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## Analysis of Investor Reactions Comparison to Covid-19 Developments in ASEAN Capital Market

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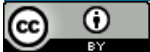
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### ABSTRACT

The COVID-19 pandemic has had a major impact on various sectors, one of which is the capital market sector. Information and investors' observations of the COVID-19 phenomenon in their countries will encourage different market behavior when compared to the period before the COVID-19 pandemic in various countries. This study aims to examine the effect of the development of COVID-19 from early 2020 to mid-2022 on the ASEAN stock market represented by Indonesia, Malaysia, the Philippines, Singapore, and Thailand. The research design uses a quantitative approach and applies the regression data analysis method using a panel data regression model, using data on changes in COVID-19 cases, stock price index, and daily exchange rates obtained from the official website. Data processing was carried out using the STATA statistical tool. As a result of the research, it was found that each ASEAN country had different investor reactions to developments in COVID-19. This means that not all countries make the development of COVID-19 a factor that investors consider in making investment decisions, and there are other factors that influence investor reactions in the ASEAN capital market during the COVID-19 pandemic period

## INTRODUCTION

Pandemi Covid-19 until now is still an issue for the global community. Until April 2022, COVID-19 has been hit by countries globally, starting from March 11, 2020 where the World Health Organization (WHO) officially announced Covid-19 as the phenomenon of pandemic. This new Covid-19 disease is an infectious pathogen that attacks the respiratory function, caused by severe acute respiratory syndrome, the SARS-COV-2 virus. This virus originated from the same family as the SARS virus which became an outbreak in 2003 and MERS which was an outbreak in 2012. Compared to SARS and MERS, COVID-19 tends to have a low death rate but has the highest level of spread. Supported by high community mobility and world transportation progress, viruses can transmigrate from humans to humans and spread throughout the world with a very short time, until it ultimately has an impact on the global health crisis (Niermann & Pitterle, 2021)

Besides the impact of the world's health that is very worrying, Pandemi also causes panic that disrupts the national security stability of exposed countries, and has a serious impact on the economy and internationally trade (Butler, 2019). Covid-19 is a new disease that causes a large global response. All affected countries are necessary to swiftly take mitigation steps to minimize the adverse effects on various fields in the country. Because this virus is still a new case for human infection, the mitigation steps taken tend to be very tight and prioritize human safety, especially because the mortality rate in the first wave is quite high with rapid transmission plus an untrible understanding of transmission (Ministry of Finance, 2019) .

The world economic shock that occurred since 2020 was caused by a significant reduction in state revenue, increasing unemployment, and disruption in various industries such as transportation, services, and manufacturing which are a consequence of the spread of COVID-19 diseases is partly a consequence has been implemented in many countries (Pak et al., 2020). Until April 2022, Pandemi Covid-19 globally reached the third wave. In general, the surge of the

Covid-19 waves occurred in 2020 with the covid-19 variant of the most dominated Alpha, the second surge occurred in 2021 with the covid-19 variants the most dominated the delta, and the third surge occurred in early 2022 with the covid-19 variant at most Dominate Omicron. It should be noted that although in general the Covid-19 surge occurs in the same year, there are differences in the COVID-19 months in each country.

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Differences in each situation in the Covid-19 period, as well as differences in the COVID-19 policy between countries with one another certainly affect the economic running of a country and in the end will also affect the capital market response in the country to the phenomenon of pandemic. This difference encourages the author to study the response pattern, both in terms of the variable of the country, as well as in terms of wave variables per Covid-19 wave.

The author decided to conduct a research "Comparison Analysis of Investor Reaction to the Development of Covid-19 in the ASEAN Capital Market". This research is important to do because it is still very rarely found research related to the impact of the development of Covid-19 on investor reactions in the ASEAN capital market. The research is also interesting because it states that related to the possibility of differences in investor responses due to the application of different government policies in each country.

The author hopes that the observation and analysis of the COVID-19 wave surge in the ASEAN Capital Market Index can be a benchmark for capital market practitioners in taking smart steps when analyzing the market to make their decisions. Observation

This pattern and analysis in general is also expected to be a contribution to educational institutions in understanding the capital market in ASEAN.

## **Library**

### **Pandemi Covid-19**

Pandemi Covid-19 or Corona-Virus Disease 2019 is caused by the SARS-COV2 virus. This virus results in acute respiratory problems with symptoms that result in lack of absorption of oxygen in the lungs and what is worrying is transmission and a very high speed of virus (Services, 2021). Until 2021 it had occurred until December 2021, there were five dominant variants of SARS-COV-2 that spread among the world's population, namely the Alpha variant (B.1.1.7, previously called the British variant), was first discovered in London and Kent , Beta variant (B.1.351, previously called the South African variant), the Gamma variant (p.1, previously called the Brazilian variant), the Delta variant (B.1.617.2, previously called the Indian variant), and the Omicron variant (B. 1.1,529), which has spread to 57 countries (Corum et al., 2022). The mutation that occurs resulted in an increase in cases again so that the long pandemic period and counted for more than two years this disease spread throughout the world. Until the beginning of April 2022 it was recorded in 230 countries and infected more than 497 million people with a mortality rate of 6.19 million people worldwide (Worldometer, 2022).

The impact of the global economic COVID-19

The distribution of Covid-19 that occurs so easily through contact with people or even droplets suffering from COVID-19 diseases make the government have to carry out social restrictions, and with this happen, there are many global economic activities. Compared to the previous year's data in March 2019, it is known that there is a decrease in cross flow between regions and countries that caused contractions in the field of transportation services by 29%, as well as the largest contraction that had never occurred before, at 81%, as well as contractions in other fields of service of 6 %. In early 2021 there was an improvement in the field of service due to the

easing of social restrictions in certain countries, so that the field of transportation services became 0%, the tourism sector was in the value of -62% and other services increased to 6% (World Trade Organization, 2021 ). The presence of Pandemi Covid-19 made annual changes in World Per Capita Output decreased by 4.2% from 2019 to 2020, then followed by improvement in 2021 with a positive change of 5.4% from the previous year (Fund, 2022).

