ANALYZING THE DYNAMICS OF ISLAMIC STOCK MARKET INDICES IN SEVERAL MUSLIM COUNTRIES

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ABSTRACT

Purpose: Analyzing stock price is very necessary to identify the overall price of the stock index, which the market players have various options and references to invest their money in the profitable securities portfolio. Based on the reason, the aim of this study is to examine the Islamic stock price movement in several Muslim countries joined in the Islamic Conference Organization (IOC).

Theoretical Framework: This study refers to the theoretical framework that the integrated capital market can help everyone in analyzing the quality and quantity of the Islamic stock price movement, including its challenges and opportunity in the context of investment risk management.

Design/Methodology/Approach: This research uses a descriptive-analytical method and comparative approach to examine the tends of Islamic stock price movement in six Muslim countries from the period January 2010 to December 2019, namely JII-Indonesia, DJIMY-Malaysia, DJTR-Turkey, DJJMKW-Kuwait, TDWL-Saudi Arabia, and QEAR-Qatar, which are analyzed quantitatively, statistically, and deductively.

Findings: The results of the research show that the co-integrated of Islamic Stock Index are JII-Indonesia with DJIMY-Malaysia, JII-Indonesia and DJJMKW-Kuwait, DJIMY-Malaysia with DJJMKW-Kuwait, DJTR-Turkey with DJJMKW-Kuwait, QEAR-Qatar with DJJMKW-Kuwait. The Islamic stock index pairs confirmed through the VAR and VECM tests are only DJIMY-Malaysia with QEAR-Qatar, DJIMY-Malaysia with DJJMKW-Kuwait, and TDWL-Saudi Arabia with QEAR-Qatar.

Research, Practical & Social Implications: This study becomes one example of the practical analysis of Islamic Stock Market movements that can be used to the stock market players in taking the consideration and decision for the investment in capital market.

Originality/Value: This result of this study is originally limited in the Islamic stock index in six Muslim countries such as Indonesia, Malaysia, Turkey, Saudi Arabia, Qatar, and Kuwait. However, this can be explored more comprehensively in the same or various research objective by the other researchers.

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ANALISANDO A DINÂMICA DOS ÍNDICES DO MERCADO ISLÂMICO DE AÇÕES EM PAÍSES MUÇULMANOS

RESUMO

Objetivo: Analisar o preço das ações é muito necessário para identificar o preço geral do índice de ações, no qual os participantes do mercado têm várias opções e referências para investir seu dinheiro na carteira de títulos

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rentable. Con base en el motivo, el objetivo de este estudio es examinar el movimiento del precio de las acciones islámicas en varios países musulmanes que adhirieron a la Organización de la Conferencia Islámica (OCI).

Referencial Teórico: Este estudio se refiere al referencial teórico de que el mercado de capitales integrado puede ayudar a todos en la evaluación de la calidad y la cantidad del movimiento del precio de las acciones islámicas, incluyendo sus desafíos y oportunidades en el contexto de la gestión de riesgo de inversión.

Diseño/Metodología/Abordaje: Esta investigación utiliza un método descriptivo-analítico y un enfoque comparativo para examinar las tendencias del movimiento del mercado de valores islámico de los precios de las acciones en seis países musulmanes en el período de enero de 2010 a diciembre de 2019, o sea, JII-Indonesia, DJIM-Malasia, DJTR-Turquia, DJIMKW-Kuwait, TDWL-Arabia Saudita y QEAR-Qatar, que son analizados cuantitativa, estadísticamente y deductivamente.

Resultados: Los resultados de la pesquisa muestran que los co-integrados del Índice de Acciones Islámicas son JII-Indonesia con DJIM-Malasia, JII-Indonesia y DJIMKW-Kuwait, DJIM-Malasia y DJIMKW-Kuwait, DJTR-Turquia con DJIMKW-Kuwait, QEAR-Qatar con DJIMKW-Kuwait. Los pares de índices de acciones islámicos confirmados a través de las pruebas VAR Y VECM son solo DJIM-Malasia con QEAR-Qatar, DJIM-Malasia con DJIMKW-Kuwait y TDWL-Arabia Saudita con QEAR-Qatar.

Implicaciones de Investigación, Prácticas y Sociales: Este estudio se convierte en un ejemplo de la evaluación del movimiento del mercado de valores islámico que puede ser utilizado por los actores del mercado de valores al tomar la consideración y la decisión de invertir en el mercado de capitales.

Originalidad/Valor: Este estudio es originalmente limitado en el índice de acciones islámico en seis países musulmanes, como Indonesia, Malasia, Turquía, Arabia Saudita, Qatar y Kuwait. No entanto, esto puede ser explorado de manera más abrangente en el mismo o en varios objetivos de pesquisa por otros pesquisadores.

Palabras clave: Análisis, Dinámica, Islámico, Existencias, Mercado, Índices, Ganancias.
INTRODUCTION

The Islamic Conference Organization (ICO) is very well known as the second largest interstate organization after the United Nations. The Islamic economy is growing rapidly in these countries (Ceylan & Dogan, 2004; Ergun & Hassan, 2009). Financial liberalization resulted in capital market integration and the direction of development of the stock market is towards global integration. Stock markets around the world are increasingly open as information and economic policies of countries become more open. Economic globalization is fueling movements in stock markets around the world. Under perfectly integrated international financial market conditions, the value and risk characteristics are also the same when also traded to all markets and investors (Froot & Debora, 1999; Kearney & Lucey, 2004). Financial integration including the capital market is a multidimensional process. The correlation of returns across countries increases due to increased synchronization among financial markets (Bley, 2009; Park, 2013). Market integration in the context of building a country's economy requires harmonization and alliances with other countries. Shared understanding between countries on economic and financial policies to reduce distortion of capital market financial information. Integration can meet the funding needs of companies from cross-border capital market investors. Financial liberalization strengthens the occurrence of international financial transmission (Ben Rejeb & Boughrara, 2015; Carabias, 2018).

Capital market integration has advantages and disadvantages. On the one hand, the integration of benefits is to provide greater opportunities to realize higher economic growth because with the integration of the financial system between countries, foreign capital will be more free to enter. Countries that invest in other countries get a return on investment. Integration promotes financial market efficiency, increases transaction volume, reduces information asymmetry. The flow of information and the quality of information is improved because it allows investors to evaluate investments remotely more carefully and quickly. An increase in market size and an increase in the availability of goods and services can lower the cost of trade, increasing efficiency leading to greater purchasing power and of course increases global economic growt (Yu et al., 2010; Albulesscu & Pepin, 2018; Selvarajan & Ab-Rahim, 2020). On the other hand, market integration also has a negative impact, namely triggering the risk of financial contagion and financial instability, although the magnitude of the impact depends on the immunity of each country (Albulesscu & Pepin, 2018; Selvarajan & Ab-Rahim, 2020).

