

## Stock Price And Covid-19 Vaccine : Comparison Study On Pt. Kimia Farma, Tbk. (Kaef) Stock Prices

Marselia Purnama<sup>1)</sup>

[marselia.purnama@ubd.ac.id](mailto:marselia.purnama@ubd.ac.id)

Octavianti Purnama<sup>2)</sup>

[octavianti.purnama@ubd.ac.id](mailto:octavianti.purnama@ubd.ac.id)

<sup>1) 2)</sup>Universitas Buddhi Dharma

### ABSTRACT

*The Covid-19 pandemic also affected price movements in the pharmaceutical sector, after the fresh wind of the covid-19 vaccine that had been found, stock prices in the pharmaceutical sector experienced a significant increase, especially when the vaccine first arrived in Indonesia, and also when the number one person in Indonesia was vaccinated. In this study the author focuses on the shares of PT. Kimia Farma, Tbk.*

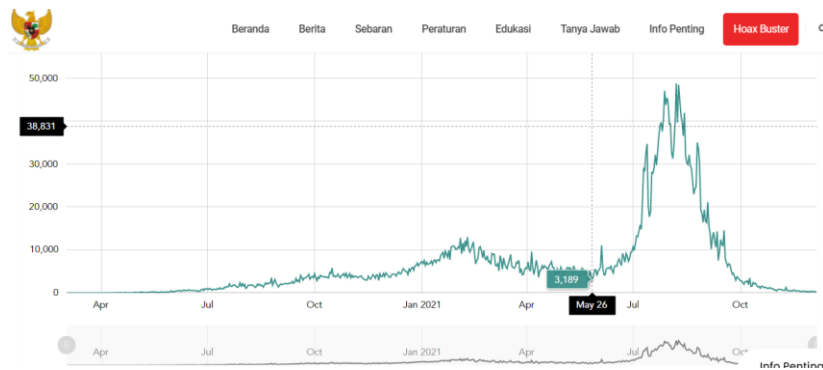
*The test carried out is the normality test of the data using Kolgomorof Smirnov. After conducting the normality test, the researchers then conducted a paired sample T-test to determine whether there was a difference in prices before and after the conditions specified in this stud.*

*From this study it was concluded that there was a difference in stock prices before and after the announcement of the first case of covid in Indonesia by the number of sig two tailed is 0.038 less than 0.05. There was a difference between the stock prices of PT. Kimia Farma, Tbk. after the delivery of vaccines to Indonesia from China and after the arrival of the first Covid-19 vaccine in Indonesia by the number of sig two tailed is 0.000 less than 0.05. There is a difference between the share price of PT. Kimia Farma, Tbk. after the announcement that President Jokowi would be vaccinated for the first time and after the President of the Republic of Indonesia was injected with the first dose of vaccine by the number of sig two tailed is 0.000 less than 0.05.*

*Keywords: Covid19, stock price, Kimia Farma, comparison, Pharmacy*

### Background of the problem

Indonesia is one of the positive countries for the corona virus (Covid-19). The first case that occurred in the country happened to two residents of Depok, West Java. This was announced directly by President Joko Widodo at the Presidential Palace, Jakarta, on Monday (2/3/2020). The following is an attached graph of the development of Covid cases in Indonesia from March 2020 to November 2021.



**Figure 1**  
**Graph of Positive Covid Cases in Indonesia**  
 Source: (Covid.go.id, 2021)

When the first patient with the corona virus was confirmed by President Jokowi, the Composite Stock Price Index immediately responded to the news with the worst decline in the JCI price during 2020, namely in March 2020. The following is an attached chart of the JCI price development during 2020.



**Figure 2**  
**IHSG Graph**  
 Source: (Google.com, 2021)

From this data, it can be said that there was an anomaly in the JCI data caused by the COVID-19 pandemic. according to (Purnama, 2018, p. 45) If the anomaly occurs in the capital market, investors can get unusual profits by establishing the right stock trading strategy. At the beginning of the pandemic in March, the JCI experienced a decline, but in April 2020 and May 2020 it slowly rose, until January 2021, the JCI had returned to its original position before the Covid pandemic in Indonesia.

