

Stock Market Reaction to Government Stimulus Packages: Evidence from Indonesia, Malaysia, Philippines, Singapore, and Thailand

Firstyan Nathan Sakke¹, Buddi Wibowo²
{firstyannathan.sakke@gmail.com¹}

Universitas Indonesia, Indonesia^{1,2}

Abstract. COVID-19 is an unprecedented event and had a negative effect on the stock market around the world. In order to lessen the effect, the government took action with economic stimulus packages. This study examines how the stock market responded to every stimulus package offered by the Government in Indonesia, Malaysia, Philippines, Singapore, and Thailand. The method used in this study is event study, we used 7-day cumulative abnormal return to measure the market's response to the stimulus packages. Interestingly, The result shows that the market in Indonesia, Malaysia, Philippines, and Singapore in general reacted negatively while Thailand's market reacted positively to the stimulus packages.

Keywords: COVID-19, Coronavirus, Stock Market, Government Stimulus Package, Event Study

1 Introduction

COVID-19 is a disease that was firstly discovered in China at the end of 2019. This disease caused by a new virus called corona. On March 11, 2020, WHO [1] as the organization who responsible for international public health declared COVID-19 as a pandemic. Due to COVID-19 being a highly contagious and quite dangerous disease, especially for people who already had comorbid conditions, governments in every country took anticipatory measures by implementing lockdown policies, strict quarantines, or social distancing, including ASEAN countries such as Indonesia, Malaysia, Philippines, Singapore, and Thailand.

This lockdown policy has had a negative impact on the world economy due to reduced economic activities and a decrease in the demand for and production of goods and services. In addition, another negative impact of COVID-19 is the sluggishness of financial markets in many countries. Seeing the negative impact of COVID-19 on the overall economy and stock market, governments in each country acted quickly by creating economic stimulus packages to restore economic conditions in their respective countries.

This study wants to see the reaction of stock market returns to the economic stimulus packages issued by the government in Indonesia, Malaysia, the Philippines, Singapore, and Thailand. In addition, this study also wants to see whether the stock markets in Indonesia, Malaysia, the Philippines, Singapore, and Thailand were efficient in responding to the announcement of stimulus packages issued by the governments of their respective countries.

Based on the research purpose, the most suitable method is event study because it analyzes how stock prices react to new information, in this case, an economic stimulus package announcement. If the stock market is efficient, the economic stimulus package should give a positive reaction to stock market returns within 1 day at the longest. Meanwhile, if the stock market is not efficient then investors will under-react this new information and the reaction will be felt after more than 1 day.

Based on previous studies, it is known that not all stock markets are efficient, because there is an under-reaction to the announcement of the economic stimulus package. We are interested in seeing whether the stock markets in ASEAN countries are efficient during the COVID-19 period by looking at how stock returns react to the stimulus package issued by the government in ASEAN. In addition, there has been no research that specifically looks at the reaction of stock market returns in developing countries in ASEAN to each stimulus package policy issued by the government.

2 Literature Review

The Efficient market hypothesis says that a stock price reflects all the information that underlies the value of the stock. Three conditions underlie an efficient stock market: rationality, independent deviations from rationality, and arbitrage [2]. Based on Reilly and Brown [3], the level of market efficiency generally can be divided into three. First, the weak form, which is a condition in where the stock prices reflect only historical information in the market. Second, semi-strong form, a condition in which stock prices always change rapidly according to the information released to the public, which means public information cannot be used to obtain abnormal returns. Third, strong form, a condition in which stock prices reflect all information, both public information and private information. Meanwhile, there are three ways to test whether a market is efficient or not: return predictability, event study, and tests for private information [4][5]. Return Predictability is a test to predict stock returns through their historical returns and other past variables. Event study in general wants to see how quickly the price of a stock can reflect all information related to the stock, including information that has just been announced to the public. Tests for Private Information is a test to see if there are any parties that had faster access to additional information related to stock.

There have been many studies regarding the impact of COVID-19 on the stock market and the results on average show that COVID-19 had a negative impact on the stock market. The negative impact of COVID-19 on the stock market was caused by the negative market sentiment towards the uncertainty caused by COVID-19 [6][7][8]. The market also has a negative response to any increase in the number of COVID-19 cases in each country [9][10]. Research also states that the level of risk in financial markets around the world has increased significantly due to COVID-19 [11]. Naidu and Ranjeeni [12] found that investors across the world under-reacted to coronavirus fear.

