Vol. 06, No. 02, July 2022, pp. 167-177

IJIES International Journal of Innovation in Enterprise System

INTERNATIONAL JOURNAL OF INNOVATION IN ENTERPRISE SYSTEM

Journal homepage: https://ijies.sie.telkomuniversity.ac.id
e-ISSN: 2580-3050, DOI: https://doi.org/10.25124/ijies.v6i01.165

Telkom University

The Comparison of Stock Price Before and After Pandemic to Identify The Health of Sector Company

Retinda Liandya Gita[1*], Endang Chumaidiyah[2], Rita Zulbetti[3]

[1] School of Industrial Engineering
Telkom University, Bandung, Indonesia
gitaliandya@gmail.com

[2] School of Industrial Engineering
Telkom University, Bandung, Indonesia
endangcn@gmail.com

[3] School of Industrial Engineering
Telkom University, Bandung, Indonesia
zulbetti@gmail.com

*retindaliandya@student.telkomuniversity.ac.id

ARTICLE INFO

Article history:
Received 13 July 2022
Accepted 25 July 2022
Published 31 July 2022

ABSTRACT

At the beginning of the Covid-19 outbreak in Indonesia, almost all activities in this country were disrupted and economic activity was no exception. Indonesia's current economic growth is down 2.07% in 2020 due to the Covid-19 pandemic which has caused it to be reduced to a low and middle-income country. Based on the gross domestic product (GDP), most sectors of the Indonesian economy experienced a decline in growth in 2020. Only 5 economic sectors showed positive growth. The sector with the largest positive growth was the health services sector and social activities, which amounted to 11.60%. This growth affects the stock price of health sector companies. Grounded on the IDX Industry category (IDXHEALTH) from 2018-2022, there was an increase of 41.28%. The Health Sector which continues to grow is driven by the payment of Covid- 19 incentives. This study was conducted to identify the Difference in Stock prices of Health Sector Companies before and after Covid- 19 with the supposition that the Covid- 19 pandemic occurred in March 2020 by observing stock price fluctuations two years before and after the Covid- 19 Pandemic. Based on the Paired Sample T-test, the stock prices of 3 companies from 6 companies have significant differences in the specified sample period, namely DVLA, PRDA, and MERK companies where the stock prices of DVLA and PRDA have increased. In addition, PRDA's stock price has the largest stock price among other health sector companies, meaning that PRDA companies have good performance.

Keywords:
Stock price; Covid-19;
Paired Sample T-test;
Analytical Hierarchy
Process; SWOT Analysis.

1. INTRODUCTION

Covid-19 is an infectious disease caused by coronavirus. The first case of Covid-19 occurred in Wuhan, China at the end of 2019. This virus pandemic spread rapidly from person to person, and from one country to another, throughout the world, including Indonesia. Several companies apply for Termination of Employment. Covid- 19 has also broken-down global business, mobility, global business, and a country's economy, as a result, numerous certain sectors have been negatively affected by Covid- 19 [1]. As a result, certain sectors of the economy have been negatively affected by Covid-19. The state of the company can be seen from the company's stock price and sales achieved. The stock price shows the

amount of supply and demand for the stock. As the demand for these stocks increases, so does the stock price. As the demand for these stocks declines, so does the stock price. The state of the company can also be read from the number of stocks traded in the company. The number of stock transactions shows the interest of investors to buy or sell stocks in a company. The total value of the stocks traded is based on the trading volume of the company's stocks [2].

Figure 1 - Jakarta Composite Index
Source: https://finance.yahoo.com

According to Figure 1, is a graph of the Jakarta Composite Index (JCI) for 2 years before the emergence of Covid-19 in Indonesia and 2 years after the emergence of covid-19 in Indonesia. JCI is a representation of the price of all stocks on the Indonesia Stock Exchange. In 2019 the JCI closed at 6,299, with the JCI running normally and growing by 1.7%, but in March 2020 the JCI experienced a significant decline of 37.82%. At the beginning of the second quarter, JCI began to recover slowly. The last closing of trading was on December 30, 2020, with JCI at the level of 5,979, or contracted by 5% compared to the beginning of 2020. The contraction of JCI due to Covid-19 resulted in a decrease in the stock prices of issuers on the stock exchange. Various policies issued by the regulator, such as the buyback of the company's outstanding stocks and the temporary suspension of trading on the stock exchange (trading halt), were not able to stop JCI's decline [3]. Based on traditional financial and economic theory, stock prices are closely related to the economy of a country.

Figure 2 - Indonesia Economic Growth 2018-2022
Source: https://www.bps.go.id/

According to Figure 2, economic growth is a process of increasing or decreasing the country's per capita income. Indonesia's economic growth fell by 2.07% during the Covid-19 outbreak, which caused it to be reduced to a low and middle-income country.

