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Measuring the Potential Integration of Indonesian Sharia Capital Market with the OIC Member Countries

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Abstract

The Indonesian Composite Index (ICI) experienced a critical session, the data showed the ICI fell by 6.58% which was the biggest decline in the last 9 years. The prevailing notion was that this pressure stemmed from the prevalence of the Covid-19 concern and is anticipated to be alleviated once Covid-19 disseminates further. The purpose of this study is to determine the causality and long-term cointegration relationship between sharia stock in Indonesia and the Organization of Islamic Cooperation (OIC) member countries, as well as to determine the contribution of shares of OIC member countries, such as Egypt, Oman, Saudi Arabia, Kuwait, Turkey, Bahrain, and Malaysia in the collapse of the Islamic capital market in Indonesia. The method used in this research is quantitative by using secondary data in the form of daily prices of the Sharia index sourced from the website www.investing.com. The population of the countries related to this research is 56 members of the OIC that are active until 2021. For data analysis, several tests were conducted, such as; Testing Time Series Data, Vector Autoregressive (VAR), Granger Causality Test, Johansen Model Cointegration Test, and Contagion Effect Test. The study found that; has not been able to prove the existence of cointegration between the Indonesian Islamic stock exchange and the stock exchanges of OIC member countries other than the Malaysian stock exchange. However, this study proves the interdependence between the Malaysian and Indonesian Islamic stock exchanges, but in the long term, the contribution of the Indonesian stock exchange is greater than the Malaysian Islamic stock index. In addition, another finding was that during the Covid-19 shock, the Malaysian stock position index showed more independence, whereas the decline that occurred at the beginning of the pandemic was caused without the JII or ISSI intervention index.

Keywords: Capital Market; ICI; Pandemic; Sharia Stock

INTRODUCTION

This 2020 has marked the second time the Indonesian Capital Market won the Global Islamic Finance award in the Best Islamic Capital Market category. Although in general, as of March 2020, the JCI experienced a critical session since the data showed that in one day, March 9, 2020, the JCI fell by 6.58% to IDR5,136. This was the biggest decline at the beginning of the year for the last 9 years (investing.com, 2020). This pressure was presumed due to the dominance of the Covid-19 issue and is predicted to be corrected again if the corona continues to spread. These financial market shocks were experienced by Indonesia and the world capital market, in general, experienced the same thing. Table 1 shows the movement of several stock indices in several countries during 2020.

Table 1. Stock Market Index Performance (in USD)

Benchmark	Sharia (%)	Conventional (%)	Variance (%)
S&P Global BMI	-17,2	-22,3	5,1
DJIM World	-16,6	-22,0	5,4
S&P 500	16,9	-19,6	2,7
DJIM Asia/Pacific	-14,3	-19,8	5,5
DJIM Europe	-16,8	-24,8	8
DJIM Developed Markets	-16,7	-21,6	5
DJIM Emerging Markets	-15,9	-24,4	8,5
S&P Pan Arab Composite	-20,6	-23,4	2,8

Source: (S&P Shariah Indices, 2020)

In relation to this, the member countries of the OIC (Organization of Islamic Cooperation) have the potential to achieve integration of Sharia stock exchanges, although this phenomenon is unique. Typically, international diversification is determined based on geographical location, such as the DJIM Asia/Pacific index, which serves as a benchmark for the development of Sharia stocks in the Asia/Pacific region. However, it is possible to establish a global Sharia stock index that is not based on location or region, similar to the MSCI (Morgan Stanley Capital International) index, which is a global stock index created by Morgan Stanley's research institution and serves as a reference for investors worldwide. Therefore, the numerous cointegration tests of stock exchanges create the potential for the formation of integrated stock exchanges based on certain criteria, as seen in the cointegration tests between the Asian Stock Market Top-8 (Muhammad Rizwanullah et al., 2020). In subsequent research, they explained that the distance factor dramatically affects the stock market; the closer the distance between exchanges, the greater the effect. Testing the causality of the Indonesian and US stock exchanges is not significant. But there is a long-term relationship between the stock exchanges of other 4-ASEAN members with the US and China exchanges (Caporale et al., 2022). Thus, the establishment of global indexes can facilitate and provide various options for Sharia stock instruments for investors who wish to engage in international diversification

