

# The Effect of COVID-19 Cases, Commodity Prices, Exchange Rates, and Interest Rates on Stock Market Performance

Erric Wijaya<sup>1</sup>, Ossi Ferli<sup>2</sup>, Florence Tatukude<sup>3</sup>, Tiara Ariawan<sup>4</sup>, Sofi Nurhazizah<sup>5</sup>

{erric.wijaya@ibs.ac.id<sup>1</sup>, ossi.ferli@ibs.ac.id<sup>2</sup>, florence.20201111021@ibs.ac.id<sup>3</sup>,  
tiara.20201111025@ibs.ac.id<sup>4</sup>, sofi.20201111039@ibs.ac.id<sup>5</sup>}

STIE Indonesia Banking School, DKI Jakarta, Indonesia<sup>1,2,3</sup>

**Abstract.** This research was conducted based on the stock market's growth in Indonesia despite the ever-increasing Covid-19 conditions. This research aims to see the impact of Covid-19 cases, commodity prices, exchange rates, and interest rates on stock market performance. The data were collected using a purposive sampling technique on the Jakarta Composite Index (JCI) listed on the Indonesia Stock Exchange from March 2020 - February 2023. The analytical method used was multiple linear regression. The dependent variable are stock market performance and COVID-19 cases. The independent variable are commodity prices, exchange rates, and interest rates. This research revealed that COVID-19 cases and gold prices positively affect the stock market, while other variables show that the exchange rates, oil prices, and interest rates have a negative impact on the stock market performance.

**Keywords:** COVID-19 Case; Commodity Price; Exchange Rate; Interest Rate; Stock Price.

## 1 Introduction

The COVID-19 pandemic has sufficiently affected economic upheavals in various parts of the world. The volume of global goods trade in 2020 also fell by 9.2%, foreign capital inflows also fell by 40%, and trade fell by 12.4% from the previous year, namely 2019 (Wiranti et al., 2021)<sup>[29]</sup>. The previous literature (Al-Awadhi et al., 2020)<sup>[21]</sup> showed that COVID-19 cases have a negative significant effect on stock returns in all companies. The highly volatile and unpredictable condition of the stock market is the result of the great uncertainty from the pandemic which resulted in economic losses (Zhang et al., 2020)<sup>[30]</sup>.

The exchange rate is also one of several macroeconomic factors such as interest rates and inflation that affect the stock market (Surbakti et al., 2016)<sup>[25]</sup>. In their study, Surbakti et al. (2016) that the exchange rate has a negative relationship with market performance, this negative relationship can occur because the economy of Indonesia during the pandemic was in a serious condition, and the Indonesian Rupiah depreciated against the USD value.

The interest rate is a monetary policy stance taken by Bank Indonesia. Previous research has shown that interest rates have a negative effect on stock market performance because if there is an increase of 1% in interest rates, this will cause a decrease in stock market performance by 1.08%.

The aims of this research were to examine the effect of COVID-19, commodity prices, exchange rates, and interest rates on stock market performance based on the growth of COVID-19 cases, movements in commodity prices, changes in exchange rates, and changes in interest rates on the Jakarta Composite Index (JCI) listed on the Indonesia Stock Exchange from March 2020 to February 2023. This present study is different from the previous ones in terms of the independent variables, where interest rates were taken into account. Another difference is related with the condition of research data, where in the previous study the COVID-19 pandemic was still occurring, whereas now the pandemic has decreased and can even be said to be endemic (Kementerian Sekretariat Negara Republik Indonesia, 2023)<sup>[17]</sup>. The list of returns used in the current study is the Composite Stock Price Index. JCI was chosen as the object because it can measure the price performance of all stocks listed on the Indonesian Stock Exchange and this research will look at how price influences stock market performance. Meanwhile, in previous studies, the object of research used was the index of LQ45.

