COMPARATIVE ANALYSIS ABNORMAL RETURN AND TRADING VOLUME ACTIVITY OF PHARMACEUTICAL COMPANIES BEFORE AND AFTER THE ANNOUNCEMENT OF COVID-19 FIRST VACCINE IN INDONESIA

(Case Study on Pharmaceutical Companies Listed on Indonesian Stock Exchange 2021)

(Undergraduate Thesis)

By

Lisa Ayu Monika

ECONOMIC AND BUSINESS FACULTY
UNIVERSITY OF LAMPUNG
BANDAR LAMPUNG
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ABSTRACT

COMPARATIVE ANALYSIS ABNORMAL RETURN AND TRADING VOLUME ACTIVITY OF PHARMACEUTICAL COMPANIES BEFORE AND AFTER THE ANNOUNCEMENT OF COVID-19 FIRST VACCINE IN INDONESIA (Case Study on Pharmaceutical Companies Listed on Indonesian Stock Exchange 2021)

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This study determine the comparison of abnormal return and trading volume activity before and after the announcement of covid-19 vaccination in Indonesia. The sample used 11 sub-sector pharmaceutal companies listed on Indonesian Stock Exchange (IDX) with an observation 5 days before and after the annoucement.The research method used is descriptive method and secondary data analysis with quantitative method. The test used in this study is Wilcoxon Signed Rank test with the help of the SPSS 26 program. Based on the test result, it is know that there is a difference in abnormal return and trading volume activity before and after the announcement of covid-19 vaccine in Indonesia.

Keywords : Abnormal Return, Trading Volume Activity, Covid-19, Pharmaceutical Sub-Sector, Vaccination.

ABSTRAK

ANALISIS KOMPARATIF ABNORMAL RETURN DAN TRADING VOLUME ACTIVITY PADA PERUSAHAAN FARMASI SEBELUM DAN SESUDAH PENGUMUMAN COVID-19 VAKSIN PERTAMA DI INDONESIA
(Studi Kasus Perusahaan Farmasi Listing di BEI Tahun 2021)

Oleh

Lisa Ayu Monika

Penelitian ini mengukur perbandingan abnormal return dan trading volume activity sebelum dan sesudah pengumuman vaksinasi covid-19 pertama di Indonesia. Sampel yang digunakan dalam penelitian yaitu sebanyak 11 perusahaan farmasi subsektor yang terdaftar di Bursa Efek Indonesia (BEI) dengan pengamatan perbandingan 5 hari sebelum dan 5 hari sesudah pengumuman. Metode penelitian yang digunakan pada penilitian ini adalah metode deskriptif dan analisa data sekunder dengan metode kuantitatif. Uji yang digunakan dalam penelitian ini adalah uji Wilcoxon Signed Rank denganprogram SPSS 26.Berdasarkan hasil pengujian diketahui bahwa terdapat perbedaan tingkat abnormal return dan trading volume activity sebelum dan sesudah pengumuman pertama covid-19 vaksin di Indonesia.

Keywords ***:*** *Abnormal Return, Trading Volume Activity, Covid-19, Sub-Sektor Farmasi, Vaksin.*

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As One of Requirements to Achieve
BACHELOR OF ACCOUNTING

In

Accounting Department
Faculty of Economics and Business, University of Lampung

ECONOMIC AND BUSINESS FACULTY
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With this stated that my thesis entitled, "Comparative Analysis Abnormal Return And Trading Volume Activity Of Pharmaceutical Companies Before And After The Announcement Of Covid-19 First Vaccine In Indonesia (Case Study Of Pharmaceutical Companies Listed In Indonesian Stoct Exchange 2021)" Is true of my own work. In this thesis, there is no whole or partial of the writings of others by copying or forging in the form of a series of sentences or symbols that show ideas or arguments of thoughts of other authors, which I acknowledge as my own writing, other than that or I take it from someone else's writing without giving the original author's acknowledgment. If in future proved that my statement is not true then I am ready to accept sanction in accordance with applicable regulations.

Bandar Lampung, 05 June 2023

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BIOGRAPHY

The author was born in Baturaja May 15, 1998 with full name Lisa Ayu Monika as the oldest daughter of 4 childs of Tukino Erji and Paryatin. The author started formal education from elementary school at SD N 24 Ogan Komering Ulu, Baturaja Timur in 2004-2010. The author completed his junior high school at SMP Negeri 23 Ogan Komering Ulu, graduated in 2013 and completed senior high school at SMK Negeri 01 Ogan Komering Ulu, graduated in 2016.

After graduating from senior high school, the author continued the education at the Accounting Department, University of Lampung in 2016 through the SNMPTN. In the fifth semester the received scholarship from Bank Indonesia (BI) for 2 semestesr. In the seventh semester the author became part of the international class and received a scholarship to take part in the short course program held by Aoyama Gakuin University (AGU) in Tokyo, Japan on November 2019. During college education, the author was active in faculty organization. The author has been a presidium at Economics English Club (EEC) 2018/2019 for one year. Author is also a part of the student helper committee for the International Short Course Program held by Faculty of Economics and Business, University of Lampung in collaboration with School of International Politics Economics and Communication (SIPEC), Aoyama Gakuin University (AGU) on March 2019.

DEDICATION

Bismillahirrahmanirrahim

Alhamdulilahirabbil'alamiin, Praise and thank to Allah SWT for all the grace, blessings and grace so great to the author.

