THE CO-INTEGRATION OF INDONESIAN CAPITAL MARKETS TO ASEAN CAPITAL MARKETS AFTER THE COVID-19 PANDEMIC

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ABSTRACT

Most investors diversify their funds not only in the differ stocks but also in the other capital markets. Thus, Indonesian investors are likely to diversify the funds in capital markets of ASEAN countries. Pandemic COVID-19 makes a possibility that capital markets in ASEAN region are not co-integrated. The purpose of this study is to know the co-integration of Indonesian capital markets to ASEAN capital markets after pandemic COVID-19. The study is quantitative analysis with VECM method and daily data. The period starts from 08 May 2023 to 22 March 2024. The results state that ASEAN capital markets are still co-integrated after pandemic COVID-19. IHSG responds negatively to KLSE, but IHSG responds positively to STI, SETI and PSEI either in the short term or in the long term. Then, the Indonesian investors are able to diversify their funds into ASEAN capital markets after pandemic COVID-19. For the next research, a longer data is needed in order to run VECM method better.

Keywords : ASEAN; Co-integration; Stock Market; VECM

ABSTRAK

Sebagian besar investor mendiversifikasi dananya tidak hanya pada saham yang berbeda tetapi juga pada pasar modal lainnya. Dengan demikian, investor Indonesia cenderung mendiversifikasi dananya pada pasar modal negara-negara ASEAN. Pandemi COVID-19 memungkinkan pasar modal di kawasan ASEAN tidak terkointegrasi. Tujuan dari penelitian ini adalah untuk mengetahui kointegrasi pasar modal Indonesia terhadap pasar modal ASEAN pasca pandemi COVID-19. Penelitian ini merupakan analisis kuantitatif dengan metode VECM dan data harian. Periode dimulai dari 08 Mei 2023 sampai dengan 22 Maret 2024. Hasil penelitian menyatakan bahwa pasar modal ASEAN masih terkointegrasi pasca pandemi COVID-19. IHSG merespon negatif terhadap KLSE, tetapi IHSG merespon positif terhadap STI, SETI dan PSEI baik dalam jangka pendek maupun jangka panjang. Kemudian, investor Indonesia mampu mendiversifikasi dananya ke pasar modal ASEAN pasca pandemi COVID-19. Untuk penelitian selanjutnya, diperlukan data yang lebih panjang agar metode VECM dapat dijalankan dengan lebih baik.

Kata Kunci : ASEAN; Kointegrasi; Pasar Modal; VECM

INTRODUCTION

In the modern economy, besides of Micro Small and Medium Enterprises (SME'S) but capital markets have been established by every country because they can help the economy (Sundoro & Putlia, 2024). The stock price index can be used as a

guide in determining the performance of a capital market (Setiawan, 2017). The capital market index always fluctuates which in the end can cause investors to possibly divert their funds to capital markets in other countries. When capital market conditions in a country are weakening, the investors place their funds in capital markets in other countries that are considered to be in good condition. Thus, investors in the ASEAN region will likely diversify their investments in capital markets in other ASEAN countries. Moreover, the ASEAN region has reduced barriers regarding regulations related to the economy and business after being in the AEC era.

Based on Figure 1, stock indices in ASEAN-5 countries experienced negative performance during the COVID-19 pandemic in 2020. The stock index in Indonesia, namely IHSG, experienced a decline of 15.36%. Likewise, the KLSE index fell by 3.86%, the STI index fell by 22.03%, the SETI index fell by 17.28% and the stock index in the Philippines PSEI also fell by 12%. Thus, it is possible that stock indices in ASEAN are no longer co-integration with each other after the impact of the COVID-19 pandemic. Investors find it difficult to diversify their investments in the ASEAN capital market due to negative performance following the pandemic.

