

The Effect of Covid-19 Pandemic Cases and Stock Price Volatility to Stock Returns on the Indonesian Automotive Stock Market

Daniel Togar Valentino Situmorang, Indra Kusuma Wardhana, Eko Rasyid Saputra¹

BINUS Business School, Bina Nusantara University,
Jakarta, Indonesia 11480

daniel.situmorang@binus.ac.id, indra.wardhana@binus.ac.id, eko.saputra001@binus.ac.id

Abstract

The Covid-19 pandemic has completely changed the state of the world. All sectors were disrupted including the stock market. Stock Return are predicted to have an effect due to the addition of Covid-19 cases and the effect of volatility. Indonesia is one of the countries that has a high number of Covid-19 cases. As a result, the capital market sector was affected. One of them is the automotive sector. Using a sample of 15 automotive stocks listed on the Indonesia Stock Exchange, this study uses the Multiple Linear Regression analysis method to process some research data 6 months before and after the first case of Covid-19 appeared in Indonesia. The results showed that automotive stock returns in Indonesia were negatively affected due to the addition of Covid-19 cases. Meanwhile, on the other hand, in terms of Stock Price Volatility, it shows that the volatility of automotive stocks in Indonesia has a positive effect on stock returns during the Covid-19 pandemic.

Keywords

Covid-19, Stock Price Volatility, Stock Return, Automotive Stock, Multiple Linear Regression

1. Introduction

The year 2020 will be a year that will be remembered by all the people of the world. Starting in early 2020, the virus that eventually became the Covid-19 Pandemic claimed many lives. Until now hundreds of millions of people around the world have been infected. Millions of people died. Not only fatalities, the Covid-19 pandemic has also devastated the world's economy. The Covid-19 pandemic has had a negative impact on global economic conditions.

The Covid-19 pandemic has also affected the dynamics of global capital markets. Large stock markets, for example in Hong Kong (Hangseng), London (FTSE100) and News York (NASDAQ) tend to be negative. Okorie and Lin (2021) found that the financial crisis occurred during the Covid-19 Pandemic. Akhtaruzzaman et al. (2021) also highlight that financial companies are more negatively affected than non-financial companies. However, Caner Ozdurak et al (2020) in their research stated that pharmaceutical and biotechnology companies tend to have a positive impact on the Covid-19 pandemic.

According to CNBC Indonesia (2020), most companies listed on the Indonesia Stock Exchange (IDX) experienced a decline in stock prices, one of which is a company engaged in manufacturing. Companies with the manufacturing sector in 2019 have experienced a decline, especially stocks in the automotive and component sub-sectors have also experienced a decline in stock prices since the beginning of 2020. The Indonesia Stock Exchange explained that the automotive and components manufacturing sub-sector companies have decreased by 7.03 % since the beginning of 2020 in line with the decline in the manufacturing industry, due to a decline in demand for automotive. The same thing was expressed by automotive business players with reference to data from the Indonesian Automotive Industry Association (Gaikindo), from the beginning of the year until March 2020, domestic car sales were recorded at 236,825 units, down 7% from 3 months in 2019, which was 254,332 units.

The decline in sales in March 2020 was quite deep or was corrected by 15% to 76,800 vehicles from the same period in the previous year of 90,368 vehicles since the work from home policy was implemented following the later social restrictions. In response to this, the shares of PT Astra International Tbk (ASII), fell 5.24% to the level of Rp 3,620 per share, down 200 points. Likewise, the issuer of spare parts producer, PT Astra Otoparts Tbk (AUTO), which fell

35 points or 4.17% to Rp 805 per share. Meanwhile, another automotive issuer, PT Indomobil Sukses Internasional Tbk (IMAS), also fell 35 points or 6.54 percent to Rp 500 per share.

The decline in sales of automotive companies that are perched on the JCI at a certain time resulted in a significant decline in stock prices. Similarly expressed in an article in the journal (Pinglin He et al., 2020) explains that the spread of panic on a large scale has forced most countries and regions to adopt strict control measures, which will inevitably affect the normal operation of the global production system, and industry and capital chains. It should be noted that, soon, the pandemic situation in other countries will intensify, thus disrupting the global economy even more.

1.1 Objectives

The objectives of this research are: 1) to determine the effect of Covid-19 cases have a negative effect on automotive stock returns in Indonesia, 2) to determine the effect of stock price volatility before and during the Covid-19 pandemic have a positive effect on automotive stock returns in Indonesia.

2. Literature Review

2.1. Covid-19

According to Badar Nadeem Ashraf (2020), Covid-19 is an infectious disease caused by the new type of coronavirus SARS-CoV-2 which causes damage throughout the world. Hasibuan et al. (2020), The Covid-19 virus spreads through droplets or from the nose when an infected person coughs or sneezes, so it is important for us to practice respiratory etiquette (such as coughing on a bent elbow). There is no specific drug or vaccine that can cure this disease. And until now it is still under research. People who already have a congenital disease will worsen the spread of this virus in the body. Mohammad Hidayaturrahman and Edy Purwanto (2020) revealed that Covid-19 has become a major problem in several countries in the world. The number of cases of exposed victims is so large that the WHO (World Health Organization) has declared it a pandemic. Many countries have suffered losses due to the Covid-19 pandemic, including economic losses. This is made clear by Mahammed's statement (2020) that the economic crisis due to this pandemic is different from previous economic crises, where microbusiness is the most affected sector. So, it is necessary to encourage the strength of the national economy for economic recovery in small business or microbusiness, tourism, and food. Then, financial strengthening is also needed, such as an allowance and relaxation policy This is made clear by Mahammed's statement (2020) that the economic crisis due to this pandemic is different from previous economic crises, where microbusiness is the most affected sector. So, it is necessary to encourage the strength of the national economy for economic recovery in small business or microbusiness, tourism, and food. Then, financial strengthening is also needed, such as an allowance and relaxation policy This is made clear by Mahammed's statement (2020) that the economic crisis due to this pandemic is different from previous economic crises, where microbusiness is the most affected sector. So it is necessary to encourage the strength of the national economy for economic recovery in small business or microbusiness, tourism, and food. Then, financial strengthening is also needed, such as an allowance and relaxation policy.

2.2. Stock Price Volatility

Volatility or fluctuation according to the Big Indonesian Dictionary (KBBI) is a symptom that shows the fluctuation of prices or changes in prices due to the influence of supply and demand. And in the Bank Indonesia Dictionary, volatility is defined as the standard deviation of changes in the value of a financial instrument with a specific period and is used to calculate the risk of a financial instrument over a period, generally on an annual basis.