## **2 Theoretical Framework and Hypothesis Development**

According to Utami & Darmawan (2018), signal theory refers to signal information that will be needed by investors in considering and deciding to make their investment decisions. This research is based on signal theory, according to Gumanti (2011), as cited in Utami & Darmawan (2018) what is meant by the market in this context is the capital market in which a market can be assessed as efficient if individual investors and corporate investors can obtain abnormal returns that have been adjusted according to risk using existing trading strategies continuously. The relationship between the efficient market and this research is that the independent variables used will show how much influence they have on the dependent variable so that investors will get fundamental information regarding the stock.

### **2.1 The Relationship Between Variables COVID-19 Pandemic and Stock Market Performance**

The COVID-19 pandemic is a hard time for the whole world because the domino effect from the COVID-19 pandemic will impact the disruption of economic activities in the world. In several studies, COVID-19 mortality and case numbers were found to have a negative effect on stock market performance (Hung et al., 2021)<sup>[14]</sup>. The research by Avcı & Çetin, (2022)<sup>[8]</sup> also shows that COVID-19 was negatively correlated with the stock market performance.

In addition, research by (Anh & Gan, 2020)<sup>[6]</sup> reveals that stock returns are negatively impacted by the daily rise in the number of COVID-19 cases that have been confirmed (Utomo & Hanggraeni, 2021)<sup>[28]</sup>. Thus, the following conclusion about the hypothesis is as follows:

Ha1: COVID-19 cases have a negative effect on stock market performance.

### **Oil and Stock Market Performance**

If the price of crude oil rises, expectations for the company's performance will increase, and the share price will also increase (Dini, 2021)<sup>[9]</sup>. Researcher Nwosa (2021)<sup>[20]</sup> shows a powerful impact from oil prices on stock market performance by showing a correlation between oil prices and stock market performance. The price of Brent oil fell sharply due to the implementation of lockdown policies in various countries to prevent the spread of the Covid-19 pandemic widely (Ambrose & Farrer, 2020)<sup>[5]</sup>. This caused an excess of global crude oil stocks due to a lack of interest from importing countries and then the price of Brent crude oil decreased (Nurrahma et al., 2022)<sup>[19]</sup>.

Mokni (2020) suggests that oil prices affect the stock returns positively (Mokni, 2020)<sup>[18]</sup>. This finding has the same research results as Nurrahma, Fitrijanti, and Tjandrasa (2022) who found that oil prices have a positive effect on stock returns during this pandemic. And research by Okere, Muoneke, and Onuoha (2021) also shows a positive effect from oil prices on stock market performance (Okere et al., 2021)<sup>[21]</sup>. The study (Idan, 2022)<sup>[15]</sup> also shows that oil prices greatly positively gave an effect on stock market performance. So, the hypothesis can be assumed as:

Ha2: Oil prices have a positive effect on stock market performance.

### **Gold and Stock Market Performance**

During the time of COVID-19, one of the safest investments is gold. Many investors choose precious metals as an investment because these investments are more familiar and easier to reach. This is because gold prices are generally stable and do not often experience price declines, and more often experience price increases in a relatively short time. Investments in gold are easy enough to liquidate in case of an emergency (Hagiworo, 2020)<sup>[12]</sup>.

Thus, investors believe that gold is the safest long-term investment. However, research by Ali, Mangla, Rehman, Xue, Naseem, and Ahmad (2020) shows that gold prices had a negative effect on market performance (R. Ali et al., 2020)<sup>[4]</sup>. The research by Ali, Khan, and Ullah (2021) also shows that the gold price has a negative effect on stock market performance (A. Ali et al., 2021)<sup>[3]</sup>. Research by Thakolsri (2021) shows that gold prices have a negative effect on the stock market (Thakolsri, 2021)<sup>[26]</sup>. Thus, the following hypothesis is concluded, namely:

Ha3: Gold prices have a negative effect on stock market performance.

### **Exchange Rate and Stock Market Performance**

When investors invest in foreign stocks using foreign currency units, the investors will face exchange rate risk in which the currency the investor uses depreciates. The possibility of a decline in share value is huge due to currency depreciation and is usually more likely to occur in emerging markets, where currencies are constantly changing over time (HR et al., 2020)<sup>[13]</sup>.

