create good sentiment and improve the performance and stability of the stock market, therefore after delaying investment activities due to the COVID-19 pandemic, when the level of vaccine distribution is evenly distributed, as well as the decrease in the impact of the pandemic felt by the community due to government policies, the public, especially investors, can carry out reinvestment activities.

The use of Google's trend-based sentiment index although it is widely accepted and also used in empirical literature, but still not without limitations. One of the main limitations in using this index is that it is difficult to distinguish between positive sentiment and negative sentiment. Keywords related to the COVID-19 pandemic used as Google's search index in this study may indicate that the resulting search volume index represents negative emotions generated as a result of the increase in the pandemic, but it does not represent all existing parties because there are actually certain parties who actually benefit from this pandemic, as well as for Keywords related to covid-19 vaccines. Therefore it is said to be very important to correctly distinguish between positive and negative feelings.

In addition, in the process, this research also only uses one variable each that is used as a proxy for Fiscal Policy and Monetary Policy during the COVID-19 pandemic, namely Government Expenditure Growth and Money Supply Growth (M2) which are actually many other things that are actually related and can be used to represent these policies. Because the two variables are actually variables that represent Indonesia as a whole, so that for all individual companies have the same policy characteristics.

Then this research also only focuses on Indonesia and the data period used is only data for two years from the first case in Indonesia from the beginning of March 2020 to the end of February 2022.

REFERENCE

Abu, N., Gamal, A. A. M., Sakanko, M. A., Mateen, A., Joseph, D., & Amaechi, B. O. O. (2021). How have covid-19 confirmed cases and deaths affected stock markets? Evidence from Nigeria. *Contemporary Economics*, *15*(1), 76–99. https://doi.org/10.5709/ce.1897-9254.437

Acharya, V. V., Johnson, T. C., Sundaresan, S. M., & Zheng, S. (2020). The Value of a Cure: An Asset Pricing Perspective. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.3731098

Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhammadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal of Behavioral and Experimental Finance*, *27*, 100326. https://doi.org/10.1016/j.jbef.2020.100326

Alfani, G., & Murphy, T. E. (2017). Plague and Lethal Epidemics in the Pre-Industrial World. *Journal of Economic History*, *77*(1), 314–343. https://doi.org/10.1017/S0022050717000092

Alfarisy, M. F. (2020). Perilaku Ketergantungan Akses Informasi Pada Media Google Dikalangan Masyarakat. *Universitas Airlangga*.

Anh, D. L. T., & Gan, C. (2020). The impact of the COVID-19 lockdown on stock market performance: evidence from Vietnam. *Journal of Economic Studies*, *48*(4), 836–851. https://doi.org/10.1108/JES-06-2020-0312

Antasari, W. S., & Akbar, M. (2019). Analisis Pengaruh Fluktuasi Nilai Tukar (Kurs), Inflasi dan BI Rate Terhadap Harga Saham Pada Sektor Consumer Good Industry Go Public. *Jurnal Manajemen Dan Akuntansi. Volume*, *20*(2).

Apergis, N., & Apergis, E. (2020). The role of Covid-19 for Chinese stock returns: evidence from a GARCHX model. *Asia-Pacific Journal of Accounting and Economics*, *00*(00), 1–9. https://doi.org/10.1080/16081625.2020.1816185

Ashraf, B. N. (2020). Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets. *Journal of Behavioral and Experimental Finance*, *27*, 100371. https://doi.org/10.1016/j.jbef.2020.100371

Baek, S., Mohanty, S. K., & Glambosky, M. (2020). COVID-19 and stock market volatility: An industry level analysis. *Finance Research Letters*, *37*(1), 10–17.

Basuony, M. A. K., Bouaddi, M., Ali, H., & EmadEldeen, R. (2021). The effect of COVID-19 pandemic on global stock markets: Return, volatility, and bad state probability dynamics. In *Journal of Public Affairs*. https://doi.org/10.1002/pa.2761

Camba, A. L., & Camba, A. C. (2020). The Effect of COVID-19 Pandemic on the Philippine Stock Exchange, Peso-Dollar Rate and Retail Price of Diesel. *Journal of Asian Finance, Economics and Business*, *7*(10), 543–554. https://doi.org/10.13106/jafeb.2020.vol7.no10.543

Carhart, M. M. (1997). On Persistence in Mutual Fund Performance. *JOURNAL OF FINANCE*.

