Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

Volatility Index, Exchange Rate, Economic Growth On Stock Indexes

Asriani Junaid[1*], Muslim[2], Wilda[3], and Darwis Said[4]
[1,2,3]Accounting Study Program, Universitas Muslim Indonesia, Makasssar, Indonesia
[4]Accounting Study Program, Universitas Hasanuddin, Makasssar, Indonesia

Email Address:
asriani.junaid@umi.ac.id, muslim.ak@umi.ac.id, wildayunanda@gmail.com, darwissaid@fe.ac.id*
**Corresponding Author*

Submitted *04-09-2024* ***Reviewed*** *17-09-2024* ***Revised*** *19-09-2024* ***Accepted*** *19-09-2024* ***Published*** *30-09-2024*

Abstract: This study aims to analyse the effect of economic growth on the stock price index in Indonesia and Malaysia during the COVID-19 pandemic. Using regression analysis, this study measures the relationship between economic growth and the stock price index, focusing on both countries' fiscal and monetary policies. The results show that economic growth has a positive and significant effect on the stock price index in Indonesia and Malaysia, reflecting investors' optimism towards the economic outlook. Economic stimulus policies and monetary measures the government and central bank take are essential in supporting economic recovery and stock market stability. This research provides important insights for investors in making more informed investment decisions based on economic growth indicators. This study also emphasises the importance of responsive and coordinated economic policies to support economic growth and stock market stability in times of crisis.
Keywords: Economic Growth; Stock Price Index; Covid-19 Pandemic; Fiscal Policy Monetary Policy.

Abstrak: Penelitian ini bertujuan untuk menganalisis pengaruh pertumbuhan ekonomi terhadap indeks harga saham di Indonesia dan Malaysia selama pandemi Covid-19. Dengan menggunakan analisis regresi, studi ini mengukur hubungan antara pertumbuhan ekonomi dan indeks harga saham, berfokus pada kebijakan fiskal dan moneter yang diterapkan di kedua negara. Hasil penelitian menunjukkan bahwa pertumbuhan ekonomi berpengaruh positif dan signifikan terhadap indeks harga saham di Indonesia dan Malaysia, mencerminkan optimisme investor terhadap prospek ekonomi. Kebijakan stimulus ekonomi dan langkah-langkah moneter yang diambil oleh pemerintah dan bank sentral berperan penting dalam mendukung pemulihan ekonomi dan stabilitas pasar saham. Penelitian ini memberikan wawasan penting bagi investor dalam membuat keputusan investasi yang lebih terinformasi berdasarkan indikator pertumbuhan ekonomi. Studi ini juga menekankan pentingnya kebijakan ekonomi yang responsif dan terkoordinasi untuk mendukung pertumbuhan ekonomi dan stabilitas pasar saham di masa krisis.
Kata Kunci: Pertumbuhan Ekonomi; Indeks Harga Saham; Pandemi Covid-19; Kebijakan Fiskal; Kebijakan Moneter.

INTRODUCTION

The COVID-19 pandemic has shaken the foundations of the global economy, causing widespread instability and drastically changing market dynamics. As one of the leading indicators of a country's economic health, the stock market has experienced extreme fluctuations during this period. In Indonesia and Malaysia, two significant economies in Southeast Asia changes in stock price indices reflect investor sentiment towards the ongoing economic uncertainty. The stock market plays a vital role in reflecting current economic conditions and future expectations. When the stock market grows, it signals investor confidence in strong economic growth, increased corporate profits, and financial stability (Barro et al., 2020).

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

Conversely, stock market declines often indicate fears of recession, declining corporate profitability, or global political and economic instability (Goodell, 2020). In this context, it is essential to understand the factors that influence the movement of stock price indices, particularly amidst the uncertainty posed by the pandemic. One key aspect that needs to be explored is how volatility indices, exchange rates, and economic growth affect stock price indices.

The Volatility Index, or VIX, is often called the "fear index" as it reflects expectations of stock market volatility in the short term (Nasution et al., 2020). During the pandemic, the relevance of the VIX increased sharply due to the uncertainty caused by business closures, changes in government policies, and unexpected developments in the global health situation (Mujahida, 2021). Exchange rates also play an essential role in a country's economy and stock market. Fluctuations in exchange rates can affect the earnings of globally operating companies and investment decisions in the stock market (Ahmadi, 2023). Various factors have affected exchange rates during the pandemic, including monetary and fiscal policies. Economic growth, measured through Gross Domestic Product (GDP), is another key indicator that reflects a country's capacity to produce goods and services. The pandemic has caused a sharp decline in GDP in Indonesia and Malaysia, reflecting worsening economic conditions (Malahayati et al., 2021).

The COVID-19 pandemic has triggered significant social challenges and substantial economic disruptions. The outbreak affected various economic sectors, including stock prices, the implementation of lockdowns, and travel restrictions, leading to economic instability in many countries (Izzeldin et al., 2021). One notable example is the Malaysian stock market, where the Kuala Lumpur Composite Index (KLCI) experienced a 20.520 per cent drop by March 27, 2020, from the beginning of the year, hitting its lowest point in a decade (Md Amir et al., 2022). In Indonesia, the pandemic also had a profound impact on stock returns, as the Jakarta Composite Index (JCI) fell to IDR 3,900, a 35.800 per cent decline in March 2020 compared to the start of the year (Setiawan et al., 2021). Global markets similarly experienced sharp declines, with at least 25 per cent of market value wiped out by the end of March 2020 compared to the previous month (Lamdin, 2020). The stock price plunge in March 2020 is considered one of the most significant downturns in global stock market history (Davis et al., 2022).

Several recent studies have attempted to decipher the impact of the COVID-19 pandemic on the global economy and stock market. Baker et al. (2020) research shows that the pandemic has caused unprecedented market volatility, reflecting high uncertainty among investors. Another study by Goodell (2020) also highlighted the significant impact of the pandemic on various sectors of the economy, including the stock market. These studies emphasise measuring and understanding market sentiment through volatility indices. More specific research on the stock markets in Indonesia and Malaysia has also been conducted. For example, a study by (Nasution et al., 2020) shows that exchange rate fluctuations significantly impact stock market performance in Indonesia. Another study by (Mujahida, 2021) examined how economic growth affects the stock price index in Malaysia, finding that the decline in GDP during the pandemic has negatively impacted the stock market.

(Labitta et al., 2024) showed that the COVID-19 pandemic has significantly impacted the stock indices of Indonesia and Malaysia, with both countries experiencing spillover volatility. The exchange rate was found to have a negative and significant effect on all stock indices listed on the Indonesia Stock Exchange (Mujahida, 2021).

UNTAR Universitas Tarumanagara
Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

Furthermore, inflation, bank interest rates, and currency exchange rates were found to have a significant influence on the Composite Stock Price Index during the pandemic (Nurmasari & Nur'aidawati, 2021). However, these studies often have limitations regarding the sample and period analysed and a lack of focus on the interaction between multiple economic variables simultaneously. Many studies only focus on one independent variable without considering the complex interactions between various economic factors. Another standard limitation is the need for more focus on cross-country comparisons, which is essential for understanding how economic factors interact in different contexts.

While recent studies have provided valuable insights into the impact of the pandemic on the stock market, some gaps still need to be addressed. Firstly, many studies focus on more than one independent variable without considering the complex interactions between various economic factors. For example, studies on the impact of exchange rates on the stock market often ignore the influence of volatility indices and economic growth altogether (Nasution et al., 2020; Sista, 2021). The interaction between these variables can provide a more comprehensive picture of stock market dynamics. Another limitation often encountered is the lack of analysis of more extended periods that cover the period before and after the pandemic.

