



## Abnormal Returns around the Announcement of Covid-19 Cases on Stock Prices in Indonesia

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**ABSTRACT:** The purpose of this study is to find out whether there is a difference in abnormal returns on the day around the first announcement of the COVID-19 case and to find out whether there is a difference in abnormal returns after and before the first announcement of the COVID-19 case in Indonesia in pharmaceutical industry stocks listed on the Indonesia Stock Exchange. The population in this study are pharmaceutical companies listed on the Indonesian Stock Exchange. While the sampling technique was purposive sampling. The data analysis technique used in this study was a one-sample t-test on normally distributed data and one sample Wilcoxon signed ranked test for abnormally distributed data for days around the announcement of Covid 19. The results of this study show whether there is no difference in abnormal returns around the announcement of Covid -19. And also there is no difference in abnormal returns 5 days before and after the announcement of Covid 19.

**KEYWORDS:** abnormal return, Covid -19

### INTRODUCTION

The COVID-19 pandemic demands restrictions on activities and mobility in the community which has an impact on hampering economic activity in general. According to Indayani & Budi, (2020), "The decline in economic performance which also affects employment has increased referrals. Many companies have been forced to terminate their employment relations (PHK), in which 380,221 formal workers were laid off due to the corona and 318,959 informal workers were affected by the corona. A decline or economic growth in a country can be reflected through an increase or decrease in the gross domestic product (GDP) produced by that country. The economic impact caused by the COVID-19 pandemic can be seen in Figure 1.1. The global GDP growth rate fell drastically by -5.32%, this figure was the biggest decline in the GDP rate in the last 3 years. According to Rohmah, A. (2020) "the level of public consumption has decreased due to the COVID-19 pandemic, this has occurred due to changing financial factors which have led to new consumer behavior that was rarely carried out by the public before." In a pandemic, most people will tend to think about their expenses, such as hoarding items related to health and basic needs. According to Rohmah & Syari, (2020) "there has been a drastic decline in the country's economy seen from various sides, namely: (1) Banking, where Bank Indonesia recorded a loss of 40.165 trillion. (2) State Budget Division of 2.5%. (3) The tourism industry experienced a decline in foreign exchange of 1.3 billion USD. (4) The hospitality sector where hotel turnover is only 20%. (5) The aviation industry lost a turnover of 270 billion rupiahs. Not only that, the Composite Stock Price Index or JCI also fell freely, having previously always been at the 5,000 level, until the JCI finally fell to the 4,000 level. "

Every company tries to make a profit, even during an economic crisis amid the COVID-19 pandemic, companies must continue to grow and survive. During the COVID-19 pandemic, pharmaceutical companies were considered to have had a positive impact because their products were a primary need for dealing with the COVID-19 pandemic. The information content created from various events can be the background for making investment decisions for investors. According to Wicaksono & Rahandika (2020), "There was a difference before and after the announcement of COVID-19 as a global pandemic where there was a decrease in the average share price of banking companies due to the emergence of panic by some investors so they decided to sell shares." Launching data from BPS, the pharmaceutical industry was recorded as able to contribute 0.17% to national economic growth. This is of course much better if we look at the performance of the tourism industry which weakened by 1.3% as a result of this pandemic. Responding to this, investors began to consider the pharmaceutical sector as a new alternative to investing. Investor demand and supply can shape a company's stock price. If many investors make requests for a stock, the stock price will be high and vice versa. According to Hidayat and Topowijono (2018), "The stock price of a company can describe the company's financial condition. To avoid risks



that will occur, investors need to dig up comprehensive information on a company before making investment decisions.

