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STOCK MARKET REACTION TO WHO'S COVID-19 ANNOUNCEMENT IN ASEAN-5 REGION

Felice Meryn[1], Elsa Imelda[1*]

[1]Faculty of Economics & Business, Universitas Tarumanagara, West Jakarta - 11470, Indonesia
[*]*Email: elsai@fe.untar.ac.id*

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ABSTRACT

The aims of this research is to analyze the stock market reaction in the ASEAN-5 region (Indonesia, Malaysia, Singapore, Philippines, and Thailand) to the announcement of the global COVID-19 pandemic by the World Health Organization (WHO). The method used is an event study with abnormal return as the independent variable. The sample in this study is the main stock index of ASEAN-5 countries. Empirical results showed that there was a significant and insignificant abnormal return on certain days around the announcement of the COVID-19 pandemic by WHO in ASEAN-5. Subsequent findings showed that there was no difference in abnormal returns before and after the global announcement of COVID-19 by WHO.

Keywords: *COVID-19, Event Study, Stock Market, Abnormal Return*

1. INTRODUCTION

The form of ownership of a company in the form of securities that provide dividends to investors is also known as shares. Stocks is one type of financial instrument that is in great demand by young people and investors. Investors will invest in shares in a company if the companies have a good performance. When the company's performance is good, investors' doubts to invest will be smaller, causing a good influence on stock prices.

Stock prices can be formed due to buying and selling activities in the stock market. Trading activities in the stock market can be influenced by several non-economic aspects, such as disease outbreaks, human rights, political events in a country, and so on. Liu et al. [1] argue that several infectious disease events and outbreaks can have a negative impact on investor sentiment. If this happens, it can have a negative effect on stock prices.

The outbreak of an infectious disease that occurred at the end of 2019 until now is the coronavirus known as COVID-19. COVID-19 was discovered in China at the end of December 2019 and spread throughout the country in a short time [2]. COVID-19 has spread not only to several countries but to almost all countries including countries in the ASEAN-5 region. The rapid development of confirmed cases and deaths due to COVID-19 has made the World Health Organization (WHO) announce COVID-19 as a global pandemic on March 11, 2020 [3]. The existence of these events caused chaos around the world and affected many sectors including the stock market.

COVID-19 certainly causes stock prices to weaken because panic and anxiety arise as a reaction to negative sentiment from investors. Investors will choose to buy primary needs when there is a large negative event as a form of reaction that arises to survive and will reduce investment activity. In addition, efforts from the government such as travel bans, lockdowns, and so on have caused people to panic and worry [4]. This will cause buying and

selling activities in the stock market to be reduced which has a direct effect on stock prices, causing stock prices to plummet.

Therefore, this study was conducted to see the significance of abnormal returns around the day of the COVID-19 pandemic announcement by WHO and to find out whether there are differences in abnormal returns before and after the COVID-19 pandemic announcement by WHO in ASEAN-5 countries.

Our Contribution

The purpose of this research is to determine the significance of abnormal returns as well and differences in abnormal returns between before and after the COVID-19 pandemic announcement by WHO in each ASEAN-5 country (Indonesia, Malaysia, Singapore, Philippines, and Thailand). This research is expected to be useful for the world of education, especially those related to accounting and the stock market, and is expected to be useful, especially for black swan theory testing. In addition, this research is expected to help investors as a material for consideration in making the right investment decisions.

2. BACKGROUND

Efficiency Market Theory is a theory put forward by Fama (1970) which is divided into three forms, the first is weak market efficiency which occurs if the price in the stock market implies past events [5]. The second form is semi-strong market efficiency if all the information contained in the issuer's financial statements has an effect on some securities. The last form of market efficiency is strong market efficiency which occurs when stock prices represent all information including private ones in a transparent manner. Basically, the market is said to be more efficient if the market can fulfill the information needed by investors. If there are events that disrupt the company's activities, it will be difficult for investors to get information.

The Black Swan Theory proposed by Taleb (2007) shows that a black swan event can occur because it meets the criteria, which are where the event occurs unexpectedly, the effect evoked has a wide-ranging influence, and then humans try to explain it from the theory that developed in ancient times [6]. The impact of a black swan event can be positive or negative. The emergence of a positive effect can provide an opportunity for the community to have a more adequate life if the community can adapt to existing changes. On the other hand, if the black swan event causes a negative effect, then there is a possibility that the negative effect will cause new problems, both nationally and globally. Not only new problems can arise, but also certain risks that cannot be predicted but must be faced, such as a crisis that has hit a country.