(Subhi & Fitriyah, 2016); (Wulan Suryandani, 2018); (Bakri Abdul Karim & Aisyah Abdul Rahman, 2020). However, Craig Gregozeski has different perspective, that investing in a smaller number of shares may increase the odds of a high-profile figure but committing to a more significant number of shares, even for a smaller dollar is expected to reduce company-specific risk (Craig Gregozeski, 2020).

The OIC makes it possible to realize the integration of the Islamic stock exchange, which can be interpreted as an indicator of global economic openness, where all stock exchanges are interconnected, including the Indonesian Islamic stock exchange. Thus, observing the performance of Islamic stocks in Indonesia becomes a reflection of the conditions of the international stock market. In addition, with the integration of stock exchanges universally, several benefits will be obtained including making it easier and providing more choices of Islamic stock instruments for investors who want to do international diversification, such as investing in the Malaysia Emas Syariah Index (FBMS), Karachi Meezan 30 Index (KMI30), Dow Jones Islamic Market Turkey Index (DJIMTR), or Dow Jones Islamic Market Kuwait Index (DJIMKW). This way, the investments open opportunities to finance infrastructure improvements in the countries of the Organization of Islamic Cooperation (OIC). In 2022, Bhowmik tested on the stock markets in developing countries. The results prove there are integrated bilateral and multi-countries, so they become more integrated internationally after the crisis, except for Bangladesh. The implication must consider every trading strategy and regulation of financial markets (Bhowmik et al., 2022). On the other hand, the results of another study found that the Greek crisis had no effect on the movement of Islamic stocks in the United States, Malaysia, Indonesia, and Europe even though the Vector Auto-Regressive (VAR) method proved that there was cointegration between the United States, Malaysia, Indonesia and Europe sharia exchanges (Tara Ninta Ikrima, 2014) . In addition, the other study has also identified the integration of stock exchanges in the world in the long term, while in the short term the relationship is not too strong (Ardina Puspitasari, 2015).

This study aims to find out the relationship between the Islamic stock market of the states incorporated in the OIC and the Indonesian Islamic stock exchange; as well as to find out if there are any effects from this relationship during the covid 19 pandemic. The sharia exchanges that will be tested include Egypt (EGX 30), Oman (MSM 30), Saudi Arabia (MSCI Tadawul 30), Kuwait (DJIMKW), Turkey (DJIMTR), Bahrain (BAX), and Malaysia (FBMS). Cointegration testing was carried out by developing the Johansen model and applying the Vector Autoregressive (VAR) model using the Eviews 10 software.

LITERATURE REVIEW

Stock Market Integration

The context of stock market integration can be interpreted that an integrated stock exchange does not have barriers and provides unlimited access for investors to own securities on the stock market and also facilitates buying and selling of shares

between capital markets. The more integrated the stock market will create a close relationship between one stock market and other integrated stock markets. Stock market price movements will have similarities in each exchange so that they can show the same risks in each integrated stock market (Akbar, 2021).

In Santosa (2010) entitled *Integration of European Region Capital Markets, theoretically, an* integrated international capital market will create lower capital costs, because investors can diversify their investments more widely, not only between industries but also between countries. Relevant risk is the risk that cannot be eliminated by diversification. So, the greater the risk that can be eliminated by diversification, the more attractive international diversification is for investors, and the lower the required profit rate, in other words, the cost of capital will be smaller (Santosa, 2010). Lowering the cost of capital makes investment more profitable and there will be more investment transactions so that shares will increase but if foreign investors suddenly cancel investment, then share prices can drop dramatically, this needs to be considered for countries that want to open up to foreign investors (Setiaji, 2018)

A fully integrated stock market has no barriers preventing investors from investing in the entire cointegrated stock market. This is because investors can diversify their investments more broadly. So, when investment in a country is no longer profitable, it is easy to move to another country by revoking investment in that country. This of course must be done carefully, because often a downturn in exchange also has an impact on cointegrated exchanges. This condition is called Contagion Effect.