*retindaliandya@student.telkomuniversity.ac.id

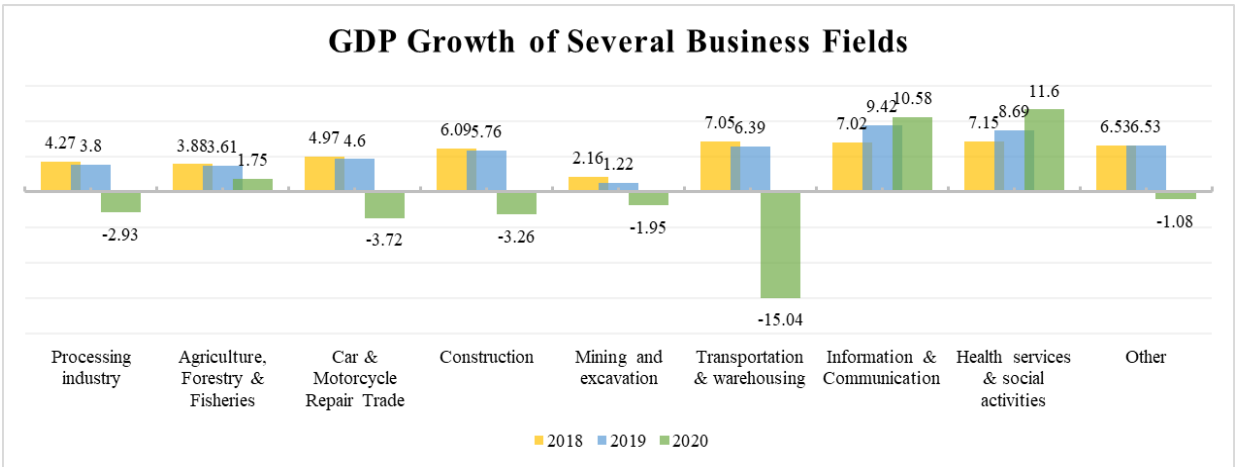


Figure 3 - GDP Growth
Source: https://www.bps.go.id/

According to Figure 3, regarding the gross domestic product (GDP) in several business fields, most of the Indonesian economic sectors (12 out of 17 sectors) Indonesia experienced a decline in growth in 2020. Only 5 economic sectors showed positive growth, one of which was the health services sector and social activities grew more than 11.60% in 2020, compared to 8.69% in 2019. In terms of their contribution to total GDP, the health services sector and social activities contributed about 1.30% to total GDP. This sector has performed very well during the Covid-19 pandemic.

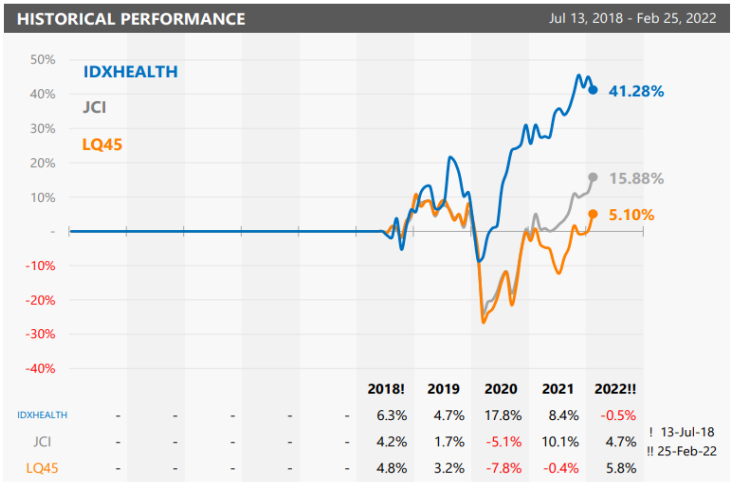


Figure 4 - Historical Performance IDXHEALTH
Source: https:// www.idx.co.id/

Based on Figure 4, the IDX Industry Classification (IDXHEALTH) from 2018–2022 increased by 41.28%. The health sector continues to grow because it receives government support and is driven by the payment of Covid-19 incentives to hospitals, health workers, medical laboratories, and clinics for Covid-19 services. Of course, this service department is at the forefront of efforts to treat and support people who have been identified as infected with Covid-19. Therefore, this research was conducted with a focus on the health sector.

Then there are some studies related to how the Covid-19 pandemic can affect stock prices, including stock indexes for the top 30 countries in terms of the number of recorded COVID-19 cases. This research proves that there is a significant stock market response to the Covid-19 pandemic [4]. International requests will be affected, especially in China and the United States. investors avoided Chinese and US stocks at the launch of the Covid- 19 pandemic [5]. In Asian countries, the COVID-19 outbreak has a significant negative effect on stock market returns across all affected countries and areas. Confirmed cases of COVID-19 have significant adverse effects on major stock index performances, with those in Asia suffering a greater decrease in terms of abnormal returns [6]. In other research, there are differences in stock price indexes before and after the Covid-19 pandemic, which significantly increased in five countries: Indonesia (JCI), Thailand

(SETI), Malaysia (KLCI), Singapore (SET), and the Philippines (PSEI). This shows that there was an increase in investors in these five countries after the Covid-19 pandemic [7].

