

The impact of cases and death reports of COVID-19 on prices and returns

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ABSTRACT

Both the technology sector and the health sector are important issues for investors during the COVID-19 pandemic in 2021. This study aims to examine the impact of cases and death reports on the prices and stock returns especially for firms in the technology and health sectors. On this purpose, the sample is taken for the period January 4 2021 to December 30, 2021. The results of correlation and mean difference tests show that cases and death reports of COVID-19 are not the main cause in influencing stock prices and stock returns of both sectors. The findings suspect that management performance or prospects of the two sectors will trigger synergy in creating a unidirectional relationship between stock prices and stock returns.

Keywords: returns; prices; cases; death; COVID-19

JEL Classification: G01; G11; G32

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1. Introduction

Technology is a science that studies skills in creating tools and processing methods to help complete various human tasks. On the other hand, health is an effort to overcome and prevent health problems that require examination, treatment, and/or treatment. The current rapid development of technology has brought society into an era of transparency where all information can be accessed without boundaries, including information about the world of health.

The COVID-19 pandemic has brought changes to business around the world. This pandemic has also had an impact on the technology sector and the health sector in Indonesia. During the COVID-19 period, the virtual world became much busier due to social distancing and lock-downs in several areas of Indonesia, which impacted

the health sector and especially the technology sector as more and more people switched to using gadgets and computers as their main tools to support activities that cannot be carried out directly. During 2021, the cases and death reports show an increase in the middle of the year and a decline again towards the end of the year or around September. Figure 1 illustrates the trend of the movement of cases and deaths during 2021. Putri and Yulfiswandi (2022), and Rahmentio et al. (2022) show that the COVID-19 pandemic has made positive or negative contributions to the technology sector and the health sector. This study aims to examine the impact of cases and death reports on the prices and stock returns of firms in the technology and health sectors.

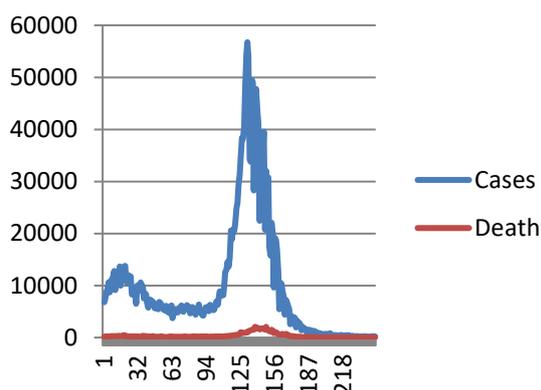


Figure 1. Cases and death reports

2. Literature review

There are several studies about the impact of COVID-19 on stock returns. Since January to April 2020, Darmayanti et al. (2020) find that stock returns decreased after the announcement of COVID-19 on March 2 2020, although it was not significantly different from the period before the announcement. The finding of Rahmayani dan Oktavilia (2020) implies that the increase of total accumulative cases of Covid-19 in Indonesia create stock market weakness in the long-term during January 2, 2020 to October 27, 2020. Robin (2021) investigates the impact of COVID-19 on stock returns in Indonesia during the period from March to December 2020 and finds that the increasing in deaths and new cases will reduce the stock returns.

Similar with Kusuma and Davianti (2021) in hospitality business, Trisnowati and Muditomo (2021) also find that most of the abnormal returns are significantly decrease after the announcement of the first case of COVID-19. Khabibah and Waharini (2022) also confirm that mostly stock prices of banking sector negatively respond the first announcement of COVID-19. But, Ong and Marheni (2021) also find that the growth of cases and deaths do not have a significant impact on stock market returns of the consumer goods sector in Indonesia during 2 March 2020 to 30 June 2021. Putri (2020) finds that the stock price of the banking sector is

significantly different before and after Covid-19 from 2 January to 2 June 2020. Otherwise, Murharsito (2021) emphasizes that the government's decision to carry out an Emergency Java-Bali Community Activity Restriction (PPKM) due to the second wave of COVID-19 in June 2021 does not have a significant impact on stock prices and its returns, especially for the banking sector.