Financial integration including the capital market is a multidimensional process (Park, 2013). The popular issue of integration or movement of capital markets has been extensively
examined in financial studies (Almshabbak & Chouaibi, 2023). For example, Kasa (1992) shows that the equity market index prices of all five major industrial countries cointegrated. Goetzmann et al., (2005) find correlation variations over time during the period of economic and financial integration of the late 19th and 20th centuries. Guesmi & Nguyen (2011) tested the integration of capital markets in developing countries. The results show that the level of integration varies over time. Guesmi (2013) investigates the stock market integration within the Middle East region. The results prove that capital markets in Middle Eastern countries are highly integrated regionally. There has been a strong and continuous integration of the US capital market into global markets in the last 20 years (Rana & Phillips, 2016). The variation in the level of integration is determined by the volatility of the inflation rate and the exchange rate. Alotaibia and Mishra (2017) examined the market integration of the stock markets of the member countries of the Gulf Cooperation Council. The results showed that international trade, progress in financial markets, developments in oil prices had a significant positive effect on the stock market integration index. In addition, the global financial crisis had a negative impact on the integration index (Hoong, Ling, Hassan & Abdullah, 2023).

However, the results of several previous studies indicate that the traditional view of capital market comovement is not yet complete (Barberis et al., 2005). Assidenou (2011) prove that there is an understanding that an integrated financial market will cause volatility, disruption to economic or financial exposure of other countries. Kollias et al., (2013) show that in the situation of global financial market integration, events such as terrorism events, information about these events creates a great potential for shock and will have a strong potential to transmit negative effects that are transmitted across countries and across markets. Goodman, et al., (2018) prove that the option market is not fully integrated in the global information that underlies option pricing. Padungsaksawasdi et al., (2019 as well as Baghaee, Etemadi & Sepasi (2023). show that international phenomena are not proven to always apply in certain countries or have an impact on other stock markets. Wu (2020) and Flayyih & Khiari (2022) show that stock market integration in East and Southeast Asia is not as strong as expected, despite the government's promotion of financial market collaboration and integration. The interconnectedness of financial markets is due more to the influence of global markets than to individual markets. The results of research by Selvarajan & Ab-Rahim (2020) show that there is no significant relationship between financial integration and financial growth in the Asian region after the 1998 economic crisis.
The research results of Chebab, et al., (2020) provide evidence that in Eastern, Central and North African countries, the development of the financial sector, such as the capital market, does not have a positive correlation with economic growth. In the long term, the U-shaped association is inverted between financial sector development and economic growth. Ibrahim Ahmed Onour (2009) tested using non-parametric tests. The result, shows that there is strong evidence of bivariate and multivariate nonlinear cointegration between the five stock markets of the GCC member countries. Bivariate non-linear relationship between the Kuwait stock market and the respective Saudi Arabian markets, the Saudi Arabian stock market and several other GCC member countries. However, economic integration in ASEAN member countries has not gone smoothly as expected (Shi & Yao, 2020).

Likewise in Central and South Asian countries, the results of research by Hesary et al., (2020) show that financial integration among members of the Central Asian and South Asian co-operation has not materialized due to obstacles, lack of infrastructure support, resulting in barriers to entry. investment from abroad. Financial transparency between participating all countries through official government mechanisms is an important prerequisite for realizing financial integration. Financial information, whether presented by the government or public media, plays an important role in the international stock market, although the magnitude of the impact varies from country to country (Chen, et al., 2020).

Moreover, the first Islamic financial institution was officially formed in 1963 in Egypt. Furthermore, Islamic finance has developed increasingly into an adaptive system of international business practices including the capital market. The first Islamic capital market index was the Dow Jones Islamic Market Index (DJIM) which was first launched on February 9, 1999 in Bahrain (Moran, 1999). Therefore, the capital markets of countries in the Asian region have experienced an increase in their level of capital market integration in the recent period (Wu, 2020), The Islamic Stock Index is an indicator of the activity of the capital market (Kassim, 2013).

Research regarding the direction of stock price movements in the Islamic stock market is still inconclusive. Hafner and Herwartz (2006) ’s recently developed causality-in-variance test provides evidence of risk transfer between these apparently disparate equity markets, suggesting contagion between them over the full and sub-period samples. This market volatility structure is dominated by short-term volatility in the first period and by high long-term volatility in the second period (Diem, 2023). The analysis of the volatility impulse response shows a similar volatility transmission pattern despite being various characterized by a more volatile
and short-lived structure in the second period. It appears that Islamic equity markets have also responded to shocks from risk factors rather than from oil prices and US economic policy uncertainty indices during both periods. Dewandaru et al., (2014) show that the joint movement of cross-country stock markets is an indicator of the integration of the Islamic stock market. Bouoiyour et al. (2018) prove that advanced and emerging Islamic stock markets have varying levels of efficiency from time to time. Islamic stock market is not efficient in the short term. developing Islamic stock markets are less efficient than advanced Islamic markets. advanced Islamic stock markets are more persistent.

Therefore, according to Yusup, Sobana & Yulandri (2022), this object has several scientific contributions to be studied in business learnings. First, the research provides additional empirical evidence testing the direction of changes in stock prices listed on several leading Islamic stock indexes. Second, the study examines the movement of the short-term and long-term Islamic stock indexes to see the level of sensitivity for each period. third, this study tests the number of Islamic stock markets in more countries and geographical locations that are spread out, not just one region, so that it more accurately describes the transmission mechanism of international capital market integration. Islamic stock indexes are those used in countries that are committed to developing Islamic capital markets. namely Indonesia (Jakarta Islamic Index), Malaysia (Dow Jones Islamic Market Malaysia Titans 25), Turkey (Dow Jones Islamic Market Turkey), Saudi Arabia (Tadawul All Share Index), Qatar (QE Al-Rayan Islamic Index Qatar), and Kuwait (Dow Jones Islamic Market Kuwait).

LITERATURE REVIEW

The Concep of Stock Investment in Islamic Finance

Religion is the key to human culture (Kumar et al., 2011). Islamic finance is different in philosophy, which is reflected in the Sharia Stock Index. Islamic capital market has unique characteristics in terms of sharia compliance, It is a benchmark for fund owners in choosing sharia-compliant investment products (Moran, 1999). The process of screening the shares of members of the Islamic stock index is based on strict Sharia prohibitions and rules on both qualitative and quantitative aspects to assess adherence to Islamic principles (El Khamlichi et al., 2014). Stock prices may display a high degree of coherence depending correlation of country productivity shocks (Kasa, 1992).

Stock market integration can be explained using the Efficient Market Hypothesis (EMH). Fama et al, 1969) argues that the characteristic of an efficient financial market is the
ability to speed up the curve of adjustment in the presence of new information. served on the market. Financial globalization has initiated the simultaneous movement of financial markets between countries and between regions and transnational in asset allocation. The characteristic of financial globalization is the internationalization of the stock market in each country. Capital market integration is part of economic integration. The Economic Integration Agreement aims to improve the viability of export relations even though the effect differs between types of products (Kearney & Lucey, 2004; Türkcan & Saygılı, 2018). International or regional economic integration should aim to provide benefits to all participating countries. The requirements are a complete cooperation mechanism and an effective and uniform business environment, the provision of adequate financial infrastructure without trade barriers (Hesary et al., 2020).