The announcement of COVID-19 is an event that allows the capital market to react. According to Khoiriah et al. (2020), "economic losses caused by the COVID-19 pandemic are reflected in stock price fluctuations." According to Sullivan and Widodoatmodjo (2021) "When the crisis spreads to global financial markets, especially emerging markets, and countries in Asia, it can affect the global financial system downturn and following unprecedented pressure on funding." According to Arif (2020) "an event as COVID-19 had occurred in June 2008 when there was an outbreak of bird flu that hit Indonesia and several countries until the condition of the composite stock price index (IHSG) decreased to -1.9% a month after the outbreak hit and in the first 3 months there was a bigger decrease to -21.99%. When it had reached 6 months, the JCI correction doubled to -42.3% as a result of the bird flu incident which spread along with the subprime mortgage incident in the United States" According to Hartono (2013) "If the market equilibrium price is formed due to a fast and accurate market reaction to an incoming information, then this market condition is called an efficient market. Where measuring market efficiency can use the event study method. According to Seiler (2004), "an event study is a methodology used to measure how a company's stock price reacts to newly released information." Event studies can be an analytical tool for measuring market reaction to the announcement of the COVID-19 pandemic by using the issuer's stock price indicator. According to research by Gunarso et al. (2021), "stock prices in the pharmaceutical industry were lower than after the national announcement of the first case of COVID-19 in Indonesia where there was no significant difference in stock prices before and after the announcement of the first case of COVID-19 in Indonesia. March 2, 2020." Nurmasari's research (2020) "shows a significant difference from the share price of PT. Ramayana Lestari Sentosa, Tbk. before and after the announcement of the first COVID-19 case in Indonesia."

The purpose of this research is to find out whether there is a difference in abnormal returns on the day around the first announcement of the COVID-19 case in Indonesia and whether there is a difference in abnormal returns after and before the first announcement of the COVID-19 case in Indonesia on pharmaceutical industry stocks listed on the Stock Exchange. Indonesia.

## LITERATURE REVIEW

### Efficient Market Hypothesis Theory

According to Fama (1970) "In essence, the Efficient Market Hypothesis Theory (efficient market theory) is a premise that describes all information on an asset based on the price of the asset. The efficient Market Hypothesis Theory has 3 hypotheses of efficient market forms namely; (1) the weak form of the efficient market hypothesis, (2) the semi-strong form of the efficient market hypothesis, and (3) the strong form of the efficient market hypothesis the efficient market hypothesis). Each hypothesis in this theory has a close relationship with the absorption of information in the market.

According to Jogianto (2013), "The discovery of this theory has a very significant impact on the development of the financial theory of a business entity. If the information on an asset can be described properly and in detail by the price of securities, then this can be considered an efficient market. To determine the efficiency level of a market, it can be tested by using accounting and non-accounting historical data, one of which is by observing stock trading activity. An example of non-accounting information that is usually used is about stock trading activities.

### Signaling Theory

Signaling theory according to Shafira and Retnani (2017) "is a theory which states that companies can provide signals in the form of information to stakeholders about something that has been done by management to convey things that have been realized by management following the wishes of the owner." According to Setiyono and Amanah (2016), "this signaling theory explains that a good and correct company financial report is a signal or a sign that a company has also operated well. The performance of a company can be described through its financial reports.

### Black Swan Theory

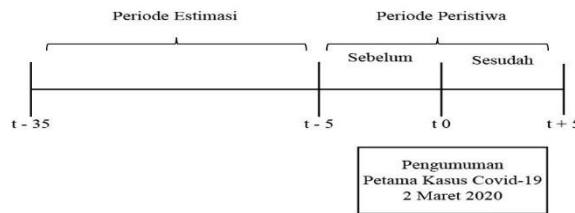
According to Taleb (2007) "argued that what underlies this theory is an event that is not common and has a significant impact, beyond assumptions and difficult to predict. That is, some data is available and relevant before the event occurs, but is not considered as a risk. If this black swan event occurs, then the economic downturn has an unavoidable impact and can threaten the market and investment. 3 things indicate a condition that can be considered a black swan. Three criteria can describe the black swan



event, namely, an event that is unexpected or not predicted. Second, it has a big impact both in terms of the economy and public health. And finally, many observers predict that this incident will be rational based on the facts gathered. If the global pandemic event is analyzed using the three black swan criteria, then the current situation in the world can be considered a black swan if assessed based on the 3 criteria previously mentioned.

METHODS AND MATERIAL

This research is included in a comparative study because the research was conducted by comparing stock returns at a company before and after the announcement of the first case of COVID-19. The data used in this research is secondary data obtained from the website www.finance.yahoo.com. The data taken consists of the daily stock prices of the Pharmaceutical Industry listed on the Indonesia Stock Exchange within the selected research timeframe, namely during the 30-day estimation period, namely January 13 2020 to February 21, 2022, and 11 day event period where there were 5 days before the first case of COVID -19 was announced (25 February 2020 - 28 February 2020), 5 days after the first case of COVID-19 was announced (3 March 2020 - 9 March 2020), and 2 March 2020 as the event date. The study period does not include national holidays or weekends because the capital market is closed on these days.



