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THE ANNOUNCEMENT OF THE FIRST POSITIVE CASE CORONA VIRUS (COVID-19) IN INDONESIA

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Abstract: This study aims to determine whether there are differences in the average abnormal return, trading volume activity, and trading frequency activity of pharmaceutical company stocks before and after the announcement of the first case of the corona virus (Covid-19) in Indonesia. The sample was selected using the purposive sampling method and collected as many as 9 pharmaceutical companies listed on the Indonesia Stock Exchange during 2019 - 2020. The data used in this study is secondary data in the form of daily stock closing prices, Composite Stock Price Index (CSPI), volume share trading, number of shares outstanding, and frequency of trading of shares obtained from the Indonesia Stock Exchange. This research is an *event study* with an observation period of 14 days, namely 7 days before and 7 days after the announcement of the first positive case of the corona virus in Indonesia. Hypothesis testing using the *paired sample t-test* method if the data is normally distributed, whereas if the data is not distributed abnormally, the *Wilcox on signed rank test* will be used.

Keywords: Covid-19, Event Study, Abnormal return, trading volume activity, trading frequency activity

PRELIMINARY

Research Background

Countries in the world are now faced with the big challenge of handling the corona virus outbreak which was officially identified by WHO as Corona Virus Disease-19 or Covid-19 for short. The pandemic that started in the city of Wuhan, China, has caused a global shock because in the last few decades we have never experienced an attack of a virus outbreak with such a fast and massive level and transmission power like this corona virus, unlike the SARS and MERS viruses, and Ebola. Which was also a threat several years ago, but was quickly resolved.

Since its appearance in December 2019, the Covid-19 pandemic has had a very serious impact on almost all aspects of human life on earth. Especially in the economic sector, although if viewed objectively, this pandemic has also had a positive impact on improving the earth's ecological conditions-with a scale and extent that is no joke: global, worldwide, all countries in the world feel it. The coronavirus pandemic first surfaced when on December 31, 2019 WHO received a report from China that there was an outbreak in the port city of Wuhan of an unknown virus. This outbreak spread very quickly to various countries in the next two weeks so that it became a global pandemic.

In Indonesia, the total number of positive COVID-19 cases is 497,668 people with the number of deaths of 15,884 people, and recovered as many as 418,188 people (www.covid19.go.id). Data as of November 22, 2020, 18.11 PM, the percentage of deaths that occurred in Indonesia (8.71%) was greater than the percentage of deaths that occurred in the world (5.99%). This high percentage gave birth to a lot of anxiety among the people.

However, behind the spread of the corona virus, it is expected that it will have a positive impact on the pharmaceutical sector. This is because when a disease outbreak or pandemic occurs in a country; all pharmaceutical products such as medicines will be highly sought after by the public. Research conducted by Chen et al. (2009) and Chong et al. (2010) who stated that the pharmaceutical sector was positively affected by the disease outbreak (SARS). In addition, the WHO and the government have stated that it is mandatory to wear masks during the corona virus pandemic. This makes the demand for masks in the community greatly increases.

In addition, the public is advised to always wash their hands so that the demand for hand sanitizers also increases and has created a shortage of hand sanitizers. Pharmaceutical companies are also required to provide personal protective equipment for doctors & nurses in hospitals. From this, it is very possible that this year's revenue from the entire pharmaceutical industry will increase and have an impact on the value of the company. Firm value is an investor's perception of the level of success of a company which is often associated with stock prices (Mulyana & Adidarma, 2020). Maximizing the value of the company means maximizing the present value of all the benefits that will be received by shareholders in the future (Pramudena, 2020).

With this sentiment, of course, this will affect the stock price movement of pharmaceutical companies, which tend to experience a bullish trend. However, what happened during the announcement of the first positive case of the corona virus in Indonesia was that pharmaceutical company shares moved in a different direction. Some move with an up or down trend, some even move stagnant.

In addition, the capital market will basically be influenced by events that contain information. In an efficient market, all available information will be fully reflected in stock prices. The stock market price formed now reflects historical information plus all published information and other published events that have an impact on the company's cash flow in the future (Tandelilin, 2010). In other words, any information that affects a particular stock will react quickly and be reflected directly on the stock. However, when the announcement of the first positive case of the corona virus (Covid-19) in Indonesia was not immediately reflected in the stock prices of pharmaceutical companies, it was suspected that there was still no strong reaction from investors and there were still different directions of movement of pharmaceutical company shares.

Table 1.1 Pharmaceutical Company Stock Price 02 March 2020

Stock code	Company name	Open Price (Rupiah)	Close Price (Rupiah)	Difference (Rupiah)	Difference (Percent)
DVLA	Darya-Varia Laboratoria Tbk	2.150	2.210	60	2.79%
INAF	Indofarma (Persero) Tbk	448	535	87	19.42%
KAEF	Kimia Farma (Persero) Tbk	580	665	85	14.66%
KLBF	Kalbe Farma Tbk	1,220 _	1.195	-25	-2.05%
BRAND	Merck Tbk	1,925	1,965	40	2.08%
PEHA	Phapros Tbk	900	870	- 30	-3.33%
PYFA	Pyridam Farma Tbk	181	180	-1	-0.55%
SIDO	Sido Muncul Herbal and Pharmaceutical Industry Tbk	1,230	1.190	-40	-3.25%
TSPC	Tempo Scan Pacific Tbk	1,240	1,220	-20	-1.61%