Chien et al. (2015) stated in the results of their empirical study that co-integrated international capital markets can enable investors to diversify profits. The COVID-19 pandemic could mean that ASEAN capital markets are no longer co-integrated or are only interconnected in the short or long term. A study is needed to discuss the linkages of capital markets in the ASEAN region both in the short and long term after the end of the COVID-19 pandemic. Research conducted by Anhar et al. (2024) was indeed carried out in the period after the pandemic, but the period was carried out during 2022 to 2023. Even though the COVID-19 pandemic era was declared over on May 5 2023 (who.int, 2023)

Several previous studies have found that capital markets among ASEAN countries are mutually co-integrated, as researched by Anhar et al. (2024), Lestari (2020), Sundoro & Theovardo (2019), Caporale et al. (2022), as well as Imron et al. (2023). Even though there are many previous theories that examine co-integrated of ASEAN capital markets, there are still few discussion about it especially after the COVID-19 pandemic era. Sundoro & Theovardo (2019) found that in the short and long run, Indonesian Composite Index (ICI) will respond negatively to stock market

movements on the KLSE and SETI. In the same research it was also found that ICI will have movements in the same direction as the STI and PSEI. This research is supported by the findings of Lestari (2020) who found that in the long term IHSG responded positively to STI, KLSE and PSEI.

Anhar et al. (2024) conducted a weekly study with a period of January 2020 to December 2021 for before COVID-19 and January 2022 to December 2023 for after COVID-19. The result is the existence of capital market co-integration among fellow ASEAN regions before and after the COVID-19 pandemic era. However, if referring to official WHO data which states that the official end date of COVID-19 is in May 2023, then the period in this study still needs to be developed further. Caporale et al. (2022) conducted research from 2002 to 2020. The results showed that there was capital market co-integration among fellow members of the ASEAN-5 region. The findings of Imron et al. (2023) also stated that capital markets in the ASEAN-4 region had been co-integrated during the research period from 2008 to 2020. Investors can diversify their stock portfolios in the capital markets of ASEAN countries because the capital markets in these ASEAN countries have been integrated.

This study has novelty when compared to several previous studies. Most previous studies discussed the relationship between capital markets in the ASEAN region when the COVID-19 pandemic had not yet occurred. In fact, the COVID-19 pandemic was declared completely over as of May 5, 2023 (who.int, 2023). This study uses a daily research period and after the COVID-19 pandemic was declared over in discussing the co-integration of ASEAN capital markets. Thus, the aim is first to determine whether or not there is co-integration of capital markets in ASEAN after the COVID-19 pandemic. Second purpose is to find out how the co-integration between the Indonesian and ASEAN capital markets after the COVID-19 pandemic.

LITERATURE REVIEW AND HYPOTHESIS

Indonesia Stock Market

The capital market in Indonesia is a combination of two stock exchanges. It is the combination of the Jakarta and Surabaya Stock Exchange on November 30, 2007 (idx.co.id, 2024). Now, the Indonesian capital market is called the Indonesia Stock Exchange (IDX). The performance of the capital market in each country can be seen by

looking at the stock price index (Martalena and Malinda, 2011). The overall stock index for all companies listed on the IDX is called the IHSG (idx.co.id, 2024).

Malaysia Stock Market

The index used as a reference for the stock exchange in the Malaysian capital market is the Kuala Lumpur Stock Exchange Composite Index (KLSE-CI). Currently, the KLSE-CI is better known as the FTSE Bursa Malaysia KLCI (bursamalaysia.com, 2024). Although the KLSE index only consists of 30 types of companies, this index is considered to be the most representative of the stock exchange in Malaysia (Siang & Rayappan, 2023).

Singapore Stock Market

The Singapore stock exchange was officially founded in early December 1999, a merger of the Stock Exchange of Singapore (SES) and the Singapore International Monetary Exchange (SIMEX) (Hellman et al., 2012). To describe the state of the capital market in Singapore, the reference used is through the Straits Times Index (STI). There are the top 30 company stocks listed on the Singapore capital market based on market capitalization rankings (sgx.com, 2024).