The characteristic of an integrated capital market is indicated by the high correlation between stock returns between the stock exchanges of the cooperative member countries. This is done through industrial convergence and economic policies with deregulation, opening of markets and financial systems between participating countries (Brooks & Negro, 2002; Click & Plummer, 2003). Financial integration of the capital market is characterized by the existence of a unidirectional movement of share prices between stock exchanges in all member countries of the cooperation agreement (Al Maani, Issa, Alghananim & Aljada, 2023). In this context, the capital market integration agreement between countries is based on economic factors so that financial conditions in the world in general will systematically affect all capital markets. Local investors in Asian capital markets are unable to avoid the influence of foreign capital markets even though some stock markets in local Asian countries are still not fully open to foreign investors (Assidenou, 2011). Information on events in a country will transmit quickly and have implications for changes in the international market structure as well in turn, there are changes in stock prices and fundamentals, especially shares of multinational companies, either positive or negative information (Smajlbegovic, 2018).

In a fully integrated global financial condition, allowing for the consolidation of segmented portfolio risk, the volatility of domestic consumption decreases, each domestic asset will be valued relative to the level of return on the international market (Emiris, 2002; David Hillier & Tiago Loncan, 2019). A portfolio of regional or international economic activity is related to risk factors and the amount of risk can affect asset prices. Financial integration can ultimately lead to lower equity costs (Hillier and Loncan, 2019, Acharya & Pedersen, 2005; Smajlbegovic, 2018). Wang & Guo (2020) Co-movement is a change in the attributes of
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The financial integration are related to economic risks due to differences in the specific characteristics of each country. Financial integration is imperfect and can cause volatility in the economy. Integration is burdensome for developing countries that do not have good governance, unstable financial conditions, fluctuations in capital flows, insufficient corporate liquidity and are prone to economic crises. Inflationary pressures are too high, monetary expansion and exchange rate appreciation due to large and fast capital inflows can have a negative impact on the stability of small and developing economies (Selvarajan & Ab-Rahim, 2020). Between countries, the quality and quantity of information available vary, the level of asymmetric information will be reflected in the bid-ask spread of stock prices (Elbadry, et al, 2015).

The success of capital market integration is also influenced by the characteristics and success of corporate governance in facing global competition. The more companies that succeed in preparing and implementing good governance, the more they will succeed in growing positively, which in the end, many foreign investors are willing to invest in these companies (Smajlbegovic, 2018).

**Islamic Stock Investment for Short-Term Interests**

Integration makes stock markets between countries become synchronous, price adjustments is getting shorter (Agurto, Rodriguez, Delgado, Santa Cruz, Ramírez & Gavidia, 2023). Youcef & Adewale (2017) proves the existence of integration and two-way relations in the stock markets of Indonesia, Malaysia, Saudi Arabia and Turkey in the aftermath of the crisis. The calculation of the potential profit on the international portfolio is calculated with a relatively short payback period (Kasa, 1992; Thalassinos & Thalassinos, 2006).
Moreover, Hillier & Loncan (2019) found that stock market integration has a positive impact on encouraging companies to have the best governance. Stock market integration generates benefits to the domestic economy even though the magnitude is not evenly distributed across firms. Stock market integration reduces expected return, reduces systematic risk and lowers the cost of capital. Kollias et al, (2013) proves that there is a level of integration which is shown by the effect of changing market volatility between the three largest stock markets in the European Union, namely London, Frankfurt and Paris at the time of the London Bombing on July 7, 2005. Based on previous explanations and research, the hypothesis can be formulated that H1 (There is a short term comovement between Islamic stock indices).

**Islamic Stock Investment for Long-Term Interests**

Rehman & Shah (2016) proves the existence of a long-term integrated relationship between the Indian and Pakistani stock markets. Many factors play an important role in the conditions of stock market integration, namely the strength of economic ties, coordination of economic policies, deregulation of the stock market and financial liberalization, the financial crisis, the strength of the contagion effect (Agurto, Rodriguez, Delgado, Santa Cruz, Ramírez & Gavidia, 2023). Stock market integration will increase market efficiency. Stock markets in countries with open financial regimes show more stable and consistent long-term demand volatility than countries with closed financial regimes (Albulescu & Pepin, 2018).

The results of the study (Gourene, 2019) reveal that the integration of stock exchanges in African countries tends to grow over time, even though it is still on a small scale, the transmission of financial information from one market to another country's stock market is still slow. Realizing large-scale capital market integration requires policies that encourage faster information transmission and more effective promotion of the stock market. Nepal, et al., 2019) show evidence that there is a cointegration of long-term and stable money demand functions in the economies of the South Asian regional countries. Based on previous explanations and research, the hypothesis can be formulated that H2 (There is a short term comovement between Islamic stock indices).

**METHOD**

**The Research Method**

The research uses descriptive-analytical method and is a quantitative approach (Tian, 2023). The data used in this study are closing price data for the monthly Islamic stock index for
the period January 2010 to December 2019. Monthly data obtained through the website www.investing.com. This data uses monthly data in order to obtain adequate data and have strong testing power as was done by (Kasa, 1992). Data is also limited until 2019 to get clean data on the impact of the Corona Virus Disease, the infected victim was first identified on March 2, 2020.

Population and Sample

The population and sample on the Islamic stock indices that are sampled are Islamic stock indices originating from six member countries joined in the Islamic Conference Organization, namely Jakarta Islamic Index (JII) Indonesia, Dow Jones Islamic Market Malaysia Titans 25 (DJIMY); Dow Jones Turkey Islamic Market (DJTR); Dow Jones Islamic Market Kuwait (DJIMKW), Tadawul Saudi Arabia (TDWL) and QE AL Rayan Islamic Index (QEAR). These Islamic stock indices were selected as a sample of Islamic stock market indices because the companies included in the selection applied Sharia Compliance criteria and joined the Islamic Conference Organization (IOC) and the availability of data over the period of 2010–2019.

Operational Variables

The Islamic stock index used in this study is calculated using the same formula, namely:

a. Jakarta Islamic Index (JII) Indonesia. It is a stock index that calculates the average price index of 30 stocks that meet the criteria of sharia, which are traded on the Indonesia Stock Exchange each period.

b. Dow Jones Islamic Market (DJIM). It is the first index that applies sharia investment principles. DJIM was further developed in each country to become the Dow Jones Islamic Market Malaysia Titans 25 (DJIMY); Dow Jones Islamic Market Turkey (DJTR); Dow Jones Islamic Market Kuwait (DJIMKW)

c. Tadawul (TDWL). It is the only stock exchange in Saudi Arabia which was established on March 19, 2007. This exchange is supervised by the Capital Market Authority.

d. QE AL Rayan Islamic Index (QEAR). It was launched on January 7, 2003 by the Qatar Exchange and the Al Rayan Investment Islamic Index is a total return index that reflects price performance and dividend share returns that comply with sharia
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(approved by the Al rayan Sharia Supervisory Board) listed on the Qatar stock exchange.

