

# THE IMPACT OF SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 PANDEMIC ON THE IDX COMPOSITE THROUGH US DOLLAR EXCHANGE RATES MEDIATION: EVIDENCE FROM INDONESIA

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## Abstract

The present study investigates the impact of Severe Acute Respiratory Syndrome Coronavirus 2 (COVID-19) pandemic on the IDX composite and US dollar exchange rate to rupiahs. The study was carried out from Indonesia setting, and the data took from secondary data on the COVID-19 pandemic per day from the National Disaster Management Agency (BNPB), JKSE closing prices per day, and average exchange rates data from Bank Indonesia. All data took from 305 observation days. The conceptual modal investigates the relevant relationships among the constructs by using a quantitative case study with structural equation modeling with WarpPLS 7.0 approach. The study's finding indicates that the COVID-19 pandemic has a positive and significant impact on the exchange rate and negatively impacts the IDX composite. The exchange rate has a negative and significant impact on the IDX composite. On the other hand, the exchange rate can mediate the relationship between the COVID-19 pandemic and the IDX Composite. **Keywords:** COVID-19 Pandemic, Exchange Rate, IDX Composite

## 1. Introduction

The COVID-19 pandemic journey is getting massive until it is in the third quarter of 2020. That has also significantly impacted the stock market price to the stock price index, especially on the Indonesian stock exchange. Investors should pay serious attention to price fluctuations in the stock market to minimize losses. In general, investors use the stock price index to guide investing and monitoring trends in price movements. The development of aggregate share prices on the Indonesia Stock Exchange (IDX) can be monitors through a composite index called the Composite Stock Price Index (IHSG), while based on industry groups, share prices monitored through the Sectoral Index. The Jakarta Composite Index and Sectoral Indices involve all issuers listed as the index calculation components and are the indicators most often used by investors in the Indonesian stock market. The price fluctuation in the stock market is a systematic risk that must be faced by investors. Systematic risk is uncontrollable because it relates to fundamental macroeconomic factors and can affect the capital market and the country's economy. Macroeconomic factors can have an extreme impact on movements in foreign currencies' exchange rates, especially the United States dollar. Furthermore, the exchange rate also substantially impacts share prices, considering that most companies listed on the Indonesian Stock Exchange have several obligations in foreign currency. Thus, if the exchange rate conditions are bearish, it is likely that the reflection on stock prices will also experience a significant decline.

Before reaching Indonesia, the impact of the COVID-19 pandemic spreads to the stock markets in China, Japan, Italy, South Korea, France, Spain, Germany, and the United States. Previous studies have also found that COVID-19 has a negative and short-term effect on stock markets in affected countries. The impact is due to the impact of Asian, European, and American countries. That also shows that the result is a downward trend in stock prices around the world (He *et al.*, 2020). The COVID-19 pandemic caused major economic shocks to shake world oil prices, economic uncertainty, stock market volatility, and geopolitics risks worldwide. On the other hand, this condition cannot be corrected either in the short or long term (Sharif, Aloui and Yarovaya, 2020). The relationship between the stock market and the foreign exchange market depends on the rules and volatility of share prices that respond asymmetrically to events in the foreign exchange market. Changes to foreign currency exchange rates have a significant impact on possible transitions between rules (Walid *et al.*, 2011).

This COVID-19 pandemic is also generally felt evenly in other parts of the world. Another impact is the weakening of the rupiah against the US dollar. The Indonesian rupiah weakening has increasingly felt since the beginning of the COVID-19 pandemic in the first week of March 2020, which is to touch the price of IDR

17,000 per US dollar, and became the weakest in the last five years. The weakening of the rupiah has also affected the Indonesian economy (medcom.id, 2020). Through preliminary investigations of COVID-19 data spread, IDX composite data and exchange rates generally showed a significant increase in COVID-19 cases and significant IDX Composite fluctuations and distressed the US dollar currency to rupiahs. Based on the condition or phenomenon that has never happened so far, it will continue to research further investigation in data analysis. This condition is an interesting phenomenon for further review so that it will be useful as important information for investors and stakeholders.

Based on existing phenomena, it will further see whether the exchange rates can mediate between the spread of COVID-19 and IDX composite. Thus, the exchange rate factor will be the primary concern that can describe or predict the development of COVID-19 and stock prices.

