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ARTICLE REVIEW FORM

1. PLANNING REVIEW ARTICLES

Article Number	:	#14462
Tittle	:	Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries
Date of Manuscripts Submitted to Reviewer	:	9 November 2022
Expected completion date	:	25 November 2022

2. EXAMINATION OF THE COMPLETENESS OF THE ARTICLE

General Comments	:	Market integration has been addressed by many earlier researchers and this paper still need to provide further elaboration on its contribution to the existing literature. What the uniqueness of the Islamic stock market and Indonesian context that can contribute to the literature? This can be departure point to elaboration the paper's contribution. To improve the quality and contribution of this paper, the above suggestion should be considered.
Abstract	:	Good
Introduction	:	Good
Method	:	Good
Result & Discussion	:	Good
Conclusion & Suggestions	:	The explanation needs more elaboration. For example, how the findings of the study affect the behaviours of the market participants, and authority. Contribution to the study also need to be covered from the findings of the study

References	:	

3. ASSESSMENT

ASSESSMENT INDICATORS	Fill with Identity Column ✓			
	Very Good	**Good**	**Fair**	**Poor**
Originality		x		
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Revisi 1

1 of 11

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Hasil Revisi 1

Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries

Abstract

Economic and monetary systems all over the world are becoming increasingly intertwined as a result of globalization. The benefits of diversity for investors can be diminished by globalization-caused shocks to the Islamic stock market. The purpose of this research is to examine how the Indonesian Islamic stock index relates to other developed and developing country Islamic stock indices. Data collected daily from 2012-2021 (totaling 2088 observations) using a vector error correction model show that the Islamic stock index in Indonesia is linked to the Islamic stock index in both developed and developing nations. The Indonesian Islamic stock index had mixed reactions to both established and emerging Islamic stock indices. The Islamic stock index in Indonesia is primarily affected by Japan's involvement. Indonesia's Islamic stock index needs to prepare various alternative strategies in dealing with shocks from developed and developing country Islamic stock indexes.

Keywords: Stock, Integration, Develop, Developing, Islamic

INTRODUCTION

Growth in the capital market is indicative of economic expansion, as shown by the experiences of many nations (Zulkhibri, 2018). Economic integration in the international capital market is one of the initiatives taken, and it can give a bird's-eye view of market operations. The capital market plays an important role in the Islamic finance industry, both in terms of roles and functions and in terms of market share (Salman & Nawaz, 2018).

Islamic investment explores the purported performance compared to socially responsible investments and the extent to which Islamic legal objectives are practically met by Islamic financial institutions (Yesuf & Aassouli, 2020; Zafar & Sulaiman, 2019). An important role may be since assets in Islamic finance have a close relationship between the fundamental and financial sectors, thus affecting the Islamic financial market due to the impact of volatility from other countries' markets. Islamic stock prices include companies characterized by small leverage ratios and interest involvement which implies a relationship related to information flow and shock transmission (Ferris et al., 2018; Saiti et al., 2014). In other words, Islamic financial intermediaries play an important role because they reduce the transmission of shocks and reduce potential losses due to unexpected financial crises (Djennas, 2016).

Integration in the stock market is a link between stock markets worldwide due to unlimited access owned by investors. It has an impact on the achievement of stock prices internationally. Stock price reflects the expectations of investors considering the risks it faces. To that end, international investors tend to invest in areas where the economy is more conducive to liquidity, high stock, and low cost. This situation makes the degree of integration of the international stock market increase due to investors diversifying shares.

According to the work done on market integration by Stoupos and Kiohos (2021), the Euro Area suffers various financial and economic asymmetries as a result of other economic engagement in trade unions. Using data from the stock markets of fourteen European nations and the monetary drivers in those countries, Lee and Kim (2020) examine the stock market's changing interconnectedness across time in relation to two occurrences. Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea (referred to as ASEAN5+4) is a topic that Wu (2019) investigates. According to Aladesanmi et al. (2019), the effect of macroeconomic factors on stock market integration is studied. Mohti et al. (2019) evaluate the level of regional and global integration of stock markets in developing and developed Asian nations. Research by Batten et al. (2019) examines the interconnectedness of oil, coal, and gas investments with Asia's ten largest stock markets.

The policy implications of this study for international investors and market participants in developing and developed countries are what make this research so interesting and useful. In fact, the low correlation and zero shock transmission in the Islamic stock market will encourage investors in other international financial markets to reorganize their portfolios to better take advantage of risk diversification. This research makes an effort to shed light on these questions by adding to the scant body of evidence on diversification in the Islamic stock market.

The goals of this research are to examine the long-term and short-term relationships between the Islamic stock markets of developed and developing countries and the Islamic stock market in Indonesia, as well as to examine how the Indonesian Islamic stock market has responded to shocks in the Islamic stock markets of developed countries and how much each developed country's Islamic stock market has contributed to the Islamic stock market in Indonesia. The findings of this research make important contributions to a number of perspectives by, first, providing an overview of the current state of the Islamic stock market in both developing and developed countries. Second, both developing and developed nations' decision-making processes regarding the Islamic stock market's integration should be taken into account. Third, figuring out how your money is spread out helps lessen the blow of any one setback.

LITERATURE REVIEW

When economic globalization takes place, it compels countries to strengthen their economies in order to maintain stability. If the economy is weak, a sudden change could trigger a crisis that spreads to other countries in the same situation like a domino effect (BenSaïda et al., 2018; Cieslak & Schrimpf, 2019; Werner, 2016). The integration between one country and another caused by globalization triggers a domino effect, mainly when problems occur in countries classified as essential or significant in specific sectors (Balli et al., 2019; Casu & Girardone, 2010; Jebran et al., 2017).

Excessive exposure to inaccurate market data is a distinct phenomenon from exposure to accurate data. In the event of a decline in one market, the other market will also fall because of the increasing correlation between the two. For this reason, it is becoming increasingly difficult to diversify across international stock markets, and there is a considerable risk of losing the gains altogether, as the correlation between markets in different countries increases when the market receives a shock (Ellington, 2018; Lee & Goh, 2016; Sarwar et al., 2020).

In a perfect market, all assets would be exposed to the same amount of risk, leading to uniform expected returns across the board (Balli et al., 2019; Singh & Singh, 2016). Integration between stock markets shows efficiency, and these markets do not benefit from diversification because market performance tends to be the same across markets (Kim et al., 2015; Silvers, 2021). In a risk-return framework, an investor can increase returns, reduce risk, or both by owning a combination of investments in the stock market with uncorrelated returns. Thus, the degree of integration of the stock market indicates the potential benefits of portfolio diversification that investors can obtain.

According to Stoupos and Kiohos (2021), the continued involvement of economies in trade unions has resulted in a wide variety of financial and economic asymmetries in the euro area. When it comes to the Eurozone's economy, one of the most important tasks for policymakers is to ensure the region's long-term financial integration. The findings show that stock market integration is high in the case of Germany and the central members of the euro area, but is different for the countries on the euro zone's periphery. However, the DAX-30 has only seen hints of integration with the stock markets of the eastern Mediterranean and the Baltic.

The introduction of the Euro in 1999 and the banking crisis of 2011 are two contrasting events that Lee and Kim (2020) use to examine the changing degree of integration between stock markets in fourteen European countries and their relevant monetary drivers over time. The panel analysis shows that after the European monetary union, the integration of the stock market in the European Union was primarily driven by the convergence of economic performance, the reduction in interest rate differentials, and inflation among the European Union countries. GDP disparities among EU member states have been found to have a negative correlation with economic convergence, according to qualitative research.

Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea, is a topic investigated by Wu (2019). Results from applying a rolling window approach informed by graph theory and Vector Autoregressive (VAR) based methods reveal a high degree of interdependence but unpredictable temporal patterns between these markets. Similar global factors are found to be behind much of this high degree of integration. If these variables are removed from each stock market, the correlation weakens significantly. As a result, the stock market in East and Southeast Asia is not as integrated as it may seem. Although regional governments have encouraged cooperation and integration of financial markets, substantial obstacles persist. These inflated correlations are a reflection of the greater global influence on individual markets, while correlations due to factors other than global ones have been decreasing since the crisis.

From 1935 to 2015, Aladesanmi et al. (2019) examine the effects of macroeconomic determinants like financial convergence and volatility on stock market integration. It also assesses the degree to which the UK and US stock markets were intertwined before, during, and after Bretton Woods (BW) under three distinct monetary regimes. Weak integration is observed during the BW regime, while strong integration is observed during the post-BW regime. Since the BW system's collapse, additional research shows that macroeconomic convergence, financial volatility, and the crisis have been the primary drivers of stock market integration between the two markets.

The degree of regional and global integration of emerging and leading Asian stock markets is evaluated by Mohti et al. (2019). The Detrended Cross-Correlation coefficient and the Gregory and Hansen cointegration test were used to examine the long-term relationship between the markets. According to the empirical study's findings, there are signs of global and regional integration in every one of the emerging markets studied. However, only Pakistan and Vietnam are included in this when it comes to the border market. Foreign investors keen on broadening their portfolios' geographic diversification strategies will find these findings of interest.

According to Batten et al. (2019), the level of interdependence between the energy and stock markets is crucial to the strategic planning, risk assessment, and capital allocation of multinational corporations and individual investors. This study looks into the interconnected dynamics between a diversified oil, coal, and gas energy portfolio and the ten largest stock exchanges in Asia. Using an estimation method that takes into account the time-varying framework of asset pricing—which permits regime change—we can distinguish between two key regimes. Low energy stock market integration characterizes the first regime. More than two-thirds of the sample time span (December 1992-December

2015) can be attributed to the market's tendency toward segmentation. In contrast, the second regime, one of strong integration, is characterized by fewer ways to diversify and higher volatility. And in the second regime, the corporation faces less favourable financial conditions. The equity markets' valuation of energy risk under the two regimes is distinct. The high integration regime is shown to have a considerable positive energy-related equities risk premium, in addition to the low integration regime's positive equity risk premium that is unrelated to energy. In conclusion, the integration model's conditional information can help investors beat passive portfolio strategies in the stock and energy markets.

RESEARCH METHOD

There are a total of about 2088 observations in this study, which are derived from daily data from 2012-2021. For this calculation, we utilize the daily closing value of the Islamic stock price index across both developing and developed member countries. When compared to the United States and Japan, developing countries like Indonesia, Turkey, Malaysia, Qatar, Kuwait, and India stand out as particularly well-off. The indexes are calculated using data from S&P Dow Jones Indices and investing.com.

This investigation achieves its goals by employing a vector error correction model (VECM). It is essential that the analysis's several assumptions hold true. There is no correlation between independent variables, and their means are all zero (white noise). If the data is not level-stationary, then it can be made such using differentiation. The VAR first difference model is then applied (VAR-FD). One potential drawback of VAR-FD is that it does not preserve information about the historical connections between variables. For cointegrated data, the VAR model is used in conjunction with the VECM model to obtain long-term insights.

For non-stationary but potentially cointegrated variables, the Vector Error Correction Model (VECM) is a restricted form of the more general Vector Autoregression (VAR) model. In order to account for data types that are not level-stationary but are cointegrated, this additional constraint must be provided. The VECM algorithm takes advantage of this knowledge of the cointegration constraints on its implementation. Thus, VECM's rate of adaptation varies from the immediate to the distant. As a result, VECM can be understood as a VAR strategy for cointegrated, non-stationary data.

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + \ldots + \Gamma_{p-1} \Delta y_{t-p+1} + u_t$$

Where Δy_t is $y_t - y_{t-1}$, y_t is a vector containing the variables analyzed in the study, Π is the long term parameter, Γ is the short term parameter, and ut is the error term. Data analysis using the VECM approach generally uses short-term and long-term effects, Impulse Response Function (IRF), Forecast Error Variance Decomposition (FEVD). Before estimating VECM, several steps must be carried out, namely pre-estimation testing. These tests include the data stationarity test, VAR stability test, determination of optimal lag, and cointegration test.

RESULTS AND DISCUSSION

Descriptive Statistics

Tabel 1 merupakan descriptive statistics dari indeks saham negara berkembang dan maju. rata-rata indeks saham syariah negara berkembang dan maju berkisar antara 5.12 persen sampai 8.47 persen. Indeks saham syariah USA memiliki rata-rata terbesar diantara indeks saham syariah lainnya dengan jangkauan antara 8.05 persen sampai dengan 9.19

persen yang berarti memiliki harga saham paling tinggi dibandingkan dengan yang lain. Harga saham yang tinggi ini sejalan dengan risiko yang ada pada indeks saham syariah USA yang direfleksikan oleh standar deviasi dengan nilai tertinggi diantara yang lain.

Table 1. Descriptive Statistics

	Indonesia	Turkey	Malaysia	Qatar	India	USA	Japan
Mean	5.126769	8.674046	6.920698	8.274827	8.161095	8.475796	7.438708
Maximum	5.296365	9.451003	7.171572	8.504375	8.866576	9.196663	7.948806
Minimum	4.753159	8.236969	6.687894	7.876976	7.616451	8.058444	7.032933
Std. Dev.	0.097932	0.285083	0.065556	0.126964	0.265934	0.298751	0.235237
Observations	2088	2088	2088	2088	2088	2088	2088

Stationary Test

Time-series data are utilized throughout this investigation. A test for data stationarity, then, is the first step in establishing whether or not the input data is truly stationary. Incorrect or skewed conclusions can be drawn from nonstationary data. Increasing integration until the data becomes stationary transforms the non-stationary data into stationary data. In this investigation, we use the Augmented Dickey-Fuller (ADF) and Philips Perron (PP) tests to determine if our level and difference data are stationary.

The data is stationary if the probability of non-stationarity is less than 0.05, which it is according to the ADF and PP tests. Using the data in Table 2, we first performed the ADF and PP tests at the level, and only if those results were stable did we move on to the level difference. There is a unit root in every data with a probability of at least 0.05, as shown by the level test. Thus, the data at this level of granularity are not static. As the test advances, the degree of integration or the gap increases. The obtained results show that there is no unit root and the data is stationary (p-value 0.05). This finding suggests a lasting connection between developing and developed nations and Indonesia's Islamic stock index.

Table 2. Stationary Test Results

Islamic Stock Index	Augmented Dickey-Fuller (ADF)		Philips Perron (PP)	
	Level	Difference	Level	Difference
Indonesia	0.1385	0.0000	0.1340	0.0001
Turkey	0.9249	0.0000	0.9162	0.0000
Malaysia	0.0909	0.0001	0.0601	0.0001
Qatar	0.0469	0.0000	0.0811	0.0000
India	0.9404	0.0000	0.9156	0.0000
USA	0.9846	0.0000	0.9850	0.0001
Japan	0.7833	0.0001	0.7837	0.0001

Cointegration

After the optimum lag test has been carried out, it is followed by the Johansen Cointegration test to analyze the presence or absence of long-term integration between the Indonesian Islamic stock index and developing country stock indices and developed country Islamic stock indexes at lag 1. The significance level of this test is set at 5%, and the trace statistic value is compared to the critical value. The results of the Johansen Cointegration test are shown in Table 3.

Table 3. Cointegration Test Results

Indonesia and Developing Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.020734	107.9798	88.80380	0.0011
At most, 1 *	0.012183	64.27472	63.87610	0.0463
At most 2	0.009012	38.70420	42.91525	0.1239
At most 3	0.006058	19.82062	25.87211	0.2351
At most 4	0.003420	7.145439	12.51798	0.3296
Indonesia and Developed Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.012133	45.62920	42.91525	0.0261
At most 1	0.006538	20.16502	25.87211	0.2177
At most 2	0.003103	6.482290	12.51798	0.4016

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level for developing countries, and Trace test indicates 1 cointegrating eqn(s) at the 0.05 level for developed countries
*denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Johansen's experiments determine if the VAR or VECM model will be utilized. At the 5% significance level, Table 3 demonstrates a balanced link between the Indonesian Islamic stock index, the developing country stock index, and the developed country Islamic stock index, as well as similar changes in the stock index over the long run. Due to the observation of integration, the VECM model was used for this experiment.

Long-Term and Short-Term Integration

According to the pre-estimation test results, the VECM model is implemented because all variables are difference-stationary and cointegrated. The lag 1 that is most effective in the VECM model. The intermediate- and long-term VECM estimation findings are presented in Table 4. Long-term, the Islamic stock index in Indonesia follows the trends seen in the Islamic stock indexes of Malaysia, Qatar, India, the United States, and Japan, however the Indonesian Islamic stock index reflects these trends a month earlier. Short-term effects can be seen in Islamic stock indices in Turkey and Japan.

Indonesia's Islamic stock index with Turkey affects the short term but not the long term. The Ministry of Foreign Affairs of the Republic of Indonesia (2021) said that the cooperative relationship between Indonesia and Turkey has been going on for a long time and is currently entering a new phase that further demonstrates the strategic value of the two countries with the launch of the "Joint declaration Indonesia-Turkey: Toward an Enhanced Partnership in a New Word Setting" where the two countries are committed to cooperating, one of which is in the economic and trade fields with a target of US$ 10 billion by 2023. Indonesia and Turkey have excellent trade potential, but the realization is still tiny. Currently, the trading volume between the two is only around US$ 1.5 billion, which is still far from its true potential.

Indonesia's Islamic stock index with Malaysia influences in the long term but not in the short term. The Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2021) stated that Malaysia is one of the main economic partners in investment and trade. Data from the Ministry of Trade (2021) revealed that foreign investment originating from Malaysia reached US$ 706.8 million spread over 1,324 projects. Then in terms of trade in goods, the volume of bilateral trade between countries reached US$ 15.03 million in 2020 and US$ 13.43 million in 2021. The data shows that the relationship between the two countries is very intense in the economic field.

Table 4. Short-Term and Long-Term Results

Islamic Stock Index	Coefficient	t-statistic
	Short-Term	
Turkey	0.045216	2.37569*
Malaysia	0.056758	1.85105
Qatar	-0.024856	-1.13002
India	-0.016286	-1.04282
USA	0.009591	0.45302
Japan	0.047662	2.24690*
	Long-Term	
Turkey	-0.176158	-0.11404
Malaysia	8.056244	3.55487*
Qatar	-8.045002	-6.41477*
India	15.20192	7.53467*
USA	-6.341088	-3.30768*
Japan	-15.28591	-7.23298*

Indonesia's Islamic stock index with Malaysia influences in the long term but not in the short term. Indonesia's opportunities to market its products are still very open. In 2014, Indonesia's total trade with Qatar reached US$ 1.68 billion. However, this value fell to USD 828 million in 2015 and increased to USD 1.5 billion in 2018. Some of Indonesia's mainstay products marketed in Qatar include processed food/beverages, coffee, sugar, salt, tea, cooking oil, wheat flour, fruits. In addition, there are motor vehicle spare parts, electricity, electronic equipment, and supplies for building materials.

Indonesia's Islamic stock index with India influences in the long term but not in the short term. Indonesia has continuously recorded a surplus in trade with India. Data from the Ministry of Trade of the Republic of Indonesia recorded that Indonesia's trade value with India in 2017 reached US$ 18.13 billion. This amount consists of the value of Indonesia's exports to India of US$ 14.98 billion and Indonesia's imports from the country of US$ 4.05 billion. As a result, Indonesia's trade balance was a surplus of US$ 10.04

billion. This figure is the largest since 2013. However, in 2018 Indonesia's trade with India during the Jan-Mar 2018 period decreased 2.99% to US$ 4.32 billion from the same period the previous year. Indonesia's exports to India shrank 7% to US$ 3.2 billion from the previous year, while imports from India increased 10.82 percent to US$ 1.1 billion. Indonesia's trade balance fell 14.4 percent to US$ 2.09 billion from the same period the previous year.

