

Effect of Covid-19 Pandemics on Asean Stock Exchange

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This study aim is to analyze the effect of COVID-19 pandemic on ASEAN stock exchange, including stock exchanges in Indonesia (IHSG), Malaysia (KLIC), Singapore (STI), Thailand (SETI), Philippines (PSEI), and Vietnam (VNI)), and analyzing the interconnectedness among the ASEAN stock exchanges to face the global crisis due to COVID-19 pandemic. The analytical method used is a risk-return analysis and pairwise correlation analysis. The results showed that COVID-19 pandemic caused a significant increase in market risk level on ASEAN stock exchange accompanied by a decline in negative market returns, even though the magnitude of overall decline unable to correct market returns to positive values. This study also showed a tendency towards disintegration among the ASEAN stock exchanges due to COVID-19 pandemic. It was marked by weakening of market interconnectedness due to high degree of independence and difference responses of each country in dealing with pandemic.

Keywords: *COVID-19 pandemic, market return, market risk, ASEAN stock exchange, market interconnectedness, market disintegration*

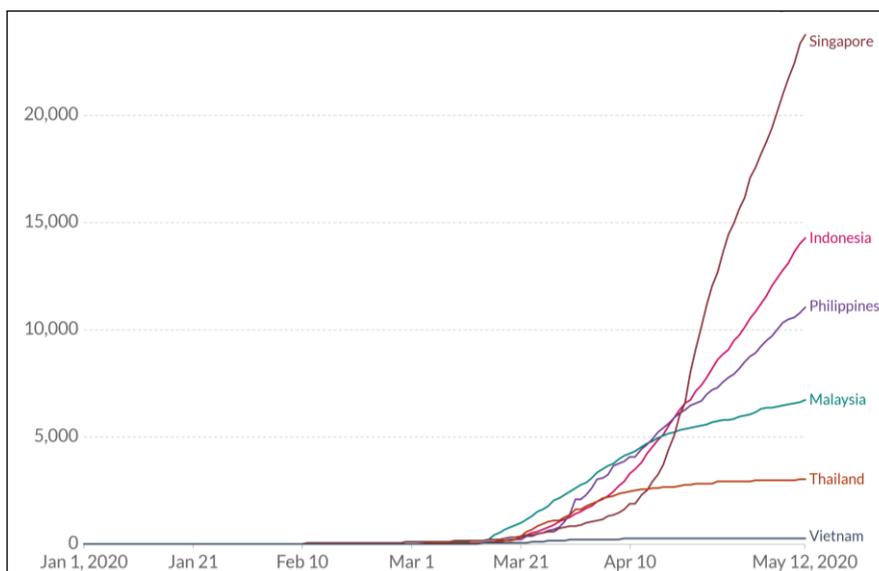
1. Introduction

World Health Organization (WHO) on 11 March 2020, officially declared a corona virus outbreak (COVID-19) as a global pandemic (WHO, 2020). The COVID-19 case itself was first identified by WHO in Wuhan, China on December 31, 2019 (WHO, 2020). About four months after the first case was identified, at May 12, 2020, 4.14 million COVID-19 cases have been found and spreading in various countries throughout the world (Our World in Data, 2020). The effect caused by epidemic has also been felt in various aspects of life, especially in economic aspects. Zhang et al. (2020) showed that economic activity has become very limited amidst this pandemic given that many countries have implemented quarantine policies or even city and border lockdowns to slow down and stop the spread of pandemic, so the risk of mass unemployment and business failure may arise as a long-term consequence. This is considered as the cause economic depression throughout the world (Barro et al., 2020) that immediately spread to financial markets (Ramelli and Wagner, 2020).

COVID-19 outbreak in ASEAN initially appeared to be under control until the end of February 2020. However, since mid-March 2020, the case in various countries in Southeast Asia began to show a drastic increase. The findings of COVID-19 cases in Singapore increase by 761.76% throughout March, from 102 cases to 879 cases. Thailand showed 42 cases in early March 2020 and increased to 1,651 cases in early April 2020. The cases in Malaysia also increased dramatically from 25 cases to 2,766. Vietnam and Philippines, which initially only recorded 16 and 3 cases in early March 2020, also recorded an increase to 212 and 2,084 cases respectively in early April 2020. Indonesia, which initially reported zero cases in early March 2020, even experienced an increase in case reporting a sharp increase of 1,528 cases in early April 2020 (Our World in Data, 2020).

Figure 1 show a graph of total COVID-19 cases reported in ASEAN during the period January - May 2020 based on data from European Center for Disease Prevention and Control (ECDC) as quoted on our World in Data site.