### **ASEAN Regional Economic Impact**

Singapore as one of the countries that has good economic stability also does not escape economic pressure due to Pandemi Covid-19. Singapore GDP in 2020 decreased 9.19% from 374.39 billion American dollars in 2019 to 340 billion American dollars. The service sector contributed 72% of Singapore GDP and is the largest field that experienced pressure due to Pandemi Covid-19. Vietnam's economic growth which continues to reach 7% for 2 consecutive years in 2018 and 2019, must decrease to the growth rate of 2.91% in 2020 and 2, 58% in 2021. Vietnam which has the main field of exports of various exports of various exports Food needs materials can still survive even though the largest domestic economy is the field of retail suffered a blow.

Which is very great due to government policy in restrictions on opening business sites. In the spread of Covid-19 first waves Vietnam managed to limit the number of transmission, but it was largely affected when the second wave struck with a high number of infection and a high area of distribution in Vietnam (Onishi & Nikkei, 2021).

The condition of Singapore and Vietnam, in contrast to Myanmar who is turbulent, with a contraction of 18 percent, which occurred in 2020, causing the country's economic potential to be reduced by around 30 percent when compared to the projection of the same year if there is no Covid-19 and military takeover in the month February 2021. Around 1 million jobs are lost, and many other workers will experience a decrease in income due to reduction of working hours or wages. The poverty rate in Myanmar is projected to increase more than

double in the early 2022, compared to 2019 (Keyes, 2021).

In Indonesia, restrictions on community activities make a number of shopping centers start to close voluntarily because pedestrian traffic decreases, only pharmacies, shops that sell food and ATMs that are still operating with limited hours. On March 17, 2020, the rupiah weakened to Rp 15,000 per dollar, touched a level that had never occurred since October 2018. The growth of the country's GDP fell at the point of Indonesia with a decrease of 7.09% at the point of -2.07%. Then Malaysia with a decrease of 9.89% from 2019 at the growth point of -5.56%, and Thailand with a decrease of 8.35% from 2019 at the point -6.09 (TWB, 2019).

### **Impact on the Capital Market**

The stock market is one of the financial fields that is not protected from the impact of the Pandemi Covid-19. Pandemic that occurs causes the American stock market through the Dow Jones Index which is often used as a benchmark for the state of the world market, has decreased in response to the increase in uncertainty due to COVID-19. Reported by Bloomberg, in mid -March 2020 the index reached the lowest point, recorded a decline of 2,999 points in one day (Bloomberg, 2020). In 2 months there has been a decrease of 36% on the Dow Jones Index a large impact can be juxtaposed with a financial crisis in 2009 with a decrease of 54% in 17 months and Black Monday in 1987 with a decrease, 2020).

During Pandemi Covid-19 which in 2022 had occurred for approximately 3 years, there have been several studies that discussed the impact of the COVID-19 on the capital market. It was found that compared to the pandemic that had occurred, bird flu in 1997 and 1998, swine flu in 2009, SARS in 2003, and Ebola in 2015, Covid-19 caused a greater investor reaction in the American stock market (Baker et al ., 2020).

Research conducted by Chaudhary et al. (2020) on the American, Chinese, Japanese, German, Indian, British, France, Italian, Brazilian, and Canada stock markets from January 1, 2019 to

June 30, 2021 found that the Covid-19 period had a negative relationship with the average return of

all market indexes and increasing market volatility. In the G20 country, research conducted by Bissoondoyal-Bheenick et al. (2021) states that Covid-19 increases the relationship between the level of return of shares and volatility. In this study the authors will see investor reactions to the development of COVID-19 to investor reactions in ASEAN countries.

### **Hypothesis Development**

#### **Efficient Market Hypothesis**

The theory of the market hypothesis put forward by Fama (1970) concludes that the ideal market is fully accurate and fast will combine information available in the market and create market prices. The availability of information indicated in the statement of efficient market hypotheses surrounds historical information on stock prices in previous periods, information available publicly, and private information (Marcus, 2003).

#### **Decision Theory**

The main idea of the decision theory put forward by Simon is represented by the term "satisficing", which is a combination of satisfactory and enough which means that decision makers are limited to time, costs, and the ability to process information so that in making decisions decisions must consider minimizing risks and complications or problems from On only focusing on maximizing profits. (Simon, 1947) The risk of investment itself is generally divided into two, namely systematic and non-systematic risk. The research has a connection with Systematic Risk. Systematic risk is a market risk, including risks that cannot be eliminated and caused by economic factors that affect macroeconomics as a whole, such as war, terrorism, inflation, and disasters (Hartono, 2017).

#### **Signal Theory**

Signal theory is a theory that speaks related to the availability of information for investors. This theory is the idea of an American economist, Michael Spence. First written in 1973 with the title Journal "Job Market Signaling" published in the Quarterly Journal of Economics 8 (Spence, 1978). In the capital market the information delivered by the signal provider which is a company, agency, or agency will

be a signal for investors that will be used in decision making. When the information is received, the investor will process the signal, categorize the signal in the form of a good signal or bad signal and the investor will then respond according to the interpretation of the signal so that there is a change in the stock price. (Milgrom, 1982)

H1: There is a significant difference between the reaction of investors from each ASEAN country in Pandemi Covid-19

## **METHODS**

### **Research design**

The research design in this paper is a quantitative research that compares the influence of the development of Covid-19 in ASEAN countries on the movement of the daily stock price index of each ASEAN country, as a form of investor reactions.

### **Research Variable**

The independent variable used in this study is the development of the Covid-19 measured by changes in the Daily Covid-19 case in each ASEAN country. The dependent variable in this study is an investor reaction measured by changes in the stock price index of each ASEAN country. As for this study the control variable is used, namely the exchange rate of the currency of each ASEAN country against the US dollar.