One of the impacts of the Covid-19 pandemic that is being felt by the world is the uncertain economic conditions so that many people are more careful in investing. Many companies also experienced a decline in profits. according to (Purnama, 2019, p. 121) Profit (earnings) or net income (net income) indicates the profitability of the company.

The Covid-19 pandemic also affected price movements in the pharmaceutical sector, after the fresh wind of the covid-19 vaccine that had been found, stock prices in the pharmaceutical sector experienced a significant increase, especially when the vaccine first arrived in Indonesia, and also when the number one person in Indonesia was vaccinated. In this study the author focuses on the shares of PT. Kimia Farma, Tbk. The following is a graph of KAEF's stock price movements during the pandemic in Indonesia.



**Figure 3**  
Graph of KAEF's stock price movements  
Source: (Investing.com, 2021)

If investors can develop a good strategy, the losses due to this anomaly can be prevented, and turned into opportunities to generate optimal profits. If investors want to take advantage of buying and selling shares in KAEF shares during a pandemic, investors should always pay attention to news developments.

At the beginning of the pandemic in China, stock prices in Indonesia had not been affected by the pandemic, but when there was an announcement of the first confirmed case in Indonesia, the stock exchange immediately responded to the news, resulting in a significant decline in stock prices. After that, the stock price

gradually rose, then when news of the first vaccine arrived in Indonesia (Vaksin COVID-19 Sinovac Tiba di RI et al., 2020) the market immediately responded to this, especially pharmaceutical stock prices. And the peak of the increase in pharmaceutical stock prices occurred when news came out that President Jokowi would be vaccinated for the first time (Setpres, 2021) and the movement of pharmaceutical stock prices also follows the development of news about the covid pandemic in accordance with the development of covid in Indonesia (Mardika, 2021).

### **Research purposes**

This research was conducted to obtain the results of whether there is a difference between the stock prices of PT. Kimia Farma, Tbk. Before the pandemic, and after the announcement of the first case in Indonesia, was there a difference between the stock price of PT. Kimia Farma, Tbk. after the delivery of the vaccine to Indonesia from China and after the arrival of the first covid-19 vaccine in Indonesia, is there a difference between the stock price of PT. Kimia Farma, Tbk. after the announcement that President Jokowi would be vaccinated for the first time and after the President of the Republic of Indonesia was injected with the first dose of vaccine.

### **Overview Theory**

#### **Understanding the Covid19 Pandemic**

WHO defines the Covid19 pandemic as follows: "WHO (World Health Organization) officially declared the coronavirus (COVID-19) as a pandemic on March 9, 2020. This means that the corona virus has spread widely. in this world. The term pandemic sounds frightening, but in fact it has nothing to do with the malignancy of the disease but rather its widespread spread. In general, the corona virus causes mild or moderate symptoms, such as fever and cough, and most of them resolve within a few weeks. But for some people who are at high risk (the elderly and people with chronic health problems, such as heart disease, high blood pressure, or diabetes), the corona virus can cause serious health problems." (Hanitha et al., 2021)

#### **Understanding the Composite Stock Price Index**

(Purnama, Marselia; Hanitha, Vivin; Purnama, 2021) On the Indonesia Stock Exchange, there is a Composite Stock Price Index used as a measurement of the combined performance of all stocks listed on the Indonesia Stock Exchange. Actually, the overall stock price that has been calculated and arranged to form a trend in such a way that it can be used as a reference for calculating decisions is referred to as the JCI. (Sawidji, 2015).

#### **Understanding the Share Price of PT. Kimia Farma, Tbk. (KAEF)**

The share price of PT. Kimia Farma, Tbk. Is the closing price of KAEF shares that occurs due to demand and supply during trading hours on the stock exchange.