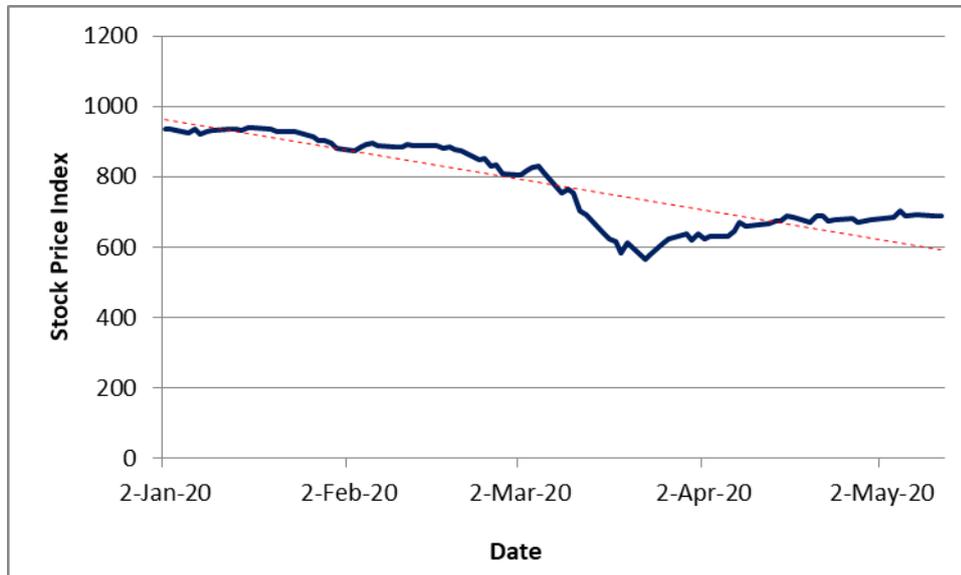
Figure 1. Total Cases of COVID-19 in ASEAN Period January - May 2020



(Source: Our World in Data, 2020)

Financial markets have become one economic aspect to shows the most active response to COVID-19 pandemic. US stock market in mid-March 2020 touched circuit breakers four times in a ten-day period due to an extraordinary decline in S&P 500 index, which is up to 7% as a market reaction to ongoing pandemic (Washington Post, 2020). In line with situation on US stock market, European and Asian stock markets also showed a significant decline. UK's main index fell by more than 10% on 12 March 2020 (BBC News, 2020). Shares in Japan have even declined 20% from their highest position in December 2019 (Bloomberg, 2020). Figure 2 shows the movement of stock prices in Southeast Asia during the period January - May 2020 represented by FTSE ASEAN All-Share Index (FTASEANAS).

Figure 2. Movement of ASEAN Stock Price Index, Period January - May 2020



(Source: Data processed from Investing, 2020)

Figure 2 showed the ASEAN stock price index decreased significantly during the January-May 2020 period, namely by 36.01% from US \$ 935.85 to US \$ 688.09 with lowest index price level of US \$ 564.35 on 23 March 2020 or the 8th stock day after the declaration of COVID-19 as a global pandemic by WHO. Given the continued trend of more COVID-19 case findings per day (Worldometer, 2020), downward trend in stock market is also expected to continue because the COVID-19 pandemic itself is a source of systematic risk that will always determine stock volatility. The effect of COVID-19 on stock market needs to be further investigated as an effort to determine what steps can be taken by investors or even regulators in dealing with pandemic.

ASEAN is a regional region with almost all of its members being developing countries. It has the potential to become one region that suffers the most from effects of COVID-19. This happens because the economic stability, ability and readiness to deal with a pandemic of developing countries tend to have greater pressure and crisis threat than developed countries. Differ with developed countries that implement various policies in form of stimulus and financial injections to weaken the increase in economic damage caused by a pandemic, developing countries tend to face various pressures and constraints that make it more difficult for them to implement effective stimulus with without binding foreign exchange constraints (UNCTAD, 2020). Therefore, developing countries have risk to get worse recession after COVID-19 than developed countries. This will eventually spread to financial markets and lead to a more significant decline in price of financial assets. Therefore, effect of COVID-19 on ASEAN stock exchange also deserves to be studied in depth. In this case, it is also necessary to examine whether the presence of pandemic can also affect integration among the stock exchanges in ASEAN environment.

2. Research Methods

This study examines the effect of COVID-19 pandemic on ASEAN stock exchanges based on movement of stock price indexes in each exchange itself and their market risks. The movement of stock price index is calculated using daily market returns, while market risk is calculated using the standard deviation of daily market returns. Daily market data analysis is collected through the Investing website of stock exchanges incorporated in ASEAN Exchanges, which includes the stock exchanges in Indonesia (CSPI), Malaysia (KLIC), Singapore (STI), Thailand (SETI), Philippines (PSEI), and Vietnam (VNI).