### **Research Population and Sample**

The population is a generalization area consisting of objects or subjects that have certain quality and characteristics determined by researchers to be studied and then concluded (Sugiyono, 2018). The population in this study was the movement of the stock price index of each ASEAN country from January 13, 2020 to April 2022. The sample was part of the research population taken to represent the population (Anshori & Iswanti, 2017). In this study the sample taken was the movement of the representative price index of each ASEAN country, including:

1. Indonesian Stock Index: JCI
2. Singapore Stock Index: STI
3. Malaysian Stock Index: FTSE BM
4. Filipino Stock Index: PSEI
5. Thai Stock Index: Seti

In this study the development of Pandemi Covid-19 was seen based on the waves of COVID-

19 cases. Covid-19 waves are significant cases of cases in a certain period of time followed by a decrease in cases afterwards (Marangkis, 2021). The wave division is based on the increase and decrease

in the Daily Covid-19 case and the independent variable, namely the Covid-19 case in each country from the first wave to the third wave with the following details:

Table 1. Data Collection Procedures

Wave 1	Indonesia:	March 3, 2020 - 14 May 2021
	Singapura:	January 23, 2020 - 28 August 2021
	Thailand:	January 22, 2020 - 14 December 2020
	Filipina:	30 January 2020 - 28 October 2020
	Malaysia:	January 25, 2020 - 1 September 2020
Wave 2	Indonesia:	May 15, 2021 - 1 January 2022
	Singapura:	August 29, 2021 - 29 December 2021
	Thailand:	December 15, 2020 - 27 December 2021
	Filipina:	29 October 2020 - 22 December 2021
	Malaysia:	2 September 2020 - 9 January 2022
Wave 3	Indonesia:	January 2, 2022 - 30 April 2022
	Singapura:	December 30, 2021 - 30 April 2022
	Thailand:	December 28, 2021 - 30 April 2022
	Filipina:	December 23, 2021 - 30 April 2022
	Malaysia:	January 10, 2022 - 30 April 2022

The data collection technique used in this study is the documentation method. This method is a data collection method that is carried out by taking data from documents, websites, journals, and other literature. The type of data used in this study is secondary data which includes daily data on the new Covid-19 case in ASEAN, daily data on the index price of the share price of ASEAN countries, and daily data on the exchange rate of each ASEAN country against the US dollar. Covid-19 daily data obtained from the official website of Ourworldindata.org which features processed data from John Hopkins University CSSE COVID-19, while daily data on stock price index movements and daily data exchange rates in the ASEAN countries obtained from the official Wallstreet Journal website, namely wjs.com.

#### Analysis Technique

The analysis technique applied in analyzing data in this study is a multiple linear regression analysis with the data panel method which is a combination of time series data and cross section.

$$RI1 = \alpha + \beta 1CG1 + \beta 2 ERX2 + e$$

Information:

Ri1 = investor reaction

$\alpha$  = constant regression equation CG1 = COVID-19 GROWTH

Er2 = exchange rate

$\beta$  = regression coefficient of independent variable E = error

## RESULTS AND DISCUSSION

### Indonesia



Figure 1. (Covid-19 Development Graph and Indonesian Stock Price Index Movement)

Source: Processed Data (2022)

Table 1. Indonesian Statistical Data Wave 1a

Indonesia					
Gelombang 1: 3 Maret 2020 – 14 Mei 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	13870	16575	14561.82	14498	544.1
Stock Return	3989.52	6435.2	5423.54	5241.96	619.08
Kasus Harian	0	14518	3950.54	3779	3270.79
Total Kasus	2	1734285	543567.72	315714.0	572269.06
Kasus Kematian Harian	0	476	108.94	97	79.75
Total Kasus Kematian	0	47823	16020.96	11472	15126.83

Source: Processed Data (2022)

Table 2. Indonesian Statistical Data Wave 1b

Indonesia					
Gelombang 1: 3 Maret 2020 – 14 Mei 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-2.75%	4.57%	-0.02%	0.00%	0.57%
Stock Return	-5.20%	4.76%	0.03%	0.06%	1.38%
Kasus Harian	-100.00%	550.00%	3.56%	0.62%	35.22%
Total Kasus	0.00%	216.67%	3.65%	1.33%	13.28%
Kasus Kematian Harian	-100.00%	566.67%	9.83%	0.00%	61.91%
Total Kasus Kematian	0.00%	300.00%	3.31%	1.01%	20.00%

Source: Processed Data (2022)

Covid-19 first entered Indonesia on March 2, 2020 with an initial case of 2 people, the case then continued to increase with its peak where the Covid-19 daily case reached 14,518 cases and with the highest daily death case reached 476 deaths. The first wave of Covid-19 lasted until May 14, 2021 resulted in the number of deaths of 47,823 people with a total

COVID-19 case of 1,734,285. This happened to invite market responses through the change of exchange rate and stock index prices in Indonesia. The exchange rate of the rupiah against the US dollar with an initial value on January 1, 2020 was 13,883, due to the Covid-19 had touched the highest value of 16,575 and the average during the wave one at a

value of 14,562. JCI itself decreased dramatically in the first wave surge where the initial value of the JCI dropped from 6284 on January 1, 2022 to touch the

lowest number 3990 on March 23, 2020 at the COVID-19 first wave.

