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Islamic Capital Market Integration in 5 ASEAN Countries in the Covid-19 Era

Integrasi Pasar Modal Syariah di 5 Negara ASEAN di Era Covid-19

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ABSTRACT

The purpose of this study was to analyze the short-term and long-term relationship between the Islamic capital markets of 5 selected countries in the Covid-19 era. This study used a quantitative approach using weekly secondary data from January 2020 to December 2022. The data analysis model used Vector Auto Regression (VAR) analysis. The results of this study show that in the short term, variants in the capital market will change due to shocks in other ASEAN Islamic capital markets, but short-term deviations in the Islamic capital market will adjust in the long term. meanwhile, in the long run, Islamic capital markets in ASEAN countries that were tested, have integrated despite the occurrence of a health crisis that also has an impact on the financial crisis. This provides an opportunity for investors to mitigate risks and increase profit margins, especially in Islamic stock exchanges in ASEAN countries. On the other hand, this research allows investors to reformulate a more diversified portfolio after the Covid-19 pandemic.

Keywords: Integration, Islamic Capital Market, ASEAN, Covid 19*.*

ABSTRAK

Tujuan dari penelitian ini adalah untuk menganalisis hubungan jangka pendek dan jangka panjang antara pasar modal syariah 5 negara terpilih di era Covid-19. Penelitian ini menggunakan pendekatan kuantitatif dengan menggunakan data sekunder mingguan januari 2020 sampai dengan desember 2022. Model analisis data menggunakan analisis Vector Auto Regression (VAR). Hasil penelitian ini menunjukkan bahwa dalam jangka pendek, varian di pasar modal akan berubah karena guncangan di pasar modal syariah ASEAN lainnya, namun penyimpangan jangka pendek di pasar modal syariah akan menyesuaikan dalam jangka panjang. sementara dalam jangka panjang, pasar modal syariah di negara-negara ASEAN yang teruji, memiliki integrasi meskipun terjadi krisis kesehatan yang juga berdampak pada krisis keuangan. Hal ini memberikan suatu kesempatan bagi para investor untuk memitigasi risiko dan memperbesar margin keuntungan terutama di bursa saham syariah negara ASEAN. Disisi lain, dengan adanya penelitian ini memungkinkan membantu para investor untuk merumuskan kembali portofolio yang lebih terdiversifikasi setelah terjadinya pandemi covid-19.

Kata Kunci: Integrasi, Pasar Modal Syariah, ASEAN, Covid 19

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I. INTRODUCTION

In the current era of globalization of financial products, the capital market is one of the financial instruments that has great attention to the public. Every investor who wants to make transactions in the capital market is required to have knowledge to minimize possible risks and increase benefits in the form of returns (Rabbani & Saputra, 2022). On the other hand, many industries use investment funds from investors to strengthen their financial position. This is based on a country that uses the capital market as one of the important pillars for the sustainability of its country's economy (Siregar et al., 2022). There are various ways to measure the level of economic stability in a country and one of them is by measuring the performance of its stock market. Performance in the stock market can be said to be good if it can reflect prices that are relevant to the news that develops in the community (Romadhon & Ardiansyah, 2022).

Market capitalization growth in the world initially went well, but 2020 became a momentum for the weakening of this growth caused by the Covid-19 pandemic. This phenomenon forces humans to limit their activities outside the home which causes unfavorable effects on all aspects of life (Awwal, 2021). The health crisis also has a negative impact on the capital market and furthermore also has an impact on major stock indices. The impact of uncertainty and instability in the value of these stocks presents a challenge for investors to mitigate risks by using portfolio diversification strategies (Pardal et al., 2020). This is exacerbated by the Ukrainian and Russian wars, which resulted in rising energy, food, and commodity prices that could hamper Southeast Asia's economic recovery from the COVID-19 pandemic (Storey & Choong, 2022).

In the midst of unstable world financial markets, Islamic financial markets provide alternative solutions to various problems that occur. Recently, the profitability of Islamic finance has increased significantly with the purchase of Islamic stocks as an important asset in the investor's portfolio. (Mustapha et al., 2017). The reason why investors start investing in the Islamic stock market is because the value of this stock has good resilience when the economy is in crisis and the capitalization of the Islamic capital market is still low compared to the conventional capital market (Elmizan et al., 2022). Today, the Islamic financial system has transformed as an important component of the global financial system with a valuation of more than $2 trillion per year. It should be noted, however, that the increasing investor interest in Islamic finance is not only explained by the sensitivity of Islam but also by the system used. Furthermore, several requirements that must be met by issuers to be filtered in the criteria for sharia stock indices are also important points (Erdo et al., 2020).