This is an event study. The date of COVID-19 declaration as a global pandemic by WHO on March 11, 2020 was determined as a research event date with an event window consisting of 40 exchange days before and after the event. It covers the period January 15, 2020 - May 12, 2020. This research also uses pairwise correlation analysis to analyze the interconnectedness among ASEAN stock exchanges to face the global crisis due to COVID-19.

3. Results and Discussion

The movement of stock price index and market risk in period before and after the COVID-19 pandemic is two things that can be significantly used as a measure of effect of pandemic on stock market. The average return and risk of ASEAN stock market before and after the COVID-19 declaration as a global pandemic by WHO is shown in table 1.

Table 1. ASEAN Market Returns and Risk Before and After WHO Announcement

Countries	Average Market Return Before WHO Announcement	Average Market Return After WHO Announcement	Market Risk Before WHO Announcement	Market Risk After WHO Announcement
Indonesia	-0.0047	-0.0024	0.0149	0.0304
Malaysia	-0.0025	-0.0009	0.0093	0.0206
Singapore	-0.0034	-0.0016	0.0134	0.0292
Thailand	-0.0053	0.0016	0.0193	0.0340
Filipina	-0.0050	-0.0021	0.0165	0.0391
Vietnam	-0.0033	0.0008	0.0141	0.0230
Rata-Rata	-0.0040	-0.0008	0.0146	0.0294

(Source: Data processed from Investing, 2020)

Table 1 shows a decrease in negative returns on ASEAN stock exchange after the WHO announcement. However, overall decline cannot correct market returns to a positive value. Nevertheless, this finding proves that ASEAN market actually tends to have a negative return after the announcement of WHO despite the number of confirmed cases of COVID-19 in world tends to experience an upward trend after the announcement. This result is different from what was found by Al-Awadhi et al. (2020) on movement of Hang Seng Index and Shanghai Stock Exchange Composite Index. Using research model with panel regression, Al-Awadhi et al. (2020) found that stock returns were negatively and significantly related to daily growth of total confirmed cases and daily growth of total death cases caused by COVID-19. Consistent with this, Ali et al. (2020) also found a higher negative return on European markets after the WHO announcement.



The decline of negative returns on ASEAN stock exchange after the WHO announcement basically occurred because before the WHO announcement, most countries in Southeast Asia tended to not make significant interventions to prevent, slow down, or even stop the spread of pandemics despite the COVID-19 outbreak itself has shown a trend of rapid spread in several countries in other regions where as of 30 January 2020 the WHO even declared a global emergency condition due to rapid spread of the virus. It was only after WHO declared COVID-19 as a global pandemic, countries in Southeast Asia began actively intervening to prevent and slow the spread of pandemic. Although the pandemic continued to spread in region after the intervention, at least the intervention could slightly improve investor negative sentiment that initially caused an overreaction to shares movement in a negative direction in period before the intervention. The intervention itself showed the efforts of local regulators to maintain and maintain economic conditions and financial markets are in a stable condition as well as efforts to minimize economic damage arising from a pandemic, including on financial markets. This basically shows that ASEAN stock market return is moving quite actively to respond the pandemic occurred. It was shown by various policies implemented by local regulators to control economic conditions amidst of a pandemic. Previous studies showed the market return itself can respond actively to various pandemic diseases, ranging from Severe Acute Respiratory Syndrome (SARS) outbreaks (Chen et al., 2007, 2009), to Ebola Virus Disease / EVD outbreaks (Ichev and Marinc , 2018).

Differ with negative return sentiment that slightly improved after the WHO announcement, ASEAN stock market risk actually experienced a significant increase after the announcement. The volatility of return on ASEAN stock exchange has doubled than previous value. If it is related to return movement that has been described previously, then this increase in market risk causes a decrease in negative market returns, in other words, it causes an increase in market return, even though the return is still at a negative value, because it is based on risk-return trade-offs theory, an increase in level of risk will naturally be accompanied by an potential return increase. The high risk faced by investors due to a pandemic will automatically increase the return expected by investors in order to compensate for high risk that must be borne. This study results were in line with findings of Zhang et al. (2020) to show an increase in level of market risk during the COVID-19 pandemic. Zhang et al. (2020) stated this is not only caused by long-term expectations (Gormsen and Koijen, 2020), but is also affected by market sentiments that are quickly strengthened through social media which then affects trading activities and causes extreme price movements (Broadstock and Zhang , 2019).

Ali et al. (2020) explained that negative returns and higher volatility indicate negative sentiment and uncertainty felt by investors due to COVID-19 pandemic. In line with this, Tetlock (2007) and Kaplansky and Levy (2010) also suggested that investor sentiment amidst economic uncertainty could effect market returns and volatility. Engelberg and Parsons (2011), Peress (2014), and Donadelli (2015) showed that negative investor sentiments arising during the pandemic itself can basically be caused by high media coverage which will ultimately lead to higher volatility. The media coverage of COVID-19 pandemic became more significant after WHO announcement as a global pandemic, so market volatility would automatically shows significant increase after the announcement.