The recent study of Rahmentio et al. (2022) show that returns of firms in the technology sector has performed quite optimally during the COVID-19 pandemic in 2021. Novita and Suryani (2022) find that abnormal returns of firms in the pharmaceutical industry from January to March 2020 were not affected by the COVID-19 pandemic. Hardi and Sihombing (2022) examine the 30 listed firms in the IDX30 Index during the period February 2020 until July 2020 and find that the impact of the announcement of the first Covid-19 case in Indonesia on March 2, 2020, on stock returns is insignificant. Otherwise, Irvan and Suhendah (2022) find that the increase in the number of cases and the number of recoveries from COVID-19 had a significant impact on the stock return of the consumer goods sector for the period March 2 to June 4, 2020. Moreover, Sari (2022) also finds that stock prices and abnormal returns are decreasing after March 11, 2020, the same as that found by Solihin et al. (2022) in the case of 45 firms in LQ-45. Based on the previous evidence, the hypothesis of this study is noted as follows.

H1: The stock prices are different significantly following cases and death reports

H2: The stock returns are different significantly following cases and death reports

H3: Cases and death reports are correlates significantly with stock prices

H4: Cases and death reports are correlates significantly with stock returns

3. Research method

This study uses firms listed in the technology sector (TECH and PGJO) and firms listed in the health sector (CARE and SOHO) as a sample for the period January 4 2021 to December 30, 2021. The variables used are stock daily closing prices and daily stock returns (the difference between the current price and the previous price divided by the previous price). In term of hypothesis testing, this study conducts correlation test and mean difference test. This study also controls the period observation to get detail results. As the cases and death of COVID-19 had increase between June and July then the sample is split into 2 sub-periods with the cut-off point is June 30, 2021. The sub-period 1 is sample before (include) June 30, 2021 and the sub-period 2 is sample after June 30, 2021.

4. Result and discussion

Table 1 presents descriptive statistics of prices and stock returns for the technology and health sectors. During 2021, the mean

of all samples shows that the share price of the health sector is higher than the technology sector. However, the mean of all samples also shows that return from the technology sector have a higher value than the health sector. The possible reason for this condition is that the technology sector plays an essential role in implementing work-from-home due to the social distance of people in Indonesia.

More detail, the mean of stock prices in sub-period 1 also shows that the health sector has a higher value than the technology sector. In contrast, the highest mean of stock prices were achieved by the technology sector in sub-period 2 compared to the health sector. The mean of returns in sub-period 1 and sub-period 2 shows that the technology sector has the highest value compared to the health sector. Descriptive statistics show that during the COVID-19 pandemic in 2021, the technology sector has performed better in the market than the health sector.

Table 1. Descriptive statistics

	Price Tech			Price Health			Return Tech			Return Health		
	All sample	Sub period 1	Sub period 2	All sample	Sub period 1	Sub period 2	All sample	Sub period 1	Sub period 2	All sample	Sub period 1	Sub period 2
Mean	2262	1199	3266	2640	2388	2877	0.007	0.009	0.005	0.002	0.002	0.003
St.Dev.	2803	1186	3449	2306	2089	2474	0.06	0.06	0.05	0.03	0.03	0.02
Min	37	37	69	298	298	340	-0.10	-0.10	-0.09	-0.07	-0.07	-0.05
Max	9550	3630	9550	6450	6396	6450	0.25	0.25	0.25	0.20	0.20	0.20

Table 2 presents the results of mean different tests to confirm the results of descriptive statistics. The mean difference test shows that the stock prices of the technology sector between sub-period 1 and sub-period 2 are significantly different. The same results are also obtained from the health sector for the two sub-periods. The test results also show that returns of the two sectors have no difference between the two sub-periods.

In addition, both stock prices and stock returns between the two sectors in sub-period 1 have significant differences.

These results indicate that the effects of the COVID-19 pandemic (cases and death reports) contributed quite a bit to influencing stock price movements in the capital market. Under sub-period 1, this study accepts H1 and H2 in assumption that cases and death reports will be followed by stock prices and its returns.

In sub-period 2, the stock prices between the technology sector and the health sector are significantly different. Conversely, the returns for two sectors are insignificantly different. These results indicate that the increase in cases and death

reports from COVID-19 in sub-period 2 play significant role in increasing the performance of technology sector stocks in the capital market even though the returns of the two sectors have balance proportions. Under sub-period 2, this study

accepts H1 but rejects the H2 in assumptions that increasing of cases and death of COVID-19 only will be followed by stock prices.