Napitupulu and Syahyunan (2012) argue that volatility is a measure of the dispersion around the average yield of a security. Firmansyah (2006) argues that volatility is a statistical measurement for fluctuations in the price of a security or commodity during a certain period. Considering that volatility can be represented by a standard deviation, the public also perceives volatility as a risk. The higher the level of volatility, the higher the level of uncertainty of the stock returns that can be obtained. One of the ten principles of financial management states that investors will not want to take higher risks unless they can obtain compensation in the form of higher returns (high risk, high return) (Keown et al., 2001).

Stock price volatility or stock index is very important for investors to understand. It is intended to minimize the risks that will be faced. The higher the level of volatility, the higher the level of uncertainty of the stock returns that can be obtained. One of the ten principles of financial management states that investors will not want to take higher risks

unless they can obtain compensation in the form of higher returns (high risk, high return) (Keown et al., 2003). According to Schwert and W. Smith, Jr. (1992) there are five types of volatility in financial markets, namely future volatility, historical volatility, forecast volatility, implied volatility, and seasonal volatility.

Medeiros and Doornik (2008) in their research conclude that there is a significant contemporary relationship between return volatility, stock returns and trading volume. Meanwhile, the results of Kasirah's research (2008) show that there is a positive relationship between stock returns and trading volume, and a relationship between return volatility and trading volume, and there is also no causal relationship between variables. Mubarik and Javid (2009) also explain that there is a reciprocal relationship between stock returns and trading volume, return stocks with stock price volatility and trading volume with stock volatility. Le Quang Tiep and Mustafa Mehmed (2009) also conducted a study where the results concluded that there was a significant positive relationship between stock index returns and trading volume, as well as between trading volume and stock index returns, and had a positive correlation with volatility.

What is interesting is that stock market volatility in emerging markets is generally much higher than that of developed countries (Bekaert and Harvey, 1997; Wang, 2007). The reason for the higher volatility in developing countries is economic instability (Kaminsky and Reinhart, 2001). Various studies have shown that volatility in financial markets can erode investor participation, increase the cost of capital, and hinder business expansion by companies. Levine and Zervos (1998) stated that high volatility can disrupt the growth and development of the capital market, which also plays a role in national economic growth in the long term.

Stock price volatility can also be influenced by macro and micro factors (Schwert, 1989). Macro factors are factors that affect the economy, for example high interest rates, inflation, national productivity levels, politics, and others that have an important impact on the company's profit potential. Micro factors are factors that have a direct impact on the company itself, for example changes in management and organization, prices and availability of raw materials, labor productivity and other factors that can affect the company's own profit performance.

2.3. Stock Return

Robert Ang (2001) reveals that Stock Return or stock return is the level of profit enjoyed by investors on an investment they make. In capital market theory, the rate of return received by an investor from shares traded in the capital market (shares of publicly traded companies) is usually termed return. In general, stock returns can be defined as the results obtained by investors from the investments made and can be seen as a value addition (gain) or even a reduction in value (loss) where these two concepts are based on the condition of the ups and downs of the value of the investments made by investors.

Stock return (R_i, t) is obtained from the daily share price of security i at time t (P_i, t) minus the daily share price of security i at time $t-1$ ($P_i, t-1$), divided by the daily share price of security i at time $t-1$ ($P_i, t-1$) or by the formula:

$$R_i, t = \frac{P_i, t - P_i, t - 1}{P_i, t - 1}$$

To obtain a return or profit, investors must pay attention to the risks that will be borne if they want to get a certain return. Risk is the possible difference between the actual return received and the expected return. The greater the possible difference, the greater the risk of the investment.

Return consists of two components, namely current income, and capital gains. Current income is profit obtained through periodic payments such as payment of deposit interest, bond interest and so on. then capital gains, namely profits received due to the difference between the selling price and the purchase price of an investment instrument. Of course, not all investment instruments provide a return component in the form of capital gains or capital losses. Capital gain is highly dependent on the market price of the investment instrument in question, which means that the investment instrument is traded out in the market. In a trade there can be changes in the value of an investment. Investments that can provide capital gains such as bonds and stocks, while those that do not provide return capital gain components such as certificates of deposit, savings and so on.

According to Jogiyanto (2010), there are 2 types of stock returns, namely realized returns and expected returns. Realized return is a return calculated using historical data. Expected return is the return expected to be obtained by investors in the future. The expected return can be calculated based on the expected future value, based on historical

return values and based on the existing financial expected return model in the form of financing and credit relaxation for businesses in the main and small economic sectors.

2.4. Hypothesis Development

The Covid-19 pandemic is the largest, extraordinary event in history. Covid-19 has destroyed all sectors and wheels of people's economic life. Several previous studies explained that the Covid-19 pandemic had a negative impact on the capital market in all companies. Research conducted by Al-Awadhi et al., (2020) and Xu (2021) stated the negative impact of the Covid-19 pandemic on the stock market. The situation that has become uncertain due to the Covid-19 pandemic affects the behavior of investors where they will feel panic and doubt in investing (Shu, 2010; Kaplanski and Levy, 2010). The increase in the number of Covid-19 cases shows a negative sign that is unfavorable or significant to the global economy (Jackson et al., 2020) and the National (Susilawati et al., 2020). When Indonesia first declared a confirmed case of Covid-19, there was a decline in stock prices which indicated the average value before was greater than the average value after the event and the transaction volume also showed an unfavorable sign through a significant increase in difference. sale of company shares after the announcement of the confirmed case (Susilawati et al., 2020). The Covid-19 pandemic also had a significant impact on the weakening of the rupiah exchange rate against foreign currencies, especially the US dollar (Hastuti, 2020). sale of company shares after the announcement of the confirmed case (Susilawati et al., 2020). The Covid-19 pandemic also had a significant impact on the weakening of the rupiah exchange rate against foreign currencies, especially the US dollar (Hastuti, 2020). sale of company shares after the announcement of the confirmed case (Susilawati et al., 2020). The Covid-19 pandemic also had a significant impact on the weakening of the rupiah exchange rate against foreign currencies, especially the US dollar (Hastuti, 2020).

Another study according to (Ming et al., 2020) showed that the Covid-19 pandemic had improved air quality, which could help increase GDP later. According to Salisu and Akanni (2020), the Covid-19 period created global fear and which can predict stock returns tend to be negative. Meanwhile, according to Mnif et al (2020) the results of the study prove that the Covid-19 case has had an impact on the stock market in Indonesia.