Source: Data processed from the Indonesia Stock Exchange

It can be seen in Table 1.1, that the shares of pharmaceutical companies experienced varied movements. INAF and KAEF shares experienced significant changes with price increases exceeding 10%, while DVLA & MERK shares experienced insignificant changes with limited increases of not more than 3%. The shares of KLBF, PEHA, PYFA, SIDO, and TSPC also did not experience significant changes but were more towards a

decline. If the announcement of the first positive case of the corona virus (Covid-19) contains information, it should be able to make a reaction which is indicated by a change in the price of the relevant stock which is reflected in *abnormal returns.* If the announcement contains information that will have an impact on a particular stock, the *abnormal return* tends to change after the announcement is made. This is in line with research conducted by Rian Mahendra and Rasmini (2019) which states that there is a significant difference in the *average abnormal return* before and after the event. However, Kartika Oktaviana & Wahyuni (2011) conclude that there is no difference in the average *abnormal return* (AAR) between before and after the event. The content of information absorbed by the market will be used by investors to determine their investment decisions, so that investors will strive to obtain complete and accurate information (Suganda, 2018). In other words, if investors know important information that affects a particular stock, in terms of important information about the level of company profitability, investors will react by buying or selling the stock. Because the focus of investors is the profitability of the company, the better the level of profitability will affect the value of the company and in the end investors flock to invest in the company so that there will be changes in stock trading activities (Ainulyaqin et al., 2019).

Stock trading activities can be seen from the volume of shares and the frequency of shares. However, when the announcement of the first positive case of the corona virus (Covid-19) in Indonesia as a whole did not experience a significant change in the volume and frequency of pharmaceutical company shares. As seen in Figure 1.5, on February 20, 2020 the total trading volume of pharmaceutical companies' shares was 27,021,900 shares and continued to increase until the announcement of the announcement of positive cases of the corona virus in Indonesia on March 2, 2020 as many as 80,640,600 shares or an increase of 198.43%. However, after the announcement of the first positive case of the corona virus in Indonesia, the movement of the trading volume of pharmaceutical companies' shares tends to stagnate, although on March 5, 2020, it increased quite sharply by 124,338,500 shares.

In the end, on March 11, 2020, the total trading volume of pharmaceutical companies' shares was only 60,111,600 shares or down 25.46% compared to the volume of pharmaceutical companies' shares on March 2, 2020, when the first positive case of the corona virus was announced in Indonesia. From the data, there is an interesting thing because before the announcement of positive cases in Indonesia, the volume of shares continued to increase, but after being announced it did not experience too significant changes. Whereas when there is a positive case in Indonesia, of course, pharmaceutical company shares should be the shares most ogled by investors and are often traded in the market because it is believed that the announcement will have a positive impact on pharmaceutical company shares. However, what happened after it was announced, the volume of pharmaceutical companies' shares tended to stagnate.

If the announcement of the first positive case of the corona virus (Covid-19) contains information, it should be able to make a reaction which is indicated by a significant change in the volume of the relevant stock which is reflected in *trading volume activity.* This is in line with the results of research conducted by Satria & Supatmi (2013) which states that there are differences *in trading volume activity* before and after the event. On the other hand, research conducted by Viana Feranita (2014) whose results state that there is no difference in the average stock trading volume activity before and after the event.

As with the total volume of shares of pharmaceutical companies, the total frequency of shares of pharmaceutical companies also does not experience the same thing. As seen in Figure 1.6, on February 20, 2020 the total frequency of trading shares of pharmaceutical companies was 7,218 times and the frequency continued to increase until the announcement of the first positive case of the corona virus in Indonesia on March 2, 2020 as many as 17,217 times or an increase of 138.53%. However, after the announcement of the case, the total frequency of pharmaceutical company shares tended to decrease even though on March 5, 2020 had an increase as did the volume and on March 11, 2020 the total frequency of shares of pharmaceutical companies was 12,090 times which decreased compared to when the announcement of positive cases of the corona virus in Indonesia by - 29.78%. Judging from these data, the movement of the total frequency of pharmaceutical company shares is the same as the movement of the total volume of pharmaceutical company

shares which shows that on February 20, 2020 the total frequency continued to increase until the announcement of the first positive case of the corona virus in Indonesia on March 2, 2020, but after that it continued to decline until March 11, 2020.

If the announcement of the first positive case of the corona virus (Covid-19) contains information that if it will have an impact on a stock, investors will react to buy or sell the stock so that there will be a change in frequency activity which is reflected in the *trading frequency activity.* Just like the research conducted by Jusuf Supriadi et al. (2017) stated that there was a significant difference in the frequency of stock trading between before and after the event. The results are different from Retno Wulan & Sulasmiyati (2017) which shows that there is no significant difference in *average trading frequency* before and after the event.

Behind the positive sentiment that hit the pharmaceutical industry when the first positive case of the corona virus (Covid-19) in Indonesia should be able to directly affect the market reaction on all pharmaceutical company stocks which is marked by changes in stock prices which are reflected in *abnormal returns* and stock trading activity which is reflected in *trading volume activity* and *trading frequency activity* but in reality not all shares of pharmaceutical companies experienced significant changes. Differences in the results of the research above are possible because each event contains different information. Even so, with this research *gap,* it is necessary to conduct further research related to *event studies,*especially an event of a disease outbreak for which there is still little research.

Therefore, the authors are interested in conducting research to see whether there is a significant market reaction in pharmaceutical company stocks to the announcement of the first positive case of the corona virus (Covid-19) in Indonesia or not. In addition, the phenomenon of cases of the corona virus (Covid-19) is becoming the hottest new topic in the world, especially in Indonesia. Therefore, research on the market reaction to the corona virus case needs to be carried out so that it is hoped that this research can be useful for the community, especially investors and further research.

