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Analysis of the Effect of the COVID-19 Pandemic on Stock Return of Banking Company

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ABSTRACT
This research examines the influence of COVID-19 on stock return in banking companies listed on the Indonesia Stock Exchange in 2020 between the 2nd of March and the 30th of December, 2020. To assess the effect of COVID-19, the growth of confirmed cases, the growth of death cases, the growth of recovery cases, and the new normal policy are used as independent variables, with stock returns as the dependent variable. Research method using quantitative. Sampling using probability sampling with census method. Testing data using the program EViews 12. The results reveal that, the growth in confirmed cases also the growth in death cases due to COVID-19 have a significant and negative effect on the stock returns of banking companies. The growth in COVID-19 recovery cases has a negative influence on the stock return, while the new normal policy has a positive influence on stock return of banking companies.

Keywords: *COVID-19, stock return, new normal, banking industry*

1. INTRODUCTION

COVID-19 first surfaced in mid-Jan 2020, and the World Health Organization (WHO) designated it a pandemic on March 11th, 2020, after assessing the virus's risk of spreading and severity outside of China. [1]. Yang et al. [2] states that the COVID-19 coronavirus epidemic is the third outbreak of a serious coronavirus received in about 20 years. Although the true degree of the pandemic's influence on real economic activity is uncertain, it has had a significant impact. The number of confirmed cases has surpassed 17 million, with 650,000 patients died globally as of July 2020 [3]. The response to this disease at the national level is likewise unprecedented. On the one side, the government takes emergency measures to restrict disease and transmission, such as psychological distance and investment in identifying, as well as managing positive cases and quarantining suspected cases. As minimize economic losses, the finance ministries to Monetary authorities, are adopting aid and incentive programs. [4].

The Indonesian government declared its first COVID-19 case on March 2nd, 2020, with two confirmed positive cases, bringing the total number of verified cases to 134, with five deaths. Indonesia has been able to maintain sustainable economic development before the COVID-19 crisis, in 2020 with the poverty rate to 9.78 percent which means it has fallen by more than half since 1999 [5]. The Indonesian government enacted a nationwide quarantine program (Large Social Restrictions / PSBB) for the first time because the number of cases surpassed 3,000 positive cases and 300 individuals died, on April 10th, 2020 [6].

Bank Indonesia and Sri Mulyani argue that the future of Indonesia's economy looks bleak, economic growth will be depressed to minus in 2020 at least until early 2021 [7]. Not only has an impact on public health, COVID-19 has a major economic consequence so that it also has an impact on the Indonesian capital market.

One of the main wheels of the Indonesian economy is the capital market, and shares are one of the instruments exchanged on the Stock Exchange. Investors expect from funds issued for investments to one of the industrial sectors will generate a high return. The banking industry is one of the sectors

that has many important roles in the national economy and influences other industrial lines in several aspects.

Many external and internal factors that affect the movement of banking stocks which means also affect the return of shares, such as banking performance or economic circumstances or government policies. Investment decisions can be influenced by bad moods and this individual's anxiety leads to pessimism about future profits and as a result, people take smaller risk. Anxiety causes negative feelings that can influence investment decisions and consequent return on assets. COVID-19 became one of the sentiments that caused the decline in banking stocks which resulted in a decrease in stock returns. With information about COVID-19 or the implementation of government policies on COVID-19 will affect stock returns both positively and negatively. On June 1, 2020, Indonesia entered a new normal situation, or in other words, lived a life with strict health protocols [8]. The mood of capital market participants improved due to the new normal policy.

The problem generated by the COVID-19 outbreak has an influence on the capital sector. The revelation of an increase in the amount of confirmed and deaths cases will cause concern. The government also implemented policies to reduce confirmed numbers and deaths so that the recovery rate increased, but still tried to keep the economy running. The COVID-19 outbreak is interesting to observe because it will cause volatility in stock prices and returns.

In a study conducted by Ashraf [4] examined the influence of the increase in confirmed cases and the increase in mortality cases on stock returns, using daily data on COVID-19 and stock returns from 64 countries. The outcomes revealed that the increase in confirmed cases had a significant and negative influence, but the growth of death cases negatively affected stock returns. Research conducted by Erdem [9], as well as Alber and Saleh [10] stated that the number of growth of confirmed cases and deaths cases due to COVID-19 had negatively affected stock return.