The exchange rate shows a negative effect on stock market performance (Setiawan, 2020)<sup>[24]</sup>. Similarly, R. Ali et.al (2020)<sup>[25]</sup> said that the exchange rate has a negative effect on stock market performance.

The exchange rate was stable at the beginning of 2020, namely in January and February, with 1 US dollar still around IDR 13,500 - IDR 14,500, but when March arrived there was a very

drastic increase, namely 1 US dollar to 16,500. This happened because the world is experiencing a global economic crisis due to the impact of COVID-19 (Aeni & Fadilah, 2021)<sup>[1]</sup>. In line with that, the research of Nurrahma, Fitrijanti, and Tjandra (2022) shows that the exchange rate has a negative significant effect on stock returns during COVID-19. In line with subsequent research showing that there is a negative significant relationship to market returns during the COVID-19 pandemic (Rakshit & Neog, 2022)<sup>[23]</sup>. So, it can be concluded as a hypothesis as follows:

Ha4: Exchange rate has a negative effect on stock market performance

### **Interest Rate and Stock Market Performance**

Miskhin (2007) says that interest rates are fees paid for leasing funds. Interest rates are a price and like other prices, and therefore interest rates can be determined by supply and demand (Otoritas Jasa Keuangan, 2019)<sup>[22]</sup>.

The interest rate has a negative effect on the market perfect performance (Garnia et al., 2021)<sup>[11]</sup>. The Research by Setiawan (2020) gives the result that interest rates have a significant negative effect on stock market performance. Other researchers also explain that the interest rate has a negative significant effect on stock market performance in the long term (Asiedu et al., 2021)<sup>[7]</sup>. Research conducted by Dwi Astutik & Djazuli (2014)<sup>[10]</sup> says that interest rates have a negative effect on stock prices because when the interest rates increase, the investors will divert their funds to invest in deposits. So, it can be concluded the hypothesis is as follows:

Ha5: Interest rates have a negative effect on stock market performance

## **3 Method**

To investigate the link between Effect of COVID-19 Cases, Commodity Prices, Exchange Rates, and Interest Rates on Stock Market Performance, the author uses quantitative approach, and the object of the study was the Jakarta Composite Index (JCI). This study used secondary data as a data source. Data were collected using a purposive sampling technique on the Jakarta Composite Index (JCI) listed on the Indonesia Stock Exchange from March 2020 to February 2023, while data for Covid-19 cases were taken from the official Corona Jakarta website via the website (<https://corona.jakarta.go.id>), the exchange rate was taken from the Pacific Exchange Rate official website via the website (<https://fx.sauder.ubc.ca>), the BI 7-days (Reverse) Repo Rate obtained through the official website of Bank Indonesia via the website (<https://bi.go.id>), gold prices and oil prices was taken from one of the most trusted financial platforms, namely Investing.com via the website (<https://id.investing.com>). After all data has been collected, the data was processed using EViews 12.

The independent variables consist of Covid-19 cases, crude oil prices, gold prices, exchange rates, and interest rates. Meanwhile, the dependent variable is stock market performance which is proxied by the monthly price of the JCI stock. The data used multiple linear regression tests for technique analysis. Based on Gujarati (2006) regression is the relationship between one variable and one or two or more explanatory variables (Imasari & Nursalin, 2011)<sup>[16]</sup>.