## 2. Literature Review

### 2.1. Severe Acute Respiratory Synndrome Coronavirus 2 (Covid-19) Pandemic

Today COVID-19 is the biggest problem in the whole world and is experiencing a swift and robust spread, which has an impact on every aspect of life. Coronavirus 19 (COVID-19) is a highly contagious viral infection caused by acute coronavirus 2 (SARS-CoV-2) respiratory syndrome, which originated in Wuhan, China, and subsequently experienced massive spread throughout the world (Shereen *et al.*, 2020). The influence of COVID-19 is significant, especially since the first outbreak in China, which is also the main center of foreign investment in Asia. Many researchers believe that the COVID-19 pandemic is an infectious virus variant that is far different from what it was before. There have been many previous studies that have emerged relating to the economic effects of the infectious pandemic that can be referred to when we discuss the effects of COVID-19.

The control center and the prevention of Chinese disease in recent times have published the most extensive case series and applies to date against COVID-19 in mainland China (72,314 cases, updated until 11 February 2020) (Hageman, 2020). It also confirmed that COVID-19 first discovered in Wuhan, China, and a series of cases also confirmed in the Beijing area. Based on the results of observations made, it can see that the disease attacks at all ages through direct contact or touch (Tian *et al.*, 2020).

The massive development of COVID-19 made it a family of viruses that had a more extensive range of characteristics and effects. COVID-19 has affected 213 countries in the world and has been monitored by the United Nations through WHO (Worldometers, 2020).

Based on the description of the confirmation from previous researchers, it can see that COVID-19 is a type of respiratory tract disease like the type that already existed before. However, COVID-19 can reach areas throughout the world and attack all humans. So those restrictions are made through social distancing to lockdown in several countries to have an impact on social and economic aspects that are getting worse.

### 2.2. The Relationship Of Covid-19 Pandemic Toward IDX Composite

The COVID-19 pandemic is a new phenomenon in the history of human life and the economic situation in various countries. The latest empirical literature that has examined in line with the phenomena in this research is, according to (Sansa, 2020). That concluded that the COVID-19 pandemic during the March 2020 period had a significant effect on the financial markets so that further studies and support for investors in decision-makers in the Chinese and American governments were needed. It has also analyzed against investors' concerns for investing, and in detail, it said that "Fear of a wider outbreak and its economic impact will spread to the financial markets (Segal,S. & Gerstel, D, 2020).

In detail, the impact of COVID-19 on financial markets and banks. It stated that COVID-19 had a significant effect on the general financial market because world stock markets, oil, equities, and bonds fell worldwide. There is proof that COVID-19 has seriously pushed financial markets in a different direction and response to investment. It also stated that since February 21, 2020, bond yields, oil and equity prices have experienced a sharp decline, and are worth trillions of dollars. Almost all asset classes have looked for security in each of these situations (Baret *et al.*, 2020).

The consequences of infectious diseases in the COVID-19 pandemic are enormous and have directly affected stock markets around the world. The results showed that the stock markets in the major countries affected, such as the 21 leading stock market indices in the significantly affected countries including Japan, Korea, Singapore, the United States, Germany, Italy, and the United Kingdom, and others fell as quickly after a virus outbreak. Besides, countries in Asia experienced abnormal returns more negatively compared to other countries. The results of this study also support the negative effect of COVID-19 in confirmed cases on stock indexes producing abnormal returns through effective channels by adding pessimistic investor sentiment on future returns and fears of uncertainty (Liu *et al.*, 2020).

Looking at its effects on the stock market, it stated that the cost of the 2003 SARS outbreak resulted in high losses until the Asian financial crisis. Estimated losses are \$ 3 trillion in gross domestic product and \$ 2 trillion in financial market equity (deLisle, 2003). An interesting phenomenon of sanctification had occurred when the

2003 SARS epidemic and the 2015 Ebola epidemic caused short-lived stock market volatility, and the Bird Flu and Swine Flu epidemics were almost unregistered and had no impact on stock market volatility. However, unlike the COVID-19 pandemic. These led to an extraordinary surge in stock market volatility since the end of February 2020, and a surge in COVID-19 volatility occurred in the fourth week of February 2020 (Baker *et al.*, 2020). The study conducted by (Chen *et al.*, 2018) analyzed the SARS epidemic's impact on China's long-term relationship with four stock markets in Asia. This study supports the co-integration relationship, which varies in time on the aggregate stock price index, and it also found that the SARS epidemic has weakened China's long-term relationship with four stock markets in Asia.

