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Market Reaction Before and After Coronavirus Disease-2019 Announcement in Indonesia on Pharmaceutical Sub Sector Companies

I Wayan Agus Chandra¹, Ketut Alit Suardana²^{1,2}Faculty of Economics and Business, Udayana University, Bali, Indonesia

ABSTRACT : On the 2nd March of 2020, Indonesia's first two COVID-19 cases were confirmed. This study aims to analyze the market reaction before and after the announcement of COVID-19 in Indonesia on average by using the average abnormal return and the average trading volume activity. Event study approach is used to observe market reaction before and after announcement within 7 days window period. Market reaction proxied using average abnormal return and average trading volume activity. This research focuses on 10 pharmaceutical companies listed on the Indonesia Stock Exchange using a total sampling technique. Data were analyzed using wilcoxon signed rank test. The test results showed there is difference in average abnormal return before and after the COVID-19 announcement in Indonesia, but there is no difference in average trading volume activity.

Keywords: COVID-19; Market Reaction; Abnormal Return; Trading Volume Activity

I. INTRODUCTION

The capital market is a place where there is a mechanism for buying and selling long-term financial instruments between parties who have excess funds and those who need funds. Stocks are one of the most popular instruments because they are relatively easy to resell and provide greater profit potential. The movement of stock prices in the capital market has a tendency to be influenced by various available information, both information from internal and external sources. On Monday, March 2, 2020, Indonesia announced the discovery of a corona virus (COVID-19) case in Indonesia by confirming two positive people. The announcement of COVID-19 in Indonesia on March 2, 2020, became a point of weakness for the Indonesia Stock Exchange (IDX) Composite which closed down 91 points (1.67%) to the level of 5,361. In line with the IDX Composite, the consumer goods sectoral index also showed a temporary weakening. Different things happened to PT Indofarma Tbk (INAF) whose shares actually closed sharply higher 19.42% to the level of IDR 535/shares on the same day. The increase in INAF's stock price did not follow the market pattern but seemed to react more quickly, PT Indofarma Tbk is a public company listed on the Indonesia Stock Exchange and is included in the consumer goods sector of the pharmaceutical sub-sector.

Pharmaceutical companies are the main supporters of the health sector in dealing with the pandemic situation. Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) is a new type of virus, so to create and develop drugs or vaccines will take time that may not be short. Although domestic pharmaceuticals are still not able to provide the latest solutions to the COVID-19 disease, the operations of pharmaceutical companies are not only limited to producing drugs, but also producing supporting tools for the COVID-19 spread prevention program such as: personal protective equipment, hospital equipment, and other medical support facilities. The existence of this information can lead to the assumption that the pharmaceutical sector will benefit from the current conditions, both because it is able to provide a means to prevent the spread of COVID-19 and because of the creation of drugs and vaccines in the future. This assumption raises speculation that pharmaceutical sector companies will benefit, so that their shares will be worth owning.

The announcement of COVID-19 in Indonesia will be interpreted by market participants as a signal to enter or exit the market. The concept of information content states that the greater the uncertainty of the content as well as the timing of the announcement, the greater the potential for correction to prices at stock market. The emergence of revisions that occur in security prices is also known as market reaction, the speed with which information reacts to the market will depend on its efficiency (Foster, 1986). The Indonesian capital market is assumed to be in a semi-strong efficient form, because the Indonesian capital market is still developing. A semi-strong efficient market is one in which security prices reflect past prices as well as published information. Event study is a method introduced by Fama et al. (1969), to test the information content in order to see whether or not

there are differences in market reactions proxied by abnormal returns and trading volume activity, and can also be used as a test of market efficiency in the semi-strong form (Fama, 1991). Putra & Putri (2018), Subrata & Werastuti (2020), AlAli (2020), Chen et al., (2007) found that there are differences in abnormal returns due to announcements of external events. However Damayanti et al., (2020), Adnan (2019), Tsai & Chen (2018), Andreas et al., (2020) who did not find the difference in abnormal returns. Fauzi & Ichsan (2018), Wulan et al., (2018), Lin (2018) find differences in trading volume activity. Rentini et al., (2020), Dwianto & Yulita (2019) stated that there was no difference in the trading volume activity.

The efficient market hypothesis was proposed and popularized by Fama (1970). The market is said to be efficient if the prices of securities fully reflect the current information. A market is said to be efficient if the market reacts quickly and accurately to reach a new equilibrium price that fully reflects the available information. An efficient market can be viewed from the point of view of information and from a decision point of view. Information efficient markets can be divided into three main forms: weak form of market efficiency, which reflects past information, semi-strong form which reflects past and published information, and strong form which reflects past information, published and unpublished information. An informationally efficient market considers the availability of information in the market, so a market that is said to be decision efficient takes into account the availability of information and is supported by the sophistication of market participants in making decisions. Sophisticated market participants will conduct in-depth analysis of the information available in the market so that they will not be easily fooled and the decisions taken are decisions that will be better than unsophisticated market participants (Hartono, 2017: 615).