Based on signaling theory, Covid-19 causes companies listed on the Indonesia Stock Exchange to experience very low prices, thus giving a bad signal where investors will receive small or even negative returns. The Covid-19 pandemic that occurs over a long period of time will result in a global financial crash, as is currently happening in several large countries whose stock prices continue to decline (Aslam et al., 2020). A study conducted by Al-Awadhia et al., (2020) on the Chinese capital market and revealed that the daily growth of Covid-19 cases has led to a decline in capital market returns. Ashraf (2020) conducted research in 43 countries confirming the decline in stock returns due to the rise of Covid-19 cases.

The dramatic increase in the number of cases worldwide has had a negative impact on capital markets. Currently, industries affected by the Covid-19 pandemic can be divided into three categories, namely industries that are lightly affected, industries that are very positively affected, and industries that are very negatively affected. Overall, most industries experienced a strong negative impact, with mining, agriculture and the automotive industry being the hardest hit. As the Covid-19 pandemic escalates globally. Several companies closed their headquarters and implemented headquarters to help curb the spread of the virus. Judging from the automotive situation, the spread of the pandemic caused the country to halt large-scale assembly activities, which hampered automotive activities and caused severe damage to the automotive industry's sales economy.

Recently, Zeren and Hizarci (2020) have analyzed the effects of Covid-19 on the financial markets of the countries most affected by this epidemic. Maki (2012) uses a cointegration test which considers the total number of daily deaths and the total number of confirmed cases each day. The results show that in all financial markets analyzed, there is a long-term cointegration relationship between the total number of confirmed cases and the SSE, KOSPI and IBEX35 indices. However, there seems to be no cointegration with FTSE, MIB, CAC40 and DAX30.

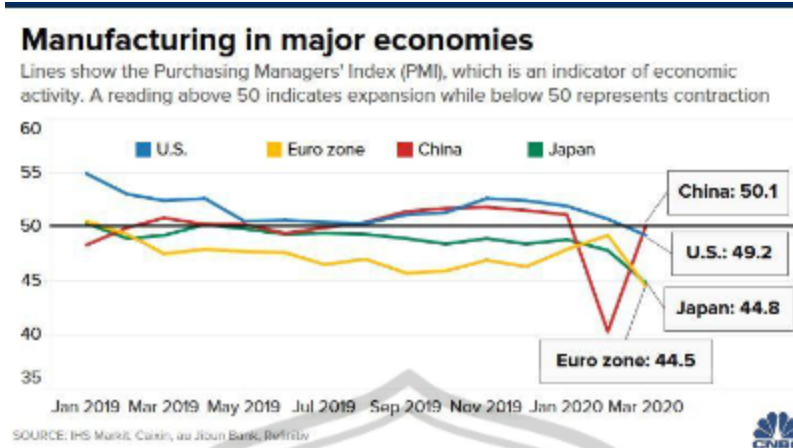


Figure 1. Manufacturing in major economies

According to CNBC Indonesia (2020) because of the Covid-19 pandemic, many countries have taken lockdown measures as an effort to decide the spread of the Covid-19 virus. Not only people who have taken measures to lock down, but several manufacturing companies have been forced to close for a while. However, there are also several companies that remain open to face restrictions on obtaining finished goods and supply of goods. (Figure 1)

According to CNBC Indonesia (2020), most companies listed on the Indonesia Stock Exchange (IDX) experienced a decline in stock prices, one of which is a company engaged in manufacturing. Companies with the manufacturing sector in 2019 have experienced a decline, especially stocks in the automotive and component sub-sectors have also experienced a decline in stock prices since the beginning of 2020. The Indonesia Stock Exchange explained that the automotive and components manufacturing sub-sector companies have experienced a decline of 7.03% since the beginning of 2020 in line with the decline in the manufacturing industry, due to a decline in automotive demand.

Ramelli and Wagner (2020) also analyzed the effect of the Covid-19 pandemic on stock prices. The study found that the telecommunications and pharmaceutical sectors performed well while the transportation and energy sectors experienced a decline in performance. It also appears that American companies, which depend on Chinese inputs, and which are heavily export-oriented in China, are suffering from the fall in their share prices in the market. Mazur et al. (2020) investigates the performance of the US stock market during the March 2020 crash triggered by Covid-19. To this end, they used an event study methodology to measure abnormal returns (AR) and panel data regression to explain the causes of AR. The findings reveal that the cumulative average abnormal return (CAAR) from day 0 to day 43, ranges from - 0.70 to - 42.69%, this is a consequence of increasing panic in the stock market due to the increasing number of confirmed Covid-19 cases in the G-20 countries.

Albulescu (2020) documented that new confirmed Covid-19 cases and reported deaths positively affect the market volatility index (VIX) both inside and outside China. In addition, the authors support that the higher the spread of the deadly virus in the country, the higher the financial volatility in the stock market. Phan and Narayan (2020) investigate how stock prices react in real-time to various stages in the evolution of Covid-19. The findings show that the market is overreacting and as more information becomes available and people understand the consequences more broadly, the market corrects itself. The explanation above makes the author interested in raising a topic regarding stock prices in automotive companies that have been affected by the Covid-19 pandemic.

The Corona Virus (Covid 19) has had a significant impact on the decline in stock indexes in several countries. This study took stock index samples in 5 countries with the largest spread of the Covid virus in the world, namely America, Brazil, Russia, France and Turkey and index samples from 6 countries with the largest spread of the Covid virus in Asia, namely India, Indonesia, Philippines, Bangladesh, Malaysia, and Iraq. The Index sample took 6 months after and before the first Covid case. (Table 1)

Table 1. Date of the first Covid 19 cases in several countries

No	Negara	Kasus Pertama
1	USA	21 Januari 2020
2	India	30 Januari 2020
3	Russia	2 Maret 2020
4	France	27 Desember 2019
5	Turki	11 Maret 2020
6	Irak	25 Februari 2020
7	Indonesia	2 Maret 2020
8	Filipina	25 Januari 2020
9	Bangladesh	15 Mei 2020
10	Malaysia	25 Januari 2020

From the index sample taken, it was found a decrease in the composite stock index in the period of the first Covid case, following the Scatter Plot Index of the composite stock: (Figure 2)