Thailand Stock Market

In January 1991, the name of the stock exchange in Thailand changed to the Stock Exchange of Thailand or abbreviated to SETI (set.or.th, 2024). The index used as a benchmark for the stock exchange in Thailand is the Stock Exchange of Thailand Index - SET Index (SETI). This index has experienced rapid growth every year when compared to other indices in Thailand, namely the MAI index.

Philippines Stock Market

In 1992, the Philippine government merged the two capital markets into one called The Philippine Stock Exchange with the intention of creating efficiency (pse.com, 2024). The PSE Composite Index or PSEI is the main stock index used in the Philippine capital market because other indexes are only stock indexes that represent companies per sector (Murcia, 2014).

Framework

Caporale et al. (2021) conducted research from 2002 to 2020. The results showed that there was capital market co-integration among fellow members of the

ASEAN-5 region. This research is supported by the results found by Imron et al. (2023) which stated that the ASEAN-4 capital markets were already cointegrated.

H_1: There is capital market co-integration in the ASEAN-5 region after the COVID-19 pandemic

Tamisari et al. (2016) conducted a study starting from January 2006 to December 2015. The results were that when KLSE experienced shocks, the JCI would respond positively in the short and long term. The study is supported by Sundoro & Theovardo (2019) who stated that the JCI responded to the movement of the KLSE stock exchange.

H_2: There is a relationship between the JCI and KLSE after the COVID-19 pandemic

Majeed & Masih (2016) researched the relationship between capital markets in the ASEAN region, United States and also Japan. It found that the Singapore and Indonesian capital market are co-integrated. Sundoro & Theovardo (2019) stated that the JCI will respond positively to STI in the short and long term.

H_3: There is a relationship between the JCI and STI after the COVID-19 pandemic

In the short-run and until reaching long-term equilibrium, the Indonesian and Thai capital markets are negatively related (Sundoro & Theovardo, 2019). The research is also supported by the findings of Tamisari et al. (2016) which stated that both the short and long term the JCI responded negatively to SET.

H_4: There is a relationship between the JCI and SET after the COVID-19 pandemic

Sundoro & Theovardo (2019) and Tamisari et al. (2016) found that there is a positive relationship between the Indonesian capital market and the Philippine capital market. Both capital markets have a positive relationship in the short and long term.

H_5: There is a relationship between IHSG and PSEI after the COVID-19 pandemic

RESEARCH METHOD

This research was conducted to examine the relationship between capital markets in ASEAN countries during the MEA era. According to Creswell (2018), quantitative research is research conducted to test theories which can be done by measuring the relationship between variables. Thus, this research is a type of quantitative research. The type of data used in this research is secondary data in the form of data that has been published and can be accessed generally.

The population of this research is all capital markets in all ASEAN-5 members. The samples were taken based on a purposive sampling technique with the main requirement being that capital market index data was available from 08 Mei 2023 to 22 march 2024. The stock indices that can be used as samples in the research are the Composite Stock Price Index (IHSG)-Indonesia, the Strait Times Index (STI)-Singapore, Kuala Lumpur Stock Exchange Composite Index (KLSE)-Malaysia, Stock Exchange of Thailand Index (SET Index)-Thailand, and PSE Composite Index (PSEI)-Philippines.

Table 1 shows the data sources for each variable. This research data is in the form of a time series (time period). The research period begins from 08 May 2023 to 22 March 2024. The reason of this research period starts from 8 May 2023 is on that date the world health institution, namely World Health Organization, declared the COVID-19 pandemic to be completely over (who.int, 2023). All data in this research is secondary data where all capital market index data for the ASEAN-5 region is collected from Yahoo Finance.

This research measures all variables, namely IHSG, KLSE, STI, SETI and PSEI based on data published by Yahoo Finance on its website. The units for all research variables are the same in size, namely in nominal form. Thus, this research will take data for each research variable from data that has been published by Yahoo Finance and then immediately process it using statistical tools.