I Present This Thesis To

Dear Ayah and Ibun

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My two sisters Adellya Safitri and Syafna Calista Zahra and my brother Rizki Dwi Nata

My whole family, and friends who always there to give endless prayer and support.

My Almamater, University of Lampung

MOTTO

"Fainna ma'a al'usri yusran. Inna ma'a al'usri yusran"

"So in fact with that difficulty there is convenience. Indeed, with difficulty there is convenience."

(QS. Al-Insyirah [94]: 5-6)

"Through patience, great things are accomplished."

(Imam Ali (AS))

"Just because it won't come easily doesn't mean we shouldn't try"

(Lisa Ayu Monika)

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Author

Lisa Ayu Monika

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INTRODUCTION

1.1 Research Background

The capital market is a significant financial instrument and a marker of financial progress in a country. The capital market plays an important role for a country's economy, since the capital market is a method for companies to obtain additional capital from investors and the capital market is a method for the general public to introduce resources into in financial instruments such as stocks, mutual funds, bonds, and others (Agustiawan et al., 2020).

The capital market is one of the important financial instruments for a country's economy, the capital market functions as a means for parties who are overfunded (investors) to be able to allocate their funds to those who lack funds. The capital market plays a role in supporting the growth and development of a country's economy. Every event or situation of a country whether in the political, social, cultural and economic fields will have an impact on the capital market, because the capital market can react to an event that has an information content.

An information around the capital market will be used as an indicator by capital market participants. The world economy has now entered the era of digital and globalization. The open economy is one part of globalization, where each country

can carry out economic activities freely, so that the situation of another country can affect other countries in a way that does not affect countries immediately. The good and bad state of a country's economy can also be caused by non-economic events such as natural disasters, terrorists, disease outbreaks and other events (Ramadan at al., 2020)

The role of the capital market is very important to the economy of a country, therefore it is also very sensitive for the capital market to events that have information that can cause the market to over react when receiving information from these events. The share price in the capital market is not only determined by the fundamentals or performance of the company.

In Indonesia, capital market panic has occurred not only this time, starting in 1997-1998 when there was an economic crisis. At that time, economic conditions experienced instability, which affected the stock price on the Indonesia Stock Exchange. Then there was a subprime mortgage crisis in 2008 that originated in the United States and then spread to countries and made the industrial sectors decline and in the end also lowered the price of the index joint shares.

Crisis conditions or natural disasters can also make stock market conditions move unnaturally, such as what happened during the flood disaster in DKI Jakarta in 2013 which caused abnormal returns but trading volumes did not differ significantly because the disaster conditions were quickly overcome by the government (Saraswati, 2020).

Currently, the whole world is being hit by a corona virus disaster or commonly referred to as COVID-19 or 2019 Novel Corona virus (2019-nCov) caused by a new type of corona virus named SARS-CoV-2 (Welley et al, 2020). Covid-19 cases were first discovered in Wuhan City, Hubei Province, China in December 2019, and have been designated as a pandemic by the WHO (World Health Organization) on March 11, 2020. At this time, all countries in the world are experiencing a pandemic, where the pandemic faced is the impact of a very dangerous virus and if exposed to this virus, it will be fatal and can even cause death, namely Covid-19.

The first Covid-19 case occurred at the end of 2019, in the Chinese city of Wuhan. It further spread to Hubei province and put China into lockdown. Almost all provinces in China are in quarantine. Covid-19 has caused 80,000 cases and 3,000 deaths in just under two months. Starting the third week in January 2020, Covid-19 then spread to a number of countries in Asia, Australia, Europe, Africa and America. As Covid-19 subsided in China, the spread of Covid-19 exploded in a number of European, American, Asian, and then African countries. As ofMay 8, 2020, the number of infected cases in Italy, France, the United Kingdom, Germany, Spain, Russia, America, Brazil, Turkey and Iran has surpassed China as a starting point. While in the number of deaths, there are six countries that exceed China, namely: the US, Italy, Spain, France, the UK, Germany, Iran and Belgium. Meanwhile, the number of victims in the Netherlands and Canada also began to approach China (Worldometter, April 8, 2020) in the study (Junaedi, 2020). The transmission of Covid-19 is so fast that it spreads throughout the world, including Indonesia.

The efforts made by the government to prevent the spread of the Covid-19 outbreak include carrying out large-scale social restrictions, wearing masks, closing schools, working from home, and a number of flights being stopped in many countries. Transportation is also restricted. A number of industries ceased production. Human trafficking is also prevented between countries, between provinces, between affected districts and cities. This condition makes economic activity lack.

Not only has an impact on health, but also the nation's economy, one of the impacts on the Indonesian economy is the decline in the Composite Stock Price Index (JCI) on the Indonesia Stock Exchange due to large-scale transactions by investors, because they are worried about infection Covid-19 (Lathifah, 2021)

COVID-19 has affected various areas of finance, such as the capital market. This pandemic has basically affected the stock trading market. This can be seen from the decline in the Composite Stock Price Index (JCI) on the Indonesia Stock Exchange. In the news delivered Mediaindonesia.com April 28, 2020, IDX President Director Inarno Djajadi revealed that part of the decline in the JCI by 26.43% to 4,635 was followed by a decrease in market capitalization by 26.35% to 6,300 trillion, as well as a decrease in exchanges day by day from 1.49% to 462 thousand times (Darmayanti, 2020)

This has also caused many companies to be unable to carry out their company operations normally which makes their stock prices decline, especially when WHO has determined that Covid-19 is a pandemic to cause negative abnormal

returns. The Covid-19 pandemic in Indonesia has affected the capital market and then made changes in trading times on the Indonesia Stock Exchange, so this can cause investors to become more interested in selling their share holdings (Saraswati, 2020)