Indonesia has also been affected by Covid-19, such as in the mining sector, where there are three companies whose stock prices have been affected by the COVID-19 pandemic [8]. Still, there's research that proves that stock returns in the property sector replied appreciatively to the announcement that Indonesians had contracted Covid- 19 for the first time [9]. In addition, several studies examine the health sector. Among them is a study conducted by Mohammad Taufiqurrohman (2021) that found a significant difference between stock prices 30 days before and 30 days after the COVID- 19 pandemic in Indonesia in health sub-sector companies [10]. In addition, other research shows that in four companies in the health sector, there are differences before and after the announcement of vaccine development, but in the other four companies, there's no difference before and after the announcement of vaccine development [11].
Based on the phenomena of stock prices and empirical evidence, this study aims to examine the impact and condition of stock prices before the Covid-19 pandemic and after the Covid-19 pandemic. This study will focus on the research objectives of health sector companies listed on the Indonesia Stock Exchange by identifying the differences in stock prices of each health sector company before and after Covid-19. Thus, the research hypothesis can be developed into.

a. H0 = There is no significant difference between the stock prices of health sector companies before and after the Covid-19 outbreak in Indonesia.
b. H1 = There is a significant difference between stock prices before and after the Covid-19 outbreak in Indonesia.

The null hypothesis (H0) will be rejected and the alternative hypothesis (H1) will be accepted if the P-Value value is smaller than the real level ($\alpha = 0.05$).

2. METHODS

This research begins with the movement of stock prices of health sector companies and compares them between 2 years before the Covid-19 outbreak in Indonesia and 2 years after the Covid-19 outbreak in Indonesia. So, stock price data will be taken in March 2018 and March 2022. After that, hypothesis testing is carried out using the paired sample T-test. The research framework can be described as follows:

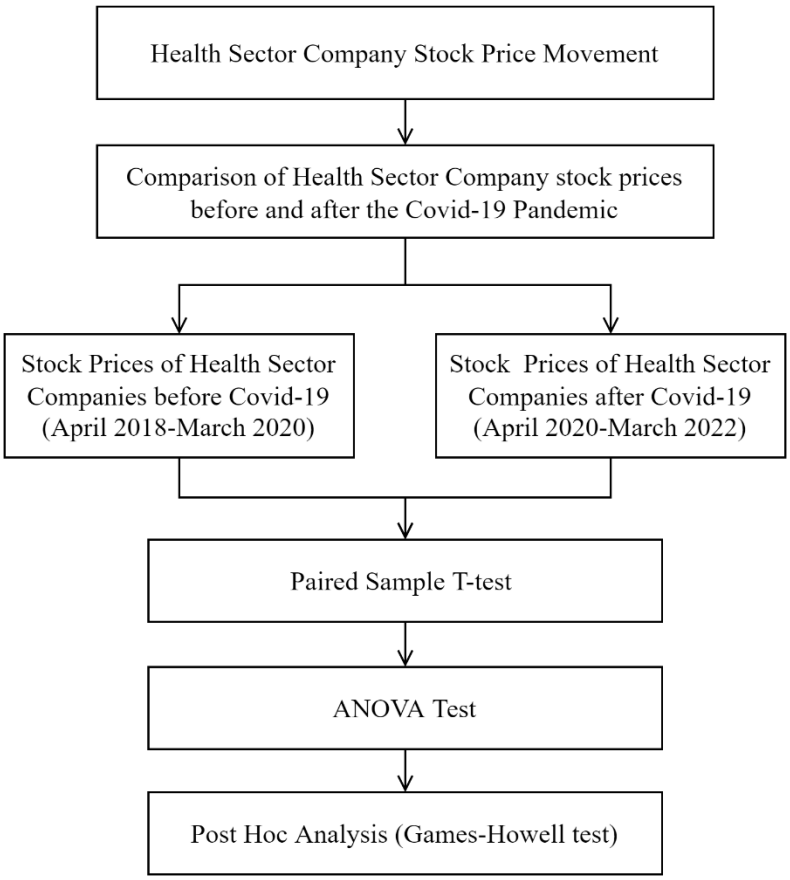


Figure 5 - Research Framework

This research uses quantitative research with a descriptive-comparative approach. This analysis uses secondary data in the form of stock price time series. Secondary data was obtained from the official website of the Indonesia Stock Exchange and Yahoo Finance. The secondary data collected is data on stock prices at the closing prices of health sector companies listed on the Indonesia Stock Exchange for two years before and two years after Covid-19. The data to be processed is company data that had an Initial Public Offering (IPO) before 2018 and always carries out sales activities on weekdays. The research variables are the stock prices of health sector companies two years before Covid-19 (April 2018-March 2020) were 24 data series and the stock prices of health sector companies two years after Covid-19 (April 2020-March 2022) were 24 data series. The analysis technique used is descriptive statistics and hypothesis testing using Paired Sample T-test and ANOVA tests, followed by Post Hoc analysis (Games-Howell test).