The Kendall Tau correlation test is used to make pairwise correlation analysis. Table 2 and Table 3 show relationship between market returns before and after the announcement of COVID-19 by WHO among ASEAN stock exchanges.

Table 2. Correlation of Market Returns before WHO Announcement

	IHSG	KLCI	STI	SETI	PSEI	VNI
IHSG	1.000	0.430**	0.392**	0.190	0.307**	0.346**
KLCI	0.430**	1.000	0.414**	0.331**	0.341**	0.373**
STI	0.392**	0.414**	1.000	0.437**	0.242*	0.268*
SETI	0.190	0.331**	0.437**	1.000	0.418**	0.184
PSEI	0.307**	0.341**	0.242*	0.418**	1.000	0.172
VNI	0.346**	0.373**	0.268*	0.184	0.172	1.000

(Source: Data processed from Investigation, 2020)

Table 3. Correlation of Market Returns after WHO Announcement

	IHSG	KLCI	STI	SETI	PSEI	VNI
IHSG	1.000	0.116	0.051	0.105	0.112	0.288**
KLCI	0.116	1.000	0.463**	0.293**	0.091	0.090
STI	0.051	0.463**	1.000	0.512**	0.060	0.103
SETI	0.105	0.293**	0.512**	1.000	0.048	0.171
PSEI	0.112	0.091	0.060	0.048	1.000	0.045
VNI	0.288**	0.090	0.103	0.171	0.045	1.000

(Source: Data processed from Investigation, 2020)

Information:

** Significant correlation at 0.01 level (2-tailed)

* Significant correlation at 0.05 level (2-tailed)

Table 2 showed the ASEAN stock exchanges significantly interconnected in period before the WHO announcement. The relationship between CSPI - SETI, VNI - SETI, and VNI - PSEI are not significantly formed each other. However, close relationship between ASEAN stock exchanges has weakened after the WHO announcement. Table 3 showed the relationship between VNI - IHSG, STI - KLCI, SETI - KLCI, and SETI - STI remained mutually significant after the WHO announcement. In other words, there was a tendency for disintegration among ASEAN stock exchanges due to COVID-19 pandemic. Consistent with this study results, Zhang et al. (2020) also found a tendency towards global market disintegration caused by COVID-19 pandemic. Wu (2020) explained that weakening of market interconnectedness after the crisis itself basically occurred because after financial crisis, in this case was derived from a health crisis caused by COVID-19 pandemic, markets tended to be more vigilant about various information and risk spillover from external sources, especially from neighboring countries. It creates a more cautious and independent market from other markets in region.

This study results basically prove that integration of ASEAN stock market is not as strong as the real because although the governments in the region have promoted much cooperation and integration of financial markets, boundaries between markets can still be felt significantly, especially after the crisis. This due to absence of real regional cooperation between ASEAN countries to overcome the crisis due to COVID-19 pandemic. Each country tends to focus on domestic businesses, so regional cooperation still tends to be under priority (Muhibat, 2020). Even today, Special ASEAN Summit on COVID-19, held via video conference on April 14, 2020, has not yet been accompanied by real follow-up, whose the effect can be felt significantly at regional level. Each country tends to use a different approach to limit the spread of pandemic and also tends to offer various different economic stimulus packages to minimize economic losses due to pandemic. In addition, several ASEAN countries tend to have better health system capabilities than some other countries. It causes some countries to be more prepared to face the health crisis caused by this pandemic compared to other countries. As a result, shocks that occurred in several ASEAN markets due to pandemic also tend to be unequal.

4. Conclusions and Suggestions

It can be concluded that COVID-19 caused a higher significant risk on ASEAN stock exchange up to twice the previous value. Nevertheless, this risk increase was also accompanied by a decrease in negative market returns, although the magnitude of overall decline was still unable to correct market returns to a positive value. Therefore, investors need re-evaluate the value of their investments on ASEAN stock exchange given the COVID-19 pandemic is considered to continue to plague globally over the coming periods, even with possibility of a second wave which is expected to be more deadly. Prospective new investors who want to enter to ASEAN stock exchange should reconsider the right timing in the current high market volatility.

This study also showed a tendency towards disintegration among the ASEAN stock exchanges due to COVID-19 pandemic. It was marked by weakening of market interconnectedness due to high degree of independence and variations in response given by each country to the pandemic. Therefore, real prevention of capital market disintegration that more global and dangerous needs to be done jointly by ASEAN countries by developing and applying joint policies to save the market from threat of disintegration.



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