Chavali, K., Al Samman, H., & Jamil, S. (2021). How Did The Financial Markets Respond to The COVID-19 Pandemic? Empirical Evidence from BRICS Countries. *Etikonomi*,

20(2), 429–442. https://doi.org/10.15408/etk.v20i2.20339

Chia, R. C. J., Liew, V. K. Sen, & Rowland, R. (2020). Daily new COVID-19 cases, themovement control order, and Malaysian stock market. *International Journal of Business and Society*, 21(2), 553–568.

Chundakkadan, R., & Nedumparambil, E. (2021). In search of COVID-19 and stock market behavior. *Global Finance Journal*, *xxxx*, 100639. https://doi.org/10.1016/j.gfj.2021.100639

Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Biomedica*, 91(1), 157–160. https://doi.org/10.23750/abm.v91i1.9397

De La Fuente, A., Jacoby, H. G., & Lawin, K. G. (2019). Impact of the West African Ebola Epidemic on Agricultural Production and Rural Welfare: Evidence from Liberia. *Journal of African Economies*, 29(5), 454–474. https://doi.org/10.1093/jae/ejaa002

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *University Of Chicago*.

Garman, M. B., & Klass, M. J. (1980). On the Estimation of Security Price Volatilities from Historical Data. *The Journal of Business*, 53, 67–68.

Gherghina, Ştefan C., Armeanu, D. Ştefan, & Joldeş, C. C. (2020). Stock market reactions to COVID-19 pandemic outbreak: Quantitative evidence from ARDL bounds tests and granger causality analysis. *International Journal of Environmental Research and Public Health*, 17(18), 1–35. https://doi.org/10.3390/ijerph17186729

Goodell, J. W. (2020). COVID-19 and finance: Agendas for future research. *Finance Research Letters*, 35(101512). https://doi.org/10.1016/j.frl.2020.101512

Gu, J., Yue, X. G., Nosheen, S., Naveed -ul-Haq, & Shi, L. (2022). Does more stringencies in government policies during pandemic impact stock returns? Fresh evidence from GREF countries, a new emerging green bloc. *Resources Policy*, 76(January), 102582. https://doi.org/10.1016/j.resourpol.2022.102582

Haldar, A., & Sethi, N. (2022). The Economic Effects of Covid-19 Mitigation Policies on Unemployment and Economic Policy Uncertainty. *Buletin Ekonomi Moneter Dan Perbankan*, 25, 61–84. https://doi.org/10.21098/bemp.v25i0.1833

Haykir, O., & Ozturk Cetenak, O. (2021). Monetary Policy Application and Stock Market Reaction During Covid-19 Pandemic: Evidence From Turkey. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 15(1), 149–164. https://doi.org/10.25287/ohuiibf.983443

Hirshleifer, D., Jiang, D., & DiGiovanni, Y. M. (2020). Mood beta and seasonalities in stock returns. *Journal of Financial Economics*, 137(1), 272–295. https://doi.org/10.1016/J.JFINECO.2020.02.003

Hong, H., Wang, N., & Yang, J. (2021). Implications of Stochastic Transmission Rates for Managing Pandemic Risks. *Review of Financial Studies*.

Hung, D. Van, Hue, N. T. M., & Duong, V. T. (2021). The Impact of COVID-19 on Stock Market Returns in Vietnam. *Journal of Risk and Financial Management*, 14(441).

Husriah. (2020). Pengaruh Defisit Anggaran Pendapatan dan Belanja Negara Terhadap Pertumbuhan Ekonomi di Indonesia. *Jurnal Economix*, 8(2).