On July 21, 2020, President Joko Widodo informed that the development of a Covid-19 vaccine would be carried out. The testing of this vaccine is carried out by the state-owned company Bio Farma which is targeted to be completed in January 2021. This vaccine will be produced jointly at the end of January 2021 or the beginning of February 2021. With this information, it provides a bright spot for the development of the capital market and the composite stock price index. After information on the development of the JCI vaccine , it has increased. This happens because of the passion of investors to repurchase shares (Morenly, 2020)

At the time of the announcement that there would be the first vaccine injection in Indonesia on Wednesday, January 13, 2021. Fluctuations in the pharmaceutical sub-sector index can be seen as follows :

Table 1.1. Prarmaceutical Fluctuation Index

Day, Date	**t-n**	**Index**	**Point (increases/ decreases)**
Tuesday, 05-01-2021	t-6	2508,33	-
Wednesday, 06-01-2021	t-5	2451,67	-56,66
Thursday, 07-01-2021	t-4	2434,44	-17,23
Friday, 08-01-2021	t-3	2572,22	137,78
Monday, 11-01-2021	t-2	3019,44	447,22
Tuesday, 12-01-2021	t-1	3182,78	163,34
Wednesday, 13-01-2021	t0 – Event	3001,11	-181,67
Thursday, 14-01-2021	t+1	2853,89	-147,22
Friday, 15-01-2021	t+2	2728,89	-125
Monday, 18-01-2021	t+3	2602,78	-126,11
Tuesday, 19-01-2021	t+4	2493,33	-109,45

Day, Date	t-n	Index	Point (increases/ decreases)
Wednesday, 20-01-2021	t+5	2440	-53,33
Thursday, 21-01-2021	t+6	2440	0

Source: Data processing results, https://finance.yahoo.com

Viewed from Table 1.1 it is very clear that the fluctuations in the pharmaceutical sub-sector index at the time before and after the event of the first vaccine injection in Indonesia. Since investors received the announcement on January 05, 2021, which originated from https://covid19.go.id that the first vaccine injection will be carried out in Indonesia on Wednesday, January 13, 2021. The pharmaceutical sub-sector index began to react positively from t-3 to t-1. Right in the period of the event the market experienced a decrease of -181.67 points and until t+5 the market experienced a decline. At the end of the observation period precisely at t+6 the market stagnated at 2440 points. Because there was turmoil in the period of the first vaccine injection in Indonesia, it is necessary to conduct a follow-up analysis in the form of an event study analysis for testing the information in it. If the event contains any information, it is expected that the market will be able to react when the information is received. The market reaction can be seen from changes in stock prices or abnormal returns and trading volume activity.

Based on the presentation of the first vaccination event in Indonesia, what investors hope is to cause a capital market reaction on the Indonesia Stock Exchange (IDX). The expected capital market reaction can occur in the stock price, trading volume or the rate of return on shares. Event Study is used to test the content of information from a student. In this study, to find out how the Covid-19 pandemic event, which is a global outbreak, has an effect on the

movement of stocks in the Indonesian capital market. The objects that will be taken in this study are stocks on the Indonesia Stock Exchange (IDX) which are incorporated into the shares of the pharmaceutical sub-sector at the time of the period of the event. The selection of pharmaceutical sub-sector stocks as the object of this study is because the pharmaceutical sub-sector are company stocks that are very influential in the process of developing vaccinations until the first vaccine injection process in Indonesia.

Based on the phenomenon of the discovery of the Covid-19 vaccine in Indonesia and the existence of similarities between the results of previous studies, researchers are interested in conducting a study with the title**:** "Comparative Analysis Abnormal Return And Trading Volume Activity Of Pharmaceutical Companies Before And After The Announcement Of Covid-19 First Vaccine In Indonesia (Case Study on Pharmaceutical Companies 2021 Listed on Indonesian Stock Exchange)".

1.2 Research Questions

Based on the background that has been explained, the problems in this study were formulated, namely:

1. Is there a differences in The Average Abnormal Return before and after the announcement of COVID-19 first vaccination in Indonesia at pharmaceutical sub-sector companies in Indonesia in 2021 listed on the Indonesian Stock Exchange?
2. Is there a differences in The Trading Volume Activity before and after the announcement of COVID-19 first vaccination in Indonesia at

pharmaceutical sub-sector companies in Indonesia in 2021 listed on the Indonesian Stock Exchange?

1.3 Research Objectives

Based on the background and formulation of the problems that have been explained, the objectives of this study are:

1. To find out whether there a differences in The Average Abnormal Return before and after the announcement of COVID-19 first vaccination in Indonesia at pharmaceutical sub-sector companies in Indonesia in 2021 listed on the Indonesian Stock Exchange?
2. To find out whether there a differences in the Trading Volume Activity before and after the announcement of COVID-19 first vaccination in Indonesia at pharmaceutical sub-sector companies in Indonesia in 2021 listed on the Indonesian Stock Exchange?

1.4 Research Benefits

1.4.1 Theoritical Benefits

The results of this study are expected to be able to add empirical evidence regarding differences in market reactions before and after the existence of the first covid19 vaccine in Indonesia. And it is hoped that the results of this study can be used as a reference, and information and useful for subsequent research to conduct research related to differences in market reactions before and after the existence of the first covid19 vaccine in Indonesia.