STATISTICAL ANALYSIS

In this study, abnormal returns from the company's stock price, it can be calculated using the following formula:

1) Calculate the individual return or actual daily stock return during the event period.

R\_it = (P\_it - P\_it1) / P\_it-1

Information:

R\_it = Return of Stock I on day t

P\_it = Stock price I on day t

P\_it-1 = Stock price I on day t-1

2) Calculate the market return or expected return during the event period.

R\_mt = (IHSG\_t - IHSG\_t-1) / IHSG\_t-1

Information:

R\_mt = Return of market share i on day t

JCI\_t = Composite Stock Price Index i on day t

IHSDt-1 = Composite Stock Price Index i on day t-1

3) Using the Single Index Model for regression of individual daily stock returns with daily market stock returns to get alpha (alpha) and beta (beta) of each stock.

E(R\_it) = alpha\_i + beta\_i E(R\_mt)

Information:



$E(R_{it})$  = Expected return of stock  $i$  in period  $t$

$\alpha_i$  = Part of stock return  $i$  that is not affected by market performance  $\beta_i$  = Sensitivity of stock return  $i$  in the market to market movements  $E(R_{mt})$  = Expected market return

4) Calculate the stock abnormal return during the event period

Abnormal return testing is done by looking for the difference between the results obtained and the results expected by the market. The abnormal return expected by market participants has two directions, namely positive and negative.

$$AR_{it} = R_{it} - E(R_{it})$$

Information:

$AR_{it}$  = Abnormal return of stock  $I$  on day  $t$

$R_{it}$  = Actual return of stock  $I$  on day  $t$

$E(R_{it})$  = Expected return of stock  $I$  on day  $t$

5) Look for the average abnormal return

Is the average abnormal return of all sample companies. This is done by adding up all the abnormal returns and dividing by the number of samples.

$$AAR_{nt} = \frac{\sum_{i=1}^n R_{it}}{n}$$

Information:

$AAR_{nt}$ : the average abnormal return of all stocks at  $t$ .

$R_{it}$ : stock return  $I$  at time  $t$

$N$ : the number of shares studied

Calculating the cumulative average abnormal return.

$$CAAR_{it} = \sum_{i=1}^T AAR_{it}$$

Information :

$CAAR_{it}$  : cumulative average abnormal return of company  $i$  in year  $t$

$AAR_{it}$  : the average abnormal return of company  $i$  in year  $t$

This study uses the test method. Significance test using a one-sample t-test if the data is normally distributed and one sample Wilcoxon signed ranked test if the data is not normally distributed. Hypothesis testing was carried out to prove whether the research hypothesis was accepted or rejected, carried out using a parametric statistical analysis tool, namely the Paired sample t-test method for normally distributed data, and a non-parametric statistical analysis tool paired samples

Wilcoxon signed ranked test for abnormally distributed data. In this study, researchers used software programs namely Microsoft Excel 2016. and IBM SPSS 28.

## RESULT

### a) One-sample t-test

Testing One-sample t-test was conducted to test hypothesis 1. In daily testing, the significance of the variable that is measured is the significance level of the abnormal return variable. Whether or not there is AAR significance around the event period will be known by looking at the results of the one-sample t-test conducted on abnormal return data on normally distributed data, namely  $t-5$ ,  $t-4$ ,  $t-3$ ,  $t-2$ ,  $t+3$ ,  $t+4$ , and  $t+5$  :



**Table 4.6** Results of the One Sample T-Test Abnormal Return.

One-Sample Test							
Test Value = 0							
t	Df	Significance		Mean Difference	95% Confidence Interval of the Difference		
		One-Sided p	Two-Sided p		Lower	Upper	
t-5	0,715	8	0,248	0,495	0,004938778	-0,01099746	0,02087502
t-4	-0,862	8	0,207	0,414	-0,008206778	-0,03014935	0,01373580
t-3	-0,516	8	0,310	0,620	-0,005775222	-0,03157130	0,02002086
t-2	-0,131	8	0,450	0,899	-0,001169000	-0,02180297	0,01946497
t+3	1,117	8	0,148	0,296	0,024051667	-0,02558437	0,07368770
t+4	0,355	8	0,366	0,732	0,002926000	-0,01610542	0,02195742
t+5	-0,380	8	0,357	0,714	-0,006946111	-0,04913072	0,03523850