Based on the occurrence of this phenomenon, the authors are interested in conducting research with the title **"Market Reaction to Pharmaceutical Company Stocks on the Announcement of the First Positive Case of Corona Virus (Covid-19) in Indonesia** ".

Formulation of the problem

1. Is there a difference in the average *abnormal returns* of pharmaceutical companies before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia?
2. Is there a difference in the average *trading volume activity* of pharmaceutical companies before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia?
3. Is there a difference in the average *trading frequency activity* of pharmaceutical company stocks before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia?

Literature review

1. Signaling Theory

Signaling theory underlies this research, *signaling theory* originated from the writings of George Akerlof in his 1970 work " *The Market for Lemons''* , which introduced the term asymmetric information (*information asymmetry*). Akerlof (1970) studied the phenomenon of the imbalance of information about product quality between buyers and sellers by testing the used car *market.* Signal theory is used to explain that financial statements are used to provide positive signals (good *news)* and negative signals (bad *news)* to the users. According to Brigham and Housten (2011) cues or signals are actions taken by company management that form clues for investors about how management views the company's prospects.

Siganalling theory states that investment spending gives a positive signal about the company's growth in the future, thereby increasing stock prices as an indicator of firm value (Brigham and Houston, 2011). An increase in debt can also be interpreted by outsiders about the company's ability to pay its obligations in the future or low business risk, so that the addition of debt will give a positive signal. This is because companies that increase debt can be seen as companies that believe in the company's prospects in the future (Brigham and Houston, 2011).

Every action containing information is the basic principle of signal theory; this is due to the existence of *asymmetric information.* Signal theory explains that managers provide a number of signals to reduce information asymmetry (Wibowo, 2017). Information published as an announcement will provide a signal for investors in making investment decisions. If the announcement contains a positive value, it is expected that the market will react when the announcement is received by the market (Jogiyanto, 2009). Financial statements are one type of information issued by a company that becomes a signal to parties outside the company. Information in financial statements is related to accounting information, namely information related to company finances such as financial statements and non-accounting information that is not related to financial statements.

The main assumption of this signal theory provides space for investors to know how the decisions they will take are related to market reactions to announcements or events. The event or announcement contains information that can affect the value of the company and its impact on all companies in the capital market.

2. Efficient Market Hypothesis (EMH)

The capital market is said to be efficient, one of which is if the stock price reflects the overall information available in the market. All information must be available to investors, to know everything about the company and the company's stock. The concept of the *Efficient Market Hypothesis* (EMH) was first put forward by Fama (1970) in Rahman and Ervina (2017) which essentially states that in an efficient market, securities in the form of convertible bonds will always be traded at their *fair value* so that no one also able to obtain *abnormal returns,* after adjusting for risk, using existing trading strategies. In other words, the price formed in the market is the result of a reflection of all available information.

Fama (1970) Rahman and Ervina (2017) made adjustments to the EMH concept supported by empirical evidence and grouped market efficiency into three forms, namely:

a. *The Weak Efficient Market Hypothesis*

Market efficiency is said to be weak (*weak-form*) because in the decision making process of buying and selling shares, investors use past price and volume data. Based on that past price and volume various technical analysis models are used to determine the direction of the price whether it will go up or down. The assumption in this hypothesis is that market prices have reflected past financials and data in the form of prices and trading volumes in the past should not be related to future finances. So investors cannot get a little profit by using *trading rules* based on past information contained in the capital market.

b. *The Semi strong Efficient Market Hypothesis*

Market efficiency is said to be semi-strong -*form* in the decision-making process of buying and selling shares of investors using data on past prices, past volumes, and all published information such as financial reports, annual reports, stock exchange announcements, international financial information, laws and regulations. invitations, political events, legal events, social events, and others that can affect the national economy. The assumption in this hypothesis is that when investors make decisions after the new information is published; they should not get *abnormal profits* because the stock price reflects all the information that has been published. Stock prices will react quickly and accurately to adjust to new price levels when public information is announced.

c. *The Strong Efficient Market Hypothesis*

Efficiency is said to be strong (*strong-form*) because investors use more complete data, namely past prices, past volumes, published information, and private information that is not published in general. The condition in which stock prices do not only reflect published information, but also reflect unpublished information, is known as *insider information* because those who have the information are parties within the company. So that no investor gets *abnormal* because the investor and the company have the same information.

3. Event Study Theory

Robert G. Bowman in his article entitled Understanding and Conduction Even Study (1983) defines that event study is something that examines the behavior of securities prices in a market reaction to announcements or events. The event or announcement contains information that can affect the value of the company and its

impact on all companies in the capital market both systemically or non-systemic. Such events or announcements include dividend announcements, presidential elections, convertible bonds issuance, Bali bombings, merger announcements, acquisition announcements, stock split announcements, profit announcements, new product announcements and so on, quoted from (Hartono: 2010). The steps of research analysis using *event study techniques*, namely:

1. Determine the event to be studied.
2. Conducting a literature study by collecting supporting theories and literature and previous studies in order to obtain the necessary basis for theoretical studies as an alternative to solving the problems discussed in this study.
3. Doing documentation through finance.yahoo.co.id and www.idx.co.id to collect secondary data.
4. Determine the criteria for the company to be researched so that a sample of issuers is obtained.
5. Event date (t0) and determines the observation period (event windows). The event studies method used in this research is to find out the reaction of the capital market to the announcement of the entry of the Covid19 Virus into Indonesia, the enactment of the PSBB policy in order to cope with the Covid-19 pandemic, then at the time of the announcement of the new normal policy, and at the time of the announcement of the recession. The event window used in this study is 7 days , where 3 days before and 3 days after the day after the announcement of the event and 1 event date on that day.