2.1 Data Processing

After-Collecting monthly stock price data on six health companies for two years before the Covid-19 pandemic in Indonesia and two years after the Covid-19 pandemic in Indonesia. This study assumes that Covid-19 has just begun to spread in Indonesia in March 2020. After the stock price data has been collected, it will be analyzed in stages through descriptive statistics and hypothesis testing.

2.1.1 Basic Assumptions of Testing

Basic Assumptions The test is carried out to ensure that the data can be processed using the Paired Sample T-test and the ANOVA test. If the assumptions are met, then data processing can be continued at the next stage. Assuming this test is carried out as follows:

a. Normality Test, this test is used to determine whether the sample of a variable follows a normal distribution or not. In this study, the Kolmogorov Smirnov test was used. The Normality Test with the Kolmogorov Smirnov test is preferred because this test is more sensitive to detecting normality than the graph method. The sample is normally distributed if the research significance or P-Value > (0.05). On the other hand, it is said to be abnormal if the research significance or P-Value ≤ (0.05).
b. Homogeneity Test, this test is used to show that two or more groups of sample data come from populations that have the same variance or not. The variance of each data group is homogeneous if the research significance or P-Value > (0.05). On the other hand, it is said to be not homogeneous if the research significance or P-Value ≤ (0.05).

2.1.2 Data Processing Method

The data processing method used in this study uses descriptive statistics and hypothesis testing (Paired sample T-test and ANOVA Test) which the further description are:

a. Using the descriptive analysis test to see the mean, minimum, maximum, and standard deviation.
b. using Paired Sample T-test, this test is used to test paired samples (same subject) but undergoes two different treatments or measurements [12]. In this study, the Paired sample T-test was used to identify the impact of Covid-19 on changes in stock prices of health sector companies before and after the Covid-19 pandemic. There is no significant difference between stock prices before and after the Covid-19 outbreak in Indonesia if the research significance or P-Value > (0.05). On the other hand, there is a significant difference between stock prices before and after the Covid-19 outbreak in Indonesia if the research significance or P-Value ≤ (0.05).
c. Using The ANOVA Test (Analysis of Variance), this test is used to compare the population mean by comparing the mean-variance of data sets. In this study, the ANOVA test was used to identify differences in stock prices of each company in the Health Sector. There is no difference in the mean stock price of each company in the health sector if the research significance or P-Value > (0.05). On the other hand, there is a difference in the mean stock price of each company in the Health Sector if the research significance or P-Value ≤ (0.05). If the results obtained are different, then a post hoc analysis is carried out. A post-hoc analysis was conducted to find out which groups were different. To determine which post hoc analysis is used, it can be seen from the results of the homogeneity test. If the test results show the same variance, then the further test used is the Bonferroni test. However, if the test results show the variance is not the same, then the further test used is the Games-Howell test.

3. RESULT AND DISCUSSION

3.1 Descriptive Statistics

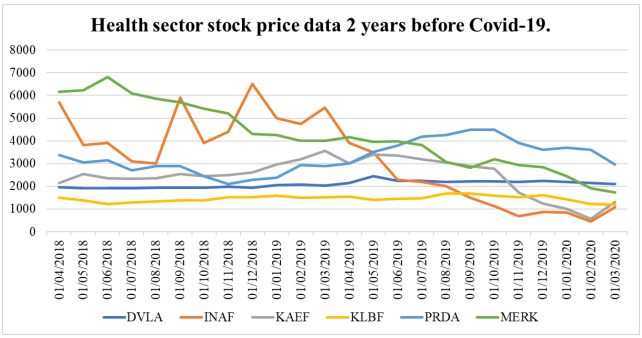
Descriptive statistics are statistics that serve to provide an overview of the object of research based on existing sample data. Statistical values commonly used in descriptive statistics are the mean, minimum, maximum, and standard deviation [13]. Based on the sampling criteria, there are 6 health sector companies with a research period of 4 years so the total observation is 48 data, 24 data come from the stock price of the health sector before Covid-19 and 24 data comes from the stock price of the health sector after Covid-19.