1.4.2 Practical Benefits

1. For investors, the results of this study are expected to provide benefits as a guide in determining and making decisions to invest from market reactions that occur in the event.
2. For companies, the results of this research are expected to provide knowledge and can encourage companies to provide information about signals about an event.

CHAPTER II
LITERATURE REVIEW

2.1 Theorotical Base

2.1.1 Signalling Theory

Signal theory is a theory that explains that a good financial report is a signal or a sign that the company has also operated properly. A good signal will surely be responded well by the other party. The published announcement is a signal that can be given to investors to invest. When the information will be received by investors it is expected to contain a reaction whether it becomes a good signal or a bad signal (Jogiyanto, 2010). The signal given can be done through disclosure on the financial statements of any statements that have been done by the manager to be able to realize the wishes of the owner and also contain information in the form of promotions and other information that the company is better than other companies.

Signaling Theory reveals that the actions of the company signal in the initial public offering in the form of a positive signal or negative signal for investors in the market. Companies information is a signal for investors in investment decisions because information is an overview of the company's future prospects.

Investors will judge the company well if the company is in good condition by offering a high price on the initial stock, so that when traded will increase and there is underpricing.

Therefore, good companies will choose to underpricing as a signal for investors. Although it suffered losses during the initial public offering, it is expected that with the phenomenon it will be a powerful signal to investors and can further recoup losses through its future performance. Similarly only less good companies, they will not give a signal because they know that they will not be able to compensate for losses arising from underpricing.

2.1.2 Event Study

Fama et al., (1969) and Ball and Brown (1968) introduced event study methodologies that are important and relevant to current conditions. Research from Fama 15 et al., (1969) can be categorized as research on market efficiency. While Ball and Brown's research is research on the usefulness of information. Mac Kinley (1997) defines an event study in an event with the stock market by using financial market data to measure the impact of a specific event on the value of a company, usually reflected in the stock price and transaction volume. According to Hartono (1998) event studies can be used to test the efficiency of the half-strong form market. Information content testing is intended to see the reaction of an event. If the event contains information content, then it is expected that the market will react at the moment when the information about the event is received by the market. The reaction of the market is indicated by the presence of changes in the price of the security in question. This reaction can be measured

using abnormal returns to investors. In addition, an event also allows for changes in the activity of trading volumes in the capital market that reflect investors' decisions.

2.1.3 Stock Price

Stock Price is the result obtained from investment. There are two forms of return, namely realized return and expected return. Realized return is a return that has occurred. The return on realization is calculated based on historical data. Realization return is important because it is used as one of the measures of company performance. Historical returns are also useful as a basis for determining expected returns and risks in the future. The expected return is the return that is expected to be obtained by 16 investors in the future. As the name implies, return expectation means that it has not happened, while return realization means that it has already happened. Not only the return is calculated from an investment, because investment activities also contain an element of risk.

Return and risk are two things that are balanced, or it can be said that two things are inseparable. Returns and risks have a positive relationship, meaning that the greater the risk that must be borne, the greater the expectation of profit that will be obtained (Suhartono, 2008). Without the profit obtained from an investment he made, of course, investors do not want to make investments that have no results. Every investment, both short-term and long-term, has the main goal of obtaining a profit called a return, either directly or indirectly.

2.1.4 Abnormal Return (AR)

Abnormal return (abnormal return) is the difference between actual stock income (actual return) and expected return on stocks, return is the result of investments that have been made. Actual return is a return that has occurred and is calculated based on historical data.

Abnormal return is the difference between the actual return and the expected return. The difference between the two returns can be both a positive difference and a negative difference. If the abnormal return is positive, the actual return or return is greater than the return expected by the investor, and vice versa if the abnormal return is negative, the actual return or return is actually smaller than the return expected by the investor (Jogiyanto, 2000). 17 Brown & Warner (1985) states that expected returns can be calculated using three estimation models, namely: 1) Mean-adjusted Model This mean-adjusted model considers that the expected return is of constant value equal to the average return of previous realizations over the estimation period. 2) Market Model A market model is a form of a single index model that is based on the observation that the price of a security fluctuates in the same direction as the market index. In particular, it can be observed that most stocks tend to experience price increases if the composite stock price index rises, and vice versa. 3) Market-adjusted Model The market-adjusted model considers that the best estimator for estimating the return of a security is the return of the market index at that time. Using this model there is no need to use the estimation period to form an estimation model, since the estimated return of the securities is equal to the return of the market index. The reaction of the market to the presence of new information received can be measured by

looking at abnormal returns. Abnormal return is used as an indicator to see the reaction of the capital market to certain information, meaning that every market reaction that is shown in the abnormal return there is information content in it. The market will respond to good news with abnormal returns that are positive and abnormal responses negative returns for 18 n. Abnormal returns can be used to test the information content of an event.

2.1.5 Trading Volume Activity (TVA)

Stock trading activities can give an idea of how active the liquid of stocks traded in the capital market is called trading volume activity (TVA), by comparing the number of shares traded at the time of restatement with the overall number of shares outstanding at the time of restatement. Ease of stock trading can be indicated by the size of the volume of a traded stock (Jogiyanto, 2014).