Many studies tend to focus on the immediate impact of the pandemic without considering its long-term effects (Goodell, 2020). In addition, more in-depth research is needed to understand how monetary and fiscal policies adopted during the pandemic affect the stock market in the long run (Labitta, 2024). Many studies need a focus on cross-country comparisons, which is essential to understand how economic factors interact in different contexts. For example, comparing Indonesia and Malaysia could provide insights into how two countries with different economic characteristics faced similar challenges during the pandemic (Mujahida, 2021). Thus, more holistic and comprehensive research is needed to address these gaps and provide a deeper understanding of stock market dynamics during the pandemic.

Based on the identified gap analysis, the main research questions posed in this study are: How do volatility index, exchange rate, and economic growth affect the stock price index in Indonesia and Malaysia during the COVID-19 pandemic? This study aims to fill the gap in the literature by analysing the interaction between the three economic variables simultaneously and in a cross-country context. The holistic approach used in this study is expected to provide a more comprehensive picture of the stock market dynamics in both countries during the unprecedented crisis period.

The novelty of this research lies in the holistic approach that analyses the simultaneous influence of the volatility index, exchange rate, and economic growth on the stock price index in Indonesia and Malaysia during the COVID-19 pandemic. By comparing two countries with different economic characteristics, this study provides a comprehensive insight into the complex interactions between economic variables in a global crisis. The findings offer significant academic contributions and practical guidance for investors and policymakers to manage risks and capitalise on opportunities during the post-pandemic economic recovery. The results of this study can assist investors in making more informed investment decisions by better-identifying opportunities and risks.

Market analysts can use these findings to develop more accurate prediction models and effective investment strategies. Meanwhile, this study provides empirical evidence that policymakers can use to formulate economic policies that are more responsive and adaptive to changing market conditions. For instance, monetary and fiscal policies tailored

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

to market conditions can help stabilise the exchange rate and reduce market volatility, supporting a faster and more sustainable economic recovery.

THEORETICAL REVIEW

Concept of Volatility Index (VIX). The Volatility Index, better known as VIX, is one of the key indicators used by investors and market analysts to measure uncertainty in the stock market (McFarlane et al., 2022). Widely known as the "fear index," the VIX calculates expected market volatility in the short term based on option prices of the S&P 500 Index. The VIX provides projections about stock market movements over the next 30 days and is often used to gauge investor sentiment towards ongoing economic and market conditions. The primary function of the VIX is as a tool to measure the level of uncertainty and perceived risk in the market. When the VIX is high, investors expect large and erratic price movements in the stock market. Conversely, a low VIX signals that the market is expected to be more stable and calm. In other words, VIX provides a snapshot of market volatility expectations, which investors can use to make more informed investment decisions and manage their portfolio risk (Prasad et al., 2023).

The role of VIX in measuring investor sentiment is very important. Market sentiment is a factor that often drives stock price movements. When investors feel fearful or uncertain about the economy's future, they tend to withdraw their investments from the stock market, leading to a decline in stock prices. Conversely, investors are more likely to invest when they feel optimistic, which increases stock prices. Therefore, VIX is often used as a barometer of investor sentiment and can provide necessary signals about the market's future direction.

The Volatility Index (VIX) is widely recognised as a measure of market expectations for volatility over the coming month, often referred to as the "fear gauge" due to its connection with market sentiment (McFarlane et al., 2022). The VIX is calculated based on the prices of options on the S&P 500 Index and is expressed as a percentage (Daniali et al., 2021). It plays a crucial role in understanding market dynamics and is commonly utilised by investors to anticipate and hedge against unexpected market volatility. The VIX is particularly valued for its capacity to measure anticipated volatility, making it an essential tool for hedging equity portfolios against sudden market fluctuations (McFarlane et al., 2022). However, its reliance on market sentiment raises concerns about its reliability as a predictor of future volatility. The VIX has demonstrated some forecasting power, particularly in predicting short-term market movements, as evidenced by its positive relationship with future realised volatility (J. Zhang et al., 2023).

A significant aspect of the VIX is its interaction with market declines. The VIX often spikes during market stress, reflecting heightened investor fear. Additionally, the put-call ratio based on VIX options volume has been shown to predict future VIX changes, particularly during elevated volatility negatively (Gu et al., 2022). This relationship underscores the VIX's role in capturing market sentiment and its potential impact on market behaviour. The VIX has shown a stronger influence on U.S. stock market volatility within sample data than other volatility indicators. However, other indicators, such as Equity Market Volatility (EMV) trackers, have outperformed the VIX in predicting market volatility across stock indices and time horizons outside of sample data (Zhu et al., 2019). Despite this, the VIX remains a widely used predictor of future portfolio returns, with the difference between long-term and short-term VIX indexes providing additional insights for predictive models (Aharon & Dimpfl, 2022). Moreover,

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

the VIX premium, defined as the difference between VIX futures and the VIX Index itself, has been identified as a significant predictor of volatility returns and investment risk (Campasano, 2021).

However, the VIX is not without its limitations and biases. Critics have highlighted its instability and dependence on prevailing market conditions, rendering it an unreliable benchmark for tradable hedging assets (McFarlane et al., 2022). Additionally, there are concerns that VIX is under-reacting to the relevant market. In conclusion, while the VIX is a widely utilised measure of market volatility and demonstrates some ability to predict short-term market movements, inherent biases and challenges limit its reliability and effectiveness as a predictive tool. Further research is necessary to understand its capabilities and limitations in fully forecasting market volatility.

Exchange Rates. The exchange rate is the price of one currency for another, which plays a crucial role in the international economy. Exchange rates reflect a country's economic conditions, political stability, and level of global investor confidence (Nabiilah et al., 2024). A stable exchange rate creates a more specific business environment, while fluctuations in exchange rates affect international trade, capital flows, and foreign investment. In an interconnected global economy, exchange rates are essential indicators for policymakers, investors, and companies to make strategic economic decisions. The mechanism for the impact of exchange rate fluctuations on company and stock market performance is complex. When the exchange rate of a currency appreciates, goods and services from that country become more expensive for foreign buyers, which can reduce the competitiveness of exports.

Conversely, exchange rate depreciation makes exports cheaper and more competitive in the global market but increases the cost of imports. Changes in exchange rates also affect the earnings of multinational companies that operate in multiple currencies. For example, a company that has most of its revenue in foreign currency will see changes in the value of its assets and revenue when the exchange rate fluctuates.

In the context of the stock market, exchange rates affect stock prices through several channels. When the domestic exchange rate weakens, firms that depend on imported raw materials face increased production costs (Casas, 2020). If these increased costs cannot be passed on to consumers, the company's profit margins will be squeezed, which may lead to a decline in stock prices. In contrast, export-oriented firms benefit from exchange rate depreciation as their products become cheaper and more competitive internationally. Increased sales and earnings in foreign currencies often translate into increased share prices.

The impact of exchange rates on the stock market is also influenced by investor sentiment and perceived risks to economic stability (Hakim & Sulfitri, 2023). Significant exchange rate fluctuations can create uncertainty among investors, who may see it as a sign of broader economic instability, thereby reducing confidence in the domestic stock market. This uncertainty often encourages investors to withdraw their funds, causing an overall decline in stock prices. Investors may be more reluctant to invest if exchange rate fluctuations reflect increased political or economic risks. However, if they believe these fluctuations are temporary and will stabilise in the long run, they may remain confident and continue to invest, helping maintain stock price stability.