Goodell [12] stated that has the possibility to have a major effect on financial sectors, including capital markets, insurance, and banking. In a study conducted by Nguyen et al. [13] observed the influence of COVID-19 on return of shares of financial companies such as banks, finance, and insurance. The results stated that the COVID-19 pandemic had the COVID-19 pandemic had a major detrimental impact on the financial services industry in Vietnam.

Based on previous research, this study replicates previous research with the primary goal of further exploring the influence of the COVID-19 outbreak on stock return. The difference with this research with previous research lies in the object of the study and the addition of independent variables used. Research carried out by Al-Awadhi et al. [11] uses independent variables, the growth in confirmed cases and death cases of COVID-19. The addition of independent variables to this study into the growth in COVID-19 confirmed cases, the growth in COVID-19 death cases, the growth in COVID-19 recovery cases and the New Normal policy, as well as the longer study period, make this study different from previous research. This research only focuses on the sub-sectors of banking stocks listed on the Indonesia Stock Exchange in 2020.

2. BACKGROUND

2.1. The Black-Swan Theory

Talib [14] developed the Black-Swan theory and its economic implementation. Talib applied the discovery from the black swan, the novel of the time to explain unexpected circumstances that had a detrimental or positive influence on the stock and commercial activity. Talib [14] Black Swan events have 3 distinguishing characteristics. An unexpected event is a very rare occurrence for which there is no indication that it will occur. As a result, analysts and capital markets are taken aback by this event. Second, major events are those that have a considerable impact on the global economy or politics. Finally, events that have occurred can be rationalized by looking at the past as predictable and explained if the facts of an event are carefully examined in advance. COVID-19 is currently emerging unexpectedly. COVID-19 impacts the entire world, having all the hallmarks of the Black Swan event. The simultaneous effects of the COVID-19 epidemic have spiraled into various fluctuations in stock and money markets around the world.

2.2. Efficient Market Hypothesis

Fama [15] states Kendall introduced and used the phrase random-walk in financial literature for the first time in 1953. According to the idea of the Efficiency Market Hypothesis, consideration of how the market responds to information and will affect the price of a security. Changes in stock prices follow a random walk pattern in an efficient market, which shows that stock price projections are based on all accessible and evolving market information rather than on historical stock prices. Fama [15] describes an efficient market as a market that describes all the information provided. In an efficient market, stock returns will be erratic because stock prices are unpredictable. On the basis of information absorption, the market is divided into three levels of efficiency. The market classified the level of efficiency of a weak form if the current stock price fully represents information about price, sales volume, and historical earnings. The market classified the efficiency level of a half-strong form if the current stock price fully represents public information as well as information about the company, such as earnings, dividends, and management notices. If all market information is reflected in the stock price, the market is classified as strong form efficiency. and therefore, the transaction cannot simply be based on information from insiders.

2.3. Stock Return

Bodie et al., [16] define Return as income earned from money invested. Return can be dividend yield and capital gains received by investors, where capital gain (loss) is the profit (loss) from the current investment price compared to previous period's price. Based on the definition, it can be concluded one of the motives for investors to invest is to earn a profit on their stock. The bigger the company's convinced projections or returns, the more investors will put their money into it. Kartal et al. [17] stated that announcements, natural disasters, political uncertainties, crises, natural events, and shocks affects the stock market as well. Stock returns responded to variety of factors, including health-related news about the COVID-19 epidemic.

2.4. Growth in COVID-19 Confirmed Cases and Stock Return.

Confirmed cases of COVID-19 are known as someone who is positively infected with COVID-19 by being proven using an RT-PCR laboratory examination either with symptoms (symptomatic), or without symptoms (asymptomatic) [18]. The term Black Swan refers to extremely unpredictable events and have disastrous consequences for the stock market, money market, and the economy as a whole [19]. Research conducted by Erdem [9] examined COVID-19 influence on return of shares in 75 countries from Jan 2020 to Apr 2020. The results of this research confirm that a rise in the number of confirmed COVID-19 cases has a substantial detrimental influence on stock return. COVID-19 cannot be underestimated, proven by the proliferation of COVID-19 patients is extremely rapid. The increase in positively confirmed numbers every day increases significantly which also makes investors withdraw their investments from the capital market. With this, the confirmed case due to COVID-19 has a detrimental impact on stock return. Based on discussion above, the following are the hypotheses that were developed in this study:
H1: Growth in COVID-19 confirmed cases has a significant negative effect on Stock Return

