

Do Islamic stock indexes integrated with conventional stock indexes?: Evidence from Indonesia and Malaysia

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Abstract

The portfolios performance that are develop either a substitute or complement in terms of risk-taking is important information for investors whether the return portfolio could hedge the risk of shock market. An understanding of volatility and the correlation between asset returns over time vary is highly important for investors (both domestic and international) with the sight of diversifying their portfolios for hedging from unexpected risk. The research method uses a DCC MGARCH approach to examine the correlation among two countries in time variant manner to indicate the degree of financial integration. With daily data from April 2012 until December 2017 and use 3 category index (composite, Islamic and conventional) the result shows that Malaysia and Indonesia have strong correlation. Among Islamic, composite and conventional have financial integration, but conventional index in Malaysia have the lowest integration from other index that it makes suitable for diversification. Unfortunately, conventional index that contain non halal product was not suitable for investor that sharp pointed into sharia. The shock in Malaysia's Index will be perform different from historical or previous return. Contrary with Indonesia's index, the return probably based on the historical. The implication of this research is we found that the Islamic investor could not have best diversification on the Malaysia and Indonesia market, since the Islamic index was sturdily correlated.

Introduction

In the modern world, globalization has created many global relationships around the world that have resulted in real growth and interaction between international financial markets Chang, D. (2012). The emergence of financial integration is a form of the growing development of trade and investment both at global and regional levels which also has strong consequences on financial stability. Financial integration can provide benefits to member countries through efficient capital allocation, better risk diversification and a homogeneous market response to external shocks (Kowalski, P., & Perepechay, K. 2015). At the same time, financial market relationships can present a variety of risks, such as contagion effects and disruptions to economic activity. It can be seen that if a financial crisis occurs, the contagion effect will have very important consequences, because financial integration is an integration that focuses on cooperation and maintains financial stability. Therefore, it can spread to other countries quickly (Ong and Hbibullah, 2012).

Through changes in the stock price index traded on the stock exchange as a whole, it can be seen in volatility whether the market is in a bullish state (high volatility) or bearish (low volatility), as well as good conditions or a decline in the economy as a whole (De Nicoló, M. G. and Ivaschenko, M. I. V. 2009. Volatility that occurs in stock prices can be represented as standard deviation or risk. The higher the volatility or standard deviation, the higher the level of uncertainty of the stock returns to be obtained.

Indonesia Stock Exchanges (IDX) data shows that around 87 percent of Indonesia's population is Muslim. Moreover, Indonesians Muslim is familiar to Islamic capital market products.

Indonesia includes diligently issuing sukuk and the largest sukuk issuing country in the world, after Malaysia. Islamic investors, who open sharia securities accounts, continue to grow. In 2014, there were only 2,705 investors. While as of September 2017, the number has reached 19,265 people, up 57 percent over the previous year. This amount is equivalent to 3.2 percent of total investors in Indonesia.

In terms of the performance of sharia shares, the increasing the stock market in Indonesia at 2017 also had an impact on the performance of Islamic stocks as indicated by the Indonesian Islamic Stock Index (ISSI) and the Jakarta Islamic Index (JII). According to Financial Services Authority Report on December 29, 2017, the Jakarta Islamic Index (JII) closed at the level of 759.07 points or increased by 9.36% compared to the end of December 2016 of 694.13 points. Meanwhile, the market capitalization of shares incorporated in JII as of December 31, 2017 amounted to Rp2.288.02 trillion or 32.44% of the total market capitalization of all shares of Rp.7.052.39 trillion. Furthermore, the market capitalization of shares incorporated in JII on December 31, 2017 has increased by 12.10% compared to the capitalization of JII Shares at the end of December 2016 amounting to Rp2.041.07 trillion. Even though the Islamic stock index on the IDX experienced growth both in terms of index and capitalization compared to the previous period, but it is being lower than the Jakarta Composite Index (JCI) and LQ45. This is due to differences in the components in the composite index, where in the JCI and LQ45 index there are financial sectors namely banks and cigarette issuers which are large capitalized sectors on the Stock Exchange, both of which are not in the Jakarta Islamic Index or the Indonesian Islamic Stock Index

With the existence of sharia screening and the emergence of the sharia index, it is expected to facilitate investors who are very concerned about the sharia of a transaction. The return and performance are the basic assessment for investors to buy or sell stocks. Abduh et.al. (2012) mention that investors for Islamic financial instruments are still dominated by rational investors whose objectives are looking for ways to secure their assets' value from falling down.