Research has consistently demonstrated that exchange rate fluctuations exert asymmetric effects on stock prices, with the magnitude and direction of the impact varying according to the nature of the exchange rate shock (Dang et al., 2020; Effiong & Bassey, 2019; Odionye et al., 2024). This indicates that the response of stock prices to changes in

DOI: http://dx.doi.org/10.24912/ja.v28i3.2459

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

exchange rates is not uniform; instead, it is contingent on whether the exchange rate movement involves depreciation or appreciation, as well as the specific economic context in which the change occurs. These effects are observable in both the short and long term, particularly in economies categorised as the "Fragile Five," where exchange rate fluctuations have been shown to exert significant and lasting influences on stock market performance (Ceylan & Ceylan, 2023; Dang et al., 2020; Effiong & Bassey, 2019).

Moreover, the relationship between exchange rate changes and stock prices appears to differ considerably during periods of economic turmoil, such as before and after global financial crises and throughout the COVID-19 pandemic (Ceylan & Ceylan, 2023; Dang et al., 2020). This variability suggests that the dynamics between exchange rates and stock prices are susceptible to broader economic conditions, with different patterns emerging during periods of economic instability. These findings have crucial implications for policymakers, underscoring the necessity of considering both the short- and long-term relationships between exchange rate changes and stock prices in order to manage and stabilise both stock and foreign exchange markets effectively (Dang et al., 2020; Ozcelebi & Yildirim, 2016).

Economic Growth. Economic growth is an increase in the production capacity of a country's goods and services over a certain period. The leading indicator to measure economic growth is Gross Domestic Product (GDP), which reflects the total value of goods and services produced in a country within a certain period (Palamalai et al., 2022). GDP is a comprehensive measure often used by economists to assess a country's economic health. An increase in GDP indicates economic expansion, while a decrease in GDP indicates economic contraction. Other indicators, such as Gross National Income (GNI) and Per Capita Income, provide further insight into income distribution and the economic well-being of the people.

The relationship between economic growth and stock market performance is very close. When GDP increases, companies experience increased revenues and profits, often reflected in rising stock prices. Research supports the view that a positive relationship exists between stock market development and economic growth (Owen, 2020). The development of stock markets plays a crucial role in fostering economic growth by providing a platform for capital allocation, enabling businesses to raise funds for expansion, and allowing investors to diversify risks. This positive relationship is evident across various studies, highlighting the importance of a well-functioning stock market in driving economic progress.

Empirical evidence further suggests a bidirectional causal relationship between stock market development and economic growth, indicating that not only does a developed stock market contribute to economic growth, but economic growth also stimulates further development of the stock market in both the short and long run (Palamalai et al., 2022). The impact of stock market development on economic growth has been notably significant in countries where well-developed stock markets have been found to influence economic growth positively (Nathaniel et al., 2020).

Impact of COVID-19 Pandemic. The Covid-19 pandemic has had a broad and profound impact on the global economy. Business closures, travel restrictions, and supply chain disruptions led to significant economic contractions in many countries. Research by McKibbin and Fernando (2020) shows that the pandemic caused a sharp decline in global economic activity, with many countries experiencing the worst recession since the Great Depression. The pandemic also affected international trade, investment, and capital flows, all contributing to high economic uncertainty.

DOI: http://dx.doi.org/10.24912/ja.v28i3.2459

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

The pandemic affected various economic indicators, including volatility indices, exchange rates, and economic growth. Volatility indices, such as the VIX, experienced significant spikes during the pandemic due to high uncertainty among investors. Research by Mujahida (Mujahida, 2021) shows that the VIX reached its highest level in history at the start of the pandemic. Exchange rates were also significantly affected, as found by (Brodeur et al., 2020), causing high exchange rate volatility in countries with low foreign exchange reserves. The pandemic also caused a significant economic contraction in many countries, with a drop in global GDP of up to 10 per cent in the worst-case scenario, according to (Barro et al., 2020).

Case studies of the pandemic's impact on stock markets in different countries show that stock markets worldwide experienced unprecedented volatility. In the United States, the Dow Jones Industrial Average index experienced a sharp decline at the start of the pandemic, with market volatility reaching historic highs. Research by (Baker et al., 2020) shows that stock market volatility in the U.S. during the pandemic was much higher compared to previous financial crises, such as the 2008 global financial crisis.

In Indonesia and Malaysia, the stock market also experienced significant volatility. Research by (Salim et al., 2022) shows that the COVID-19 pandemic led to a decline in Indonesia's Jakarta Composite Index (JCI), reflecting the uncertainty and negative information about the market, which affected investor behaviour. This decline in stock prices was mainly due to capital withdrawal by foreign investors, who sought safer assets amid global uncertainty. However, with the implementation of aggressive fiscal and monetary policies, the stock markets in these two countries started to show signs of recovery. Research by (Sutrisno, 2021) shows that the economic stimulus policies implemented by the Indonesian and Malaysian governments have helped stabilise financial markets and promote economic recovery. The government implemented various stimulus policies in Indonesia, including cash transfers, tax incentives, and support for small and medium enterprise sectors. The government launched a significant economic stimulus package in Malaysia to support the economy and maintain financial market stability.

Interaction between VIX, Exchange Rate, and Economic Growth. Research on the interaction between the volatility index (VIX), exchange rates, and economic growth simultaneously still needs to be completed. However, some studies have tried to explore how these three variables interact and affect the stock market. Research by (Li et al., 2017) examined the relationship between VIX, exchange rate, and economic growth in the U.S. stock market. The study found that an increase in VIX, reflecting an increase in market uncertainty, is usually followed by a depreciation of the exchange rate and a decline in economic growth, affecting stock prices. The joint effect of the volatility index, exchange rate, and economic growth on the stock market is significant.

As the VIX measures, market instability significantly impacts stock market performance, especially during economic uncertainty (Sarwar & Khan, 2017). When the VIX increases, investors tend to withdraw their investments from the stock market, causing a decline in stock prices. In addition, changes in the exchange rate affect stock market performance. When the domestic exchange rate weakens, import-dependent companies face increased production costs, squeezing profit margins and lowering stock prices. Conversely, export-orientated companies benefit from exchange rate depreciation as their products become cheaper in the international market, increasing revenues and stock prices. Economic growth also plays a vital role in influencing the stock market. Ice is pushed when economic growth is solid and corporate revenues and profits increase.

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

The research results also support a more holistic and comprehensive study. VIX variability can be an early indicator of exchange rate movements and economic growth, affecting the stock market (Morina et al., 2020). This study suggests that investors and policymakers can make more informed and effective decisions about managing market risk by understanding the interaction between VIX, exchange rates, and economic growth.

Lastly, research by (Cao et al., 2019) emphasises the importance of analytical models that integrate these three variables to provide more accurate predictions of stock market movements. The study shows that using a model incorporating VIX, exchange rates, and economic growth can improve prediction accuracy and assist investors in making more strategic decisions. Thus, while several studies have explored the interaction between VIX, exchange rates, and economic growth, there still needs to be a significant gap in the literature. The need for a comprehensive study combining these three variables in one analytical model is urgent to understand stock market dynamics better and assist investors and policymakers in managing risks and capitalising on opportunities in volatile markets.

A Comparative Study between Indonesia and Malaysia. The Covid-19 pandemic has had a far-reaching and profound impact on the global economy. Business closures, travel restrictions, and global supply chain disruptions led to significant economic contractions in many countries. Research by (Arianto, 2021) shows that the pandemic caused a sharp decline in global economic activity, with many countries experiencing the worst recession since the Great Depression.