Table 3. Indonesian Statistical Data Wave 2a

Indonesia					
Gelombang 2: 15 Mei 2021 - 1 Januari 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	14074	14543	14318.47	14293	105.44
Stock Return	5760.58	6723.39	6267.45	6128.28	277.31
Kasus Harian	0	56757	10899.61	4240	14353.36
Total Kasus	1736670	4262994	3508754.83	4143999.5	958077.68
Kasus Kematian Harian	0	2069	414.97	162.5	541.69
Total Kasus Kematian	47967	144096	111552.88	137469	38167.66

Source: Processed Data (2022)

Table 4. Indonesian Statistical Data Wave 2b

Indonesia					
Gelombang 2: 15 Mei 2021 - 1 Januari 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.71%	0.82%	0.00%	0.00%	0.21%
Stock Return	-2.06%	2.06%	0.07%	0.11%	0.74%
Kasus Harian	-100.00%	111.83%	1.42%	-4.81%	29.89%
Total Kasus	0.00%	2.13%	0.39%	0.13%	0.51%
Kasus Kematian Harian	-100.00%	1000.00%	5.48%	-3.22%	74.64%
Total Kasus Kematian	0.00%	2.44%	0.48%	0.25%	0.60%

Source: Processed Data (2022)

Table 5. Indonesian Statistical Data Wave 3a

Indonesia					
Gelombang 3: 2 Januari 2022 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	14074	14543	14318.47	14293	105.44
Stock Return	5760.58	6723.39	6267.45	6128.28	277.31
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Source: Processed Data (2022)

Table 6. Indonesian Statistical Data Wave 3b

Indonesia					
Gelombang 3: 2 Januari 2022 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.47%	0.52%	0.01%	0.00%	0.18%
Stock Return	-1.48%	1.50%	0.11%	0.16%	0.65%
Kasus Harian	-100.00%	81.70%	-0.07%	-6.76%	33.79%
Total Kasus	0.00%	1.32%	0.29%	0.10%	0.38%
Kasus Kematian Harian	-100.00%	400.00%	8.87%	0.00%	64.90%
Total Kasus Kematian	0.00%	0.27%	0.07%	0.03%	0.07%

Source: Processed Data (2022)

The second Covid-19 wave based on data is much greater than the previous wave. Although in the second wave of Covid Indonesia experienced a higher surge in cases, and the third wave occurred there was a surge in cases that were higher than the second wave, but the data showed that the Exchange Rate and the JCI stock price index had improved and began to stabilize. Can be seen from the changes in

the average exchange rate to the US dollar to 14,318 in the second wave and in the third wave improved at point 14.355 and the JCI stock index was seen changes from the second wave where the average JCI value was at 6267, and the third was at the value 6902.

### Singapura



Figure 2. (Covid-19 Development Graph and Singapore's Stock Price Index Movement)

Source: Processed Data (2022)

Table 7. Singapore Statistics Data Wave 1a

Singapura					
Gelombang 1: 23 Januari 2020 - 28 Agustus 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	1.3177	1.4598	1.36	1.3575	0.03
Stock Return	2233.48	3240.02	2847.63	2858.02	274.08
Kasus Harian	0	1426	115.02	25	204.41
Total Kasus	1	67171	46721.48	58068.5	22145.26
Kasus Kematian Harian	0	3	0.09	0	0.34
Total Kasus Kematian	0	55	25.18	28	11.20

Source: Processed Data (2022)

Table 8. Singapore Statistics Data Wave 1b

Singapura					
Gelombang 1: 23 Januari 2020 - 28 Agustus 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-1.13%	1.08%	0.00%	-0.02%	0.29%
Stock Return	-4.73%	6.07%	0.06%	0.03%	1.16%
Kasus Harian	-100.00%	1000.00%	13.60%	0.00%	84.05%
Total Kasus	0.00%	200.00%	2.18%	0.06%	9.56%
Kasus Kematian Harian	-100.00%	0.00%	-75.53%	-100.00%	42.37%
Total Kasus Kematian	0.00%	50.00%	0.68%	0.00%	3.46%

Source: Processed Data (2022)

The Covid-19 case in Singapore began on January 23, 2020 when one of its citizens was infected. In the first wave the total case of COVID-19 infection is in the number

67,171 with a maximum daily increase of 1426 cases but the case of death is quite low in a total of 55 cases. In terms of the economy itself it can be

seen that with the initial entry of Covid-19 in the first case of the Singaporean exchange rate against the US dollar it reached a maximum value of 1.46 compared to the value of 1.35 in early 2020, and the stock price index had decreased to the point The lowest is at 2,233.5 on March 23, 2020 from the price on January 1, 2020 at 3,252.

Table 9. Singapore Statistics Data Wave 2a

Singapura					
Gelombang 2: 29 Agustus 2021 – 29 Desember 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	1.3408	1.3724	1.35	1.35395	0.01
Stock Return	3041.29	3263.9	3137.64	3114.88	64.15
Kasus Harian	0	5324	1720.15	1461	1293.66
Total Kasus	67171	278750	179923.54	192099	80059.51
Kasus Kematian Harian	0	22	6.27	5	5.42
Total Kasus Kematian	55	826	406.39	380	294.95

Source: Processed Data (2022)

Table 10. Singapore Statistics Data wave 2b

Singapura					
Gelombang 2: 29 Agustus 2021 – 29 Desember 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.38%	0.45%	0.01%	0.00%	0.22%
Stock Return	-2.54%	1.87%	0.01%	0.06%	0.68%
Kasus Harian	-100.00%	71.76%	1.53%	1.43%	28.27%
Total Kasus	0.00%	3.28%	1.17%	0.99%	0.92%
Kasus Kematian Harian	-100.00%	550.00%	11.18%	0.00%	87.08%
Total Kasus Kematian	0.00%	9.41%	2.25%	1.74%	2.23%

Source: Processed Data (2022)

Table 11. Singapore Statistics Data Wave 3a

Singapura					
Gelombang 3: 30 Desember 2021- 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	1.34	1.39	1.36	1.36	0.01
Stock Return	3123.68	3445.01	3315.54	3321.36	85.61
Kasus Harian	0.00	39252.00	7495.90	4929.00	7004.16
Total Kasus	279061.00	1193250.00	725625.48	736464.00	351923.03
Kasus Kematian Harian	0.00	18.00	4.17	3.00	3.99
Total Kasus Kematian	827.00	1335.00	1055.83	1024.50	193.51

Source: Processed Data (2022)

Table 12. Singapore Statistics Data Wave 3b

Singapura					
Gelombang 3: 30 Desember 2021- 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.52%	0.68%	0.00%	0.06%	0.25%
Stock Return	-3.45%	1.70%	0.11%	0.24%	0.79%
Kasus Harian	-100.00%	597.28%	5.02%	-5.17%	74.83%
Total Kasus	0.00%	4.64%	1.21%	0.79%	1.17%
Kasus Kematian Harian	-100.00%	500.00%	9.19%	0.00%	94.65%
Total Kasus Kematian	0.00%	1.72%	0.40%	0.28%	0.38%