Furthermore, there are also studies on how stock market returns react to the policies implemented by the government in tackling COVID-19. Ashraf [6] said that the government's policy on social distancing had a negative impact on stock market returns, while policies regarding public awareness and the COVID-19 stimulus package had a positive impact on stock market returns. Zhang et al. [13] said that non-conventional policies such as quantitative easing carried out by the United States created further uncertainty and could adversely affect in the long term. Meanwhile, Narayan et al. [14] said that government policies such as

lockdown, and stimulus package had a negative impact to the market while travel did the other way

It is also important to look at how quickly the market reacts to the economic stimulus package announcement events. Rahman et al. [8] who conducted research on the reaction of stock market returns to COVID-19 and the economic stimulus package in Australia found that the magnitude of the average cumulative abnormal return of stocks was higher in a longer period of cumulative abnormal return. This indicates that investors in the Australian stock market under-reacted to the stimulus package issued by the Australian government. In addition, Naidu and Ranjeeni [12] and Narayan et al. [14] also stated that investors across the world under-reacted to government stimulus package. Meanwhile, Narayan et al. [14] examined the effects of government measures on the COVID-19 crisis on stock returns in Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. They found that the accumulated effects of the stimulus package, particularly the economic effect on stock market returns in a 5-day period only occurred in Canada, England, and the United States, while the other four countries did not show such effect.

3 Method

The stimulus package announcement date used in this study is shown in Table 1. The sample consists of every stock that is listed in Indonesia, Malaysia, Philippines, Singapore, and Thailand (Shown in Table 2.). We used Thomson Reuters Datastream to obtain the sample and the criteria of the sample as below:

- a) The Stock already listed by 300 days before the first event in its country at the latest.
- b) The Stock has complete historical price per day data.

Table 1. Stimulus Package Announcement Date

Country	Stimulus Package Announcement Date
Indonesia	25 February 2020
	13 March 2020
	31 March 2020
	19 May 2020
Malaysia	27 February 2020
	27 March 2020
	6 April 2020
	5 June 2020
Philippines	30 March 2020
	11 September 2020
Singapore	18 February 2020
	26 March 2020
	6 April 2020
	26 May 2020
	17 August 2020
Thailand	4 March 2020

24 March 2020

7 April 2020

8 July 2020

This study is an event study to measure market reaction to stimulus package announcements. In event study, one of the most common proxy to measure the reaction is by using abnormal return. Abnormal return is simply the difference between actual return and expected return. To calculate expected return, we use Capital Asset Model Pricing that invented by Sharpe [15] dan Lintner [16]. Research method used is as follow:

- Calculate the actual return of each stock
- Calculate the market model of each stock by regressing with the model mentioned in equation 1. The actual return period used to obtain the market model is 299 to 50 active exchange days before the announcement of the economic stimulus package event in each country [17].

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} \quad (1)$$

Where $R_{m,t}$ is the market return on period t.

- Calculate the expected return of each stock with the model contained in equation 2.

$$E(R_i) = R_f + \beta_i (R_m - R_f) \quad (2)$$

Where R_f is risk free.

- Calculate abnormal returns with the following formula.

$$AR_{i,t} = R_{i,t} - E(R)_{i,t} \quad (3)$$

- Calculate the average or average abnormal return by adding up the abnormal return of each stock sample and dividing it by the number of stock samples used in the study.

$$AAR_t = \frac{\sum_{i=1}^k AR_{i,t}}{k} \quad (4)$$

Where k is the amount of stock.

- Calculate the cumulative average abnormal return. To reduce the confounding effects from other events, the period used to calculate the cumulative average abnormal return is limited from 7 active trading days before the event to 7 active trading days after the event [8].

$$CAAR_{(t_1,t_2)} = \sum_{t=t_1}^{t_2} AAR_t \quad (5)$$

- Perform statistical significance test on cumulative average abnormal return and average abnormal return with t-test. The null hypothesis used is that the announcement of the economic stimulus package has no effect on abnormal stock returns [18][8].

t-test for average abnormal return is as follows:

$$t = \frac{AAR_t}{\frac{1}{\sqrt{N}} \sqrt{\frac{1}{N-1} \sum_{i=1}^N (AR_{i,t} - AAR_t)^2}} \quad (6)$$

While t-test for cumulative average abnormal return is as follows:

$$t = \sqrt{N} \frac{CAAR_{(t_1,t_2)}}{s(CAAR_{(t_1,t_2)})} \quad (7)$$

Where N is the number of sample.