Therefore, the models used to test the effect of Covid-19 cases, commodity prices, exchange rates, and interest rates on stock market performance are:

$$JCI_{it} = \alpha + \beta_1 CC_{it} - \beta_2 GL_{it} - \beta_3 O_{it} + \beta_4 ER_{it} - \beta_5 IR - \varepsilon_{it}$$

Where:

- JCI<sub>it</sub> : Stock Market Performance
- $\alpha$  : Constant
- $\beta$  : Coefficient of regression line
- CC<sub>it</sub> : COVID-19 cases
- GL<sub>it</sub> : Gold
- O<sub>it</sub> : Oil
- ER<sub>it</sub> : Exchange Rate
- IR<sub>it</sub> : Interest Rate
- E<sub>it</sub> : Error

## 4 Results and Managerial Implications

### 4.1 Multiple Regression

**Table 1.** Regression on EViews 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15508.11	2771.794	5.594973	0.0000
CC	0.013015	0.010062	1.293466	0.2057
GL	2.504271	0.876942	2.855686	0.0077
O	-34.12297	3.512022	-9.716048	0.0000
ER	-0.776572	0.208179	-3.730313	0.0008
IR	-46.00570	172.7229	-0.266356	0.7918
R-squared	0.769145	Mean dependent var		6191.351
Adjusted R-squared	0.730669	S.D. dependent var		823.9115
S.E. of regression	427.5861	Akaike info criterion		15.10520
Sum squared resid	5484896.	Schwarz criterion		15.36912
Log likelihood	-265.8936	Hannan-Quinn criter.		15.19732
F-statistic	19.99035	Durbin-Watson stat		0.950636
Prob(F-statistic)	0.000000			

Based on the data, the authors get the result that R-Squared is a measure of the relationship between the model and the dependent variable whereas Figure 6 shows that the model has a percentage of 76.91% of the population.

The F-test shows that all variables affect the JCI. The data in Figure 6 shows that gold, oil, and the exchange rate have a significant effect on the JCI because the probability value is below 0.05, while the COVID-19 cases and interest rates have no significant impact on the dependent variable (JCI).

The results showed that COVID-19 cases had a positive yet insignificant impact on JCI, which means that the hypothesis was rejected. The hypothesis was rejected as the price of gold has a significant and positive impact on JCI. Since the oil price and the exchange rates have a negative and significant impact on JCI, the hypothesis of oil price was rejected but the

hypothesis for the exchange rate was accepted. The interest rate has a negative non-significant impact on JCI, consequently, the hypothesis was accepted.

One percent increase in oil price will decrease the monthly price of JCI by 34.11%. It might have been caused by the COVID-19 pandemic and the war between Russia and Ukraine. So, the investor should keep those assets for the long term and not sell them, also the investors can do an analysis of the assets of the portfolio they have. The value of F-statistic is 0.000, indicating that all the independent variables had a significant impact on stock market performance or JCI. According to Figure 1, the adjusted R-square value is 76.91% or 0.7691, indicating that all variables (COVID-19 cases, gold, oil, exchange rate, and interest rate) can explain 76.91% of stock market performance and for the 23.03% can be explained by other variables not included in this research.

## 5 Conclusions

This study aims to explain the relationship between COVID-19 cases, gold, oil, exchange rates, and interest rates on stock market performance, especially the Jakarta Composite Index (JCI). The analysis used multiple regression with data taken during the pandemic (March 2020 - February 2023).

Since Indonesia is still a developing nation, more research or study could be done to analyze and compare its stock market to those of other developed nations. Moreover, the next researcher can use other sources to add more variables to capture the influence after the pandemic, allowing the reader to comprehend how it can affect the Indonesian JCI.

## References

- [1] Aeni, A. M., & Fadilah, S. (2021). Pengaruh Nilai Tukar terhadap Harga Saham Sektor Consumer Goods Industry yang Terdaftar di Bursa Efek Indonesia (BEI) pada Masa Pandemi Covid-19. *Jurnal Riset Akuntansi*, 1(2), 72–75. <https://doi.org/10.29313/jra.v1i2.415>
- [2] Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhammadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal of Behavioral and Experimental Finance*, 27. <https://doi.org/10.1016/j.jbef.2020.100326>
- [3] Ali, A., Khan, M. K., & Ullah, H. (2021). Dynamic impact of Gold Prices, Oil Prices and Exchange Rate on Stock Market Performance: A Case of Pakistan's Stock Exchange (KSE 100 Index). *Review of Economics and Development Studies*, 7(1), 1–12. <https://doi.org/10.47067/reads.v7i1.309>
- [4] Ali, R., Mangla, I. U., Rehman, R. U., Xue, W., Naseem, M. A., & Ahmad, M. I. (2020). Exchange rate, gold price, and stock market nexus: A quantile regression approach. *Risks*, 8(3), 1–16. <https://doi.org/10.3390/risks8030086>
- [5] Ambrose, J., & Farrer, M. (2020, April 20). *US crude has negative value for first time in history as stockpiles overwhelm storage facilities*. The Guardian. <http://beniciaindependent.com/oil-prices-dip-below-zero-as-producers-forced-to-pay-to-dispose-of-excess/>

