Does super deduction R&D financial policy in the pandemic Covid-19 give a super reaction?

Cahyani Tunggal Sari*, Eni Puji Estuti, Ariyani Indriastuti

Sekolah Tinggi Ilmu Ekonomi Semarang, Semarang, Jawa Tengah, Indonesia

A B S T R A C T

This research was motivated by the announcement of the super deduction R&D financial policy (PMK 153/2020) issued by the Indonesian government during the Covid-19 in 2020. This study tried to test and empirically prove either the presence or absence of abnormal returns on the day around the announcement, before and after the announcement optimal portfolio of pharmaceutical and health sector stocks during the observation time around the announcement of the super deduction R&D financial policy. This is a quantitative research with event study using hypothesis testing from one sample t-test and paired sample t-test. The results showed that there was 1 day of observation, which indicated an abnormal return around the announcement day. Overall, before and after being announced based on the results of the paired sample t-test, it did not show any abnormal returns. The highest optimal portfolio analysis is on stock of Darya Varia Laboratoria company which have a weighting of 40.86% and there are two stocks that are not optimal. This study shows that there is a reaction of market participants to pharmaceutical and health stocks on the announcement even though the reaction is very small. Based on the result, there is a need for information related to research and development activities of pharmaceutical and health companies for investors if they want to improve their stock performance.

A B S T R A K

Penelitian ini termotivasi adanya pengumuman super deduction R&D Financial Policy (PMK 153/2020) yang dikeluarkan pemerintah Indonesia di masa pandemi Covid-19 pada 2020. Penelitian ini bertujuan untuk menguji dan membuktikan secara empiris ada tidaknya abnormal return sekitar pengumuman, sebelum dan sesudah pengumuan, dan juga portfolio optimal dari saham sektor farmasi dan kesehatan selama waktu pengamatan di sekitar pengumuman super deduction R&D financial policy. Penelitian ini merupakan penelitian kuantitatif dengan event study yang menggunakan uji hipotesis dari one sample t-test dan paired sample t-test. Hasil penelitian menunjukkan bahwa terdapat 1 hari pengamatan yang menunjukkan adanya abnormal return di sekitar hari pengumuman. Adapun secara keseluruhan sebelum dan sesudah pengumuman berdasarkan hasil uji paired sample t-test tidak menunjukkan adanya abnormal return. Analisis portfolio optimal paling tinggi pada saham PT Darya Varia Laboratory, tbk yang memiliki bobot 40.86% dan terdapat dua saham yang tidak op-timal. Dengan demikian, penelitian ini menunjukkan adanya reaksi pelaku pasar saham terhadap saham farmasi dan kesehatan atas pengumuman Super Deduction R&D Financial Policy meskipun reaksi tersebut sangat kecil. Berdasarkan hasil tersebut, implikasinya perlu adanya informasi terkait aktivitas penelitian dan pengembangan dari perusahaan farmasi dan kesehatan bagi investor jika ingin meningkatkan kinerja sahamnya.

Keywords:
Abnormal return, Portfolio, Super deduction policy.

1. INTRODUCTION

The condition of Covid-19 pandemic is a problem in all countries in the world and it has affected various sectors. The need for medicines and vaccines is essentisl, considering that the number of Covid-19 affected

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was increasing in mid-2020, especially in Indonesia with the entry of the Covid-19 virus. With this pandemic, Gross Domestic Revenue has decreased globally by 3% per year while global trade has also decreased by 32% (Saputra et al., 2020).

Overall, Covid-19 has had an impact on trade in various countries (Panyagometh, 2020). However, during the Covid-19 pandemic, governments from various countries, including Indonesia, issued policies to support company operations and activities. They want the government policies to decrease the burdens or costs for the community. The Indonesian government—in order to support economic improvement—provides policies for companies. One of them is the PMK 153/2020 policy regarding the Provision of Gross Income Reductions for Certain Research and Development Activities in Indonesia or known as the super deduction R&D financial policy where there is a reduction in gross income for companies that conduct research & development at a maximum of 300% of the costs incurred.

In addition to providing income opportunities, the existence of the super deduction R&D financial policy can an opportunity to reduce the in-come tax burden. The companies welscomed this announcement of this policy. The Pharmaceutical sector and other sectors are conducting R&D activities because it is an opportunity to improve financial performance during the Covid-19 pandemic. The state of the pharmaceutical industry, particularly in relation to drug research and development processes, will also de-termine the impact of the pandemic on one fifth of the world's population (Guerin et al., 2020).