4 Result and Discussion

To make it easier to read, we divide the result and discussion into each country.

4.1 Indonesia

In the first package announcement, the average cumulative average abnormal return showed a negative number before the announcement of the stimulus package and there are 3 significant negative cumulative average abnormal returns. After the announcement of the first package, the cumulative average abnormal return showed a positive number with 2 significant positive cumulative average abnormal returns. Cumulative average abnormal return showed an upward trend start from t-2 to t+3. This trend shows that the first economic stimulus package had a positive impact on the stock market in Indonesia. In addition, the stock market was inefficient since cumulative abnormal return still increase considerably until t+3.

In the second announcement, all cumulative average abnormal returns were significant and generally showed a downward trend and negative numbers. This indicates that the stock market in Indonesia responded negatively to the announcement of the second stimulus package.

In the third package, the cumulative average abnormal returns showed positive numbers before the announcement and there are 3 significant cumulative average abnormal returns. The cumulative average abnormal returns then plunged and turned to negative after the third stimulus package was announced. The most significant decrease occurred on t0 to t+4. This shows that Indonesian stock market had a negative reaction to the third stimulus package and the market was inefficient.

In the last stimulus package, all cumulative average abnormal returns show negative numbers, but there is only 1 significant cumulative average abnormal return. This shows that the fourth stimulus package was not responded significantly by the stock market in Indonesia.

Table 2. Cumulative Average Abnormal Returns Indonesia

Days-t	25 Feb 2020		13 Mar 2020		31 Mar 2020		19 Mei 2020	
	CAAR	t-test	CAAR	t-test	CAAR	t-test	CAAR	t-test
-7	-0.207%	-1.08	1.021%	4.96*	0.625%	3.10*	-0.262%	-1.46
-6	-0.204%	-0.84	0.914%	3.67*	1.223%	3.71*	-0.590%	-2.15*
-5	-0.821%	-2.54*	-1.098%	-3.38*	1.215%	2.73*	-0.341%	-1.05
-4	-0.911%	-2.51*	-4.812%	-11.25*	0.242%	0.41	-0.429%	-1.13
-3	-0.932%	-2.39*	-4.135%	-9.58*	0.807%	1.20	-0.389%	-0.91
-2	-0.493%	-1.12	-3.827%	-7.87*	0.370%	0.52	-0.086%	-0.19
-1	0.080%	0.16	-5.111%	-8.57*	0.777%	1.11	-0.252%	-0.48
0	0.341%	0.60	-4.560%	-7.08*	0.400%	0.52	-0.689%	-1.29
1	0.533%	0.87	-5.721%	-7.99*	0.185%	0.23	-0.783%	-1.35
2	1.101%	1.67	-6.293%	-7.79*	-0.446%	-0.54	-0.685%	-1.12
3	2.146%	3.09*	-5.910%	-6.92*	-1.396%	-1.61	-0.931%	-1.46
4	1.734%	2.62*	-8.074%	-8.89*	-2.333%	-2.66*	-0.603%	-0.90
5	1.032%	1.51	-9.153%	-9.97*	-2.720%	-3.10*	-0.190%	-0.28
6	0.904%	1.31	-12.902%	-12.17*	-2.613%	-2.95*	-0.376%	-0.53
7	0.463%	0.65	-13.884%	-12.54*	-2.621%	-2.84*	-0.948%	-1.28