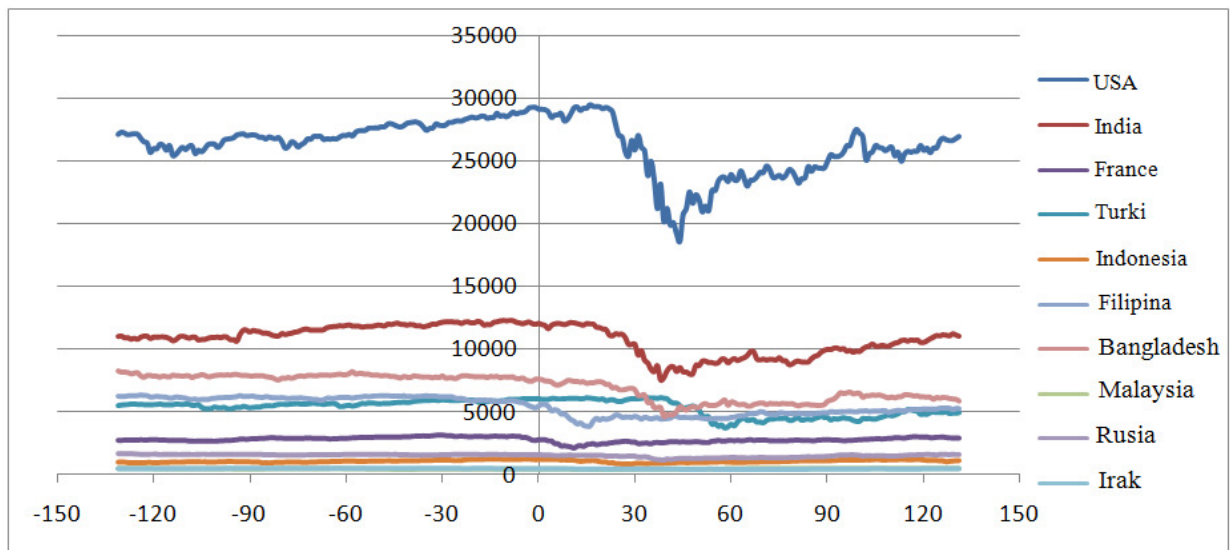


Figure 2. Composite Stock Index Scatter Plot

The decline in the composite stock index in countries experiencing the world's largest spread of Covid-19 cases did not immediately occur when it occurred during the first case but after one month of the first Covid case. The possible decline in the stock index occurred because governments in countries with the largest Covid-19 cases in Asia and the world adopted a large-scale lockdown or social restriction policy to reduce the spread of the Covid-19 virus.

Especially for Indonesia, with the lockdown policy or Large-Scale Social Restrictions limiting the activities and mobility of the community in the fields of Transportation, Education, Worship, Trade, Tourism and Offices. As a result of these government policies, there are several sectors that have the most impact on the decline. It can be seen through the comparison of the Sectoral Index on the Indonesia Stock Exchange.

The comparison of the Sectoral Index is carried out by comparing the Argo industry, Basic Industry, Construction, Mining, Infrastructure, Automotive, Trade, finance, and Property sectors. The sectoral index comparison takes data 6 months after and before the first Covid 19 case in Indonesia on March 2, 2020. The following is a comparison of sectoral indices on the Indonesia Stock Exchange: (Figure 3)

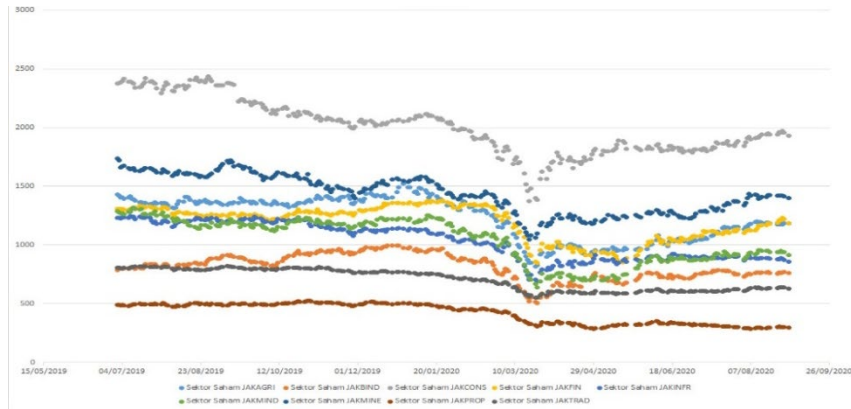


Figure 3. Sectoral Stock Index 6 Months before and after the Covid 19 case

From the sectoral stock indexes shown above, it appears that there was a decline in stock indexes in all sectors after the first case of Covid 19 occurred in Indonesia. The closing of the Stock Index on March 19, 2020 was the most significant decline in the Sectoral Index. The Construction sector index fell to 1375.7, the Mining sector index fell to 1047.49, the Finance sector index fell to 921.22, the Industrial Argo sector index fell to 846.43, the automotive sector index was 719.06, the infrastructure sector index fell to 705.28, The basic Industry sectoral index fell to 519.64, the Trade sectoral index fell to 560.16, the Property sector index fell to 324.38. With a sectoral composite stock index of 921.23.

At the beginning of 2020 the construction stock index was 2058.94, the mining stock index was 1538.02, the financial stock index was 1356.37, the Argo Industry stock index was 1490.76, the Automotive stock index was 1213.47, the infrastructure stock index was 1125.84, Basic Industry stock index 970.53, Trading stock index 767.68, Property stock index 502.37. (Figure 4)

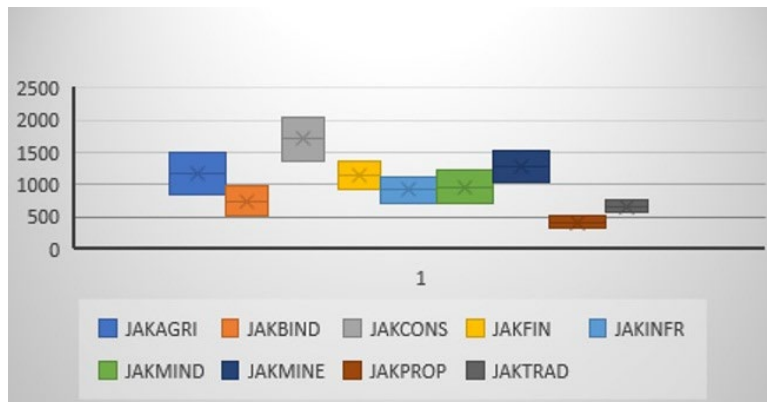


Figure 4. Date of sectoral stock index

Emergency conditions, such as natural disasters or pandemics, often affect investor behavior which ultimately affects stock prices (He et al., 2020). With the COVID-19 pandemic, the situation worsens if banks fail to meet the company's financing needs due to a sudden decline in demand and ultimately the impact on stock markets throughout the world (Khan et al., 2020).