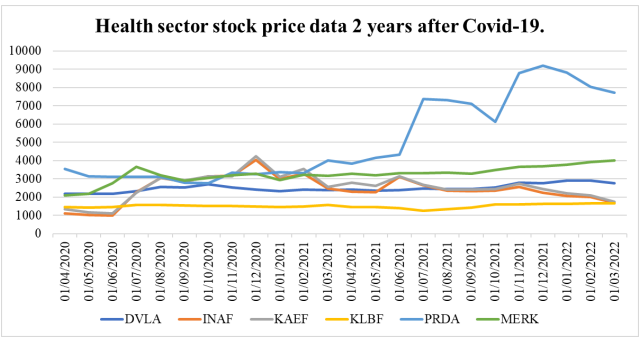
Table 1 - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DVLA_ Before	24	1920	2440	2091.67	144.72
DVLA_ After	24	2170	2900	2492.08	214.52
INAF_ Before	24	448	6500	3160.13	1847.67
INAF_ After	24	985	4030	2427.92	741.00
KAEF_ Before	24	580	3570	2462.71	788.94
KAEF_ After	24	1120	4250	2550.00	731.88
KLBF_ Before	24	1200	1690	1457.50	138.06
KLBF_ After	24	1260	1670	1505.00	101.81
PRDA_ Before	24	2100	4500	3276.67	690.51
PRDA_ After	24	2760	9200	5067.08	2295.06
MERK_ Before	24	1740	6800	4204.79	1444.95
MERK_ After	24	2080	4000	3245.00	460.03
Valid N (listwise)	24				

From the results of descriptive statistical data in Table 1, it can be seen that the data for each sample tested varies greatly because the research variable is volatile stock prices. The DVLA_After sample has a higher mean and standard deviation than the DVLA_Before sample, which are 2492.08 and 214.52. And the DVLA_After sample has a higher maximum and minimum value than DVLA_Before, which are 2170 and 2900. The INAF_Before sample has a higher mean and standard deviation than the INAF_After sample, which are 3160.13 and 1847.67. And the INAF_Before sample has a smaller minimum value but has a higher maximum value than INAF_After, namely 448 and 6500. The KAEF_After sample has a higher mean, but the standard deviation is smaller than the KAEF_Before sample, which is 2550 and 731.88. And the KAEF_After sample has a higher maximum and minimum value than KAEF_Before, at 1120 and 4250. In the KLBF_After sample, the mean is higher but the standard deviation is smaller than in the KLBF_Before sample, which is 1505 and 101.81. And the KLBF_After sample has a higher minimum value but a smaller maximum value than the KLBF_Before sample, namely 1260 and 1670. The PRDA_After sample has a higher mean and standard deviation than the PRDA_Before sample, which are 5067.08 and 2295.06. And the PRDA_After sample has a higher maximum and minimum value than PRDA_Before, at 2760 and 9200. The MERK_Before sample has a higher mean and standard deviation than the MERK_After sample, which are 4204.79 and 4000. The MERK_Before sample has a smaller minimum value but has a higher maximum value than the MERK2 sample, namely 1740 and 6800. The results of this study can strengthen Munandar's (2022) explanation that the stock price of health companies in the capital market tends to be stable and grow. This is because, in controlling COVID-19, the government prioritizes the health sector so that investors are interested in investing in the stock of health sector companies because they are considered safer and more stable during the pandemic.

The stock price movements of health sector companies two years before the Covid-19 pandemic and two years after the Covid-19 pandemic in Indonesia are presented in Figure 6 below.





The results of descriptive statistics for this company indicate the mean stock price of health sector companies two years before the Covid-19 pandemic and two years after the Covid-19 pandemic in Indonesia. In Figure 6, the stock price movements of health sector companies tend to move sideways (moving flat). Sideways is a condition when the price

movement of an asset tends to be horizontal where there are many sellers and buyers. This condition is caused by the strong supply and demand figures for the same period.

3.2 Statistical Analysis

Statistical analysis used is the Paired Sample T-test and ANOVA tests, which generally have an interval or ratio scale (quantitative data). For the results of the paired T-test and ANOVA test to be valid, the data must be normally distributed in such a way that the data will be tested for normality [12]. The normality test is used to determine if the sample of a variable follows a normal distribution or not. The results of the normality test are presented in Table 2.

Table 2 - Normality Test Result

One-Sample Kolmogorov-Smirnov Test													
		DVLA		**INAF**		**KAEF**		**KLBF**		**PRDA**		**MERK**	
		Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
N		24	24	24	24	24	24	24	24	24	24	24	24
Normal Parameters	Mean	2092	2492	3160	2428	2463	2550	1458	1505	3277	5067	4205	3245
	Std. Deviation	145	215	1848	741	789	732	138	102	691	2295	1445	460
Most Extreme Differences	Absolute	0.155	0.126	0.116	0.145	0.183	0.127	0.107	0.097	0.129	0.249	0.140	0.185
	Positive	0.155	0.126	0.116	0.089	0.095	0.123	0.082	0.097	0.129	0.249	0.140	0.118
	Negative	-0.127	-0.095	-0.096	-0.145	-0.183	-0.127	-0.107	-0.097	-0.076	-0.157	-0.100	-0.185
Test Statistic		0.155	0.126	0.116	0.145	0.183	0.127	0.107	0.097	0.129	0.249	0.140	0.185
Asymp. Sig. (2-tailed)		0.141	0.200	0.200	0.200	0.036	0.200	0.200	0.200	0.200	0.000	0.200	0.033
Monte Carlo Sig. (2-tailed)	Sig.	0.564	0.799	0.866	0.647	0.352	0.789	0.918	0.960	0.777	0.087	0.683	0.340

This study conducted a normality test using the one-sample Kolmogorov-Smirnov test with the Exact Test Monte Carlo. The normality test for the health sector company's stock prices before and after the Covid-19 pandemic. The research significance, or P-Value, shows that it is greater than the significance value of (0.05). Therefore, it does not reject the null hypothesis and it can be concluded that the research data is normally distributed.