The pandemic also affected international trade, investment, and capital flows, contributing to high economic uncertainty. The COVID-19 pandemic has affected various economic indicators, including volatility indices, exchange rates, and economic growth. Volatility indices, such as VIX, experienced a significant spike during the pandemic due to high uncertainty among investors. Research by (Zhang et al., 2024) showed that the VIX reached historic highs at the pandemic's start, reflecting widespread fear and uncertainty in global financial markets. This instability led to sharp fluctuations in stock prices, which added to economic uncertainty. Exchange rates were also significantly affected by the pandemic. Research by (Brodeur et al., 2020) found that economic uncertainty caused by the pandemic has led to high exchange rate volatility. Countries with low foreign exchange reserves and high dependence on international trade experienced more significant exchange rate pressures. For example, the exchange rates of the Indonesian rupiah and Malaysian ringgit experienced sharp fluctuations, reflecting economic uncertainty and financial market pressures. Research by (Barro et al., 2020) suggests that the COVID-19 pandemic could lead to a decline in global GDP of up to 10 per cent in the worst-case scenario.

Case studies of the pandemic's impact on stock markets in different countries show that stock markets worldwide experienced unprecedented volatility. In the United States, the Dow Jones Industrial Average index experienced a sharp decline at the start of the pandemic, with market volatility reaching historic highs. Research by (Baker et al., 2020) shows that stock market volatility in the U.S. during the pandemic was much higher compared to previous financial crises, such as the 2008 global financial crisis.

In Indonesia and Malaysia, the stock market also experienced significant volatility. Research by (Salim et al., 2022) shows that the COVID-19 pandemic led to a decline in Indonesia's Jakarta Composite Index (JCI), reflecting the uncertainty and negative information about the market, which affected investor behaviour. This decline in stock prices was mainly due to capital withdrawal by foreign investors, who sought safer assets

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

amid global uncertainty. However, with the implementation of aggressive fiscal and monetary policies, the stock markets in these two countries started to show signs of recovery. Research (Sutrisno, 2021) shows that the economic stimulus policies implemented by the Indonesian and Malaysian governments have helped stabilise financial markets and promote economic recovery. The government implemented various stimulus policies in Indonesia, including cash transfers, tax incentives, and support for small and medium enterprise sectors. The government launched a significant economic stimulus package in Malaysia to support the economy and maintain financial market stability.

METHODS

This research was conducted at the Indonesia Stock Exchange Gallery and Kuala Lumpur Stock Exchange Malaysia by collecting secondary data from the official websites of the Indonesia Stock Exchange (www.idx.co.id) and www.Investing.com. This research is a descriptive quantitative research. The research population includes 10 Indonesian and 10 Malaysian companies, with monthly time series data covering volatility index data, exchange rates, and economic growth from January to December 2020. The sample of Indonesian companies includes Indocement Tunggal Prakasa Tbk (INTP), Semen Baturaja (Persero) Tbk (SMBR), Solusi Bangun Indonesia Tbk (SMCB), Semen Indonesia (Persero) Tbk (SMGR), and Waskita Beton Precast Tbk (WSBP). The sample of Malaysian companies includes Adventa Berhad (ADVENTA), Ancom Berhad (ACBM), Fibon Berhad (FIBN), Guh Holding Berhad (GLOT), and Goh Ban Huat Berhad (GUHB). The sampling technique uses the purposive sampling method.

The data type used is secondary data in the form of monthly time series for two years, collected through documentation techniques. The object of this research is manufacturing companies in Indonesia and Malaysia. Data analysis was conducted using multiple linear analysis with the following regression model:

$$SP = \alpha + \beta_1 VI + \beta_2 ER + \beta_3 EG + e \quad \text{..... (1)}$$

The research model in **equation (1)** is designed to analyse stock prices in Indonesia and Malaysia using independent variables. These variables include the Volatility Index (**VI**), Exchange Rate (**E**.R.), and Economic Growth (**E**.G.), with their respective coefficients $\beta_{1,2,3}$. The error term (***e***) represents the unexplained variation in both models. The operational definition of variables includes the Indonesian and Malaysian stock price indices as indicators of stock price movements, volatility index as fluctuations in stock prices within a certain period, exchange rate as currency exchange rate agreements, and economic growth as the process of changing economic conditions towards a better state. For a visual representation of the relationships among these variables, please refer to **Figure 1**, which illustrates the conceptual framework of the model.

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

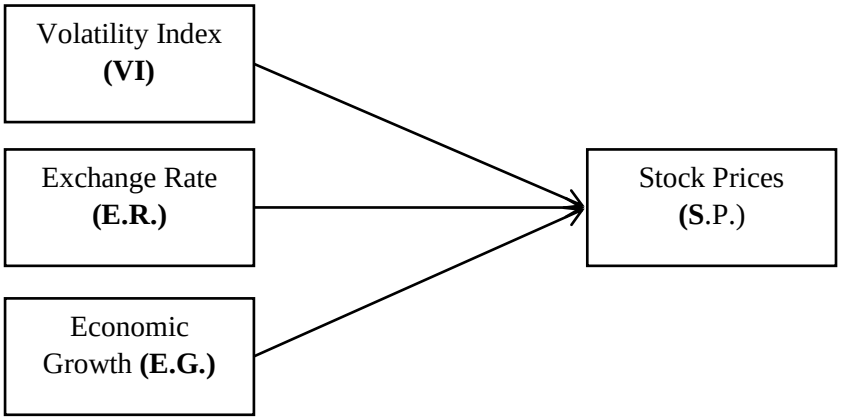

Figure 1. Conceptual Framework

RESULTS

Table 1 shows the results of testing the Volatility Index variable during the 2019 to 2020 period. It found that the Volatility Index has a range of values between -1.000 and 3.750, with a mean value of 0.046 and a standard deviation of 0.128. These results indicate significant fluctuations in the Volatility Index over the period. The test results for the Rupiah Exchange Rate variable show that out of 80 samples, the minimum value recorded was -0.590, and the maximum value was 0.060. This range of values, with a mean of -0.027 and a standard deviation of 0.148, indicates considerable variation in the Rupiah Exchange Rate during the period under study. The Economic Growth variable was also analysed with the same number of samples, 80, and showed a minimum value of -4.490 and a maximum value of 0.690. The economic growth data is usually distributed based on the standard deviation obtained. This interpretation shows the economic conditions that experienced various challenges during the study period, mainly influenced by the impact of the COVID-19 pandemic.

Table 1. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Volatility Index	80	-1.000	3.750	0.128	0.912
Exchange Rate	80	-0.590	0.600	-0.027	0.148
Economic Growth	80	-4.490	0.690	-0.339	1.137
Stock Price Index	80	0.980	107.000	68.505	45.941
Valid N (listwise)	80				

Source**:** Data processed, 2022

Normality Test Results. The results of testing normality using the P-Plot method show that the points on the Normal P-P plot and regression standardised residuals are spread around the diagonal line. This indicates that the regression analysis can be feasible even though some points deviate slightly from the diagonal line.

Multicollinearity Test Results. Multicollinearity testing reveals that the independent variables used, namely the volatility index, exchange rate, and economic growth, have a Tolerance value greater than 0.100 and a Variance Inflation Factor (VIF)

DOI: http://dx.doi.org/10.24912/ja.v28i3.2459

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

value less than 10. Thus, it can be concluded that in this regression model, there are no symptoms of multicollinearity between independent variables, ensuring that each variable makes a unique contribution to the model.

Autocorrelation Test Results. The autocorrelation test results in this study show that the Durbin-Watson value is 0.442, which is in the range of -2 to +2. Therefore, it can be concluded that the regression model used does not experience autocorrelation symptoms. This shows that the residuals in the regression model are independent and do not show a systematic pattern, strengthening the model's validity in analysing the relationship between variables.