Sumber: Data diolah peneliti dengan program SPSS 28

Based on the results of the One Sample T-Test Abnormal Return Test for normally distributed data in Table 4.6 it is shown that data analysis on the Average Abnormal Return (AAR) variable before and after the first announcement of the Covid-19 case in Indonesia can be seen that sample t-5, t-4, t-3, t-2, t+3, t+4, and t+5 obtain a significance value of more than 0.05, meaning that on that day the market did not have a significant abnormal return, which means that market participants did not respond an event that happened. From the explanation above, the researchers concluded that in the significant test using the One-Sample T-Test, there were no significant abnormal returns on the day around the announcement of the COVID-19 event in Indonesia.

**b) One-sample Wilcoxon signed rank test**

Because the research data on t-1, t0, t+1, and t+2 data are not normally distributed, the method used is non-parametric statistics. Then the sample Wilcoxon Signed Rank Test can be used as an alternative method of testing data. The following are the results of testing with the One sample Wilcoxon Signed Rank Test:

**Table 4.7** One sample Wilcoxon Signed Rank Test Results

Null Hypothesis	Hypothesis Test Summary	
	Test	Sig. <sup>a,b</sup> Decision
1 The median of t-1 equals 0,000000.	One-Sample Wilcoxon SignedRank Test	0,109 Retain the null hypothesis.
2 The median of t0 equals 0,000000.	One-Sample Wilcoxon SignedRank Test	0,138 Retain the null hypothesis.
3 The median of t+1 equals 0,000000.	One-Sample Wilcoxon SignedRank Test	0,767 Retain the null hypothesis.
4 The median of t+2 equals 0,000000.	One-Sample Wilcoxon SignedRank Test	0,374 Retain the null hypothesis.

a. The significance level is .050.

b. Asymptotic significance is displayed.

**Source:** Results of Data Processing from the SPSS Program version 28

The results of different test calculations for abnormal returns using the one-sample Wilcoxon signed rank test on data that is not normally distributed from Table 4.7 shows the results that the test was carried out using the one-sample Wilcoxon signed rank test stating that H0 is accepted which indicates that there is no abnormal return which is significant at t-1, t0, t+1, t+2 on the day around the announcement of the COVID-19 event because the significance value is greater than 0.005.

The Wilcoxon Signed Rank Test sample can be used as an alternative data testing method. The following are the results of testing with the One sample Wilcoxon Signed Rank Test:

**Hypothesis Test 2:**

**1) Paired Samples Wilcoxon signed ranked test**

The Paired Samples Wilcoxon signed ranked test was conducted to prove the second hypothesis which tested whether there was a significant abnormal return between 5 days before the first announcement of the COVID-19 case in Indonesia and 5 days after the first announcement of the COVID-19 case in Indonesia by setting 02 March 2020 as t0 or the day of the first announcement of the Covid-19 case in Indonesia. In the normality test that has been done



Previously it was found that the AAR before the event of the first announcement of COVID-19 cases in Indonesia and the AAR after the event of the first announcement of the COVID-19 case in Indonesia were not normally distributed because the sig. (2-tailed) value was 0.000, so the test is non-parametric. Testing is carried out as follows:

Test Statistics <sup>a</sup>	
AAR Sesudah – AAR Sebelum	
Z	-0,889 <sup>b</sup>
Asymp. Sig. (2-tailed)	0,374

a. Wilcoxon Signed Ranks Test  
b. Based on negative ranks.

**Source:** Results of Data Processing from the SPSS Program version 28

Based on the paired samples Wilcoxon signed the rank test in Table 4.8 resulted in a sig.(2-tailed) value in the AAR before and after the event of the first announcement of the COVID-19 case in Indonesia on 02 March 2020 which was 0.374. So in the different tests of abnormal return, there is no difference. Statistically, from the different tests at the time of the announcement of the COVID-19 event in pharmaceutical sector companies, there was no difference in abnormal returns. It can be interpreted that the stock prices of pharmaceutical sector companies are not affected by information from the announcement of the COVID-19 event on the H0 abnormal return different test received.