However, based on OJK data (OJK, 2021) since the announcement of the super deduction R&D Tax poli-y in October 2020 until January 2021, only 10 companies have submitted proposals related to the policy. This creates a question for economic observers and investors, given the various benefits that will be ob-tained by companies that submit policy proposals. How was the reaction of the company towards this phenomenon?

This research tries to find the reaction of the company that did R&D but did not take the opportunity of super deduction R&D Tax Policy in the perspective of stock return. As Covid-19 also had an impact on stock, trading in Indonesia with the announcement of the first time Covid-19 entered Indonesia, which was on March 2, 2020. However, this stock trading condition has started to have an effect in Indonesia since the beginning of 2020 where the Jakarta Composite Indices has started to decline by 22 %(Kusnandar & Bintari, 2020). In stock trading, the COVID-19 pandemic has caused abnormal returns in several stock sectors, includ-ing the Basic Industry and Chemical sectors (Dilla et al., 2020). Results of study in the stock market indicate a reaction from the stock market to the announcement. Various announcements or events that have been ob-served and can have an impact include the American Shutdown event (Sari, 2013), Covid-19 pandemic (Adriatama & Rahadi, 2021; Dilla et al., 2020; Kusnandar & Bintari, 2020; Panyagometh, 2020; Saputra et al., 2020), general elections (Saras-wati & Mustanda, 2018), arbitration (Barunik et al., 2020), insider trading (Medeiros & Matsumoto, 2006), etc. The reaction caused by the announcement and/or event may or may not cause abnormal returns.

Therefore, based on this research background, the researcher wants to know in depth the response of stock market participants to the announcement in the super deduction R&D Financial Policy. It sssespecially deals with the stocks in the pharmaceutical and health sectors. The researchers expect to to find a solution to this problem, by answering the purpose of this research. It deals with such as the effort of finding out the optimal return and portfolio reactions of the pharmaceutical and health sector stocks around the announcement of the Super Deduction R&D Financial Policy during the Covid-19 pandemic.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS

CEOs match expenses with company performance to ensure that they are able to meet the targets. Most CEOs—based on the results of empirical research—show that there are activities to reduce R&D costs when the condition of the net profit growth rate is positive. The CEOs also reduce R&D costs to match the realized prof-it with the profit forecast. Companies that have profits above expectations will actually reduce their profits by increasing R&D costs to adjust profits with forecasts.

In relation to the super deduction R&D tax policy, research on R&D has been carried out since 20 years ago, including those related to market value (Armstrong et al., 1993) and the company's strategic position (Guo et al., 2018). Regarding the research of Guo et al. (2018), companies that spend more on R&D and have a positive effect on company performance. Research on the relationship between R&D spending on firm performance by Zang et al., (2019) shows a positive impact on Chinese companies at this point and time lag. Setiawan and Harmasanto (2019) found that the effect of R&D spending on sales and net income could not be directly indicated in the current year. R&D spending like any other type of investment takes time to contribute to a company's sales and net income. It is in line with Zang et al., (2019) and Setiawan and Harmasanto (2019), research by Erdogan & Yamaltdinova (2019) found a positive interaction between R&D spending and financial performance. Freihat and Kanakriyah (2017) conducted an empirical study using simple linear regression found that there was a significant effect of R&D spending on company performance as measured by (ROA, ROE and EPS).

The theory that underlies this research related to abnormal returns and stock portfolios is the signaling theory and the efficient market hypothesis. Tandelilin (2017) suggests that the concept of an efficient market is determined more from the information aspect. The market will look at publicly announced information that it deems important and may affect asset valuations. This information is in the form of current information, past information, and information in the form of rational opinions that can affect prices. (Yulianti & Jayanti: 2020).

Concerning this research, signal theory (Spence, 1973) explains the reasons why companies provide information to investors in the capital market. Signal theory explains how companies should provide signals to users of financial statements (Asri, 2013). Information issued by the company, both related to records, information, data, and company descriptions in the past, present and future. This information can be the basis for consideration of investors in their investment decisions. The

presentation of fast, complete, accurate, relevant information is very much required by investors to analyze their investment decisions.

Sharpe (1997) states that the company's announcement of accounting information can provide a good signal (good news) that the company has a good future. Therefore, with this information, investors react positively by being interested in trading on the exchange and this will be reflected through changes in trading volume. Any information received by investors will be quickly reflected in stock prices. This means that investors will consider information that they consider important as a signal, either positive or negative, in mak-ing investment decisions. Investors always need information as a means of monitoring the funds invested in the company. This is done by investors and potential investors to improve their welfare by getting optimal returns with certain risks. This theory explains that the existence of information will cause the market to respond.