2.5. Growth in COVID-19 Death Cases and Stock Return.

COVID-19 deaths is described as a death caused by a clinical picture congruent with confirmed or probable cases of COVID-19 [20]. Black Swan Theory alludes to unexpected events, such as the COVID-19 pandemic that did not happen repeatedly, and the death rate is not small, as well as affecting the global financial markets. In a study conducted by Karim & Saba [21] examined the effect of COVID-19 on return of shares in 351 entities noted on the Dhaka Stock Exchange in Bangladesh. The results of the research found that the bank and textile industry was affected the most with the discovery of COVID-19 deaths negatively affecting the sector. The high amount of deaths will have a substantial influence on investor decisions, which are related to stock returns. As a result,

the COVID-19 deaths had a detrimental influence on stock returns. Based on discussion above, the following are the hypotheses that were developed in this study:
H2: Growth in COVID-19 death cases has a significant negative effect on Stock Return

2.6. Growth of COVID-19 Recovery Cases and Stock Return.

COVID-19 recovery case is a confirmed case of COVID-19 that has completed isolation and if concerned is declared clinically recovered and has 2 negative RT-PCR results in consecutive samples collected at least twenty-four hours apart. Before being discharged, the patient's symptoms must have been alleviated for at least 3 days, with a minimum isolation time of at least 13 days from the commencement of symptoms [22]. The concept of the Efficient Market Hypothesis deals with the availability of information, such as unexpected events published in the media or press. In a study conducted by Lee and Chen [23] examining COVID-19 influence on return of shares in 65 countries, the results of the research stated that the increase in daily COVID-19 recovery cases boosted return of shares. The rate of COVID-19 recovery cases proves that a person affected by COVID-19 can still be cured. Both the public and investors benefit, as a result of this. Based on discussion above, the following are the hypotheses that were developed in this study:
H3: Growth in COVID-19 recovery cases has a positive effect on Stock Return

2.7. New Normal Policy and Stock Returns.

New normal is a change in lifestyle with a new order and adaptation of habits to avoid the transmission of COVID-19 [24]. That is, people's lives continue, but with new habits based on a culture of clean and healthy living by washing hands after activities, maintaining a safe distance, and using masks. In the Efficiency market hypothesis, the market is said to be efficient if the value of an asset at any given moment reflects all available information, resulting in a price that is at its equilibrium level. When new information about stock securities enters the market, it increases the likelihood of new changes in equilibrium prices. In research conducted by Bouri et al [25] investigated the influence of government policies on COVID-19 on return of shares on 14 New Zealand stock indices. The study's findings revealed that government policies had a beneficial effect on return of shares. The implementation of the New Normal policy, it will revive the wheels of the economy in Indonesia and affect stock prices in various sectors that also affect the rate of return. With this, the New Normal policy has beneficial effect on stock return. Based on discussion above, the following are the hypotheses that were developed in this study:
H4: The New Normal policy has a positive effect on stock returns.

3. METHODS

3.1. Research Design

The goal of this research is to investigate the association between the COVID-19 pandemic and stock returns. This research used a quantitative research approach with a descriptive research design.

3.2. Population and Sample Selection Techniques

Probability sampling with the census method was used in this research, and it is a method that performs the withdrawal of the number of samples equal to the number of existing populations. In this research, the population is 45 banking firms noted on Indonesia Stock Exchange in 2020. Testing data using the program EViews 12.

3.3. Identification and Measurement of Variables

In this study, daily stock returns were used as dependent variables. Independent variables in this research are the growth in COVID-19 confirmed cases, the growth in COVID-29 death cases, the

growth in COVID-19 recovery cases and the new normal policy. $SR_{i.t}$ represent the return of stock *i* on day *t*.