- [6] Anh, D. L. T., & Gan, C. (2020). The impact of the COVID-19 lockdown on stock market performance: evidence from Vietnam. *Journal of Economic Studies*, 48(4), 836–851. <https://doi.org/10.1108/JES-06-2020-0312>
- [7] Asiedu, E. L., Mireku - Gyimah, D., Kamasa, K., & Otoo, H. (2021). Interest rate, inflation and stock market performance in Ghana: A sector based vector error correction model perspective. In *African Journal of Business and Economic Research* (Vol. 16, Issue 1, pp. 185–206). Adonis and Abbey Publishers Ltd. <https://doi.org/10.31920/1750-4562/2021/v16n1a8>
- [8] Avcı, P., & Çetin, M. (2022). *The Effect of COVID-19 on the Stock Market Performance: Empirical Evidence for Turkish Economy*.
- [9] Dini, D. R. (2021). Analisis indikator makro ekonomi terhadap Jakarta Islamic Index. *Journal of Economics Research and Policy Studies*, 1(2), 117–131. <https://doi.org/10.53088/jerps.v1i2.234>
- [10] Dwi Astutik, E., & Djazuli, A. (2014). The effect of fundamental and technical variables on stock price (Study on manufacturing companies listed in Indonesia Stock Exchange). *Journal of Economics*, 17(3), 345–352. <https://doi.org/10.14414/jebav.14.1703004>
- [11] Garnia, E., Tahmat, Deden, R., & Iman, S. (2021). A Study on the Effects of Inflation Rate, Interest Rate, and Exchange Rate on the Performance of Indonesia Sharia Stock Market. *Advances in Economics, Business and Management Research*, 180, 26–29.
- [12] Hagiworo, H. (2020, October 30). *Mengapa Emas Jadi Cara Berinvestasi Terbaik Saat Pandemi?* <https://money.kompas.com/read/2020/10/30/215500926/mengapa-emas-jadi-cara-berinvestasi-terbaik-saat-pandemi>
- [13] HR, I., Fitri, R., & Hendryadi. (2020). *Pengaruh nilai tukar dan indeks pasar saham global terhadap indeks harga saham sektoral*. 1, 11–20. <http://journal.feb.unmul.ac.id/index.php/INOVASI>
- [14] Hung, D. Van, Hue, N. T. M., & Duong, V. T. (2021). The Impact of COVID-19 on Stock Market Returns in Vietnam. *Journal of Risk and Financial Management*, 14(9), 1–15. <https://doi.org/10.3390/jrfm14090441>
- [15] Idan, A. M. (2022). Effect of Oil Prices, Inflation Rate, Energy Consumption, Gross Domestic Product on Stock Market Performance of Iraq Stock Exchange. *Cuadernos de Economia*, 45(128), 45–52. <https://doi.org/10.32826/cude.v1i128.705>
- [16] Imasari, K., & Nursalin, K. K. (2011). Pengaruh Customer Relationship Management terhadap Loyalitas Pelanggan Pada PT BCA Tbk. *Fokus Ekonomi*, 10(3), 183–192.
- [17] Kementerian Sekretariat Negara Republik Indonesia. (2023, June 21). *Pemerintah Putuskan Indonesia Masuki Masa Endemi*. Kementerian Sekretariat Negara Republik Indonesia. [https://setneg.go.id/baca/index/pemerintah\\_putuskan\\_indonesia\\_masuki\\_masa\\_endemi](https://setneg.go.id/baca/index/pemerintah_putuskan_indonesia_masuki_masa_endemi)
- [18] Mokni, K. (2020). Time-varying effect of oil price shocks on the stock market returns: Evidence from oil-importing and oil-exporting countries. *Energy Reports*, 6, 605–619. <https://doi.org/10.1016/j.egy.2020.03.002>