Spence (1973) explained that by giving a signal that interested parties will provide information to outsiders, this is generally found in the relationship between companies and investors. Information on COVID-19 is a national emergency, in this case the government as the holder of power provides information (signals) to the public at large through press conferences, so that actions can then be taken in various fields including the investment sector. Announced information is a signal for market participants to make decisions

Efficient markets require that the price of securities in the capital market is a reflection of the available information. Information that is announced can cause an influence on the market which is known as a market reaction. Information on COVID-19 will indirectly react to the pharmaceutical sub-sector companies because this sub-sector is in an advantageous position. The change in abnormal returns in the COVID-19 announcement in Indonesia indicates that the announcement contains information in it, so the market reacts quickly to the information. The abnormal return test in this study was carried out on an average basis, namely by using the average abnormal return. Pondaag et al., (2020) proves that there are differences in average abnormal returns before and after the China's black Monday event. Mahendra & Rasmini (2019) found that there was a difference in the average abnormal return before and after the BI reverse repo event. Subrata & Werastuti (2020), examined the market reaction to the World Health Organization (WHO) setting the global emergency status to the highest level regarding COVID-19 and found that there was a difference in the average abnormal return before and after the event. AlAli (2020) found that there is a difference in the average abnormal return before and after the COVID-19 announcement by WHO. Nandy & Sussan (2019) reveal the emergence of negative abnormal returns around the announcement. Kammoun et al., (2019) found that cyberattacks led to the accumulation of negative abnormal returns on the NASDAQ after the attack.

H1: There is a difference in the average abnormal return before and after the announcement of COVID-19 in Indonesia.

The efficient market theory states that a market that is said to be efficient is a market that responds quickly to information entering the market. Information on COVID-19 will be responded quickly by the market with the appearance of changes in security prices. Changes in stock prices and changes in trading volume have a positive relationship and influence each other, so that if the stock price of pharmaceutical sub-sector companies changes, it will most likely be supported or confirmed by changes in the trading volume. Testing the trading volume in this study was carried out on an average basis by using the average trading volume activity. Putra & Wirawati (2019) states that there is a difference in the trading volume activity before and after the weakening of the US Dollar exchange rate against Indonesian Rupiah (IDR) in June 2018. Wulan et al., (2018) states that there is a difference in the trading volume activity before and after the announcement of unusual market activity on IDX. Satryo & Wijayanto (2019) revealed that there was a difference in trading volume due to the trade war between the PRC and the US against Indonesia and South Korea. Lin (2018) proves that firms entering and exiting the Dow Jones Industrial Average index experience an increase in trading volume.

H2: There is a difference in the average trading volume activity before and after the announcement of COVID-19 in Indonesia.

II. RESEARCH METHODS

This research was conducted on consumer goods companies in the pharmaceutical sub-sector listed on the Indonesia Stock Exchange (IDX). The object of the research is the market reaction to the announcement of COVID-19 in Indonesia which is proxied by average abnormal returns and average trading volume activity. A comparative event study approach is used to analyze market reactions that occur before and after the announcement. The research period is 39 trading days, divided into an estimation period of 32 days starting from January 13, 2020 (t-35) to February 25, 2020 (t-4) and a 7-days window period starting from February 26, 2020 until March 5, 2020 with details: 3 days before the announcement counted (t-3, t-2, t-1), March 2, 2020 as the date of the event (t0), and 3 days after the announcement counted (t+1, t+2, t+3), as in Figure 1.

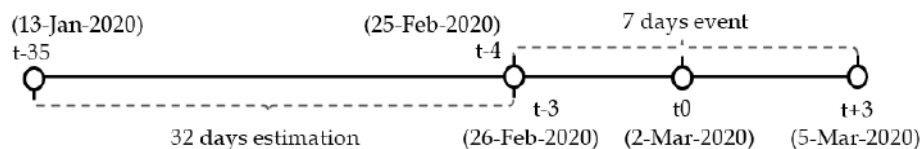


Figure 1. Research Period

The estimation period is determined for 32 days based on the findings of the first COVID-19 case outside China on January 13, 2020 in Thailand. The window period was shortened by 7 days because on March 6, 2020, COVID-19 cases in Indonesia had doubled from 2 people to 4 people. The research population is the entire pharmaceutical sub-sector consumer goods companies listed on the IDX during the study period. The sampling method used is non-probability sampling with a total sampling technique (census) where all members of the population are used as samples. Data analysis begins with descriptive statistics, then normality test, and difference test. Data was processed with the help of Microsoft Excel and IBM Statistical Product and Service Solutions (SPSS) version 25

III. RESULTS AND DISCUSSION

The area studied and used as the focus of the research is the pharmaceutical sub-sector consumer goods sector companies listed on the Indonesia Stock Exchange with a total of 10 companies.