Along with the development of Islamic finance as a global financial system and increase awareness of the majority Muslim Indonesian, it will indirectly grow the need for sharia-based investment. This will also trigger the growth of Islamic capital market capitalization in Indonesia with a profit-sharing system adjusted to mutual agreement without interest (Fathoni & Sakinah, 2021). Increasing the economic development of a country is not only carried out by the country, but also by multilateral cooperation between countries. With the establishment of cooperation in the Southeast Asian region, namely the AEC in 2015, it demands that the Indonesian economy be more stable to compete with regional countries and the global economy (Sn & Rahayu, 2022). Integration of trade activities in the Islamic capital market in Southeast Asia is the main objective of the implementation of ASEAN economic community cooperation. With this implementation, it will be able to create smooth capital flows and investment so as to encourage the growth and development of capital fund turnover in the Southeast Asian region in order to accelerate the progressivity of development of a more economically resilient ASEAN region. The unification of exchanges in the ASEAN region is expected to provide updates to regulations that are more transparent, and good corporate governance from exchanges and local capital market business actors so that they can compete at the international level. On the other hand, the government is trying to get out of the problem of the Covid-19 pandemic that occurs in Indonesia. This effort is aimed at being able to create a smooth flow of investment capital and accelerate the growth rate of economic development in the ASEAN region (Walewangko et al., 2018).

Several previous studies have revealed that there is a relationship between the Islamic capital market in one country and another (Abd. Majid, 2018; Abdulkarim et al., 2020; Qizam et al., 2020; Saiti, 2015). Theoretically, international capital markets that have undergone integration will reduce the cost of capital to be lower than segmented capital markets. This is because investors can diversify investments in various countries and with the wide scope of investment diversification, the risks that

will be borne will be small so that the capital costs that must be incurred will be smaller. Another study examined the relationship between several stock markets in various countries in the conditions of a pandemic that has an impact on economic instability. The results showed that this health crisis weakens relations between stock exchanges in various countries (Abdul Karim & Abdul-Rahman, 2020; Ahmed, 2021; M. P. Chen et al., 2018; Khan et al., 2020; Liu et al., 2020). Investors' fears proved to be a mediator and one of the causes of declining investment in the stock market due to the COVID-19 outbreak. Coupled with this pandemic, currency fluctuations and financial market sentiment are considered less stable, so investors are more cautious in transferring their funds to the capital market.

The purpose of this study was to analyze the short-term and long-term relationship between the Islamic capital markets of 5 selected countries in the Covid-19 era. This study used a quantitative approach using weekly secondary data from January 2020 to December 2022. The data analysis model uses Vector Auto Regression (VAR) analysis. The results of this study show that in the short term, variants in the capital market will change due to shocks in other ASEAN Islamic capital markets, but short-term deviations in the Islamic capital market will adjust in the long term. meanwhile, in the long run, Islamic capital markets in ASEAN countries that were tested, have integration despite the occurrence of a health crisis that also has an impact on the financial crisis.

From several preliminary reviews and research results, researchers synthesized into a study that aimed to analyze the integration of the Islamic capital market of ASEAN countries in the era of the Covid-19 pandemic. So that the research will discuss how the relationship between the Islamic capital market index in selected countries at the time of Covid-19 and whether in the era of the Covid-19 pandemic the integration of the Islamic stock market in selected countries was able to respond to market sentiment. This research is expected to be able to add scientific treasures as an overview and information for the academic community who want to conduct similar research in the future as well as this research allows helping capital owners to reformulate a more diversified portfolio after the COVID-19 pandemic.

II. LITERATURE REVIEW

Market efficiency

According to Fama (1970), a market is said to be efficient if individual investors or institutional investors will be able to obtain abnormal returns, after adjusting for stock trading risks using existing trading strategies. Some prices formed in the market are a reflection of the existing information, so the price of its securities has reflected all the information relevant to the actual conditions. The capital market will become more efficient when new information on the price of securities is more quickly received by investors, so that with this information it can be used to obtain the expected profit.

In fact, in the capital market there are often anomalies, namely phenomena that consistently contradict the efficient market hypothesis. One of them is the long-term effect, this anomaly indicates a decrease and increase in long-term returns for an event (Suteja & Gunardi, 2016). The COVID-19 outbreak event had enormous implications on the stock market, hence the pandemic forced the market to face a liquidity crisis and increased volatility so investors find it very difficult to estimate actual returns (Ahmed, 2021). However, the problem that is no less important in the capital market lies not only in the aspect of available information, but also in the scope of the capital market. Local scope is considered to have an undervalue market value and has a high level of risk for investors. So to overcome these problems, the concept of cross-border capital markets began to be introduced

Integration

Capital market integration is a condition where stock prices in various capital markets in the world are interrelated with each other, so that capital markets in the world can reach international pricing of their shares and provide unlimited access or any obstacles to investors around the world to own them (Waworundeng & Rate, 2018). Next (Climent & Meneu, 2003) said that the capital market in a regional region tends to have the same movement and has a contagion effect so that the level of integration between one capital market and another capital market is high. The degree of integration between capital markets has major implications for the diversification of an international portfolio and the financial stability of a country. In addition, the occurrence of integration between capital markets can indicate the occurrence of long-term equilibrium relationships, relate price movements in national stock indices and can greatly affect the benefits of international portfolio diversification (Aziz et al., 2020).