Table 2. Multiple Linear Analysis Results

Variable	Unstandardised Coefficient	t-count	p-value (Significance)
(Constant)	69.064	13.458	0.000
Volatility Index	15.144	2.676	0.009*
Exchange Rate	-30.210	-0.885	0.379
Economic Growth	9.831	2.252	0.027*
			Notes:
R^2	**0.147**		**Significant at**
R	**0.384**		****p less than 0.050**
F-Count	**4.371**		***1 pless than 0.050**
Sig. F	**0.007**		

Source: Data processed, 2022

Multiple Linear Analysis. Based on the results of the regression analysis in **Table 2**. Then for the equation model as follows:

$$SP = 69.064 + 15.144VI – 30.210\ ER + 9.831EG \quad \text{..... (2)}$$

The regression analysis results show that the constant is 69.064, which means if the volatility index, exchange rate, and economic growth remain constant, then the Indonesia and Malaysia Stock Price Index is 69.064. The regression coefficient for the volatility index is 15.144, indicating that every one unit increase in the volatility index will increase the stock price index by 15.144. Conversely, the exchange rate regression coefficient of -30.210 indicates that every one-unit increase in the exchange rate will decrease the stock price index by 30.210. Meanwhile, the economic growth regression coefficient of 9.831 indicates that every one-unit increase in economic growth will increase the stock price index by 9.831.

Determinant Coefficient Test Results (R^2). Based on the output results in Table 1 for the coefficient of determination test, the Adjusted R Square value is 0.147 or 14.700 per cent. This shows that the three independent variables, namely the volatility index, exchange rate, and economic growth, collectively affect the dependent variable, the Indonesia and Malaysia Stock Price Index, by 14.700 per cent. Meanwhile, the remaining 85.300 per cent is influenced by other variables not included in this study, such as inflation, unemployment rate, gold price, interest rate, foreign exchange reserves, and other factors.

F Test Results (Simultaneous). Based on the ANOVA or F test results in Table 1, the F value is 4.371, with a significance value of 0.007. Given that the p-value or significance value of 0.007 is smaller than 0.050, it can be concluded that together or

DOI: http://dx.doi.org/10.24912/ja.v28i3.2459

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

simultaneously, the volatility index, exchange rate, and economic growth significantly affect the Indonesia and Malaysia Stock Price Index. This finding confirms that the three independent variables tested in this study have relevant and significant contributions to the movement of stock price indices in both countries during the period analysed. This analysis provides a deeper understanding of stock market dynamics amidst the various macroeconomic factors.

Results of t Test (Partial). Results of the t-test (Partial). Based on the output results of hypothesis testing using the t statistical test, the effect of each independent variable on the Indonesia and Malaysia Stock Price Indices can be explained as follows: The effect of the Volatility Index on the Indonesia and Malaysia Stock Price Index shows that the volatility index has a regression coefficient value of 69.064 and a t-count of 2.676 with a significance level of 0.009, which is smaller than 0.050. This shows that the volatility index positively and significantly influences the Indonesian and Malaysian Stock Price Indices. Thus, the first hypothesis (H1) is accepted.

The effect of the Exchange Rate on the Indonesia and Malaysia Stock Price Index shows that the exchange rate has a regression coefficient of -30.210 and a t-count of 0.098 with a significance level of 0.379, which is greater than 0.050. This indicates that the exchange rate has a negative but insignificant influence on the Indonesia and Malaysia Stock Price Index. Therefore, the second hypothesis (H2) is rejected. The effect of Economic Growth on the Indonesia and Malaysia Stock Price Index shows that economic growth has a regression coefficient of 9.831 and a t-count of 2.252 with a significance level of 0.027, which is smaller than 0.050. This indicates that economic growth positively and significantly influences the Indonesia and Malaysia Stock Price Index. Therefore, the third hypothesis (H3) is accepted.

It paired sample statistics Output Test Results. Based on Table 3, the number of stock price index data for Indonesia and Malaysia is 40 data each. The average value of the stock price index for Indonesia is 97.670, while for Malaysia, it is 39.340. This indicates a significant difference between the average stock price indices of the two countries during the COVID-19 pandemic. The t-test confirmed this difference with a t-count of 7.334 and a significance value of 0.000, more diminutive than 0.050. These results indicate that the difference in average stock price indices between Indonesia and Malaysia is real and significant during the period analysed.

Table 3. Output Test Results paired samples Statistics

Country	N	Mean	Std. Deviation	Std. Error Mean
Indonesia	40	97.670	16.191	2.560
Malaysia	40	39.340	47.626	7.530

Source: Data processed, 2022

Table 4 shows that the significant value of Levene's Test for Equality of Variances is 0.000, smaller than 0.050, indicating that the data variance between Indonesia and Malaysia is different. In the Equal Variances Assumed section, the significance value (2-tailed) is 0.000, which is also smaller than 0.050, so H0 is rejected, and Ha is accepted. This indicates a significant difference between Indonesia's and Malaysia's average stock price indices during the Covid-19 pandemic.

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

Table 4. Independent Sample Test Results

		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Differences	95 per cent Confidence Interval of the Differences	
									Lower	Upper
IDR	Equal Variances Assumed	196.657	0.000	7.334	78.000	0.000	58.331	7.954	42.496	74.165
MYR	Equal Variances			7.334	47.896	0.000	58.331	7.954	42.338	74.323

Source: Data processed, 2022

DISCUSSION

Effect of Volatility Index on Indonesia and Malaysia stock price indexes during COVID-19 pandemic. The main result of this study shows that the volatility index has a positive and significant influence on the stock price index in Indonesia and Malaysia during the Covid-19 pandemic. This finding indicates that the stock price index in both markets increases when the volatility index rises. An increase in the volatility index, which reflects higher market uncertainty and risk, is considered a negative signal for the stock market. However, in the context of the pandemic, the results suggest a different dynamic. An increase in the volatility index does not necessarily have a negative impact on the stock market but can create significant investment opportunities.

The explanation for this phenomenon can be found in investor behaviour during periods of high uncertainty. As volatility rises, many investors engage in speculative trading to capitalise on large price fluctuations for short-term gains. This increased trading activity boosts transaction volumes, increasing the stock price index. Additionally, government intervention through economic stimulus policies provides a sense of security for investors, encouraging them to stay invested in the stock market despite high volatility. The COVID-19 pandemic created a unique situation where policy responses and market sentiment moved unusually. Significant stimulus policies in Indonesia and Malaysia likely strengthened investor confidence, contributing to the increase in the stock price index despite high volatility.

The results of this study support the hypothesis that the volatility index significantly influences the stock price index. The proposed hypothesis states that an increase in volatility will impact the movement of the stock price index, and the findings confirm that this effect is positive. Under pandemic conditions, investors respond to volatility differently than usual, where high volatility often leads to declining stock prices. The efficient market theory, which holds that stock prices reflect all available information, seems less applicable during crises like the pandemic, where speculative behaviour and stimulus policies play a central role. Previous research by (Fassas & Hourvouliades, 2019) showed that a spike in VIX, indicating increased volatility, typically precedes a decline in stock prices as investors withdraw from volatile markets. However, during the pandemic, government intervention, including stimulus and loose monetary policies, created an environment where investors felt safer to remain invested despite high volatility.

The unique contribution of this study to the existing literature is its emphasis on the role of economic policy in altering market responses to volatility during the global crisis.

DOI: http://dx.doi.org/10.24912/ja.v28i3.2459

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

The research demonstrates that high volatility is not necessarily a red flag for the stock market during a pandemic but can create significant investment opportunities. The findings expand our understanding of the relationship between market volatility and stock prices by incorporating the dimensions of economic policy and market sentiment during the global crisis. As such, this research provides valuable insights for academics and practitioners in managing risks and opportunities in volatile markets.