In addition to abnormal returns, to find out the reaction of the capital market more thoroughly, it is also necessary to measure stock trading activities in the capital market, a commonly used calculation is Trading Volume Activity (TVA). Trading volume activity is the overall value of buying and selling shares made by investors in units of money (Foster, 1986). Trading volume activity is an instrument that can be used to see the reaction of the capital market to information through the movement of trading volume activity in the market (Suryawijaya, 1998). Trading Volume Activity occurs because investors make a request and supply for shares on the exchange. If the volume of demand and supply increases against stocks, it will have a great influence on the increase of the decline (fluctuation) of trading volume on the capital market exchange. The occurrence of

this indicates the higher volume and frequency of stocks traded, indicating investors are interested in these stocks. High-value returns result from stocks whose trading volumes are high (Bhaskaran, 2000).

2.2 Previous Research

NO	RESEARCHER	TITTLE	RESULT
1	Kartika Pradana Suryatimur, Nibras Anny Khabibah (2021)	Market Reaction Pharmachy Companies Before and After Announcement of COVID-19 in Indonesia	The result showed that there was significant difference in Stock Price, meanwhile there was no significant difference in Trading Volume Activity (TVA).
2	Hayu Wikan Kinasih, Muhammad Fadil Laduny (2021)	Comparative Analysis of Abnormal Return, Cumulative Abnormal Return and Trading Volume Activity : Event Study Sinovac Vaccine	The result showed that there was no significant difference in Average Abnormal Return (AAR), Cumulative Average Abnormal Return (CAAR) and Trading Volume Activity (TVA).
3	Arief Ibrahim, Lasmanah (2022)	Comparative Analysis of Abnormal Return and Trading Volume Activity Before and After COVID-19 Vaccination in Indonesia	The result showed that there was significant difference in Abnormal Return (AR) and Trading Volume Activity (TVA).

NO	RESEARCHER	TITTLE	RESULT
4	Rayhan Indra Fadhilah, Irni Yunita (2021)	Analysis of Capital Market Reaction to the Event of the Initial Annountcement of the Sinovac Vaccine Entering Indonesia (Case Study of LQ-45 Index Companis Listed on Indonesia Stock Exchange)	The result showed that there was no significant difference in Abnormal Return (AR) and Trading Volume Activity (TVA).
5	Morenly M. Welley, Franky N. S. Oroh, Mac Donald B. Walangitan (2020)	Comparative Analysis Stock Price of State-Owned Pharmaceutical Companies Before and After Development of COVID-19 Vaccine	The result showed that there was significant difference of Stock Price before and after delevopment Vaccine COVID-19.
6	Kusuma Putu Sri Arta Jaya	Market Reaction of State-Owned Prarmaceutical Companies on the Indonesia Stock Exchange to News Regarding COVID-19 Vaccination	The result showed that there was siginificant difference on Stock Price at the second news announcement, and there was no significant difference on Stock Price at the first and third news announcement.
7	Wanzhen Fu, Ynyin Chen (2022)	The Impact of Pfizer-BioNTech COVID-19 Vaccine Dvelompent on the Companies Involved	The result showed that there was significant difference on Abnormal Return (AR) and Cumulative Abnormal Return (CAR).
8	Firya Nur Alifah, Irni Yunita (2021)	Capital Market Reaction to The Announcement of COVID-19 Vaccine Clinical Test by PT. Bio Farma Indonesia : Case Study of Pharmaceutical Sub-Sector Listed on The IDX 2020	The result showed that there was no significant difference on Abnormal Return (AR) and Trading Volume Activity (TVA).

2.3 Hypothesis Development

The formulation of the research problem has been explained in the form of a question sentence, to answer the question of the research problem, a hypothesis is made as a temporary answer to the formulation of the research problem. It is said to be temporary because it is based on relevant theories, it has not been based on empirical facts obtained through data collection (Sugiyono, 2016).

The research hypothesis is a temporary answer to the research formulation. This study aims to test the difference in average abnormal return and average trading volume activity before and after the announcement first vaccines in Indonesia.

2.3.1 Average Abnormal Return (AAR) Before and After First Announcement Covid-19 Vaccine in Indonesia

According to signal theory, investors will receive signals from the company regarding information published by the company. The signals given will be both good news and bad news for investors. This information can affect how investors will make their next investment decisions. The issue regarding the announcement of the first Covid-19 vaccination that occurred in Indonesia will provide a signal for market players if the vaccination program carried out has a positive impact on overcoming or overcoming this covid-19 problem, then the signal given will be good news or a positive signal, especially for pharmaceutical companies. Both those who develop vaccine doses and those who distribute vaccines. The announcement of the Covid-19 vaccination provides a bright spot for the development of the Capital Market and the Composite Stock Price Index (JCI).

After the announcement of the development of the vaccine, the Stock Price and The Composite Stock Price Index (JCI) of pharmaceutical companies have increased (Welley 2020)

According to Reyhan, (2021) the announcement of a vaccine contains information that can make the market react when the announcement is received by the market, this is because an efficient market will react quickly to information related to the phenomenon.

Jogiyanto, (2008) states that if an event contains information then the market will receive an abnormal return. But on the contrary, if an event does not contain information then the market will not receive an abnormal return. Abnormal returns indicate the excess of the return that actually occurs against normal returns. If the event has information content, the market will react which can be seen from the change in the stock price. On the other hand, if the event does not have information content, it means that investors do not react to the event that occurred (Jogiyanto, 2015).

Several previous studies have shown the presence of an Average Abnormal Return that reacts to the event of a vaccination announcement. According to (Ibrahim and Lasmana, 2022) there are significant differences in Average Abnormal Return before and after the announcement of the first Covid-19 vaccination in Indonesia. Opinions or views from outside regarding the incident received positive sentiment where there was a significant difference in stock prices and the composite stock price index increased before and after the announcement, which happened to state-owned pharmaceutical companies

(Morenly, 2020) According to research (Kusuma, 2021) his research showed that at the time of the announcement of the first vaccine there was a significant difference from the share price in state-owned pharmaceutical companies namely Kimia Farma and Indofarma.