Table 2. Mean difference test

	Mean difference	Sig.
<i>All sample</i>		
Price Tech (Sub period 1-Sub period 2)	2066.55	0.000
Price Health (Sub period 1-Sub period 2)	488.50	0.018
Return Tech (Sub period 1-Sub period 2)	-0.005	0.347
Return Health (Sub period 1-Sub period 2)	0.001	0.629
<i>Sub period 1</i>		
Price Tech - Price Health	-1189.21	0.000
Return Tech - Return Health	0.018	0.060
<i>Sub period 2</i>		
Price Tech - Price Health	388.84	0.000
Return Tech - Return Health	0.002	0.580

Table 3 shows the relationship between cases and death reports of COVID-19 with prices and returns. By all samples, this study finds that the case report has a non-directional and significant relationship with the stock price of the technology sector. On this result, this study then only accepts H3 where increasing of cases report will be followed by decreasing of technology sector stock price. Additionally, this study also provides evidence that the stock price of the health sector has a positive and significant relationship with the stock price of the technology sector.

More detail, cases and death reports of COVID-19 in sub-period 1 are not correlated with stock prices or stock returns from the two sectors. On those results, this study rejected H3 and H4. In addition, the relationship between technology sector stock prices and health sector stock prices is still consistent with the results when

using all samples. In addition, the return of the two sectors also has a positive and significant correlation.

In sub-period 2, this study only accepts H3 where cases and death reports correlate with stock prices only for the technology sector. These results indicate that an increase in cases and death reports of COVID-19 will result in a decrease in the stock price of the technology sector. But, the correlation test shows that the consistent positive relationship between the technology sector and the health sector is still significant. This condition confirms the results of the descriptive statistics and indicates that the increase in technology sector stock prices tends not to be caused by an increase in cases and death reports of COVID-19, but possibly triggered by increasing of stock price of the health sector.

Table 3. Correlation matrix of prices and returns with cases and death of COVID-19

	Cases	Death	Price Tech	Price Health	Return Tech	Return Health
<i>All sample</i>						
Cases	1	0.857***	-0.133***	-0.026	0.043	-0.014
Death	0.857***	1	-0.052	-0.012	0.044	0.008
Price Tech	-0.133***	-0.052	1	0.857***	0.028	0.003
Price Health	-0.026	-0.012	0.857***	1	0.057	0.036
Return Tech	0.043	0.044	0.028	0.057	1	0.073
Return Health	-0.014	0.008	0.003	0.036	0.073	1
<i>Sub period 1</i>						
Cases	1	0.815***	0.087	0.043	0.083	-0.037
Death	0.815***	1	0.070	0.039	0.017	-0.091
Price Tech	0.087	0.070	1	0.968***	0.058	0.008
Price Health	0.043	0.039	0.968***	1	0.087	0.060
Return Tech	0.083	0.017	0.058	0.087	1	0.118*
Return Health	-0.037	-0.091	0.008	0.060	0.118*	1
<i>Sub period 2</i>						
Cases	1	0.868***	-0.217***	-0.061	0.054	-0.017
Death	0.868***	1	-0.186***	-0.060	0.086	0.019
Price Tech	-0.217***	-0.186***	1	0.942***	0.053	-0.015
Price Health	-0.061	-0.060	0.942***	1	0.041	0.005
Return Tech	0.054	0.086	0.053	0.041	1	0.002
Return Health	-0.017	0.019	-0.015	0.005	0.002	1

*, **, *** are significant at the 0.1, 0.05, and 0.01 (2-tailed)

5. Conclusion

During 2021, cases and death reports of COVID-19 have increased, especially in the middle of the year. The technology sector and the health sector are sectors that play quite an important role during the pandemic. This study finds that cases and death reports of COVID-19 have no role in increasing the stock prices and stock returns of the two sectors in the capital market. In contrast, this study finds that an increase in cases and death reports of COVID-19 tends not to be accompanied by an increase in stock prices, especially in the technology sector. The results of this study, on the other hand, imply that the performance of the management or the prospect of the two sectors will tend to determine the performance of stocks in the capital market. As the impact, the stock prices of the two sectors will synergize in creating a positive relationship.

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