However, according to (Nippani and Washer, 2004) examined the effect of SARS on Canada, China, the particular administrative regions of Hong Kong, Indonesia, China, Singapore, the Philippines, Vietnam, and Thailand and concluded that SARS only affected the stock markets of China and Vietnam. Subsequently, research conducted by (Macciocchi *et al.*, 2016), which studied the short-term economic impact of the Zika virus outbreak in Brazil, Argentina, and Mexico, the study results show that except for Brazil, the market indexes of these three Latin American and Caribbean countries did not show a significant negative return the day after each event. COVID-19 is proven to have a negative and significant effect on the stock market in the countries affected and even more than that (He *et al.*, 2020). Nevertheless, in this COVID-19 pandemic situation, investors can still invest in shares by looking at the level of risk and return (Hutauruk and Ghozali, 2020). This situation also affects the perceptions and behavior of investors as consumers who make up normal decisions (Hutauruk, Ghozali and Sutarmo, 2020), (Hutauruk *et al.*, 2019), (Hutauruk *et al.*, 2020).

From this situation, investment theory and portfolio introduced by Markowitz in 1952 could be a solution for investors to divide the risk level into several smaller risks to get higher returns (Markowitz, 1952). The event of the COVID-19 pandemic made portfolio theory optimistic by investors, bearing in mind that not all stocks experienced a crisis, and some shares had increased in value in this situation.

**H1. COVID-19 pandemic has a negative impact on IDX Composite**

### **2.3. The Covid-19 Pandemic Affects The Exchange Rate**

Research conducted by the CCC investigated the impact of COVID-19 on the volatility of the US exchange rate. The results indicate that the increase in the number of cases and deaths in the US has a positive and significant impact on the USD (Benzid and Chebbi, 2020). These show that the US exchange rate is getting worse with high volatility and the increase in cases.

Research conducted by (Iqbal *et al.*, 2020) in a Chinese city shows that a case of COVID-19 which is confirmed to have a negative and significant impact on currency exchange rates but is limited to COVID-19 outbreaks. In times of crisis, the dollar tends to appreciate against emerging market currencies, and dollar liquidity becomes scarce. When disaster strikes, investors cannot get relatively high short-term results. Emerging markets suffered massive capital flight when COVID-19 occurred (Corsetti and Marin, 2020).

Many researchers look into the impact of COVID-19 to the stock market dan investment ((Baker *et al.*, 2020); (Baker *et al.*, 2019); (Baldwin and Mauro, 2020); (Ramelli and Wagner, 2020); (Gormsen and Koijen, 2020); (Bakar and Rosbi, 2020), and (Rachel *et al.*, 2020)) find that the impact of COVID-19 has a significant impact on the economies of the world, especially on the volatility of stock prices in the securities market, which is increasingly cornering stock prices. Thus the Covid-19 pandemic affected the exchange rate of currencies (Bakar and Rosbi, 2020) and Boris *et al.*, (2020).

Based on the description shows that COVID-19 is a medullar virus that has a pandemic scale that spreads throughout the world without exception. Unlike the incidence of the spread of the virus in several previous periods in the scale of the epidemic of the Bird Flu virus, Swine Flu, SARS. Coronavirus can significantly influence the volatility of stock market prices throughout the world. This incident demands cooperation from countries that are better able to invest in finding vaccines as soon as possible and share them with the rest of the world. Starting a cleaner life and a more suitable environment for the community is necessary for a new lifestyle that is clean and healthy. Coronavirus teaches how to change the face of the world economy, financial markets, and new and future investor behavior that is far more different from the previous pattern.

**H2. COVID-19 Pandemic has a negative impact on exchange rate**

### **2.4. The Relationship Of Exchange Rate Toward Idx Composite**

Exchange rates have a substantial impact on stock index prices in each stock market. Through the exchange rate, investors' buying power towards the investment destination stocks will form under the buying ability. In line with a study conducted by (Harvey, Adjasi and Agyapong, 2008) found that the movement of the mat's value had a substantial impact on the stock market in Ghana because the exchange rate had a volatility effect that also proved to be high. Likewise, the study conducted by (Hamrita and Trifi, 2011) found that there was a relationship between exchange rates and stock price index.

Fluctuations in foreign exchange rates have found to have an impact on stock returns and fluctuations in stock prices. This relationship also detected is short term (Maheen, 2013). A study conducted on the economy in Mexico by (Areli Bermudez Delgado, Bermudez Delgado and Saucedo, 2018) shows that the exchange rate has a statistically significant effect on the stock market index, and this also shows that the appreciation of the exchange rate is associated with an increase in the index in the stock market. Likewise, the results of a study conducted by (Liu and Wan, 2012) discussed the circulation of the stock market and the exchange rate in China. During a crisis period, there is a causal relationship between the exchange rate and stock prices in China.

A study conducted by (Cheung, Chinn and Pascual, 2005) conducted in six countries in Asia that investigated the relationship between the exchange rate and the stock price index showed that the exchange rate had a negative and significant impact on the stock price index. This result is even more apparent when the exchange rate is very high or very low There shows that during the short-term economic crisis, the exchange rate also weakened the value of stock index prices.