The analytical tool used in this research is the VAR or VECM test. Previously, a stationarity test would be carried out first to show whether the data has a unit root or not. Data that has unit roots will create a biased regression (Sihombing & Sundoro, 2017). If the data on all variables still has a unit root or is not stationary, then a co-integration test can be carried out. The VAR test is recognized if already stationary. However, the VECM test will be used if the data is still not stationary but has been co-integrated with each other.

RESULTS AND DISCUSSION

Table 2 shows the Augmented Dickey-Fuller (ADF) method is applied for the stationary test. The results of the ADF unit root test indicate that all research variables are not yet stationary at the level but already free from unit roots at the first difference level.

Since this study has been free from unit roots at the first difference level, this study needs to conduct a co-integration test. Table 3 shows the results of the co-integration test for this study using the Phillips-Perron method.

Based on the results of the co-integration test, the equation model in this study shows that all equations have values below prob. 0.05. This means that all data on all variables in this study already co-integrated. The results of this co-integration test also mean that there is a long-term relationship or co-integration between capital markets in ASEAN-5 countries after the COVID-19 pandemic era. This study is in accordance with the findings of Anhar et al. (2024) which state that capital markets in the ASEAN region are mutually co-integrated after the COVID-19 pandemic.

After this study found that there is co-integration between capital markets in the ASEAN region after the COVID-19 pandemic, this study will find out how the Indonesian capital market is related to capital markets in other ASEAN countries. Table 4 shows the IRF results that can be used to find out how the IHSG responds to capital markets in the ASEAN region after the COVID-19 pandemic.

Table 4 shows the relationship between the Indonesian capital market and the Malaysian capital market. IHSG responded negatively both in the short and long term to the KLSE after the COVID-19 pandemic ended. The research is in accordance with the findings of Sundoro & Theovardo (2019) which stated that in the short and long term the Indonesian capital market will respond negatively to capital market conditions in Malaysia in the MEA era. Starting from the beginning of the period until it reaches long-term equilibrium again, IHSG responded negatively to changes in the KLSE in the range of 37%.

This finding shows that IHSG has a very strong relationship with STI after the COVID-19 pandemic. Table 4 shows that from the beginning of the period until the long-term equilibrium, IHSG responded positively to the capital market conditions in Singapore. IHSG response to STI is in the range of 98% in the long-term equilibrium. This result is in accordance with the findings of Tamisari et al. (2016) which stated that the Singapore capital market and the Indonesian capital market have a long-term relationship. This finding is reinforced by Sundoro & Theovardo (2019) who stated that IHSG will respond positively to STI in the short and long term.

Table 4 shows that in the short-term, IHSG response to SETI is still fluctuating. However, starting from the 12th period to the long-term equilibrium, IHSG responds positively to the movement of SETI after COVID-19 pandemic. IHSG response to SETI is only in the range of 9% to the long-term equilibrium, which means it only has a weak relationship. This result is in accordance with the findings of Sundoro & Theovardo (2019) and Imron et al. (2023) which stated that IHSG moves in the opposite direction to the performance of SETI.

IHSG responds negatively to PSEI in the short term in some periods but predominantly responds positively as in table 4. In the long-term period, IHSG has responded positively to PSEI with a range of 24.9%. This finding is in accordance with the results of research conducted by Sundoro & Theovardo (2019). The results of their research stated that IHSG and PSEI move in the same direction in both the short and long term periods. Lestari (2020) also states that in the long term, IDX responds positively to PSEI.

CONCLUSION

The results of this study complement the discussion on the co-integration of capital markets in the ASEAN region after the COVID-19 pandemic ends. Before and after the COVID-19 pandemic, capital markets in the ASEAN region remain co-integrated, it means that investors can diversify their portfolios to capital markets in other ASEAN regions. IHSG responds positively to STI, SETI and PSEI but responds negatively to KLSE in both the short and long term.

However, this research still needs to be developed further, especially in the research period. Research using the VAR/VECM method requires a long period so that the IRF analysis can be more stable in the short and long term. Since the capital markets in the ASEAN region are co-integrated, it is better to conduct research that discusses the determinants of the capital market in the ASEAN region.