Indonesia's Islamic stock index with the United States influences in the long term but not in the short term. The Ministry of Trade (2021) noted that the trade balance between Indonesia and the United States (US) consistently scored a surplus. Although Indonesia's exports had experienced a decline, the decline in imports was more excellent so that the surplus remained. In 2019, the export value of Indonesia and the United States fell 3.8 percent to US$ 17.7 billion. Meanwhile, imports decreased by 8.8% to US$ 9.3 billion, so the value of the trade balance increased 2.4% from US$ 8.3 billion in 2018 to US$ 8.5 billion. The increase in imports of raw materials reflects an increase in the performance of the real sector. At the same time, the increase in capital goods is also quite good because it impacts increasing production capacity.

Indonesia's Islamic stock index with Japan influences in the long term but not in the short term. Japan is an essential partner for Indonesia. Despite being faced with various global challenges, relations between the two countries remain strong. The Ministry of Trade (2020) stated that the value of bilateral trade between Indonesia and Japan in 2020 reached US$ 24.3 billion. During the 2018 to 2020 period, Japan consistently ranks 3rd as Indonesia's leading export destination, with export values in 2020 reaching US$ 13.6 billion. This condition continues, wherein semester 1 - 2021, the value of Indonesia's exports to Japan has reached a value of US$ 7.9 billion. In terms of investment, during the period 2018 to Semester I - 2021, Foreign Investment (PMA) from Japan that entered Indonesia reached US$ 12.9 billion.

Meanwhile, Japan became the third largest foreign investment country entering Indonesia. Until the first half of 2021, FDI from Japan entering Indonesia has reached US$ 1.04 billion. Meanwhile, the total PMA projects from Japan reached more than 19 thousand projects during that period. The Indonesian government hopes that foreign direct investment from Japan entering in 2021 will be able to exceed the realization in 2020, which reached US$ 2.6 billion.

Impulse Response Function

Examining how one variable reacts to shocks of a different variable by a single standard deviation is the purpose of Impulse Response Function (IRF) study. The shocks come from the variable itself and other variables. This IRF analysis will estimate the response of endogenous variables from within the VAR system due to shocks from other variables. Some shocks occur from the variable itself and other variables because the i variable affects the i-variable. There is transmission to all other variables through the lag structure in VECM. IRF describes the response of each dependent variable to the shock of the independent variable and the length of time to achieve stability so that the IRF does not describe the magnitude of the impact of one variable on other variables.

The study forecasts the performance of an index of Islamic companies listed on the Indonesian stock market for the next 300 months. The results of the IRF analysis in this study will explain the response of the Indonesian Islamic stock index if there are shocks in the Islamic stock indexes of Turkey, Malaysia, Qatar, India, the USA, and Japan. In general, at the beginning of the shock of one standard deviation, the Indonesian Islamic stock index has not responded to any shocks from other Islamic stock indices. The response of the

Indonesian Islamic stock index began to be seen when it was in the second period where the Indonesian Islamic stock index responded with positive and negative responses. When other stock markets in Turkey, Malaysia, the United States, and Japan were shaken, Indonesia's Islamic stock index climbed, in contrast to Qatar and India.

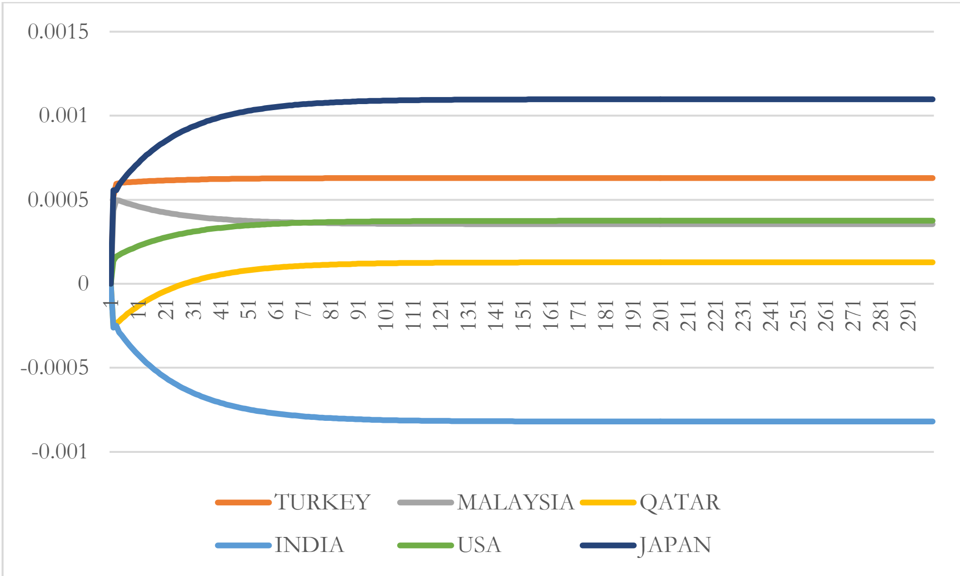

Figure 1. Impulse Response Function Result

Forecast Error Variance Decomposition

Forecast Error Variance Decomposition (FEVD) analysis on the VECM method is used to identify and explain the contribution of each variable shock to the main variables observed. This FEVD method can see the strengths and weaknesses of each variable in influencing other variables over a long period. This study uses a FEVD analysis to determine the relative impact of external shocks on the Indonesian Islamic stock index for the countries of Turkey, Malaysia, Qatar, India, the United States, and Japan. The period used is the next three years which consists of 300 months. The results show that Indonesia's Islamic stock index dominates with an average of 98.37 percent, followed by Japan's Islamic stock index at 0.73 percent, India by 0.38 percent, Turkey by 0.29 percent, Malaysia by 0.12 percent, the USA by 0.08 percent, and Qatar by 0.01 percent.

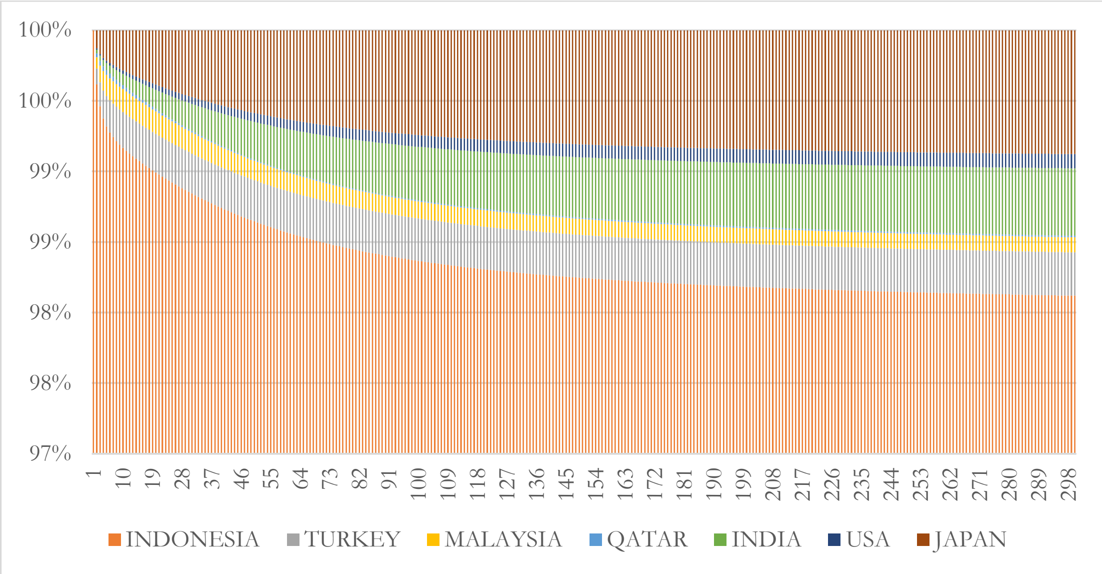

Figure 2. Decomposition of the Error Variance in the Forecast

CONCLUSION

The estimated effects of the Turkish and Japanese Islamic stock indices on the Indonesian Islamic stock indices show both a short-term and a long-term influence. Islamic stock indices, on the other hand, have produced long-term effects in Malaysia, Qatar, India, and the United States. There were positive and negative responses on the Indonesian Islamic Stock Index. Indonesians were upbeat about the effects of shocks on Islamic stock indices in Turkey, Malaysia, the US, and Japan, while their counterparts in Qatar and India were skeptical. Islamic stock indexes in Japan and Indonesia have both been influenced by the latter country's efforts to broaden their respective markets.

Indonesia's Islamic stock index needs to raise the bar on stock market structure and infrastructure if it is to play a role in mitigating the effects of shocks on the Islamic stock market in both emerging and established economies and boosting the pace of stock market integration. When countries cooperate together to integrate their stock markets, they can better ensure that their capital markets are prepared to accept foreign investors and comply with applicable regulations.

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Sehubungan dengan akan diterbitkannya Iqtishadia: Jurnal Ekonomi Syariah Vol. 15 No. 2 Tahun 2022, dengan ini kami sampaikan bahwa artikel anda diterima dan segera untuk melakukan proofread.
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IQTISHADIA: Jurnal Kajian Ekonomi dan Bisnis Islam
Program Studi Ekonomi Syariah
Fakultas Ekonomi dan Bisnis Islam
Institut Agama Islam Negeri Kudus
E-ISSN: 2502-3993 P-ISSN:1979-0724

Letter of Acceptance

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Truly explain that the following article:

Title	:	Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries
Author	:	Budi Andru
Institution	:	Universitas Muhammadiyah Prof. Dr. HAMKA

The review process has been carried out and will be published in the electronic journal IQTISHADIA: Journal of Islamic Economics and Business Studies Volume 15 Number 02 of 2022. We need to say that when the review process has been completed, please be pleased to make revisions according to reviewer suggestions no later than two weeks after the revision results sent to the author. If it is not revised, the article will be canceled by the editorial team. Thus this letter is made so that it is used properly.

:

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Kudus, 2 Januari 2023

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Wahibur Rokhman, Ph.D

Hasil Revisi 1 Budiandru

Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries

Abstract

Economic and monetary systems all over the world are becoming increasingly intertwined as a result of globalization. The benefits of diversity for investors can be diminished by globalization-caused shocks to the Islamic stock market. The purpose of this research is to examine how the Indonesian Islamic stock index relates to other developed and developing country Islamic stock indices. Data collected daily from 2012-2021 (totaling 2088 observations) using a vector error correction model show that the Islamic stock index in Indonesia is linked to the Islamic stock index in both developed and developing nations. The Indonesian Islamic stock index had mixed reactions to both established and emerging Islamic stock indices. The Islamic stock index in Indonesia is primarily affected by Japan's involvement. Indonesia's Islamic stock index needs to prepare various alternative strategies in dealing with shocks from developed and developing country Islamic stock indexes.

Keywords: Stock, Integration, Develop, Developing, Islamic

INTRODUCTION

Growth in the capital market is indicative of economic expansion, as shown by the experiences of many nations (Zulkhibri, 2018). Economic integration in the international capital market is one of the initiatives taken, and it can give a bird's-eye view of market operations. The capital market plays an important role in the Islamic finance industry, both in terms of roles and functions and in terms of market share (Salman & Nawaz, 2018).

Islamic investment explores the purported performance compared to socially responsible investments and the extent to which Islamic legal objectives are practically met by Islamic financial institutions (Yesuf & Aassouli, 2020; Zafar & Sulaiman, 2019). An important role may be since assets in Islamic finance have a close relationship between the fundamental and financial sectors, thus affecting the Islamic financial market due to the impact of volatility from other countries' markets. Islamic stock prices include companies characterized by small leverage ratios and interest involvement which implies a relationship related to information flow and shock transmission (Ferris et al., 2018; Saiti et al., 2014). In other words, Islamic financial intermediaries play an important role because they reduce the transmission of shocks and reduce potential losses due to unexpected financial crises (Djennas, 2016).

Integration in the stock market is a link between stock markets worldwide due to unlimited access owned by investors. It has an impact on the achievement of stock prices internationally. Stock price reflects the expectations of investors considering the risks it faces. To that end, international investors tend to invest in areas where the economy is more conducive to liquidity, high stock, and low cost. This situation makes the degree of integration of the international stock market increase due to investors diversifying shares.

According to the work done on market integration by Stoupos and Kiohos (2021), the Euro Area suffers various financial and economic asymmetries as a result of other economic engagement in trade unions. Using data from the stock markets of fourteen European nations and the monetary drivers in those countries, Lee and Kim (2020) examine the stock market's changing interconnectedness across time in relation to two occurrences. Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea (referred to as ASEAN5+4) is a topic that Wu (2019) investigates. According to Aladesanmi et al. (2019), the effect of macroeconomic factors on stock market integration is studied. Mohti et al. (2019) evaluate the level of regional and global integration of stock markets in developing and developed Asian nations. Research by Batten et al. (2019) examines the interconnectedness of oil, coal, and gas investments with Asia's ten largest stock markets.

The policy implications of this study for international investors and market participants in developing and developed countries are what make this research so interesting and useful. In fact, the low correlation and zero shock transmission in the Islamic stock market will encourage investors in other international financial markets to reorganize their portfolios to better take advantage of risk diversification. This research makes an effort to shed light on these questions by adding to the scant body of evidence on diversification in the Islamic stock market.

The goals of this research are to examine the long-term and short-term relationships between the Islamic stock markets of developed and developing countries and the Islamic stock market in Indonesia, as well as to examine how the Indonesian Islamic stock market has responded to shocks in the Islamic stock markets of developed countries and how much each developed country's Islamic stock market has contributed to the Islamic stock market in Indonesia. The findings of this research make important contributions to a number of perspectives by, first, providing an overview of the current state of the Islamic stock market in both developing and developed countries. Second, both developing and developed nations' decision-making processes regarding the Islamic stock market's integration should be taken into account. Third, figuring out how your money is spread out helps lessen the blow of any one setback.

LITERATURE REVIEW

When economic globalization takes place, it compels countries to strengthen their economies in order to maintain stability. If the economy is weak, a sudden change could trigger a crisis that spreads to other countries in the same situation like a domino effect (BenSaïda et al., 2018; Cieslak & Schrimpf, 2019; Werner, 2016). The integration between one country and another caused by globalization triggers a domino effect, mainly when problems occur in countries classified as essential or significant in specific sectors (Balli et al., 2019; Casu & Girardone, 2010; Jebran et al., 2017).

Excessive exposure to inaccurate market data is a distinct phenomenon from exposure to accurate data. In the event of a decline in one market, the other market will also fall because of the increasing correlation between the two. For this reason, it is becoming increasingly difficult to diversify across international stock markets, and there is a considerable risk of losing the gains altogether, as the correlation between markets in different countries increases when the market receives a shock (Ellington, 2018; Lee & Goh, 2016; Sarwar et al., 2020).

In a perfect market, all assets would be exposed to the same amount of risk, leading to uniform expected returns across the board (Balli et al., 2019; Singh & Singh, 2016). Integration between stock markets shows efficiency, and these markets do not benefit from diversification because market performance tends to be the same across markets (Kim et al., 2015; Silvers, 2021). In a risk-return framework, an investor can increase returns, reduce risk, or both by owning a combination of investments in the stock market with uncorrelated returns. Thus, the degree of integration of the stock market indicates the potential benefits of portfolio diversification that investors can obtain.

According to Stoupos and Kiohos (2021), the continued involvement of economies in trade unions has resulted in a wide variety of financial and economic asymmetries in the euro area. When it comes to the Eurozone's economy, one of the most important tasks for policymakers is to ensure the region's long-term financial integration. The findings show that stock market integration is high in the case of Germany and the central members of the euro area, but is different for the countries on the euro zone's periphery. However, the DAX-30 has only seen hints of integration with the stock markets of the eastern Mediterranean and the Baltic.

The introduction of the Euro in 1999 and the banking crisis of 2011 are two contrasting events that Lee and Kim (2020) use to examine the changing degree of integration between stock markets in fourteen European countries and their relevant monetary drivers over time. The panel analysis shows that after the European monetary union, the integration of the stock market in the European Union was primarily driven by the convergence of economic performance, the reduction in interest rate differentials, and inflation among the European Union countries. GDP disparities among EU member states have been found to have a negative correlation with economic convergence, according to qualitative research.

Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea, is a topic investigated by Wu (2019). Results from applying a rolling window approach informed by graph theory and Vector Autoregressive (VAR) based methods reveal a high degree of interdependence but unpredictable temporal patterns between these markets. Similar global factors are found to be behind much of this high degree of integration. If these variables are removed from each stock market, the correlation weakens significantly. As a result, the stock market in East and Southeast Asia is not as integrated as it may seem. Although regional governments have encouraged cooperation and integration of financial markets, substantial obstacles persist. These inflated correlations are a reflection of the greater global influence on individual markets, while correlations due to factors other than global ones have been decreasing since the crisis.

From 1935 to 2015, Aladesanmi et al. (2019) examine the effects of macroeconomic determinants like financial convergence and volatility on stock market integration. It also assesses the degree to which the UK and US stock markets were intertwined before, during, and after Bretton Woods (BW) under three distinct monetary regimes. Weak integration is observed during the BW regime, while strong integration is observed during the post-BW regime. Since the BW system's collapse, additional research shows that macroeconomic convergence, financial volatility, and the crisis have been the primary drivers of stock market integration between the two markets.

The degree of regional and global integration of emerging and leading Asian stock markets is evaluated by Mohti et al. (2019). The Detrended Cross-Correlation coefficient and the Gregory and Hansen cointegration test were used to examine the long-term relationship between the markets. According to the empirical study's findings, there are signs of global and regional integration in every one of the emerging markets studied. However, only Pakistan and Vietnam are included in this when it comes to the border market. Foreign investors keen on broadening their portfolios' geographic diversification strategies will find these findings of interest.

According to Batten et al. (2019), the level of interdependence between the energy and stock markets is crucial to the strategic planning, risk assessment, and capital allocation of multinational corporations and individual investors. This study looks into the interconnected dynamics between a diversified oil, coal, and gas energy portfolio and the ten largest stock exchanges in Asia. Using an estimation method that takes into account the time-varying framework of asset pricing—which permits regime change—we can distinguish between two key regimes. Low energy stock market integration characterizes the first regime. More than two-thirds of the sample time span (December 1992-December

2015) can be attributed to the market's tendency toward segmentation. In contrast, the second regime, one of strong integration, is characterized by fewer ways to diversify and higher volatility. And in the second regime, the corporation faces less favourable financial conditions. The equity markets' valuation of energy risk under the two regimes is distinct. The high integration regime is shown to have a considerable positive energy-related equities risk premium, in addition to the low integration regime's positive equity risk premium that is unrelated to energy. In conclusion, the integration model's conditional information can help investors beat passive portfolio strategies in the stock and energy markets.

RESEARCH METHOD

There are a total of about 2088 observations in this study, which are derived from daily data from 2012-2021. For this calculation, we utilize the daily closing value of the Islamic stock price index across both developing and developed member countries. When compared to the United States and Japan, developing countries like Indonesia, Turkey, Malaysia, Qatar, Kuwait, and India stand out as particularly well-off. The indexes are calculated using data from S&P Dow Jones Indices and investing.com.