The formula of stock return used in previous studies like Karim & Saba [21] is as follow:

$$\boldsymbol{SR_{i.t}} = \frac{P_{i.t} - P_{i.t-1}}{P_{i.t-1}} \, x \, 100\%$$

whereas $P_{i.t}$ and $P_{i.t-1}$ are the closing prices of stock *i* on day *t* and *t-1*, respectively

$DGCC_t$ indicates the daily growth confirmed cases on day *t*. According to studies of Nguyen et al [13], the measurement of this variable is formulated as follow:

$$\mathbf{DGCC_t} = \frac{Total\ Confirmed\ Cases_t - Total\ Confirmed\ Cases_{t-1}}{Total\ Confirmed\ Cases_{t-1}}$$

whereas total confirmed $cases_t$ and total confirmed $cases_{t-1}$ are the number of confirmed COVID-19 cases on day *t* and *t-1*, respectively.

$DGDC_t$ indicates the daily growth death cases on day *t*. According to studies of Nguyen et al [13], the measurement of this variable is formulated as follow:

$$\mathbf{DGDC_t} = \frac{Total\ Death\ Cases_t - Total\ Death\ Cases_{t-1}}{Total\ Death\ Cases_{t-1}}$$

whereas total death $cases_t$ and total death $cases_{t-1}$ are the number of COVID-19 deaths on day *t* and *t-1*, respectively.

$DGRC_t$ indicates the daily growth recovery cases on day *t*. According to studies of Lee and Chen [23], the measurement of this variable is formulated as follow:

$$\mathbf{DGDC_t} = \frac{Total\ Recovery\ Cases_t - Total\ Recovery\ Cases_{t-1}}{Total\ Recovery\ Cases_{t-1}}$$

whereas total recovery $cases_t$ and total recovery $cases_{t-1}$ are the number of COVID-19 recovery cases on day *t* and *t-1*, respectively.

NN indicates the new normal policy. The new normal policy is measured as a dummy variable. According to studies of Bouri et al [25], the measurement of this variable is formulated as follow:
D = 0, for data prior to the enactment of the New Normal policy
D = 1, for data after the enactment of the New Normal policy

3.4. Data Collection Techniques

This study used secondary data for its findings, with a study period of 200 days starting from March 2 to December 30, 2020 (Saturday and Sunday, as well as national holidays, not included). The data used in conducting research in the form of daily stock prices obtained from https://www.idx.co.id/, is used to calculate daily stock returns. In addition, the data needed in conducting the study was also obtained from https://covid19.go.id/ to find out the daily COVID-19 confirmed, death, and recovery cases, used to calculate each daily case growth.

The regression equation is as follow:

$$SR = \alpha + \beta_1 DGCC + \beta_2\ DGDC + \beta_3\ DGRC + \beta_4\ NN + \varepsilon \quad \text{..... (1)}$$

Notes:
SR : Stock Return
α : Constanta
β : Coefficient Regression
DGCC : Growth in COVID-19 confirmed cases
DGDC : Growth in COVID-19 death cases
DGRC : Growth in COVID-19 recovery cases
NN : New normal Policy
ε : Error

4. FINDINGS AND DISCUSSION

4.1. Descriptive Statistical Analysis.

The table of descriptive statistics below reveals the mean, median, max, min, and std. deviation limits of each variable used in the study of both dependent variables and independent variables. Here are the results of descriptive statistical testing of each variable:

Table 1 Descriptive Statistics

	SR	DGCC	DGDC	DGRC	NN
Mean	0.002330	0.083221	0.054797	0.070537	0.710000
Median	0.000000	0.023753	0.016312	0.030036	1.000000
Maximum	0.349515	3.750000	1.714286	0.875000	1.000000
Minimum	-0.812102	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.043248	0.294831	0.156213	0.120676	0.453787

Source: The Output of EViews 12

The results of descriptive statistics above show the number of observations in this study is 9000 data.