The practical implications of these findings are significant for both investors and policymakers. For investors, understanding that increased volatility can create investment opportunities during crisis conditions can help them adopt more flexible and responsive strategies. Portfolio diversification and a long-term approach can effectively manage risk and capitalise on market fluctuations. Diversifying investments across different assets, sectors, and geographies helps reduce overall risk. At the same time, a long-term focus allows investors to concentrate on company fundamentals rather than reacting to short-term market movements. Additionally, maintaining sufficient liquidity in portfolios provides the flexibility to take advantage of emerging opportunities or mitigate losses during uncertain periods. Liquidity is crucial in high-volatility situations, as it allows investors to quickly adjust their portfolios in response to changing market conditions.

For policymakers, these findings highlight the importance of proactive monetary and fiscal policies in maintaining market stability and boosting investor confidence. Accommodative monetary policies, such as keeping interest rates low and providing additional liquidity through asset purchase programs, can help calm markets and support asset prices. Proactive fiscal policies, such as fiscal stimulus and tax incentives, should continue to ensure strong government support for the economy. This can minimise the negative impact of market volatility and provide a stable foundation for economic growth.

Moreover, policymakers should recognise that increased volatility is not necessarily harmful to the stock market, especially when accompanied by effective government intervention. Policies that promote economic stability and offer a cushion for investors during uncertain periods can be highly beneficial. Transparency and effective communication by governments and central banks are also essential, as clear and timely information on upcoming policies and economic conditions can help reduce uncertainty and maintain market confidence. Strengthening coordination between fiscal and monetary policies ensures that measures are mutually supportive and practical in stabilising the market.

In conclusion, this research provides valuable insights into how market volatility can impact stock prices during unusual global crises. It reveals that heightened volatility does not always have a negative effect on stock markets. Instead, with the right policies and prudent investor responses, volatility can create significant opportunities. These findings contribute to a broader understanding of the relationship between market volatility and stock prices, offering a new perspective for managing risks and seizing opportunities in volatile markets.

The effect of exchange rates on the Indonesia and Malaysia stock price indices during the Covid-19 pandemic. The results of this study show that the exchange rate has a negative but insignificant effect on the stock price index in the Indonesia and Malaysia Stock Exchanges during the COVID-19 pandemic. This finding indicates that fluctuations in the exchange rate of the rupiah against the dollar had no significant impact on the stock price index despite high volatility during the pandemic. This provides essential insights into how exchange rates typically affect stock prices and why the results of this study show an insignificant relationship.

DOI: http://dx.doi.org/10.24912/ja.v28i3.2459

Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

According to economic theory, exchange rate fluctuations affect firm performance through purchasing power parity, which adjusts the prices of goods and services between two countries. When the domestic currency weakens, export goods become more competitive, increasing export volumes, while imports become more expensive, reducing demand. Additionally, the transaction exposure theory explains that firms engaged in international trade face risks when converting foreign revenues into domestic currency. However, for export-heavy firms, a weaker domestic currency can mean higher revenues when converted back into local currency.

This research supports the initial hypothesis that the exchange rate influences the stock price index, though the effect was insignificant during the pandemic. The hypothesis initially stated that the exchange rate would significantly impact the stock price index in Indonesia and Malaysia. Although the exchange rate had a negative influence, the impact was insignificant. This suggests that other factors, such as government and central bank intervention through aggressive fiscal and monetary stimulus policies, played a more dominant role in influencing the stock price index during the COVID-19 pandemic. These policies, including interest rate cuts, asset purchase programs, and economic stimulus packages, helped maintain market liquidity and boosted investor confidence, stabilising the stock market despite fluctuations in the exchange rate.

In addition to policy intervention, specific industry characteristics, such as those seen in Indonesia's cement sector, contributed to the study's findings. Cement companies, which export more than they import, were uniquely resilient to exchange rate fluctuations. A weaker rupiah increased the competitiveness of their products in international markets, boosting export sales without significantly raising production costs, as these companies do not rely heavily on imported raw materials. Thus, despite exchange rate fluctuations, cement companies could maintain strong performance. This contrasts with other sectors, such as manufacturing, which often face rising production costs and reduced margins due to reliance on imported raw materials.

The different dynamics in the cement sector during the pandemic explain why this study's findings differ from prior research. For example, (Raju et al., 2021) found that exchange rates significantly affect stock markets in developing countries, with weakened exchange rates typically leading to lower stock prices due to higher import costs and reduced purchasing power. However, the unique characteristics of export-heavy sectors, such as Indonesia's cement industry, and aggressive policy interventions during the pandemic allowed for stability in the stock price index despite exchange rate fluctuations.

The practical implications for investors and policymakers are clear. Investors must adopt prudent strategies, such as portfolio diversification, to mitigate risks associated with exchange rate fluctuations. By spreading investments across various sectors and regions, investors can protect themselves from negative impacts and focus on companies with strong export bases that benefit from weaker domestic currencies. A long-term investment approach that emphasises company fundamentals and prospects rather than short-term fluctuations is also crucial. For policymakers, supporting export-oriented industries and maintaining exchange rate stability through proactive fiscal and monetary measures is essential.

The effect of economic growth on the stock price index of Indonesia and Malaysia during the Covid-19 pandemic. The results of this study show that economic growth has a positive and significant influence on the stock price index in Indonesia and Malaysia during the Covid-19 pandemic. This finding confirms that the stock price index in these two countries increases when economic growth rises. The data suggest that

UNTAR Universitas Tarumanagara
Jurnal Akuntansi
e-JA
E-ISSN 2549-8800
P-ISSN 1410-3591

investors view economic growth as a crucial indicator in assessing the health of the stock market and the prospects for future returns. The statistical analysis shows that the coefficient of economic growth on the stock price index is significant at a high confidence level. This means that changes in the stock price index consistently follow changes in economic growth. The regression test reveals a high t-statistic value and a low p-value, indicating that the positive relationship between economic growth and stock prices does not occur by chance. These findings support the initial hypothesis that economic growth positively impacts stock price indices in Indonesia and Malaysia during the pandemic.

Economic growth and efficient market theory help explain the positive relationship between economic growth and stock price indices, especially during the pandemic. Economic growth theory shows how increasing a country's output and productivity increases income and welfare. As the economy grows, companies experience increased demand, leading to higher revenues and profits. Strong economic growth also creates jobs, increases consumer purchasing power, and boosts economic stability. On the other hand, efficient market theory suggests that stock prices reflect all available information. When economic data indicates strong growth, investors perceive this as a positive signal for corporate earnings, prompting them to buy stocks and driving stock prices up. Despite uncertainties, economic stimulus policies and recovery measures have generated positive market sentiment in the context of the pandemic.

The study's findings align with previous research that explored the relationship between economic growth and stock markets. For example, Verma & Bansal (2021) found a significant positive relationship between GDP growth and stock market performance in several developing and developed countries. They concluded that strong economic growth often triggers increased stock market activity, reflecting investors' optimism about future corporate earnings. Similarly, (Goodell, 2020) highlighted that stock market development and economic growth are closely related in developed and emerging markets. However, not all studies show consistent results. (Salameh & Ahmad, 2022) also support these findings, showing that countries with stable and pro-growth economic policies tend to have more developed and resilient stock markets, further emphasising the role of policy stability in market performance. However, not all studies show consistent results. Research by (Lestari et al., 2023) found that global economic uncertainty from the U.S., China, and Europe had varying effects on Southeast Asian stock markets. Indonesia and Malaysia experienced negative impacts, while Vietnam responded more positively.

The practical implications of these results are significant for investors and policymakers. Investors should monitor economic growth as a critical indicator for making investment decisions, as strong economic growth signals increased business activity, rising earnings, and better profit prospects. Monitoring fiscal and monetary policies is equally important, as these directly affect economic conditions and stock market performance. Investors should also consider portfolio diversification to manage risks, spreading investments across different sectors and assets to reduce the impact of economic fluctuations. Understanding which sectors benefit most from economic growth can guide investors toward stocks with higher profit potential.