So that researchers take the hypothesis that information about the announcement of the implementation of the first Covid-19 vaccination in Indonesia can provide signals to stakeholders, market players or investors regarding differences in stock prices and the Composite Stock Price Index (JCI) before and after the announcement of the first Covid-19 vaccination in Indonesia

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

2.3.2 Average Trading Volume Activity (ATVA) Before and After First Announcement Covid-19 Vaccine in Indonesia

Investors can make observations about the information on the trading volume related to the stock price. Stocks with high trading volumes will generate high stock returns (Chordia, 2000). Trading Volume Activity is one of the variables that can measure the state of the capital market reaction from how much activity the volume of stock sales occurs on the stock exchange. If the market reacts to information, there will be changes in stock trading activities on the stock exchange (Jogiyanto, 2013).

According to the theory of signals the company will give signals to parties outside the company through the publication of financial statements of actions taken by the company. Major issues or news that can affect investors' views on the

company's future prospects. The stock price can be seen from the review on the information on the Trading Activity Volume or trading volume. Average Trading Volume Activity (ATVA) can measure how the market reaction to the trading activity of its stock volume. If the signal information provided by the company gets a market reaction, there will be a change in the stock trading activity (Jogiyanto, 2017)

The announcement of the first Covid-19 vaccination in Indonesia affects the difference in trading volume because investors receive information from the media that can currently be obtained easily. Stock trading volumes can be ups and downs or stable when investors get information about the announcement of the first Covid-19 vaccine in Indonesia.

Trading Volume Activity traded is a flow of information where with an information signal at an event later the market can react through stock trading volume. The high number of Trading Volumes (TVA) gives an idea of how a company is performing well. With the implementation of the first Covid-19 vaccination in Indonesia, it is hoped that it can provide the possibility of increasing Trading Volume Activity (TVA) as a form of positive market reaction (Lesmana, 2022)

So that researchers take the hypothesis that the information on the announcement of the first Covid-19 Vaccination in Indonesia can provide a signal for stakeholders or investors. This can cause trading volume activity (TVA) to increase or stabilize.

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

2.4 Framework

The purpose of this study is to find out whether there are differences in average abnormal return and average trading volume activity before and after the first Covid-19 vaccination event in Indonesia, to facilitate the way of thinking about the problems discussed, a research framework was made.

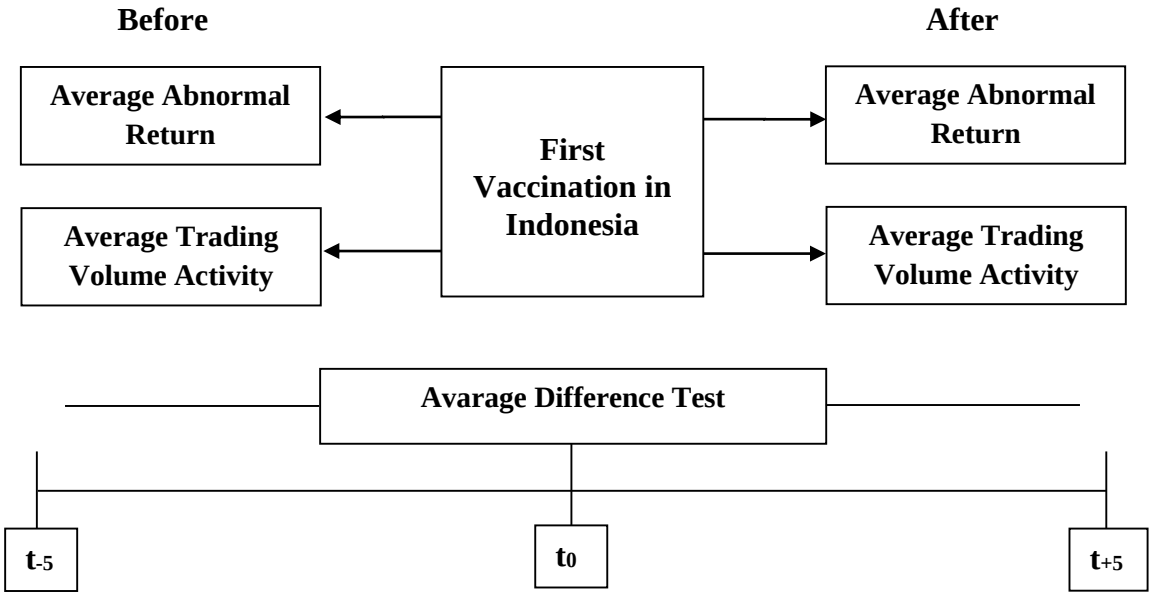

Image 2.1 Framework

Informations :

t_{-5} : 5 stock trading days before the First Covid-19 Vaccination Event in Indonesia

t_0 : Event Date is the date of the first Covid-19 Vaccination Event in Indonesia

t_{+5} : 5 stock trading days after the first Covid-19 Vaccination Event in Indonesia

CHAPTER III
RESEARCH METHODOLOGY

3.1 Population and Sample

The population in this study is pharmaceutical companies listed on the Indonesia Stock Exchange in 2021. The selection of samples in the purposive sampling, method is carried out, namely sampling based on a criterion (Sugiyono, 2013). Some of these criteria are:

1. Pharmaceutical companies listed on the Indonesia Stock Exchange because pharmaceutical companies are types of companies that directly intersect with the health sector or intersect with vaccines in Indonesia.
2. Pharmaceutical companies that show complete data related to the variables used such as daily closing stock prices, daily stock trading volume, JCI, number of shares outstanding, and other data.
3. The Company does not distribute dividends, right issues, stock splits and others.