The Covid-19 pandemic eroded economic conditions which resulted in people's purchasing power declining. People prioritize health needs over other needs. Sales of motor vehicles experienced pressure and decreased due to the decline in people's purchasing power. According to data from the Association of Indonesian Automotive Industries (Gaikindo), from the beginning of the year to March 2020, domestic car sales were recorded at 236,825 units, down 7% from 3 months in 2019 which was 254,332 units. These facts become data and information as explained in Signaling Theory or signal theory. Houston.et.al (2011:185) states that the signal is a policy taken by the company's management to provide instructions and information for investors to see the company's prospects in the future. Meanwhile, Jogyanto (2014:392) argues that the signal is information conveyed to investors in the context of making investment decisions. The addition of Covid-19 cases has factually affected Stock Exchanges in the world, including Indonesia.

Changes in stock prices during a pandemic can occur because consumer spending is depressed and companies lower their income prospects which has an impact on the market reassessment of company value and a large fall in stock prices (Mazur et al., 2020). According to Ashraf (2020), the stock market responded negatively to stock market returns declining as the number of confirmed cases increased. This opinion is supported by the research of Thomas et al.(2020) which concluded that there was a negative impact of the COVID-19 announcement on NIFTY (Indian National Stock Exchange).

This negative influence has an impact on companies on the stock exchange, including automotive companies, so that, like signal theory, this is a bad signal for investors because they will receive a small stock return. Based on the results of previous studies, the authors took the following hypotheses to be tested:

H1: The addition of Covid 19 cases has a negative effect on the Stock Return of Automotive Stocks listed on the Indonesia Stock Exchange

Volatility is the upheaval or shock and fluctuation of a security or portfolio within a certain period. The volatility of stock prices is a decisive thing and must be understood by related investors to get the maximum return.

Dimitriou, et al (2011) found a significant negative effect between volatility and stock returns. While Baker et al. (2011) found the relationship between stocks that have a high level of volatility is very influential on returns. From the results of this study, it was found that volatility testing had a significant effect on stock returns. French and Roll (1986) argue that trading information is a source that causes excessive volatility in daily returns, the variance of returns over long horizons should be less than the cumulative variance of Stock Returns.

High volatility can be seen when in the range of a phase the fluctuations are relatively high then turn into low fluctuations and return to high Widarjono (2017: 287). This can be interpreted that the fluctuations have a non-constant average and variance. From the picture described previously, it appears that there is volatility clustering for all stock exchanges in all sectors, including automotive stocks. Volatility clustering which can also be said as Volatility clustering is a form of volatility that will be very high for a certain period and then low for another period of time. This can be due to panic from investors when Covid-19 entered Indonesia and the number of cases was increasing. This panic resulted in negative sentiment from investors and many of them ended up withdrawing their portfolios. Policies issued by the Government such as the imposition of a lockdown or Large-Scale Social Restrictions (PSBB) which resulted in people's purchasing power declining also triggered this volatility. Based on the results of previous studies, the authors took the following hypotheses to be tested:

H2: Stock Price Volatility before and during the Covid 19 Pandemic has a positive effect on Stock Return of Automotive Stocks listed on the Indonesia Stock Exchange

2.5. Theoretical Framework

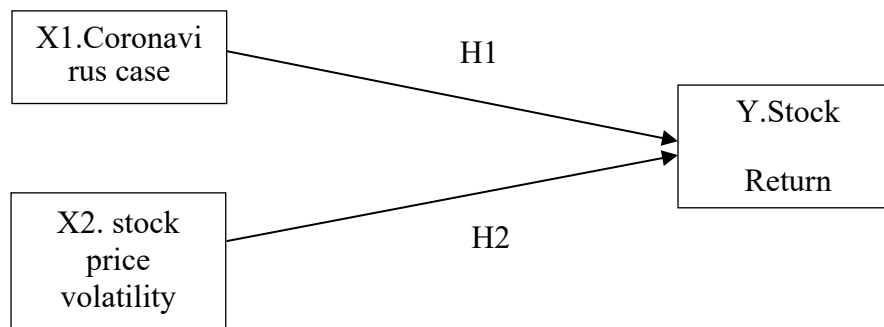


Figure 5. Theoretical Framework

Based on the discussion above, the hypotheses proposed in this study are:

H1: The addition of Covid 19 cases has a negative effect on the Stock Return of Automotive Stocks listed on the Indonesia Stock Exchange.

H2: Stock Price Volatility before and during the Covid 19 Pandemic has a positive effect on Stock Return of Automotive Stocks listed on the Indonesia Stock Exchange.

3. Methods

3.1 Elements of Research Design

The research strategy in this paper uses observation with secondary data. Extent of Researcher Interference is to see the extent of the involvement of researchers in conducting research. For the involvement of researchers in this study, it falls into the minimal category (minimal interference), namely the research is carried out in a natural setting with minimal involvement and normal workflow (Sekaran and Bougie, 2010). This is since the researcher does not enter into the object or research activity. Based on the notion of the study setting, namely the place where the research is carried out, the research is included in non-contrived research. Non-contrived research is research conducted in a natural environment where events occur normally. Non-contrived research is also interpreted as research conducted without the involvement of the researcher in the normal activities of the research subject (Sekaran and Bougie, 2010). In another sense, the unit of analysis is defined as something related to the focus/component under study. The unit of analysis is the level of aggregation of the data obtained or collected when the data collection stage is carried out. Time horizon is the duration of the research. This research is included in the time horizon category of longitudinal studies where research is carried out by taking data several times in a predetermined period. This study took data from 2 different timescales, namely the time before the Covid-19 Pandemic and the time after the Covid-19 Pandemic.

In this study, only data were taken about the shares of automotive companies before and after the Covid-19 pandemic. In addition, data on the number of cases of the Covid-19 pandemic in Indonesia. During the Covid-19 Pandemic, where the implementation of Large-Scale Social Restrictions (PSBB) through Government Regulation Number 21 of 2020 concerning Large-Scale Social Restrictions in the Context of Accelerating the Handling of Corona Virus Disease 2019 (Covid-19), had a major impact on the economy in Indonesia. The Social Restrictions regulate school and work holidays, restrictions on religious activities, and restrictions on activities in public places or facilities. As a result of the Social Restrictions, the shares listed on the Indonesian Stock Exchange (IDX) experienced a decline in price, especially automotive stocks.