Ibrahim, I., Kamaludin, K., & Sundarasen, S. (2020). COVID-19, Government Response, and Market Volatility: Evidence from the Asia-Pacific Developed and Developing Markets. *Economies*, *8*(4), 105. https://doi.org/10.3390/economies8040105

Imas, F. M., & Munawar. (2017). Analisis Dampak Defisit Anggaran Terhadap Inflasi, Jumlah Uang Beredar, Dan Suku Bunga di Indonesia. *Jurnal Ilmiah Fakultas Ekonomi Dan Bisnis Universitas Brawijaya Malang.*

Jelilov, G., Iorember, P. T., Usman, O., & Yua, P. M. (2020). Testing the nexus between stock market returns and inflation in Nigeria: Does the effect of COVID-19 pandemic matter? *Journal of Public Affairs*, *20*(4). https://doi.org/10.1002/pa.2289

Jeon, Y., McCurdy, T. H., & Zhao, X. (2021). News as sources of jumps in stock returns: Evidence from 21 million news articles for 9000 companies. *Journal of Financial Economics*, *145*, 1–17. https://doi.org/10.1016/j.jfineco.2021.08.002

Jiang, B., Zhu, H., Zhang, J., Yan, C., & Shen, R. (2021). Investor Sentiment and Stock Returns During the COVID-19 Pandemic. *Frontiers in Psychology*, *12*(July), 1–5. https://doi.org/10.3389/fpsyg.2021.708537

Kaplanski, G., & Levy, H. (2010). Sentiment and stock prices: The case of aviation disasters. *Journal of Financial Economics*, *95*(2), 174–201. https://doi.org/10.1016/J.JFINECO.2009.10.002

Kentikelenis, A., King, L., McKee, M., & Stuckler, D. (2015). The International Monetary Fund and the Ebola outbreak. *The Lancet Global Health*, *3*(2), e69–e70. https://doi.org/10.1016/S2214-109X(14)70377-8

Khalid, N., Zafar, R. F., Syed, Q. R., & Bhowmik, R. (2021). The Heterogeneous Effects of COVID-19 Outbreak on Stock Market Returns and Volatility: Evidence from Panel Quantile Regression Model. *Etikonomi*, *20*(2), 225–238. https://doi.org/10.15408/etk.v20i2.20587

Khan, K., Zhao, H., Zhang, H., Yang, H., Shah, M. H., & Jahanger, A. (2020). The Impact of COVID-19 Pandemic on Stock Markets: An Empirical Analysis of World Major Stock Indices. *The Journal of Asian Finance, Economics and Business*, *7*(7), 463–474. https://doi.org/10.13106/jafeb.2020.vol7.no7.463

Kotishwar, A. (2020). Impact of Covid-19 Pandemic on Stock Market with ReferencetoSelect Countries-A Study. *Academy of Accounting and Financial Studies Journal*, *24*(4), 1–9.

Latoeiro, P., Ramos, S. B., & Veiga, H. (2013). Predictability of stock market activity using Google search queries. *Statistics and Econometrics.*

Meher, B. K., Hawaldar, I. T., Gil, M. T., & Dum, D. Z. (2021). Measuring leverage effect of covid-19 on stock price volatility of energy companies using high frequency data. *International Journal of Energy Economics and Policy*, *11*(6), 489–502. https://doi.org/10.32479/ijeep.11866

Menike, L. M. C. S. (2020). The Impact of Fiscal and Monetary Policy Changes on Investors' Investment Performance: Empirical Evidence from Investors in the Colombo Stock Exchange in Sri Lanka. *Sabaragamuwa University Journal*, *18*(1), 16. https://doi.org/10.4038/suslj.v18i1.7751

Mishra, R., Sharma, R., Karedla, Y., & Patel, N. (2022). Impact of COVID-19 Cases, Deaths,

Stringency and Vaccinations on the US Stock Market. *Vision: The Journal of Business Perspective*, 097226292210749. https://doi.org/10.1177/09722629221074901

Ngwakwe, C. C. (2021). COVID-Vaccination and Performance in Five Global Stock Market Indexes. *Œconomica*, *17*(5), 55–65.