Bekaert et al., (2005) said that an integrated market is when assets with the same ratio have the same return. So that the market can be said to be integrated if stock prices in various capital markets have a very close influence. Market integration can also occur when two or more markets in different countries have the same price index movement and have a correlation between their movements. The factors causing capital market integration according to Husnan (1994) in (Oceania & Ardiansyah, 2023) research are international diversification if investors purchase securities in foreign currencies, but the correlation coefficient of return on foreign assets with national assets is low. Furthermore, capital markets are fully integrated if investors are free to diversify internationally and have an impact on the equilibrium pricing (quantity of products demanded equal to quantity offered) of those securities in the context of world markets. The integration of the Indonesian capital market with other countries has resulted in Indonesia becoming one of the countries that can feel if there are shocks that occur in foreign capital markets (Gunawan & Cahyadi, 2019).

In this context, it is to facilitate the accessibility of investors to reach the products and services provided by capital market operators in various ASEAN countries. Access is very important in carrying out an investment in various countries that are conducting bilateral cooperation. The easier access provided, the increasing number of people who invest, and conversely hard-to-reach access can hinder one's investment decisions (Noptriyani et al., 2016).

With the current revolution in the field of information and technology, it causes symptoms of the economic integration of all nations which results in a country having a tendency to interdependence with other countries. The development of this information also has progressivity to the globalization process of stock trading. A fully integrated global capital market will create a lower cost of capital compared to a non-integrated capital market. This makes foreign investors who want to invest have the opportunity to invest in various countries' exchanges.

Investment

Investment is a commitment to a number of funds or other resources that are carried out at this time in the hope of obtaining profits in the future. An investor buys a certain amount of shares of the current company in the hope of profiting from future increases in the stock price or dividends in exchange for the time and risks encountered during making such investments (Handini & Astawinetu, 2020).

Investment activities include part of economic activity, which in this activity is inseparable from sharia principles. Sharia investment is an investment made with sharia principles both in the real sector and the financial sector. In Islamic sharia, investment activities that are carried out are expected to be investment activities that have benefits for many parties, not just investments that benefit one party, while other parties will experience very large losses (*Zero Sum Game*) (Dantes, 2019).

The investment activity is encouraged in Islam, because this activity is not only for the benefit of the world but also for the benefit of the hereafter. By investing the assets owned into productive assets so that it will provide benefits for others. The recommendation of investment activities in Islam is in line with the recommendations and obligations to work as stated in the Qur'an surah An-nisa: 9 and Qur'an surah Al-Hasyr: 18 as well as some hadist of Prophet Muhammad SAW (Nurlina et al., 2022). In addition, investment activities in the Islamic capital market are a form of sharia *maqashid development (hifdzul maal)* with the aim of developing assets owned for the benefit of the future (Hartati, 2021).

Sharia Capital Market

The capital market has an important role in supporting a country's economy because in addition to having a financial function, it also has an economic function. The capital market is a meeting place between parties who have excess funds (investors) and parties who need funds (companies) by selling securities. The presence of the capital market can make it easier for entrepreneurs to get additional capital from investors in order to expand their business networks (Pajar & Pustikaningsih, 2017). In investment activities in the capital market, investors will be faced with various risks from a low level of risk to a high level of risk. With the risk that investors have the possibility of experiencing losses or even can miss the overall capital (Laopodis, 2020).

The Islamic capital market is present as the key to reducing the risk of uncertainty in the conventional capital market, besides that the Islamic capital market is also a forum for Muslim and non-Muslim investors in activities to obtain profits and risks, improve the performance, performance and sustainability of companies included in the Sharia stock exchange in accordance with stock prices

and reduce speculation in the capital market (Malik, 2017). The application of Sharia principles in the capital market is a form of *muamalah* activity with the hope that it will be a solution for people who want to invest their money without containing elements of *riba* and injustice (Peristiwo, 2016).