Definition 1. (Event Study) According to Singh et al. [7], market event study is an effective statistical approach to estimate abnormal returns after the announcement of certain events in the stock. The event study method is used to determine price differences in the stock market so that conclusions can be drawn how quickly the effect of the information on the stock market of a country or security. In a company, an event study is useful to see the facts of financial performance based on abnormal returns when there are events that can have an unexpected effect on investors [8]. In the event study method, there is an event window, event date, and estimation period.

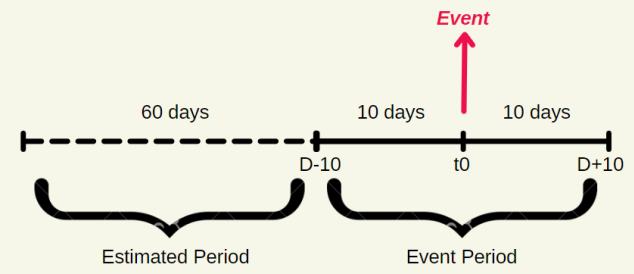

Figure 1 Event Window of COVID-19 Announcement by WHO

Definition 2. (Abnormal Return) According to Hartono [9], abnormal returns are caused by a major event (economic and non-economic) that affects a country. AlAli [10] found that the global announcement by WHO had a significant negative effect on abnormal returns in the major Asian stock markets and there were differences in abnormal returns on Asian stock markets before and after the WHO announcement. In addition, Singh et al. [7] also found that in four 58-day sub-event windows there were significant negative ARs in both developed and developing countries. In contrast to AlAli [10] and Singh et al. [7], research by Yiu and Tsang [11] stated that the incidence of new confirmed cases of COVID-19 and new cases of death due to COVID-19 in ASEAN-5 showed insignificant results. Yiu and Tsang [11] stated that the stock market in the ASEAN-5 region is more influenced by the global COVID-19 situation. The COVID-19 pandemic has not only affected several countries but all countries in the world. No one in society can predict the occurrence of the COVID-19 pandemic. As a result, people do not have time to prepare themselves so almost all sectors are affected and weakened, especially the stock market. People perceive COVID-19 as a negative event because it is an infectious disease that can cause death. COVID-19 is considered a barrier to carrying out activities and running a business because the COVID-19 pandemic has limited the activities that can be done. As a result, people are more consumptive in buying primary needs, so investment activities are reduced which causes the stock market to plummet.

Based on the Black Swan Theory, COVID-19 can be categorized as a black swan event because it fulfills the three criteria contained in the theory, namely events that appear suddenly, have a significant influence on large groups, and the existence of these events makes humans guess and associate with events that have happened. COVID-19 occurred suddenly and had a major impact on many fields in almost all countries including ASEAN-5. Investors perceive this event as an event that has a negative effect due to the large number of news showing a significant increase in the number of confirmed cases and daily new deaths due to COVID-19 around the world including the ASEAN-5 region around the days when WHO announced the pandemic, namely the 11th. March 2020. The significant increase in confirmed cases and deaths due to COVID-19 caused investors to experience panic and anxiety resulting in overreaction so that investors tend to avoid risk during the COVID-19 pandemic. As a result, stock prices will weaken so that daily abnormal returns will be significant on the days around the period of the COVID-19 announcement by WHO. Based on this framework, the first hypothesis is formulated as follows:

H_1: There was a significant daily abnormal return on the day surrounding the WHO's announcement of the COVID-19 pandemic.

In addition, the COVID-19 condition makes it difficult for investors to get information from companies because of the policies set by a country. The relatively little information received

by investors will make investors hesitate to invest in the stock market. The announcement of COVID-19 by the WHO on March 11, 2020, caused the performance of the Wall Street stock market to weaken which resulted in the weakening of the main stock indexes, especially in the ASEAN-5 region. Based on this framework, the second hypothesis is formulated as follows:

H_2: There are differences in abnormal returns before and after the COVID-19 pandemic announcement by WHO.

3. METHODOLOGY

This study uses a quantitative approach and the type of this study is descriptive research. In this study, the population used is the market index and stock prices at specified day intervals [12]. The main index used in this study to calculate market returns is the Dow Jones Global Index. According to Wikipedia [13], The Dow Jones Global Index aims to share the world's market capitalization of 95% of stocks globally covering both developed and developing countries. The selection of the Dow Jones Global Index is based on the reason that the American market has a large influence on the stock market in the world [14].

This research used event study as a research method to see the market reaction to the global announcement of COVID-19 by WHO. The period is divided into two periods, namely before the announcement of COVID-19 by WHO and after the announcement of COVID-19 by WHO. The first period runs from 25 February 2020 to 10 March 2020 and the second period runs from 12 March 2020 to 26 March 2020. The date of events in this study is March 11, 2020, which is the announcement of COVID-19 by WHO in the world.