Based on Table 3, secondary data in the form of stock prices from six companies were processed through the Paired Sample T-test, which was used to identify the difference in stock prices of each health sector company before and after Covid-19.

Table 3 - Paired Sample T-test Result

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	DVLA_Before - DVLA_After	-400.417	219.480	44.801	-493.095	-307.738	-8.938	23	0.000
Pair 2	INAF_Before - INAF_After	732.208	1803.468	368.131	-29.329	1493.746	1.989	23	0.059
Pair 3	KAEF_Before - KAEF_After	-87.292	870.918	177.775	-455.048	280.465	-0.491	23	0.628
Pair 4	KLBF_Before - KLBF_After	-47.500	198.385	40.495	-131.271	36.271	-1.173	23	0.253
Pair 5	PRDA_Before - PRDA_After	-1790.417	1892.577	386.321	-2589.582	-991.251	-4.635	23	0.000
Pair 6	MERK_Before - MERK_After	959.792	1819.014	371.305	191.689	1727.894	2.585	23	0.017

Table 3 shows the results of the Paired Sample T-test for the health sector companies' stock prices before and after the Covid-19 pandemic. There were only three companies whose stock prices experienced significant stock price differences before and after the Covid-19 outbreak in Indonesia, due to the significance of the research or P-Value. > (0.05). However, if the research significance or P-Value ≤ (0.05), it means that there is no significant difference between stock prices before and after the Covid-19 outbreak in Indonesia. From the results of the paired sample T-test, INAF, KAEF, and KLBF companies were There is no significant difference between stock prices before and after the Covid-19 outbreak in Indonesia. Meanwhile, the stock prices of DVLA, PRDA, and MERK differ significantly before and after the COVID-19 outbreak in Indonesia. The t value in the Paired sample T-test results shows that DVLA, KAEF, KLBF, and PRDA companies are negative, which means that the mean stock price before Covid-19 is smaller than the mean stock price after Covid-19. Meanwhile, the t value for INAF and MERK companies is positive, which means that the mean stock price before Covid-19 is greater than the mean stock price after Covid-19.

Then the ANOVA test was carried out to determine whether there was a difference in the stock price of each company in the health sector. In the ANOVA test, the data must be checked for homogeneity. A homogeneity test is used to show whether two or more groups of sample data come from populations that have the same variance or not. Homogeneity test results are presented in Table 4.

Table 4 - Homogeneity Test Result

Test of Homogeneity of Variances			
Stock_Price			
Levene Statistic	df1	df2	Sig.
23.619	5	282	.000

The homogeneity test used is Levene's test. The results of Table 4 show the results of the homogeneity test for the health sector company's stock prices. The research significance, or P-Value, shows that it is less than the significance value of (0.05). Therefore, it rejects the null hypothesis and it can be concluded that the variance of each data group is not homogeneous.

Table 5 – ANOVA test Result

	Stock_Price				
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	231177479.809	5	46235495.962	35.918	.000
Within Groups	363002311.938	282	1287242.241		
Total	594179791.747	287			

Table 5 shows the results of the ANOVA test for the six-health sector company's stock prices. It can be seen that the research significance or P-Value shows 0.000, which is smaller than the significance value of (0.05). Therefore, reject the null hypothesis and it can be concluded that there is a difference in the mean stock prices of the six companies. From the results of the ANOVA test, it was concluded that the null hypothesis was rejected, so a post hoc analysis was carried out to find out which groups were different. The Post Hoc analysis used is the Games-Howell Test because the test results show that the variances are not the same. The following are the results of the Games-Howell Test [14].