**H3.** *Exchange rates has a negative impact on IDX Composite*

**2.5. Exchange Rates Mediate Between COVID-19 On IDX Composite**

The outbreak of COVID-19 shows that a harmful living environment will have an impact on poor public health. Given the sparse population density can trigger this situation. More excellent investment needs to make in terms of supporting public health. There is a need for support from more capable countries towards less fortunate countries through an investment in a global cooperative forum for public health and nutrition. Good quality public health will be able to improve the quality of life that is much better and encourage economic growth (McKibbin and Fernando, 2020). In the short term, the COVID-19 outbreak had a negative and significant impact on the stock market index, where previously, this problem had occurred first in the central affected countries, such as Japan, Korea, Singapore United States, Germany, Italy, England, and others (Liu *et al.*, 2020). These are also caused by the US dollar, which became the primary means of payment that were affected earlier and later became an intermediary to the stock price index.

Macroeconomic conditions that reflect monetary economic conditions also influenced by an event or condition that occurs. These also affect the exchange rate, and the exchange rate has another impact on the price of the stock price index in Indonesia (Medyawati and Yunanto, 2016a).

Commodity prices and exchange rates as an initial impact of a macroeconomic condition also have a negative and significant impact on the stock price index in Malaysia ('The impact of commodity prices, interest rate and exchange rate on stock market performance: an empirical analysis from Malaysia', 2014). That also shows that due to certain conditions or economic crises, the stock price index mediated by the exchange rate.

Based on the results of the empirical study shows that macroeconomic factors have a substantial impact on the exchange rate. The existence of a COVID-19 pandemic has made the macroeconomic conditions of most countries worse so that the exchange rate's impact has also declined. This decline in exchange rates generally has a negative and significant impact on stock index prices. Thus it is seen that the exchange rate can mediate between COVID-19 with the stock index price

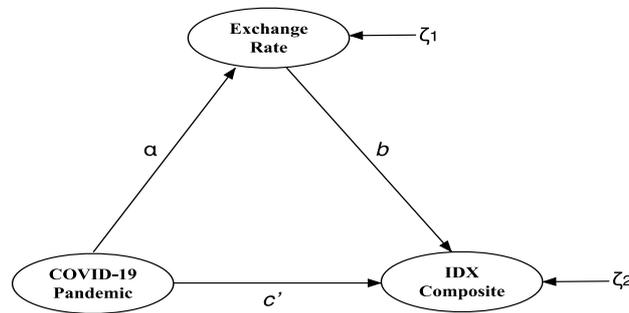
**H4.** *Exchange rates has mediate between COVID-19 on IDX Composite*

**2.6. Research Framework**

After reviewing the finance management, specifically the theory and empirical study of investment management, conducting pilot study with COVID-19 data spread, IDX Composite data and the Indonesian rupiah exchange rate against the US dollar within a COVID-19 pandemic situation and the imposition of large-scale social restrictions by the Indonesian government.

The model built in a structural model with a unidimensional construe, where COVID-19 affects the IDX Composite and the exchange rate. Fig.1 shows the research hypotheses and framework.

The causal relationships of X, Y, and Z show the path coefficient for each exogenous variable (Spuhler, 1976). The path coefficient shows the direct effect of exogenous variables on endogenous variables. It also shows the variable or residual factor that serves to explain the influence of other variables that have been identified by the theory, but not examined or other variables have not identified by the theory or appear as a result of errors in measurement.



**Figure 1: Research Model**  
 Source: Authors Processed Data

Based on the figure, the structure of the equation can make as follows:

$$\text{Exchange Rate} = \beta_0 + c'\xi + b\text{IDX Composite} + \zeta_2$$

$$\text{IDX Composite} = \beta_0 + \alpha\xi + \zeta_1$$

General Equation as below”