4.2. Multicollinearity Test

If the correlation coefficient is above 0.85 then there is multicollinearity in the linear regression model [26]. Based on the tests that have been done, the result of multicollinearity test as follows:

Table 2 Multicollinearity Test

	DGCC	DGDC	DGRC	NN
DGCC	1.000000	0.137371	0.280148	-0.313344
DGDC	0.137371	1.000000	0.533634	-0.357664
DGRC	0.280148	0.533634	1.000000	-0.488241
NN	-0.313344	-0.357664	-0.488241	1.000000

Source: The Output of EViews 12

Based on Table 2, each independent variable used in this study is smaller than the multicollinearity assessment limit of 0.85, so it can be concluded that the data does not occur multicollinearity between independent variables, so this regression model is suitable for use.

4.3. Heteroskedasticity Test

In this study heteroskedasticity testing using the Breusch-Pangan test method. The testing criteria is to compare X2-table values with X2-calculates [26]. The results of sum-squared of residual is 0.937466. To calculate the value of X2-calculated then the value of sum squared re divided by 2 and the result obtained is 0.468733. In this study using the value of 0.05 and the value of d.f. is 4, then the value in table X2 is 9.48773. The results of heteroskedasticity tests shows that X2-count is smaller than X2-table (0.468733 < 9.48773), it can be concluded that in this study there is no problem of heteroskedasticity.

4.4. Estimated Panel Data Model

The chow's testing is used to assess whether the Common Effect Model or the Fixed Effect Model is the optimal panel data model. Here is a table of chow's test results:

Table 3 Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.286729	(44,8951)	0.0968
Cross-section Chi-square	56.746743	44	0.0941

Source: The Output of EViews 12

Chow's test resulted in a cross-section-F probability value of 0.0968 which is higher than 0.05. It can be deduced from these findings that the model selected for use is the Common Effect Model.

More testing was done using the Lagrange Multiplier test to determine the model assess whether the best panel data model between the Common Effect Model and the Random Effect Model. Here is a table of Lagrange Multiplier test results:

Table 4 Lagrange Multiplier Test

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.494402 (0.2215)	1305.526 (0.0000)	1307.021 (0.0000)

Source: The Output of EViews 12

Lagrange Multiplier test results found that the value of both of 0.0000 which is smaller than the alpha value = 0.05. Based on the findings of the testing, it can be determined that the estimated panel data model that will be implemented in this research is the Random Effect Model.

4.5. Panel Data Regression Results

The Random Effect Model obtained from regression panel data is as follow:

Table 5 Regression Panel Data

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004004	0.001160	3.451045	0.0006
DGCC	-0.012183	0.001636	-7.448782	0.0000
DGDC	-0.021294	0.003455	-6.162961	0.0000
DGRC	-0.000757	0.004841	-0.156458	0.8757
NN	0.000789	0.001179	0.668997	0.5035
R-squared	0.015839	Prob(F-statistic)		0.000000
Adjusted R-squared	0.015401			

Source: The Output of EViews 12

The finding of the F test is the Prob (F-statistic) value is less than the significant level value (0.000000 < 0.05). Based on these results, the independent variables simultaneously have a significant influence on stock return.

4.6. The Results of Hypothesis Testing and Discussion

The t-test was utilized in this research with a significance level of 0.05. The findings of the t test on the regression table of panel data indicate that the growth in confirmed cases is inversely proportional to stock returns. The study's findings indicate that H1 is accepted implying that the growth in confirmed cases of COVID-19 has a negative and significant effect on stock returns. The Black Swan theory also supports up the findings of this investigation where these events are very unpredictable and have disastrous consequences for economy. The existence of information sentiment about the growth of confirmed cases of COVID-19 causes anxiety in investors. This indicates that, the

greater the increase in COVID-19 confirmed cases will make investors feel anxious and withdraw their investments in the capital market which is reflected by the decline in stock return.

The outcomes of this study are in alignment with the advance studies of Al-Awadhi et al. [11], Nguyen. et. al. [13] , Lee and Chen [23], Ashraf [4], Karim and Saba [21], and Mugiarni & Wulandari [27] who discovered that COVID-19's upsurge in confirmed cases has a significant and adverse impact on stock return. But there are also the results of previous studies that are not in line conducted by Anh and Gan [28], and Nurcahyono et al [29] that discovered COVID-19's upsurge in confirmed cases didn't have a significant impact on stock return.