Research in the pharmaceutical and health fields has been carried out in the economic field including studies on profitability (Lim & Rokhim, 2021), Research and Development (Deng et al., 2019), business strate-gy (Gupta, 2017; Pan et al., 2016), and Intellectual Capital (Pal & Soriya, 2012). In the case of stock return, some researches show that there is difference abnormal returns as a reaction to events and announcements related to issuers around the announcement day (Barunik et al., 2020; Dilla et al., 2020; Saputra et al., 2020; Sari, 2013). Meanwhile, research by Medeiros (2006) found that there is difference no abnormal return around the day of the event. In a study using the research object of pharmaceutical sector companies, Jalsinghani (2016) found a relationship between the intensity of R&D and the performance of pharmaceutical companies in India. However, Mahajan (2020) found that there was no link between R&D and investment, but productivity and investment. Therefore, it is necessary to conduct further research related to abnormal returns around the day of the event. Based on the theoretical and past research, hypothesis 1 of this study is that there is dif-ference abnormal return around the announcement day of the Super Deduction R&D Financial Policy. Still in the research of Medeiros (2006) stated that there was no abnormal return both before and after the event. However, this is not the case with the results of research by Saputra (2020), Saraswati (2018), and Sari (2013). They found abnormal returns before and after the event. Therefore, it is necessary to conduct further research related to abnormal returns before and after the event. Thus, the hypothesis 2 of this study is that there is difference in abnormal returns between before and after the announcement of the Super Deduction R&D Financial Policy.

Stock market participants need not only to see the market return at the time of the announcement, but also to have insight regarding which company's shares will provide optimal returns. Therefore, it is necessary to have a good portfolio of many pharmaceutical and health sector companies during the announcement of the Super Deduction R&D Financial Policy.

3. RESEARCH METHODS

This research is an event study using data on stocks of the pharmaceutical and health sectors listed on the Indonesian stock exchange in 2020 and

the composite stock price index. The number of companies regis-tered and having complete stock data during the announcement of the super deduction financial policy is 9 companies. They are Merck Indonesia (MERK), Kalbe Farma (KLBF), Tempo Scan Pacific (TSPC), Darya Varia Laboratoria (DVLA), Indofarma (INAF), Kimia Farma (KAEF), Pyridam Farma (PYFA), Phapros (PEHA), and Sido Muncul (SIDO). The time used in this event study research is 5 days before and 5 days after the an-nouncement, where the announcement date of the Super Deduction Financial Policy is October 9, 2020.

The stages of data analysis were starting from calculating abnormal returns on the day around the announcement and then continuing with a different test or paired sample t-test using SPSS software to see whether there are abnormal returns before and after the announcement. To see the optimal portfolio is done by using a single index model. The single index model formula is as follows:

$$Ri = \alpha i + \beta i Rm + ei$$

The single-index model (SIM) is a simple asset pricing model to measure both the risk and the return of a stock. The model has been developed by William Sharpe in 1963 and is commonly used in the finance industry.

4. DATA ANALYSIS AND DISCUSSION

The results of the normality test show that not all data are normally distributed.

Table 1
Result of Normality Test

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TMIN5	0.228	9	0.195	0.874	9	0.136
TMIN4	0.285	9	0.033	0.820	9	0.034
TMIN3	0.400	9	0.000	0.670	9	0.001
TMIN2	0.255	9	0.096	0.867	9	0.114
TMIN1	0.235	9	0.162	0.807	9	0.024
T0	0.276	9	0.047	0.920	9	0.390
TPLUS1	0.163	9	0.200*	0.921	9	0.399
TPLUS2	0.159	9	0.200*	0.920	9	0.393
TPLUS3	0.215	9	0.200*	0.846	9	0.068
TPLUS4	0.162	9	0.200*	0.914	9	0.344
TPLUS5	0.244	9	0.131	0.891	9	0.202
AARSBLM	0.149	9	0.200*	0.931	9	0.495
AARSSDH	0.228	9	0.195	0.881	9	0.159

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction
Source: Primary Data Processed, 2021

Table 2
Summary of Normality Test

Date	Sig. (>0.05)	Result
t-5	0.136	Normal distribution
t-4	0.034	Abnormal distribution
t-3	0.001	Abnormal distribution
t-2	0.114	Normal distribution
t-1	0.024	Abnormal distribution
t	0.39	Normal distribution
t+1	0.399	Normal distribution
t+2	0.393	Normal distribution
t+3	0.068	Normal distribution
t+4	0.344	Normal distribution
t+5	0.202	Normal distribution
AARBEFORE	0.495	Normal distribution
AARAFTER	0.159	Normal distribution