Source: Processed Data (2022)

In the second wave it can be seen that Singapore experienced a sharp surge with a total case of infection of 278,750 and the number of deaths reached 826 people. The third wave of the Covid-19 case in Singapore soared much higher than the previous waves with a total case of 1,193,250 and resulted in deaths of up to 1335 people. The surge in the second wave of cases in Singapore resulted in changes in the exchange rate to the US dollar and the

stock price index also changed but did not select the changes that occur in the first wave, and the value tends to improve. In the second wave the average exchange rate of the Singapore currency against the US dollar was at 1.35, and the third wave was at 1.36. As for the stock price index in the second wave there are at an average of 3,138, and the third wave in

### Thailand



Figure 3. (Covid-19 Development Graph and Thailand Stock Price Index Movement)  
Source: Processed Data (2022)

Table 13. Thailand Statistics Data Wave 1a

Thailand					
Gelombang 1: 22 Januari 2020 – 14 Desember 2020					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	30.02	33.09	31.43	31.31	0.69
Stock Return	1024.46	1569.55	1317.94	1322.105	108.02
Kasus Harian	0	188	13.03	5	26.49
Total Kasus	5	4237	2688.38	3187.5	1339.29
Kasus Kematian Harian	0	5	0.18	0	0.65
Total Kasus Kematian	30.02	33.09	31.43	31.31	0.69

Table 14. Thailand Statistical Data Wave 1b

Thailand					
Gelombang 1: 22 Januari 2020 – 14 Desember 2020					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.82%	1.46%	-0.01%	-0.03%	0.33%
Stock Return	-4.73%	6.07%	0.06%	0.03%	1.16%
Kasus Harian	-100.00%	2100.00%	43.63%	-6.25%	209.58%
Total Kasus	0.00%	200.00%	2.18%	0.06%	9.56%
Kasus Kematian Harian	-100.00%	0.00%	-75.53%	-100.00%	42.37%
Total Kasus Kematian	0.00%	50.00%	0.68%	0.00%	3.46%

Source: Processed Data (2022)

Thailand became the country with the lowest total COVID-19 infection cases than other ASEAN countries in the first wave of cases, where the total case of the first wave was only 4,237 and a total death of 33 people. The exchange rate of the Thai currency against the dollar

America appears to be stable at an average value of 31.43 and increased compared to January 1, 2020 where the exchange rate was 29.56, but on the contrary the value of the stock tended to fall with the lowest point at 1024.5 on March 23, 2022 compared to the beginning of the year with the value 1596.

Table 15. Thailand Statistical Data Wave 2a

Thailand					
Gelombang 2: 15 Desember 2020 – 27 Desember 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	29.78	33.96	31.88	31.645	1.32
Stock Return	1401.78	1651.02	1573.58	1578.71	53.54
Kasus Harian	9	23418	5841.72	3376	6160.77
Total Kasus	4246	2212407	715770.90	223335.5	812477.35
Kasus Kematian Harian	0	312	56.98	31	71.98
Total Kasus Kematian	60	21598	6884.01	1675.5	8231.81

Source: Processed Data (2022)

Table 16. Thailand Statistical Data Wave 2b

Thailand					
Gelombang 2: 15 Desember 2020 – 27 Desember 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-1.07%	1.08%	0.03%	0.05%	0.35%
Stock Return	-2.30%	2.66%	0.10%	0.09%	0.76%
Kasus Harian	-89.23%	1594.12%	10.75%	0.50%	93.56%
Total Kasus	0.09%	13.30%	1.68%	1.26%	1.62%
Kasus Kematian Harian	-100.00%	250.00%	-0.97%	-3.03%	46.06%
Total Kasus Kematian	0.00%	12.65%	1.59%	0.82%	2.00%

Source: Processed Data (2022)

Table 17. Thailand Statistical Data Wave 3a

Thailand					
Gelombang 3: 28 Desember 2021 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	32.11	34.47	33.24	33.27	0.50
Stock Return	1619.10	1713.20	1672.97	1675.48	20.08
Kasus Harian	0.00	47149.00	16439.85	17779.50	8251.54
Total Kasus	2214712.00	4250949.00	3026876.06	2880771.50	662949.81
Kasus Kematian Harian	0.00	221.00	55.87	41.50	42.30
Total Kasus Kematian	21630.00	28526.00	23734.20	22912.00	1977.19

Source: Processed Data (2022)

Table 18. Thailand Statistical Data Wave 3b

Thailand					
Gelombang 3: 28 Desember 2021 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.92%	1.12%	-0.01%	-0.06%	0.42%
Stock Return	-1.99%	1.52%	0.12%	0.21%	0.62%
Kasus Harian	-100.00%	135.96%	2.11%	-0.37%	18.19%
Total Kasus	0.00%	1.20%	0.53%	0.54%	0.22%
Kasus Kematian Harian	-100.00%	118.81%	4.45%	2.38%	27.93%
Total Kasus Kematian	0.00%	0.84%	0.22%	0.18%	0.15%

Source: Processed Data (2022)

Thailand then experienced a drastic surge in cases in the second and third waves Covid-19 where the total cases in the second wave reached 2,212,407 with a number of deaths 21,598, and in the third wave the total cases of cases jumped to 4,250,949 cases and total deaths of 28,526. Despite a drastic surge in cases, the exchange rate of Thai currencies against

the US dollar tends to be stable to increase from the average exchange rate in the second wave period that existed at a value of 31.88 and a three wave at a value of 33.24, and the same as the value Stocks developed from an average value of 1,574 in the second wave and 1,673 in the third wave.