4. Capital Market

The capital market is a meeting place between sellers and buyers with the risk of profit and loss as well as a means for companies to increase their long-term funding needs by selling shares or issuing bonds (Jogiyanto , 2010:29). Meanwhile, according to Husnan (2001:3) formally the capital market can be defined as a market for various long-term financial instruments that are usually traded in the form of debt or equity issued by the government or companies.

The capital market has an important role in the economy, especially in the allocation of public funds. The capital market is a means for companies to increase their long-term needs by selling shares or issuing bonds. The capital market also functions as a productive means of allocating funds to move funds from lenders to borrowers. This allocation occurs when individuals who have excess funds can lend them to other productive individuals who need funds.

BAPEPAM divides the roles and benefits of the capital market as follows:

a. For efficient fund allocation.
b. It is possible for investors to have a healthy company and good prospects.
c. Implementation of company management in a professional and transparent manner.
d. Increase in national economic assets

5. Abnormal returns

Abnormal returns is the *return* that investors get that is not in line with expectations. *Abnormal return* is the difference between the expected *return* and the return obtained. The *return* difference will be positive if the *return* obtained is greater than the expected return or *calculated* return. While the return will be negative if the *return* obtained is smaller than the expected return or the calculated return. *Abnormal returns* can occur due to certain events, such as national holidays, the beginning of the month, the beginning of the year, uncertain political atmosphere, extraordinary events, stock splits, initial public offerings, and others. *Events* The *study* analyzes abnormal returns (abnormal *returns)* of securities that may occur around the announcement of an event. *Abnormal return* or *excess return* is the excess of the actual return over the normal return. *Abnormal return* is the difference between the actual return that occurs and the expected *return* (Jogiyanto, 2000

6. Stock Trading Volume

Stock trading activity (*Trading Volume Activity* / TVA) can be used as an indicator to see investor reactions to stock trading volumes and can be used to see whether the ISRA announcement is a positive or negative

signal to make normal decisions. *Trading Volume Activity* is a comparison between the numbers of shares traded with the number of shares outstanding at a certain time period.

7. Trading Frequency Activity

Market conditions in stock trading can usually be seen from the trading frequency. If stock trading is crowded or trading frequency is high, people usually say the market is bullish. On the other hand, if the trading frequency is low, people will refer to this condition as a weakening or bearish market. Of course, between the two extreme conditions there is a normal market, namely when the trading frequency is stagnant (Widoatmodjo, 2008).

In capital market activities, trading frequency activity (*trading frequency activity)* of shares is one element that becomes one of the indicators to see the market reaction to information (Taslim and Wijayanto in the journal Nur Diyanah et al., 2017). The indicator in using *trading frequency activity* is the number of stock trading frequencies in that period.

Previous Research

Haryanto (2020). The title of the research is the Impact of Covid-19 on the Movement of the Rupiah Exchange Rate and the Composite Stock Price Index (IHSG). Examining the impact of Covid-19 on the exchange rate (Indonesian Rupiah against the US Dollar) and the Composite Stock Price Index (IHSG) in Indonesia. This study uses daily data on Covid-19 cases, exchange rates and the CSPI period from March 2 to April 30, 2020. The results of the analysis show: (1) an increase of 1% in Covid-19 cases causes a depreciation of the Rupiah against the US Dollar by 0.02% , (2) a 1% increase in Covid-19 cases, causing a correction to the CSPI by 0.03%, (3) a 1% increase in the CSPI leading to an appreciation of the Rupiah against the US Dollar by 0.311%. Thus, Covid19 has an impact on the depreciation of the Rupiah against the US Dollar, and has a declining impact on the CSPI, so policy interventions are needed to control the spread of the Covid-19 outbreak, controlling panic so as not to have an impact on the Rupiah and the stock market through various stimulus policies.

Nurmasari, Ifa. 2020. The Impact of Covid-19 on Changes in Stock Prices and Transaction Volume (Case Study at PT. Ramayana Lestari Sentosa, Tbk.) This research data was taken 31 days before and 31 days after the announcement of the first case of covid-19 in Indonesia. The data was processed using a paired sample t-test, using SPSS version 20. From the results of the data processing, it was shown that there was a significant difference in stock prices before and after the announcement of the first case of covid-19 in Indonesia. This is indicated by a significance value of 0.00 < 0.05. Where stock prices have decreased compared to before the Covid-19 case.

Meanwhile, the volume of stock transactions also shows a significant difference. Where the significance value is 0.01 <0.05. The volume of stock transactions after the announcement shows an increasing value

Khoiriah; Moh. Amen; Arista (2020). Effects Before and During the Covid-19 Pandemic on LQ-45 Stocks on the Indonesia Stock Exchange in 2020. This study was conducted to determine the effect of the Covid-19 pandemic on the top 45 stocks (LQ-45) listed on the IDX. The research method that the researcher uses is the Paired Samples T-Test and the *Wilcoxon Signed Ranks Test* . Based on the results of the tests that have been carried out, it can be concluded that before and after the Covid-19 Pandemic had a significant effect on LQ-45 shares listed on the Indonesia Stock Exchange in 2020. The test results using the *Paired Samples T-Test* showed that the *average variable Abnormal return* (AAR) between before and during the COVID-19 pandemic has a significant effect. While the *Average trading volume activity* (ATVA) variable shows a significant positive effect between before and during the covid-19 pandemic.