### **Hypothesis Formulation**

H1: There is a difference between the share price of PT. Kimia Farma, Tbk. Before the pandemic, and after the announcement of the first case in Indonesia

H2: There is a difference between the share price of PT. Kimia Farma, Tbk. after the delivery of vaccines to Indonesia from China and after the arrival of the first Covid-19 vaccine in Indonesia.

H3: There is a difference between the share price of PT. Kimia Farma, Tbk. after the announcement that President Jokowi would be vaccinated for the first time and after the President of the Republic of Indonesia was injected with the first dose of vaccine.

## RESEARCH METHODS

### Sample

According to Sugiyono in (M. ; O. P. Purnama, 2020) said the sample is part of the population that has the same characteristics of the population. The sample selected by the researcher is based on the criteria determined by the researcher called purposive sampling (M. Purnama et al., 2021).

The sample used is the stock price data of PT. Kimia Farma, Tbk. With data selection criteria, namely before the pandemic occurred, at the time of the announcement of the first case in Indonesia, when the vaccine first arrived in Indonesia, and when the President of the Republic of Indonesia received the first dose of vaccine.

### Data analysis technique

This research is a quantitative research with a comparative descriptive approach. The secondary data used is PT Kimia Farma's stock price data at the close of trading. The trade data used when the first confirmed case of COVID-19 was data from January 2, 2020 and March 3, 2020. Author use 43 data from January 2, 2020 until March 2, 2020 and use 43 data from March 3, 2020 until May 5, 2020 for first condition.

The data used for the arrival of the first COVID-19 vaccine in Indonesia was July 20, 2020 and December 7, 2020. Author use 93 data from July 20, 2020 until December 4, 2020 and use 43 data from December 7, 2020 until April 26, 2021 for second condition.

The data used for Jokowi's first vaccine was the date December 16, 2020 and January 14, 2021. Author use 17 data from December 16, 2020 until January 13, 2021 and use 43 data from January 14, 2021 until Februari 5, 2021 for Third condition.

**Table 1**  
**First Covid Case Announcement**

First Covid Case Announcement			
before		after	
date	price	date	price
2-Jan-20	1,250.00	3-Mar-20	745.00
3-Jan-20	1,215.00	4-Mar-20	745.00
6-Jan-20	1,170.00	5-Mar-20	915.00
7-Jan-20	1,160.00	6-Mar-20	885.00

8-Jan-20	1,120.00	9-Mar-20	740.00
9-Jan-20	1,130.00	10-Mar-20	830.00
10-Jan-20	1,125.00	11-Mar-20	770.00
13-Jan-20	1,100.00	12-Mar-20	695.00
14-Jan-20	1,050.00	13-Mar-20	720.00
15-Jan-20	1,005.00	16-Mar-20	675.00
16-Jan-20	1,205.00	17-Mar-20	630.00
17-Jan-20	1,180.00	18-Mar-20	630.00
20-Jan-20	1,120.00	19-Mar-20	600.00
21-Jan-20	1,105.00	20-Mar-20	670.00
22-Jan-20	1,025.00	23-Mar-20	835.00
23-Jan-20	1,090.00	24-Mar-20	1,040.00
24-Jan-20	1,070.00	26-Mar-20	1,300.00
27-Jan-20	1,025.00	27-Mar-20	1,250.00
28-Jan-20	1,025.00	30-Mar-20	1,165.00
29-Jan-20	1,025.00	31-Mar-20	1,310.00
30-Jan-20	1,005.00	1-Apr-20	1,285.00
31-Jan-20	1,000.00	2-Apr-20	1,300.00
3-Feb-20	955.00	3-Apr-20	1,305.00
4-Feb-20	965.00	6-Apr-20	1,305.00
5-Feb-20	920.00	7-Apr-20	1,275.00
6-Feb-20	960.00	8-Apr-20	1,340.00
7-Feb-20	930.00	9-Apr-20	1,370.00
10-Feb-20	905.00	13-Apr-20	1,340.00
11-Feb-20	880.00	14-Apr-20	1,375.00
12-Feb-20	835.00	15-Apr-20	1,300.00
13-Feb-20	795.00	16-Apr-20	1,240.00
14-Feb-20	790.00	17-Apr-20	1,255.00
17-Feb-20	765.00	20-Apr-20	1,265.00
18-Feb-20	775.00	21-Apr-20	1,205.00
19-Feb-20	845.00	22-Apr-20	1,310.00
20-Feb-20	820.00	23-Apr-20	1,290.00
21-Feb-20	795.00	24-Apr-20	1,245.00
24-Feb-20	750.00	27-Apr-20	1,295.00
25-Feb-20	750.00	28-Apr-20	1,345.00
26-Feb-20	700.00	29-Apr-20	1,345.00
27-Feb-20	645.00	30-Apr-20	1,330.00
28-Feb-20	580.00	4-May-20	1,330.00
2-Mar-20	665.00	5-May-20	1,330.00