The target population of this study is the automotive sector stocks listed on IDX for the period March 2020 to March 2021. There are 15 Automotive Stocks listed on the Indonesia Stock Exchange (IDX). Based on the small population size, the appropriate sample size used is the entire population of 15 Automotive Stocks listed on the Indonesia Stock Exchange (IDX).

3.2 Proposed Sampling Method/ Procedures and Sample Size

The sampling technique used is the purposive sampling method, which is a sample research technique with certain considerations (Sugiyono, 2008). For this reason, the selected companies used as samples are based on the following criteria:

1. Shares must be listed continuously during the research period, because if the data is not available then the results will be ordinary;
2. Have complete transaction data during the observation period, which is every January 2010 to December 2013. Data collection is carried out every date at the end of the month after the closing of the trading session;
3. Not carrying out corporate actions, such as diversification, acquisitions or mergers during the observation period to avoid any joint influence.

The sample selection process in this study can be explained in the Table 2 below:

Table 2. List of Indonesia Automotive Stock

STOCK CODE	NAME OF ISSUER
ASII	PT ASTRA INTERNATIONAL Tbk
AUTO	PT Astra Otoparts
MPMX	PT Mitra Pinasthika Mustika Tbk
IMAS	PT Indomobil Sukses International Tbk
GJTL	PT Gajah Tunggal Tbk
TIME	PT Multistrada Arah Sarana Tbk
GDYR	PT Goodyear Indonesia Tbk
INDS	PT Indospring Tbk
LPIN	PT Multi Prima Sejahtera Tbk
BRAM	PT Indo Kordsa Tbk
BOLT	PT Garuda Metalindo Tbk
CARS	PT Bintraco Dharma Tbk
NIPS	PT Nipress Tbk
PRAS	PT Prima Aloysteel Universal Tbk
SMSM	PT Selamat Sempurna Tbk

Not all data that will be taken there are 15 issuers that will be taken with code 42 or in other words the shares listed in the automotive subsector and IDX components. The sample taken covers approximately 70% of the total automotive companies in Indonesia. (Table 3)

Table 3. Period of data retrieved

Data retrieved	Period
15 Automotive stocks	6 months before Covid 19 (August-Dec 2019 & Jan-Feb 2020)
15 Automotive stocks	6 months during the Covid Pandemic (March – August 2020)

This research uses multiple linear regression analysis method to test the existing data. According to Sugiyono (2016) multiple linear regression analysis is a regression that has one dependent variable and two or more independent variables. Meanwhile, according to Umi Narimawati (2008), multiple linear regression analysis is an association analysis that is used simultaneously to examine the effect of two or more independent variables on one dependent variable on an interval scale.

Multiple linear regression makes all the same assumptions as simple linear regression. The test is carried out as follows:

- a. Homogeneity of variance (homoscedasticity): the size of the error in the prediction does not change significantly across the values of the independent variables.
- b. Observation independence: observations in the data set will always be collected using statistically valid methods, and there are no hidden relationships between variables.

In this study, there are 2 independent variables (Additional Covid-19 Cases and Stock Price Volatility) that will be tested against the dependent variable (Stock Return).

The multiple regression equation can be formulated as follows:

$$Y = a + b_1X_1 + b_2X_2$$

Information:

Y = Dependent Variable

a = Constant Price

b₁ = First Regression Coefficient

b₂ = Second Regression Coefficient

X₁ = First Independent Variable

X₂ = Second Independent Variable

4. Data Analysis

From the results of the analysis and test of data with the Multiple Linear Regression Method, the following results are obtained: (Figure 6)

Correlations

		Stock return	+ Covid cases	Volatility
Pearson Correlation	Stock return	1,000	-.027	.052
	+ Covid cases	-.027	1,000	.021
	Volatility	.052	.021	1,000

Sig. (1-tailed)	Stock return	.	.032	.002
	+ Covid cases	.032	.	.364
	Volatility	.002	.364	.
N	Stock returns	264	264	264
	+ Covid cases	264	264	264
	Volatility	264	264	264

Figure 6. Processed data

a. The Effect of Adding Covid 19 Cases to Stock Return

It can be seen from the picture, in the Correlation Matrix between Stock Price Volatility Variables and Stock Returns, $r = 0.002$ with probability = $0.000 < 0.05$, then H_0 is rejected, which means that there is a significant correlation/relationship between Stock Price Volatility and Stock Return. Variable Frequency Addition with a test value of $r = -0.027$, the negative sign describes the opposite relationship, which means that the higher the addition of COVID19, the lower the return on automotive stocks in Indonesia. Furthermore, the Stock Price Volatility Variable with a test value of $r = 0.052$ is positive, describing a unidirectional relationship, meaning that if the stock price volatility increases, stock return will also increase.

b. Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.759 ^a	.730	.704	4,158
2	.834 ^a	.680	.648	3,024

a. Predictors: (Constant), Volatilitas, + Kasus Covid

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	401.944	2	200.972	.452	.037 ^b
	Residual	115961.598	261	444.297		
	Total	116363.542	263			

a. Dependent Variable: Return_saham

b. Predictors: (Constant), VOLATILITAS, P.KASUS

Figure 7. Processed data

The table is in the model to explain the magnitude of the correlation value or relationship between the Addition of Covid 19 Cases (X1) and Stock Return (Y) which is 0.759 between the score and the explanation of the percentage effect of the variable score of Adding Covid 19 Cases on stock returns which is called the coefficient of determination. which is the result of the measurement of R. From the output, the coefficient of reflection is 0.73 which contains the influence of the independent variable by 73% on the dependent variable (Stock Return). (Figure 7)

5. Discussion

The occurrence of the Covid-19 Pandemic and the addition of cases from day to day proved to have a significant negative impact on stock returns of the capital market in Indonesia, including the automotive sector. The increasing number of Covid-19 cases has resulted in negative automotive stock returns. This can be caused by a panic response from investors to then sell their shares. On the other hand, people's purchasing power has decreased due to the disrupted economy due to the lockdown or PSBB. Research by Al-Awadhi et al. (2020) stated that the increase in the number of Covid-19 cases created uncertainty in the future and had an impact on stock returns. Research by Ajeng Mugiarni et al (2021) shows that the addition of cases and deaths makes stock returns in Indonesia negative. Meanwhile, according to Rahman et al (2021),