* denote statistical significance at 5% level

4.2 Malaysia

Table 3. Cumulative Average Abnormal Returns Malaysia

Days-t	27 Feb 2020		27 Mar 2020		6 Apr 2020		5 Jun 2020	
	CAAR	t-test	CAAR	t-test	CAAR	t-test	CAAR	t-test
-7	0.497%	2.99*	2.983%	10.49*	-0.763%	-3.60*	-0.095%	-0.45
-6	0.060%	0.30	7.182%	16.60*	-1.930%	-6.52*	0.709%	2.74*
-5	-0.180%	-0.83	3.888%	8.35*	-2.004%	-5.64*	0.142%	0.40
-4	-0.343%	-1.30	5.637%	11.25*	-4.130%	-9.76*	0.084%	0.19
-3	0.097%	0.32	3.220%	6.40*	-5.177%	-12.25*	-0.115%	-0.25
-2	0.196%	0.64	3.292%	6.05*	-7.397%	-14.47*	0.938%	2.23*
-1	-0.003%	-0.01	2.529%	4.72*	-7.467%	-14.46*	0.717%	1.37
0	0.996%	2.84*	1.363%	2.53*	-10.248%	-18.36*	0.196%	0.39
1	3.009%	8.29*	1.288%	2.23*	-13.604%	-21.29*	-0.147%	-0.26
2	2.813%	6.15*	-0.838%	-1.37	-13.107%	-20.42*	-1.695%	-2.90*
3	3.062%	6.83*	-1.885%	-3.09*	-14.446%	-21.36*	-0.515%	-0.90
4	3.660%	8.55*	-4.104%	-6.11*	-13.466%	-20.70*	-0.389%	-0.63
5	3.133%	6.98*	-4.175%	-6.04*	-13.151%	-19.86*	0.830%	1.37
6	3.679%	7.60*	-6.956%	-9.51*	-14.677%	-20.66*	-1.757%	-2.79*
7	7.829%	12.06*	-10.311%	-13.02*	-14.347%	-20.18*	-2.233%	-3.40*

* denote statistical significance at 5% level

In the first package announcement, the cumulative average abnormal returns was still close to 0% from t-7 to t-1. Cumulative average abnormal return had a considerable increase at t0 and t+1 and went back to normal again thereafter. In addition, the cumulative average abnormal returns in the period t0 to t+7 were all significant. This shows that the Malaysian stock market reacted positively to the first stimulus package and the reaction occurred not only at t0 which indicates that the market was inefficient.

In the second package announcement, all cumulative average abnormal returns were statistically significant. Initially the cumulative average abnormal return was positive but fluctuated by a large magnitude from t-7 to t-3. Afterwards, the cumulative average abnormal returns did not change significantly until t0 where the cumulative average abnormal returns started to plummet and moved with a downward trend until t+7. Based on this trend, it can be concluded that the announcement of the second economic stimulus package had a negative impact on Malaysian stock market.

In the announcement of third stimulus package, the cumulative average abnormal returns was always negative. A significant decrease in cumulative average abnormal return occurred from t-4 until t+1. In general, the third economic stimulus package was also responded negatively by Malaysian stock market.

Fourth announcement also showed negative cumulative average abnormal returns. Exceptions occurred on t-6, t-2, and t5 where cumulative average abnormal returns had a big leap. The rest, more or less, showed negative cumulative average abnormal returns. The biggest decrease in cumulative average abnormal return occurred on t+2 and t+6. Based on this, it can be said that fourth stimulus package had been responded negatively by the stock market in Malaysia.

4.3 Philippines

Table 4. Cumulative Average Abnormal Returns Philippines

Days-t	30 Mar 2020		11 Sep 2020	
	CAAR	t-test	CAAR	t-test
-7	3.535%	6.66*	-0.020%	-0.15
-6	3.257%	6.05*	-0.131%	-0.72
-5	3.745%	5.91*	-0.317%	-1.22
-4	3.020%	4.80*	-0.322%	-1.11
-3	1.825%	2.76*	-0.351%	-1.12
-2	0.840%	1.11	-0.612%	-1.88
-1	-0.032%	-0.04	-1.094%	-3.01*
0	0.341%	0.44	-0.904%	-2.27*
1	-0.097%	-0.12	-1.070%	-2.47*
2	0.496%	0.63	-1.021%	-2.16*
3	0.935%	1.17	-1.670%	-3.47*
4	0.570%	0.71	-1.514%	-3.05*
5	1.262%	1.48	-1.659%	-3.23*
6	0.825%	0.98	-1.373%	-2.37*
7	-0.022%	-0.03	-1.225%	-2.21*

* denote statistical significance at 5% level

In the first package announcement, the cumulative average abnormal returns at t-7 to t-3 was significant, staying at the 5% level and the rest was not significant. At t-7 cumulative average abnormal returns started at 3.535% and did not change significantly until t-5. At t-4 to t-1, cumulative average abnormal returns decreased in quite a large amount. After that, the cumulative average abnormal returns in general was on an uptrend until t+5 and then it decreased again on t+6 and t+7. This shows that the reaction from the Philippine stock market occurred before the announcement of the stimulus package, which means that there was a possibility of leakage.