In the economic context, the Contagion Effect is a condition of transmission in the economic field of one country to another, which in the end the infected country has an economic situation that is relatively similar to the country of origin. Then the Contagion Effect can be called a domino effect because when a country experiences an economic crisis, other countries will also experience an economic crisis. Contagion Effect can be detected so that the impact can be properly anticipated considering the effect it has on the economy. So, it must be ensured the relationship between exchanges, to anticipate the transmission of the impact of the crisis. Arif tested the relationship between several Indonesian economic sectors and the Greek state, the results proved that there was no causal relationship, so there was very little risk for Indonesia to be affected by the Greek crisis (Setiawan, 2020). In the Islamic stock market, Qizam et al. also proved that after the global crisis, there was an integrated relationship between the Islamic capital markets in the ASEAN region, even though the Philippine Islamic stock exchange showed a fragile relationship (Qizam et al., 2020).

Impulse Response Function (IRF) and Variance Decomposition (VD)

The Impulse Response Function (IRF) test is a measurement of the response of each variable to other endogenous variables caused by a shock. The IRF test is

continued with the Variance Decomposition (VD) test which aims to see how much the contribution of one variable transmits to other variables or is caused by the variable itself. So that in real terms the existence of a shock can be used to predict the error variance of the VAM model. Thus, IRF and VD are interrelated because VD is applied in IRF analysis.

Contagion Effect Theory

In general, contagion is the transmission of shocks between countries. If one country experiences a shock, then the shock can be transferred to other countries around it (Robiyanto & Fajar Hartanto, 2018). So that the impact of contagion that occurs successively due to interconnected countries (David Iheke Okorie & Bogiang Lin, 2021). Prayogo et al. presented dynamic relations between the 5 ASEAN member countries, where time and distance influenced short-distance relationships and the transmission of the Brexit crisis (Prayogo et al., 2019). Although in terms of resilience, Sharia stocks are more reliable (Yunianti & Bahruddin, 2023). Contagion effects can be integrated between Islamic capital markets in the same region because capital markets in the same area tend to have the same movement and have a high contagion effect. So, the importance of measuring the effect of contagion (effect contagion) is to diversify the risk of shares on exchanges that have connectivity. Meanwhile, testing the contagion effect outside the region is aimed at testing opportunities for international diversification, and Islamic financial markets offer risk-hedging characteristics (Salisu et al., 2020).

RESEARCH METHOD

This research includes the testing of causality between Islamic stock exchange members of the Organization of Islamic Cooperation (OIC) and Islamic exchanges in Indonesia and the contribution of the global economic crisis as a result of the spread of COVID-19 on the Indonesian Islamic stock exchange. The secondary data was used by processing the daily price of the Sharia index sourced from the website www.investing.com.

The population is the total number of research subjects. In connection with this study, there were 56 active country members of OIC in 2021. However, not all populations are included by applying several criteria to select the sample. The sampling technique used in this research was purposive sampling, namely the selection of sample members based on criteria. The following were the criteria applied: (1) The research sample is OIC member countries that are active until 2021, (2) OIC member countries have active Sharia stock exchanges, (3) Have a complete database. Based on these criteria, 10 stock exchanges with 12 samples of Islamic stock index in the region of OIC member countries were obtained in Table 2.