Several previous studies have revealed that there is a relationship between the Islamic capital market in one country and another (Abd. Majid, 2018; Abdulkarim et al., 2020; Qizam et al., 2020; Saiti, 2015). Theoretically, international capital markets that have undergone integration will reduce the cost of capital to be lower than segmented capital markets. This is because investors can diversify investments in various countries and with the wide scope of investment diversification, the risks that will be borne will be small so that the capital costs that must be incurred will be smaller. Another study examined the relationship between several stock markets in various countries in the conditions of a pandemic that has an impact on economic instability. The results showed that this health crisis weakens relations between stock exchanges in various countries (Abdul Karim & Abdul-Rahman, 2020; Ahmed, 2021; M. P. Chen et al., 2018; Khan et al., 2020; Liu et al., 2020). Investors' fears proved to be a mediator and one of the causes of declining investment in the stock market due to the COVID-19 outbreak. Coupled with this pandemic, currency fluctuations and financial market sentiment are considered less stable, so investors are more cautious in transferring their funds to the capital market.

Karim & Karim (2012) and Majid et al., (2008) said that international factors such as crises can increase the level of integration between capital markets. The higher level of integration will add to the benefits of portfolio diversification. Therefore, investors need to diversify in other assets in various countries to reduce the risk of investing during a crisis. Capital market integration can affect stock price indices in various ASEAN countries, economic instability and the emergence of new policies during the Covid-19 pandemic are one of the factors in the decline in stock price indices (Cahyaningrum & Robiyanto, 2021). In general, capital market integration that occurred during the Covid 19 period was higher when compared to the period before Covid 19, so this research was needed to determine the short and long-term impacts on Islamic capital market integration in ASEAN in the Covid 19 era to help investors choose strong countries in facing the crisis. This study examined the integration of Islamic capital markets in the ASEAN region by applying model VAR. Based on the relationship between these variables, the hypothetical variables obtained are as follows:

H1: In the short term, ASEAN Islamic capital market integration has negatively affected Covid-19

H2: In the long run, the integration of ASEAN Islamic capital markets has a positive effect on Covid-19

III. RESEARCH METHODS

This research used a quantitative approach method. This method is used to examine certain populations or samples, in collecting data using research instruments and statistical data analysis with the aim of testing predetermined hypotheses (Sugiyono, 2013). The population in this study was the entire Islamic stock exchange index in 11 ASEAN member countries. The sample was a small part of the number and characteristics possessed by the population that is worthy of being the object of research, in this study the sample selected was the 5-country Islamic stock exchange index. The data collection method used in this study was secondary data, which researchers obtained indirectly through investing.com and yahoo finance. The secondary data used was in the form of a weekly Islamic stock exchange index January 2020 – December 2022 in the form of documentation of the stock exchange indices of 5 ASEAN countries, namely Indonesia (ISSI), Malaysia (FBMS), Singapore (SGS 100), Philippines (FTSE), Thailand (FSTSH). In that time frame, it was also the years of covid-19.

The main reasons underlying the taking of the 5 countries as samples were as follows. First, one of the Southeast Asian member countries, Brunei Darussalam, until now does not have a capital market, while other countries such as Cambodia, Laos and Myanmar operate its stock exchanges after 2010. Second, the capital market chosen as the object of research has been established for a long time and has a high level of professionalism in facing the economic crisis. Not to forget that the implementation of buying and selling activities in stock trading in selected countries from the domestic and international markets has a satisfactory performance. Third, the amount of data on the stock market studied can reach the needs of researchers regarding stock market indices, especially data at the time of research.

This study used the *Vector Auto Regression* (VAR) analysis method and the analysis tool used *Eviews* 10 software. This method first developed by Sims (1980) which is a system of equations that shows each changer as a linear function of the constant and the lag value of the changer itself as the lag value of other changers in the system that assumes that all variables contained in the model are endogenous (specified in the model) (Sims, 1972). In the VAR analysis to find out the linkage of the variables determined from the system model from the time of pulling the variable in the form of a vector (Gujarati & Porter, 2009). The stages of the analysis were as follows: Before the data was analyzed using the VAR model, the data was first tested using stationarity test, optimal lag test, and model test. If there were a number of variables that contain the root unit and did not cointegrate with each other, then a difference must be made to the variable containing the root unit and the variable result of the differentiation could be used in the analysis of the VAR model, while if in the state all variables contained the root unit but were cointegrated, the *Vector Error Correction Model* (VECM) model could be used (Sulistiana et al., 2017).