Kusnandar, D., & Bintari, V. (2020). Comparison of *Abnormal* Stock Returns Before and After Changes in Trading Times During the Covid-19 Pandemic The results of the paired sample t-test show that there are statistically significant differences in abnormal returns before and after the announcement of changes in trading times on stock exchange transactions. This means that the announcement of changes in trading times on stock exchange transactions carried out by the Indonesia Stock Exchange is a negative signal which can

be said to be an announcement that is *bad news,* so that investors are more interested in selling their share ownership than increasing their share ownership.

Lestari, Made Irma (2020). Significance of the Influence of Sentiment on the Implementation of PSBB on Economic Aspects: Effect on the Rupiah Exchange Rate and Stock Return (Case Study of the Covid-19 Pandemic). The rupiah exchange rate was significantly affected by the implementation of PSBB during the COVID-19 pandemic, while the test results on stock returns stated that it was not there is a significant effect of the implementation of PSBB on the stock returns of companies listed on the stock exchange. The negative sentiment from the polemic of the implementation of PSBB only affects the rupiah exchange rate but has no significant effect on stock returns. This Large-Scale Social Restriction (PSBB) has taken place on 10 April to June 4, 2020. The significance of the impact of the implementation of the PSBB also needs to consider other factors, both from an economic, social and political perspective. Several controversial events that occurred during the implementation of the PSBB were able to influence fluctuations in public sentiment, namely government policies that were impressed n is not firm.

Scott et. al. 2020. The Unprecedented Stock Market Reaction to COVID-19. The results show that the US stock market reacted much more strongly to COVID-19 than previous pandemics in 1918–1919, 1957-1958, and 1968.

Chun-Da Chen, Chih-Chun Chen, Wan-Wei Tang, & Bor-Yi Huang (2009). *The Positive And Negative Impacts Of The Sars Outbreak: A Case Of Taiwan Industries.* The research variable is *Abnormal return* , and the *Event Study method.* Shows that there was a positive influence on certain sectors in Taiwan during the SARS outbreak period.

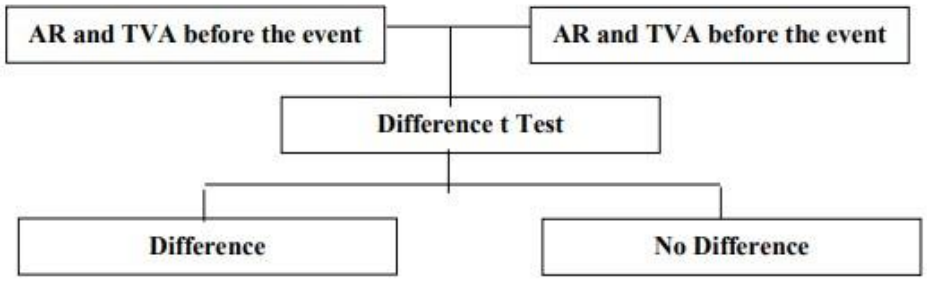
Venus Khim, Sen Liew (2020). *Abnormal Returns on Tourism Shares in The Chinese Stock Exchanges Amid The COVID19 Pandemic.* The research variable is *Abnormal return* , and the *Event Study method.* Overall, the prices of these stocks plunged 20% for the third day in a row in response to pandemic concerns, before a technical rebound occurred. Significantly negative cumulative abnormal returns after the Wuhan lockdown were identified in 18 of 21 tourism stocks traded on Chinese stock exchanges .

Anya Khanthavit (2020) . *World and National Stock Market Reactions to COVID-19.* The research variable is *Return Behavior* , and the *Event Study method.* Based on world results, France, Germany, Italy, Spain, UK, USA, China, Philippines, and Thailand, the study found significant negative reactions to the disease. The reaction that emerged was widespread media coverage of COVID-19 and declarations of a pandemic, not to events and situations that developed when they actually occurred. The market reacts to old news, not new news.

Kartikaningsih, Dewi. 2020. The Effect of Exchange Rates on Stock Prices of Food And Beverage Sector Companies During the Covid-19 Pandemic. The results of the study indicate that the exchange rate affects the stock prices of companies engaged in the food and beverage sector listed on the Indonesia Stock Exchange.

Frame of Thought

Based on the selected periodization in this study and the previous description, the theoretical framework of this research is described as follows:



Research Hypothesis

H $_1$: There is a difference in the average *abnormal return* of pharmaceutical companies before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia.

H $_2$: There is a difference in the average *trading volume activity* of pharmaceutical companies before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia.

H $_3$: There is a difference in the average *trading frequency activity* of pharmaceutical company stocks before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia.

Research Method

Research Variables and Its Operationalization

1. Abnormal Return

The measurement *of abnormal returns* in this research uses *Market adjusted models* which assume that the best measurement is the market index return (Pincus, 1993 in Widiastuti, 2004) so there is no need to use the estimation period to form an estimation model, because the estimated security return is the same as the return. Market index in the same period. In this case, the market index *return* uses the *return* from the index joint stock price (JCI). Here is the formula for calculating *abnormal returns:*

CAR = ARit

ARit : Rit - Rmt

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

$$R_{mt} = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}}$$

Information:

ARit = *Abnormal Return* for company *i* on day t

Rit = Company's daily *return* on day t

Rmt = Market index *return on day t*

Pit = Share price of company *i* at time t

Pit-1 = Share price of company *i* at time t-1

JCI = Composite stock price index at time t

IHSGt-1 = Composite stock price index at time t- 1

2. Stock Trading Volume

Trading Volume Activity is a comparison between the numbers of shares traded with the number of shares outstanding at a certain time period. *Trading Volume Activity* can be formulated as follows:

$$TVA = \frac{\sum Company\ i\ shares\ that\ are\ traded\ at\ time\ t}{\sum Company\ i\ shares\ that\ were\ outstanding\ at\ time\ t}$$