For policymakers, the findings underscore the importance of supporting economic growth and stock market stability, particularly during crises like the pandemic. Proactive fiscal policies like stimulus packages and tax incentives can spur growth in affected sectors like MSMEs. Accommodative monetary policies, including interest rate cuts and asset purchase programs, provide liquidity to stabilise markets. Effective communication from governments and central banks is crucial for maintaining investor confidence, as

clear and timely information reduces uncertainty. Coordinating fiscal and monetary measures can create an environment conducive to growth and stock market stability, ensuring resilience amid global challenges.

The COVID-19 pandemic significantly impacted the global economy, causing sharp declines in economic activity across sectors like tourism, manufacturing, and services. However, the pandemic also strengthened the link between economic growth and stock price indices, as markets closely responded to economic outlook changes. The responsive fiscal and monetary measures governments and central banks took, including economic stimulus and liquidity support, helped prevent further economic collapse and facilitated recovery. These policies demonstrated the importance of coordinated economic responses during crises in supporting stock markets and mitigating the negative effects of economic downturns.

CONCLUSION

This study investigates the effect of economic growth on stock price indices in Indonesia and Malaysia during the Covid-19 pandemic. The results show that economic growth positively and significantly influences the stock price index in both countries. This finding confirms that an increase in economic growth goes hand in hand with an increase in the stock price index, reflecting how investors view economic growth as a key indicator in assessing the stock market's health and prospects for future returns.

This research contributes significantly to understanding the relationship between economic growth and the stock market, particularly in global crises like the pandemic. The originality of this study lies in the in-depth analysis of how responsive fiscal and monetary policies can support economic recovery and stock market stability. The findings provide valuable insights for investors in making more informed investment decisions and for policymakers in formulating effective measures to mitigate the negative impact of the economic crisis.

However, this study has some limitations that need to be considered. This study is limited to the COVID-19 pandemic period and focuses on two countries, so the results must be generalisable to other contexts or periods. In addition, this study does not consider other variables that may affect the stock market, such as the inflation rate and international trade policies. Future research is expected to expand geographical and temporal coverage and consider more variables to gain a more comprehensive understanding of the factors affecting the stock market. Researchers are also advised to use more diverse analytical methods to test the robustness of the findings.

REFERENCES

Aharon, D. Y., & Dimpfl, T. (2022). Future Portfolio Returns And The VIX Term Structure. *Journal of Risk*, *24*(5). https://doi.org/10.21314/JOR.2022.031.

Arianto, B. (2021). Dampak Pandemi COVID-19 Terhadap Perekonomian Dunia. *Jurnal Ekonomi Perjuangan*, *2*(2). https://doi.org/10.36423/jumper.v2i2.665.

Baker, S., Bloom, N., Davis, S., Kost, K., Sammon, M., & Viratyosin, T. (2020). *The Unprecedented Stock Market Impact Of COVID-19*. https://doi.org/10.3386/w26945.

Barro, R., Ursúa, J., & Weng, J. (2020). *The Coronavirus And The Great Influenza Pandemic: Lessons From The "Spanish Flu" For The Coronavirus's Potential Effects On Mortality And Economic Activity*. https://doi.org/10.3386/w26866.

Brodeur, A., Cook, N., & Heyes, A. (2020). Methods Matter: P-Hacking And Publication Bias In Causal Analysis In Economics. *American Economic Review*, *110*(11), 3634–3660. https://doi.org/10.1257/aer.20190687

Campasano, J. (2021). Portfolio Strategies For Volatility Investing. *Journal of Alternative Investments*, *24*(1), 43–60. https://doi.org/10.3905/JAI.2021.1.130.

Cao, W., Zhu, W., & Demazeau, Y. (2019). Multi-Layer Coupled Hidden Markov Model For Cross-Market Behavior Analysis And Trend Forecasting. *IEEE Access*, *7*, 158563–158574. https://doi.org/10.1109/ACCESS.2019.2950437.

Casas, C. (2020). Industry Heterogeneity And Exchange Rate Pass-Through. *Journal of International Money and Finance*, *106*. https://doi.org/10.1016/j.jimonfin.2020.102182.

Ceylan, I. E., & Ceylan, F. (2023). Symmetric And Asymmetric Effects Of Exchange Rate Changes On Stock Prices In Fragile Five Economies: Analysis Of The Global Crisis And Pandemic Period. *Journal of Economic Integration*, *38*(4), 646–669. https://doi.org/10.11130/jei.2023.38.4.646.

Dang, V. C., Le, T. L., Nguyen, Q. K., & Tran, D. Q. (2020). Linkage Between Exchange Rate And Stock Prices: Evidence From Vietnam. *Journal of Asian Finance, Economics and Business*, *7*(12), 95–107. https://doi.org/10.13106/JAFEB.2020.VOL7.NO12.095.

Daniali, S. M., Barykin, S. E., Kapustina, I. V, Khortabi, F. M., Sergeev, S. M., Kalinina, O. V, Mikhaylov, A., Veynberg, R., Zasova, L., & Senjyu, T. (2021). Predicting Volatility Index According To Technical Index And Economic Indicators On The Basis Of Deep Learning Algorithm. *Sustainability (Switzerland)*, *13*(24). https://doi.org/10.3390/su132414011.

Davis, S. J., Liu, D., & Sheng, X. S. (2022). Stock Prices And Economic Activity In The Time Of Coronavirus. *IMF Economic Review*, *70*(1), 32–67. https://doi.org/10.1057/s41308-021-00146-4.

Effiong, E. L., & Bassey, G. E. (2019). Stock Prices And Exchange Rate Dynamics In Nigeria: An Asymmetric Perspective. *Journal of International Trade and Economic Development*, *28*(3), 299–316. https://doi.org/10.1080/09638199.2018.1531436.

Fassas, A. P., & Hourvouliades, N. (2019). VIX Futures As A Market Timing Indicator. *Journal of Risk and Financial Management*, *12*(3). https://doi.org/10.3390/jrfm12030113.

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, C., Guo, X., Kurov, A., & Stan, R. (2022). The Information Content Of The Volatility Index Options Trading Volume. *Journal of Futures Markets*, *42*(9), 1721–1737. https://doi.org/10.1002/fut.22297.

Hakim, M. D. A. P., & Sulfitri, V. (2023). Pengaruh Inflasi, Suku Bunga, Nilai Tukar, Dan Pertumbuhan Ekonomi Terhadap IHSG. *EBID:Ekonomi Bisnis Digital*, *1*(2), 85–92. https://doi.org/10.37365/ebid.v1i2.180.

Izzeldin, M., Muradoğlu, Y. G., Pappas, V., & Sivaprasad, S. (2021). The Impact Of COVID-19 On G7 Stock Markets Volatility: Evidence From A ST-HAR Model. *International Review of Financial Analysis*, *74*. https://doi.org/10.1016/j.irfa.2021.101671.

Labitta, K. F., Susanti, D., & Sukono, S. (2024). Analysis Of Volatility Spillover Of Stock Index In ASEAN (Case Study: Indonesia, Singapore, Malaysia). *International Journal of Quantitative Research and Modeling*, *5*(1), 20–25.

https://doi.org/10.46336/ijqrm.v5i1.603.

Lamdin, D. J. (2020). Lessons For And From COVID-19 For Investors And Their Advisors. *Financial Planning Review*, *3*(4). https://doi.org/10.1002/cfp2.1106.