The Type of the Data Analysis

Types of investment that are not included in the calculation of the sharia market index are alcohol, tobacco, pork products and their derivatives, conventional financial businesses, weapons and the like, entertainment (gambling, music, cinema, hotels, and the like), and or having business activities in one a subsidiary or a sub-group of the industry.

Hypothesis Testing Methods

According to (Simkins, 1995; Click & Plummer, 2005, Breitung and Pesaran, 2008; El Khamlichi, 2014), in the time series data test it is necessary to carry out the Stationary Data Test, then the Unit Root Test, Augmented Dickey Fuller (ADF) and Philips Perron (PP) are used to test whether the data is stationary or not. because the data used is time series data so that the resulting regression test data is not biased. Data is considered stationary if the absolute value of the ADF statistic is greater than the critical value of the MacKinnon statistical distribution. When the time series data is not stationary, a differentiation process is carried out so that the data becomes stationary. In addition, the Optimal Lag Test to show the reaction time of one variable to other variables and free it from the effect of autocorrelation.

Granger Test is conducted to determine the causality relationship, when the probability value <alpha, then there is a causality movement. The Johansen test is a test to determine the presence or absence of cointegration based on trace statistical values. The equation is cointegrated when trace statistic value>critical value. When equations are cointegrated, VECM estimates are used, and when equations are not cointegrated, VAR estimates are used.

Vector Autoregressive (VAR) and Vector Error Correction Model (VECM), , VAR is used to explain the relationship between variables with several equations that are dynamic and influence each other . In general, the VAR (p) model can be written as follows.

\[ y_t = \alpha_0 + \alpha_1 y_{t-1} + \alpha_2 y_{t-2} + \ldots + \alpha_p y_{t-p} + \varepsilon_t \] .............................................................(1)

In this study using VAR (1), so that the form of the equation is as follows.

\[ y_t = \alpha_0 + \alpha_1 y_{t-1} + \varepsilon_t \] .........................................................................................(2)

\[ y_t = \alpha_0 + A_1 y_{t-1} + A_2 y_{t-2} + \ldots + A_p y_{t-p} + \varepsilon_{t} \] .............................................................(1)
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Explanation:

\[ y_t = \text{a vector with } n \text{ variables in the study} \]
\[ A_o = \text{intercept} \]
\[ \mu_t = \text{error vector} \]

According to Jörg Breitung & Pesar (2005), when the data is not stationary but co-integrated, the VECM approach can be used because VECM is a restricted VAR and allows short and long term causality between variables. The VECM model can be written as follows.

\[ \Delta Y_t = A_o + \Gamma_1 \Delta Y_{t-1} + \Gamma_2 \Delta Y_{t-2} + \Pi Y_{t-1} + \nu_t \]

\[ \Delta Y_t = \text{the vector contains the variables in the study} \]
\[ A_o = \text{intercept} \]
\[ \Gamma_1 = \text{regression coefficient matrix} \]
\[ \Pi = \text{a matrix containing the long-run cointegration equation} \]
\[ Y_{t-1} = \text{variable at level} \]
\[ \nu_t = \text{error vector} \]

VAR/VECM Model Stability Test to determine whether the model is stationary or not. The model is stationary or valid when the modulus value < 1. Impulse Response Function (IRF) aims to trace the evolution of the tested variable during a certain period after a shock at a certain moment. Forecast Error Decomposition Variance (FEDV) Test. FEDV analysis aims to predict the percentage of variance of each variable due to changes in certain variables in the VAR system (Hillier and Loncan, 2019).

RESULT AND DISCUSSION

The Results of Descriptive Statistic Analysis

Descriptive Statistics Descriptive statistical calculations with the help of Eviews 9 software are presented in the table below.
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Graph 1: Sharia Stock Index Movement Chart

Source: Formatted data processing results from Eviews, 2020

Unit Root Test Stationary Test

<table>
<thead>
<tr>
<th></th>
<th>Level 1st difference</th>
<th>Level ADF</th>
<th>PP</th>
<th>1st difference ADF</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>JII</td>
<td>-3.031451</td>
<td>-10.95506</td>
<td>-11.42351</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DJIMTR</td>
<td>-2.878614</td>
<td>-12.49692</td>
<td>-14.65870</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DJIMY</td>
<td>-2.510733</td>
<td>-11.60409</td>
<td>-13.11994</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QEAR</td>
<td>-1.789321</td>
<td>-1163407</td>
<td>-11.73223</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDWL</td>
<td>-2.128670</td>
<td>-96.96276</td>
<td>-96.25070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DJIMKW</td>
<td>-3.977095</td>
<td>-98.31193</td>
<td>-37.76333</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Critical Value</td>
<td>-3.448.021</td>
<td>-3.448.348</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Formatted data processing results from Eviews, 2020

Based on the results of the unit root test in Table 1 using the Augmented Dickey Fuller and Philips Pheron methods, it is known that the data is not stationary at the level, because the ADF test statistic<critical point at the 5% real level. However, the data is stationary at difference 1, because the ADF test statistic is> the critical point at the real level of 5%.

Determination of Optimal Lag

<table>
<thead>
<tr>
<th>Lag</th>
<th>AIC</th>
<th>SIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>73.21*</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>69.27*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VAR (1)</td>
<td>VAR(14)</td>
</tr>
<tr>
<td>Adj.R-squared</td>
<td>0.915383</td>
<td>0.910964</td>
</tr>
</tbody>
</table>

Source: The results of data processing formatted from Eviews, 2020
Based on the AIC and SIC criteria, two lag candidates were produced, namely 1 and 14 indicating that the VAR system with lag 1 gave a higher Adj.R-squared, with a value of 0.915383 compared to lag 14, namely 0.910964.