Total effects = Direct effect + Indirect effect

$$C = c' + ab$$

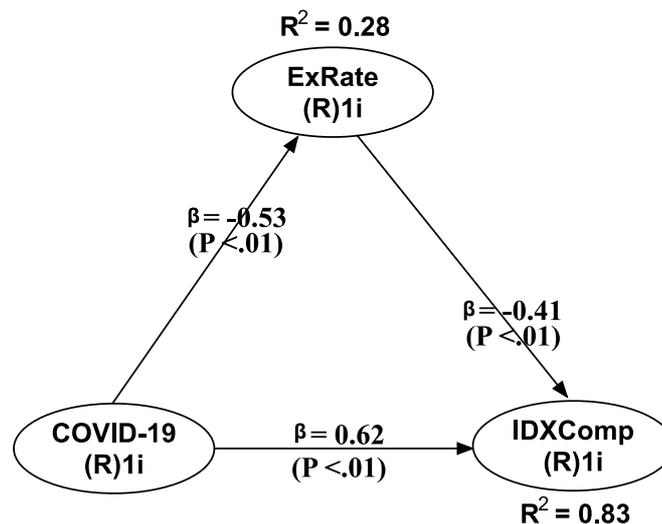
**3. Research Methodology**

Samples taken in this study are daily population data of COVID-19 positive sufferers from the National Disaster Mitigation Agency, daily data on closing composite stock price indexes, and daily data on foreign middle exchange rates. All data is taken based on daily data from March 02, 2020, to December 31, 2020, or during 305 days or around 3<sup>rd</sup> quarter in 2020 the COVID-19 pandemic.

Data collection per day through official website sources official from the "statistic perkembangan covid-19 Indonesia" (bnpb-inacovid19), USD Exchange Rate (bi.go.id), and JKSE Historical Price (finance.yahoo.com). This study uses the PLS-SEM model to estimate the exogenous variables' effect on the endogenous variable with moderator or mediator variables of a set of observed correlations. A set of causal asymmetric relationships hypothesized between these variables will give (Baron and Kenny, 1986). PLS-SEM analysis with mediation effect assesses (Hair *et al.*, 2019), (Kock, 2011) in the research construct of COVID-19, IDX composite, and USD exchange rate mediation.

**4. Empirical Results**

The results of data processing using WarpPLS 7<sup>th</sup> version are shown the first sub structure in Figure 4 as follows:



**Figure 2: Results Of Model Analysis With A Single-Mediator**  
 Source: Processed WarpPLS 7.0 from Secondary Data

The results of the WarpPLS analysis, in general, can show in the following table.

**Table 1: Model Fit and Quality Indices**

Average path coefficient (APC)=0.521, P<0.001
Average R-squared (ARS)=0.558, P<0.001
Average adjusted R-squared (AARS)=0.557, P<0.001
Average block VIF (AVIF)=1.434, acceptable if <= 5, ideally <= 3.3
Average full collinearity VIF (AFVIF)=3.402, acceptable if <= 5, ideally <= 3.3
Tenenhaus GoF (GoF)=0.747, small >= 0.1, medium >= 0.25, large >= 0.36
Sympson's paradox ratio (SPR)=1.000, acceptable if >= 0.7, ideally = 1
R-squared contribution ratio (RSCR)=1.000, acceptable if >= 0.9, ideally = 1
Statistical suppression ratio (SSR)=1.000, acceptable if >= 0.7
Nonlinear bivariate causality direction ratio (NLBCDR)=1.000, acceptable if >= 0.7

Source: WarpPLS 7.0 Processing Results

Based on the results of the general output above, it can seem that the model has a good fit, where the P-value for Average Path Coefficients (APC), Average R-squared (ARS), and Average Adjusted R-squared (AARS) <0.001 with the APC value = 0.521, the ARS value = 0.558 and the AARS value = 0.557. Likewise, the resulting Average Block VIF (AVIF) and Average Full Collinearity VIF (AFVIF) values are <3.3, which means that there is no multicollinearity problem between indicators and between latent variables. The resulting GoF is 0.747 > 0.36, which means that the fit of the model is good. For the Symson's paradox index (SPR), R-squared contribution ratio (RSCR), statistical suppression ratio (SSR), and nonlinear bivariate causality direction ratio (NLBCDR) yield a value equal to 1, which means there is no causality problem in the model. This model has also iterated eight times.

The results of the model estimation can also see in the following description:

**Table 2: Matrix of Path Coefficients and P Values**

	<u>COVID-19</u>	<u>ExRate</u>	<u>IDX</u>
<u>Path Coefficients</u>			
ExRate	-0.533		
IDX	0.620	-0.410	
<u>P values</u>			
ExRate	<0.001		
IDX	<0.001	<0.001	

Source: WarpPLS 7.0 Processing Results

Based on the results of the p-value coefficient output path above, it can see that COVID-19 has a positive and significant direct effect on IDX with the resulting p-value <0.001 and the path coefficient value of 0.620. Furthermore, it can see that COVID-19 also has a negative and significant direct effect on ExRate with the p-value obtained <0.001 and the path coefficient value of -0.620. Furthermore, the last one seen that ExRate also has a negative and significant direct effect on IDX with the p-value obtained <0.001 and the path coefficient value of -0.410. Because the main effect of COVID-19 on IDX is significant, the testing for the mediation effect continuing. Based on the output standard error for the COVID-19 variable against IDX is 0.053 and the ExRate variable against IDX is 0.054. The effect size produced by the COVID-19 variable on IDX is 0.052 <0.35, and the ExRate variable is 0.053, which means it includes in the healthy category. The effect size generated by the ExRate variable on IDX is 0.308 <0.35, including in the moderate category.