Source: (Investing.com, 2021)

**Table 2**  
**The Arrival of the First Vaccine in Indonesia**

The Arrival of the First Vaccine in Indonesia			
before		after	
date	price	date	price
20-Jul-20	1,375.00	7-Dec-20	4,430.00
21-Jul-20	1,715.00	8-Dec-20	4,810.00
22-Jul-20	2,140.00	10-Dec-20	4,480.00
23-Jul-20	2,670.00	11-Dec-20	4,170.00
24-Jul-20	2,740.00	14-Dec-20	4,470.00
27-Jul-20	2,550.00	15-Dec-20	4,330.00
28-Jul-20	2,380.00	16-Dec-20	4,440.00
29-Jul-20	2,220.00	17-Dec-20	4,380.00
30-Jul-20	2,250.00	18-Dec-20	4,280.00
3-Aug-20	2,110.00	21-Dec-20	4,110.00
4-Aug-20	2,280.00	22-Dec-20	4,300.00
5-Aug-20	2,850.00	23-Dec-20	4,240.00
6-Aug-20	3,180.00	28-Dec-20	4,180.00
7-Aug-20	3,180.00	29-Dec-20	4,260.00
10-Aug-20	3,330.00	30-Dec-20	4,250.00
11-Aug-20	3,350.00	4-Jan-21	4,340.00
12-Aug-20	3,230.00	5-Jan-21	5,125.00
13-Aug-20	3,260.00	6-Jan-21	4,860.00
14-Aug-20	3,350.00	7-Jan-21	4,830.00
18-Aug-20	3,370.00	8-Jan-21	5,375.00
19-Aug-20	3,310.00	11-Jan-21	6,450.00
24-Aug-20	3,440.00	12-Jan-21	6,975.00
25-Aug-20	3,380.00	13-Jan-21	6,500.00
26-Aug-20	3,350.00	14-Jan-21	6,050.00
27-Aug-20	3,310.00	15-Jan-21	5,650.00
28-Aug-20	3,240.00	18-Jan-21	5,275.00
31-Aug-20	3,040.00	19-Jan-21	4,910.00
1-Sep-20	3,090.00	20-Jan-21	4,810.00
2-Sep-20	3,030.00	21-Jan-21	4,800.00
3-Sep-20	2,960.00	22-Jan-21	4,470.00
4-Sep-20	3,150.00	25-Jan-21	4,160.00
7-Sep-20	3,070.00	26-Jan-21	3,870.00
8-Sep-20	3,090.00	27-Jan-21	3,600.00