Table 3. Output VAR (1) between JII, DJIMY, DJTR, TDWL and QEAR

<table>
<thead>
<tr>
<th>Variable</th>
<th>JII</th>
<th>DJIMY</th>
<th>DJIMTR</th>
<th>TDWL</th>
<th>QEAR</th>
<th>DJIMKW</th>
</tr>
</thead>
<tbody>
<tr>
<td>JII</td>
<td>0.83728</td>
<td>0.03568</td>
<td>0.62259</td>
<td>1.15704</td>
<td>0.56412</td>
<td>0.19310</td>
</tr>
<tr>
<td>DJIMY</td>
<td>0.03708</td>
<td>0.89721</td>
<td>-0.22646</td>
<td>1.03813</td>
<td>0.27797</td>
<td>-0.06343</td>
</tr>
<tr>
<td>DJIMTR</td>
<td>0.00228</td>
<td>0.000052</td>
<td>0.96671</td>
<td>0.010407</td>
<td>-0.00986</td>
<td>0.000807</td>
</tr>
<tr>
<td>TDWL</td>
<td>-0.00442</td>
<td>-0.00006</td>
<td>-0.01760</td>
<td>0.94286</td>
<td>0.06318</td>
<td>0.05618</td>
</tr>
<tr>
<td>QEAR</td>
<td>0.00764</td>
<td>0.000015</td>
<td>0.00122</td>
<td>-0.17175</td>
<td>0.85552</td>
<td>-0.08956</td>
</tr>
<tr>
<td>DJIMKW</td>
<td>-0.00583</td>
<td>0.00604</td>
<td>-0.11875</td>
<td>-0.08474</td>
<td>-0.29921</td>
<td>0.22844</td>
</tr>
<tr>
<td>C</td>
<td>7.17962</td>
<td>7.34721</td>
<td>2.33349</td>
<td>-7.05874</td>
<td>-3.31230</td>
<td>3.986784</td>
</tr>
</tbody>
</table>

Source: Formatted data processing results from Eviews, 2020

Based on Table III, the VAR equation (1) for the relationship between JII Indonesia, DJIMY Malaysia, DJTR Turkey, TDWL Saudi Arabia and QEAR Qatar is as follows.

\[
\Delta JII = 7.17962 + 0.83728 \Delta JII_{t-1} + 0.03568 \Delta DJIMY_{t-1} + 0.00228 \Delta DJTR_{t-1} + 0.00764 \Delta QEAR_{t-1} - 0.00583 \Delta DJIMKW_{t-1} \tag{4}
\]

\[
\Delta DJIMY = 7.34721 + 0.03568 \Delta JII_{t-1} + 0.89721 \Delta DJIMY_{t-1} + 0.000052 \Delta DJTR_{t-1} - 0.00006 \Delta TDWL_{t-1} + 0.000015 \Delta QEAR_{t-1} + 0.00604 \Delta DJIMKW_{t-1} \tag{5}
\]

\[
\Delta DJTR = -0.11875 + 0.62259 \Delta JII_{t-1} - 0.22646 \Delta DJIMY_{t-1} + 0.96671 \Delta DJTR_{t-1} - 0.01760 \Delta TDWL_{t-1} + 0.00122 \Delta QEAR_{t-1} - 0.11875 \Delta DJIMKW_{t-1} \tag{6}
\]

\[
\Delta TDWL = -7.05874 + 1.15704 \Delta JII_{t-1} + 1.03813 \Delta DJIMY_{t-1} + 0.010407 \Delta DJTR_{t-1} - 0.94286 \Delta TDWL_{t-1} + 0.17175 \Delta QEAR_{t-1} - 0.08474 \Delta DJIMKW_{t-1} \tag{7}
\]

\[
\Delta QEAR = -3.31230 + 0.56412 \Delta JII_{t-1} + 0.27797 \Delta DJIMY_{t-1} - 0.00986 \Delta DJTR_{t-1} + 0.06318 \Delta TDWL_{t-1} + 0.85552 \Delta QEAR_{t-1} - 0.29921 \Delta DJIMKW_{t-1} \tag{8}
\]

\[
\Delta DJIMKW = 3.986784 + 0.19310 \Delta JII_{t-1} - 0.06343 \Delta DJIMY_{t-1} + 0.000807 \Delta DJTR_{t-1} + 0.05618 \Delta TDWL_{t-1} - 0.08956 \Delta QEAR_{t-1} + 0.22844 \Delta DJIMKW_{t-1} \tag{9}
\]

Granger Causality Test

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DJIMY does not Granger Cause JII</td>
<td>0.5721</td>
</tr>
<tr>
<td>JII does not Granger Cause DJIMY</td>
<td>0.4184</td>
</tr>
<tr>
<td>DJTR does not Granger Cause JII</td>
<td>0.5251</td>
</tr>
<tr>
<td>JII does not Granger Cause DJTR</td>
<td>0.2632</td>
</tr>
</tbody>
</table>
Based on the test results in table 4 it proves that the four pairs of Islamic stock indexes that have a probability value < alpha (0.05), which means that they have a causal relationship, namely JII (Indonesia) with DJIMKW Kuwait (0.0441), DJIMY Malaysia with QE AL RAYAN Qatar (0.0476), TADAWUL Saudi Arabia with QE AL RAYAN (0.0384), DJIMKW Kuwait with QE AL RAYAN Qatar (0.0068). Meanwhile, the other pairs of the country's Islamic stock index have a probability > alpha (0.05), which means that there is no causality relationship.

**Johansen Cointegration Test**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Uji Trace</th>
<th>2 cointegration</th>
<th>no cointegration</th>
<th>1 cointegration</th>
</tr>
</thead>
<tbody>
<tr>
<td>JII and DJIMY</td>
<td>None</td>
<td>0.044*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At most 1</td>
<td>0.012*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JII and DJTR</td>
<td>None</td>
<td>0.284</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At most 1</td>
<td>0.615</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JII and TDWL</td>
<td>None</td>
<td>0.219</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At most 1</td>
<td>0.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JII and QEAR</td>
<td>None</td>
<td>0.425</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At most 1</td>
<td>0.704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JII and DJIMKW</td>
<td>None</td>
<td>0.014*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At most 1</td>
<td>0.085</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Formatted data processing results from Eviews, 2020
Based on the Johansen Test results in table V which has cointegration with the Trace Test value<0.05, it is known that there are 5 Islamic stock index pairs, namely: JII Indonesia and DJIMY Malaysia with 2 cointegration (0.044 and 0.012) which means having, having short-term and long-term relationships. JII Indonesia and DJIMKW Kuwait have 1 cointegration with a value of (0.014) which means they have a short-term relationship. DJIMY Malaysia and DJIMKW Kuwait occur 1 cointegration with a value of (0.026) which means they have a short-term relationship. DJTR Turkey and DJIMKW Kuwait occur 1 cointegration with a value of (0.027) which means they have a short-term relationship. QE AL RAYAN Qatar with DJIMKW Kuwait occurs 1 cointegration with a value of (0.015) which means it has a short-term relationship. Other pairs are not cointegrated. Furthermore, the co-integrated object pairs will then be tested using VECM, while the non-cointegrating object pairs are tested again using VAR to confirm the results.

### VAR / VECM Stability Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Modulus</th>
<th>VAR</th>
<th>VECM</th>
</tr>
</thead>
<tbody>
<tr>
<td>JII and DJIMY</td>
<td>1</td>
<td></td>
<td>Stable</td>
</tr>
<tr>
<td></td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JII and DJTR</td>
<td>0.98</td>
<td></td>
<td>Stable</td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JII and TDWL</td>
<td>0.93</td>
<td></td>
<td>Stable</td>
</tr>
</tbody>
</table>

Source: Formatted data processing results from Eviews, 2020
Based on table 6, it is known that the modulus value of each object pair is not more than one, so that the VAR / VECM model is stable. So that the VAR / VECM estimation process can be carried out.