3.2 Data Source

This study uses quantitative data in the form of secondary data, namely data that is not obtained directly (through intermediaries), such as other people or documents (Sugiyono, 2013). The data used in this study are daily closing stock prices, daily stock trading volumes, JCI and others, obtained by accessing the website www.idx.co.id and www.yahoofinance.com.

3.3 Data Collecting Method

This study uses data collection techniques using documentation methods or data collection techniques that aim to collect secondary data and all information as a means of solving problems. In this study, the data came from www.idx.co.id websites and www.yahoofinance.com.

3.4 Variable Operational Definition

3.4.1 Market Reaction

1. Market reaction is a reaction to an announcement indicated by changes in the price and trading volume of stocks, market reactions are measured using AAR (Average abnormal return) and ATVA (Average trading volume activity).

3.4.2 Average Abnormal Return (AAR)

Calculates the Average Abnormal Return of each stock in the period of the event under study.

a. Actual return (R_{it}) is a return that occurs at the time of t which is the difference in the current price relative to the previous price and can be used formula :

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

Information :

R_{it} : Return on the realization of the i security on the t event

P_{it} : Daily stock price of the i security on the t event

P_{it-1} : Daily stock price of the i security on the 1st event

b. The market return or expected daily return in this study was calculated using a market-adjusted model for each company. The market-adjusted model considers that the estimated return of the securities is equal to the return of the market index at the time so that it is not necessary to form an estimation model, it can be calculated as follows:

$$\boldsymbol{E[R_{it}] = R_{mt}}$$

Information :

$E[R_{it}]$: return sample expectation return on t event

R_{mt} : return market periode t

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

Information :

R_{mt} : Market return on t periode

$IHSG_{t}$: Composite Stock Price Index on a day basis -t

$IHSG_{t-1}$: Composite Stock Price Index on a day basis t-1

c. Abnormal return (AR_{it}) is the difference between the actual or actual returns (R_{it}) which is reduced by (R_{mt}).

$$\boldsymbol{AR_{it} = R_{it} - R_{mt}}$$

Information:

AR_{it} : Abnormal Return of the i sample on the t event

R_{it} : Return for i securities on t event

R_{mt} : Expected return of the 1st sample on event t

d. Calculating AVT each stock

$$\mathbf{AAR_{it}\ Before} = \frac{\mathbf{Total}\ \boldsymbol{AR}_{\mathbf{it}}\ \mathbf{before}}{\mathbf{T}}$$

$$\mathbf{AAR_{it}\ After} = \frac{\mathbf{Total}\ \boldsymbol{AR}_{\mathbf{it}}\ \mathbf{after}}{\mathbf{T}}$$

Information :

AAR : Average abnormal return of i sequencing

AR_{it} : Abnormal Return of the i sample on the t-day

T : Length of the period

e. Average Abnormal Return (AAR)

$$\boldsymbol{AAR_t} = \sum_{\boldsymbol{j=1}}^{\boldsymbol{k}} \boldsymbol{AR_{it}}$$

Information :

AAR_{it} : Average Abnormal Return of t securities

AR_{it} : Abnormal Return of i securities on the t-day

n : Number of samples affected by the event

3.4.3 Average Trading Volume Activity (ATVA)

Average Trading Volume Activity is a stock trading activity that provides an overview of how liquid a stock is traded in the capital market, by comparing the number of shares traded at the time of the first covid-19 vaccine event in Indonesia with the overall number of shares outstanding at the time of the first covid-19 vaccine event in Indonesia. The ease of stock trading can be judged from the size of the volume of a stock traded (Jogiyanto, 2014).

a. Trading Volume activity (TVA)

$$\mathbf{TVA_{it}} = \frac{\textbf{Share Securities i transaction on day t}}{\textbf{Share Securities i outstanding on day t}}$$

Information :

TVA_{it} : Trading Activity Volume i sample in the t period

b. The average trading volume activity (TVA) of each sample company in the period before and after the first covid-19 vaccine event in Indonesia.

$$\mathbf{TVA_{it}\ Before} = \frac{\textbf{Total}\ TVA_{i,t}\ \textbf{before}}{\mathbf{T}}$$

$$\mathbf{TVA_{it}\ After} = \frac{\textbf{Total}\ TVA_{i,t}\ \textbf{after}}{\mathbf{T}}$$

Information :

$ATVA_{it}$: Average Trading Volume Activity on sample-i

TVA_{it} : Trading Activity Volume i sample in the t period

T : Length of the period

c. Average Trading Volume Activity (ATVA) of all companies sampled per day during the period of the first covid-19 vaccine event in Indonesia.

$$\mathbf{ATVA_{it}} = \frac{\sum_{j=1}^{n} \boldsymbol{TVA_{it}}}{\mathbf{n}}$$

Information :

$ATVA_{it}$: Average Trading Volume Activity on day t

TVA_{it} : Trading Activity Volume i sample in the t period

N : the number of entire sample companies affected by the event study

3.5 Analysis Data Method

The data analysis method in this study used a statistical analysis method using SPSS with a paired average difference test. Data analysis using descriptive statistical analysis is used to describe research variables. Then the determination of the difference test is determined by the normality test, if the normal data uses a paired sample t-test, if the data is not normally distributed using Wilcoxon signed-rank.