In this study, the data stationarity test using the *Augmented Dickey Fuller* (ADF) method in the *Eviews software* and the t-statistical results were being compared with *the t-MacKinnon Critical Value.* If the value of the *t-statistic* data was smaller than the data *of t-MacKinnon Critical Value* it means that the data was not stationer. Conversely, if *t-statistic* was greater than the value of *t-MacKinnon Critical Value* then it means the data stationer (Tiwang et al., 2020). The ADF test is carried out with the following hypothesis testing stages:

Hypothesis:

$H_0 : Ø = 1$ (there is a root unit or non-stationary data)

$H_1 : Ø < 1$ (no root unit or stationary data)

Test Statistics:

$$ADF_{count} = \frac{Ø-1}{SE\ (Ø)} \text{.....(1)}$$

With

$SE\ (Ø) = [\sigma_e^2(\Sigma_{t-1}^n\ Y_{t-1}^2)]^{1/2}$

$$\sigma\frac{2}{e} = \Sigma_{t-1}^n \frac{(Y_t - ØY_{t-1})^2}{(n-1)}$$

t = 1, … , n $Y_0 = 0$

Lag in a VAR system is important because lag is useful for showing how long a variable reacts to other variables and determining the optimal lag is also useful for eliminating autocorrelation problems in a VAR system. Optimal lag length testing can be identified using Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), Hannan- Quinn Criterion (HQ), and so on.

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$$AIC\ (k) = T\ ln\left(\frac{SSR(k)}{T}\right) + 2n \text{.....(2)}$$

With

T = Number of observations used

k = Lag length

SSR = Residual Sum of Square (residual sum of squares)

n = Number of parameters estimated

Engle and Granger explained that time series data are often not stationary at the level but stationary at differentiated and cointegrated data, thus showing the existence of theoretical relationships between variables. Therefore, the VECM model is used to analyze this research because the model is a non-structural VAR model or a restricted VAR model (Widarjono, 2018). Before conducting the VECM modeling test, a co-integration test were carried out. This concept tests the long-term balance among several estimated variables. In general this model can be formulated as follows:

$$Y_t = \beta_0 + \Sigma_{i=1}^p \beta_i lnY_{1t-i} + \Sigma_{i=1}^p \alpha_i lnY_{2t-i} + \Sigma_{i=1}^p \gamma_i lnY_{3t-i} + e_t \text{.....(3)}$$

The data causality test is used to determine causality relationships between variables in the VAR model. The method used to test causality relationships is the *Granger Causality Test*. If the

probability value is small from 0.05 then the variable occurs Granger causality and vice versa if the probability value is greater than 0.05 then the variable does not occur *Granger* causality.

Forecast Error Decomposition of Variance (FEVD) analysis in VAR models aims to predict the contribution of the percentage of variance of each changer due to certain changes in the VAR system. In the previous IRF analysis, it was used to see the impact of shocks from one changer to another, in FEVD analysis it was used to describe the relative importance of each changer in the VAR system due to the presence of shock (Prasetyo, 2022).

IV. RESULT AND DISCUSSION

Descriptive Statistics

Table 1. Descriptive Statistics

	Indonesia	Malaysia	Singapore	Thailand	Philippines
Mean	178.4325	12001.17	8827.012	1189.546	574.7225
Median	179.5150	12090.21	8594.365	1228.455	581.3850
Maximum	211.4700	13507.17	11033.70	1330.890	655.7000
Minimum	123.7800	9664.140	5822.690	839.1900	408.1000

Based on table 1, the largest average closing value was the Malaysian sharia stock index of 12,001.17 while the smallest average closing value was the Indonesian sharia stock index at the level of 178.4325. Meanwhile, the largest value ever achieved of 13,507.17 was owned by the Malaysian sharia stock index and the smallest value was at the level of 123.7800 owned by the Indonesian sharia stock index.

Data Stationarity Test

Table 2. Data Stationarity Test

Variable	ADF Statistics	
	Level	1st Difference
Indonesia	0.8138	0.0000
Malaysia	0.6610	0.0000
Singapore	0.7438	0.0000
Thailand	0.4864	0.0000
Philippines	0.0752	0.0000

In table 2, the data was tested using the *Augmented Dickey-Fuller test* by comparing the probability values in the *MacKinnon* table. The results of the ADF test showed that all five variables were not yet stationary at the level, this can be seen in probability values greater than α (5%). Furthermore, the ADF test was carried out on the first derivative, where the probability value of the five variables tested was less than α (5%). Means can be said that the variable is stationary at the level of the first differentiation.

Optimal Lag Test

Table 3. Optimal Lag Test

Criterion	Lag 1	Lag 2	Lag 3
AIC	-23.70556	-23.72116	-23.72617
SC	-23.10610	-22.61726	-22.11332

The lag length included in this test was up to *lag* 3 because it no longer had a modulus value of more than 1 so that up to *lag* 3 the model was still considered stable. While the determination of the optimal length of inaction was using the *Schwartz Information Criteria* (SIC) method. The optimal lag length occurs if the SC value has the smallest absolute value among the *included lags*. Based on table 3 the smallest absolute value occurs in lag 3, so the lag is the optimal length of inaction.