This investigation achieves its goals by employing a vector error correction model (VECM). It is essential that the analysis's several assumptions hold true. There is no correlation between independent variables, and their means are all zero (white noise). If the data is not level-stationary, then it can be made such using differentiation. The VAR first difference model is then applied (VAR-FD). One potential drawback of VAR-FD is that it does not preserve information about the historical connections between variables. For cointegrated data, the VAR model is used in conjunction with the VECM model to obtain long-term insights.

For non-stationary but potentially cointegrated variables, the Vector Error Correction Model (VECM) is a restricted form of the more general Vector Autoregression (VAR) model. In order to account for data types that are not level-stationary but are cointegrated, this additional constraint must be provided. The VECM algorithm takes advantage of this knowledge of the cointegration constraints on its implementation. Thus, VECM's rate of adaptation varies from the immediate to the distant. As a result, VECM can be understood as a VAR strategy for cointegrated, non-stationary data.

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + \ldots + \Gamma_{p-1} \Delta y_{t-p+1} + u_t$$

Where Δy_t is $y_t - y_{t-1}$, y_t is a vector containing the variables analyzed in the study, Π is the long term parameter, Γ is the short term parameter, and ut is the error term. Data analysis using the VECM approach generally uses short-term and long-term effects, Impulse Response Function (IRF), Forecast Error Variance Decomposition (FEVD). Before estimating VECM, several steps must be carried out, namely pre-estimation testing. These tests include the data stationarity test, VAR stability test, determination of optimal lag, and cointegration test.

RESULTS AND DISCUSSION

Descriptive Statistics

Tabel 1 merupakan descriptive statistics dari indeks saham negara berkembang dan maju. rata-rata indeks saham syariah negara berkembang dan maju berkisar antara 5.12 persen sampai 8.47 persen. Indeks saham syariah USA memiliki rata-rata terbesar diantara indeks saham syariah lainnya dengan jangkauan antara 8.05 persen sampai dengan 9.19

persen yang berarti memiliki harga saham paling tinggi dibandingkan dengan yang lain. Harga saham yang tinggi ini sejalan dengan risiko yang ada pada indeks saham syariah USA yang direfleksikan oleh standar deviasi dengan nilai tertinggi diantara yang lain.

Table 1. Descriptive Statistics

	Indonesia	Turkey	Malaysia	Qatar	India	USA	Japan
Mean	5.126769	8.674046	6.920698	8.274827	8.161095	8.475796	7.438708
Maximum	5.296365	9.451003	7.171572	8.504375	8.866576	9.196663	7.948806
Minimum	4.753159	8.236969	6.687894	7.876976	7.616451	8.058444	7.032933
Std. Dev.	0.097932	0.285083	0.065556	0.126964	0.265934	0.298751	0.235237
Observations	2088	2088	2088	2088	2088	2088	2088

Stationary Test

Time-series data are utilized throughout this investigation. A test for data stationarity, then, is the first step in establishing whether or not the input data is truly stationary. Incorrect or skewed conclusions can be drawn from nonstationary data. Increasing integration until the data becomes stationary transforms the non-stationary data into stationary data. In this investigation, we use the Augmented Dickey-Fuller (ADF) and Philips Perron (PP) tests to determine if our level and difference data are stationary.

The data is stationary if the probability of non-stationarity is less than 0.05, which it is according to the ADF and PP tests. Using the data in Table 2, we first performed the ADF and PP tests at the level, and only if those results were stable did we move on to the level difference. There is a unit root in every data with a probability of at least 0.05, as shown by the level test. Thus, the data at this level of granularity are not static. As the test advances, the degree of integration or the gap increases. The obtained results show that there is no unit root and the data is stationary (p-value 0.05). This finding suggests a lasting connection between developing and developed nations and Indonesia's Islamic stock index.

Table 2. Stationary Test Results

Islamic Stock Index	Augmented Dickey-Fuller (ADF)		Philips Perron (PP)	
	Level	Difference	Level	Difference
Indonesia	0.1385	0.0000	0.1340	0.0001
Turkey	0.9249	0.0000	0.9162	0.0000
Malaysia	0.0909	0.0001	0.0601	0.0001
Qatar	0.0469	0.0000	0.0811	0.0000
India	0.9404	0.0000	0.9156	0.0000
USA	0.9846	0.0000	0.9850	0.0001
Japan	0.7833	0.0001	0.7837	0.0001

Cointegration

After the optimum lag test has been carried out, it is followed by the Johansen Cointegration test to analyze the presence or absence of long-term integration between the Indonesian Islamic stock index and developing country stock indices and developed country Islamic stock indexes at lag 1. The significance level of this test is set at 5%, and the trace statistic value is compared to the critical value. The results of the Johansen Cointegration test are shown in Table 3.

Table 3. Cointegration Test Results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
Indonesia and Developing Countries				
None *	0.020734	107.9798	88.80380	0.0011
At most, 1 *	0.012183	64.27472	63.87610	0.0463
At most 2	0.009012	38.70420	42.91525	0.1239
At most 3	0.006058	19.82062	25.87211	0.2351
At most 4	0.003420	7.145439	12.51798	0.3296
Indonesia and Developed Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.012133	45.62920	42.91525	0.0261
At most 1	0.006538	20.16502	25.87211	0.2177
At most 2	0.003103	6.482290	12.51798	0.4016

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level for developing countries, and Trace test indicates 1 cointegrating eqn(s) at the 0.05 level for developed countries
*denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Johansen's experiments determine if the VAR or VECM model will be utilized. At the 5% significance level, Table 3 demonstrates a balanced link between the Indonesian Islamic stock index, the developing country stock index, and the developed country Islamic stock index, as well as similar changes in the stock index over the long run. Due to the observation of integration, the VECM model was used for this experiment.

Long-Term and Short-Term Integration

According to the pre-estimation test results, the VECM model is implemented because all variables are difference-stationary and cointegrated. The lag 1 that is most effective in the VECM model. The intermediate- and long-term VECM estimation findings are presented in Table 4. Long-term, the Islamic stock index in Indonesia follows the trends seen in the Islamic stock indexes of Malaysia, Qatar, India, the United States, and Japan, however the Indonesian Islamic stock index reflects these trends a month earlier. Short-term effects can be seen in Islamic stock indices in Turkey and Japan.

Indonesia's Islamic stock index with Turkey affects the short term but not the long term. The Ministry of Foreign Affairs of the Republic of Indonesia (2021) said that the cooperative relationship between Indonesia and Turkey has been going on for a long time and is currently entering a new phase that further demonstrates the strategic value of the two countries with the launch of the "Joint declaration Indonesia-Turkey: Toward an Enhanced Partnership in a New Word Setting" where the two countries are committed to cooperating, one of which is in the economic and trade fields with a target of US$ 10 billion by 2023. Indonesia and Turkey have excellent trade potential, but the realization is still tiny. Currently, the trading volume between the two is only around US$ 1.5 billion, which is still far from its true potential.

Indonesia's Islamic stock index with Malaysia influences in the long term but not in the short term. The Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2021) stated that Malaysia is one of the main economic partners in investment and trade. Data from the Ministry of Trade (2021) revealed that foreign investment originating from Malaysia reached US$ 706.8 million spread over 1,324 projects. Then in terms of trade in goods, the volume of bilateral trade between countries reached US$ 15.03 million in 2020 and US$ 13.43 million in 2021. The data shows that the relationship between the two countries is very intense in the economic field.

Table 4. Short-Term and Long-Term Results

Islamic Stock Index	Coefficient	t-statistic
	Short-Term	
Turkey	0.045216	2.37569*
Malaysia	0.056758	1.85105
Qatar	-0.024856	-1.13002
India	-0.016286	-1.04282
USA	0.009591	0.45302
Japan	0.047662	2.24690*
	Long-Term	
Turkey	-0.176158	-0.11404
Malaysia	8.056244	3.55487*
Qatar	-8.045002	-6.41477*
India	15.20192	7.53467*
USA	-6.341088	-3.30768*
Japan	-15.28591	-7.23298*

Indonesia's Islamic stock index with Malaysia influences in the long term but not in the short term. Indonesia's opportunities to market its products are still very open. In 2014, Indonesia's total trade with Qatar reached US$ 1.68 billion. However, this value fell to USD 828 million in 2015 and increased to USD 1.5 billion in 2018. Some of Indonesia's mainstay products marketed in Qatar include processed food/beverages, coffee, sugar, salt, tea, cooking oil, wheat flour, fruits. In addition, there are motor vehicle spare parts, electricity, electronic equipment, and supplies for building materials.

Indonesia's Islamic stock index with India influences in the long term but not in the short term. Indonesia has continuously recorded a surplus in trade with India. Data from the Ministry of Trade of the Republic of Indonesia recorded that Indonesia's trade value with India in 2017 reached US$ 18.13 billion. This amount consists of the value of Indonesia's exports to India of US$ 14.98 billion and Indonesia's imports from the country of US$ 4.05 billion. As a result, Indonesia's trade balance was a surplus of US$ 10.04

billion. This figure is the largest since 2013. However, in 2018 Indonesia's trade with India during the Jan-Mar 2018 period decreased 2.99% to US$ 4.32 billion from the same period the previous year. Indonesia's exports to India shrank 7% to US$ 3.2 billion from the previous year, while imports from India increased 10.82 percent to US$ 1.1 billion. Indonesia's trade balance fell 14.4 percent to US$ 2.09 billion from the same period the previous year.

Indonesia's Islamic stock index with the United States influences in the long term but not in the short term. The Ministry of Trade (2021) noted that the trade balance between Indonesia and the United States (US) consistently scored a surplus. Although Indonesia's exports had experienced a decline, the decline in imports was more excellent so that the surplus remained. In 2019, the export value of Indonesia and the United States fell 3.8 percent to US$ 17.7 billion. Meanwhile, imports decreased by 8.8% to US$ 9.3 billion, so the value of the trade balance increased 2.4% from US$ 8.3 billion in 2018 to US$ 8.5 billion. The increase in imports of raw materials reflects an increase in the performance of the real sector. At the same time, the increase in capital goods is also quite good because it impacts increasing production capacity.

Indonesia's Islamic stock index with Japan influences in the long term but not in the short term. Japan is an essential partner for Indonesia. Despite being faced with various global challenges, relations between the two countries remain strong. The Ministry of Trade (2020) stated that the value of bilateral trade between Indonesia and Japan in 2020 reached US$ 24.3 billion. During the 2018 to 2020 period, Japan consistently ranks 3rd as Indonesia's leading export destination, with export values in 2020 reaching US$ 13.6 billion. This condition continues, wherein semester 1 - 2021, the value of Indonesia's exports to Japan has reached a value of US$ 7.9 billion. In terms of investment, during the period 2018 to Semester I - 2021, Foreign Investment (PMA) from Japan that entered Indonesia reached US$ 12.9 billion.

Meanwhile, Japan became the third largest foreign investment country entering Indonesia. Until the first half of 2021, FDI from Japan entering Indonesia has reached US$ 1.04 billion. Meanwhile, the total PMA projects from Japan reached more than 19 thousand projects during that period. The Indonesian government hopes that foreign direct investment from Japan entering in 2021 will be able to exceed the realization in 2020, which reached US$ 2.6 billion.

Impulse Response Function

Examining how one variable reacts to shocks of a different variable by a single standard deviation is the purpose of Impulse Response Function (IRF) study. The shocks come from the variable itself and other variables. This IRF analysis will estimate the response of endogenous variables from within the VAR system due to shocks from other variables. Some shocks occur from the variable itself and other variables because the i variable affects the i-variable. There is transmission to all other variables through the lag structure in VECM. IRF describes the response of each dependent variable to the shock of the independent variable and the length of time to achieve stability so that the IRF does not describe the magnitude of the impact of one variable on other variables.

The study forecasts the performance of an index of Islamic companies listed on the Indonesian stock market for the next 300 months. The results of the IRF analysis in this study will explain the response of the Indonesian Islamic stock index if there are shocks in the Islamic stock indexes of Turkey, Malaysia, Qatar, India, the USA, and Japan. In general, at the beginning of the shock of one standard deviation, the Indonesian Islamic stock index has not responded to any shocks from other Islamic stock indices. The response of the

Indonesian Islamic stock index began to be seen when it was in the second period where the Indonesian Islamic stock index responded with positive and negative responses. When other stock markets in Turkey, Malaysia, the United States, and Japan were shaken, Indonesia's Islamic stock index climbed, in contrast to Qatar and India.

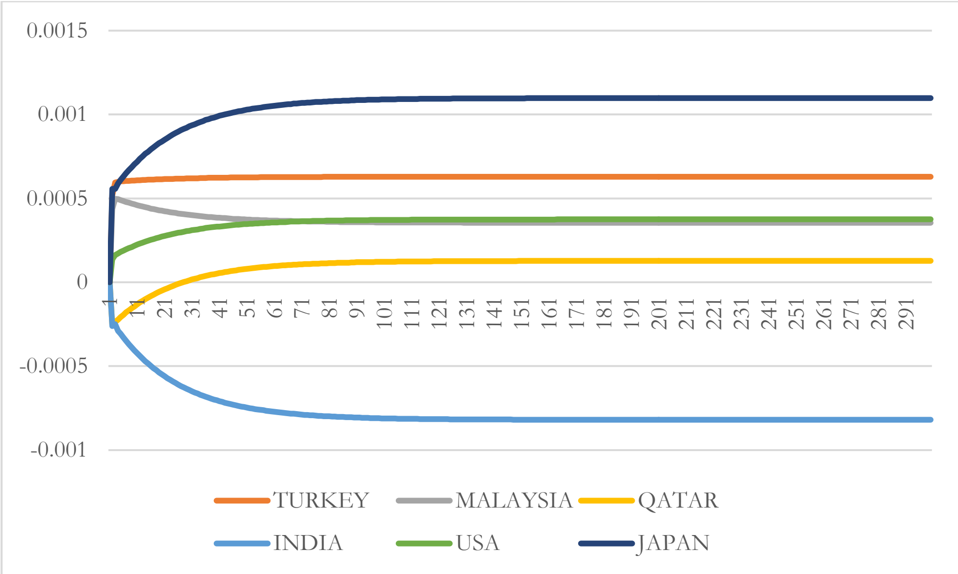

Figure 1. Impulse Response Function Result

Forecast Error Variance Decomposition

Forecast Error Variance Decomposition (FEVD) analysis on the VECM method is used to identify and explain the contribution of each variable shock to the main variables observed. This FEVD method can see the strengths and weaknesses of each variable in influencing other variables over a long period. This study uses a FEVD analysis to determine the relative impact of external shocks on the Indonesian Islamic stock index for the countries of Turkey, Malaysia, Qatar, India, the United States, and Japan. The period used is the next three years which consists of 300 months. The results show that Indonesia's Islamic stock index dominates with an average of 98.37 percent, followed by Japan's Islamic stock index at 0.73 percent, India by 0.38 percent, Turkey by 0.29 percent, Malaysia by 0.12 percent, the USA by 0.08 percent, and Qatar by 0.01 percent.

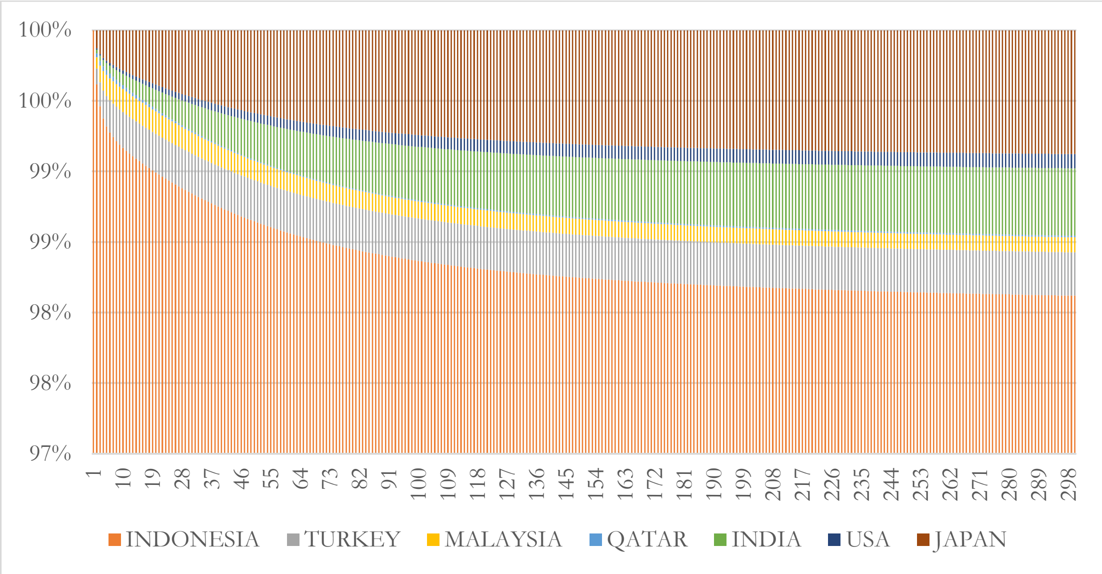

Figure 2. Decomposition of the Error Variance in the Forecast

CONCLUSION

The estimated effects of the Turkish and Japanese Islamic stock indices on the Indonesian Islamic stock indices show both a short-term and a long-term influence. Islamic stock indices, on the other hand, have produced long-term effects in Malaysia, Qatar, India, and the United States. There were positive and negative responses on the Indonesian Islamic Stock Index. Indonesians were upbeat about the effects of shocks on Islamic stock indices in Turkey, Malaysia, the US, and Japan, while their counterparts in Qatar and India were skeptical. Islamic stock indexes in Japan and Indonesia have both been influenced by the latter country's efforts to broaden their respective markets.

Indonesia's Islamic stock index needs to raise the bar on stock market structure and infrastructure if it is to play a role in mitigating the effects of shocks on the Islamic stock market in both emerging and established economies and boosting the pace of stock market integration. When countries cooperate together to integrate their stock markets, they can better ensure that their capital markets are prepared to accept foreign investors and comply with applicable regulations.

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1 of 11

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Jan 25, 2023, 8:35 AM

Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries

Abstract

Economic and monetary systems all over the world are increasingly becoming intertwined as a result of globalization. In addition, investors in the Islamic stock market may experience a decrease in the benefits of diversification because of shocks produced by globalization. This research aims to examine how the Indonesian Islamic stock index relates to the other Islamic stock indices from developed and developing countries. Data collected daily from 2012-2021, totaling 2088 observations, using a vector error correction model show that the Islamic stock index in Indonesia is linked to the Islamic stock index in both developed and developing countries. In addition, the Indonesian Islamic stock index had mixed reactions to both established and emerging Islamic stock indices. The Islamic stock indices in Indonesia are primarily affected by Japan's involvement. Indonesia's Islamic stock indices must prepare various alternative strategies for dealing with shocks from the Islamic stock indices in both developed and developing countries.

Keywords: Market Integration, Developed Countries, Developing Countries, Islamic Stock

INTRODUCTION

The development of the capital market is a leading indicator of economic growth, as shown by the experiences of a significant number of countries (Zulkhibri, 2018). Economic integration in the international capital market is one of the initiatives taken, and it can give a bird's-eye view of market operations. The capital market plays an important role in the Islamic finance industry, both in terms of roles and functions and in terms of market share (Salman & Nawaz, 2018).