### Filipina



Figure 4. (Covid-19 Development Graph and Filipino Stock Price Index Movement)

Source: Processed Data (2022)

Table 19. Philippine Statistical Data Wave 1a

Filipina					
Gelombang 1: 30 Januari 2020 – 28 Oktober 2020					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	48.35	51.73	49.82	50.067	0.98
Stock Return	4623.42	7507.2	6080.69	5946.05	563.12
Kasus Harian	48.35	6725	1374.29	605	1515.92
Total Kasus	1	375180	95558.92	25930	122265.24
Kasus Kematian Harian	0	259	26.16	13	34.73
Total Kasus Kematian	0	7114	1896.33	1088	2080.67

Source: Processed Data (2022)

Table 20. Philippine Statistical Data Wave 1b

Filipina					
Gelombang 1: 30 Januari 2020 – 28 Oktober 2020					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.80%	1.41%	-0.01%	-0.01%	0.29%
Stock Return	-9.71%	7.44%	0.23%	0.12%	1.92%
Kasus Harian	-100.00%	2150.00%	24.64%	1.52%	156.49%
Total Kasus	0.00%	100.00%	5.43%	2.13%	13.12%
Kasus Kematian Harian	-100.00%	1700.00%	47.91%	0.00%	186.49%
Total Kasus Kematian	-10.53%	150.00%	3.86%	1.03%	12.77%

Source: Processed Data (2022)

The Philippines is the second country with the highest covid-19 infection in the first wave after Indonesia. The number of cases of COVID-19 infection in the Philippines in the first wave period touched 375,180 with total deaths reaching 7,114 cases. With so the exchange rate of the Philippine currency against the US dollar based on existing data

tends to weaken with the highest value of 51.73 on March 17, 2020 compared to the value on January 1, 2020 which is 50.71. The value of the Philippine stock price index itself is quite deteriorating with the lowest point on March 19, 2020 with a price of 4,623 compared to the stock price at the beginning of the year which is 7,742.

Table 21. Philippine Statistical Data Wave 2a

Filipina					
Gelombang 2: 29 Oktober 2020 – 22 Desember 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	47.647	51.135	49.10	48.563	1.08
Stock Return	6164.89	7441.67	6865.02	6910.25	312.27
Kasus Harian	22	27887	5877.36	4683	5377.27
Total Kasus	376935	2837784	1383506.46	1197203	874189.62
Kasus Kematian Harian	0	478	104.29	90.5	84.45
Total Kasus Kematian	7147	50916	23526.42	20274	13554.93

Source: Processed Data (2022)

Table 22. Philippine Statistical Data Wave 2b

Filipina					
Gelombang 2: 29 Oktober 2020 – 22 Desember 2021					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-1.14%	1.10%	-0.01%	-0.03%	0.31%
Stock Return	-3.61%	5.23%	0.05%	0.03%	1.20%
Kasus Harian	-100.00%	595.45%	4.35%	0.43%	43.89%
Total Kasus	0.00%	2.02%	0.48%	0.41%	0.33%
Kasus Kematian Harian	-100.00%	5100.00%	84.56%	-0.81%	423.57%
Total Kasus Kematian	0.00%	2.84%	0.47%	0.43%	0.36%

Source: Processed Data (2022)

Table 23. Philippine Statistical Data Wave 3a

Filipina					
Gelombang 3: 23 Desember 2021 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	47.647	51.135	49.10	48.563	1.08
Stock Return	6164.89	7441.67	6865.02	6910.25	312.27
Kasus Harian	22	27887	5877.36	4683	5377.27
Total Kasus	376935	2837784	1383506.46	1197203	874189.62
Kasus Kematian Harian	0	478	104.29	90.5	84.45
Total Kasus Kematian	7147	50916	23526.42	20274	13554.93

Source: Processed Data (2022)

Table 24. Philippine Statistical Data Wave 3b

Filipina					
Gelombang 3: 23 Desember 2021 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.52%	0.91%	0.04%	-0.03%	0.30%
Stock Return	-4.26%	2.98%	-0.07%	-0.09%	1.28%
Kasus Harian	-100.00%	170.54%	5.22%	-1.42%	40.56%
Total Kasus	-0.01%	1.24%	0.20%	0.02%	0.34%
Kasus Kematian Harian	-100.00%	11200.00%	227.60%	-15.38%	1151.11%
Total Kasus Kematian	0.00%	0.58%	0.13%	0.10%	0.12%

Source: Processed Data (2022)

Same with other ASEAN countries, the Philippines also experienced a high surge in cases in the second wave and the third wave of Covid-19. The total case of infection in the second wave reached 2,837,784 with a total of 50,916 cases of death and total cases of the third wave touched 3,685,643 cases and total deaths of 60,341. The exchange rate of the Philippine currency against the US dollar in the

second and third waves appeared to increase with an average exchange rate against the US dollar during the second wave of 49.1 and the third wave of 51.59. The Philippine state stock price index also appeared to increase with an average price of 6,865 in the second wave and 7,183 in the third wave.

### Malaysia

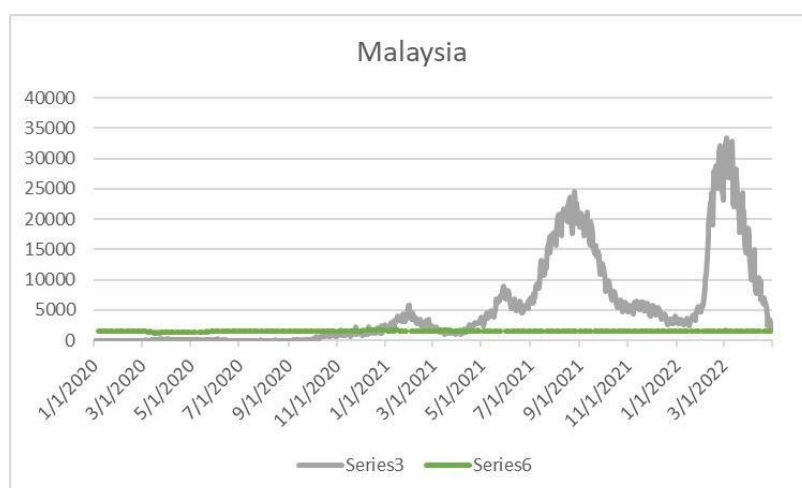


Figure 5. (Covid-19 Development Graph and Malaysian Stock Price Index Movement)