Cointegration Test

Table 4. Cointegration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothized No. of CE (s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.255562	46.94735	29.79707	0.0002
At most 1	0.102805	15.66397	15.49471	0.0472
At most 2	0.038529	4.164850	3.841466	0.0413
At most 3	0.225608	12.94009	15.49471	0.1170
At most 4	0.138173	4.758410	3.841466	0.0291

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothized No. of CE (s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.255562	31.28338	21.13162	0.0013
At most 1	0.102805	11.49912	14.26460	0.1309
At most 2	0.038529	4.164850	3.841466	0.0413
At most 3	0.225608	8.181679	14.26460	0.3605
At most 4	0.138173	4.758410	3.841466	0.0291

Table 4 shows the results of cointegration between variables, the resulting probability value was smaller than α (5%) and the *trace statistical* value and *Max-Eigen statistic* had a value greater than the *critical value*. This indicates that the movement between each variable tested has a long-term equilibrium relationship. Thus the next analysis uses the *vector error correction model* (VECM). There is a relationship between the Islamic capital market in one country and another. (Abd. Majid, 2018; Abdulkarim et al., 2020; Qizam et al., 2020; Saiti, 2015). Theoretically, international capital markets that have undergone integration will reduce the cost of capital to be lower than segmented capital markets. This is because investors can diversify investments in various countries and with the wide scope of investment diversification, the risks that will be borne will be small so that the capital costs that must be incurred will be smaller (Pardal et al., 2020). Likewise, when going to invest in an era of crisis, capital owners prefer to sort out various investment instruments that have a relatively high threshold of return with risks that can be minimized. Investing in stock market instruments carries a higher risk than investing in other commodities such as gold, because the rate of return is generally relatively high than gold. Coupled with the Covid-19 pandemic, currency fluctuations and financial market sentiment are considered less stable, so investors prefer preventive measures in using their funds.

The integration of capital markets in the Southeast Asian region will advance the role of capital markets in order to contribute to building economic activities in various member countries. The role of the capital market is considered important for capital owners and issuers, because the role of the capital market as a manifestation of long-term funding sources for issuers and profits for capital owners. The joining of several regional stock exchanges will provide opportunities for companies listed on stock exchanges in each country to get fresh funds in the form of money efficiently. On the other hand, the benefits for investors can invest in securities or portfolio investments in other countries to get greater profits.

Causality Test

Based on the determination of lag in the previous stage, that the most optimal lag is lag 3 so that a granger causality test will be carried out on the *lag*.

Table 5. Granger Causality Test

Granger causality directions of relationship	F-Statistic	Prob.
Malaysia ⟷ Indonesia	3.31371; 4.12695	0.0219*; 0.0077*
Indonesia ⟷ Singapore	2.43006; 0.84426	0.0677**; 0.4718**
Thailand ⟶ Indonesia	9.37251	0,0001*
Indonesia ⟶ Thailand	1.02304	0.3844**
Philippines ⟷ Indonesia	1.68366; 0.28620	0.1732**; 0.8353**
Singapore ⟷ Malaysia	0.33728; 2.33940	0.7984**; 0.0760**
Thailand ⟶ Malaysia	3.07848	0.0296*
Malaysia ⟶ Thailand	0.42322	0.7366**
Philippines ⟷ Malaysia	4.70138; 3.09267	0.0037*; 0.0290*
Thailand ⟶ Singapore	4.77360	0.0034*
Singapore ⟶ Thailand	1.81131	0.1478**
Philippines ⟷ Singapore	4.34624; 2.91376	0.0058*; 0.0365*
Philippines ⟶ Thailand	0.41605	0.7417**
Thailand ⟶ Philippine	8.91621	0.0002*

Notes: ⟷ refers to bi-directional causality relationship; ⟶ refers to uni-directional causality relationship; ⟷, ⟶ refers to no-causality relationship

The asterisks of * refers to significant levels at 5% and ** refers to no significant levels at 5%

The Granger causality test to check the direction of causality between ISSI-Indonesia, FBMES-Malaysia, FTSE-Philippines, SGS100-Singapore and FTSE-Thailand. Table 5 reveals Granger-causality-test results for all variables in the study. The Islamic capital market shows a causal

relationship that is different from other markets and the rate of change in the price of Islamic equities. Based on the p-value or critical value of the result, we can justify the occurrence of short-term causality. At a significance level of 5 percent, F-statistics showed that there is two-way causality between ISSI-Indonesia & FBMES Malaysia, SGS100-Singapore &FTSE-Philippines, as well as FBMES-Malaysia &FTSE Philippines. In other words, shocks in the capital market in the short term will cause imbalances. In addition, the results in Table 5 show that there is unidirectional causality between several Islamic capital markets. This test shows that the Islamic capital market in Indonesia, Thailand, and Malaysia are the most influential in ASEAN. Instead the Philippines' Islamic capital market is the most vulnerable in the region.