Source: Primary Data Processed, 2021

Table 3
Result of Parametric One Sample t-test

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
TMIN5	-2.209	8	0.058	-0.0152756	-0.031224	0.000673
TMIN2	1.206	8	0.262	0.0034311	-0.003129	0.009992
T0	-.758	8	0.470	-0.0029411	-0.011883	0.006001
TPLUS1	2.282	8	0.052	0.0207644	-0.000215	0.041744
TPLUS2	-7.502	8	0.000	-0.0100178	-0.013097	-0.006938
TPLUS3	1.177	8	0.273	0.0185733	-0.017814	0.054961
TPLUS4	-.253	8	0.806	-0.0014933	-0.015081	0.012094
TPLUS5	1.682	8	0.131	0.0027322	-0.001013	0.006478

Source: Primary Data Processed, 2021

Based on Table 2, there is a significance value less than 0.05 so that the data is not normally distributed or Ho is rejected. The data on t-4, t-3 and t-1 are not normally distributed. Thus, for the *t*-test, which is not normally distributed, the non-parametric test is in Table 4 (non-parametric one sample *t*-test) and the summary result is included in Table 5.

Table 4
Result of Non-Parametric One Sample t-test

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of TMIN4 equals 0.0000.	One-Sample Wilcoxon Signed Rank Test	0.859	Retain the null hypothesis.
2	The median of TMIN3 equals 0.0000.	One-Sample Wilcoxon Signed Rank Test	0.582	Retain the null hypothesis.
3	The median of TMIN1 equals 0.0000.	One-Sample Wilcoxon Signed Rank Test	0.214	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.
Source: Primary Data Processed, 2021

Table 5
Summary Result of One Sample t-test

date	sig.	Result
t-5	0.058	there is no diff Abnormal return
t-4	0.895	there is no diff Abnormal return
t-3	0.582	there is no diff Abnormal return
t-2	0.262	there is no diff Abnormal return
t-1	0.214	there is no diff Abnormal return
t	0.470	there is no diff Abnormal return
t+1	0.052	there is no diff Abnormal return
t+2	0.000	there is significant diff abnormal return
t+3	0.273	there is no diff Abnormal return
t+4	0.806	there is no diff Abnormal return
t+5	0.131	there is no diff Abnormal return

Source: Primary Data Processed, 2021

Table 6
Result of Paired Sample t-test

	t	Sig. (2-tailed)
Pair1 AARSBLM - AARSSDH	-1.347	0.215

Source: Primary Data Processed, 2021

Based on the results of the one sample *t*-test (Table 3 and 4), it shows that (in Table 5) there is 1 day around the announcement day where there is a significant abnormal return, namely on day t+2. Therefore, hypothesis 1 which states that there is difference abnormal return around the announcement day of Super Deduction R&D Financial Policy is accepted.

Based on the results of the paired sample *t*-test (Table 6), it shows that the *t*-value is -1.347 with a significance level of 0.215 which indicates that there is no difference abnormal return between before and after the announcement of the super deduction R&D financial policy. Therefore, hypothesis 2 is rejected. It means that there is no abnormal return before anouncement and after anouncement of super deduction financial policy.

Even though the return of pharmaceutical and health shares have no abnormal return, they still can give investor optimal return through the best portfolio analysis. The list of optimal stocks is in Table 7.

Table 7
Result of Optimal Portfolio Calculation

Company Issuer	ERB	Ci	C*	Decision
MERK	0.01459	0.000485	0.000944	optimal
DVLA	0.009236	0.000944	0.000944	optimal
PEHA	0.004638	0.000738	0.000944	optimal
SIDO	0.002383	0.000274	0.000944	optimal
INAF	0.002304	0.000585	0.000944	optimal
KAEF	0.001717	0.000428	0.000944	optimal
PYFA	0.001642	0.000358	0.000944	optimal
KLBF	-0.00297	-0.00073	0.000944	-
TSPC	-0.11649	-0.00033	0.000944	-