Islamic investment explores the purported performance compared to socially responsible investments and the extent to which Islamic legal objectives are practically met by Islamic financial institutions (Yesuf & Aassouli, 2020; Zafar & Sulaiman, 2019). This can possibly play an essential role since assets in Islamic finance have a close relationship between the fundamental and financial sectors; this may influence the Islamic financial market due to the effects of volatility from other countries markets. Islamic stock prices include companies characterized by small leverage ratios and interest involvement which implies a relationship related to information flow and shock transmission (Ferris et al., 2018; Saiti et al., 2014). In other words, Islamic financial intermediaries play an important role because they reduce the transmission of shocks and reduce potential losses due to unexpected financial crises (Djennas, 2016).

Integration in the stock market is a relationship among global stock markets due to investors' unlimited access. It influences the achievement of global stock prices. The stock price reflects the expectations of investors in the context of the potential downsides. To that end, international investors tend to invest in areas where the economy is more conducive to liquidity, high stock, and low cost. This situation increases the degree of integration of the international stock market due to investors diversifying shares.

According to Stoupos and Kiohos (2021), on market integration, the Euro Area suffers various financial and economic asymmetries as a result of other economic engagement in trade unions. Using data from the stock markets of fourteen European nations and the monetary drivers in those countries, Lee and Kim (2020) examine the stock market's changing interconnectedness across time in relation to two occurrences. Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea (referred to as ASEAN5+4), is a topic that Wu (2019) investigates. According to Aladesanmi et al. (2019), the effect of macroeconomic factors on stock market integration is studied. Mohti et al. (2019) evaluate the level of regional and global integration of stock markets in developing and developed Asian countries. In addition, Batten et al. (2019) examine the interconnectedness of oil, coal, and gas investments with Asia's ten largest stock markets.

The policy implications of this study for international investors and market participants in developing and developed countries make this research so interesting and valuable. In fact, the low correlation and zero shock transmission in the Islamic stock market will encourage investors in other international financial markets to better reorganize their portfolios to take advantage of risk diversification. This research makes an effort to shed light on these questions by adding to the scant body of evidence on diversification in the Islamic stock market.

This research aims to examine the long-term and short-term relationships between the Islamic stock markets of developed and developing countries and the Islamic stock market in Indonesia. Also, it examines how the Indonesian Islamic stock market has responded to shocks in the Islamic stock markets of developed countries and how much each Islamic stock market in developed countries has contributed to the Indonesian Islamic stock market. The findings of this research make essential contributions to a number of perspectives by, first, providing an overview of the current state of the Islamic stock market in both developing and developed countries. Second, regarding the integration of the Islamic stock market, the decision-making processes from both developing and developed countries should be taken into account. Third, figuring out how your money is spread out helps lessen the blow of any one setback.

LITERATURE REVIEW

When economic globalization takes place, it compels countries to strengthen their economies in order to maintain stability. If the economy is weak, a sudden change could trigger a crisis that spreads to other countries in the same situation, like a domino effect (BenSaïda et al., 2018; Cieslak & Schrimpf, 2019; Werner, 2016). The integration that emerges between countries as a result of globalization causes a domino effect, which is mostly triggered when issues arise in countries that are categorized as essential or significant in specific sectors (Balli et al., 2019; Casu & Girardone, 2010; Jebran et al., 2017).

Excessive exposure to inaccurate market data is a distinct phenomenon from exposure to accurate data. In the case of a downturn in one market, the other market will also decrease due to their increasing connection. For this reason, it is increasingly becoming challenging to diversify across international stock markets, and there is a considerable risk of losing the gains altogether as the correlation between markets in different countries increases when the market receives a shock (Ellington, 2018; Lee & Goh, 2016; Sarwar et al., 2020).

In a perfect market, all assets would be exposed to the same amount of risk, leading to uniform expected returns across the board (Balli et al., 2019; Singh & Singh, 2016). Integration between stock markets shows efficiency, and these markets do not benefit from diversification because market performance tends to be the same across markets (Kim et al., 2015; Silvers, 2021). In a risk-return framework, an investor can increase returns, reduce risk, or both by owning a combination of investments in the stock market with uncorrelated returns. Thus, the degree of integration of the stock market indicates the potential benefits of portfolio diversification that investors can obtain.

According to Stoupos and Kiohos (2021), the continued involvement of economies in trade unions has resulted in a wide variety of financial and economic asymmetries in the Euro area. Regarding the Eurozone's economy, one of the most important tasks for policymakers is ensuring the region's long-term financial integration. The findings show that stock market integration is high in the case of Germany and the central members of the euro area but is different for the countries on the Euro zone's periphery. However, the DAX-30 has only seen hints of integration with the eastern Mediterranean and Baltic stock markets.

The introduction of the Euro in 1999 and the banking crisis of 2011 are two contrasting events that Lee and Kim (2020) use to examine the changing degree of integration between stock markets in fourteen European countries and their relevant monetary drivers over time. The panel analysis shows that after the European monetary union, the integration of the stock market in the European Union was primarily driven by the convergence of economic performance, the reduction in interest rate differentials, and inflation among the European Union countries. According to qualitative research, GDP disparities among EU member states have been found to have a negative correlation with economic convergence.

Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea, is a topic investigated by Wu (2019). Results from applying a rolling window approach informed by graph theory and Vector Autoregressive (VAR) based methods reveal a high degree of interdependence but unpredictable temporal patterns between these markets. Similar global factors are found to be behind much of this high degree of integration. The correlation weakens significantly if these variables are removed from each stock market. As a result, the stock market in East and Southeast Asia is not as integrated as it may seem. Although regional governments have encouraged cooperation and integration of financial markets, substantial obstacles persist. These inflated correlations are a reflection of the more significant global influence on individual markets, while correlations due to factors other than global ones have been decreasing since the crisis.

From 1935 to 2015, Aladesanmi et al. (2019) examined the effects of macroeconomic determinants like financial convergence and volatility on stock market integration. It also assesses the degree to which the UK and US stock markets were intertwined before, during, and after Bretton Woods (BW) under three distinct monetary regimes. Weak integration is observed during the BW regime, while strong integration is observed during the post-BW regime. Since the BW system's collapse, additional research shows that macroeconomic convergence, financial volatility, and the crisis have been the primary drivers of stock market integration between the two markets.

The degree of regional and global integration of emerging and leading Asian stock markets is evaluated by Mohti et al. (2019). The Detrended Cross-Correlation coefficient and the Gregory and Hansen cointegration test were used to examine the long-term relationship between the markets. According to the empirical study's findings, there are signs of global and regional integration in every emerging market studied. However, only Pakistan and Vietnam are included in this when it comes to the border market. Foreign investors keen on broadening their portfolios' geographic diversification strategies will find these findings interesting.

According to Batten et al. (2019), the level of interdependence between the energy and stock markets is crucial to the strategic planning, risk assessment, and capital allocation of multinational corporations and individual investors. This study examines the interconnected dynamics between a diversified oil, coal, and gas energy portfolio and Asia's ten largest stock exchanges. Using an estimation method that takes into account the time-varying framework of asset pricing—which permits regime change—we can distinguish between two key regimes. Low energy stock market integration characterizes the first regime. More than two-thirds of the sample time span (December 1992-December 2015) can be attributed to the market's tendency toward segmentation. In contrast, the second regime, one of strong integration, is characterized by fewer ways to diversify and higher volatility. Moreover, the corporation faces less favorable financial conditions in the second regime. The equity markets' valuation of energy risk under the two regimes is distinct. The high integration regime is shown to have a considerable positive energy-related equities risk premium, in addition to the low integration regime's positive equity risk premium that is unrelated to energy. In conclusion, the integration model's conditional information can help investors beat passive portfolio strategies in the stock and energy markets.

RESEARCH METHOD

There is a total of about 2088 observations in this study, which are derived from daily data from 2012-2021. For this calculation, the researchers utilize the daily closing value of the Islamic stock price index across both developing and developed member countries. Developing countries like Indonesia, Turkey, Malaysia, Qatar, Kuwait, and India stand out as well-off compared to the United States and Japan particularly. The indices are calculated using data from S&P Dow Jones Indices and investing.com.

This investigation achieves its goals by employing a vector error correction model (VECM). For the analysis to be valid, it is necessary for a number of assumptions to be accurate. There is no correlation between independent variables, and their means are all zero (white noise). If the data is not level-stationary, then it can be made such using differentiation. The VAR first difference model is then applied (VAR-FD). One potential drawback of VAR-FD is that it does not preserve information about the historical connections between variables. For cointegrated data, the VAR model is used in conjunction with the VECM model to obtain long-term insights.

For non-stationary but potentially cointegrated variables, the Vector Error Correction Model (VECM) is a restricted form of the more general Vector Autoregression (VAR) model. In order to account for data types that are not level-stationary but are cointegrated, this additional constraint must be provided. The VECM algorithm takes advantage of this knowledge of the cointegration constraints on its implementation. Thus, VECM's rate of adaptation varies from the immediate to the distant. As a result, VECM can be understood as a VAR strategy for cointegrated, non-stationary data.

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + ... + \Gamma_{p-1} \Delta y_{t-p+1} + u_t$$

Where Δy_t is $y_t - y_{t-1}$, y_t is a vector containing the variables analyzed in the study, Π is the long-term parameter, Γ is the short-term parameter, and it is the error term. Data analysis using the VECM approach generally uses short-term and long-term effects, Impulse Response Function (IRF), and Forecast Error Variance Decomposition (FEVD). Before estimating VECM, several steps must be carried out, namely pre-estimation testing. These tests include the data stationarity test, VAR stability test, determination of optimal lag, and cointegration test.

RESULTS AND DISCUSSION

Descriptive Statistics

The stock indices of developing and developed countries were divided into their respective categories in table 1 of descriptive statistics. The typical Sharia stock indices in both developing and developed countries fell in the range of 5.12 percent to 8.47 percent. With a range between 8.05 and 9.19 percent, the USA Islamic stock index has the greatest average among other Islamic stock indices; this indicates that it has the highest stock price compared to the others. This high stock price is in line with the risks that exist in the USA Islamic stock index, which is reflected by the standard deviation with the highest value among the others.

Table 1. Descriptive Statistics

	Indonesia	Turkey	Malaysia	Qatar	India	USA	Japan
Mean	5.126769	8.674046	6.920698	8.274827	8.161095	8.475796	7.438708
Maximum	5.296365	9.451003	7.171572	8.504375	8.866576	9.196663	7.948806
Minimum	4.753159	8.236969	6.687894	7.876976	7.616451	8.058444	7.032933
Std. Dev.	0.097932	0.285083	0.065556	0.126964	0.265934	0.298751	0.235237
Observations	2088	2088	2088	2088	2088	2088	2088

Stationary Test

Time-series data were utilized throughout this investigation. Then, a test for data stationarity is the first step in establishing whether or not the input data was truly stationary. Incorrect or skewed conclusions can be drawn from non-stationary data. Increasing integration until the data becomes stationary transforms the non-stationary data into stationary data. In this investigation, the researchers used the Augmented Dickey-Fuller (ADF) and Philips Perron (PP) tests to determine if our level and difference data are stationary.

According to the ADF and PP tests, the data is stationary if the probability of non-stationarity is less than 0.05. Using the data in Table 2, the researchers first performed the ADF and PP tests at the level, and only if those results were stable did the researchers move on to the level difference. According to the level test results, there is a unit root for every set of data with a probability of at least 0.05. Thus, the data at this level of granularity are not static. As the test advances, the degree of integration or the gap increases. The obtained results show that there is no unit root, and the data is stationary (p-value 0.05). This finding suggests a lasting connection between developing and developed nations and Indonesia's Islamic stock index.

Table 2. Stationary Test Results

Islamic Stock Index	Augmented Dickey-Fuller (ADF)		Philips Perron (PP)	
	Level	Difference	Level	Difference
Indonesia	0.1385	0.0000	0.1340	0.0001
Turkey	0.9249	0.0000	0.9162	0.0000
Malaysia	0.0909	0.0001	0.0601	0.0001
Qatar	0.0469	0.0000	0.0811	0.0000
India	0.9404	0.0000	0.9156	0.0000
USA	0.9846	0.0000	0.9850	0.0001
Japan	0.7833	0.0001	0.7837	0.0001

Cointegration

After the optimum lag test has been carried out, it was followed by the Johansen Cointegration test to analyze the presence or absence of long-term integration between the Indonesian Islamic stock index and developing country stock indices and developed country Islamic stock indices at lag 1. The significance level of this test is set at 5%, and the trace statistic value is compared to the critical value. The results of the Johansen Cointegration test are shown in Table 3.

Table 3. Cointegration Test Results

Indonesia and Developing Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.020734	107.9798	88.80380	0.0011
At most, 1 *	0.012183	64.27472	63.87610	0.0463
At most 2	0.009012	38.70420	42.91525	0.1239
At most 3	0.006058	19.82062	25.87211	0.2351
At most 4	0.003420	7.145439	12.51798	0.3296
Indonesia and Developed Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.012133	45.62920	42.91525	0.0261
At most 1	0.006538	20.16502	25.87211	0.2177
At most 2	0.003103	6.482290	12.51798	0.4016

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level for developing countries, and the Trace test indicates 1 cointegrating eqn(s) at the 0.05 level for developed countries

*denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Johansen's experiments determine if the VAR or VECM model will be utilized. At the 5% significance level, Table 3 demonstrates a balanced link between the Indonesian Islamic stock index, the developing country stock index, and the developed country Islamic stock index, as well as similar changes in the stock index over the long run. Due to the observation of integration, the VECM model was used for this experiment.

Long-Term and Short-Term Integration

According to the pre-estimation test results, the VECM model is implemented because all variables are difference-stationary and cointegrated. Lag 1 has shown to be most successful in the VECM model. The intermediate- and long-term VECM estimation findings are presented in Table 4. Long-term, the Islamic stock index in Indonesia follows the trends seen in the Islamic stock indices of Malaysia, Qatar, India, the United States, and Japan. However, the Indonesian Islamic stock index reflects these trends a month earlier. Thus, short-term effects can be seen in Islamic stock indices in Turkey and Japan.

Indonesia's Islamic stock index with Turkey affects the short term but not the long term. According to the Ministry of Foreign Affairs of the Republic of Indonesia (2021), the cooperative relationship between Indonesia and Turkey has been going on for a long time and is currently entering a new phase that further demonstrates the strategic value of the two countries with the launch of the "Joint declaration Indonesia-Turkey: Toward an Enhanced Partnership in a New World Setting" where the two countries are committed to cooperating, one of which is in the economic sphere with a target of US$ 10 billion by 2023. Indonesia and Turkey have excellent trade potential, but the realization is still tiny. Currently, the trading volume between the two is only around US$ 1.5 billion, which is still far from its true potential.

Table 4. Short-Term and Long-Term Results

Islamic Stock Index	Coefficient	t-statistic
	Short-Term	
Turkey	0.045216	2.37569*
Malaysia	0.056758	1.85105
Qatar	-0.024856	-1.13002
India	-0.016286	-1.04282
USA	0.009591	0.45302
Japan	0.047662	2.24690*
	Long-Term	
Turkey	-0.176158	-0.11404
Malaysia	8.056244	3.55487*
Qatar	-8.045002	-6.41477*
India	15.20192	7.53467*
USA	-6.341088	-3.30768*
Japan	-15.28591	-7.23298*

Indonesia's Islamic stock index with Malaysia influences the long term but not the short term. The Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2021) stated that Malaysia is one of the main economic partners in investment and trade. Data from the Ministry of Trade (2021) revealed that foreign investment from Malaysia reached US$ 706.8 million spread over 1,324 projects. Then, in terms of trade in goods, bilateral trade volume between countries reached US$ 15.03 million in 2020 and US$ 13.43 million in 2021. The data shows that the relationship between the two countries is very intense in the economic field.

Indonesia's Islamic stock index with Malaysia influences the long term but not the short term. Indonesia's opportunities to market its products are still very open. In 2014, Indonesia's total trade with Qatar reached US$ 1.68 billion. However, this value fell to USD 828 million in 2015 and increased to USD 1.5 billion in 2018. Indonesia's products marketed in Qatar include processed food/beverages, coffee, sugar, salt, tea, cooking oil, wheat flour, and fruits. In addition, there are motor vehicle spare parts, electricity, electronic equipment, and supplies for building materials.

Indonesia's Islamic stock index with India influences the long term but not the short term. Indonesia has continuously recorded a surplus in trade with India. Data from the Ministry of Trade of the Republic of Indonesia recorded that Indonesia's trade value with India in 2017 reached US$ 18.13 billion. This amount consists of the value of Indonesia's exports to India of US$ 14.98 billion and Indonesia's imports from the country of US$ 4.05 billion. As a result, Indonesia's trade balance was a surplus of US$ 10.04 billion. This figure is the largest since 2013. However, in 2018 Indonesia's trade with India during the Jan-Mar 2018 period decreased 2.99% to US$ 4.32 billion from the same period the previous year. Indonesia's exports to India shrank 7% to US$ 3.2 billion from the previous year, while imports from India increased 10.82 percent to US$ 1.1 billion. Indonesia's trade balance fell 14.4 percent to US$ 2.09 billion from the same period the previous year.

Indonesia's Islamic stock index with the United States influences in the long term but not in the short term. The Ministry of Trade (2021) noted that the trade balance between Indonesia and the United States (US) consistently scored a surplus. Although Indonesia's exports had experienced a decline, the decline in imports was more excellent so that the surplus remained. In 2019, the export value of Indonesia and the United States fell 3.8 percent to US$ 17.7 billion. Meanwhile, imports declined by 8.8% to US$ 9.3 billion, resulting in a 2.4% increase in the value of the trade balance from US$ 8.3 billion in 2018 to US$ 8.5 billion in 2019. The increase in imports of raw materials reflects an increase in the performance of the real sector. At the same time, the increase in capital goods is also quite good because it impacts increasing production capacity.

Indonesia's Islamic stock index with Japan influences the long term but not the short term. Japan is an essential partner for Indonesia. Despite being faced with various global challenges, relations between the two countries remain strong. The Ministry of Trade (2020) stated that the value of bilateral trade between Indonesia and Japan in 2020 reached US$ 24.3 billion. During the 2018 to 2020 period, Japan consistently ranked 3rd as Indonesia's leading export destination, with export values in 2020 reaching US$ 13.6 billion. This condition continues, wherein semester 1 - 2021, Indonesia's exports to Japan have reached a value of US$ 7.9 billion. In terms of investment, during the period 2018 to Semester I - 2021, Foreign Investment (PMA) from Japan that entered Indonesia reached US$ 12.9 billion.

Meanwhile, Japan became the third largest foreign investment country entering Indonesia. Until the first half of 2021, FDI from Japan entering Indonesia has reached US$ 1.04 billion. Meanwhile, the total PMA projects from Japan reached more than 19 thousand projects during that period. The Indonesian government hopes that foreign direct investment from Japan entering 2021 will be able to exceed the realization in 2020, which reached US$ 2.6 billion.

Impulse Response Function

Examining how one variable reacts to shocks of a different variable by a single standard deviation is the purpose of the Impulse Response Function (IRF) study. The shocks emerge from both the variable and other factors. This IRF study will assess the reaction of endogenous variables inside the VAR system to external shocks. Because the i-variable influences the i-variable, certain shocks are caused by the variable and other variables. In VECM, there is transmission to all other variables through the lag structure. IRF describes the response of each dependent variable to the shock of the independent variable and the length of time to achieve stability so that the IRF does not describe the magnitude of the impact of one variable on other variables.