9-Sep-20	2,980.00	28-Jan-21	3,350.00
10-Sep-20	2,780.00	29-Jan-21	3,120.00
11-Sep-20	2,820.00	1-Feb-21	2,980.00
14-Sep-20	2,920.00	2-Feb-21	3,230.00
15-Sep-20	2,880.00	3-Feb-21	3,500.00
16-Sep-20	2,900.00	4-Feb-21	3,260.00
17-Sep-20	2,860.00	5-Feb-21	3,250.00
18-Sep-20	2,840.00	8-Feb-21	3,400.00
21-Sep-20	2,740.00	9-Feb-21	3,600.00
22-Sep-20	2,580.00	10-Feb-21	3,500.00
23-Sep-20	2,450.00	11-Feb-21	3,740.00
24-Sep-20	2,310.00	15-Feb-21	3,660.00
25-Sep-20	2,880.00	16-Feb-21	3,990.00
28-Sep-20	3,060.00	17-Feb-21	3,830.00
29-Sep-20	2,900.00	18-Feb-21	3,670.00
30-Sep-20	2,890.00	19-Feb-21	3,700.00
1-Oct-20	3,180.00	22-Feb-21	3,700.00
2-Oct-20	3,040.00	23-Feb-21	3,690.00
5-Oct-20	3,090.00	24-Feb-21	3,590.00
6-Oct-20	3,090.00	25-Feb-21	3,650.00
7-Oct-20	3,090.00	26-Feb-21	3,530.00
8-Oct-20	3,080.00	1-Mar-21	3,610.00
9-Oct-20	3,080.00	2-Mar-21	3,600.00
12-Oct-20	3,270.00	3-Mar-21	3,510.00
13-Oct-20	3,260.00	4-Mar-21	3,320.00
14-Oct-20	3,410.00	5-Mar-21	3,260.00
15-Oct-20	3,320.00	8-Mar-21	3,250.00
16-Oct-20	3,340.00	9-Mar-21	3,080.00
19-Oct-20	3,350.00	10-Mar-21	3,090.00
20-Oct-20	3,390.00	12-Mar-21	3,230.00
21-Oct-20	3,360.00	15-Mar-21	3,200.00
22-Oct-20	3,260.00	16-Mar-21	3,110.00
23-Oct-20	3,220.00	17-Mar-21	3,100.00
26-Oct-20	3,110.00	18-Mar-21	3,080.00
27-Oct-20	3,150.00	19-Mar-21	3,090.00
2-Nov-20	3,080.00	22-Mar-21	3,040.00
3-Nov-20	3,170.00	23-Mar-21	2,970.00
4-Nov-20	3,110.00	24-Mar-21	2,820.00
5-Nov-20	3,140.00	25-Mar-21	2,760.00
6-Nov-20	3,150.00	26-Mar-21	2,890.00
9-Nov-20	3,190.00	29-Mar-21	2,790.00



10-Nov-20	3,260.00	30-Mar-21	2,710.00
11-Nov-20	3,210.00	31-Mar-21	2,560.00
12-Nov-20	3,230.00	1-Apr-21	2,630.00
13-Nov-20	3,250.00	5-Apr-21	2,610.00
16-Nov-20	3,280.00	6-Apr-21	2,570.00
17-Nov-20	3,290.00	7-Apr-21	2,520.00
18-Nov-20	3,310.00	8-Apr-21	2,560.00
19-Nov-20	3,290.00	9-Apr-21	2,670.00
20-Nov-20	3,240.00	12-Apr-21	2,540.00
23-Nov-20	3,270.00	13-Apr-21	2,490.00
24-Nov-20	3,300.00	14-Apr-21	2,520.00
25-Nov-20	3,270.00	15-Apr-21	2,510.00
26-Nov-20	3,270.00	16-Apr-21	2,510.00
27-Nov-20	3,260.00	19-Apr-21	2,700.00
30-Nov-20	3,150.00	20-Apr-21	3,000.00
1-Dec-20	3,200.00	21-Apr-21	3,000.00
2-Dec-20	3,460.00	22-Apr-21	2,890.00
3-Dec-20	3,500.00	23-Apr-21	2,760.00
4-Dec-20	3,550.00	26-Apr-21	2,610.00

Source: (Investing.com, 2021)