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TABLES AND FIGURES

Negara	Indeks	Pergerakan di 2020
Malaysia	KLSE	-3,86%
Myanmar	YSX	-5,90%
Vietnam	VNI	-7,93%
Kamboja	CSX	-9,30%
Filipina	PSE	-12,00%
Indonesia	IHSG	-15,36%
Thailand	SETI	-17,28%
Laos	LSE	-18,91%
Singapore	STI	-22,03%

Figure 1. Stock Indices Performance in ASEAN Countries in 2020
Source: Lifepal, 2020

Table 1. Data Types, Symbols, Units, and Data Sources

No.	Variables	Symbol	Units	Data Sources
1.	Indeks Saham Indonesia	IHSG	Nominal	Yahoo Finance
2.	Indeks Saham Malaysia	KLSE	Nominal	Yahoo Finance
3.	Indeks Saham Singapura	STI	Nominal	Yahoo Finance
4.	Indeks Saham Thailand	SETI	Nominal	Yahoo Finance
5.	Indeks Saham Filipina	PSEI	Nominal	Yahoo Finance

Sources: Yahoo Finance, 2024

Table 2.

Variables	Level		First Difference	
	P-value	Note	*P-value*	Note
IHSG	0,2948	Non-Stationary	0,0000	Stationary
KLSECI	0,5860	Non-Stationary	0,0000	Stationary
STI	0,5040	Non-Stationary	0,0000	Stationary
SETI	0,4261	Non-Stationary	0,0000	Stationary
PSEI	0,4716	Non-Stationary	0,0000	Stationary

The Results of the Unit Root Test
Sources: Data Processed, 2024

Table 3. The Results of the Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.549771	798.3469	69.81889	0.0001
At most 1 *	0.526232	617.9989	47.85613	0.0001
At most 2 *	0.512762	449.1685	29.79707	0.0001

Sources: Data Processed, 2024

Table 4. The Results of Impulse Response Function (IRF) – Response of IHSG

Period	D(KLSECI)	D(STI)	D(SETI)	D(PSEI)
1	0.000000	0.000000	0.000000	0.000000
2	-133.6144	217.8154	171.5006	-11.02552
3	47.71187	107.8139	-265.3216	74.14741
4	-83.50214	73.77294	238.9257	52.16871

5	-34.80020	91.78174	-68.16437	-49.22176
6	-9.103041	120.6818	-46.48172	64.29301
7	-75.43201	111.3146	103.1862	39.10409
8	-17.50818	94.31438	-47.88231	-3.929054
9	-34.35058	93.16965	15.93330	38.32911
10	-52.89692	121.4351	26.53662	26.58418
11	-27.46610	97.72346	-6.264098	18.36584
12	-39.53044	97.79336	14.32142	32.02850
13	-40.90926	99.7485	10.46914	18.94914
14	-35.75963	92.7993	6.904216	27.46012
15	-38.23111	91.7639	10.10991	26.64336
16	-38.66039	95.0075	9.330578	21.53550
17	-37.57883	97.1241	8.830270	27.04037
18	-37.89338	98.9411	9.233287	24.94918
19	-38.36854	98.5141	9.329687	23.94969
20	-37.73190	98.4183	9.070111	25.78221
21	-37.97740	98.9663	9.123186	24.60227
22	-38.23668	98.5080	9.282641	24.94704
23	-37.76822	98.5555	9.142267	25.09334
24	-38.06764	98.7476	9.116596	24.77548
25	-38.08225	98.5899	9.247051	25.04795
26	-37.88063	98.6465	9.154572	24.93639
27	-38.06212	98.6291	9.144039	24.90182
28	-38.00675	98.6363	9.216681	24.98566
29	-37.95963	98.6520	9.154613	24.92874
30	-38.03307	98.6188	9.169751	24.94728

Sources: Data Processed, 2024