*retindaliandya@student.telkomuniversity.ac.id

Table 6 - Games-Howell test Result

Multiple Comparisons
Dependent Variable:
Games-Howell

(I) Kode		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
DVLA	INAF	-502.146	211.636	.186	-1129.07	124.78
	KAEF	-214.479	115.683	.440	-555.22	126.26
	KLBF	810.625*	42.983	.000	684.43	936.82
	PRDA	-1880.000*	277.755	.000	-2703.72	-1056.28
	MERK	-1433.021*	172.856	.000	-1944.40	-921.64
INAF	DVLA	502.146	211.636	.186	-124.78	1129.07
	KAEF	287.667	234.737	.823	-399.89	975.22
	KLBF	1312.771*	208.726	.000	693.12	1932.42
	PRDA	-1377.854*	344.771	.002	-2382.46	-373.25
	MERK	-930.875*	267.578	.010	-1710.05	-151.70
\KAEF	DVLA	214.479	115.683	.440	-126.26	555.22
	INAF	-287.667	234.737	.823	-975.22	399.89
	KLBF	1025.104*	110.268	.000	698.24	1351.97
	PRDA	-1665.521*	295.736	.000	-2535.47	-795.57
	MERK	-1218.542*	200.476	.000	-1803.84	-633.24
KLBF	DVLA	-810.625*	42.983	.000	-936.82	-684.43
	INAF	-1312.771*	208.726	.000	-1932.42	-693.12
	KAEF	-1025.104*	110.268	.000	-1351.97	-698.24
	PRDA	-2690.625*	275.544	.000	-3508.84	-1872.41
	MERK	-2243.646*	169.280	.000	-2746.04	-1741.26
PRDA	DVLA	1880.000*	277.755	.000	1056.28	2703.72
	INAF	1377.854*	344.771	.002	373.25	2382.46
	KAEF	1665.521*	295.736	.000	795.57	2535.47
	KLBF	2690.625*	275.544	.000	1872.41	3508.84
	MERK	446.979	322.422	.735	-495.09	1389.05
MERK	DVLA	1433.021*	172.856	.000	921.64	1944.40
	INAF	930.875*	267.578	.010	151.70	1710.05
	KAEF	1218.542*	200.476	.000	633.24	1803.84
	KLBF	2243.646*	169.280	.000	1741.26	2746.04
	PRDA	-446.979	322.422	.735	-1389.05	495.09

*. The mean difference is significant at the 0.05 level.

The Games-Howell procedure is an extension of the Tucky Kramer test. Games-Howell test gives the best performance for pairwise comparisons. Table 6 shows the results of the Games-Howell test for the stock prices of six health sector companies. From the results of the Games-Howell test, it can be seen below:

1. In DVLA companies, it can be seen that the mean stock price health sector company has a difference between DVLA companies and KLBF, PRDA, and MERK companies because the research significance or P-Value shows 0.000, which is smaller than the significance value of (0.05). Meanwhile, there is no difference between DVLA companies and INAF and KAEF companies because the research significance or P-Value shows 0.186 and 0.440, which is greater than the significance value of (0.05).

2. In INAF companies, it can be seen that on mean stock price there are differences between INAF companies and KLBF, PRDA, and MERK companies because the research significance or P-Value shows 0.000, 0.002, and 0.010, which is smaller than the significance value of (0.05). Meanwhile, there is no difference between INAF companies and DVLA and KAEF companies in the health sector because the research significance or P-Value shows 0.186 and 0.823, which is greater than the significance value of (0.05).
3. In KAEF companies, it can be seen that the mean stock price health sector company has a difference between KAEF companies and KLBF, PRDA, and MERK companies because the research significance or P-Value shows 0.000, which is smaller than the significance value of (0.05). Meanwhile, there is no difference between DVLA companies and DVLA and INAF companies because the research significance or P-Value shows 0.440 and 0.823, which is greater than the significance value of (0.05).
4. In KLBF companies, it can be seen that on mean stock price there are differences in KLBF companies with DVLA, INAF, KLBF, PRDA, and MERK companies because the research significance or P-Value shows 0.000, which is smaller than the significance value of (0.05).
5. In PRDA companies, it can be seen that on mean stock price there are differences between PRDA companies and DVLA, INAF, KAEF, and KLBF companies because the research significance or P-Value shows 0.000, which is smaller than the significance value of (0,05). Meanwhile, there is no difference between PRDA companies and MERK companies because the research significance or P-Value shows 0.735, which is greater than the significance value of (0.05).
6. In MERK companies, it can be seen that on mean stock price there are differences between MERK companies and DVLA, INAF, KAEF, and KLBF companies in the health sector because the research significance or P-Value shows 0.000 and 0.010, which is smaller than the significance value of (0.05). Meanwhile, there is no difference between MERK companies and PRDA companies because the research significance or P-Value shows 0.735, which is greater than the significance value of (0.05).

Table 7 - Mean Difference for each Company

Company	Mean Difference
PRDA	1.522.889
MERK	-447
INAF	-199.034
KAEF	-371.806
DVLA	-500.623
KLBF	-1.616.554

In addition, the Games-Howell test shows a comparison of the mean difference between companies by showing that the company that has the largest mean stock price is the company that, when compared to other companies, produces the largest mean difference in stock prices. According to table 7, the company that has the largest mean difference in stock prices is PRDA. Judging from the results, the difference in the mean stock price of PRDA with DVLA, INAF, KAEF, KLBF, and MERK companies. PRDA's stock price has the largest stock price among other health sector companies, meaning that PRDA companies have good performance.