Source: Processed Data (2022)

Table 25. Malaysian Statistical Data Wave 1a

Malaysia					
Gelombang 1: 25 Januari 2020 – 1 September 2020					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	4.0655	4.4425	4.26	4.2705	0.08
Stock Return	1219.72	1611.42	1480.51	1507.04	95.78
Kasus Harian	0	277	42.33	15	56.75
Total Kasus	4	9354	5458.96	6819	3621.36
Kasus Kematian Harian	0	6	0.58	0	1.17
Total Kasus Kematian	0	128	79.55	113	51.99

Source: Processed Data (2022)

Table 26. Malaysian Statistical Data Wave 1b

Malaysia					
Gelombang 1: 25 Januari 2020 – 1 September 2020					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-1.25%	0.98%	-0.02%	0.00%	0.37%
Stock Return	-5.26%	6.85%	0.16%	0.07%	1.27%
Kasus Harian	-100.00%	2000.00%	43.39%	0.00%	209.65%
Total Kasus	0.00%	79.83%	3.95%	0.28%	9.80%
Kasus Kematian Harian	-100.00%	300.00%	-10.00%	0.00%	87.13%
Total Kasus Kematian	0.00%	133.33%	3.00%	0.00%	12.54%

Source: Processed Data (2022)

The first case of Covid-19 Malaysia began when 4 citizens were infected with Covid-19 on January 25, 2020. The first wave in this country was the lowest number of cases after Thailand, which was 9,354 total cases and 128 total deaths. The exchange rate of Malaysia's currency against the US dollar tends to increase some time after the entry of Covid-19 and the average exchange rate of Malaysia against the US dollar during the first Covid-19 wave period

is at 4.26, higher than the exchange rate at the beginning of the year 2020 which is 4.09. However, the value of the Malaysian stock price index appeared to be decreased due to the surge in the first wave of Covid-19 where the Malaysian stock price index had touched the figure of 1,220 on March 19, 2020 compared to the value in the early 2020 which was 1,602.

Table 27. Malaysian Statistical Data Wave 2a

Malaysia					
Gelombang 2: 2 September 2020 – 9 Januari 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	4.0065	4.24	4.14	4.1465	0.06
Stock Return	1461.45	1684.58	1560.92	1570.105	46.63
Kasus Harian	6	24599	5609.83	3543	5857.00
Total Kasus	9360	2786219	941193.87	432425	978437.98
Kasus Kematian Harian	0	592	63.74	19	95.51
Total Kasus Kematian	128	31678	9306.24	1632	11771.68

Source: Processed Data (2022)

Table 28. Malaysian Statistical Data Wave 2b

Malaysia					
Gelombang 2: 2 September 2020 – 9 Januari 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.89%	1.12%	0.00%	0.00%	0.23%
Stock Return	-2.22%	3.33%	0.08%	0.04%	0.77%
Kasus Harian	-78.95%	933.33%	6.21%	0.00%	53.48%
Total Kasus	0.06%	5.39%	1.16%	0.94%	0.95%
Kasus Kematian Harian	-100.00%	3800.00%	25.76%	0.00%	205.72%
Total Kasus Kematian	0.00%	5.29%	1.12%	0.92%	0.94%

Source: Processed Data (2022)

Table 29. Malaysian Statistical Data Wave 3a

Malaysia					
Gelombang 3: 10 Januari 2022 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	4.18	4.36	4.21	4.19	0.04
Stock Return	1508.91	1618.54	1575.64	1585.98	29.10
Kasus Harian	2107.00	33406.00	14971.04	12380.00	10031.55
Total Kasus	2788860.00	4448004.00	3604915.46	3622607.00	617768.58
Kasus Kematian Harian	5.00	115.00	34.86	22.00	28.72
Total Kasus Kematian	31696.00	35547.00	33503.67	33228.00	1446.34

Source: Processed Data (2022)

Table 30. Malaysian Statistical Data Wave 3b

Malaysia					
Gelombang 3: 10 Januari 2022 – 30 April 2022					
	Min	Max	Mean	Median	Standard Deviation
Exchange Return	-0.37%	0.81%	0.03%	0.00%	0.21%
Stock Return	-1.63%	1.40%	0.15%	0.11%	0.66%
Kasus Harian	-38.14%	45.65%	0.89%	0.59%	15.31%
Total Kasus	0.05%	0.97%	0.42%	0.35%	0.29%
Kasus Kematian Harian	-79.41%	1100.00%	14.13%	-1.54%	111.41%
Total Kasus Kematian	0.01%	0.35%	0.10%	0.07%	0.09%

Source: Processed Data (2022)

The second and third waves in Malaysia experienced a high spike similar to other ASEAN countries. In the second wave of Covid-19, the total cases touched the numbers 2,786,219 with a total case of death 50,916 and in the third wave the total case touched 4,448,004 with a total death of 35,547. The exchange rate of the Malaysian currency against the US dollar was at an average value of 4.14 in the second wave and 4.21 in the third wave. While the stock price index is at 1,561 in the first wave and 1,576 in the third wave. Both values tend to increase.

From the development of the Covid-19 case, the exchange rate, and the stock price index of each

country can be concluded that although overall experience a surge in cases that increased from the first wave to the third wave, it appears that the exchange rate of the currency and the stock price index in each ASEAN countries only experienced a significant decline at the beginning of the entry of Covid-19 in each country, namely in the first Covid-19 wave period. The significance of changes that occur in each country will be seen in regression analysis.