In the announcement of second stimulus package, all cumulative average abnormal returns showed negative numbers with significant cumulative average abnormal returns at t-1 to t+7. The most immense decrease occurred on t-1 and t+3. This indicates that the announcement of the second stimulus package had a negative effect on the stock market in the Philippines and the market was inefficient in reacting to the announcement of second stimulus package.

4.4 Singapore

In the first stimulus package, the cumulative average abnormal returns on t-2 until t+7 showed significant numbers. Cumulative average abnormal returns did not demonstrate any considerable change until t-3. Cumulative average abnormal returns then had a downward trend and turned to negative on t-2. On t+4, cumulative average abnormal returns increased substantially but was still in a negative number. Following this pattern, it can be said that the announcement of the first stimulus package had a negative impact on the stock market in Singapore.

In the second stimulus package, it was generally seen that the cumulative average abnormal returns experienced quite a fluctuating movement but in general it was always in a positive number. The highest cumulative average abnormal return occurred at t0 with a magnitude of 2.966% and then the cumulative average abnormal return experienced a downward trend. This indicates that there was leakage of information regarding the economic stimulus package, yet after it was announced, the stimulus package possibly was not in line with or below market expectations.

Table 5. Cumulative Average Abnormal Returns Singapore (1)

Days-t	18 Feb 2020		26 Mar 2020		6 Apr 2020	
	CAAR	t-test	CAAR	t-test	CAAR	t-test
-7	0.145%	0.64	0.066%	0.17	0.450%	1.54
-6	0.174%	0.63	0.998%	2.08*	0.165%	0.45
-5	0.208%	0.72	2.213%	3.31*	-1.781%	-3.30*
-4	0.138%	0.44	1.418%	1.99*	-1.724%	-2.84*
-3	-0.018%	-0.05	0.553%	0.69	-1.846%	-2.86*
-2	-1.149%	-2.05*	1.823%	2.26*	-2.745%	-3.70*
-1	-1.278%	-2.14*	2.516%	3.32*	-2.722%	-3.74*
0	-1.263%	-2.05*	2.966%	3.64*	-2.146%	-2.63*
1	-2.146%	-3.36*	2.681%	3.28*	-3.148%	-3.81*
2	-2.588%	-3.91*	0.735%	0.80	-4.035%	-4.50*
3	-2.576%	-3.94*	0.792%	0.85	-5.057%	-5.56*
4	-1.467%	-2.31*	0.670%	0.70	-5.425%	-5.99*
5	-1.902%	-3.08*	-0.229%	-0.23	-5.817%	-6.66*
6	-2.057%	-3.03*	-0.206%	-0.20	-5.847%	-6.89*
7	-1.812%	-2.62*	0.370%	0.33	-6.384%	-6.59*

* denote statistical significance at 5% level

In the announcement of the third stimulus package, the cumulative average abnormal returns on t-5 until t+7 were all significant. In general, the cumulative average abnormal returns continued to decrease from t-7 to t+7. This may be due to the increase in COVID-19 cases in Singapore during April 2020. Overall, the third stimulus package was responded negatively by the Singaporean stock market.

In the fourth stimulus package announcement, all cumulative average abnormal returns were significant except for t-7 and t-4. In general, the cumulative average abnormal return showed a downward trend and a fairly large decline continued during the period t-7 to t+5. This explains that the fourth stimulus package was responded negatively by the Singaporean stock market. In addition, this negative reaction occurred not only on t0 which meant that the market was not efficient.

In last stimulus package, all cumulative average abnormal returns were significant. The trend of cumulative average abnormal returns of stocks during the announcement period of this fifth stimulus package was an upward trend and always showed a positive number. This indicates that the latest stimulus package was received positively by the stock market in Singapore.