**VAR/VECM Estimation**

<table>
<thead>
<tr>
<th>Object Pairs</th>
<th>JII</th>
<th>DJIMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>JII &amp; DJIMY</td>
<td>0.3635</td>
<td>-0.81552</td>
</tr>
<tr>
<td>JII &amp; DJTR</td>
<td>0.63736</td>
<td>1.12442</td>
</tr>
<tr>
<td>JII &amp; TDWL</td>
<td>-0.57781</td>
<td>12.423</td>
</tr>
<tr>
<td>JII &amp; QEAR</td>
<td>1.26092</td>
<td>0.35355</td>
</tr>
<tr>
<td>JII &amp; DJIMKW</td>
<td>1.15263</td>
<td>1.15263</td>
</tr>
<tr>
<td></td>
<td>DJIMY</td>
<td>DJTR</td>
</tr>
<tr>
<td>------------------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>DJMY</td>
<td>TDWL</td>
</tr>
<tr>
<td></td>
<td>DJMY</td>
<td>QEAR</td>
</tr>
<tr>
<td></td>
<td>DJMY</td>
<td>DJIMKW</td>
</tr>
<tr>
<td></td>
<td>DJTR</td>
<td>TDWL</td>
</tr>
<tr>
<td></td>
<td>DJTR</td>
<td>QEAR</td>
</tr>
<tr>
<td></td>
<td>DJTR</td>
<td>DJIMKW</td>
</tr>
<tr>
<td></td>
<td>TDWL</td>
<td>QEAR</td>
</tr>
<tr>
<td></td>
<td>TDWL</td>
<td>DJIMKW</td>
</tr>
<tr>
<td></td>
<td>QEAR</td>
<td>DJIMKW</td>
</tr>
<tr>
<td>t tabel (5%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Formatted data processing results from Eviews, 2020

Based on the VAR and VECM tests in table VII above, the stock market that has $t$ count> t table (1.65833) is said to have a relationship between the stock market, namely DJIMY Malaysia with QE AL RAYAN Qatar (2.00180), DJIMY Malaysia and DJIMKW Kuwait (1.81795) as well as TDWL Saudi Arabia with QE AL RAYAN Qatar (2.09433) which has long-term influence.

**Impulse Response Function (IRF)**
JII Indonesia with DJIMKW Kuwait

Graph 2: Impulse Response Function

Source: Formatted data processing results from Eviews, 2020
Based on Graph 2, the response of JII Indonesia continues to increase towards DJIMKW Kuwait during the observation period, likewise the response of DJIMKW Kuwait to JII Jakarta tends to increase, the decline only occurs in the third period.

**DJIMY Malaysia with DJIMKW Kuwait**

**Graph 3: Impulse Response Function**

Source: Formatted data processing results from Eviews, 2020

Based on Graph 3, it appears that each shock to DJIMY Malaysia does not really have a permanent impact on DJIMKW Kuwait and vice versa, the trend tends to decline approaching the equilibrium point even negative. DJIMY Malaysia shock will make DJIKW Kuwait negative response and vice versa.
Based on Graph 4, QEAR Qatar response to DJIMY Malaysia during all periods has an increasing trend. The shocks at DJIMY Malaysia had a permanent effect on QEAR Qatar. On the other hand, DJIMY Malaysia's response to QEAR Qatar has a downward and negative trend away from the equilibrium point which means that when a shock occurs in QEAR Qatar, DJIMY Malaysia will respond negatively to shocks in QEAR Qatar.

Tadawul with QE al rayan

Source: Formatted data processing results from Eviews, 2020
Based on Graph 5, QEAR Qatar will respond permanently to shocks in Saudi Arabia’s TDWL but Saudi Arabia’s TDWL will respond negatively to shocks in QEAR Qatar as a decreasing and negative pattern moves away from the balance point.

**Decomposition (VD) Variant**

JII Jakarta with DJIMKW Kuwait

Graph 6: Variance Decomposition

Graph 6 shows that in year 1 when shocks occur, the JII variation is 100% contributed by the JII condition itself. In the 10th year, when there was a shock in JII Indonesia the variation was 95.95% due to changes in JII Indonesia and the remaining 4.04% was due to changes in DJIMKW Kuwait.

In year 1, when shocks appeared in DJIMKW Kuwait, 98.96% was caused by factors in DJIMKW Kuwait itself and 1.03% was due to changes in JII Indonesia. In the 10th year of JII Indonesia, the level of contribution to changes in DJIMKW Kuwait was 10.94% and 89.6% due to conditions in DJIMKW Kuwait itself.
DJIMY Malaysia with DJIMKW Kuwait

Graph 7: Variance Decomposition

Based on Graph 7, in year 1, the occurrence of variation in DJIMY Malaysia was 100% due to changes in conditions in DJIMY Malaysia itself, fluctuating for the following year. In the 10th year of shocks, 99.98% of the DJIMY variations were caused by DJIMY and the remaining 0.02% was caused by DJIMKW. Second, in the first year of shocks, the 99.98% variation in DJIMKW was caused by DJIMKW itself and the remaining 0.02% was caused by DJIMY Malaysia. The contribution of Kuwait's DJIMKW was increasing and in the 10th year it became 1.93%.
DJIMY Malaysia with QE Al Rayan Qatar

Graph 8: Variance Decomposition

Source: Formatted data processing results from Eviews, 2020

Based on Graph 8, in the 1st year the Malaysian DJIMY variation was 100% due to the contribution of DJIMY Malaysia itself and in the 10th year it was 98.36% and the remaining 1.64% was due to QEAR Qatar. In the first year, 98.58% of Qatar QEAR was caused by QEAR Qatar itself and the remaining 1.42% was caused by DJIMY Malaysia, while in the 10th year it was 6.45%.
Haryono, S., Atika, A. (2023) Analyzing the Dynamics of Islamic Stock Market Indices in Several Muslim Countries

Tadwul Saudi Arabia with QE Al Rayan Qatar

Graph 9: Variance Decomposition

Based on Graph 9, in year 1 the variation of TDWL in Saudi Arabia was 100% caused by the TDWL of Saudi Arabia itself. And so on, in the 10th year the shock occurred, the TDWL variation of 99.67% was caused by Saudi Arabia's TDWL and the remaining 0.34% was caused by QEAR. On the other hand, the 83.15% QEAR variation in the first year was caused by QEAR itself and the remaining 16.85% was caused by TDWL and increased in the 10th year the contribution of TDWL Saudi Arabia increased in providing QEAR variations, namely 40.55% and others caused by changes in QEAR Qatar itself.