Lestari, N. P., Rofik, M., & Utami, Y. (2023). Riding Or Challenging The Waves: Uncovering The Volatility Of Southeast Asian Stock Markets Amidst Global Uncertainties. *Journal of Eastern European and Central Asian Research*, *10*(5), 841–854. https://doi.org/10.15549/jeecar.v10i5.1317.

Li, J., Li, L., & Zhang, G. (2017). Pure Jump Models For Pricing And Hedging VIX Derivatives. *Journal of Economic Dynamics and Control*, *74*, 28–55. https://doi.org/10.1016/j.jedc.2016.11.001

Malahayati, M., Masui, T., & Anggraeni, L. (2021). An Assessment Of The Short-Term Impact Of COVID-19 On Economics And The Environment: A Case Study Of Indonesia. *EconomiA*, *22*(3), 291–313. https://doi.org/10.1016/j.econ.2021.12.003.

McFarlane, A., Das, A., & Jung, Y. C. (2022). The Asymmetric Relationship Between The Volatility Index And Volatility-Of-Volatility Index. *Investment Analysts Journal*, *51*(2), 127–142. https://doi.org/10.1080/10293523.2022.2087828.

McKibbin, W. J., & Fernando, R. (2020). Global Macroeconomic Scenarios Of The COVID-19 Pandemic. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3635103.

Md Amir, U. A., Masdi, N. I., Md Saad, N., Mohamed Yusof, N., & Azmi, S. S. (2022). The Volatility Of Ftse Bursa Malaysia KLCI During The Covid-19 Pandemic. *International Journal of Academic Research in Business and Social Sciences*, *12*(4). https://doi.org/10.6007/IJARBSS/v12-i4/12922.

Morina, F., Hysa, E., Ergün, U., Panait, M., & Voica, M. C. (2020). The Effect Of Exchange Rate Volatility On Economic Growth: Case Of The CEE Countries. *Journal of Risk and Financial Management*, *13*(8). https://doi.org/10.3390/jrfm13080177.

Mujahida, S. (2021). *Ekonomi Di Pusaran Badai Covid 19*. https://doi.org/10.31219/osf.io/r83gu.

Nabiilah, I. A., Hartono, U., & Haryono, N. A. (2024). Analisis Kointegrasi Indeks Saham Filipina Psei, Indeks Saham Malaysia Klci, Indeks Saham As Djia Dan Variabel Makroekonomi Dengan IHSG. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, *8*(1), 528–557. https://doi.org/10.31955/mea.v8i1.3740.

Nasution, D. A. D., Erlina, E., & Muda, I. (2020). Dampak Pandemi COVID-19 Terhadap Perekonomian Indonesia. *Jurnal Benefita*, *5*(2), 212. https://doi.org/10.22216/jbe.v5i2.5313.

Nathaniel, S. P., Omojolaibi, J. A., & Ezeh, C. J. (2020). Does Stock Market-Based Financial Development Promote Economic Growth In Emerging Markets? New Evidence From Nigeria. *Serbian Journal of Management*, *15*(1), 45–54. https://doi.org/10.5937/SJM15-17704.

Nurmasari, I., & Nur'aidawati, S. (2021). The Effects Of Inflation, Interest Rates And Exchange Rates On Composite Stock Price Index During The Covid-19 Pandemic. *Jurnal Mandiri : Ilmu Pengetahuan, Seni, Dan Teknologi*, *5*(2), 77–85. https://doi.org/10.33753/mandiri.v5i2.178.

Odionye, J. C., Emmanuel O, N., Odo, A. C., Ugwuegbe, U. S., & Uba, C. N. (2024). Asymmetric Impact Of Multifarious Exchange Rate Shocks On Stock Prices: Fresh Insights From Multiple Thresholds Nonlinear Autoregressive Distributed-Lag Approach. *Journal of International Trade and Economic Development*, *33*(5), 868–

902. https://doi.org/10.1080/09638199.2023.2223320.

Owen, M. A. (2020). Stock Market Development And Economic Growth: Empirical Evidence From An Institutional Impaired Economy. *International Journal of Financial Research*, *11*(5), 496–509. https://doi.org/10.5430/ijfr.v11n5p496.

Ozcelebi, O., & Yildirim, N. (2016). Exchange Rates And Stock Prices: How Do They Interact In Eastern Europe? *Argumenta Oeconomica*, *36*(1), 31–65. https://doi.org/10.15611/aoe.2016.1.02

Palamalai, S., Khanna, S., Agrawal, N., & Maity, B. (2022). Linkages Between Stock Market Development, Banks And Economic Growth In India: An ARDL Approach. *Indian Journal of Economics and Development*, *18*(4), 763–776. https://doi.org/10.35716/IJED/21146.

Prasad, A., Bakhshi, P., & Guha, D. (2023). Forecasting The Direction Of Daily Changes In The India VIX Index Using Deep Learning. *IIMB Management Review*, *35*(2), 149–163. https://doi.org/10.1016/j.iimb.2023.05.002.

Raju, G. A., Shirodkar, S., & Marathe, S. R. (2021). Nexus Between Crude Oil, Exchange Rate And Stock Market Returns: An Empirical Evidence From Indian Context. *International Journal of Energy Economics and Policy*, *11*(3), 170–175. https://doi.org/10.32479/ijeep.9897.

Salameh, S., & Ahmad, A. (2022). A Critical Review Of Stock Market Development In India. *Journal of Public Affairs*, *22*(1). https://doi.org/10.1002/pa.2316.

Salim, D. F., Iradianty, A., Kristanti, F. T., & Candraningtias, W. (2022). Smart Beta Portfolio Investment Strategy During The COVID-19 Pandemic In Indonesia. *Investment Management and Financial Innovations*, *19*(3), 302–311. https://doi.org/10.21511/imfi.19(3).2022.25.

Sarwar, G., & Khan, W. (2017). The Effect of US Stock Market Uncertainty on Emerging Market Returns. *Emerging Markets Finance and Trade*, *53*(8), 1796–1811. https://doi.org/10.1080/1540496X.2016.1180592.

Setiawan, B., Ben Abdallah, M., Fekete-Farkas, M., Nathan, R. J., & Zeman, Z. (2021). GARCH (1,1) Models And Analysis Of Stock Market Turmoil During COVID-19 Outbreak In An Emerging And Developed Economy. *Journal of Risk and Financial Management*, *14*(12). https://doi.org/10.3390/jrfm14120576.

Sutrisno, E. (2021). Strategi Pemulihan Ekonomi Pasca Pandemi Melalui Sektor Umkm Dan Pariwisata. *Jurnal Lemhannas RI*, *9*(1), 167–185. https://doi.org/10.55960/jlri.v9i1.385.

Verma, R. K., & Bansal, R. (2021). Impact Of Macroeconomic Variables On The Performance Of Stock Exchange: A Systematic Review. *International Journal of Emerging Markets*, *16*(7), 1291–1329. https://doi.org/10.1108/IJOEM-11-2019-0993.

Zhang, J., Ruan, X., & Zhang, J. E. (2023). Do Short-Term Market Swings Improve Realised Volatility Forecasts? *Finance Research Letters*, *58*. https://doi.org/10.1016/j.frl.2023.104629.

Zhang, Q., Zhang, Z., & Luo, J. (2024). Asymmetric And High-Order Risk Transmission Across VIX And Chinese Futures Markets. *International Review of Financial Analysis*, *93*, 103114. https://doi.org/10.1016/j.irfa.2024.103114.

Zhu, S., Liu, Q., Wang, Y., Wei, Y., & Wei, G. (2019). Which Fear Index Matters For Predicting U.S. Stock Market Volatilities: Text-Counts Or Option-Based Measurement? *Physica A: Statistical Mechanics and Its Applications*, *536*. https://doi.org/10.1016/j.physa.2019.122567.