Table 1. Daily Average Abnormal Return (AAR) and Average Trading Volume Activity (ATVA)

Date	Period	AAR	ATVA
March 5, 2020	t+3	0,04773	0.00218
March 4, 2020	t+2	0.01971	0.00091
March 3, 2020	t+1	0.05270	0.00107
March 2, 2020	t0	0.03179	0.00123
February 28, 2020	t-1	-0.03829	0.00045
February 27, 2020	t-2	-0.02544	0.00034
February 26, 2020	t-3	-0,02099	0,00027

Before the announcement of COVID-19 in Indonesia, there was a negative reaction at t-3 to t-2 and t-1, at the time of the announcement the AAR rose significantly from t-1 to t0 by 183.03%, after the announcement the positive reaction continued at t+1, down 62.59% on t+2, and back up 142.12% on t+3. The reaction that emerged after the announcement of COVID-19 in Indonesia indicated that the market responded quickly to the announcement as new information in the market. The daily ATVA movement in the window period generally has an increasing trend. The increase in ATVA occurred at the beginning of the window period, namely at t-3 (0.00027), increasing 27.29% to t-2 (0.00034) and 31.69% at t-1 (0.00045). A significant increase occurred at the time of the announcement of COVID-19 in Indonesia, namely at t0 (0.00123) of 175.71%, but the increase did not continue at t+1 which actually fell 12.78% to (0.00107) followed by 15, 06% at t+2 to (0.00091), and at t+3 again there was a sharp increase of 139.63% to (0.00218) which is also the highest peak in the window period. Based on the daily trend of ATVA indeed increasing, but distribution in several companies actually decreased after the announcement, this can be seen in PT Merck Tbk (MERK), PT Kalbe Farma Tbk (KLBF), PT Tempo Scan Pacific Tbk (TSPC) and PT Industri Jamu and Sido Muncul Pharmacy Tbk (SIDO), while Merck Sharp Dohme Pharma Tbk (SCPI) which did not show any ATVA (zero value)

Table 2. Distribution of Average Abnormal Return (AAR) and Average Trading Volume Activity (ATVA) –Before and After Event on Each Company

Company Stock Code	AAR-Before	AAR-After	ATVA-Before	ATVA -After
MERK	-0.02157	0.03308	0.00008	0.00002
SCPI	0.00000	0.00000	0.00000	0.00000
KLBF	-0.01331	0.04282	0.00093	0.00073
TSPC	-0.02917	0.01341	0.00004	0.00001
DVLA	-0.00440	-0.00422	0.00002	0.00004
INAF	-0.10648	0.15772	0.00103	0.00772
KAEF	-0.07063	0.12754	0.00085	0.00488
PYFA	0.00084	-0.03038	0.00000	0.00007
SIDO	-0.01172	0.01938	0.00053	0.00036
PEHA	-0.02595	0.04116	0.00003	0.00004

The company with the highest AAR before the announcement of COVID-19 in Indonesia was PT Pyridam Farma Tbk (0.00084), on the other hand the lowest AAR occurred at PT Indofarma Tbk (-0.10648) followed by PT Kimia Farma Tbk (-0.07063). After the announcement, the company with the highest AAR was PT Indofarma Tbk (0.15772) followed by PT Kimia Farma Tbk (0.12754) and vice versa the lowest value occurred at PT Pyridam Farma Tbk (-0.03038) followed by PT Darya-Varia Laboratoria Tbk (-0.00422). AAR and ATVA in State-Owned Enterprises (SOE), PT Indofarma Tbk and PT Kimia Farma Tbk experienced a higher increase compared to non-SOE. This phenomenon indirectly proves that company ownership can affect the level of movement that occurs.