Table 6. Cumulative Average Abnormal Returns Singapore (2)

Days-t	26 Mei 2020		17 Agt 2020	
	CAAR	t-test	CAAR	t-test
-7	-0.053%	-0.18	0.848%	3.70*
-6	-1.181%	-2.64*	1.528%	4.63*
-5	-1.788%	-3.22*	1.230%	3.41*
-4	-1.000%	-1.82	1.954%	3.74*
-3	-2.096%	-3.71*	1.886%	3.52*
-2	-2.932%	-4.42*	3.145%	4.82*
-1	-2.868%	-4.36*	3.085%	4.63*
0	-3.753%	-4.89*	2.197%	3.40*
1	-4.327%	-5.51*	2.926%	4.12*
2	-4.089%	-4.93*	2.797%	3.83*
3	-5.364%	-5.92*	2.411%	3.23*
4	-5.710%	-6.26*	3.289%	3.99*
5	-6.241%	-6.39*	4.512%	4.50*
6	-5.652%	-5.20*	4.923%	4.69*
7	-5.246%	-4.98*	5.432%	4.82*

* denote statistical significance at 5% level

4.5 Thailand

In first stimulus package announcement, all cumulative average abnormal returns were significant at around the 5% level. In the beginning cumulative average abnormal returns had an upward trend and then started to decrease on t0 until t+5. Afterwards, the cumulative average abnormal returns increased considerably on t+6 and t+7. This shows that there was an under-reaction from the stock market. Broadly speaking, the first stimulus package had a positive effect on the stock market in Thailand.

In second stimulus package, all cumulative average abnormal returns were also significant. The cumulative average abnormal returns also showed a positive number. The most significant increase occurred on t0 and t+1. Based on the result, it can be said that the second stimulus package had a positive effect on the stock market in Thailand. The stock market reaction also occurred before and after t0 which indicates an inefficient market.

Similar to the first and second stimulus package, all cumulative average abnormal returns in the third package were also significant. The cumulative average abnormal returns displayed negative numbers. The largest decrease started to occur on t+1 until t+5. This shows that the announcement of the third economic stimulus package had a negative effect and the reaction from the Thai stock market was inefficient.

In the last economic stimulus package, the cumulative average abnormal returns generally showed a positive number. The trend of cumulative average abnormal return increased on t-5 until t+1, it then started to decline on t+4 until it finally rise again on t+7. The most significant increase occurred on t-5 until t-3. This indicates that the last package was reacted positively by the Thai market but the market was not efficient.

Table 7. Cumulative Average Abnormal Return Thailand

Days-t	4 Mar 2020		24 Mar 2020		7 Apr 2020		8 Jul 2020	
	CAAR	t-test	CAAR	t-test	CAAR	t-test	CAAR	t-test
-7	0.596%	5.34*	2.417%	9.32*	-0.346%	-2.34*	0.168%	1.27
-6	1.384%	6.58*	2.325%	7.11*	-0.721%	-3.44*	-0.211%	-1.37
-5	2.845%	10.88*	2.862%	7.71*	-0.975%	-3.82*	0.474%	2.89*
-4	2.814%	10.34*	3.345%	8.97*	-0.708%	-2.21*	0.897%	4.84*
-3	2.834%	7.72*	3.790%	8.69*	-1.768%	-5.39*	1.965%	9.57*
-2	4.023%	10.77*	4.611%	10.37*	-0.831%	-2.32*	2.216%	10.55*
-1	4.162%	11.35*	4.535%	9.26*	-1.485%	-3.96*	2.415%	10.25*
0	3.817%	10.25*	5.568%	10.41*	-0.787%	-1.81*	2.579%	9.69*
1	3.429%	9.18*	6.875%	11.59*	-2.326%	-5.38*	2.862%	10.25*
2	2.826%	7.18*	6.529%	11.97*	-4.005%	-8.16*	2.347%	8.36*
3	2.416%	5.03*	6.154%	11.79*	-4.957%	-9.47*	1.343%	4.70*
4	2.575%	5.43*	5.900%	11.07*	-6.202%	-11.23*	0.804%	2.63*
5	2.431%	4.97*	6.167%	11.41*	-6.479%	-11.41*	1.736%	5.44*
6	3.635%	6.01*	5.107%	8.66*	-7.020%	-11.72*	1.930%	5.79*
7	6.052%	9.01*	6.044%	9.96*	-7.108%	-12.11*	2.521%	7.34*

* denote statistical significance at 5% level

5 Conclusion

This paper aim is to examine the effect of the government economic stimulus package on stock returns in Indonesia, Malaysia, Philippines, Singapore and Thailand. To sum up, markets in Indonesia, Malaysia, the Philippines, Singapore and Thailand all reacted to the announcement of the economic stimulus package issued by the respective governments. On average, stock market Indonesia, Malaysia, Philippines, Singapore showed negative responses to the announcements of stimulus package. On the other hand, Thai market reacted positively to the stimulus packages. This result is consistent with previous studies which stated that in general the stock market reacted negatively to the government's economic stimulus package.