Table 2. Research Sample

No	Country	Sharia Index
1.	Pakistan	All Shares Islamic Index of Pakistan (KMIAS)
2.	Egypt	EGX_30
3.	Malaysia	FTSE Bursa Malaysia EMAS Shariah (FTFBMS) FTSE Bursa Malaysia Hijrah Shariah (FTFBMHS)
4.	Saudi Arabia	MSCI_Tawadul30 Tadawul all share index (TASI)
5.	Bahrain	All Share (BAX)
6.	Turkey	DJIMTR
7.	Kuwait	All share index (BKAT)
8.	Oman	MSM 30
9.	Qatar	QE Index
10.	United Arab Emirates	General index

Source: www.investing.com

The hypothesis is the initial assumption proposed by the researcher to answer the phenomenon that occurs based on the existing theory. The hypotheses in this study are as follows:

Ha,1 : There is a causal relationship between Islamic stock exchanges in member countries of the Organization of Islamic Cooperation and Indonesian Islamic stock exchanges during an economic crisis due to covid 19 in 2020,

Ha,2 : There is cointegration between Sharia stock exchanges in member countries of the Organization of Islamic Cooperation and Indonesian Sharia stock exchanges during the economic crisis due to covid 19 the year 2020

RESULTS AND DISCUSSION

The context of stock market integration can be interpreted that the integrated stock exchange having no barriers and providing unrestricted access to investors to own securities in the stock market as well as the ease of buying and selling shares between capital markets. The more integrated the stock market the more it creates a close relationship between one stock market and other integrated stock markets. The movement of stock market prices will have similarities in every exchange, thus, they can show the same risk in each integrated stock market (Ade Akbar Chairansyah Lubis, 2021)

An integrated international capital market will theoretically create a lower cost of capital since investors can diversify their investments more broadly, not only between industries but also between countries. Meanwhile, the relevant risk is the risk that cannot be eliminated by diversification. Thus, the greater the risk that can be eliminated by diversification, the more it attracts international diversification for investors and the lower the required level of profit. With the decrease in the cost of

capital, the investment becomes more profitable. In addition, there will be more investment transactions that increase shares. However, if foreign investors suddenly cancel their investments, the stock price can drop drastically which needs to be considered for countries that want to open up to foreign investors.

The fully integrated stock market has no barriers to prevent investors from investing in the entire cointegrated stock market. This is because investors can diversify their investments more broadly. So, when investment in a country is no longer profitable, it is easy to move to another country by withdrawing investment in that country. Of course, this must be done carefully, because oftentimes the downturn of an exchange also has an impact on cointegrating exchanges. This condition is called the Contagion Effect.

In the economic context, the Contagion Effect is a condition of transmission in the economic sector of one country to another which in the end the infected country has an economic condition that is relatively similar to the country of origin. The Contagion Effect can be called a domino effect because when a country experiences an economic crisis, other countries will also experience an economic crisis. So other countries can be detected, thus, the impact can be anticipated properly as it has an impact on the economy. So that the stock exchanges of other countries can adequately anticipate the impact resulting from this integration.

From the unit root test on the level stage, it was obtained that all indices' data were not stationary, which is then carried out by the first level difference unit root test and shows stationary data by producing a significant critical value at = 0.05. The causality test was intended to see the direction of the relationship between variables by comparing the probability with the critical value.

The test results are shown in the following table 4:

Table 4. Summary of Optimum Lag and Granger Causality Tests

Null Hypothesis	Lag	Obs	F-Statistic	Prob.	Result
JII - EGX30	1	29	6.04260	0.0209	Rejected
EGX30 - JII			0.54413	0.4673	Accepted
JII - FBMS	2	28	5.17059	0.0140	Rejected
FBMS - JII			0.23703	0.7909	Accepted
ISSI - FBMHS	1	29	5.83575	0.0230	Rejected
FBMHS - ISSI			1.04714	0.3156	Accepted
JII - MT30	1	29	4.46594	0.0443	Rejected
MT30 - JII			0.19823	0.6598	Accepted
TASI - ISSI	5	25	2.57437	0.0748	Accepted
ISSI - TASI			5.19071	0.0067	Rejected
BAX – ISSI	1	29	2.67756	0.1138	Accepted
ISSI - BAX			5.36319	0.028	Rejected
JII - MSM30	5	25	3.00428	0.0108	Rejected
MSM30 – JII			3.02783	0.0103	Rejected
ISSI - DFMGI	1	29	9.03378	0.0058	Rejected
DFMGI – ISSI			0.40993	0.5276	Accepted