After the TVA of each stock is known, then the average TVA during the observation period is calculated using the formula:

$$XTVA_t = \frac{\sum XTVAi}{n}$$

Information:

XTVAt = Average TVA at time t

TVAi = Total TVA at time t

n = Number of samples

3. Trading Frequency Activity

The frequency of stock trading is the number of times the transaction of buying and selling the shares in question occurs at a certain time. The underlying indicator in obtaining stock *trading frequency activity* is the

record of stock trading frequency after the closing of the daily stock price (Jusuf Supriadi et al., 2017) which can be stated as follows.

$TFAi$, = *number of shares frequency to i, at time t*

Population and Research Sample

The population of this study is a *public pharmaceutical company* that has been listed on the Indonesia Stock Exchange (IDX) from 2019 - 2020 as many as 10 companies. The sample is part of the number and characteristics possessed by the population (Ansori & Iswati, 2009). Sampling in the study was carried out by *purposive sampling.* The criteria used in this study are as follows:

a. Pharmaceutical companies that are *listed* on the IDX during the window period (testing time) which is 7 days (exchange) before and 7 days (exchange) after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia.

b. The company is not in a "suspend " condition or temporary suspension of trading on the IDX during the window period (testing time) which is 7 days (exchange) before and 7 days (exchange) after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia.

c. The company does not carry out *Corporate Actions* such as distribution of cash or stock dividends, issuance of new shares *(rights issue*), *stock splits* , *reverse stock* , mergers and acquisitions during the window period (testing time) which is 7 days (exchange) before and 7 days (exchange) after announcement

Data analysis method

Method uses event study techniques. Jogiyanto (2013) states that *event studies* can be used to test the *information content* of an announcement and can also be used to test the efficiency of the semi-strong form of the market. If the announcement contains information (information *content),* it is expected that the market will react when the announcement is received by the market. The market reaction is indicated by a change in the price of the security concerned. Methods for *Event Study* generally follow the following procedure, Elton and Gruber in Munawarah (2009):

1. Collect a sample of companies that have an event to be investigated.
2. Specifies the exact day or date of the announcement and sets it as day 0.
3. Determine the research period or *event window* , 7 days after and before the announcement date, 4. For each sample company, the return and trading volume activity in each unit period (days) are seen.

5. Calculating abnormal returns from returns that have been obtained for each company.

The data analysis technique used the IBM Statistics SPSS version 26.0 program. Normality test data using one Sample Kolmogorov-Smirnov Test and Shapiro-Wilk. While the event study is tested differently with the One Sample Test for a different test for each t event period, for testing before and after the event is tested with the Paired Samples Test if the data is normally distributed, but if the data is not normally distributed, the different test performed is the Wilcoxon test.

Results and Discussion

Normality Test Results

Covid -19) in Indonesia has a Kolmogorov-Smirnov significance of 0.044 < 0.05, so the data obtained has an abnormal distribution. Meanwhile, the average abnormal return variable with data 7 days (exchange) after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia has a Kolmogorov-Smirnov significance of 0.200> 0.05, so the data obtained has a normal distribution. In connection with one of the data that will be used to test the next hypothesis, there is data that is not normally distributed, namely data 7 days (exchange) before the announcement, it can use non-parametric testing with the Wilcoxon Signed Rank Test.

The average trading volume activity variable with data 7 days (exchange) before the announcement of the first positive case of the corona virus (Covid-19) in Indonesia has a Kolmogorov-Smirnov significance of 0.200 > 0.05, so the data obtained has a normal distribution. Meanwhile, the average trading volume activity variable with data 7 days (exchange) after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia has a Kolmogorov Smirnov significance of 0.165 > 0.05, so the data obtained has a normal distribution. In connection with the two data needed to test the hypothesis, then data that is normally distributed is obtained, it can use parametric testing with the Paired Sample T-Test test.

The average trading frequency activity variable with data 7 days (exchange) before the announcement of the first positive case of the corona virus (Covid-19) in Indonesia has a Kolmogorov-Smirnov significance of 0.200 > 0.05, so the data obtained has a normal distribution. Meanwhile, the average trading frequency activity variable with data 7 days (exchange) after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia has a Kolmogorov-Smirnov significance of 0.123 > 0.05, so the data obtained has a normal distribution. In connection with the two data needed to test the hypothesis, then data that is normally distributed is obtained, it can use parametric testing with the Paired Sample T-Test test.

Abnormal Return

a) Actual Return Calculation Results

The actual return is the difference between the current stock price and the previous stock price. The actual return in the study is calculated based on the research sample and the predetermined window period and the following are the results of calculating the actual return on each sample of pharmaceutical companies before the announcement of the first positive case of the corona virus (Covid-19) in Indonesia, the actual return on 7 days (exchange) before The announcement of the first positive case of the corona virus (Covid-19) in Indonesia showed that there were up and down fluctuations in every pharmaceutical company's stock.

Overall, the actual average return on t-7 or February 20, 2020 experienced a negative return of -0.0058 or -0.58%. Only BRAND, SIDO, & TSPC stocks generate positive actual returns. The lowest actual return t-7 was experienced by INAF shares of -0.035 or -3.5% while the highest actual return was obtained by 0.0156 or 1.56% of SIDO shares. The average of the actual return the next day or on t-6 also still experienced a negative return of 0.0121 or -1.21%. The average result of t-6 still experienced a deeper decline than t-7. The lowest actual return t-6 was experienced by KLBF stock of -0.0387 or -3.87% while the highest actual return was experienced by PEHA stock of 0.0107 or 1.07%.