Source: Primary Data Processed, 2021

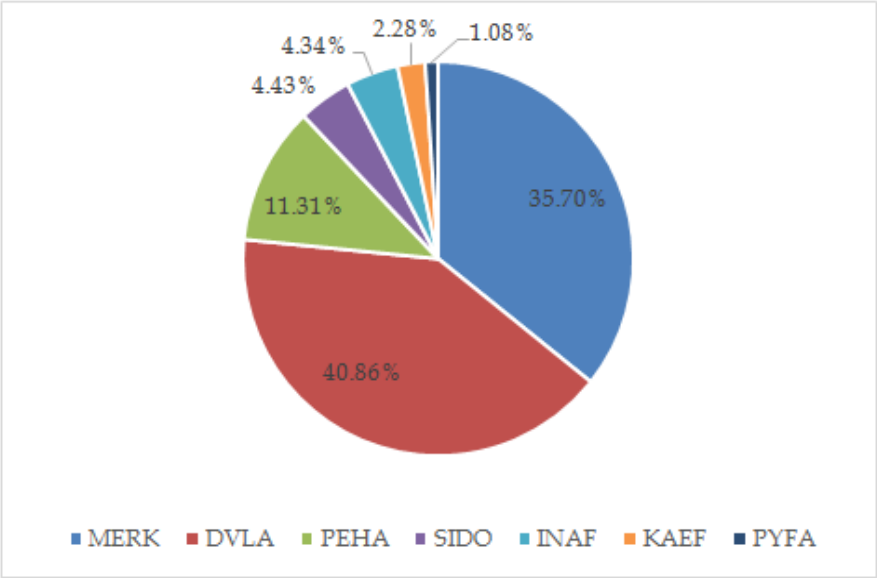

Figure 1
Chart of Optimal Portfolio for Pharmaceutical and Health Stocks

Source: Primary Data Processed, 2021

As presented in Table 7, it shows that of the 9 companies in the pharmaceutical and health sectors, there are 2 companies whose results are not optimal as seen from the ERB (Excess Return to Beta) and C* values, namely Kalbe Farma (KLBF) and Tempo Scan Pacific (TSPC) company shares. And the highest order that gives the highest ERB value is Merck Indonesia company shares (MERK). Portfolio percentage is presented in Figure 1.

The results show that Darya Varia Laboratories (DVLAhave the largest portfolio weight, which is 40.86%, followed by Merck Indonesia (MERK) at 35.70% and the last is PYFA at 1.08%. The weighting in this portfolio is to get the expected return.

It is found that the result of this study is in line with Barunik et al. (2020); Dilla et al. (2020) ; Saputra et al. (2020) ; Sari, (2013) for the first hypothesis. However, it in on the contrary to Saputra (2020), Saraswati (2018), dan Sari (2013) for the second hypothesis. The results of this

first hypothesis support the signaling theory (Spence, 1973), where the information conveyed from both the company and the government gives a reaction from investors in the form of abnormal returns. However, in the context of this research, the reaction caused is not as big as the impact received by the company on the super deduction policy, namely the reduced tax paid by the increasing research and development costs.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

It can be concluded that the announcement of the super deduction R&D financial policy in Indonesia has a difference abnormal return impact on the day around the announcement. However, overall returns before and after the announcement have no impact at all. It shows that stock players still have a reaction to announcements related to issuers in the stock market even though the reaction is small. For the stocks of pharmaceutical and health companies, the effect of the announcement has a small impact on the emergence of abnormal returns around the announcement day. This can be seen from only 1 day out of 10 days of observation that there is a significant abnormal return.

The reaction of stock return to such announcement in line with the re-search of Adriatama & Rahadi (2021), Dilla et al. (2020); Kusnandar & Bintari (2020); Panyagometh (2020); and Saputra et al., (2020), but the reaction to-wards phenomena is not as much as the result of those previous research. This reaction can lead to the signal that the Super Deduction R&D Tax Policy is not very interesting to the pharmaceutical companies though they do R&D. As stated by Zang et al. (2019) and Setiawan & Harmasanto (2019) that R&D activities takes time to be able to contribute to the company's sales and net profit and cannot be directly felt in the current year.

Regarding the calculation of the optimal portfolio, it shows unexpected results of Kalbe Farma company shares performance, as the researchers know that it is the largest pharmaceutical company in Indonesia, but having a not optimal portfolio return. This empirical evidence needs further research. The limited observation time is only 10 days and 1 announcement day can also be a limitation in this study. Therefore, for further research, it is necessary to expand the observation time. In addition, other variables such as volatility also need to be considered for future research. The practical implication of this research is that pharmaceutical and health companies need to provide more complete information on research and development activities in order they can provide a positive ref-erence for investors in the hope of getting a positive response in the stock market.

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***Corresponding Author**
Penulis 1 dapat dikontak pada e-mail: cahyani031084@gmail.com