Null Hypothesis	Lag	Obs	F-Statistic	Prob.	Result
JII - KMIAS	5	25	1.28484	0.3247	Accepted
KMIAS – JII			2.90128	0.0530	Accepted
ISSI-GI	7	23	7.33842	2.E-08	Rejected
GI - ISSI			1.68338	0.1099	Accepted
ISSI - QEAS	5	25	1.28484	0.3247	Accepted
QEAS - ISSI			2.90128	0.0530	Accepted

Source: Processing Result of E-Views 10.0

Integration Test

Cointegration testing was carried out only on stock exchanges that have a causal relationship with the Indonesian Islamic stock exchange, both either of two way or one way relationship. Furthermore, based on the test results shown in table 4, that of the 10 indices tested, only the KMIAS and QEAS Sharia stock indexes did not show a causal relationship with the Indonesian Sharia stock index. Thus, the KMIAS index was not included in the cointegration test. Furthermore, by applying EViews version 9.0 software, the results of the cointegration testing of each Islamic stock exchange with the Indonesian Islamic stock exchange were obtained which are summarized in the table 5 below:

Table 5. The Summary of Cointegration Test Result

Index	Hypothesized	Eigenvalue	Trace	0.05	
	No. of CE(s)		Statistic	Critical Value	Prob.**
JII-EGX30	None	0.139702	6.533270	15.49471	0.6325
	At most 1	0.087435	2.470397	3.841466	0.1160
JII-FBMS	None *	0.415240	17.64728	15.49471	0.0233
	At most 1	0.110459	3.160346	3.841466	0.0754
ISSI-FBMHS	None *	0.414728	17.92811	15.49471	0.0211
	At most 1	0.099325	2.929111	3.841466	0.0870
ISSI-TASI	None	0.114235	3.540181	15.49471	0.9371
	At most 1	0.000771	0.022369	3.841466	0.8810
ISSI-BAX	None	0.208342	8.488664	15.49471	0.4147
	At most 1	0.067178	1.947143	3.841466	0.1629
JII-MSM30	None	0.006392	7.514864	15.49471	0.5186
	At most 1	0.003959	2.871883	3.841466	0.0901
ISSI- DFMGI	None	0.006392	7.514864	15.49471	0.5186
	At most 1	0.005078	3.670795	3.841466	0.0554

Source: Processing Result of E-Views 10.0

This study used the Johansen test by paying attention to the value of the trace statistic and its critical value which shows the value of the trace statistic > critical value at =1%, 5%, or 10%. From this test, evidence shows that only the stock exchanges of Malaysia, Oman, and the United Arab Emirates have long-term relations with Indonesia. Thus, the next measurement was only tested on Sharia exchanges that have the potential to integrate.

Contagion Effect Test

After the VECM test was carried out to see the magnitude of the contribution of the relationship between stock exchanges that have a long-term relationship. Based on the Johansen Cointegration test, it was found that there was a long-term relationship between the Indonesian Islamic stock exchange and the three OIC member exchanges (Malaysia, Oman, and the United Arab Emirates). Furthermore, by using the VECM test, the estimated coefficient of the magnitude of the relationship can be determined as shown in the following table 6:

Table 6. Granger and Optimum Lag Test Summary Causality

PERIOD	RESPONSE OF ISSI		RESPONSE OF JII		RESPONSE OF JII		RESPONSE OF ISSI	
	DFMGI	ISSI	MSM30	JII	FBMS	JII	FBMHS	ISSI
1.	0.155016	1.846469	0.091198	8.571067	0.463769	8.632694	0.152989	1.86376
2.	0.243554	1.940715	0.037743	8.807811	1.18426	8.710805	0.24099	1.918166
3.	0.287857	1.728315	1.180874	7.751164	1.555172	7.686878	0.259105	1.929281
4.	0.41806	1.954649	1.528696	8.590196	1.51068	7.728761	0.276229	1.936397
5.	0.403896	1.972827	1.404543	8.678864	1.500261	7.873439	0.293003	1.943307
6.	0.432908	2.039784	1.741375	8.823614	1.531494	7.87756	0.30957	1.950124
7.	0.31204	2.009596	1.850326	9.051897	1.556039	7.872102	0.325935	1.956858
8.	0.26613	2.01746	1.845971	9.115199	1.574915	7.884639	0.3421	1.96351
9.	0.299564	2.047113	1.924938	9.172368	1.594502	7.897741	0.358068	1.970081
10.	0.273935	2.024082	1.950183	9.227064	1.614521	7.908385	0.373841	1.976571

Source: Processing Result of E-Views 10.0

In Table 6, it can be seen that the FBMS index contributed greatly to the decline in the JII index on the Indonesia Stock Exchange, which was around 0.46% at the beginning of the COVID-19 pandemic. The General and FBMHS indexes contributed to the decline in the ISSI index of around 0.15%. at the start of the shock. Although there appears to be a contagion effect, there were many factors that influence the decline in the Indonesian sharia market apart from global stock fluctuations. As shown in the table above, the fall of JII in April 2019 of 8.57% was caused by fundamental factors of the JII index itself.

The relationship between the Indonesian and Malaysian Sharia stock exchanges is closely intertwined. The high sensitivity indicates both advantages and disadvantages in conducting stock selection. The advantage of diversifying into Malaysian stocks indicates the potential for superior profits, as stated by Boyke (2009), who found that portfolios in developing countries tend to be superior to international portfolios in developed countries. However, investors need to consider the direction of the relationship with the Malaysian stock exchange. In the short term, it has a negative correlation, so investors need to be cautious. If the domestic stock returns experience positive growth, the overall returns will be reduced by the negative return from the Malaysian stock exchange. Therefore, it should be taken into account when conducting stock selection when the domestic stock exchange is in a normal and booming condition.

The results show that during the research period during the COVID-19 pandemic, there were changes in the relationship. This is highly possible, as Lee, Shie, and Chang (2012) proved that financial crises lead to changes in the regional economy. Since the 1997 financial crisis, significant changes have occurred in the relationship between Asian markets. This condition highlights the advantage of the VAR/VECM method, which can project the dynamic impact of fluctuating factors. Meanwhile, the significant causal relationship between the Indonesian Sharia stock exchange and the stock exchanges in Egypt, Saudi Arabia, Bahrain, Oman, and the United Arab Emirates indicates high domestic investor activity in trading on those foreign stock exchanges. Additionally, the Oman stock exchange has a reciprocal relationship with the Indonesian Sharia stock exchange, although this relationship has not reached long-term sustainability.

The phenomenon of the COVID-19 crisis has negatively impacted the performance of the Indonesian Sharia capital market, which was felt worldwide. This is due to Indonesia's high dependence on foreign countries, especially on several developed countries such as the United States and China. During a crisis, stock selection activities can still be carried out with developing countries rather than developed countries, as long as they have low correlation values, such as the relationship with Arab countries and other OIC members, which have a low correlation with the domestic Sharia index. This is done to anticipate investment losses from the crisis's impact

CONCLUSION

Cointegration testing of 12 Sharia stock indices in the region of OIC member countries against the Indonesian Sharia stock market index, proves that only Pakistan's Sharia stock index has no causal relationship with the Indonesian Sharia index. Meanwhile, the cointegration testing and contagion effect showed that the Malaysian Islamic Stock Exchange with the FBMS and FBMHS index indicators were cointegrated with the Indonesian stock exchange, as well as contributing to transmitting shocks to the JII and ISSI indices with proportions reaching 34% and 16%, respectively, at the beginning of the Covid-19 pandemic. Based on the results of this study, the researcher recommends that investors open investment opportunities to stock exchanges in the Arab region, especially during international market turmoil.

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