This health crisis weakens relations between stock exchanges in various countries (Abdul Karim & Abdul-Rahman, 2020; Ahmed, 2021; M. P. Chen et al., 2018; Khan et al., 2020; Liu et al., 2020). Investors' fears proved to be a mediator and one of the causes of declining investment in the stock market due to the COVID-19 outbreak. Coupled with this pandemic, currency fluctuations and financial market sentiment are considered less stable, so investors are more cautious in transferring their funds to the capital market. In the era of the Covid-19 pandemic, the stock market can also provide a summary of the latest information about the end of this pandemic with investor confidence. Based on efficient market theory and intertemporal pricing theory popularized by (N. F. Chen et al., 1986) and Merton (1973) stated that the prevailing stock value will always represent all available information. Especially during this pandemic, systematic economic news will affect the fluctuations of each asset traded on the exchange. Therefore, we can expect that there must be a strong relationship between the Covid-19 pandemic and stock market index returns, which with this information can provide a positive confidence for capital owners to invest their funds in the capital market (Khan et al., 2020).

Forecast Error Decomposition of Variance

Table 6. Variance Decomposition Indonesia with Malaysia, Singapore, Thailand, and the Philippines

Period	S.E.	Indonesia	Malaysia	Singapore	Thailand	Philippines
1	0.023900	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.033972	93.03241	2.942285	0.016791	3.974725	0.033789
7	0.061407	87.09751	3.250331	0.153828	8.952673	0.545659
10	0.069818	88.18560	2.544157	0.416858	7.288899	1.564484

In table 6, the results of the variance decomposition between the Indonesian Islamic capital market and the Islamic capital markets of Malaysia, Singapore, Thailand and the Philippines, it shows that in the first period the Indonesian Islamic capital market influenced itself by 100%. In the second period, the Islamic capital markets of several countries studied contributed to the variability of the Indonesian Islamic capital market and the highest, namely Thailand and Malaysia, which were 3.9% and 2.9%, respectively. In the next to tenth period, the contribution of the Islamic capital market in Indonesia tends to decrease from time to time until the end of the period by 88% while some Islamic capital markets that Others made increased contributions until the end of the period. The highest contribution was Thailand’s Islamic capital market at 7.2%. Meanwhile, the Islamic capital markets of Malaysia, Singapore, and the Philippines contributed 2%, 0.4%, 1.5%.

Table 7. Variance Decomposition Malaysia with Indonesia, Singapore, Thailand and the Philippines

Period	S.E.	Indonesia	Malaysia	Singapore	Thailand	Philippines
1	0.020139	24.48062	75.51938	0.000000	0.000000	0.000000
2	0.029653	20.24538	78.33421	0.039376	1.159650	0.221376
7	0.045247	18.74228	76.36345	0.172349	1.785997	2.935916
10	0.048470	16.65329	73.21948	0.627507	2.414325	7.085400

In table 7, of the results of the variance decomposition between the Malaysian Islamic capital market and the Islamic capital markets of Indonesia, Singapore, Thailand, and the Philippines, it shows that in the first period the Malaysian Islamic capital market influenced itself by 75.5% and the Indonesia's sharia capital market contributed 24.5%. In the second period, the Islamic capital market of several countries studied contributed to the variability of the Malaysian Islamic capital market and the highest, namely Indonesia and Thailand, each of which was 20.2% and 1.1%. In the next to tenth period, the contribution of Malaysia's Islamic capital market tends to decrease from time to time until the end of the period by 73.2% while some capital markets other sharia contributed to the end of the period. Although Indonesia's sharia modal market experienced a decline, it still had the highest

contribution of 16.6% Meanwhile, the Islamic capital markets of Singapore, Thailand and the Philippines respectively contributed 0.6%, 2.4% and 7%.

Table 8. Variance Decomposition Singapore with Indonesia, Malaysia, Thailand and the Philippines

Period	S.E.	Indonesia	Malaysia	Singapore	Thailand	Philippines
1	0.029544	27.70444	6.893135	65.40242	0.000000	0.000000
2	0.042419	20.97776	13.65349	61.13369	3.414382	0.820678
7	0.074112	21.18634	16.26113	53.79034	4.296036	4.466143
10	0.084716	18.60924	15.56659	53.55634	3.343099	8.924737

In table 8, the results of the variance decomposition between the Islamic capital market of Singapore and the Islamic capital markets of Indonesia, Malaysia, Thailand, and the Philippines, showed that in the first period the Singapore Islamic capital market affected itself by 65.4% and the Islamic capital markets of Indonesia and Malaysia contributed 27.7% and. 6.8%. In the second period, the Islamic capital markets of several countries studied contributed to the variability of the Islamic capital market in Singapore and the highest remained Indonesia and Malaysia which were each. 20.9% and 13.6%. In the next to tenth period, the contribution of Singapore's Islamic capital market tends to decrease from time to time until the end of the period by 53.5% while some Islamic capital markets others made increased contributions until the end of the period. Although Indonesia's sharia capital market experienced a decline, it still had the highest contribution of 18.6% followed by the Islamic capital markets of Malaysia and the Philippines which contributed 15.% and 8.9%.