3.5.1 Descriptive Analysis

Descriptive statistical analysis is an analysis used to provide a description of the data of abnormal variable returns, trading volume activity. The description of the variables is presented to find out the mean, minimum, maximum, and standard deviation values, sum, of the variables studied and this analysis there is a descriptive frequency test. Descriptive frequency is an arrangement according to the grouping of data into several categories.

3.5.2 Normality Test

The normality test is an analytical tool used for the purpose of testing the average variables of two groups of samples in pairs. Detecting the normality of the data can be done using the Kolmogorov Smirnov Test. Normal distributed data if the asymptotic significance value > 0.05 (the data has a significance level greater than 0.05 or 5%) then it can be concluded that the data is normal and vice versa if the data asymptotic significance < 0.05 (the data has a significance level smaller than 0.05 or 5%) then it can be concluded that the data is abnormal (Ghozali, 2016). If

the data is distributed normally, an analysis tool is used in the form of a statistical paired sample t-test. But if the data is not normally distributed, the analysis tool used is the wilcoxon signed-rank test non-parametic method.

3.5.3 Hypothesis Test

3.5.3.1 Paired Sample t-test

The Paired sample t-test is a parametric test, the analysis used is to test the average difference of two groups of samples in pairs or related. The two samples in this test were the same sample but underwent the same measurement or treatment. This test is used on condition that the data must be normally distributed. This study used a paired Sample t-test to compare average abnormal return (AAR), average trading volume activity (ATVA) before and after the event study event.

As follow :

1. Determining hypotheses
2. Determine the degree of significance, with a significance level test (using a confidence level of α=5%)
3. Obtained a significance value of
4. Test criteria

   H_0 accepted if significance > 0,05

   H_0 rejected if the significance of the < 0.05
5. Comparing significance
6. Then draw conclusions

3.5.3.2 Wilcoxon Signed-Rank Test

The wilcoxon signed-rank test is a non-parametric test that does not require normally distributed data. This test is often used as an alternative test of the paired sample t-test. This test was used to test whether there was a difference between two paired sample groups by comparing the average abnormal return (AAR), average trading volume activity (ATVA) before and after the event study event (Ghozali, 2016).

With steps :

1. Determining the null hypothesis and the alternative hypothesis
2. Determining the degree of significance 0.05
3. Decision making

   If the significance of the < 0.05 then H0 is rejected

   If the significance of the > 0.05 then H0 is accepted
4. Drawing conclusions

CHAPTER V
CONCLUSION AND SUGGESTION

5.1 Conclusion

This study aims to see the difference in market reaction before and after the announcement of the first vaccine in Indonesia. Based on the data analysis that has been done, until the following conclusions are obtained:

1. The results of the analysis of average abnormal return show that there is a significant difference in average abnormal return before and after the first vaccine announcement event in Indonesia at pharmaceutical companies. The results of the hypothesis test showed differences in average abnormal returns before and after the announcement of the first vaccine in Indonesia. In line with previous research (Wikan et al., 20 21; Ibrahim et al., 2022), the results showed that the hypothesis supported a significance value of 0.0 26 where the value was smaller than the significance level of 0.05 ($\alpha < 0.05$). This means that there is a difference in average abnormal return (AAR) before and after the first vaccination announcement event in Indonesia.
2. The results of the average trading volume activity analysis show that there is a significant difference in average trading volume activity before and after the announcement of the first vaccination in Indonesia at

pharmaceutical companies. The results of the hypothesis test showed differences in average trading volume activity before and after the announcement of the first vaccine in Indonesia.

In line with previous research (Wikan et al., 2021; Ibrahim et al., 2022), the results show that the hypothesis supports a significance value of 0.033 where the value is smaller than the significance level of 0.05 ($\alpha < 0.05$). This means that there is a difference in average trading volume activity (ATVA) before and after the first vaccination announcement event in Indonesia.

5.2 Research limitations

In this study researchers have tried to design, elaborate and make research in such a way, but there are still limitations of research in this study, here are some limitations of research in this study:

1. In this study, there were limitations in the sample and study population where observations were only made at the time of the initial announcement of the Covid 19 vaccine.
2. The daily stock price needed to calculate abnormal returns and trading volume activity on the www.finance.yahoo.com website is different from the data on the official website of www.idx.co.id so it takes a long time to tabulate if only using the official website of the Indonesia Stock Exchange.
3. In my study I don't search other phenomenom or event that maybe also caused the both hypothesis result supported because there is possibility if the hypothesis result supported not only caused of vaccination.

5.3 Suggestion

Research on the comparison before and after the restatement conducted by researchers, there are several suggestions suggested as follows:

1. Next research is recommended to increase the time of research observation, such as observation per phase of the vaccine in Indonesia because vaccines in Indonesia have more than 3 stages of samples in the study because in this study the observation period is 3 years.
2. Next research suggested using other proxies to measure abnormal returns such as Average Security Return Variability and other proxies. And for auditor turnover variables can be given auditor turnover specifications based on public accounting firms or specialties.
3. Next research is recommended to look for daily closing stock price data on other relevant and reliable websites such as websitewww.seputarforex.com.
4. Next research suggested to also search for another phenomenom or another event on that event day because there is possibility if hyphotesis supported not only caused from vaccine event.

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