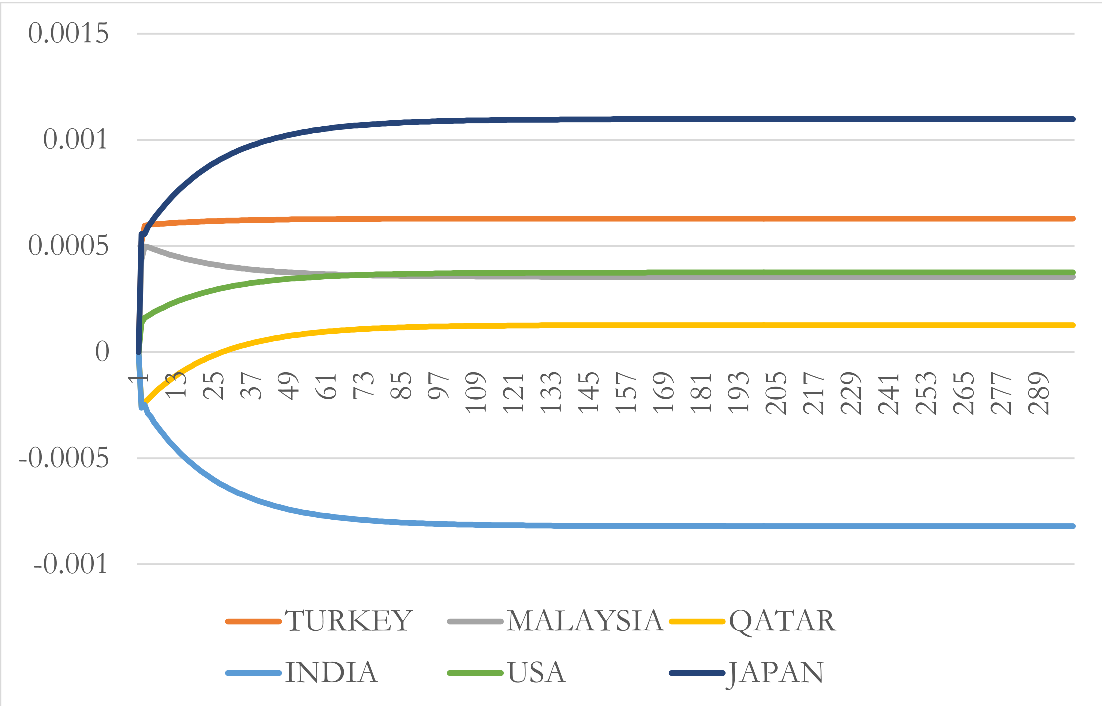

Figure 1. Impulse Response Function Result

The study forecasts the performance of an index of Islamic companies listed on the Indonesian stock market for the next 300 months. The results of the IRF analysis in this study will explain the response of the Indonesian Islamic stock index if there are shocks in the Islamic stock indices of Turkey, Malaysia, Qatar, India, the USA, and Japan. In general, at the beginning of the shock of one standard deviation, the Indonesian Islamic stock index has not responded to any shocks from other Islamic stock indices. The response of the Indonesian Islamic stock index began to be seen in the second period when the Indonesian Islamic stock index responded with positive and negative responses. When other stock markets in Turkey, Malaysia, the United States, and Japan were shaken, Indonesia's Islamic stock index climbed, in contrast to Qatar and India.

Forecast Error Variance Decomposition

Forecast Error Variance Decomposition (FEVD) analysis on the VECM method is used to identify and explain the contribution of each variable shock to the main variables observed. This FEVD method can see the strengths and weaknesses of each variable in influencing other variables over a long period. This study uses a FEVD analysis to determine the relative impact of external shocks on the Indonesian Islamic stock index for the countries of Turkey, Malaysia, Qatar, India, the United States, and Japan. The period used is the next three years which consists of 300 months. The results show that Indonesia's Islamic stock index dominates with an average of 98.37 percent, followed by Japan's Islamic stock index at 0.73 percent, India at 0.38 percent, Turkey at 0.29 percent, Malaysia at 0.12 percent, the USA at 0.08 percent, and Qatar by 0.01 percent.

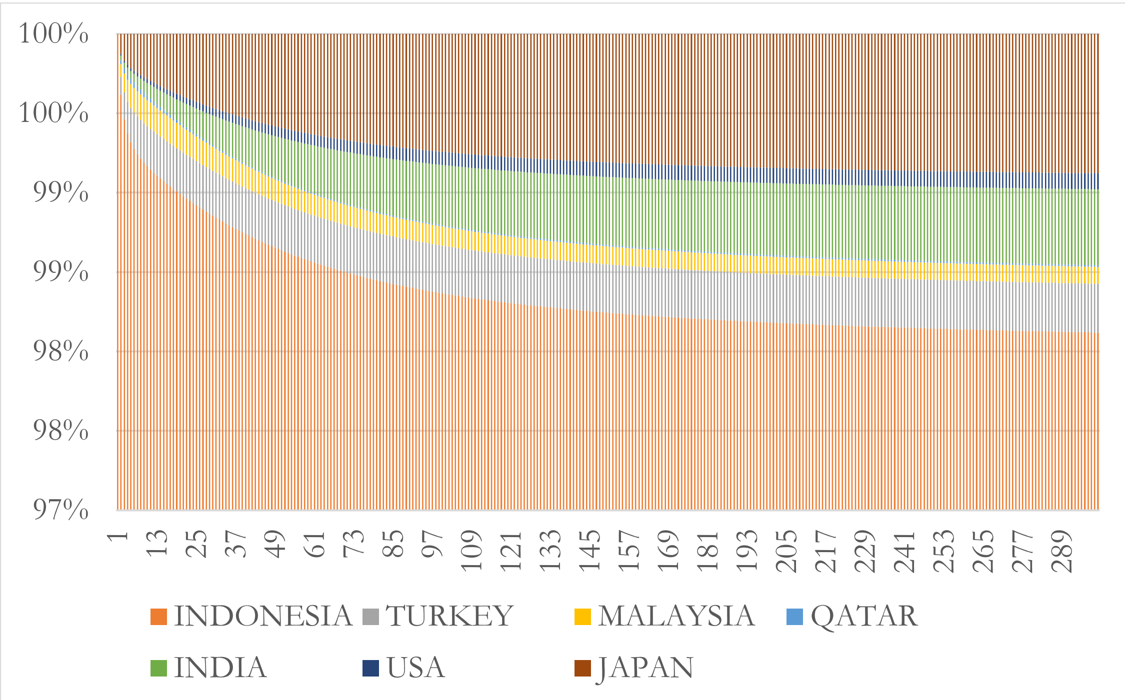

Figure 2. Decomposition of the Error Variance in the Forecast

CONCLUSION

The estimated effects of the Turkish and Japanese Islamic stock indices on the Indonesian Islamic stock indices show both a short-term and a long-term influence. On the other hand, Islamic stock indices have produced long-term effects in Malaysia, Qatar, India, and the United States. There were positive and negative responses to the Indonesian Islamic stock index. Indonesians were upbeat about the effects of shocks on Islamic stock indices in Turkey, Malaysia, the US, and Japan, while their counterparts in Qatar and India were skeptical. Islamic stock indices in Japan and Indonesia have been influenced by the latter country's efforts to broaden their respective markets.

In order to play a role in mitigating the impacts of shocks on the Islamic stock market in both developing and developed countries and improving the velocity of stock market integration, Indonesia's Islamic stock index has to raise the bar on stock market structure and infrastructure. When countries cooperate to integrate their stock markets, they can better ensure that their capital markets are prepared to accept foreign investors and comply with applicable regulations.

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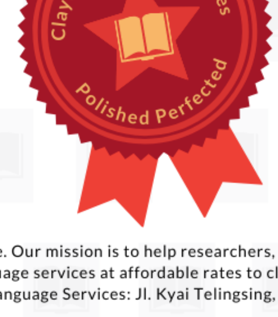

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ABSTRACT (ABSTRACT: NO MORE THAN 200 WORDS)

The abstract should stand alone, which means that no citation in the abstract. The abstract should concisely inform the reader of the manuscript's purpose, its methods, its findings, and its value. The abstract should be relatively nontechnical, yet clear enough for an informed reader to understand the manuscript's contribution. The manuscript's title, but neither the author's name nor other identification designations, should appear on the abstract page. An abstract between 160-200 words.

Keywords: We would like to encourage you to list your keywords in this section (6-8 words).

INTRODUCTION

What is the purpose of the study? Why are you conducting the study? The main section of an article should start with an introductory section, which provides more details about the paper's purposes, motivation, research methods, and findings. The introduction should be relatively nontechnical, yet clear enough for an informed reader to understand the manuscript's contribution.

LITERATURE REVIEW

The literature review represents the theoretical core of an article. In this section, we will discuss the purpose of a literature review. We will also consider how one should go about to find appropriate literature on which to base a literature review and how this information should be managed. Finally, we will answer four questions that first-time researchers often battle with when compiling a literature review.

These questions are: which aspects should I include in a literature review?; how should I go about synthesizing information in a literature review?; how should I structure a literature review? what writing style should I use when compiling a literature review?

The purpose of a literature review is to “look again” (re + view) at what other researchers have done regarding a specific topic (Leedy & Ormrod 2005:70). A literature review is a means to an end, namely to provide background to and serve as motivation for the objectives and hypotheses that guide your own research (Perry et al. 2003:660)

A good literature review does not merely summarise relevant previous research. In the literature review, the researcher critically evaluates, re-organizes and synthesizes the work of others (Leedy & Ormrod, 2005:84). In a sense, compiling a literature review is like making a smoothie or fruit shake: The end product is a condensed mix that differs totally in appearance from the individual ingredients used as inputs. The key to a successful literature review lies in your ability to “digest” information from different sources, critically evaluate it and resent your conclusions in a concise, logical and reader-friendly” manner.

First-time researchers often naively believe everything they read or are scared to criticize the work of others. However, academic research is all about critical inquiry! It is, therefore, extremely important that you critically evaluate the material that you read. Do you agree with the arguments and conclusions of other researchers? If you disagree, why? Can you identify contradictory arguments or findings? How could one explain these contradictions? Do the findings of previous studies apply in all contexts or are the findings context-specific? What are the criticisms against the conceptual models or measurement approaches discussed in the literature? Which limitations should be considered when interpreting the results of previous research?

You have to carefully read the most recent available literature to identify specific gaps, inconsistencies and/or controversies that may form the basis of your own research. Always show that you have considered an issue from several angles and that you are aware of the arguments for and against a specific point of view. Many researchers in services marketing, for example, use the SERVQUAL measurement scale without considering existing criticisms against it.

To compile a proper literature review, one has to overcome three specific challenges, namely: finding appropriate literature on a specific topic, managing the information, and presenting a logical, synthesized, and reader-friendly review of the current knowledge relating to a specific topic. Consider the following search strategies: Blackwell Synergy; Proquest Data Basis; EBSCOhost (Business Source Premier and Business Source Premier); Emerald; Taylor and Francis; Infotrac; Wiley Interscience; and others open access journal using Google Scholar.

RESEARCH METHOD

The research method section describes the steps followed in the execution of the study and also provides a brief justification for the research methods used (Perry et al., 2003:661). It should contain enough detail to enable the reader to evaluate the appropriateness of your methods and the reliability and validity of your findings. Furthermore, the information should enable experienced researchers to replicate your study (American Psychological Association, 2001:17).

The methodology section typically has the following sub-sections:

- Sampling (description of the target population, research context, and units of analysis; sampling; and respondent profile)
- Data collection
- Measures (Alternatively: Measurement)

RESULTS

The results section summarizes the data collected for the study in the form of descriptive statistics and also reports the results of relevant inferential statistically analysis (e.g., hypothesis tests) conducted on the data. You need to report the results in sufficient detail so that the reader can see which statistical analyses were conducted and why, and to justify your conclusions. Mention all relevant results, including those that are at odds with the stated hypotheses (American Psychology Association 2001: 20).

There is no fixed recipe for presenting the findings of a study. We will, therefore, first consider general guidelines and then turn our attention to options for reporting descriptive statistics and the results of the hypothesis test.

Reporting Research Results

You should present your findings as concisely as possible and still provide enough detail to adequately justify your conclusions, as well as enable the reader to understand exactly what you did in terms of data analysis and why.

You may assume that the reader has a working knowledge of basic statistics (i.e., typically the contents covered in a 1st statistics course). It is, therefore, not necessary to discuss basic statistical procedures in detail. You may, however, have to explain advanced multivariate statistical methods (e.g., repeated measures ANOVA, two- or –way ANOVA, multiple regression analysis, and factor analysis) in nen-technical terms. Figures and Tables (detached from main of the manuscript) often allow one to present findings in a clear and concise manner.

Example:

Insert Table 1 Here

Insert Figure 1 Here

DISCUSSION

In many ways, it is the most important section in an article (Feldman, 2004:4). Because it is the last thing a reader sees, it can have a major impact on the reader's perceptions of the article and the research conducted (Summers 2001:411).

Different authors take different approaches when writing the discussion section. According to Feldman (2004:5), Perry et al. 2003: 658), and Summers 2001: 411412), the discussion section should:

- Restate the study's main purpose
- Reaffirm the importance of the study be restating its main contributions
- Summarize the results in relation to each stated research objective or hypothesis without introducing new material

- Relate the findings to the literature and the results reported by other researches
- Provide possible explanations for unexpected or non-significant findings
- Discuss the managerial implications of the study
- Highlight the main limitations of the study that could influence its internal and external validity
- Discuss insightful (i.e., non-obvious) directions or opportunities for future research on the topic

The discussion section should not merely restate the findings reported in the result section or report additional findings that have not been discussed earlier in the article. The focus should instead be on highlighting the broader implications of the study's findings and relating these back to previous research. Make sure that the conclusions you reach follow logically from and are substantiated by the evidence presented in your study (Varadarajan 1996: 5).

CONCLUSION

In this section, the author presents brief conclusions from the results of research with suggestions for advanced researchers or general readers. A conclusion may review the main points of the paper, do not replicate the abstract as the conclusion.

Not only does the author write down the major flaws and limitations of the study, which can reduce the validity of the writing, thus raising questions from the readers (whether, or in what way), the limits in his studies may have affected the results and conclusions. Limitations require critical judgment and interpretation of their impact. The author should provide the answer to the question: is this a problem with error, method, validity, and or otherwise?

Writing an academic article is a challenging but very fulfilling endeavor. Hopefully, the guidelines presented here will enable you to write your first academic article with relative ease. Students, however, often underestimate the time required to produce a "polished" first effort. You cannot write a proper research article in a weekend or even a week. It is, therefore, extremely important to allow yourself enough time –at least three to four weeks—to work on the successive draft.

LIMITATION

It is for sure that your research will have some limitations and it is normal. However, it is critically important for you to be striving to minimize the range of scope of limitations throughout the research process. Also, you need to provide the acknowledgement of your research limitations in conclusions chapter honestly.

It is always better to identify and acknowledge shortcomings of your work, rather than to leave them pointed out to your by your dissertation assessor. While discussing your research limitations, don't just provide the list and description of shortcomings of your work. It is also important for you to explain how these limitations have impacted your research findings.

Your research may have multiple limitations, but you need to discuss only those limitations that directly relate to your research problems. For example, if conducting a meta-analysis of the secondary data has not been stated as your research objective, no need to mention it as your research limitation.

REFERENCES

Each manuscript must include a reference list containing only the quoted work and using the Mendeley, EndNote, or Zotero tool. Each entry should contain all the data needed for unambiguous identification. With the author-date system, use the following format recommended by Harvard-Anglia.

The basics of a Reference List entry for a journal article:

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- More than 1 authors, first author [the surname is followed by first initials], second author and so on [initial for first name is followed the surname)
- Year of publication of the article.
- Article title (dot).
- Journal title (in italics).
- Number of journal volume.
- Issue number of journal (in parentheses).
- Page range of article

Example:

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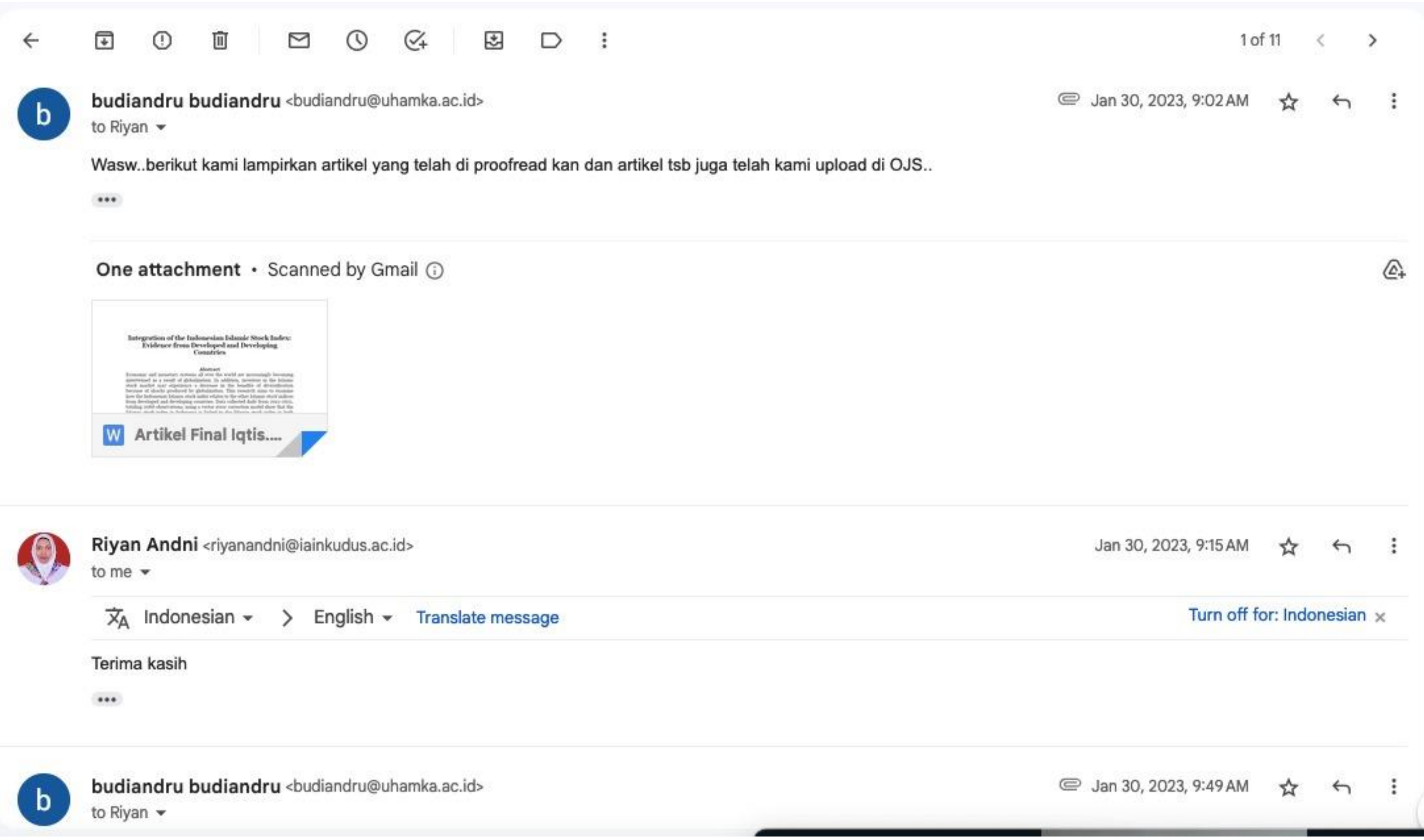

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Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries

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ABSTRACT

Economic and monetary systems all over the world are increasingly becoming intertwined as a result of globalization. In addition, investors in the Islamic stock market may experience a decrease in the benefits of diversification because of shocks produced by globalization. This research aims to examine how the Indonesian Islamic stock index relates to the other Islamic stock indices from developed and developing countries. Data collected daily from 2012-2021, totaling 2088 observations, using a vector error correction model show that the Islamic stock index in Indonesia is linked to the Islamic stock index in both developed and developing countries. In addition, the Indonesian Islamic stock index had mixed reactions to both established and emerging Islamic stock indices. The Islamic stock indices in Indonesia are primarily affected by Japan's involvement. Indonesia's Islamic stock indices must prepare various alternative strategies for dealing with shocks from the Islamic stock indices in both developed and developing countries.