The actual average return at t-5 still experienced a negative return of -0.0116 or -1.16% but there were still some pharmaceutical company stocks that experienced a negative actual return and KAEF stock had the lowest actual return at t-5 of -0 .0566 or -5.66%. The highest actual return was scored by MERK shares of 0.0364 or 3.64%. The actual average return at t-4 again experienced a negative position of -0.0107 or -1.07%. MERK stock became the lowest actual return on t-4 of -0.0702 or 7.02% and PEHA stock returned to be the highest actual return of 0.0370 or 3.7%. At t-3 or February 26, 2020, the actual average return of pharmaceutical company shares still experienced a negative return of -0.0274 or -2.74% or the actual return decreased deeper than the previous day. The lowest actual return was experienced by INAF shares at -0.0781 or -7.81%, while MERK stocks became the highest actual return at 0.0330 or 3.3%. The actual average return t-2 is still in a negative condition but is deeper than t-3 with an average of -0.0323 or -3.23%. This time, the lowest actual return t-2 was printed by INAF shares of -0.1102 or -11.02% and the highest actual return was obtained by PYFA, SIDO, and DVLA shares of 0.000 or 0%, which means the stock price has not changed compared to before. . The average actual return t-1 became a free fall of -0.0466 or -4.66% and INAF's stock became the lowest actual return recorder of -0.1467 or -14.67%. The highest average actual return on SIDO shares is 0.000 or 0% because other than SIDO stocks have negative actual returns.

b) Result of Calculation of Expected Return

The calculation of the expected return in this study uses the Market-Adjusted Model estimation model, which considers the expected return to be the same as the market return at that time. The market return indicator used is the Composite Stock Price Index (IHSG), which is the benchmark for the Indonesian capital market.

The following is the result of calculating the return of expectations or market returns before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia. The market return before the announcement of the first positive case of the corona virus (Covid-19) in Indonesia as a whole experienced a negative return and only t-7 experienced a positive market return while the market return after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia compared halfway between positive returns and negative returns. The lowest market return before the announcement was at t-2 or on 27 February 2020 at 0.026 or -2.6% while the lowest market return after the announcement was at t+5 or on March 09, 2020 at -0.065 or -6, 5% and it is said that at t+5 it experiences the lowest market return during the window period. On the other hand, the highest market return before the announcement was at t-7 or February 20, 2020 at 0.0023 or 0.23% and the highest market return after the announcement was at t+2 or March 4, 2020, at 0.023 or 2.3%. And can be said to be the highest market return during the window period

c) Abnormal Return Calculation Results

Calculation of abnormal returns by reducing the actual return with the expected return. The following are the results of the calculation of abnormal returns for each sample of pharmaceutical companies before the announcement of the first positive case of the corona virus (Covid-19) in Indonesia, the abnormal return condition on t-7 almost all experienced negative abnormal returns.

The lowest abnormal return was experienced by INAF stock of -0.0373 or 3.73% and the highest abnormal return was experienced by SIDO stock of 0.0133 or 1.33%. At t-6, abnormal returns are still in a balanced state, there are positive or negative. The lowest abnormal return at t-6 was scored by KLBF stock at -0.0286 or -2.86% and the highest abnormal return at PEHA stock at 0.0208 or 2.08%. Abnormal return t-5 has started to dominate positive conditions with the lowest abnormal return experienced by KAEF shares of -0.0438 or 4.38% and the highest abnormal return experienced by MERK stocks of 0.0491 or 4.91%. After that, the abnormal return t-4 was still in a balanced condition with the lowest abnormal return on BRAND stock which previously became the stock with the highest abnormal return being -0.0667 or -6.67% and the highest abnormal return was obtained by PEHA stock at 0. .0405 or 4.05%. The abnormal return at t-3 is still in positive and negative conditions with the lowest abnormal return experienced by INAF shares which previously at t-7 also became the lowest abnormal return to 0.0612 or -6.12% and the highest abnormal return was in BRAND stocks compared reversed at t-4 to 0.0500 or 5.00%. Abnormal return t-2 with shares of pharmaceutical company Blue Chip experienced a negative abnormal return while for shares of pharmaceutical companies second liner overall experienced a positive abnormal return.

The lowest abnormal return was printed on INAF stock of -0.0832 or -8.32% and the highest abnormal return was obtained by DVLA stock of 0.0269 or 2.69%. The abnormal return at t-1 is almost the same as in t-2 with the lowest abnormal return on INAF stock returning -0.1317 or 13.17% and the highest abnormal return on SIDO stock of 0.0150 or 1.50%. Judging from the description above, it can be concluded that the abnormal returns of the pharmaceutical company Blue Chip before the announcement of the first positive case of the corona virus (Covid-19) in Indonesia almost all experienced negative abnormal returns and interestingly INAF often occupies the position of the pharmaceutical company's stock with the lowest abnormal return. and in fact, second liner pharmaceutical company stocks dominate giving positive abnormal returns.

d) Abnormal Return Accumulation Calculation Results

The accumulated abnormal return is the sum of the average abnormal returns of the previous day in the window period. The lowest accumulation of abnormal returns was experienced on t-1 of the announcement of the first positive case of the corona virus (Covid-19) in Indonesia at -0.0635 or -6.35% and the highest accumulation of abnormal returns was experienced on t+6 of the announcement of the first positive case of the corona virus (Covid). -19) in Indonesia by 0.0787 or 7.87%.

e) Calculation Results of Average Abnormal Return and Difference Test

The average abnormal return can be calculated by adding up all abnormal returns and then dividing by the number of existing shares. The average abnormal return before the announcement of the first positive case of the corona virus (Covid-19) in Indonesia tends to be in a negative position and the average abnormal return

after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia tends to be in a positive position. This may indicate that the announcement of the first case of the corona virus (Covid-19) in Indonesia has a positive influence on pharmaceutical company stocks.