COVID-19 mortality cases are increasing at a rate that is negatively affecting stock returns. The study's findings indicate that H2 is accepted implying which means that the growth of death cases has a negative and significant impact on stock returns. The Black Swan theory corroborates the findings of this study, which states that this outbreak phenomena do not occur repeatedly. COVID-19 comes with a very fast spread around the world and causes a mortality rate that is not small. This increases the risk of investing in the capital market. COVID-19's upsurge in deaths is negative information for investors that causes investors to be more careful in making investment decisions and tend to choose investments with lower risk by waiting for more conducive circumstances.

The outcomes of this study are in alignment with the advance studies of Al-Awadhi et al. [11], Lee and Chen [23], Erdem [9], Karim and Saba [21], and Mugiarni and Wulandari [27] who discovered that COVID-19's upsurge in deaths had a significant and negative influence on stock returns. But there are also the results of previous studies that are not in line with those conducted by Anh and Gan [28], Ashraf [4], Nguyen. et. al. [13] and Nurcahyono et al [29] who discovered that COVID-19's upsurge in deaths didn't have a significant impact on stock return.

The increase in recovery cases is affecting stock returns in a negative way. The study's findings indicate that H3 is rejected implying that the growth of COVID-19 recovery cases has a negative influence on stock return. The efficient market hypothesis supports the findings of this investigation which is linked to the availability of information, such as unexpected events published in the media or press. COVID-19 hinders the valuation of stock market participants, limiting investors' effective participation in stock market trading. WHO [22] states that patients who are declared cured of COVID-19 need at least 13 days of isolation from the onset of symptoms. WHO [30] also stated, that there are symptoms that may arise only after recovery from COVID-19. A protracted post COVID or long COVID conditions experience in individual who have had a history of suspected or verified COVID-19 cases, usually three months after the incursion of symptoms and persisting at least two months, and which can't be characterized by another diagnosis. Symptoms such as exhaustion, breathlessness, and cognitive problems are prevalent, but there are others that have an impact on daily activities. Symptoms may also fluctuate or recur over time. This is negative information for investors, who assess that the situation is still not conducive enough to re-invest in the stock market.

The outcomes of this study are in alignment with the advance studies of Lee and Chen [23] and Nurcahyono et al. [29] who discovered that COVID-19's upsurge in recovery cases has a positive influence on stock return.

The New normal policy has a positive direction towards stock return. The study's findings indicate that H4 is accepted implying that the new normal policy has a positive impact on stock return. The Efficiency Market Hypothesis Theory strengthens the conclusions of this research, where when new information about stock securities enters the market, it increases the possibility of new changes. After the enactment of the new normal policy, then the community can be productive again by implementing clean and healthy living habits which means reviving the wheels of the economy after the enactment of the PSBB. This information is interesting and gives investors a positive signal to re-invest in the stock market.

The outcomes of this study are in alignment with the advance studies of Bouri et al [25] which found that after the implementation of government policies (stimulus packages) have an insignificant positive influence on stock returns.

5. CONCLUSIONS

This research was conducted to obtain empirical evidence and evaluate the effect of the COVID-19 pandemic on the return of shares of 45 banking companies noted on the Indonesia Stock Exchange in 2020. The regression model used for this research is the Random Effect Model. It can be determined based on the findings of the test and data analysis that has been conducted that confirmed cases and death cases have a significant and negative impact on stock return. The recovery cases have a negative and insignificant effect on the return of banking company shares.

The COVID-19 pandemic increases the risk of investing in the capital market so that investors feel anxious about uncertain circumstances so prefer to withdraw their money from the capital market and choose to invest with less risk. Furthermore, with the enactment of the new normal policy positively affects the return of banking company shares. The new normal policy's application gives a positive signal, where people can return to activities and return to the turning of the wheels of the economy. This study is expected to be useful for investors for consideration in investment decision making, companies and subsequent researchers.

The limitations of the research are a limited study duration of 200 days from March 2, 2020 to December 30, 2020 and a small sample of research that includes only banking companies. In subsequent studies to improve this research, it is suggested that the research duration be prolonged and expand the research sample, for example adding other industries with a period of more than 1 year. In addition, it can add other COVID-19 related variables along with other economic related variables such as economic growth, interest rates and inflation rates.

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