**Table 3**  
**President Jokowi Receives First Dose of Vaccine**

President Jokowi Receives First Dose of Vaccine			
before		after	
date	price	date	price
16-Dec-20	4,440.00	14-Jan-21	6,050.00
17-Dec-20	4,380.00	15-Jan-21	5,650.00
18-Dec-20	4,280.00	18-Jan-21	5,275.00
21-Dec-20	4,110.00	19-Jan-21	4,910.00
22-Dec-20	4,300.00	20-Jan-21	4,810.00
23-Dec-20	4,240.00	21-Jan-21	4,800.00
28-Dec-20	4,180.00	22-Jan-21	4,470.00
29-Dec-20	4,260.00	25-Jan-21	4,160.00
30-Dec-20	4,250.00	26-Jan-21	3,870.00
4-Jan-21	4,340.00	27-Jan-21	3,600.00
5-Jan-21	5,125.00	28-Jan-21	3,350.00
6-Jan-21	4,860.00	29-Jan-21	3,120.00
7-Jan-21	4,830.00	1-Feb-21	2,980.00

8-Jan-21	5,375.00	2-Feb-21	3,230.00
11-Jan-21	6,450.00	3-Feb-21	3,500.00
12-Jan-21	6,975.00	4-Feb-21	3,260.00
13-Jan-21	6,500.00	5-Feb-21	3,250.00

Source: (Investing.com, 2021)

**Hypothesis testing**

The test carried out is the normality test of the data using Kolgomorof Smirnov. The purpose of normality testing is to test if in the regression model, the confounding variable or residual has a normal distribution (Purnama, Marselia ; Hanitha, Vivin; Purnama, 2021)

After conducting the normality test, the researchers then conducted a paired sample T-test to determine whether there was a difference in prices before and after the conditions specified in this study, namely whether there was a difference in the stock price of PT Kimia Farma, Tbk. at the time before the pandemic occurred with the announcement of the first case in Indonesia, when the vaccine first arrived in Indonesia, and when the president of the Republic of Indonesia received the first dose of vaccine.

**RESEARCH RESULTS AND DISCUSSION**

**Normality Test Results**

Normality tests are used to determine if a data set is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. In this test, author use Kolgomorov-Smirnov test. If asymp sig (2 tailed) from Kolgomorov-Smirnov test is above 0.5, we can conclude the data is normal.

**Table 4**  
**One Sample Kolmogorov-Smirnov test**  
**result**

Information	Asymp. Sig. (2-tailed)
First Covid Case Announcement	0.200
The Arrival of the First Vaccine in Indonesia	0.162
President Jokowi Receives First Dose of Vaccine	0.145

Source : SPSS

23.0 data processing application

From the results of the normality test above, the Kolgomorov-Smirnov number shows a number above 0.5 so it can be said that the data used in this study is normally distributed.

### Paired Sample T-test Result

The Paired Samples t Test compares the means of two measurements taken from the same individual, object, or related units. These "paired" measurements can represent things like a measurement taken at two different times (e.g., pre-test and post-test score with an intervention administered between the two time points). If the result of sig 2-tailed bellow 0.05, so we can conclude that the data have a differences between the two conditions.

**Table 5**  
**Paired sample T-test result**

		sig. 2-Tailed
pair 1	First Covid Case Announcement	0.038
pair 2	The Arrival of the First Vaccine in Indonesia	0.000
pair 3	President Jokowi Receives First Dose of Vaccine	0.000

Source : SPSS 23.0 data processing application

From these results it can be concluded that there are significant differences in stock prices for each hypothesis tested.

### Discussion

During the COVID-19 pandemic in Indonesia, all sectors of the economy were directly affected, such as closing offices, malls, shops and even traditional markets being deserted. The pandemic also has an effect on the overall decline in stock prices in the capital market, so many researchers have investigated the effect of the COVID-19 pandemic on stock prices, such as research conducted by (Suryatimur & Khabibah, 2021), (Arthamevia et al., 2021), (Ngaini & Tambunan, 2020), and (Lailiyah et al., 2021). The results of their research all concluded that there was a difference in stock prices before the COVID-19 pandemic and after the Covid-19 pandemic. However, the uniqueness found in this research is that pharmaceutical stock prices have actually increased significantly so that many investors take the opportunity of this anomaly to gain profits, especially in PT. Kimia Farma, Tbk.