Stock price volatility during the Covid-19 period significantly had a positive effect on stock returns. High volatility seemed to occur when Covid-19 began to enter Indonesia and several months after. The results of the research by Iman Jayanegara et al (2021) explain that there are differences in volatility in the time span before the entry of Covid-19 and when the entry of Covid-19. Research by Teresia et al (2021) explains that the entry of Covid-19 has a positive effect on stock volatility, including in Indonesia. Meanwhile, research by Husnil Barry (2020) explains that there is Volatility Clustering in the mid-March period in all exchanges of several countries. This is in line with what happened in Indonesia where in March Covid-19 began to enter Indonesia. The entry of Covid-19 into Indonesia, which quickly spread throughout the world, caused panic among stock investors, including automotive stocks, in Indonesia. This panic ultimately resulted in increased stock price volatility due to the fall in stocks because many sold their shares and of course the impact on stock returns tended to be negative.

6. Conclusion and Future Research

This study aims to specifically investigate the impact of the increase in Covid-19 pandemic deaths on the Automotive stock sector on the Indonesia Stock Exchange. The impact of the Covid-19 pandemic is measured by the number of additional cases. Meanwhile, the volatility is measured by the increase and decrease in automotive stock prices. Opening and closing of shares for the period of 6 months before and after the Covid-19 case first appeared in Indonesia on March 2, 2020. Meanwhile, Stock Return is measured by Current Income, namely the distribution of dividends and net income and from Capital gain or loss of shares from Increase in closing price of shares for the period of 6 months before and after the Covid-19 case first appeared in Indonesia on March 2, 2020. The results showed that the Stock Return of automotive stocks in Indonesia tended to be negatively affected due to the addition of Covid-19 cases. This may be due to the reduced and sluggish purchasing power of automotive as people are affected by economic conditions due to the Pandemic and prioritize other needs. For stock price volatility variables, the test results show that stock price volatility has a positive effect on stock returns. The precarious situation during the Pandemic that caused public panic is thought to have greatly increased the volatility of stocks at that time, so that high volatility had an impact on stock returns.

Based on the results of this study, which only took a sample of shares in the automotive sector, further studies can be carried out based on other sector stocks, such as the energy sector or financial services sector, where both sectors have a major role in stocks in Indonesia. Other variables can also be added, for example government policies because during the Covid-19 Pandemic there were various policies carried out by the Government.

References

- Akhtaruzzaman, M., Boubaker, S. and Sensoy, A., Financial contagion during COVID-19 crisis, *Finance Research Letters*, Volume 38, 101604, 2021.
- Al-Awadhi, A. M., K. Alsaifi, A. Al-Awadhi and S. Alhammadi, Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns, *Journal of Behavioral and Experimental Finance*, 27: 100326, 2020.
- Arafa, A. and Nader, A., The Impact of Coronavirus Pandemic on Stock Market Return: The Case of MENA Region. =, *International Journal of Economics and Finance*, 12, 100-106, 2020.
- Arikunto, S., *Prosedur Penelitian Suatu pendekatan Praktek*, Rineka Cipta, Jakarta, 2010.
- Artika Febriyanti, G., Dampak pandemi Covid-19 terhadap harga saham dan aktivitas volume perdagangan (Studi kasus saham LQ-45 di Bursa Efek Indonesia), *Indonesia Accounting Journal*, 2 (2), 204-214, 2020.
- Au Yong, H. H., Laing, E., *Stock market reaction to COVID-19: Evidence from U.S. Firms' International exposure*. *International Review of Financial Analysis*, Volume 76, 101656, 2021.
- Barry, H., Analisis Dampak Covid-19 Terhadap Volatilitas Pasar Saham Di Lima Negara Di Dunia, *Prosiding Seminar Nasional Terapan Riset Inovatif (SENTRINOV)*, 6(2), 17-24. 2020.