4. CONCLUSION

Based on data from six samples of health sector companies whose stock prices were tested two years before and before the emergence of COVID-19 in Indonesia, the Paired Sample T-test showed that only three of the six experienced significant differences before and before the COVID-19 outbreaks in Indonesia, namely DVLA, PRDA, and MERK companies. Moreover, there are several companies whose stock prices are affected by the COVID-19 pandemic and there are also companies whose stock prices are not affected by the COVID-19 pandemic. Furthermore, several companies' stock prices increased both positively and negatively. Companies whose stock prices experienced positive growth in line with good financial performance include DVLA, KAEF, KLBF, and PRDA companies. PRDA's stock price has the largest stock price among other health sector companies, meaning that PRDA companies have good performance.

Disclaimer

The authors whose names are written certify that they have no conflict of interest

*retindaliandya@student.telkomuniversity.ac.id

REFERENCES

[1] D. &. W. A. Mersha, "Effect of COVID -19 on the Banking Sector in Ethiopia.," *Horn of Africa Journal of Business and Economics (HAJBE),* p. 28–38, 2020.

[2] I. Nurmasari, "Dampak Covid-19 Terhadap Perubahan Harga Saham dan Volume Transaksi (Studi Kasus Pada PT. Ramayana Lestari Sentosa, Tbk.)," *Jurnal Sekuritas,* p. 231, 2020.

[3] Siska, E., Lestari, N. P., & Amalia, M. M., "Satu Tahun Virus Corona: Analisis Pergerakan Harga Saham Bank Syariah di lantai Bursa," *Jurnal Ilmiah Ekonomi Islam,* pp. 1253-1260, 2021.

[4] A. Bash, "International Evidence of COVID-19 and Stock Market Returns: An Event Study Analysis," *International Journal of Economics and Financial Issues,* pp. 34-38, 2020.

[5] Ramelli, S & Wadger,A.F, "Feverish Stock Price Reactions to Covid-19," *The Review of Corporate Finance Studies,* vol. 9, no. 3, p. 622–55, 2020.

[6] H. A. M. C. W. L. Z. a. Z. M. Liu, "“The COVID-19 Outbreak and Affected Countries Stock Markets Response," *International Journal of Environmental Research and Public,* vol. 17, no. 8, p. 1–19, 2020.

[7] F. &. M. Suryani, "Analisis Perbandingan Indeks Harga Saham sebelum dan sesudah penetapan Covid-19 sebagai pandemi," *Jurnal Akuntansi, Perpajakan dan Auditing,* pp. 751-766, 2021.

[8] Tambunan, A.V & Ugut,G.S, "Stock Reaction and Abnormal Stock Returns in the Property Sektor Listed on the Indonesia Stock Exchange due to the Covid-19 Pandemic," *International Journal of Economics, Business and Accounting Research,* vol. 6, no. 2, pp. 793-800, 2022.

[9] Tiasufa,Z. , Chumaidiyah,E. & Zulbetti,R., "Analysis Fluctuation of Stock Price of Mining Companies," *IEOM Society International,* vol. 14, no. 16, pp. 2348-2358, 2021.

[10] M. Taufiqurrohman, "ANALISIS PERBEDAAN HARGA SAHAM SEBELUM DAN SESUDAH TERJADINYA PANDEMI COVID-19 DI INDONESIA (Event Study pada Perusahaan Sub Sektor Kesehatan yang Terdaftar di Bursa Efek Indonesia)," Repository STIE PGRI Dewantara Jombang, Jombang, 2021.

[11] Munandar,A. Wulandari,N. & Mursyid,T., "Analisis pengembangan vaksin terhadap Harga saham Sektor F121," *Equilibrium,* pp. 1-8, 2022.

[12] S. Santoso, Statistik Parametrik : Konsep dan Aplikasi dengan SPSS Edisi Revisi, Jakarta: Elex Media Komputindo, 2014.

[13] Sugiono, Statistika Untuk Penelitian, Bandung: Alfabeta, 2013.

[14] R. &. M. Indriyani, "Bagaimana Kreativitas dan keaktifan Mahasiswa mempengaruhi pemahaman materi Abstrak Matematika melalui E-Learing," *Jurnal Pendidikan dan Pembelajaran Matematika,* vol. 4, no. 2, pp. 112-131, 2020.

[15] R. Saaty, Decision Making in Complex Environments - The Analytic Hierarchy Process (AHP) for Decision Making and The Analytic Network (ANP) for Decision Making with dependence and feedback, Florida: Super Decisions, 2003.

[16] D. Kusbandono, "Analisis SWOT sebagai Upaya Pengembangan dan Penguatan Strategi Bisnis (STudi kasus Pada UD. Gudang Budi, Kec.Lamongan)," *Jurnal Penelitian Ilmu Manajemen (JPIM),* pp. 923-925, 2019.

*retindaliandya@student.telkomuniversity.ac.id