The sample was selected based on the population described above. The sample selection technique used is the purposive sampling technique. There are several criteria set for obtaining the sample. These criteria are described as follows:
1) Countries that belong to the ASEAN-5 region
2) ASEAN-5 countries that have a stock exchange
3) Actively traded during this research period
4) Required stock data is available for research

Table 1 Sample List

Country	Stock Index	Code
Indonesia	Indonesian Stock Exchange	JKSE
Malaysia	Kuala Lumpur Stock Index	KLSE
Singapore	Strait Times Index	STI
Philippines	PSE Composite Index	PSEi
Thailand	Stock Exchange of Thailand Index	SETI

The following is a definition of the operational variables used to calculate the significance of abnormal returns.

Table 2 The Summary of Operational Variable

Variable	Size	Scale
Stock Return	$Rit = \frac{Pit - Pi(t-1)}{Pi(t-1)}$	Ratio
Market Return	$Rm_t = \frac{W1DOW_t - W1DOW_{t-1}}{W1DOW_{t-1}}$	Ratio
Expected Return	$E(R_{i.t}) = \alpha_i + \beta_i \, . Rm_t$	Ratio
Abnormal Return	$AR_{i.t} = R_{i.t} - E(R_{i.t})$	Ratio
Average Abnormal Return	$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}$	Ratio

Statistical Test Results

In Table 3, D-10 to D-1 shows the period of 10 days before the announcement of COVID-19 by WHO (26 February 2020 to 10 March 2020). Events are defined events, namely the COVID-19 announcement by WHO on March 11, 2020, while D+1 to D+10 is 10 days after the COVID-19 announcement by WHO, while the AAR after is the average abnormal return in the period 10 days after the COVID-19 announcement by the WHO. Based on the results of the Descriptive Statistics Test listed in Table 3 on the 5 main indexes of ASEAN-5 countries for 10 days before and 10 days after the COVID-19 announcement by WHO on March 11, 2020, the movement of abnormal returns based on the minimum value indicates that at D+5 after the announcement of COVID-19 by WHO had the lowest abnormal return value with an average value of (-01452430). Based on the maximum value, the highest abnormal return value is found on D+7 after the announcement of COVID-19 by WHO with an average value (05146516). The movement of abnormal returns based on the average value increased on D-1 towards the announcement of COVID-19 by WHO. However, on D+1 and D+2 after the announcement of COVID-19 by WHO, the moving average value decreased.

Table 3 Descriptive Statistics Results

Event Period	Mean
D-10	-.02070716
D-9	.01816765
D-8	-.01643369
D-7	-.02050073
D-6	.02149859
D-5	-.00220416
D-4	.01165497
D-3	-.00606983
D-2	-.02734817
D-1	-.00145968
t0	.01234546
D+1	-.01459023
D+2	-.03204489

D+3	-.01402993
D+4	-.03427147
D+5	-.01452430
D+6	-.01573360
D+7	.05146516
D+8	-.04406899
D+9	-.00773847
D+10	.03958538
AAR Before	-.00434022
AAR After	-.00859513

Shapiro-Wilk Normality Test Results

From the results of the Shapiro-Wilk normality test below, it can be seen that all data are normally distributed because the significance level is > 0.05. If all data are normally distributed, then to perform the significance test, the One-Sample t-Test will be used. The table results also show that the AAR before the event and the AAR after the event are normally distributed. Therefore, if the two AARs both before and after are normally distributed, then in testing the 2nd hypothesis to find out the difference in abnormal returns before and after the event, a difference test with a Paired Sample t-Test will be carried out.

Table 4 Shapiro-Wilk Normality Test Results

Event Period	**Sig.**
D-10	.642
D-9	.966
D-8	.189
D-7	.792
D-6	.159
D-5	.779
D-4	.144
D-3	.860
D-2	.992
D-1	.358
t0	.498
D+1	.913
D+2	.145
D+3	.814
D+4	.294
D+5	.163
D+6	.498
D+7	.885
D+8	.454
D+9	.526
D+10	.848
AAR Before	.208
AAR After	.097

One Sample t-Test Results

One Sample t-Test is a significance test conducted with the aim of seeing the significance of abnormal returns in the event period. In the Significance Test, the data to be tested is 21 days,

which is described as 10 days before the event, 1 day after the event, and 10 days after the event. If the value of Sig. > 0.05 then to is accepted which means there is no significant abnormal return on the day around the COVID-19 pandemic announcement by WHO. If the value of Sig. < 0.05 then Ho is rejected which means there is a significant abnormal return on the day around the COVID-19 pandemic announcement by WHO.