DISCUSSION

JII Indonesia and DJIMY Malaysia

The Johansen cointegration test results in table 6 show (G, K, IRR) that there is two-way cointegration or short-term and long-term cointegration although it does not show a causal relationship. These results are also in line with the results of research by Karim, et al., (2009) showing that the Indonesian market is correlated with the national market in Asean in the short and long term. Countries that are geographically close and have close relations between markets, fellow member countries of the Association of Southeast Asian Nations (ASEAN) show a higher level of market integration. One of the goals of ASEAN is to smoothen the flow
of trade between its member countries and develop stronger regional economic ties, plus that Indonesia also has a co-movement with China and Japan (Wang and Guo, 2020)

The results of research by Youcef and Adewale, (2017) which examined the short and long term relationship between the stock market in Indonesia, the stock market in Malaysia, Saudi Arabia and Turkey from January 2000 to September 2014 and divided into two groups, namely before and after the global financial crisis using Johansen co-integration analysis. The result is to prove that the stock markets of Indonesia, Malaysia, Saudi Arabia and Turkey are integrated before and after the global financial crisis and especially in the post-crisis period.

Selvarajan and Ab-Rahim (2020) show that the period before the 1998 crisis the existence of regional financial integration had stimulated economic growth even though it was low in Asian countries. However, in the post-crisis period, the occurrence of financial integration was not significantly correlated with growth. These results also confirm the results of research by Ramdhan, et al., 2016 which tested the integration of the Malaysian stock market. The result is that the Malaysian stock market is integrated with only the stock markets of some Asian countries. In addition, it also confirms the results of research by Selvarajan and Ab-Rahim (2020) which show that the period before the 1998 crisis, the existence of regional financial integration had a spur of economic growth even though it was low in Asian countries. However, in the post-crisis period, the occurrence of financial integration does not have a significant correlation to growth Academic explanation is that there is no causal relationship, possibly due to the effects of the global financial crisis, the characteristics of the Malaysian and Indonesian Islamic stock markets are both growth-stage stock markets so they are not economic in texture countries that complement each other, besides that the types of industrial products are also almost the same because of relatively the same geographical conditions.

**JII Indonesia and DJIMKW Kuwait**

Based on the results of the Granger test in table 5, the results of the Johansen cointegration test in table VI, the Impulse Response Function (IRF) test in graph 2 shows that JII Indonesia and DJIMKW Kuwait have a causal relationship, there is cointegration and also show that the response of JII Indonesia continues to increase towards DJIMKW Kuwait during the observation period, likewise the DJIMKW Kuwait response to JII Jakarta tended to increase, the decline only occurred in the third period. These results reinforce the research results of Maghyereh, et el., (2005) that there is a relationship between economic development between Indonesia which is closely related to Kuwait.
However, Indonesia is a country with a large volume of oil imports annually and the Kuwaiti economy considers the oil sector as a top priority in its development strategy as a world oil exporting country. Kuwait continues to develop several oil fields in the northern part of the country. This project involves cooperation with several foreign oil companies that will play an important role in expanding oil exports, such as the collaboration between the Indonesian Oil Company (Pertamina) and the Kuwaiti national oil company, which collaborates in developments in the fields of petroleum, liquefied natural gas (LNG), and renewable energy. This result is also in line with the research results of Karim, et al., (2009) that the Indonesian stock market integrates with the stock market of countries in Asia.

**DJIMY Malaysia and QEAR Qatar**

Based on the results of the Granger test in table 5 and the results of the cointegration test in table VI, it shows that DJIMY Malaysia and QEAR Qatar have a long-term causality and relationship but are not integrated. This result is in accordance with the statements of (Thaib, 2016; McSparren, et al., 2017) and Qatar has investment and builds trade relations between countries with developing global economic powers in Asian countries such as investing in developing the agricultural sector in ASEAN countries. Malaysian companies have secured a contract worth US $ 2.5 billion to prepare for the Qatar World Cup in 2022, the tourism industry cooperation agreement, has several agreements on the acceleration and mutual protection of investment which were signed on May 14, 2001.

Thus, we can say that the economic cooperation programs of the two countries include exhibitions, permanent industrial product in Doha in 2014, in which construction of the Harrods Hotel Commercial Complex by the Qatar Investment Foundation in Kuala Lumpur in 2013, construction of a tourist resort in Terengganu State in 2014 by Qatar Investment Cooperation, the opposite tower at the Petronas Twin Tower in Kuala Lumpur City by Qatari Diar. The closeness of the two countries because they are both members of the OIC and both have a moderate foreign policy commitment in creating peace in Islamic countries.

**DJIMY Malaysia and DJIMKW Kuwait**

Based on the results of the cointegration test in table 6 and the VAR / VECM test in table VII, it shows that DJIMY Malaysia and DJIMKW Kuwait have a long-term cointegration and relationship. This result is in accordance with (Niu, 2010) that there have been many
economic cooperation between the two countries, such as the agreement between the Malaysian government and the Kuwait Finance House (KFH) in the Malaysia's Iskandar project.

Development Region (IDR) in the state of Johor. In the Islamic banking sector, the Kuwait Financial House (KFH) also provides Islamic banking services in Malaysia (Abidin, et al., 2014; Abidin and Haseeb, 2018). However, this study does not confirm the research of Marashdeh and Shrestha, (2010) that the stock market in GCC countries is not fully integrated and there is no evidence of cointegration between the GCC stock market and developed markets.

**DJIMKW Kuwait and QEAR Qatar**

Granger test results in table V, Johansen cointegration test results in table 6 indicate that QEAR Qatar against DJIMKW Kuwait has a causal relationship, is cointegrated and has a good relationship in the short and long term. This result is in line with the research of Bouoiyour and Selmi (2019) that Kuwait and Qatar are geographically close together so that the volatility of the stock market in Kuwait increases when the crisis occurs in Qatar. Kuwait politically tries to mediate the conflict between Qatar and other Gulf countries by acting neutral, maintaining the same distance from each country as during the Qatar Crisis and Saudi Arabia (Martini, et al., 2016). There is a transfer of local information channels between individual investors that are geographically close together used in making equity decisions (Baltakys, et al., 2019).

**DJIMKW Kuwait and DJTR Turkey**

Granger test results in table V, Johansen cointegration test results in table 6 and VAR test show that the Turkish DJTR and Kuwait DJIMKW are statistically cointegrated but there is no causality relationship. This result is in accordance with the research of Marashdeh, and Shrestha, (2010) that the stock market in GCC member countries is not fully integrated and there is no evidence of cointegration between the GCC stock market and developed country markets. However, this result is not in accordance with (Atiqi, et al., 2017) that Turkey and Kuwait have cooperation in the oil energy sector, Kuwait as a member of the GCC also exports oil to Turkey. Kuwait is ranked third among the GCC member countries investing in real estate in Turkey and the number has continued to increase sharply from 2016 and 2017.