The result of the loading factor value generated by all construct indicators is > 0.70, which means it meets the indicator reliability.

**Table 3: Latent Variable Coefficients**

	<u>COVID-19</u>	<u>ExRate</u>	<u>IDX</u>
R-squared		0.284	0.832
Adj R-squared		0.282	0.831
Composite reliab	1.000	1.000	1.000
Cronbach's alpha	1.000	1.000	1.000

Avr. Var. extrac	1.000	1.000	1.000
Full collin VIF	3.231	2.106	4.869
Q-squared		0.292	0.828

Source: WarpPLS 7.0 Processing Results

Based on the output above, the Adjusted R-Squared value for the IDX variable is 0.832, which means that the influence of the COVID-19 and ExRate variables in explaining the variation of the IDX variable is 83.20%, and other variables outside the model influence the remaining 26.80%. Furthermore, the Adjusted R-square value for the Ex Rate variable was 0.282, which means that the effect of COVID-19 on the Ex Rate is 28.2%, and this value is also included in the medium category.

The AVE value for each construct is classified as good or > 0.50 to meet the convergent validity criteria. The Composite Reliability value generated by each construct is > 0.70 or classified as very good. The full collinearity VIF value for each construct is very good or <3.3 so that there is no collinearity problem in the model. The q-squared value produced by each endogenous variable is > 0, which means that the model has predictive relevance.

## 5. Dicsussion And Implications

### 5.1. COVID-19 Pandemic Impact On IDX Composite

The analysis results show that COVID-19 has a positive and significant effect on the IDX Composite, or the hypothesis (H1) rejected. These results are base on statistical data on the development of COVID-19 in Indonesia, which shows that the increase in the number of cases per day tends to strengthen the JCI value. The massive spread of the Coronavirus seems to make almost all activities carried out from home by following the order regulations so that the impact makes some activities carried out online. Investors are increasing with easier transaction processes that can be done anywhere and for anyone well at a low cost. So that with the increasingly massive spread of COVID-19, the risk is higher, and the government regulations are getting more robust to make all activities online from home and be proportional to the IDX Composite.

The findings of this study are not in line with the opinion expressed by (Segal,S. & Gerstel, D, 2020) (Sansa, 2020) (Baret et al., 2020), where the COVID-19 pandemic has a negative and significant impact on Index composite. The results of this study also not support previous findings in which confirmed COVID-19 cases affect abnormal or harmful stock returns so that the stock price index is negatively affected in this case (Liu *et al.*, 2020). However, no significant impact of both. The results of this study are not in line with the opinion expressed by (Baret et al., 2020), (Baker *et al.*, 2020) (Baker *et al.*, 2019) (Baldwin and Mauro, 2020) (Ramelli and Wagner, 2020) (Gormsen and Kojjen, 2020).

The impact of coronavirus on everywhere and increasingly spread outside throughout the world. There was a massive change between supply and demand towards the economic collapse scenario in many countries. Market balance increasingly disrupted (Bakar and Rosbi, 2020). In which stated that COVID-19 is a significant effect on country stock markets response. The coronavirus spread can have a severe impact on 21 leading stock markets, including those in Japan, Korea, Singapore, and the USA. It also reported that countries in Asia experienced negative investment returns and were more abnormal compared to other countries (Liu *et al.*, 2020). There is because the impact of the pandemic cannot corner the financial markets through an investment response that is full of concern. This study in line with the opinion (Benkeser *et al.*, 2020), (Sansa, 2020), where the impact of COVID-19 is able to influence the financial markets of China and the USA significantly. In the Indonesia stock market, conditions show that in the first 110 days of the COVID-19 pandemic has made investors panic. It even shows that they must have applied portfolio theory and chosen risk levels wisely.