Table 3. Normality Test Results

		AAR-Before	AAR-After	ATVA-Before	ATVA -After
N		10	10	10	10
Normal Parameters	Mean	-.0282390	.0400510	.0003510	.0013870
	Std. Deviation	.03444208	.05889668	.00043544	.00268424
Most Extreme Differences	Absolute	.289	.281	.333	.397
	Positive	.199	.281	.333	.397
	Negative	-.289	-.131	-.210	-.303
Test Statistic		.289	.281	.333	.397
Asymp. Sig. (2-tailed)		.018 ^c	.024 ^c	.002 ^c	.000 ^c

The results of the normality test showed that the AAR both before and after the announcement of COVID-19 in Indonesia were not normally distributed due to the Asymp value. Sig. (2-tailed) both before (0.018) and after (0.024) < 0.05 so that it does not meet the specified criteria. Similar results occurred in the test of ATVA, where the Asymp value. Sig. (2-tailed) significantly both before (0.002) and after (0.000) < 0.05. The last test is a different test to find out statistically whether there are differences in market reactions that occur between before and after the announcement of COVID-19 in Indonesia. The Wilcoxon signed rank test was used as an alternative to the paired sample t-test because the data normality criteria were not met. The decision to accept or reject the hypothesis is based on the Asymp value. Sig. (2-tailed) which was compared with the criteria =5% which had been set. Table 4 presents the results of the Wilcoxon signed rank test for AAR and ATVA.

Table 4. Results of the Wilcoxon Signed Rank Test Average Abnormal Return and Average Trading Volume Activity

	Average Abnormal Return	Average Trading Volume Activity
Z	-2.310	-.296
Asymp. Sig. (2-tailed)	.021	.767

The first hypothesis (H1) states that there are differences in average abnormal returns before and after the announcement of COVID-19 in Indonesia. The test value using the Wilcoxon signed rank test is 0.021 < 0.050, concluding that there are differences in average abnormal returns before and after the announcement of

COVID-19 in Indonesia. The difference in the average abnormal return between before and after the announcement of COVID-19 in Indonesia reflects that the market has been efficient in a semi-strong form in terms of information, this is based on the announcement of COVID-19 in Indonesia which was published directly by the government through a press conference which means information available and accessible to all parties. Securities prices tend to increase which results in abnormal returns after the announcement indicating that the market reacts quickly to new information as a signal in the market. These results are in line with research conducted by Pondaag et al., (2020), Mahendra & Rasmini (2019), Subrata & Werastuti (2020), AlAli (2020), Nandy & Sussan (2019), Kammoun et al., (2019) which states that the announcement of external events can affect the movement of average abnormal returns before and after the announcement

The second hypothesis (H2) states that there is a difference in the average trading volume activity before and after the announcement of COVID-19 in Indonesia. The results of the Wilcoxon signed-rank test have significantly exceeded the set limit ($0.767 > 0.050$), so the conclusion drawn is that there is no difference in the average trading volume activity before and after the announcement of COVID-19 in Indonesia. Stock prices and trading volume generally have a positive relationship that influences each other. Each market participant has the possibility to respond to information with different reactions according to their respective preferences, so changes in volume may not always be directly proportional to changes in price, which in this case is measured by abnormal returns as the value of changes. The difference in the average abnormal return was not supported by the average trading volume activity which did not experience a significant difference, this indicates that the information signal on the COVID-19 announcement in Indonesia is not strong enough to influence market participants to trade with large volumes, despite the changes. the trading volume activity still occurs but in an insignificant amount, so this condition can still be categorized as a semi-strong efficient market. Some market participants have anticipated the emergence of COVID-19 in Indonesia, which is based on the earlier confirmation of COVID-19 cases in neighboring countries such as Thailand on January 13, 2020, followed by Singapore and Vietnam on January 23, 2020, as well as Australia and Malaysia on January 25, 2020, while the first case in Indonesia could only be officially identified and confirmed on March 2, 2020. Information about COVID-19 announcements in Indonesia should ideally be processed further because this kind of information cannot always be directly interpreted as bad news, but there may be good news in it. At the information processing stage, market participants will use their sophistication in determining the decisions to be taken. There is a similar pattern in which the emergence changes of average abnormal return and average trading volume activity of dominant stocks at PT Indofarma Tbk (INAF) and PT Kimia Farma Tbk (KAEF) which are State-Owned Enterprises (BUMN), this indicates that market participants have processed information further by selecting pharmaceutical sub-sector companies that have better prospects in dealing with the pandemic situation. This research strengthens Rentini et al., (2020) and Dwianto & Yulita (2019)

IV. CONCLUSION

The test results prove that there is a difference in the average abnormal return before and after the announcement of COVID-19 in Indonesia. The appearance of an average abnormal return after the announcement indicates that the market reacts quickly to new information entering the market. The test results state that there is no difference in the average trading volume activity before and after the announcement of COVID-19 in Indonesia. The information signal received by the market is not strong enough, this is due to the anticipation of some market participants for the announcement of COVID-19 in Indonesia, so the test results show that there is no difference before and after the announcement. Investors need to take the initiative to explore various relevant supporting information and be open to various possibilities so that they will be more anticipatory towards uncertain or unconfirmed (announced) information, in this case, sufficient knowledge is needed to minimize investment risks and can increase investment possibility to make economically profitable decisions.

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