Overall, our research argues that government economic stimulus package alone is still not enough to boost investors' sentiment in a crisis event like COVID-19. Government and other regulatory authorities should arrange more targeted and detailed policies to elevate investors' sentiment. This study contributes to the event study literature on extreme events and can be used as a literature to make a trading strategy on an extreme event. Based on the results, we suggest that investor could gain a profit by performing short selling strategy. However, the confounding effect from other events is a limitation that should be highlighted in this research. Lastly, we hope future research could examine whether stock with different characteristic shows a different reaction to government measures.

References

- [1] WHO, "Novel Coronavirus - Thailand (ex-China)," 2020. <https://www.who.int/csr/don/14->

- january-2020-novel-coronavirus-thailand-ex-china/en/.
- [2] S. A. Ross, R. W. Westerfield, J. Jaffe, and B. D. Jordan, *Corporate Finance Edisi 11*. New York: McGraw-Hill Education, 2016.
 - [3] F. K. Reilly and K. C. Brown, "Analysis of Investments & Management of portfolios 10th Edition." Mason: South-Western, Cengage Learning, 2012.
 - [4] E. F. Fama, *Efficient Capital Markets: a Review of Theory and Empirical Work: Journal of Finance*, 25, May, Pp. 383-417. R. Lowbridge (Module Leader), 1970.
 - [5] E. F. Fama, "Efficient capital markets: II. *Journal of Finance* 46 (5) 1575–1617," DOI <https://doi.org/10.1111/j>, pp. 1540–6261, 1991.
 - [6] B. N. Ashraf, "Stock markets' reaction to COVID-19: Cases or fatalities?," *Res. Int. Bus. Financ.*, vol. 54, p. 101249, 2020.
 - [7] B. N. Ashraf, "Stock markets' reaction to COVID-19: Moderating role of national culture," *Financ. Res. Lett.*, vol. 41, p. 101857, 2021.
 - [8] M. L. Rahman, A. Amin, and M. A. Al Mamun, "The COVID-19 outbreak and stock market reactions: Evidence from Australia," *Financ. Res. Lett.*, vol. 38, p. 101832, 2021.
 - [9] L. Xu, "Stock Return and the COVID-19 pandemic: Evidence from Canada and the US," *Financ. Res. Lett.*, vol. 38, p. 101872, 2021.
 - [10] Z. Ftiti, H. Ben Ameer, and W. Louhichi, "Does non-fundamental news related to COVID-19 matter for stock returns? Evidence from Shanghai stock market," *Econ. Model.*, vol. 99, p. 105484, 2021.
 - [11] A. A. Salisu, A. A. Sikiru, and X. V. Vo, "Pandemics and the emerging stock markets," *Borsa Istanbul Rev.*, vol. 20, pp. S40–S48, 2020.
 - [12] D. Naidu and K. Ranjeeni, "Effect of coronavirus fear on the performance of Australian stock returns: Evidence from an event study," *Pacific-Basin Financ. J.*, vol. 66, p. 101520, 2021.
 - [13] D. Zhang, M. Hu, and Q. Ji, "Financial markets under the global pandemic of COVID-19," *Financ. Res. Lett.*, vol. 36, p. 101528, 2020.
 - [14] P. K. Narayan, D. H. B. Phan, and G. Liu, "COVID-19 lockdowns, stimulus packages, travel bans, and stock returns," *Financ. Res. Lett.*, vol. 38, p. 101732, 2021.
 - [15] W. F. Sharpe, "Capital asset prices: A theory of market equilibrium under conditions of risk," *J. Finance*, vol. 19, no. 3, pp. 425–442, 1964.
 - [16] J. Lintner, "The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets," in *Stochastic optimization models in finance*, Elsevier, 1975, pp. 131–155.
 - [17] P. Krüger, "Corporate goodness and shareholder wealth," *J. financ. econ.*, vol. 115, no. 2, pp. 304–329, 2015.
 - [18] S. J. Brown and J. B. Warner, "Using daily stock returns: The case of event studies," *J. financ. econ.*, vol. 14, no. 1, pp. 3–31, 1985.