Table 9. Variance Decomposition Thailand with Indonesia, Malaysia, Singapore and the Philippines

Period	S.E.	Indonesia	Malaysia	Singapore	Thailand	Philippines
1	0.026330	38.29126	12.15820	4.505036	45.04551	0.000000
2	0.035133	34.04891	15.59391	3.861704	46.49323	0.002241
7	0.062109	36.98916	12.26399	4.609411	44.68937	1.448072
10	0.066724	37.20837	10.65935	8.098169	40.08201	3.952101

In table 9, the results of the variance decomposition between the Islamic capital market of Thailand and the Islamic capital markets of Indonesia, Malaysia, Singapore and the Philippines, show that in the first period the Thai Islamic capital market affected itself by 45% and Indonesia's Islamic capital market contributed the highest at 38.2%. In the second period, the Islamic capital markets of several countries studied contributed to the variability of the Thai Islamic capital market and the highest, namely Indonesia and Malaysia, which were 34% and 15.5%, respectively. In the next to tenth period, Thailand's Islamic capital market contribution tends to decrease from time to time until the end of the period by 40% while some Islamic capital markets others made increased contributions until the end of the period. Although the Islamic capital markets of Indonesia and Malaysia experienced a decline, they still had a fairly high contribution of 37.2% and 10.6 followed by the Islamic capital markets of Singapore and the Philippines which contributed 8% and 3.9%.

Table 10. Variance Decomposition Philippines with Indonesia, Malaysia, Singapore and Thailand

Period	S.E.	Indonesia	Malaysia	Singapore	Thailand	Philippines
1	0.033902	34.47825	1.766993	6.295883	0.006560	57.45231
2	0.046727	33.94930	7.556297	7.616536	5.173423	45.70444
7	0.071195	39.74510	10.21653	8.262981	9.131428	32.64395
10	0.074355	40.70428	9.508138	11.19478	8.448345	30.14445

In table 10, the results of the variance decomposition between the Philippine Islamic capital market and the Islamic capital markets of Indonesia, Malaysia, Singapore and Thailand, show that in the first period the Philippine Islamic capital market affected itself by 57.4% and Indonesia's Islamic capital market contributed the highest at 34.4%. In the second period, the Islamic capital markets of several countries studied contributed to the variability of the Philippine Islamic capital market and the highest, namely Indonesia and Singapore, which were 33.9 % and 7.6%, respectively. In the next to tenth period, the contribution of the Philippine Islamic capital market tends to decrease from time to time until the end of the period by 30% while some Islamic capital markets others made increased contributions until the end of the period. In fact, Indonesia's sharia capital sector has the highest contribution of 40%, while the Islamic capital markets of Malaysia, Singapore, Thailand have contributed 9%, 11%, 8%.

V. CONCLUSION

This study analyzed the short-term and long-term relationship between the Islamic capital markets of Indonesia, Malaysia, Singapore, Thailand and the Philippines from 2020 to 2022, during

time of a Covid-19 pandemic. We found that in the long run, Islamic capital markets across ASEAN countries tested had integration regardless of the Covid-19 crisis. This is shown in the results of the cointegration test, which means that any short-term irregularities in the Islamic capital market during the occurrence of Covid-19 will be adjusted in the long term. In the short term, variants in the capital market will change due to shocks in other ASEAN Islamic capital markets due to the Covid-19 crisis. This is shown in the results of the causality test which has fluctuating results in each country tested. These results indicate that investors can diversify investments in various countries and with the broad scope of investment diversification, the risk to be borne will be small so that the capital costs to be incurred will be smaller. At the same time, the Covid-19 pandemic has not deterred investors from investing their funds in other countries, as research results show shocks in the short term will be adjusted in the long term.

Furthermore, this study also found that the Islamic capital markets of Indonesia and Malaysia have the most influence on the ASEAN-5 Islamic capital market, as shown by the VDC test. Meanwhile, the Philippines sharia capital market is the most vulnerable to price volatility due to the pandemic. This result presents a challenge as well as an opportunity for investors to mitigate risk by using portfolio diversification strategies. In addition, the benefits of integration will reflect information relevant to the actual condition of stock values in various countries so that the market will be efficient and investors will be able to obtain abnormal returns, after adjusting for stock trading risks.

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