After the research was conducted, it was found that there was a difference in stock prices before the occurrence of the first case in Indonesia and after the announcement of the first confirmed case in Indonesia. There was a drastic decline in KAEF's stock price. But it is gradually rising, especially after the discovery of a vaccine.

After the discovery of the vaccine until the news that President Jokowi would be vaccinated for the first time, KAEF's stock price continued to experience a significant increase. Every time there is news about the arrival of the covid vaccine in Indonesia, the next day the market immediately responds with a significant increase in stock prices.

The peak of the increase in KAEF's stock price was when President Jokowi received the first dose of Sinovac vaccine. After January 14, 2021, the stock price of

the pharmaceutical sector began to gradually decline, approaching its normal price again.

This is also evidenced by the acceptance of H1, H2, and H3 in this study with a significance value below 0.05. From this study it was concluded that there was a difference in stock prices before and after the announcement of the first case of COVID in Indonesia, there was a difference between the stock prices of PT. Kimia Farma, Tbk. after the delivery of vaccines to Indonesia from China and after the arrival of the first COVID-19 vaccine in Indonesia. There is a difference between the share price of PT. Kimia Farma, Tbk. after the announcement that President Jokowi would be vaccinated for the first time and after the President of the Republic of Indonesia was injected with the first dose of vaccine.

### Conclusion

First conclusion, There is a difference between the share price of PT. Kimia Farma, Tbk. Before the pandemic, and after the announcement of the first case in Indonesia it result from the value of sig 2-Tailed (0.038) is below alpha value 0.05. Second conclusion, There is a difference between the share price of PT. Kimia Farma, Tbk. after the delivery of vaccines to Indonesia from China and after the arrival of the first COVID-19 vaccine in Indonesia. it result from the value of sig 2-Tailed (0.000) is below alpha value 0.05. Third conclusion, There is a difference between the share price of PT. Kimia Farma, Tbk. after the announcement that President Jokowi would be vaccinated for the first time and after the President of the Republic of Indonesia was injected with the first dose of vaccine. it result from the value of sig 2-Tailed (0.000) is below alpha value 0.05.

### Suggestion

Suggestions for further research are researchers can develop this research by adding other variables and using other company shares or can also use certain stock sectors.

## BIBLIOGRAPHY

- Arthamevia, S. A., Ayu, M., Ula, U., Rizqi, S., Nissa, F., & Cahyo, H. (2021). Pengaruh Covid-19 Terhadap Harga Saham Di Indonesia Tahun 2019-2020. *Seminar Nasional Official Statistics*, 2020(1), 34-44. <https://doi.org/10.34123/semnasoffstat.v2020i1.427>
- Covid.go.id. (2021). *peta sebaran*. 2021. <https://covid19.go.id/peta-sebaran>
- Google.com. (2021). *grafik ihsg*. 2021. [https://www.google.com/finance/quote/COMPOSITE:IDX?sa=X&ved=2ahUK Ewj49o\\_OqMz0AhUNSGwGHV7aDmAQ3ecFegQICRAc](https://www.google.com/finance/quote/COMPOSITE:IDX?sa=X&ved=2ahUK Ewj49o_OqMz0AhUNSGwGHV7aDmAQ3ecFegQICRAc)
- Hanitha, V., Purnama, M., & Purnama, O. (2021). The Effect Of Additive Covid19 Positive Cases And World Gold Prices On The Joint Share Price Index In Indonesia Stock Exchange. *Primanomics*, 19(3), 1-15.
- Investing.com. (2021). *grafik kaef*. 2021. <https://id.investing.com/equities/kimia-farma>
- Lailiyah, E. H., Dewi, A., & Nataliawati, R. (2021). Stock Price dan COVID-19 :