Furthermore, this study's results can confirm a study conducted by (Liu *et al.*, 2020) in which COVID-19 has a negative and significant effect on stock indexes that produce abnormal returns and by building investor pessimism towards the future uncertainty. However, the results of this study are in line with the results of research (deLisle, 2003), (Nippani and Washer, 2004), (Chen *et al.*, 2018) where the impact of the SARS epidemic caused dramatically calculated losses and losses. Only had a significant impact on financial markets in China and Vietnam or only in the Asian Region. The activation of Work From Home, which the government has implemented as one of the protocols for protecting against viruses, has made many business people inevitably have to be prepared for new situations, thus providing an excellent opportunity to invest online from home. In an increase, the investment will have a direct impact on the company's stock price. The spread of COVID-19 is fast and massive throughout the world. It seems that, at first, it reduced economic growth. However, this condition developed, causing the capital market's stability level to adjust well gradually. In line with (Lahmiri and Bekiros, 2020), in general, the international stock market has experienced a significant impact on the conditions of the COVID-19 pandemic. In this situation, there is a tendency that digital assets during this crisis period have a higher risk than equity. This study shows that COVID-19 is on the scale of a pandemic and is well-known and massive in all parts of the world, and impacts financial markets around the world in the first

place. Investors are concerned about the pattern of spreading the unvaccinated virus. Furthermore, investors can increase the risk management of this situation by looking at financial risk through its financial statements (Hutauruk and Ghozali, 2020). Thought that uses psychological will increasingly create new opportunities in deciding a new way of looking because of the urgent situation (Hutauruk, Ghozali and Sutarmo, 2020), (Hutauruk *et al.*, 2019), (Hutauruk *et al.*, 2020).

Investors tend to hold back when looking at future uncertain situations. In fact, in a situation like this, there is a chance that shares will increase in this pandemic situation because the community needs certain operations. Investors can use portfolio theory, this is a new opportunity, where abnormal events can become excellent opportunities, and many people try to take the opportunity by changing their investing behavior.

## 5.2. COVID-19 Pandemic Impact on Exchange Rate

The subsequent analysis results show that the COVID-19 pandemic is a negative and significant impact on the exchange. Therefore the hypothesis (H2) proposed is accepted. The study result also shows that the more the spread of COVID-19 pandemic increases, the lower the exchange rate. This study's results are in line with studies conducted by (Abu Bakar and Rosbi, 2020), where COVID-19 has a negative and significant impact on the exchange rate. But the results of this study cannot confirm the results of the study conducted by (Macciocchi *et al.*, 2016), and (Baker *et al.*, 2020), when an infectious virus occurs, it does not cause the exchange rate to weaken.

Seeing this situation is certainly contrary to the impact of the COVID-19 pandemic that can affect the global economy. At the beginning of the pandemic, the rupiah was at the Middle exchange rate of Rp14.413,00 per USD, and the contract rose sharply to its peak on Rp16,741,00 per USD, Until the third of May 2020, it was in the range of 14,885 per USD (bi.go.id). However, in the last week of the 100th day, it showed that the rupiah exchange rate had strengthened against the US dollar to reach Rp13,973.00 per US dollar.

Many entrepreneurs experienced heavy financial pressures in the initial period of up to 110 days after the COVID-19 pandemic. So they decided to reduce activities to reduce risk and follow the protocol established by the government. This condition automatically makes the company's activities or operations. So those transactions that come into contact with US dollars are also reduced.

In general, this shows that the COVID-19 pandemic phenomenon is genuinely massive and harmful to humanity so that it can stop all normal activities that have existed so far throughout the world, thus impacting economic, trade, and industrial aspects (Duffin, 2020).

The strengthening and stability of the rupiah in recent times is inseparable from the elements of Bank Indonesia to carry out close monitoring of the development of COVID-19. The strengthening of the Rupiah is to follow a dynamic market mechanism related to the role of market participants and exporters who also maintain exchange rate stability. The Rupiah's more positive condition will reduce the requirements for Bank Indonesia to stabilize the exchange rate. The rupiah exchange rate is stable and tends to appreciate up to Rp15,000 by the end of 2020 as factors influence the strengthening of the Rupiah. Bank Indonesia has also predicted that the Official Reserve Assets will move to increase. Bank Indonesia also has a repurchase agreement line (repo line) in collaboration with the US Federal Reserve worth USD60 billion and is ready to use if needed in an urgent situation. Prices in the market are also certain to be fully controlled and tend to be below, and data is affordable by all levels of society for a long time

Besides, Bank Indonesia will coordinate intensively with the Government and the Financial Services Authority (OJK) to closely monitor the dynamics of COVID-19 transmission and its economic impact on Indonesia from time to time, including coordinated policy measures needed to maintain macroeconomic and financial system stability, and steady economic growth in the face of any situation.