Keywords: Market Integration, Developed Countries, Developing Countries, Islamic Stock

INTRODUCTION

The development of the capital market is a leading indicator of economic growth, as shown by the experiences of a significant number of countries (Zulkhibri, 2018). Economic integration in the international capital market is one of the initiatives taken, and it can give a bird's-eye view of market operations. The capital market plays an important role in the Islamic finance industry, both in terms of roles and functions and in terms of market share (Salman & Nawaz, 2018).

Islamic investment explores the purported performance compared to socially responsible investments and the extent to which Islamic legal objectives are practically met by Islamic financial institutions (Yesuf & Aassouli, 2020; Zafar &

Sulaiman, 2019). This can possibly play an essential role since assets in Islamic finance have a close relationship between the fundamental and financial sectors; this may influence the Islamic financial market due to the effects of volatility from other countries markets. Islamic stock prices include companies characterized by small leverage ratios and interest involvement which implies a relationship related to information flow and shock transmission (Ferris et al., 2018; Saiti et al., 2014). In other words, Islamic financial intermediaries play an important role because they reduce the transmission of shocks and reduce potential losses due to unexpected financial crises (Djennas, 2016).

Integration in the stock market is a relationship among global stock markets due to investors' unlimited access. It influences the achievement of global stock prices. The stock price reflects the expectations of investors in the context of the potential downsides. To that end, international investors tend to invest in areas where the economy is more conducive to liquidity, high stock, and low cost. This situation increases the degree of integration of the international stock market due to investors diversifying shares.

According to Stoupos and Kiohos (2021), on market integration, the Euro Area suffers various financial and economic asymmetries as a result of other economic engagement in trade unions. Using data from the stock markets of fourteen European nations and the monetary drivers in those countries, Lee and Kim (2020) examine the stock market's changing interconnectedness across time in relation to two occurrences. Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea (referred to as ASEAN5+4), is a topic that Wu (2019) investigates. According to Aladesanmi et al. (2019), the effect of macroeconomic factors on stock market integration is studied. Mohti et al. (2019) evaluate the level of regional and global integration of stock markets in developing and developed Asian countries. In addition, Batten et al. (2019) examine the interconnectedness of oil, coal, and gas investments with Asia's ten largest stock markets.

The policy implications of this study for international investors and market participants in developing and developed countries make this research so interesting and valuable. In fact, the low correlation and zero shock transmission in the Islamic stock market will encourage investors in other international financial markets to better reorganize their portfolios to take advantage of risk diversification. This research makes an effort to shed light on these questions by adding to the scant body of evidence on diversification in the Islamic stock market.

This research aims to examine the long-term and short-term relationships between the Islamic stock markets of developed and developing countries and the Islamic stock market in Indonesia. Also, it examines how the Indonesian Islamic stock market has responded to shocks in the Islamic stock markets of developed countries and how much each Islamic stock market in developed countries has contributed to the Indonesian Islamic stock market. The findings of this research make essential contributions to a number of perspectives by, first, providing an overview of the current state of the Islamic stock market in both developing and developed countries. Second, regarding the integration of the Islamic stock market, the decision-making processes from both developing and developed countries should be taken into account. Third, figuring out how your money is spread out helps lessen the blow of any one setback.

LITERATURE REVIEW

When economic globalization takes place, it compels countries to strengthen their economies in order to maintain stability. If the economy is weak, a sudden change could trigger a crisis that spreads to other countries in the same situation, like a domino effect (BenSaïda et al., 2018; Cieslak & Schrimpf, 2019; Werner, 2016). The integration that emerges between countries as a result of globalization causes a domino effect, which is mostly triggered when issues arise in countries that are categorized as essential or significant in specific sectors (Balli et al., 2019; Casu & Girardone, 2010; Jebran et al., 2017).

Excessive exposure to inaccurate market data is a distinct phenomenon from exposure to accurate data. In the case of a downturn in one market, the other market will also decrease due to their increasing connection. For this reason, it is increasingly becoming challenging to diversify across international stock markets, and there is a considerable risk of losing the gains altogether as the correlation between markets in different countries increases when the market receives a shock (Ellington, 2018; Lee & Goh, 2016; Sarwar et al., 2020).

In a perfect market, all assets would be exposed to the same amount of risk, leading to uniform expected returns across the board (Balli et al., 2019; Singh &

Singh, 2016). Integration between stock markets shows efficiency, and these markets do not benefit from diversification because market performance tends to be the same across markets (Kim et al., 2015; Silvers, 2021). In a risk-return framework, an investor can increase returns, reduce risk, or both by owning a combination of investments in the stock market with uncorrelated returns. Thus, the degree of integration of the stock market indicates the potential benefits of portfolio diversification that investors can obtain.

According to Stoupos and Kiohos (2021), the continued involvement of economies in trade unions has resulted in a wide variety of financial and economic asymmetries in the Euro area. Regarding the Eurozone's economy, one of the most important tasks for policymakers is ensuring the region's long-term financial integration. The findings show that stock market integration is high in the case of Germany and the central members of the euro area but is different for the countries on the Euro zone's periphery. However, the DAX-30 has only seen hints of integration with the eastern Mediterranean and Baltic stock markets.

The introduction of the Euro in 1999 and the banking crisis of 2011 are two contrasting events that Lee and Kim (2020) use to examine the changing degree of integration between stock markets in fourteen European countries and their relevant monetary drivers over time. The panel analysis shows that after the European monetary union, the integration of the stock market in the European Union was primarily driven by the convergence of economic performance, the reduction in interest rate differentials, and inflation among the European Union countries. According to qualitative research, GDP disparities among EU member states have been found to have a negative correlation with economic convergence.

Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea, is a topic investigated by Wu (2019). Results from applying a rolling window approach informed by graph theory and Vector Autoregressive (VAR) based methods reveal a high degree of interdependence but unpredictable temporal patterns between these markets. Similar global factors are found to be behind much of this high degree of integration. The correlation weakens significantly if these variables are removed from each stock market. As a result, the stock market in East and Southeast Asia is not as integrated as it may seem. Although regional governments have encouraged cooperation and integration of financial markets, substantial obstacles persist. These inflated correlations are a reflection of the more significant global influence on individual markets, while correlations due to factors other than global ones have been decreasing since the crisis.

From 1935 to 2015, Aladesanmi et al. (2019) examined the effects of macroeconomic determinants like financial convergence and volatility on stock market integration. It also assesses the degree to which the UK and US stock markets were intertwined before, during, and after Bretton Woods (BW) under three distinct monetary regimes. Weak integration is observed during the BW regime, while strong integration is observed during the post-BW regime. Since the BW system's collapse, additional research shows that macroeconomic convergence, financial volatility, and the crisis have been the primary drivers of stock market integration between the two markets.

The degree of regional and global integration of emerging and leading Asian stock markets is evaluated by Mohti et al. (2019). The Detrended Cross-Correlation coefficient and the Gregory and Hansen cointegration test were used to examine the long-term relationship between the markets. According to the empirical study's findings, there are signs of global and regional integration in every emerging market studied. However, only Pakistan and Vietnam are included in this when it comes to the border market. Foreign investors keen on broadening their portfolios' geographic diversification strategies will find these findings interesting.

According to Batten et al. (2019), the level of interdependence between the energy and stock markets is crucial to the strategic planning, risk assessment, and capital allocation of multinational corporations and individual investors. This study examines the interconnected dynamics between a diversified oil, coal, and gas energy portfolio and Asia's ten largest stock exchanges. Using an estimation method that takes into account the time-varying framework of asset pricing—which permits regime change—we can distinguish between two key regimes. Low energy stock market integration characterizes the first regime. More than two-thirds of the sample time span (December 1992-December 2015) can be attributed to the market's tendency toward segmentation. In contrast, the second regime, one of strong integration, is characterized by fewer ways to diversify and higher volatility. Moreover, the corporation faces less favorable financial conditions in the second regime. The equity markets' valuation of energy risk under the two regimes is distinct. The high integration regime is shown to have a considerable positive energy-related equities risk premium, in addition to the low integration regime's positive equity risk premium that is unrelated to energy. In conclusion, the integration model's conditional information can help investors beat passive portfolio strategies in the stock and energy markets.

RESEARCH METHOD

There is a total of about 2088 observations in this study, which are derived from daily data from 2012-2021. For this calculation, the researchers utilize the daily closing value of the Islamic stock price index across both developing and developed member countries. Developing countries like Indonesia, Turkey, Malaysia, Qatar, Kuwait, and India stand out as well-off compared to the United States and Japan particularly. The indices are calculated using data from S&P Dow Jones Indices and investing.com.

This investigation achieves its goals by employing a vector error correction model (VECM). For the analysis to be valid, it is necessary for a number of assumptions to be accurate. There is no correlation between independent variables, and their means are all zero (white noise). If the data is not level-stationary, then it can be made such using differentiation. The VAR first difference model is then applied (VAR-FD). One potential drawback of VAR-FD is that it does not preserve information about the historical connections between variables. For cointegrated data, the VAR model is used in conjunction with the VECM model to obtain long-term insights.

For non-stationary but potentially cointegrated variables, the Vector Error Correction Model (VECM) is a restricted form of the more general Vector Autoregression (VAR) model. In order to account for data types that are not level-stationary but are cointegrated, this additional constraint must be provided. The VECM algorithm takes advantage of this knowledge of the cointegration constraints on its implementation. Thus, VECM's rate of adaptation varies from the immediate to the distant. As a result, VECM can be understood as a VAR strategy for cointegrated, non-stationary data.

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + ... + \Gamma_{p-1} \Delta y_{t-p+1} + u_t$$

Where Δy_t is $y_t - y_{t-1}$, y_t is a vector containing the variables analyzed in the study, Π is the long-term parameter, Γ is the short-term parameter, and it is the error term. Data analysis using the VECM approach generally uses short-term and long-term effects, Impulse Response Function (IRF), and Forecast Error Variance Decomposition (FEVD). Before estimating VECM, several steps must be carried out, namely pre-estimation testing. These tests include the data stationarity test, VAR stability test, determination of optimal lag, and cointegration test.

RESULTS

Descriptive Statistics

The stock indices of developing and developed countries were divided into their respective categories in table 1 of descriptive statistics. The typical Sharia stock indices in both developing and developed countries fell in the range of 5.12 percent to 8.47 percent. With a range between 8.05 and 9.19 percent, the USA Islamic stock index has the greatest average among other Islamic stock indices; this indicates that it has the highest stock price compared to the others. This high stock price is in line with the risks that exist in the USA Islamic stock index, which is reflected by the standard deviation with the highest value among the others.

Table 1. Descriptive Statistics

	Indonesia	Turkey	Malaysia	Qatar	India	USA	Japan
Mean	5.126769	8.674046	6.920698	8.274827	8.161095	8.475796	7.438708
Maximum	5.296365	9.451003	7.171572	8.504375	8.866576	9.196663	7.948806
Minimum	4.753159	8.236969	6.687894	7.876976	7.616451	8.058444	7.032933
Std. Dev.	0.097932	0.285083	0.065556	0.126964	0.265934	0.298751	0.235237
Observations	2088	2088	2088	2088	2088	2088	2088

Stationary Test

Time-series data were utilized throughout this investigation. Then, a test for data stationarity is the first step in establishing whether or not the input data was truly stationary. Incorrect or skewed conclusions can be drawn from non-stationary data. Increasing integration until the data becomes stationary transforms the non-stationary data into stationary data. In this investigation, the researchers used the

Augmented Dickey-Fuller (ADF) and Philips Perron (PP) tests to determine if our level and difference data are stationary.

According to the ADF and PP tests, the data is stationary if the probability of non-stationarity is less than 0.05. Using the data in Table 2, the researchers first performed the ADF and PP tests at the level, and only if those results were stable did the researchers move on to the level difference. According to the level test results, there is a unit root for every set of data with a probability of at least 0.05. Thus, the data at this level of granularity are not static. As the test advances, the degree of integration or the gap increases. The obtained results show that there is no unit root, and the data is stationary (p-value 0.05). This finding suggests a lasting connection between developing and developed nations and Indonesia's Islamic stock index.

Table 2. Stationary Test Results

Islamic Stock Index	Augmented Dickey-Fuller (ADF)		Philips Perron (PP)	
	Level	Difference	Level	Difference
Indonesia	0.1385	0.0000	0.1340	0.0001
Turkey	0.9249	0.0000	0.9162	0.0000
Malaysia	0.0909	0.0001	0.0601	0.0001
Qatar	0.0469	0.0000	0.0811	0.0000
India	0.9404	0.0000	0.9156	0.0000
USA	0.9846	0.0000	0.9850	0.0001
Japan	0.7833	0.0001	0.7837	0.0001

Cointegration

After the optimum lag test has been carried out, it was followed by the Johansen Cointegration test to analyze the presence or absence of long-term integration between the Indonesian Islamic stock index and developing country stock indices and developed country Islamic stock indices at lag 1. The significance level of this test is set at 5%, and the trace statistic value is compared to the critical value. The results of the Johansen Cointegration test are shown in Table 3.

Johansen's experiments determine if the VAR or VECM model will be utilized. At the 5% significance level, Table 3 demonstrates a balanced link between the Indonesian Islamic stock index, the developing country stock index, and the developed country Islamic stock index, as well as similar changes in the stock index over the long run. Due to the observation of integration, the VECM model was used for this experiment.

Table 3. Cointegration Test Results

Indonesia and Developing Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.020734	107.9798	88.80380	0.0011
At most, 1 *	0.012183	64.27472	63.87610	0.0463
At most 2	0.009012	38.70420	42.91525	0.1239
At most 3	0.006058	19.82062	25.87211	0.2351
At most 4	0.003420	7.145439	12.51798	0.3296
Indonesia and Developed Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.012133	45.62920	42.91525	0.0261
At most 1	0.006538	20.16502	25.87211	0.2177
At most 2	0.003103	6.482290	12.51798	0.4016

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level for developing countries, and the Trace test indicates 1 cointegrating eqn(s) at the 0.05 level for developed countries

*denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

DISCUSSION

Long-Term and Short-Term Integration

According to the pre-estimation test results, the VECM model is implemented because all variables are difference-stationary and cointegrated. Lag 1 has shown to be most successful in the VECM model. The intermediate- and long-term VECM estimation findings are presented in Table 4. Long-term, the Islamic stock index in Indonesia follows the trends seen in the Islamic stock indices of Malaysia, Qatar, India, the United States, and Japan. However, the Indonesian Islamic stock index reflects these trends a month earlier. Thus, short-term effects can be seen in Islamic stock indices in Turkey and Japan.

Indonesia's Islamic stock index with Turkey affects the short term but not the long term. According to the Ministry of Foreign Affairs of the Republic of Indonesia (2021), the cooperative relationship between Indonesia and Turkey has been going on for a long time and is currently entering a new phase that further demonstrates the strategic value of the two countries with the launch of the "Joint declaration Indonesia-Turkey: Toward an Enhanced Partnership in a New World Setting" where the two countries are committed to cooperating, one of which is in the economic sphere with a target of US$ 10 billion by 2023. Indonesia and Turkey have excellent trade potential, but the realization is still tiny. Currently, the trading volume between the two is only around US$ 1.5 billion, which is still far from its true potential.

Table 4. Short-Term and Long-Term Results

Islamic Stock Index	Coefficient	t-statistic
	Short-Term	
Turkey	0.045216	2.37569*
Malaysia	0.056758	1.85105
Qatar	-0.024856	-1.13002
India	-0.016286	-1.04282
USA	0.009591	0.45302
Japan	0.047662	2.24690*
	Long-Term	
Turkey	-0.176158	-0.11404
Malaysia	8.056244	3.55487*
Qatar	-8.045002	-6.41477*
India	15.20192	7.53467*
USA	-6.341088	-3.30768*
Japan	-15.28591	-7.23298*

Indonesia's Islamic stock index with Malaysia influences the long term but not the short term. The Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2021) stated that Malaysia is one of the main economic partners in investment and trade. Data from the Ministry of Trade (2021) revealed that foreign investment from Malaysia reached US$ 706.8 million spread over 1,324 projects. Then, in terms of trade in goods, bilateral trade volume between countries reached US$ 15.03 million in 2020 and US$ 13.43 million in 2021. The data shows that the relationship between the two countries is very intense in the economic field.

Indonesia's Islamic stock index with Malaysia influences the long term but not the short term. Indonesia's opportunities to market its products are still very open. In 2014, Indonesia's total trade with Qatar reached US$ 1.68 billion. However, this value fell to USD 828 million in 2015 and increased to USD 1.5 billion in 2018. Indonesia's products marketed in Qatar include processed food/beverages, coffee, sugar, salt, tea, cooking oil, wheat flour, and fruits. In addition, there are motor vehicle spare parts, electricity, electronic equipment, and supplies for building materials.

Indonesia's Islamic stock index with India influences the long term but not the short term. Indonesia has continuously recorded a surplus in trade with India. Data from the Ministry of Trade of the Republic of Indonesia recorded that Indonesia's trade value with India in 2017 reached US$ 18.13 billion. This amount consists of the value of Indonesia's exports to India of US$ 14.98 billion and Indonesia's imports from the country of US$ 4.05 billion. As a result, Indonesia's trade balance was a surplus of US$ 10.04 billion. This figure is the largest since 2013. However, in 2018 Indonesia's trade with India during the Jan-Mar 2018 period decreased 2.99% to US$ 4.32 billion from the same period the previous year. Indonesia's exports to India shrank 7% to US$ 3.2 billion from the previous year, while imports from India increased 10.82 percent to US$ 1.1 billion. Indonesia's trade balance fell 14.4 percent to US$ 2.09 billion from the same period the previous year.

Indonesia's Islamic stock index with the United States influences in the long term but not in the short term. The Ministry of Trade (2021) noted that the trade balance between Indonesia and the United States (US) consistently scored a surplus. Although Indonesia's exports had experienced a decline, the decline in imports was more excellent so that the surplus remained. In 2019, the export value of Indonesia and the United States fell 3.8 percent to US$ 17.7 billion. Meanwhile, imports declined by 8.8% to US$ 9.3 billion, resulting in a 2.4% increase in the value of the trade balance from US$ 8.3 billion in 2018 to US$ 8.5 billion in 2019. The increase in imports of raw materials reflects an increase in the performance of the real sector. At the same time, the increase in capital goods is also quite good because it impacts increasing production capacity.