- Bougie, Roger and Sekaran, U., *Research Methods for Business, Fifth Edition*, John Wiley and Sons Ltd, 2010.
- Brigham, E. F., Houston, J. F., and Yulianto, A. A., *Dasar-dasar Manajemen Keuangan, Salemba Empat*, Jakarta, Buku I, Edisi 11, 2010.
- Darmayanti, N., Dampak Covid-19 Terhadap Perubahan harga dan Return Saham, *Jurnal Ekonomi dan keuangan, EKUITAS (Jurnal Ekonomi dan Keuangan)*, Jilid 4. Hal. 462-480, 2017.
- De Medeiros, O. R. and Doornik, B., The Empirical Relationship Between Stock Returns, Return Volatility and Trading Volume in the Brazilian Stock Market, *Brazilian Business Review*, 5(1), 1–17, 2008.
- Firmansyah, *Analisis Model Volatilitas Return Saham*, Universitas Diponegoro, Semarang, 2006.
- He, P., Sun, Y., Zhang, Y., and Li, T., COVID–19’s Impact on Stock Prices Across Different Sectors—An Event Study Based on the Chinese Stock Market, *Emerging Markets Finance And Trade*, 56 (10), 2198–2212, 2020.
- Iheke, D., Okorie, & Lin, B., Stock Markets and the COVID-19 Fractal Contagion Effects, *Finance Research Letters*, 38, 10, 1016, 2021.
- Jayanegara, I., *Analisis Volatilitas Pada Return Saham Sektor Properti Dan Real Estate Dengan Menggunakan Model Arch-Garch Di Masa Pandemi Covid-19*, D4 thesis, Politeknik Negeri Jakarta, 2021.
- Karami, R. A., *Pengaruh Return Saham Terhadap Volatilitas Return saham dengan Membandingkan Saham Sebelum Masuk dan setelah Masuk di ISSI*, Universitas Brawijaya, Malang, 2019.
- Karlina Sari, L., Achsan, N. A., Sartono, B., *Pemodelan Volatilitas Return Saham: Studi Kasus Pasar Saham Asia Modelling Volatility of Return Stock Index: Evidence from Asian Countries*, Jurnal Ekonomi dan Pembangunan Indonesia, 2018.
- Kasirah, *Analisis Hubungan Return Saham, Volatilitas Return Dan Volume Perdagangan Dengan Menggunakan Metode Koefisien Korelasi, Garch dan Granger Causality di Bursa Efek Jakarta*, Universitas Mayjen Sungkono, Mojokerto, 2008.
- Keown, A. J., Martin, J. D., Petty, J. W., and Scott, D. F., *Financial Management: Principles and Applications*, Prentice Hall, 9th edn. New Jersey, 2001.
- Keown, A.J., Martin, J. D., Petty, J. W. and Scott, D. F., *Foundations of Finance*, Pearson Education, 4th ed. New Jersey, 2003.
- Khurniaji, A. W., Raharja, S., Hubungan Kebijakan Dividen (Dividend Payout Ratio Dan Dividend Yield) Terhadap Volatilitas Harga Saham, *Diponegoro Journal Of Accounting*, Vol.2, no.3, hal 1-6, 2013.
- Kusumahadi, T. A., Permana, F. C., Impact of COVID-19 on Global Stock Market Volatility, *Journal of Economic Integration*, 36(1) :20-45, 2021.
- Le, Q. T. and Mehmed, M., *The relationship between trading volume, stock index returns and volatility: Empirical evidence in Nordic countries*, Department of Business Administration Mark, 2009.
- Lyocsa, S., Baumohl, E., Vyrost, T., and Molnar, P., Fear of the coronavirus and the stock markets, *Finance Research Letters*, Volume 36, 101735. 2020.
- Mazur, M., Dang, M., and Vega, M., COVID-19 and the March 2020 Stock Market Crash. Evidence from S&P1500, *Finance Research Letters*, 38, 101690, 2021.
- Mubarik, F. and Javid, A.Y., Relationship Between Stock Return, Trading Volume and Volatility: Evidence From 18 Pakistani Stock Market, *Asia Pasific Journal of Finance and Banking Research*, Vol. 3 (3), 1-17, 2009.
- Mugiarni, A. and Wulandari, P., The Effect of Covid-19 Pandemic on Stock Returns: An Evidence of Indonesia Stock Exchange, *Journal of International Conference Proceedings (JICP)*, Vol. 4, No. 1, 2021.
- Napitupulu, V. and Syahyunan, Pengaruh Return Saham, Volume Perdagangan dan Volatilitas Harga saham terhadap Bid- Ask Spread pada perusahaan yang melakukan stock split di Bursa Efek Indonesia, *Jurnal Akuntansi*. 1(2), 2013.
- Ong, M., and Marheni, D. K., The Effect Of Covid-19 On Stock Market Return In Consumer Goods Sector In Indonesia, *Jurnal Ilmiah MEA (Manajemen, Ekonomi, & Akuntansi)*, 5(3), 1779-1793, 2021.
- Ozdurak, C., Dursun Güvenbaş, S., Alcan, G., The Impact of Covid-19 to Global Pharmaceuticals and Biotechnology Company Stocks Returns, *Journal of Business, Economics and Finance (JBEB)*, 9 (2), 68-79, 2020.
- Panyagometh, K., The Effects of Pandemic Event on the Stock Exchange of Thailand, *Multidisciplinary Digital Publishing Institute*, 8, 90. 2020.
- Perhimpunan Dokter Paru Indonesia (PDPI), *Pneumonia Covid-19: Diagnosis & Penatalaksanaan di Indonesia*, PDPI, 2020.
- Prakoso, R., *Analisis Faktor-faktor yang mempengaruhi Return Saham*, Universitas Surakarta, Surakarta, 2016.
- Rahman, M. L., Amin, A., and Al Mamun, M. A., The COVID-19 outbreak and stock market reactions: Evidence from Australia, *Finance Research Letters*, 38, 101832, 2021.
- Saraswati, H., Dampak Pandemi Covid-19 Terhadap Pasar Saham Di Indonesia, *Jurnal Riset Akuntansi & Keuangan Dewantara*, 3(2), 153-163, 2020.

- Saraswati, N. M. A. W., and Mustanda, I. K., *Reaksi Pasar Modal Indonesia terhadap peristiwa pengumuman hasil perhitungan suara pemilihan umum dan pelantikan Presiden Amerika Serikat*, Fakultas Ekonomi dan Bisnis Universitas Udayana, Bali, Indonesia, 2018.
- Sari, S. P. and Lestari, W. R., Analisis Dampak Pengumuman Deviden Terhadap Reaksi Pasar (Study Pada Perusahaan Indeks LQ 45), *Jurnal Magister Manajemen*, Vol 1, No.2, 2015.
- Schwert, G. W. and Smith, C. W., *Empirical Research in Capital Market*, McGraw-Hill, Inc. USA, 1992.
- Situmeang, S., and Muharam, H., Analisis Pengaruh Volatilitas Harga, Likuiditas Saham, Eps, Size Firm, Momentum Overnight Terhadap Return Saham (Studi kasus perusahaan yang terdaftar dalam Indeks LQ45 Periode 2009-2013, *Diponegoro Journal of Management*, vol. 0, pp. 169-180, 2015.
- Suteja, J. dan Patrisius, S., Determinan Return Saham Industri Otomotif dan Komponen yang Terdaftar di BEI, *Trikonomika*, Volume 14, No. 1. Hal. 76–86, 2015.
- Sutrisno, Hubungan Volatilitas Dan Volume Perdagangan Di Bursa Efek Indonesia, *Jurnal Bisnis dan Manajemen*, Volume 7, Hal 15 – 26, 2017.
- Zoungrana, T. D., Toé, D. L. T., Toe, M., Covid-19 outbreak, and stocks return on the West African Economic and Monetary Union's stock market: An empirical analysis of the relationship through the event study approach, *Int J Fin Econ*, 1–19, 2021.

Biography

Daniel Togar Valentino Situmorang is a Master of Management Student at Binus Business School, Binus University, Kebayoran Baru, Jakarta, Indonesia. He graduated Bachelor of Economic from Sebelas Maret University in 2005. He has been working professionally at state-owned corporation, Taspen, specializing as Accounting in Accounting Division for more than ten years. Now he is Branch Manager at Taspen Banjarmasin.

Indra Kusuma Wardhana is a Master of Management Student at Binus Business School, Binus University, Kebayoran Baru, Jakarta, Indonesia. He graduated Bachelor of Law from Gadjah Mada University Yogyakarta in 2010. He has been working at Taspen at Legal Division since 2012.

Eko Rasyid Saputra is a Master of Management Student at Binus Business School, Binus University, Kebayoran Baru, Jakarta, Indonesia. He graduated Bachelor of Accounting from IBI Kesatuan Bogor in 2019. He has been working at few Taspen Branch Office since 2012.