The results of the One-Sample t-Test in Table 5 show that there are some data with Sig values. < 0.05, which are D-8, D-7, D-6, D-4, D-2, D+2, D+3, D+4, D+7, D+8, and D+10 and the remainder, namely D-10, D-9, D-5, D-3, D-1, t0, D+1, D+5, D+6, D+9 Sig value. > 0.05. Based on this, it can be concluded that in the range of events not all abnormal returns show significant results.

Table 5 One Sample t-Test Results

Event Period	Sig.
D-10	.060
D-9	.148
D-8	.011
D-7	.001
D-6	.027
D-5	.684
D-4	.036
D-3	.151
D-2	.003
D-1	.720
D0	.096
D+1	.259
D+2	.033
D+3	.036
D+4	.010
D+5	.670
D+6	.418
D+7	.026
D+8	.006
D+9	.692
D+10	.035

Paired Sample t-Test Results

Based on the results of the Paired Sample t-Test in Table 5, the average abnormal return before and after the COVID-19 announcement by the WHO showed the Asymp.Sig (2-tailed) > 0.05, which is worth 0.066. When Sig. > 0.05, then Ho is accepted, which means that there is no significant difference in abnormal returns.

Table 6 One Sample t-Test Results

		Asymp.Sig (2-tailed)
Pair 1	AAR Before - AAR After	.066

4. DISCUSSION

According to Table 5 in the pre-event periods, D-10, D-9, D-5, D-3, and D-1 before the event showed no significant abnormal returns. In contrast to the results shown on D-8, D-7, D-6, D-4, and D-2 which describe that there is a significant abnormal return. These results signal that there is a reaction due to differences in market sentiment on the previous day. In the period prior to the event, the occurrence of significant abnormal returns could be influenced by information showing the COVID-19 increase and mortality rate was so high that the stock market also became volatile. In the post-event period, the first day after the announcement of COVID-19 by WHO, i.e., D+1 shows results where abnormal returns are not significant. This indicates that the market has not yet reacted to the WHO's COVID-19 announcement. The market started to react on D+2, D+3, and D+4 after the announcement of COVID-19 by WHO. This indicates that the information on the announcement of COVID-19 by WHO began to enter ASEAN-5 countries between D+2, D+3, and D+4 days. The values are shown in Table 6 at D+5, D+6, and D+9 show that there is no significant abnormal return, while at D+7, D+8, and D+10 after the announcement of COVID-19 by WHO proved significant results. This is in line with research conducted by Singh et al. [7] which has results where there is AR which shows significant or insignificant numbers in both developed and developing countries.

Based on the result of paired sample t-Test in Table 6, it can be concluded that the results were shown against the average abnormal returns in the period before and after the COVID-19 announcement by WHO in the ASEAN-5 region. This study is based on the average daily abnormal returns of the five main stock indexes of the founding countries of ASEAN, namely Indonesia (JKSE), Malaysia (KLCI), Singapore (STI), Philippines (PSEi), and Thailand (SETI). The results show the number 0.066 which means that there is no difference in abnormal returns before and after the COVID-19 announcement by WHO in the ASEAN-5 region. The absence of differences in abnormal returns before and after the COVID-19 announcement by WHO could be due to the unequal and uneven distribution of information in each country. This is in line with research conducted by Yiu and Tsang [11] which stated that the incidence of new confirmed cases and new deaths due to COVID-19 did not have a significant effect in the ASEAN-5 region. However, the conclusions of Yiu and Tsang research [11] are different from this study. Yiu and Tsang [11] argue that the ASEAN-5 stock market is more influential on global events, while the conclusion of this study shows the results that global events do not create a significant difference to the ASEAN-5 stock market. Each major stock index in each ASEAN-5 region has a different effect of events. The time difference in each country can also be the cause of the uneven distribution of information received. The results of this study indicate that the stock market in the ASEAN-5 region does not show any difference in the presence of global information. The stock market in the ASEAN-5 region did not move too far with the announcement of COVID-19 by WHO on March 11, 2020, so both before and after the event did not show any difference.

5. CLOSING

Conclusion

The purpose of this study is to see the market reaction to the announcement of COVID-19 globally by WHO on March 11, 2020, on stock market returns in five stock markets in the ASEAN-5 region. The results show that these events cause significant and insignificant

abnormal returns in several days both in the period before and after the COVID-19 announcement by WHO. Other results state that there is no difference in abnormal returns before and after the COVID-19 announcement by WHO. This is because the WHO announcement information spreads unevenly in each country. Each country has a different time and through this research, it can be seen that the availability of information globally does not create a significant difference either before or after the announcement of COVID-19 by the WHO. If you want to do similar research, it is advisable to use events that exist in each country. Examples of events in each country in connection with COVID-19 are the event of the first case of COVID-19, the event of the first death due to COVID-19, the event of a travel ban, the occurrence of lockdown determination by the government, and so on.