Prabheesh, K. P., Juhro, S. M., & Harun, C. A. (2021). Covid-19 Uncertainty and Monetary Policy Responses: Evidence From Emerging Market Economies. *Buletin Ekonomi Moneter Dan Perbankan*, *24*(4), 489–516. https://doi.org/10.21098/BEMP.V24I4.1692

Pratama, W. P. (2021). *Dampak Penyebaran Covid-19 Varian Omicron Bagi Ekonomi.* https://ekonomi.bisnis.com/read/20211206/9/1474545/ini-dampak-penyebaran-covid-19-varian-omicron-bagi-ekonomi

Putra. (2020). *Pengusaha Sebut Vaksinasi Covid-19 Menjadi Investasi Bagi Industri.* https://www.cnbcindonesia.com/market/20201203055204-17-206465/vaksin-darurat-sudah-tiba-tapi-investor-jangan-kalap-ya/3

Putri, P. E. (2021). Pengaruh Kebijakan Fiskal dan Kebijakan Moneter Terhadap Kinerja Pasar Modal. *Journal of Public Auditing and Financial Management*, *1*(2).

Qiu, W., Rutherford, S., Mao, A., & Chu, C. (2017). The Pandemic and its Impacts. *Health, Culture and Society*, *Vol 9–10*(221). DOI 10.5195/hcs.2017.221

Raifu, I. A., Kumeka, T. T., & Aminu, A. (2021). Reaction of stock market returns to COVID-19 pandemic and lockdown policy: evidence from Nigerian firms stock returns. *Future Business Journal*, *7*(1), 1–16. https://doi.org/10.1186/s43093-021-00080-x

Rizvi, S. A., Juhro, S. M., & Narayan, P. K. (2021). Understanding market reaction to covid-19 monetary and fiscal stimulus in major asean countries. *Buletin Ekonomi Moneter Dan Perbankan*, *24*(3), 313–334. https://doi.org/10.21098/bemp.v24i3.1690

Robin, R. (2021). Death Infectious: Impact of the Coronavirus Disease (COVID-19) on Stock Returns. *Journal of Economics, Business, & Accountancy Ventura*, *24*(1), 95. https://doi.org/10.14414/jebav.v24i1.2574

Rouatbi, W., Demir, E., Kizys, R., & Zaremba, A. (2021). Immunizing markets against the pandemic: COVID-19 vaccinations and stock volatility around the world. *International Review of Financial Analysis*, *77*(April), 101819. https://doi.org/10.1016/j.irfa.2021.101819

Saif-Alyousfi, Y. H., & Abdulazeez. (2021). The impact of COVID-19 and the stringency of government policy responses on stock market returns worldwide. *Journal of Chinese Economic and Foreign Trade Studies*, *15*(1), 87–105. https://doi.org/10.1108/JCEFTS-07-2021-0030

Singh, B., Dhall, R., Narang, S., & Rawat, S. (2020). The Outbreak of COVID-19 and Stock Market Responses: An Event Study and Panel Data Analysis for G-20 Countries. *Global Business Review*. https://doi.org/10.1177/0972150920957274

Sugianto, D. (2020). *Perjalanan IHSG Sejak RI Positif Virus Corona.* https://finance.detik.com/bursa-dan-valas/d-4972595/perjalanan-ihsg-sejak-ri-positif-virus-corona

Wang, W., Su, C., & Duxbury, D. (2021). Investor sentiment and stock returns: Global

evidence. *Journal of Empirical Finance*, *63*, 365–391. https://doi.org/10.1016/j.jempfin.2021.07.010

Wang, W., Su, C., & Duxbury, D. (2022). The conditional impact of investor sentiment in global stock markets: A two-channel examination. *Journal of Banking and Finance*, *138*, 106458. https://doi.org/10.1016/j.jbankfin.2022.106458

Widarini, D. A., Andriani, F., Nilamsari, N., & Wiyati, E. K. (2021). Kepercayaan Publik Terhadap Media Pers Arus Utama di Era Pandemi COVID Tahun 2021. *Fakultas Ilmu Komunikasi Universitas Prof. DR. Moestopo*.

Yang, H., & Deng, P. (2021). The Impact of COVID-19 and Government Intervention on Stock Markets of OECD Countries. *Asian Economics Letters*. https://doi.org/10.46557/001c.18646

Zandi, M., DeRitis, C., Sweet, R., Cochrane, S., Ell, K., & Xu, X. (2020). Coronavirus: The Global Economic Threat. *Moody's Analytics*.

Zhou, M., & Kan, M. Y. (2021). The varying impacts of COVID-19 and its related measures in the UK: A year in review. *PLOS ONE*. https://doi.org/10.1371/journal.pone.0257286