In contrast, Turkish construction companies have long been involved in various projects to build a new terminal at Kuwait airport. The two countries also collaborated in establishing the field of Islamic banking, in the 1980s established Al Baraka Turk and Kuveyt Turk with...
capital from Saudi Arabia, Saudi Arabia and Kuwait. In the Electrical energy sector, in September 2012, a consortium led by the Kuwaiti Aswar Group and South Korean companies - CX Concentrix Solar Korea, KEPCO, and Kincoa committed to developing solar energy in Turkey worth US $ 450 million. The tourism sector shows an increase in Kuwaiti tourists visiting Turkey (Habibi, 2019).

**TDWL Saudi Arabia and QEAR Qatar**

Granger test results in table V, Johansen cointegration test results in table 6 and VAR and VECM tests in table VII, Impulse Response Function (IRF) test in graph 5, shows that Saudi Arabia's TDWL and QEAR Qatar have a causal relationship, have a long-term relationship. long but not cointegrated. QEAR Qatar will respond permanently to shocks in Saudi Arabia's TDWL but Saudi Arabia's TDWL will respond negatively to shocks in QEAR Qatar as a downward and negative pattern moves away from the equilibrium point. This result is consistent with Jane Kinninmont's (2019) research that Saudi Arabia and Qatar are geographically close together as members of the GCC, which has been a cooperation agreement including the economy since 1981 and both are oil exporting countries so that oil is the main support for the country's economy.

Based on the reason, the economy will be similar and unidirectional in which the negative response of the Saudi market to shocks in Qatar is in line with the statement of Khatib (2013) that the political relationship between Saudi Arabia and Qatar is not very harmonious. Qatar claims that Saudi Arabia is not as neutral as in the Lebanon and Iran conflicts. This political policy has an impact on economic policy. However, it is not in accordance with the research results of Marashdeh and Shrestha (2010) that the stock market in member countries of the Cooperation Council of the Gulf Arab States (The Gulf Cooperation Council) or abbreviated as GCC is not fully integrated and it is not financially proven that there is cointegration between GCC stock market and developed market.

In addition, the characteristics of the portfolios of the GCC member countries differ so that international investors can diversify their portfolios and allow long-term economic benefits when investing in the GCC market. Marashdeh, et al., (2014) also show that there is no evidence of a two-way relationship between financial sector development and economic growth in the short term because Saudi Arabia does not offer attractive short-term economic policies for stock market players. The development of the financial industry and economic growth has a positive and significant relationship in the long run.
Sharia stock index pairs between other countries are not statistically cointegrated and have no relationship. These results are consistent with the results of research by (Alotaibi & Mishra, 2017) show that the average integration index estimation results based on the market portfolios of GCC member countries and the world market portfolios have decreased in value in the period after the global financial crisis. Saudi Arabia (Maghyereh et al., 2005). Frequent conflicts in GCC countries also affect financial integration. Assaf (2003) show that the Saudi Arabian stock market has been slow to respond to shocks emanating from other countries' stock markets and the stock markets of the GCC member countries are not completely efficient on regional news. The positive side provides opportunities for investors to diversify their portfolios in GCC member regions.

However, the results of this study are inconsistent with the results of research by Youcef and Adewale (2017) that there is a co-integration of the Indonesian stock market with the Saudi Arabian stock market before and after the global financial crisis. Assaf (2003) who used autoregressive vector analysis to test the dynamic interaction between stock market returns of the six countries of the Gulf Cooperation Council (GCC) (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates) and there is a feedback effect among the GCC stock market.

Chebab, et al., (2020) who tested integration in Eastern, Central and North African countries, stated that in the short term the development of capital markets does not necessarily accompany economic growth and does not have a significant relationship. Financial development and economic growth are only positively correlated and have positive implications only to a certain extent, not in all conditions and in all countries. It is necessary to synchronize policies in the financial sector and other economic sectors.

CONCLUSION

The integration of major Islamic stock indexes in the world in the short and long term has not been fully proven as reflected in the causality relationship, short and long term relationships, in response to shocks. Sharia Stock Index pairs that have a causal relationship are JII Indonesia with DJIMKW Kuwait, DJIMY Malaysia with QEAR Qatar, TDWL Saudi Arabia with QEAR Qatar and QEAR Qatar with DJIMKW Kuwait. The Sayariah Stock Index which is co-integrated are JII Indonesia with DJIMY Malaysia, JII Indonesia and DJIMKW Kuwait, DJIMY Malaysia with DJIMKW Kuwait, DJTR Turkey with DJIMKW Kuwait, QEAR Qatar with DJIMKW Kuwait. The Islamic stock index pairs confirmed by the VAR and VECM tests
are only DJIMY Malaysia with QEAR Qatar, DJIMY Malaysia with DJIMKW Kuwait, and TDWL Saudi Arabia with QEAR Qatar.

Based on the Impulse Response Function (IRF) and Varian Decomposite (VD) test, the response of JII Indonesia to shocks at the Kuwait DJIMKW increased during the observation period and vice versa. The decline only occurred in the third period. In year 1, shocks at DJIMKW Kuwait had no effect on variations in JII Indonesia and in year 10 also had a small contribution. The contribution of the JII Indonesia event to DJIMKW in the 1st year was small but increased every year until the 10th year. Moreover, the response to the shock of the DJIMY Malaysia pairing with DJIMKW did not really have a permanent impact, and vice versa, the trend tended to decline even negatively. In the 1st year, the Malaysian DJIMY variation did not have a shock effect in the Kuwait DJIMKW, while in the 10th year the DJIMY variation due to shocks in the Kuwait DJIMKW was very small, and vice versa even though the contribution of DJIMY from the 1st to the 10th year was increasing.

QEAR Qatar's response to Malaysia's DJIMY shocks is permanent and has an upward trend. On the other hand, DJIMY Malaysia's response to the QEAR QEAR shock was on a downward and negative trend. In year 1, QEAR Qatar did not contribute to the DJIMY variation and DJIMY Malaysia's contribution to QEAR Qatar was also small. In the 10th year, the contribution of each Islamic index increased. Therefore, Qatar's QEAR response shows a permanent response to shocks in Saudi Arabia's TDWL but Saudi Arabia's TDWL actually responds negatively to shocks in QEAR Qatar. In the first year, Saudi Arabia's TDWL variation was not caused by events in QEAR Qatar. Sharia issues have not become an issue that is considered crucial in the consideration of stock investors in making decisions related to stock investment. In addition, the number of countries with Islamic stock indices used as a sample has not been able to reveal significant variations between Islamic stock indices between countries because not all countries have Islamic stock indices.

Finally, this study also has limitations, which the Islamic stock index as a sample is dominated by GCC member countries namely Kuwait, Qatar and Saudi Arabia which are the samples. The results of the study show that in fact the sample test does not all have a causal relationship. This means that the movement of stock prices in these countries is not only influenced by events in member countries of the Islamic Cooperation Organization. Global trade cooperation extends beyond the members of the Organization of Islamic Cooperation. Furthermore, integration indicators need to be examined with other integration indicators to get stronger observations.
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