### Hypothesis Test

Table 31. Summary of the Results of the Regression Panel Data Per Country

	filipina		Indonesia		Malaysia		Singapore		Thailand	
	coeff	t-test	coeff	t-test	coeff	t-test	coeff	t-test	coef	t-test
covid 19	0.0020144	1.22	-0.0039456	-1.76*	-0.0006023	-1.94*	0.0004329	0.89	-0.0007188	-1.64
exchange rate	-0.7304074	-1.71*	-1.10313	-7.62***	-0.9963691	-5.29***	-1.264696	-4.90***	0.7541218	-3.34**
N	395		396		409		432		390	
F-stat	1.94		33.38		14.22		12.55		5.89	
Prob F	0.1457		0		0		0		0.003	
Adj R squared	0.0285		0.2058		0.0924		0.1161		0.057	

Source: Data Olahan (2022)

The data presented in Table is the result of a summary of panel data regression per country in ASEAN. The probability of F presented in Table 4.6 shows that the Philippine state has a probability value of  $F < 0.05$  so that all data other than the Philippine state can be relied upon. The results of ADJ R Squared show that the independent variable is proven to explain the situation of the dependent variable 20.58% in Indonesia, 9.24% in Malaysia, 11.61% in Singapore, and 5.7% in Thailand.

The results of T-test in each country state that in Singapore, and Thailand, the increase in COVID-19 cases has no significant influence on changes in the percentage of stock returns. Whereas in Indonesia found a negative effect with a high significance with the correlation coefficient -0,0039456 which means that every increase in Covid -19 cases of 1% will decrease the percentage of stock prices of 0.0039456%. In Malaysia also found a significant negative effect with the correlation coefficient -0,000623 which means that every time there is an increase in Covid -19 cases by 1% there will be a decrease in the percentage of stock prices of 0,000623%. With this it can be concluded that H1 which states that there are differences in investor reactions to COVID-19 in each ASEAN country are accepted.

Differences in investor responses that occur in several countries can be caused by differences in government policies that are applied during the COVID-19 period, for example Lockdown policies or social restriction policies that affect the level of productivity of each country. This can also be influenced by political and social issues in each country, or also COVID-19 information whose delivery or distribution is different in each country.

## CONCLUSION

From the research that has been conducted from the analysis and data test, it can be concluded that in this study it was found that there were differences in investor reactions in each ASEAN country to the development of Pandemi Covid-19. In this study Indonesia and Malaysia appear to be different from other countries, in the Indonesian and Malaysian capital markets it was found that the development of Covid-19 significantly affects the movement of the stock price index of each country which means that in these two countries the development of Covid-19 is still a factor that is considered In investor decision making. But in Singapore and Thailand, this study proves that the development of Covid-19 has no significant influence on investor reactions. This indicates that in these countries Covid-19 is no longer a concern for investors in making decisions, and investors are more focused on other factors. The differences that occur can be caused by differences in situations between countries such as economic conditions, government policies, availability of information, news circulating or the speed of recovery of each country from the crisis.

Based on the assessment of the process along with the results of writing this paper, there are several things that can be a suggestion and development of writing for further researchers. Subsequent researchers who are interested in exploring this topic can apply research by adding other independent variables that might affect the dependent variable. So that it can deepen the factors that influence changes in the dependent variable. Further research can also examine with different population and research data samples such as for example by replacing the geographical area or the time period to be examined. In addition, it can also be developed by expanding or narrowing the scope of research by expanding the coverage of the population and research samples. The expansion of the scope can help the reader to see the situation more broadly, while narrowing the scope can make the results of research more specific to certain things, for example research conducted on certain industries specifically.

## REFERENCES

- Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M. C., & Viratyosin, T. (2020). The Unprecedented Stock Market Impact of COVID-19. *Review of Corporate Finance Studies*, 9(April), 622–655.
- Bissoondoyal-Bheenick, E., Do, H., Hu, X., & Zhong, A. (2021). Learning from SARS: Return and volatility connectedness in COVID-19. *Finance Research Letters*, 41(October 2020), 101796. <https://doi.org/10.1016/j.frl.2020.101796>
- bloomberg. (2020). US stock plunge 12% in biggest route since 1987: Market Wrap. [bloomberg.com](https://www.bloomberg.com/news/articles/2020-03-15/yen-gains-on-virus-worries-kiwi-slides-on-rates-markets-wrap). <https://www.bloomberg.com/news/articles/2020-03-15/yen-gains-on-virus-worries-kiwi-slides-on-rates-markets-wrap>
- Bradley, C., & Stumpner, P. (2021). March 2021 The impact of COVID-19 on capital markets, one year in. March.
- Butler, C. (2019). A world at risk: Annual report on global preparedness for health emergencies Global Preparedness Monitoring Board. World Health Organisation, 151(1), 44. [https://apps.who.int/gpmb/assets/annual\\_report/GPMB\\_annualreport\\_2019.pdf](https://apps.who.int/gpmb/assets/annual_report/GPMB_annualreport_2019.pdf)
- Chaudhary, R., Bakhshi, P., & Gupta, H. (2020). Volatility in International Stock Markets: An Empirical Study during COVID-19. *Journal of Risk and Financial Management*, 13(9), 208. <https://doi.org/10.3390/jrfm13090208>
- Fund, I. M. (2022). World Economic Outlook 2022 (Nomor April).
- Goodell, J. W. (2020). COVID-19 and finance: Agendas for future research. *Finance Research Letters*, 35(April). <https://doi.org/10.1016/j.frl.2020.101512>
- Kementrian Keuangan. (2019). Protokol Penanganan Bencana COVID-19 Kementrian Keuangan. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699.
- Niermann, L., & Pitterle, I. A. (2021). The COVID-19 crisis: what explains cross-country differences in the pandemic's short-term economic impact? *United Nations DESA Working Paper*, 174(174). <https://ideas.repec.org/p/pramprapa/107414.html>
- Pak, A., Adegboye, O. A., Adekunle, A. I., Rahman, K. M., McBryde, E. S., & Eisen, D. P. (2020). Economic Consequences of the COVID-19 Outbreak: the Need for Epidemic Preparedness. *Frontiers in Public Health*, 8(May), 1–4. <https://doi.org/10.3389/fpubh.2020.00241>
- sangadah, khotimatus, & Kartawidjaja, J. (2020). No 主観的健康感を中心とした在宅高齢者