## 5.3. Exchange rate affects the IDX Composite

The results of this study also found that the exchange rate has a negative and significant effect on IDX Composite or hypothesis (H3) is acceptable. The negative coefficient supply indicates that the higher the exchange rate, the lower the value of IDX Composite. This finding can confirm previous research conducted by (Suriani *et al.*, 2015), where the exchange rates and the stock market are fundamental in financial markets in the world. Both of these factors play a crucial role as reliable indicators in predicting the level of investment risk for investors. Empirical results indicate that exchange rate volatility has a significant effect on stock market price fluctuations (MECHRI *et al.*, 2019).

Exchange rates have a role and contribution to the Composite Index. It also stated that Indonesia is a small open economy country, with a very high dependence on the global economy and changes in international prices (Medyawati and Yunanto, 2016b). The empirical results show that there is a two-way relationship between the stock price measured by the S&P 500 index and the effective exchange rate of the dollar only in the short term, whereas, in the long run, there is no relationship (Bahmani-Oskooee and Sohrabian, 1992). Likewise research by (Phylaktis and Ravazzolo, 2002) concluded that in the Pacific basin region, both regional and global levels showed that the exchange rate and stock market in the period 1980-1988 had a significant relationship.

According to (Aggarwal, 1981), with the support of data from the US month, stock prices positively correlated to the exchange rate, and the stock market also influences this as an efficient information process incorporated into the exchange rate. In further developments also researched by (Soenen and Hennigar, 1988), who examined the stock market in America in 1980-1986 with the support of a larger sample. The results showed that there was a negative and significant effect between the exchange rate and stock prices.

This situation also shows that the exchange rate of the USD against the rupiah has a significant effect because most financial transactions carried out using the USD are smaller in the COVID-19 pandemic. After all, economic activity has declined considerably. In line with the support of data sources from the Indonesian statistical center, the highest gross domestic product only occurred in the household consumption sector, while exports and imports fell sharply to minus growth.

#### 5.4. Exchange rates mediate between COVID-19 on IDX Composite

The results of this study also found that the exchange rates have mediated as significantly between COVID-19 against IDX Composite or hypothesis (H4) is acceptable. The negative coefficient supply indicates that the higher the exchange rate, the lower the value of IDX Composite. These results also show that the exchange rate is an intermediary that visualizes the COVID-19 pandemic movement against IDX Composite. The increase in the rate of sufferers exposed to the COVID-19 virus causes the level of activity using the exchange rate of the USD to weaken and also affect the IDX Composite.

The stock market is strongly influenced by external factors, namely the fall of currencies in developing markets experienced by South African countries to Malaysia, which has fallen (Turmoil, 2015). Stock indexes influenced by several macroeconomic factors, including interest rates, exchange rates, money supply, and oil prices. The exchange rate is one of the factors that have a significant impact on the stock index in Malaysia in the period 1997-2015 (Murthy, Anthony and Vighnesvaran, 2016). The COVID-19 pandemic caused a significant impact on the equity market index and currency exchange rates because it had created unstable economic situations and conditions throughout the world (Abu Bakar and Rosbi, 2020).

Seeing from this situation, it can also understand that the spread of the COVID-19 virus has a massive and very rapid pattern of spread through touch and air in a close radius and pandemic scale. The outbreak of this disease is very terrible compared to close relatives SARS, MERS, EBOLA, H5N1, G4 EA H1N1, which is only an epidemic scale. The existence of the COVID-19 pandemic has an impact on exchange rates throughout the world so that through the exchange rate, it is also able to be a mediator for stock price indices around the world, which are also likely to be hit as the exchange rate. The existence of the exchange rate can be a benchmark for the spread of COVID-19 and the weakening of local and worldwide stock price indexes.

In the short term, the COVID-19 outbreak had a negative and significant impact on the stock market index, where previously, this problem had occurred first in the central affected countries, such as Japan, Korea, Singapore United States, Germany, Italy, England, and others. These are also caused by the US dollar, which became the primary means of payment that were affected earlier and later became an intermediary to the stock price index

#### 6. Conclusion

The COVID-19 epidemic has caused disasters for human health and soul and has an impact on the short-term economic crisis that has hit almost all over the world. No exception, the stock market has been hit by a relatively severe and significant breakeven. The Indonesian government is trying to break the chain of spread the COVID-19 pandemic by imposing large-scale social restrictions to carry out almost all community activities from home. This condition has an impact on the use of online technology to become increasingly prevalent for the community. Work is done almost entirely from home. This situation also opens up opportunities for investing in stocks because most share prices experience extreme volatility towards the decline. Through the online situation, from an investment point of view, every community has an excellent opportunity to invest or become a stock investor at an affordable price (upnormal price) and with a straightforward process and with minimal costs and can be done at any time. The increasingly depressed US dollar price can be an indicator in measuring the level of the COVID-19 pandemic and the composite stock price index as a signal for investment opportunities

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