**DISCUSSION**

**H1: There is a significant difference in abnormal returns on the day around the first announcement of the COVID-19 case in Indonesia.**

From the two different significance tests that have been carried out, the researchers concluded that in the significance test using the one-sample paired sample t-test for parametric data and the one-sample Wilcoxon signed rank test for non-parametric data, both tests had insignificant values.

In all daily samples that have been tested, it can be analyzed that H0 is accepted because the significance value is higher than 0.005. Statistically, the events of the first announcement of COVID-19 cases in Indonesia do not have sufficient information to influence the daily stock prices of pharmaceutical sector companies listed on the Indonesia Stock Exchange during the study period. The results of this study explain that there is no difference in stock prices with abnormal returns in the presence of events that occur in the capital market in Indonesia. This could have happened because the pharmaceutical sector was not overly sentimental about the COVID-19 incident. The company's performance in the pharmaceutical sector is considered stable despite the global pandemic.

The results of this study do not follow research conducted by Reski Putra Utama (2021) which revealed that there were significant abnormal returns around the day of the announcement of the COVID-19 pandemic event.

**H2: There is a significant difference in abnormal returns after and before the first announcement of the COVID-19 case in Indonesia.**

The results of the research that was carried out using the event study approach to the first announcement of the COVID-19 pandemic case in Indonesia showed that this event had no information content, and there were no reactions shown by price changes from pharmaceutical companies listed on the IDX. Using abnormal return measurements with paired samples Wilcoxon signed rank test conducted with the SPSS version 28 program, where researchers tested the AAR before and after the announcement of COVID-19 in Indonesia showed a significance value of more than 0.005, which was 0.374 so that H0 was accepted where there was no difference significant AARs. So H1 was rejected which concluded that there was no significant difference in abnormal returns after and before the announcement of the first COVID-19 case in Indonesia. Event reactions did not appear on the trading days before and after the COVID-19 pandemic event due to signs or signals from several national mass media that had reported on the event several months earlier.

These results are consistent with research conducted by Pujo Gunarso1, Jason Nathaniel, and Ani Rustia Dewi (2021) which revealed that there was an insignificant difference in stock prices before and after the national announcement of the first case



of COVID-19 in Indonesia in the pharmaceutical industry which listed on the Indonesia Stock Exchange.

## CONCLUSION

1. Pharmaceutical companies' stock prices experienced insignificant changes in the days surrounding the announcement of the first cases of COVID-19. So it has no significant impact on changes in stock prices as reflected in the daily abnormal returns on shares of pharmaceutical sector companies. Where from the results of the hypothesis test in the significant test using the One Sample T-Test there were no significant abnormal returns on the day around the announcement of the COVID-19 event in Indonesia.

2. Pharmaceutical companies' stock prices experienced insignificant changes before and after the announcement of the first case of COVID-19 in Indonesia. Based on the paired samples Wilcoxon signed rank test AAR before and after the event of the first announcement of the Covid-19 case in Indonesia, the results of the hypothesis test concluded that there was no difference in abnormal returns. It can be interpreted that the stock prices of pharmaceutical sector companies are not affected by information from the announcement of COVID-19 events 5 days before the announcement of the first case of COVID-19 and 5 days after the announcement of the first case of COVID-19 in the pharmaceutical industry stock.