Limitation

There are several limitations that become obstacles and must be improved in the next research. These limitations include that the sample used in this study is only the main stock index in Southeast Asia during the event period so that the scope of this study is not broad, the results of this study only reflect the period of events, and there are time constraints so that this study only examines the significance of abnormal returns and differences in abnormal returns before and after the event even though there are other possibilities that can affect abnormal returns.

Suggestions

The results of this study can be used by investors to make decisions. Suggestions for investors are when they want to make a decision, they should conduct an analysis related to economic events and non-economic events that can affect stock prices. A negative event does not always have a negative impact on stock prices, but can be used as an opportunity if you can interpret the situation.

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REFERENCES

[1] H. Liu, A. Manzoor, C. Wang, L. Zhang and Z. Manzoor, "The COVID-19 Outbreak and Affected Countries," *International Journal of Environmental Research and Public Health,* 2020. DOI: https://doi.org/10.3390/ijerph17082800

[2] H. Takahashi and K. Yamada, "When the Japanese Stock Market Meets COVID-19: Impact of Ownership, China and US Exposure, and ESG Channels," *Research Gate,* 2020. DOI: http://dx.doi.org/10.1016/j.irfa.2021.101670

[3] Kompas.com, "Today in History: WHO Designates COVID-19 as Global Pandemic," 11 March 2021. [Online]. Available: https://www.kompas.com/tren/read/2021/03/11/104000165/hari-ini-dalam-sejarah--who-tetapkan-covid-19-sebagai-pandemi-global?page=all.

[4] The Economist, "World News, Politics, Economics, Business, Science, Tech, Arts, Culture," 2020. [Online]. Available: https://www.economist.com/?gclid=Cj0KCQjw5oi

MBhDtARIsAJi0qk3UCoC5jwllV_PynS0TD_hssPNn9gyWGOVOge4BJs4v39l6aePmKK8aApcVEALw_wcB&gclsrc=aw.ds.

[5] E. F. Fama, "Efficient Capital Market: A Review of Theory and Empirical Work," *Journal of Financial*, vol. 25, no. 2, pp. 383-417, 1970. DOI: https://doi.org/10.2307/2325486

[6] N. N. Taleb, The Black Swan: The Impact of the Highly Improbable, New York: Random House Publishing Group, 2007. DOI: http://dx.doi.org/10.1007/s11138-008-0051-7

[7] B. Singh, R. Dhall, S. Narang and S. Rawat, "The Outbreak of COVID-19 and Stock Market Responses: An Event Study and Panel Data Analysis for G-20 Countries," *Global Business Review*, pp. 1-26, 2020. DOI: https://doi.org/10.1177%2F0972150920957274

[8] L. E. Fotoh and N. S. Bongbee, "Event Study on the Reaction of Stock Returns to Acquisition News," *International Finance and Banking*, vol. 4, no. 1, 2017. DOI: http://dx.doi.org/10.5296/ifb.v4i1.10409

[9] J. Hartono, Portfolio Theory and Investment Analysis, Yogyakarta: BPFE, 2017.

[10] M. S. AlAli, "The Effect of WHO COVID-19 Announcement on Asian Stock Market Returns: An Event Study Analysis," *Journal of Economics and Business*, vol. 3, no. 3, pp. 1051-1054, 2020. DOI: http://dx.doi.org/10.31014/aior.1992.03.03.261

[11] M. S. Yiu and A. Tsang, "Impact of COVID-19 on ASEAN5 Stock Markets," *Journal of the Asia Pacific Economy*, 2021. DOI: https://doi.org/10.1080/13547860.2021.1947550

[12] S. Ma, The Efficiency of China's Stock Market, London: Ashgate Publishing, 2018, p. 302. DOI: https://doi.org/10.4324/9781351146920

[13] Wikipedia, "Dow Jones Global Indexes," 13 March 2021. [Online]. Available: https://en.wikipedia.org/wiki/Dow_Jones_Global_Indexes. [Accessed January 2022].

[14] A. Puspitasari, H. Siregar and T. Andati, "Analysis of Stock Exchange Integration of ASEAN 5," *Jurnal Ekonomi dan Kebijakan Pembangunan*, vol. 4, no. 2, pp. 187-206, 2015. DOI: https://doi.org/10.29244/jekp.4.2.2015.187-206