- [19] Nurrahma, A. I., Fitrijanti, T., & Tjandrasa, B. B. (2022). *The Effect of COVID-19, Commodity Prices, and Exchange Rate on Indonesian Stock Market*. 26, 2443–2687. <https://doi.org/10.26905/jkdp.v26i4.8245>
- [20] Nwosa, P. I. (2021). Oil price, exchange rate and stock market performance during the COVID-19 pandemic: implications for TNCs and FDI inflow in Nigeria. *Transnational Corporations Review*, 13(1), 125–137. <https://doi.org/10.1080/19186444.2020.1855957>
- [21] Okere, K. I., Muoneke, O. B., & Onuoha, F. C. (2021). Symmetric and asymmetric effects of crude oil price and exchange rate on stock market performance in Nigeria: Evidence from multiple structural break and NARDL analysis. *Journal of International Trade and Economic Development*, 30(6), 930–956. <https://doi.org/10.1080/09638199.2021.1918223>
- [22] Otoritas Jasa Keuangan. (2019). *Buku 2 Perbankan Seri Literasi Keuangan Perguruan Tinggi*.
- [23] Rakshit, B., & Neog, Y. (2022). Effects of the COVID-19 pandemic on stock market returns and volatilities: evidence from selected emerging economies. *Studies in Economics and Finance*, 39(4), 549–571. <https://doi.org/10.1108/SEF-09-2020-0389>
- [24] Setiawan, S. A. (2020). Does Macroeconomic Condition Matter for Stock Market? Evidence of Indonesia Stock Market Performance for 21 Years. In *The Indonesian Journal of Development Planning: Vol. IV* (Issue 1).
- [25] Surbakti, E. H., Achsani, N. A., Nur, T., & Maulana, A. (2016). The Impact of Macroeconomic Variables on JCI's Stock Return Volatility in Pre and Post Global Economic Crisis. *International Journal of Scientific and Research Publications*, 6(3), 213. [www.ijsrp.org](http://www.ijsrp.org)
- [26] Thakolsri, S. (2021). Modeling the relationships among gold price, oil price, foreign exchange, and the stock market index in Thailand. *Investment Management and Financial Innovations*, 18(2), 261–272. [https://doi.org/10.21511/imfi.18\(2\).2021.21](https://doi.org/10.21511/imfi.18(2).2021.21)
- [27] Utami, M. R., & Darmawan, A. (2018). Pengaruh DER, ROA, ROE, EPS, dan MVA terhadap Harga Saham Pada Indeks Saham Syariah Indonesia. *JOURNAL OF APPLIED MANAGERIAL ACCOUNTING*, 2(2), 206–218. [www.idx.co.id](http://www.idx.co.id)
- [28] Utomo, C. D., & Hanggraeni, D. (2021). The Impact of COVID-19 Pandemic on Stock Market Performance in Indonesia. *Journal of Asian Finance*, 8(5), 777–0784. <https://doi.org/10.13106/jafeb.2021.vol8.no5.0777>
- [29] Wiranti, R., Amini, A., Nur, D., Pengawas, K., & Usaha, P. (2021). *Dampak Pandemi Covid-19 dan Pemulihan Ekonomi terhadap Penegakan Hukum dan Kebijakan Persaingan Usaha di ASEAN* (Vol. 1, Issue 1).
- [30] Zhang, J., Wu, W., Zhao, X., & Zhang, W. (2020). Financial markets under the global pandemic of COVID-19. *Financ Rest Lett*. <https://doi.org/10.1016/j.frl.2020.101528>