Average Abnormal return Before and After the Announcement of the First Positive Case of Corona Virus (Covid19) in Indonesia, the lowest average abnormal return before the announcement was at t-1 of -0.0316 or -3.16% and the average The lowest abnormal return after the announcement was at t+7 of -0.0385 or -3.85% which also became the lowest average abnormal return during the research window period. Meanwhile, the highest average abnormal return before the announcement was printed at t-5 at 0.0012 or 0.12% and the highest average abnormal return after the announcement at t+1 was 0.0806 or 8.06%.

In connection with the normality test that has been carried out and shows that one of the required data has an abnormal distribution, the different tests carried out on the average abnormal return use the Wilcoxon test. The Wilcoxon test is used to determine whether there is a difference in the mean of two samples that are related. Hypothesis 1 (Ha1) in this study states that it is suspected that there is a difference in the average abnormal return of pharmaceutical company shares before and after the announcement of the first case of the corona virus (Covid19) in Indonesia.

The results showed that there was no difference in the average abnormal return of pharmaceutical companies before and after the announcement of the first case of the corona virus (Covid-19) in Indonesia. This means that the announcement of the first positive case of the corona virus did not give a significant reaction to pharmaceutical company investors in the capital market to react in the 7 (seven) day period before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia. There is no difference in abnormal returns, maybe because abnormal returns have been found before the window period in the study so that there are no differences in abnormal returns before and after the announcement of the first positive case of the corona virus in Indonesia.

Referring to the theory of the Efficient Market Hypothesis, this is possible due to information leakage. According to Oktaviana & Wahyuni (2011), the market is said to be inefficient if there is information leakage. Please note that the corona virus case has been published since December 2019 and it seems that investors have predicted that the corona virus pandemic will enter Indonesia. This causes some market participants to use this information to obtain abnormal returns before the research window period.

Although the first positive case of the corona virus in Indonesia is an unpredictable event, issues regarding the spread of the corona virus continue to spread in the community and the possibility (probability) of the spread of the corona virus in Indonesia is very high. The noise (issue) was followed up by market participants before the announcement of the first positive case of the corona virus in Indonesia even before the window period specified in this study. It should be based on signaling theory, market participants show their reaction to an announcement after the announcement is published. However, what happened was that the market had reacted before the announcement was published, so that the market's reaction to the pharmaceutical company's shares for the announcement of the first positive case of the corona virus in Indonesia could be declared inappropriate. With regard to the results of previous studies, the results of this study are in accordance with the results of research conducted by Safira & Simon (2016), Diyanah et al. (2017), Wulan & Sulasmiyati (2017), Shen & Zhang (2020), and Khim & Liew (2020) which stated that there was no significant difference in the average abnormal return before and after the event study.

Conclusion

This study aims to determine whether there are differences in the average abnormal return, trading volume activity and trading frequency activity of pharmaceutical company stocks before and after the announcement of the first positive case of the corona virus (Covid-19) in Indonesia.

1. There is no difference in the average abnormal return of pharmaceutical company shares before and after the announcement of the first case of the corona virus (Covid-19) in Indonesia. This means that the announcement of the first positive case of the corona virus did not provide a meaningful signal to investors and there was no reaction in pharmaceutical company stocks.

2. There is a difference in the average trading volume activity of pharmaceutical companies before and after the announcement of the first case of the corona virus (Covid-19) in Indonesia. This means that the announcement of the first positive case of the corona virus gives a signal and there is a reaction to the trading volume activity of pharmaceutical companies.
3. There is a difference in the average trading frequency activity of pharmaceutical company stocks before and after the announcement of the first case of the corona virus (Covid-19) in Indonesia. This means that the announcement of the first positive case of the corona virus gives a signal and there is a reaction to the frequency activity of trading shares of pharmaceutical companies.

Suggestion

Based on the results of this study, the following are some suggestions that are useful for the public/investors as market participants and for further researchers as academics, including:

1. Investors who want to invest in stocks are expected to not pay attention to a condition that is currently happening, but still pay attention to the fundamentals of the company. In addition, investors can also combine stock analysis with technical analysis by paying attention to stock trading activities such as the volume and frequency of stock trading.
2. Investors are advised not to speculate without doing certain analysis. Before investing/trading stocks, an invest/trading plan is needed so that investors can estimate the stocks that will provide optimal profits.
3. Further researchers need to consider the characteristics of the market to be studied to determine the length of the observation period so that the length of the observation period used shows accurately the condition of the object under study.
4. Future researchers are expected to be able to expand research indicators to calculate market reactions to certain events such as using Market Capitalization, Bid-Ask Spread, etc. If the next researcher wants to try using Abnormal Return, it is hoped that other abnormal return calculation methods such as the Market Model, Mean-Adjusted Model, or Capital Asset Price Model (CAPM) can be used as a comparison. In addition, it is recommended to use an event that is more actual than this research, such as the implementation of the PSBB policy in Jakarta, the end of the PSBB, the implementation of the New Normal policy, etc.

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