Indonesia's Islamic stock index with Japan influences the long term but not the short term. Japan is an essential partner for Indonesia. Despite being faced with various global challenges, relations between the two countries remain strong. The Ministry of Trade (2020) stated that the value of bilateral trade between Indonesia and Japan in 2020 reached US$ 24.3 billion. During the 2018 to 2020 period, Japan consistently ranked 3rd as Indonesia's leading export destination, with export values in 2020 reaching US$ 13.6 billion. This condition continues, wherein semester 1 - 2021, Indonesia's exports to Japan have reached a value of US$ 7.9 billion. In terms of investment, during the period 2018 to Semester I - 2021, Foreign Investment (PMA) from Japan that entered Indonesia reached US$ 12.9 billion.

Meanwhile, Japan became the third largest foreign investment country entering Indonesia. Until the first half of 2021, FDI from Japan entering Indonesia has reached US$ 1.04 billion. Meanwhile, the total PMA projects from Japan reached more than 19 thousand projects during that period. The Indonesian government hopes that foreign direct investment from Japan entering 2021 will be able to exceed the realization in 2020, which reached US$ 2.6 billion.

Impulse Response Function

Examining how one variable reacts to shocks of a different variable by a single standard deviation is the purpose of the Impulse Response Function (IRF) study. The shocks emerge from both the variable and other factors. This IRF study will assess the reaction of endogenous variables inside the VAR system to external shocks. Because the i-variable influences the i-variable, certain shocks are caused by the variable and other variables. In VECM, there is transmission to all other variables through the lag structure. IRF describes the response of each dependent variable to the shock of the independent variable and the length of time to achieve stability so that the IRF does not describe the magnitude of the impact of one variable on other variables.

The study forecasts the performance of an index of Islamic companies listed on the Indonesian stock market for the next 300 months. The results of the IRF analysis in this study will explain the response of the Indonesian Islamic stock index if there are shocks in the Islamic stock indices of Turkey, Malaysia, Qatar, India, the USA, and Japan. In general, at the beginning of the shock of one standard deviation, the Indonesian Islamic stock index has not responded to any shocks from other Islamic stock indices. The response of the Indonesian Islamic stock index began to be seen in the second period when the Indonesian Islamic stock index responded with positive and negative responses. When other stock markets in Turkey, Malaysia, the United States, and Japan were shaken, Indonesia's Islamic stock index climbed, in contrast to Qatar and India.

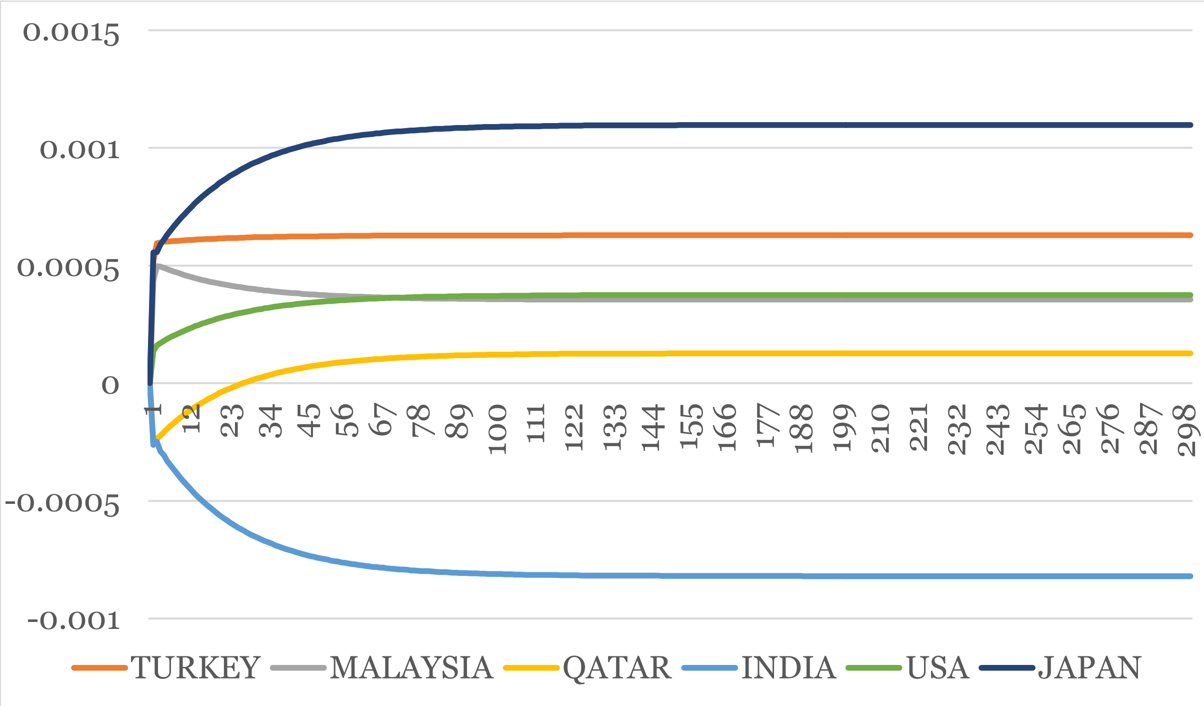

Figure 1. Impulse Response Function Result

Forecast Error Variance Decomposition

Forecast Error Variance Decomposition (FEVD) analysis on the VECM method is used to identify and explain the contribution of each variable shock to the main variables observed. This FEVD method can see the strengths and weaknesses of each variable in influencing other variables over a long period. This study uses a FEVD analysis to determine the relative impact of external shocks on the Indonesian Islamic stock index for the countries of Turkey, Malaysia, Qatar, India, the United States, and Japan.

The period used is the next three years which consists of 300 months. The results show that Indonesia's Islamic stock index dominates with an average of 98.37 percent, followed by Japan's Islamic stock index at 0.73 percent, India at 0.38 percent, Turkey at 0.29 percent, Malaysia at 0.12 percent, the USA at 0.08 percent, and Qatar by 0.01 percent. One of the potential locations for investments is a nation that offers a high rate of return on capital. The amount of trust an investor has in their ability to invest in other nations is impacted not just by favorable tax regimes and cost structures but also by good infrastructure.

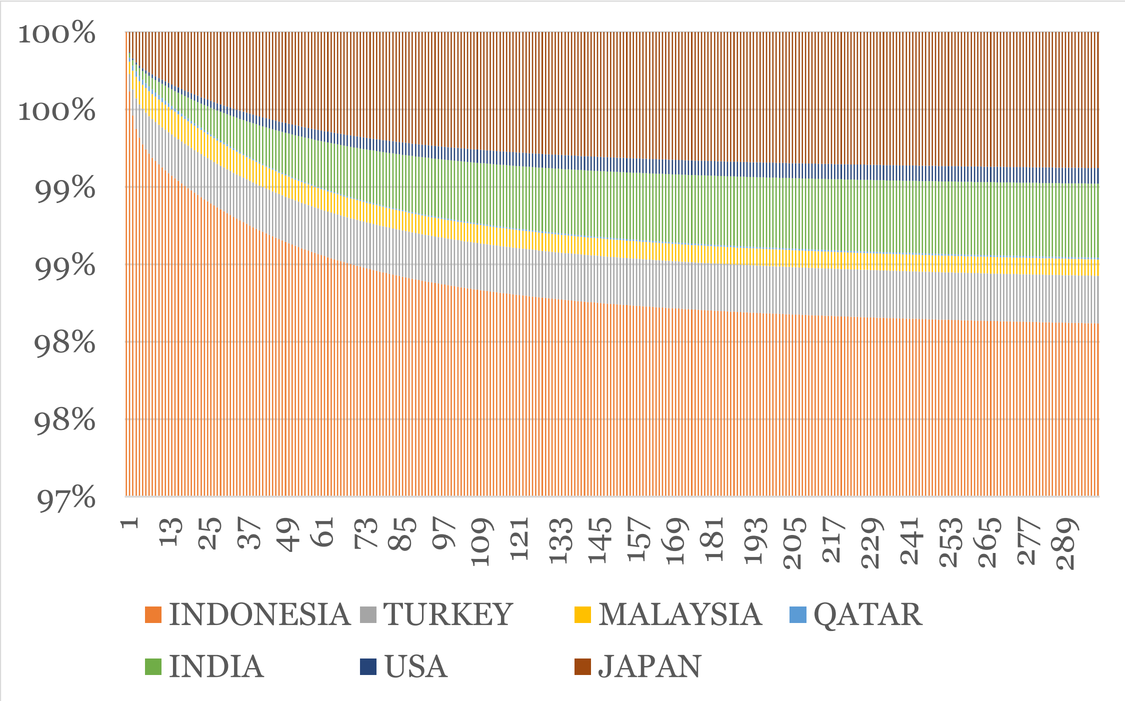

Figure 2. Decomposition of the Error Variance in the Forecast

CONCLUSION

The estimated effects of the Turkish and Japanese Islamic stock indices on the Indonesian Islamic stock indices show both a short-term and a long-term influence. On the other hand, Islamic stock indices have produced long-term effects in Malaysia, Qatar, India, and the United States. There were positive and negative responses to the Indonesian Islamic stock index. Indonesians were upbeat about the effects of shocks on Islamic stock indices in Turkey, Malaysia, the US, and Japan, while their counterparts in Qatar and India were skeptical. Islamic stock indices in Japan and Indonesia have been influenced by the latter country's efforts to broaden their respective markets.

In order to play a role in mitigating the impacts of shocks on the Islamic stock market in both developing and developed countries and improving the velocity of stock market integration, Indonesia's Islamic stock index has to raise the bar on stock market structure and infrastructure. When countries cooperate to integrate their stock markets, they can better ensure that their capital markets are prepared to accept foreign investors and comply with applicable regulations.

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Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries

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Integration of the Indonesian Islamic Stock Index: Evidence from Developed and Developing Countries

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Abstract

Economic and monetary systems all over the world are increasingly becoming intertwined as a result of globalization. In addition, investors in the Islamic stock market may experience a decrease in the benefits of diversification because of shocks produced by globalization. This research aims to examine how the Indonesian Islamic stock index relates to the other Islamic stock indices from developed and developing countries. Data collected daily from 2012-2021, totaling 2088 observations, using a vector error correction model show that the Islamic stock index in Indonesia is linked to the Islamic stock index in both developed and developing countries. In addition, the Indonesian Islamic stock index had mixed reactions to both established and emerging Islamic stock indices. The Islamic stock indices in Indonesia are primarily affected by Japan's involvement. Indonesia's Islamic stock indices must prepare various alternative strategies for dealing with shocks from the Islamic stock indices in both developed and developing countries.

Keywords: *Market Integration, Developed Countries, Developing Countries, Islamic Stock*

INTRODUCTION

The development of the capital market is a leading indicator of economic growth, as shown by the experiences of a significant number of countries (Zulkhibri, 2018). Economic integration in the international capital market is one of the initiatives taken, and it can give a bird's-eye view of market operations. The capital market plays an important role in the Islamic finance industry, both in terms of roles and functions and in terms of market share (Salman & Nawaz, 2018).

IQTISHADIA
Vol. 15 (2) 2022
PP. 273-288
P-ISSN: 1979 - 0724
E-ISSN: 2502 - 3993
DOI : 10.21043/iqtishadia.v15i2.14462

Islamic investment explores the purported performance compared to socially responsible investments and the extent to which Islamic legal objectives are practically met by Islamic financial institutions (Yesuf & Aassouli, 2020; Zafar & Sulaiman, 2019). This can possibly play an essential role since assets in Islamic finance have a close relationship between the fundamental and financial sectors; this may influence the Islamic financial market due to the effects of volatility from other countries markets. Islamic stock prices include companies characterized by small leverage ratios and interest involvement which implies a relationship related to information flow and shock transmission (Ferris *et al.,* 2018; Saiti *et al.,* 2014). In other words, Islamic financial intermediaries play an important role because they reduce the transmission of shocks and reduce potential losses due to unexpected financial crises (Djennas, 2016).

Integration in the stock market is a relationship among global stock markets due to investors' unlimited access. It influences the achievement of global stock prices. The stock price reflects the expectations of investors in the context of the potential downsides. To that end, international investors tend to invest in areas where the economy is more conducive to liquidity, high stock, and low cost. This situation increases the degree of integration of the international stock market due to investors diversifying shares.

According to Stoupos and Kiohos (2021), on market integration, the Euro Area suffers various financial and economic asymmetries as a result of other economic engagement in trade unions. Using data from the stock markets of fourteen European nations and the monetary drivers in those countries, Lee and Kim (2020) examine the stock market's changing interconnectedness across time in relation to two occurrences. Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea (referred to as ASEAN5+4), is a topic that Wu (2019) investigates. According to Aladesanmi *et al.* (2019), the effect of macroeconomic factors on stock market integration is studied. Mohti *et al.* (2019) evaluate the level of regional and global integration of stock markets in developing and developed Asian countries. In addition, Batten *et al.* (2019) examine the interconnectedness of oil, coal, and gas investments with Asia's ten largest stock markets.

The policy implications of this study for international investors and market participants in developing and developed countries make this research so interesting and valuable. In fact, the low correlation and zero shock transmission in the Islamic stock market will encourage investors in other international financial markets to better reorganize their portfolios to take advantage of risk diversification. This research makes an effort to shed light on these questions by adding to the scant body of evidence on diversification in the Islamic stock market.

This research aims to examine the long-term and short-term relationships between the Islamic stock markets of developed and developing countries and the Islamic stock market in Indonesia. Also, it examines how the Indonesian Islamic stock market has responded to shocks in the Islamic stock markets of developed countries and how much each Islamic stock market in developed countries has contributed to the Indonesian Islamic stock market. The findings of this research make essential contributions to a number of perspectives by, first, providing an overview of the current state of the Islamic stock market in both developing and developed countries. Second, regarding the integration of the Islamic stock market, the decision-making processes from both developing and developed countries should be taken into account. Third, figuring out how your money is spread out helps lessen the blow of any one setback.

LITERATURE REVIEW

When economic globalization takes place, it compels countries to strengthen their economies in order to maintain stability. If the economy is weak, a sudden change could trigger a crisis that spreads to other countries in the same situation, like a domino effect (BenSaïda *et al.,* 2018; Cieslak & Schrimpf, 2019; Werner, 2016). The integration that emerges between countries as a result of globalization causes a domino effect, which is mostly triggered when issues arise in countries that are categorized as essential or significant in specific sectors (Balli *et al.,* 2019; Casu & Girardone, 2010; Jebran *et al.,* 2017).

Excessive exposure to inaccurate market data is a distinct phenomenon from exposure to accurate data. In the case of a downturn in one market, the other market will also decrease due to their increasing connection. For this reason, it is increasingly becoming challenging to diversify across international stock markets, and there is a considerable risk of losing the gains altogether as the correlation between markets in different countries increases when the market receives a shock (Ellington, 2018; Lee & Goh, 2016; Sarwar *et al.,* 2020).

In a perfect market, all assets would be exposed to the same amount of risk, leading to uniform expected returns across the board (Balli *et al.,* 2019; Singh & Singh, 2016). Integration between stock markets shows efficiency, and these markets do not benefit from diversification because market performance tends to be the same across markets (Kim *et al.,* 2015; Silvers, 2021). In a risk-return framework, an investor can increase returns, reduce risk, or both by owning a combination of investments in the stock market with uncorrelated returns. Thus, the degree of integration of the stock market indicates the potential benefits of portfolio diversification that investors can obtain.

According to Stoupos and Kiohos (2021), the continued involvement of economies in trade unions has resulted in a wide variety of financial and economic asymmetries in the Euro area. Regarding the Eurozone's economy, one of the most important tasks for policymakers is ensuring the region's long-term financial integration. The findings show that stock market integration is high in the case of Germany and the central members of the euro area but is different for the countries on the Euro zone's periphery. However, the DAX-30 has only seen hints of integration with the eastern Mediterranean and Baltic stock markets.

The introduction of the Euro in 1999 and the banking crisis of 2011 are two contrasting events that Lee and Kim (2020) use to examine the changing degree of integration between stock markets in fourteen European countries and their relevant monetary drivers over time. The panel analysis shows that after the European monetary union, the integration of the stock market in the European Union was primarily driven by the convergence of economic performance, the reduction in interest rate differentials, and inflation among the European Union countries. According to qualitative research, GDP disparities among EU member states have been found to have a negative correlation with economic convergence.

Financial integration between the stock markets of ASEAN5, plus China, Japan, and South Korea, is a topic investigated by Wu (2019). Results from applying a rolling window approach informed by graph theory and Vector Autoregressive (VAR) based methods reveal a high degree of interdependence but unpredictable temporal patterns between these markets. Similar global factors are found to be behind much of this high degree of integration. The correlation weakens significantly if these variables are removed from each stock market. As a result, the stock market in East and Southeast Asia is not as integrated as it may seem. Although regional governments have encouraged cooperation and integration of financial markets, substantial obstacles persist. These inflated correlations are a reflection of the more significant global influence on individual markets, while correlations due to factors other than global ones have been decreasing since the crisis.

From 1935 to 2015, Aladesanmi *et al.* (2019) examined the effects of macroeconomic determinants like financial convergence and volatility on stock market integration. It also assesses the degree to which the UK and US stock markets were intertwined before, during, and after Bretton Woods (BW) under three distinct monetary regimes. Weak integration is observed during the BW regime, while strong integration is observed during the post-BW regime. Since the BW system's collapse, additional research shows that macroeconomic convergence, financial volatility, and the crisis have been the primary drivers of stock market integration between the two markets.

The degree of regional and global integration of emerging and leading Asian stock markets is evaluated by Mohti *et al.* (2019). The Detrended Cross-Correlation coefficient and the Gregory and Hansen cointegration test were used to examine the long-term relationship between the markets. According to the empirical study's findings, there are signs of global and regional integration in every emerging market studied. However, only Pakistan and Vietnam are included in this when it comes to the border market. Foreign investors keen on broadening their portfolios' geographic diversification strategies will find these findings interesting.

According to Batten *et al.* (2019), the level of interdependence between the energy and stock markets is crucial to the strategic planning, risk assessment, and capital allocation of multinational corporations and individual investors. This study examines the interconnected dynamics between a diversified oil, coal, and gas energy portfolio and Asia's ten largest stock exchanges. Using an estimation method that takes into account the time-varying framework of asset pricing—which permits regime change—we can distinguish between two key regimes. Low energy stock market integration characterizes the first regime. More than two-thirds of the sample time span (December 1992-December 2015) can be attributed to the market's tendency toward segmentation. In contrast, the second regime, one of strong integration, is characterized by fewer ways to diversify and higher volatility. Moreover, the corporation faces less favorable financial conditions in the second regime. The equity markets' valuation of energy risk under the two regimes is distinct. The high integration regime is shown to have a considerable positive energy-related equities risk premium, in addition to the low integration regime's positive equity risk premium that is unrelated to energy. In conclusion, the integration model's conditional information can help investors beat passive portfolio strategies in the stock and energy markets.

RESEARCH METHOD

There is a total of about 2088 observations in this study, which are derived from daily data from 2012-2021. For this calculation, the researchers utilize the daily closing value of the Islamic stock price index across both developing and developed member countries. Developing countries like Indonesia, Turkey, Malaysia, Qatar, Kuwait, and India stand out as well-off compared to the United States and Japan particularly. The indices are calculated using data from S&P Dow Jones Indices and investing.com.