- Sebuah Studi Perbandingan pada Sektor Perbankan Indonesia. *JURNAL AKUNTANSI, EKONOMI Dan MANAJEMEN BISNIS*, 9(1), 77–82.  
<https://doi.org/10.30871/jaemb.v9i1.3149>
- Mardika, R. (2021). *Ini Perjalanan Panjang Vaksin Sinovac Hingga Tiba di Indonesia*. 13 Januari 2021. <https://www.kompas.tv/article/137580/ini-perjalanan-panjang-vaksin-sinovac-hingga-tiba-di-indonesia>
- Ngaini, N., & Tambunan, P. (2020). *PADA SEKTOR CONSUMER GOODS YANG TERDAFTAR DI BURSA EFEK INDONESIA TAHUN 2020*. 1–16.
- Purnama, Marselia ; Hanitha, Vivin; Purnama, O. (2021). Pengaruh Harga Emas, Harga Minyak, Kurs Tengah Bank Indonesia, dan Suku Bunga Acuan Bank Indonesia Terhadap Indeks Harga Saham Gabungan (IHSG) di Bursa Efek Indonesia Pada Periode Juli 2020 - Desember 2020. *ECo-Buss*, 44(12), 2–8.  
<https://jurnal.kdi.or.id/index.php/eb/article/view/198>
- Purnama, M. ; O. P. (2020). Pengaruh Return On Asset, Price Earning Ratio, Current Ratio, Gross Profit Margin , Dan Earnings Per Share Terhadap Harga Saham Pada Perusahaan Sektor Infrastructure, Utilities & Transportation Yang Terdaftar Di Bursa Efek Indonesia Periode Tahun 2014-2018. *Akuntoteknologi*, 2, 37–48.
- Purnama, M., Hanitha, V., & Hidayat, A. (2021). Analysis of Factors Affecting Firm Value in Property, Real Estate and Building Construction Companies Listed on the Indonesia Stock Exchange for the 2014-2018 Period. *Primanomics : Jurnal Ekonomi & Bisnis*, 19(2), 70. <https://doi.org/10.31253/pe.v19i2.592>
- Sawidji, W. (2015). *Pengetahuan Pasar Modal Untuk Konteks Indonesia*. PT Elex Media Komputindo.
- Setpres, B. (2021). *Presiden Jokowi Menerima Vaksin Covid-19 Perdana*. 13 Januari 2021. <https://www.presidentri.go.id/siaran-pers/president-jokowi-menerima-vaksin-covid-19-perdana/>
- Suryatimur, K. P., & Khabibah, N. A. (2021). Reaksi Pasar Saham Perusahaan Farmasi Sebelum Dan Sesudah Covid-19 Di Indonesia. *Jurnal Aplikasi Akuntansi*, 6(1), 67–79. <https://doi.org/10.29303/jaa.v6i1.112>
- Vaksin COVID-19 Sinovac Tiba di RI, S. yang P. D., Baca artikel detikHealth, "Vaksin COVID-19 Sinovac Tiba di RI, S. yang P. D. selengkapnya <https://health.detik.com/berita-detikhealth/.-5284455/vaksin-covid-19-sinovac-tiba-di-ri-siapa-yang-pertama-divaksin.>, & <https://apps.detik.com/detik/>, D. A. D. S. (2020). *Vaksin COVID-19 Sinovac Tiba di RI, Siapa yang Pertama Divaksin? Baca artikel detikHealth, "Vaksin COVID-19 Sinovac Tiba di RI, Siapa yang Pertama Divaksin?" selengkapnya <https://health.detik.com/berita-detikhealth/d-5284455/vaksin-covid-19-sinovac-tiba-d>. Senin, 07 Des 2020. <https://health.detik.com/berita-detikhealth/d-5284455/vaksin-covid-19-sinovac-tiba-di-ri-siapa-yang-pertama-divaksin>*