## REFERENCES

1. Indayani, Siti & Budi Hartono (2020). Analisis Pengangguran dan Pertumbuhan Ekonomi sebagai Akibat Pandemi Covid-19 DOI: <https://doi.org/10.31294/jp.v17i2>
2. Ihsanuddin, (2020). "Ini Pengumuman Lengkap Jokowi soal 2 WNI Positif Corona" <https://nasional.kompas.com/read/2020/03/02/12002701/ini-pengumuman-lengkap-jokowi-soal-2-wni-positif-corona>. diakses pada 1 Desember 2020.
3. Kasmir, 2014. Analisis Laporan Keuangan, cetakan ke-7. Jakarta: PT RajaGrafindo Persada.
4. Kementerian kesehatan. (2020). Keputusan Menteri Kesehatan RI Nomor HK.01.07/MENKES/413/2020 tentang Pedoman Pencegahan dan Pengendalian Corona Virus Deases (Covid-19).
5. Khoiriah, M., Amin, M., & Kartikasari, A. F. (2020). Pengaruh Sebelum Dan Saat Adanya Pandemi Covid-19 Terhadap Saham Lq-45 Di Bursa Efek Indonesia Tahun 2020.
6. Lee, K.-J.; Lu, S.-L. The Impact of COVID-19 on the Stock Price of Socially Responsible Enterprises: An Empirical Study in Taiwan Stock Market. *Int. J. Environ. Res. Public Health* 2021, 18, 1398. <https://doi.org/10.3390/ijerph18041398>
7. Nazir, M. (2003). Metode Penelitian. Jakarta : Ghalia Indonesia hal 54
8. Nurmasari, I. (2020). Dampak Covid - 19 Terhadap Perubahan Harga Saham dan Volume Transaksi (Studi Kasus Pada PT. Ramayana Lestari Sentosa, Tbk.). *Jurnal Sekuritas*, 3(3), 230–236.
9. Rohmah, A. (2020). PANDEMI COVID-19 DAN DAMPAKNYA TERHADAP PERILAKU KONSUMEN DI INDONESIA. *Jurnal Inovasi Penelitian*, 1(7), 1373-1378. <https://doi.org/10.47492/jip.v1i7.247>
11. Rohmah, S. N., & Syari, F. (2020). Adakah Peluang Bisnis di Tengah Kelesuan Perekonomian Akibat Pandemi Corona Virus Covid-19 ? 'Adalah ; *Buletin Hukum & Keadilan*, 4(1). DOI: 10.15408/adalah.v4i1.15448
12. Seiler, M. J. (2004). *Performing financial studies: a methodological cookbook*, New Jersey; Pearson Education.
13. Setiyono, Erik & Amanah, Lailatul (2016). Pengaruh kinerja keuangan dan ukuran perusahaan terhadap return saham. *Jurnal Ilmu dan Riset Akuntansi*.
14. Shafira, A. P., & Retnani, E. D. (2017). Pengaruh Kinerja Keuangan, Kebijakan Dividen dan dan Ukuran Perusahaan Terhadap Harga Saham LQ45
15. Siswanto, S. (2020). Efek diumumkan kasus pertama Covid-19 terhadap harga saham dan total saham yang diperdagangkan. *Jurnal Akuntansi, Keuangan, Dan Manajemen*, 1(3), 227-238. <https://doi.org/10.35912/jakman.v1i3.38>
16. Sullivan, Veronica Stephanie & Sawidji Widoatmodjo. (2021). KINERJA KEUANGAN BANK SEBELUM DAN SELAMA PANDEMI (COVID – 19)
17. Sutopo, Y, & Slamet, A. (2017). *Statistika Inferensial*. Yogyakarta: Penerbit ANDI.
18. Taleb, N.N. (2007). *The Black Swan: The Impact of the Highly Improbable*. Ukuran Perusahaan Terhadap Harga Saham LQ45. *Jurnal Ilmu dan Riset Akuntansi Volume 6 No 4*.



19. Utama, Reski Putra (2021) *Reaksi Pasar Modal Terhadap Pandemi Covid-19 (Studi Kasus Pada Perusahaan Indeks LQ45 di Bursa Efek Indonesia)*. Reaksi Pasar Modal Terhadap Pandemi Covid-19 (Studi Kasus Pada Perusahaan Indeks LQ45 di Bursa Efek Indonesia).
20. Wenno, Meiske. (2020). DAMPAK COVID-19 TERHADAP PERUBAHAN HARGA SAHAM DAN VOLUME TRANSAKSI (STUDI KASUS PADA PT. BANK MANDIRI.Tbk) DOI: <http://dx.doi.org/10.30598/sosoq.v8i2.1156> World Health Organization. [www.who.int](http://www.who.int)
21. Wicaksono, Crescentiano Agung., & Rahandhika Ivan Adyaksana. (2020). ANALISIS REAKSI INVESTOR SEBAGAI DAMPAK COVID-19 PADA SEKTOR PERBANKAN DI INDONESIA DOI: 10.34204/jiafe.v6i2.2227
22. Yahoo Finance. <https://finance.yahoo.com/>. Diakses Desember 2021