This investigation achieves its goals by employing a vector error correction model (VECM). For the analysis to be valid, it is necessary for a number of assumptions to be accurate. There is no correlation between independent variables, and their means are all zero (white noise). If the data is not level-stationary, then it can be made such using differentiation. The VAR first difference model is then applied (VAR-FD). One potential drawback of VAR-FD is that it does not preserve information about the historical connections between variables. For cointegrated data, the VAR model is used in conjunction with the VECM model to obtain long-term insights.

For non-stationary but potentially cointegrated variables, the Vector Error Correction Model (VECM) is a restricted form of the more general Vector Autoregression (VAR) model. In order to account for data types that are not level-stationary but are cointegrated, this additional constraint must be provided. The VECM algorithm takes advantage of this knowledge of the cointegration constraints on its implementation. Thus, VECM's rate of adaptation varies from the immediate to the distant. As a result, VECM can be understood as a VAR strategy for cointegrated, non-stationary data.

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + ... + \Gamma_{p-1} \Delta y_{t-p+1} + u_t$$

Where Δy_t is $y_t - y_{t-1}$, y_t is a vector containing the variables analyzed in the study, Π is the long-term parameter, Γ is the short-term parameter, and it is the error term. Data analysis using the VECM approach generally uses short-term and long-term effects, Impulse Response Function (IRF), and Forecast Error Variance Decomposition (FEVD). Before estimating VECM, several steps must be carried out, namely pre-estimation testing. These tests include the data stationarity test, VAR stability test, determination of optimal lag, and cointegration test.

RESULTS

Descriptive Statistics

The stock indices of developing and developed countries were divided into their respective categories in table 1 of descriptive statistics. The typical Sharia stock indices in both developing and developed countries fell in the range of 5.12 percent to 8.47 percent. With a range between 8.05 and 9.19 percent, the USA Islamic stock index has the greatest average among other Islamic stock indices; this indicates that it has the highest stock price compared to the others. This high stock price is in line with the risks that exist in the USA Islamic stock index, which is reflected by the standard deviation with the highest value among the others.

Table 1. Descriptive Statistics

	Indonesia	Turkey	Malaysia	Qatar	India	USA	Japan
Mean	5.126769	8.674046	6.920698	8.274827	8.161095	8.475796	7.438708
Maximum	5.296365	9.451003	7.171572	8.504375	8.866576	9.196663	7.948806
Minimum	4.753159	8.236969	6.687894	7.876976	7.616451	8.058444	7.032933
Std. Dev.	0.097932	0.285083	0.065556	0.126964	0.265934	0.298751	0.235237
Observations	2088	2088	2088	2088	2088	2088	2088

Stationary Test

Time-series data were utilized throughout this investigation. Then, a test for data stationarity is the first step in establishing whether or not the input data was truly stationary. Incorrect or skewed conclusions can be drawn from non-stationary data. Increasing integration until the data becomes stationary transforms the non-stationary data into stationary data. In this investigation, the researchers used the Augmented Dickey-Fuller (ADF) and Philips Perron (PP) tests to determine if our level and difference data are stationary.

According to the ADF and PP tests, the data is stationary if the probability of non-stationarity is less than 0.05. Using the data in Table 2, the researchers first performed the ADF and PP tests at the level, and only if those results were stable did the researchers move on to the level difference. According to the level test results, there is a unit root for every set of data with a probability of at least 0.05. Thus, the data at this level of granularity are not static. As the test advances, the degree of integration or the gap increases. The obtained results show that there is no unit root, and the data is stationary (p-value 0.05). This finding suggests a lasting connection between developing and developed nations and Indonesia's Islamic stock index.

Table 2. Stationary Test Results

Islamic Stock Index	Augmented Dickey-Fuller (ADF)		Philips Perron (PP)	
	Level	Difference	Level	Difference
Indonesia	0.1385	0.0000	0.1340	0.0001
Turkey	0.9249	0.0000	0.9162	0.0000
Malaysia	0.0909	0.0001	0.0601	0.0001

Qatar	0.0469	0.0000	0.0811	0.0000
India	0.9404	0.0000	0.9156	0.0000
USA	0.9846	0.0000	0.9850	0.0001
Japan	0.7833	0.0001	0.7837	0.0001

Cointegration

After the optimum lag test has been carried out, it was followed by the Johansen Cointegration test to analyze the presence or absence of long-term integration between the Indonesian Islamic stock index and developing country stock indices and developed country Islamic stock indices at lag 1. The significance level of this test is set at 5%, and the trace statistic value is compared to the critical value. The results of the Johansen Cointegration test are shown in Table 3.

Johansen's experiments determine if the VAR or VECM model will be utilized. At the 5% significance level, Table 3 demonstrates a balanced link between the Indonesian Islamic stock index, the developing country stock index, and the developed country Islamic stock index, as well as similar changes in the stock index over the long run. Due to the observation of integration, the VECM model was used for this experiment.

Table 3. Cointegration Test Results

Indonesia and Developing Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.020734	107.9798	88.80380	0.0011
At most, 1 *	0.012183	64.27472	63.87610	0.0463
At most 2	0.009012	38.70420	42.91525	0.1239
At most 3	0.006058	19.82062	25.87211	0.2351
At most 4	0.003420	7.145439	12.51798	0.3296
Indonesia and Developed Countries				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.012133	45.62920	42.91525	0.0261
At most 1	0.006538	20.16502	25.87211	0.2177
At most 2	0.003103	6.482290	12.51798	0.4016

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level for developing countries, and the Trace test indicates 1 cointegrating eqn(s) at the 0.05 level for developed countries

*denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

DISCUSSION

Long-Term and Short-Term Integration

According to the pre-estimation test results, the VECM model is implemented because all variables are difference-stationary and cointegrated. Lag 1 has shown to be most successful in the VECM model. The intermediate- and long-term VECM estimation findings are presented in Table 4. Long-term, the Islamic stock index in Indonesia follows the trends seen in the Islamic stock indices of Malaysia, Qatar, India, the United States, and Japan. However, the Indonesian Islamic stock index reflects these trends a month earlier. Thus, short-term effects can be seen in Islamic stock indices in Turkey and Japan.

Indonesia's Islamic stock index with Turkey affects the short term but not the long term. According to the Ministry of Foreign Affairs of the Republic of Indonesia (2021), the cooperative relationship between Indonesia and Turkey has been going on for a long time and is currently entering a new phase that further demonstrates the strategic value of the two countries with the launch of the "Joint declaration Indonesia-Turkey: Toward an Enhanced Partnership in a New World Setting" where the two countries are committed to cooperating, one of which is in the economic sphere with a target of US$ 10 billion by 2023. Indonesia and Turkey have excellent trade potential, but the realization is still tiny. Currently, the trading volume between the two is only around US$ 1.5 billion, which is still far from its true potential.

Table 4. Short-Term and Long-Term Results

Islamic Stock Index	Coefficient	t-statistic
	Short-Term	
Turkey	0.045216	2.37569*
Malaysia	0.056758	1.85105
Qatar	-0.024856	-1.13002
India	-0.016286	-1.04282
USA	0.009591	0.45302
Japan	0.047662	2.24690*
	Long-Term	
Turkey	-0.176158	-0.11404
Malaysia	8.056244	3.55487*
Qatar	-8.045002	-6.41477*
India	15.20192	7.53467*
USA	-6.341088	-3.30768*
Japan	-15.28591	-7.23298*

Indonesia's Islamic stock index with Malaysia influences the long term but not the short term. The Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2021) stated that Malaysia is one of the main economic partners in investment and trade. Data from the Ministry of Trade (2021) revealed that foreign investment from Malaysia reached US$ 706.8 million spread over 1,324 projects. Then, in terms of trade in goods, bilateral trade volume between countries reached US$ 15.03 million in 2020 and US$ 13.43 million in 2021. The data shows that the relationship between the two countries is very intense in the economic field.

Indonesia's Islamic stock index with Malaysia influences the long term but not the short term. Indonesia's opportunities to market its products are still very open. In 2014, Indonesia's total trade with Qatar reached US$ 1.68 billion. However, this value fell to USD 828 million in 2015 and increased to USD 1.5 billion in 2018. Indonesia's products marketed in Qatar include processed food/beverages, coffee, sugar, salt, tea, cooking oil, wheat flour, and fruits. In addition, there are motor vehicle spare parts, electricity, electronic equipment, and supplies for building materials.

Indonesia's Islamic stock index with India influences the long term but not the short term. Indonesia has continuously recorded a surplus in trade with India. Data from the Ministry of Trade of the Republic of Indonesia recorded that Indonesia's trade value with India in 2017 reached US$ 18.13 billion. This amount consists of the value of Indonesia's exports to India of US$ 14.98 billion and Indonesia's imports from the country of US$ 4.05 billion. As a result, Indonesia's trade balance was a surplus of US$ 10.04 billion. This figure is the largest since 2013. However, in 2018 Indonesia's trade with India during the Jan-Mar 2018 period decreased 2.99% to US$ 4.32 billion from the same period the previous year. Indonesia's exports to India shrank 7% to US$ 3.2 billion from the previous year, while imports from India increased 10.82 percent to US$ 1.1 billion. Indonesia's trade balance fell 14.4 percent to US$ 2.09 billion from the same period the previous year.

Indonesia's Islamic stock index with the United States influences in the long term but not in the short term. The Ministry of Trade (2021) noted that the trade balance between Indonesia and the United States (US) consistently scored a surplus. Although Indonesia's exports had experienced a decline, the decline in imports was more excellent so that the surplus remained. In 2019, the export value of Indonesia and the United States fell 3.8 percent to US$ 17.7 billion. Meanwhile, imports declined by 8.8% to US$ 9.3 billion, resulting in a 2.4% increase in the value of the trade balance from US$ 8.3 billion in 2018 to US$ 8.5 billion in 2019. The increase in imports of raw materials reflects an increase in the performance of the real sector. At the same time, the increase in capital goods is also quite good because it impacts increasing production capacity.

Indonesia's Islamic stock index with Japan influences the long term but not the short term. Japan is an essential partner for Indonesia. Despite being faced with various global challenges, relations between the two countries remain strong. The Ministry of Trade (2020) stated that the value of bilateral trade between Indonesia and Japan in 2020 reached US$ 24.3 billion. During the 2018 to 2020 period, Japan consistently ranked 3rd as Indonesia's leading export destination, with export values in 2020 reaching US$ 13.6 billion. This condition continues, wherein semester 1 - 2021, Indonesia's exports to Japan have reached a value of US$ 7.9 billion. In terms of investment, during the period 2018 to Semester I - 2021, Foreign Investment (PMA) from Japan that entered Indonesia reached US$ 12.9 billion.

Meanwhile, Japan became the third largest foreign investment country entering Indonesia. Until the first half of 2021, FDI from Japan entering Indonesia has reached US$ 1.04 billion. Meanwhile, the total PMA projects from Japan reached more than 19 thousand projects during that period. The Indonesian government hopes that foreign direct investment from Japan entering 2021 will be able to exceed the realization in 2020, which reached US$ 2.6 billion.

Impulse Response Function

Examining how one variable reacts to shocks of a different variable by a single standard deviation is the purpose of the Impulse Response Function (IRF) study. The shocks emerge from both the variable and other factors. This IRF study will assess the reaction of endogenous variables inside the VAR system to external shocks. Because the i-variable influences the i-variable, certain shocks are caused by the variable and other variables. In VECM, there is transmission to all other variables through the lag structure. IRF describes the response of each dependent variable to the shock of the independent variable and the length of time to achieve stability so that the IRF does not describe the magnitude of the impact of one variable on other variables.

The study forecasts the performance of an index of Islamic companies listed on the Indonesian stock market for the next 300 months. The results of the IRF analysis in this study will explain the response of the Indonesian Islamic stock index if there are shocks in the Islamic stock indices of Turkey, Malaysia, Qatar, India, the USA, and Japan. In general, at the beginning of the shock of one standard deviation, the Indonesian Islamic stock index has not responded to any shocks from other Islamic stock indices. The response of the Indonesian Islamic stock index began to be seen in the second period when the Indonesian Islamic stock index responded with positive and negative responses. When other stock markets in Turkey, Malaysia, the United States, and Japan were shaken, Indonesia's Islamic stock index climbed, in contrast to Qatar and India.

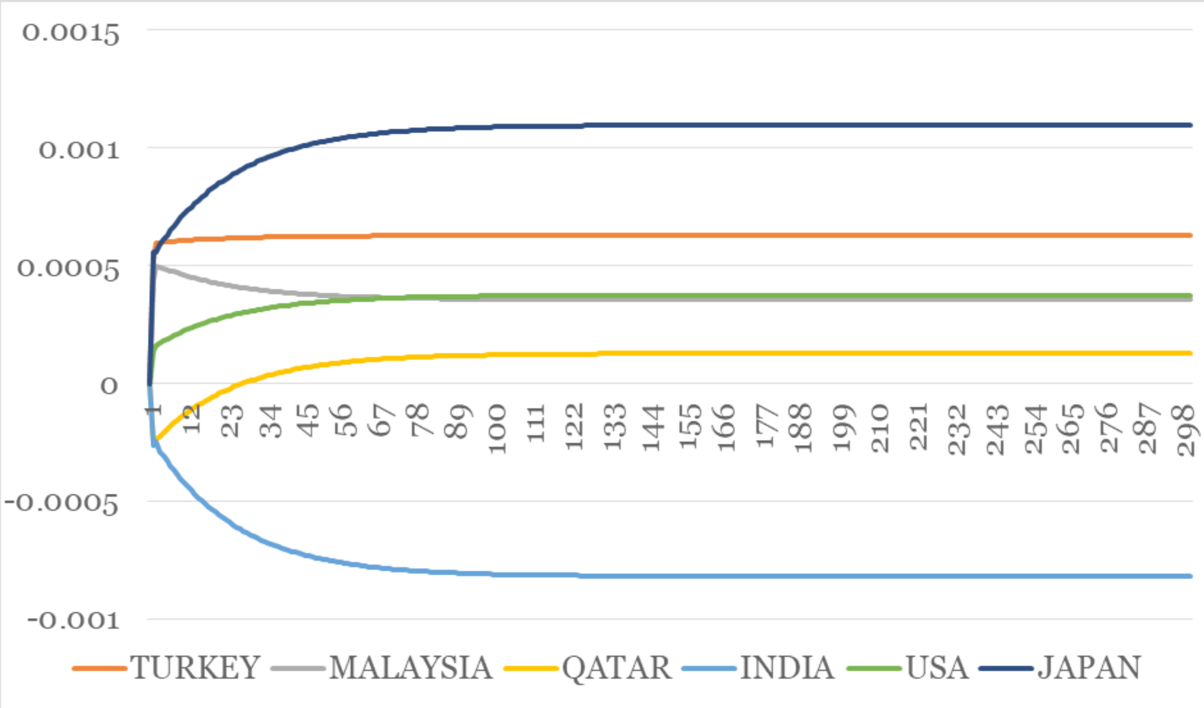

Figure 1. Impulse Response Function Result

Forecast Error Variance Decomposition

Forecast Error Variance Decomposition (FEVD) analysis on the VECM method is used to identify and explain the contribution of each variable shock to the main variables observed. This FEVD method can see the strengths and weaknesses of each variable in influencing other variables over a long period. This study uses a FEVD analysis to determine the relative impact of external shocks on the Indonesian Islamic stock index for the countries of Turkey, Malaysia, Qatar, India, the United States, and Japan.

The period used is the next three years which consists of 300 months. The results show that Indonesia's Islamic stock index dominates with an average of 98.37 percent, followed by Japan's Islamic stock index at 0.73 percent, India at 0.38 percent, Turkey at 0.29 percent, Malaysia at 0.12 percent, the USA at 0.08 percent, and Qatar by 0.01 percent. One of the potential locations for investments is a nation that offers a high rate of return on capital. The amount of trust an investor has in their ability to invest in other nations is impacted not just by favorable tax regimes and cost structures but also by good infrastructure.

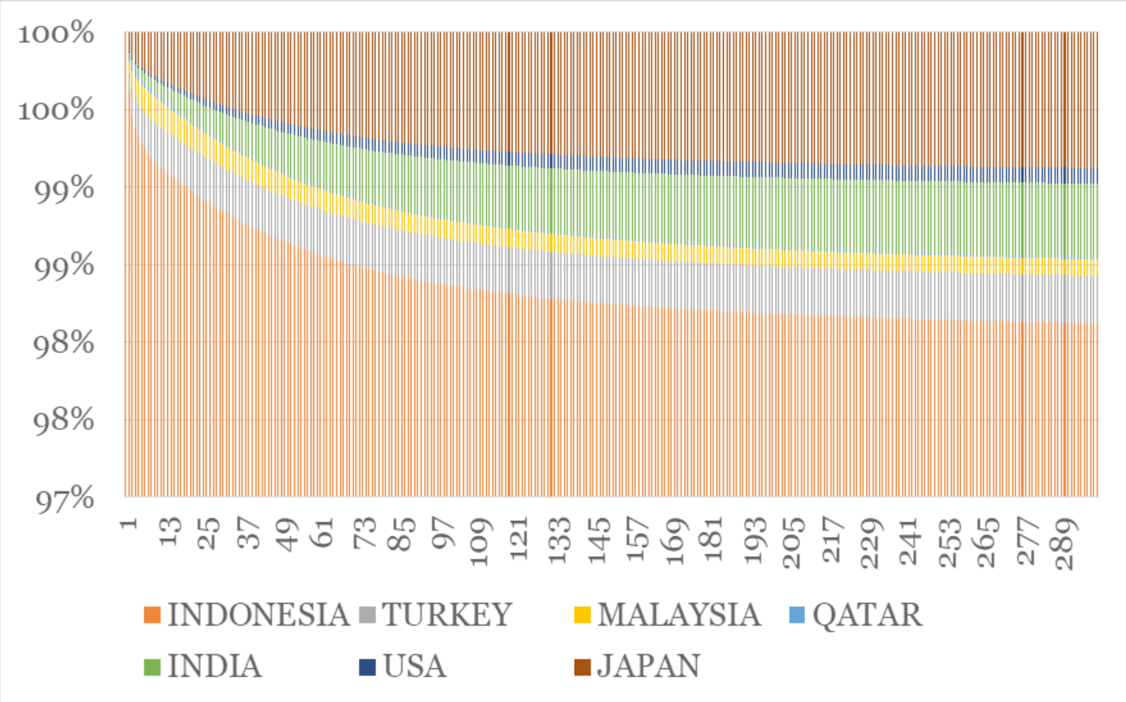

Figure 2. Decomposition of the Error Variance in the Forecast

CONCLUSION

The estimated effects of the Turkish and Japanese Islamic stock indices on the Indonesian Islamic stock indices show both a short-term and a long-term influence. On the other hand, Islamic stock indices have produced long-term effects in Malaysia, Qatar, India, and the United States. There were positive and negative responses to the Indonesian Islamic stock index. Indonesians were upbeat about the effects of shocks on Islamic stock indices in Turkey, Malaysia, the US, and Japan, while their counterparts in Qatar and India were skeptical. Islamic stock indices in Japan and Indonesia have been influenced by the latter country's efforts to broaden their respective markets.

In order to play a role in mitigating the impacts of shocks on the Islamic stock market in both developing and developed countries and improving the velocity of stock market integration, Indonesia's Islamic stock index has to raise the bar on stock market structure and infrastructure. When countries cooperate to integrate their stock markets, they can better ensure that their capital markets are prepared to accept foreign investors and comply with applicable regulations.

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