Islamic stock selection criteria will form a portfolio that produces a return portfolio and portfolio performance, of the return and performance assessment it is investors will pick stocks that they want to buy or sell. Abduh et.al. (2012) mention that investors for Islamic financial instruments are still dominated by rational investors whose objectives are looking for ways to secure their assets' value from falling down. Dewandaru et al., (2014) emphasize there are specific features which distinguish the conventional stock and the Islamic stock market. The study shows *Shariah*-compliant companies are considered, to be more volatile returns. In another words, Islamic riskier market because it contains stocks which tend to have higher correlations with the overall market performance and the business cycle.

This study tries to fill the gap in the literature by examining the performance of sharia-based, composite and conventional stock investments in Indonesia and Malaysia through capital market indicators. This research important for investors expect return based on the perceived risk. While such risk can be proxied by volatility, thus understanding index volatility and provide correlation index's information is important for any investors to develop diversifications portfolio.

The analysis in this study is also interesting due to its ability to develop a specific conventional index which is not containing any stocks listed in Islamic index (at Malaysia and Indonesia Capital Market). The reason researcher builds the new index because some investor still believes that shares from conventional bank has good market performance. They are believing non-halal share is profitable and could be the best substitute to against risk, so they will not leave the non halal stock. In addition, this study also wants to prove whether the specific conventional index (non-halal stock) will give better diversifications with another index.

The novelty of this research is extension to the body of knowledge by examining the volatility of indices in Indonesia and Malaysia from the time span 2012 to 2017. Construct new index that never develop, also applies a robust multivariate DCC GARCH model to address the research inquiry. At final, the study will address a suggestion for investors, so that they will have new references before they choose to enter the market.

Literature Review and Hypotheses Development

Volatility

In general, the capital market is an institution that conducts stock trading, but that does not mean that every transaction that occurs on the stock exchange will bring together entrepreneurs who need business capital and people who want to invest (investors), the meeting between the two parties only occurs at the time of the initial launch. company shares or Initial Public Offering (IPO). Furthermore, it depends on the motive of the investor whether the motive is for long-term investment by expecting dividends or the motive for long-term profit taking by trading it on the stock exchange with the hope that there is a positive difference between the buying price and the selling price of the shares (Hanif, 2012).

Financial instruments that are traded on the capital market are stocks, bonds, warrants, rights, convertible bonds, and various derivative products such as options and others. The principles of Islamic capital market instruments are different from conventional capital markets. Shares traded on the Islamic capital market must come from issuers that meet the criteria of sharia. Even bonds issued must use sharia principles, such as *mudaraba*, *musyarakah*, *ijarah*, *istishna'*, *salam* and *murabahah*. In addition to Islamic stocks and bonds, which are traded on the Islamic capital market are Islamic mutual funds which are a mixed investment vehicle that combines Islamic stocks and bonds in one product managed by an investment manager (Faozan, 2010).

Two measures of volatility are commonly employed in financial calculations; historical and implied volatility. Historical volatility is calculated from the past values of an exchange rate. Given a series of past daily exchange rates, we can calculate the standard deviation of the daily price changes and then the annual volatility of the exchange rate. Historical volatility provides a good assessment of possible future changes when the financial markets and economies have not gone through structural changes. Implied volatility is a forward looking measure of volatility and is calculated from the market participants estimates of what is likely to happen in the future Abdalla, S. Z. S. (2012).

The volatility of financial data has been described by Worthington, A., & Higgs, H. (2001) as follows:

- a. Leptokurtis: the nature of financial data has a leptokurtic distribution pattern. This is demonstrated by excess kurtosis and sharp peaks in the data plot.
- b. Volatility Clustering: Extreme change in index indicates high variability caused by leptokurtis. An extreme change in index is followed by another extreme index change. This event is called volatility clustering.
- c. Volatility Persistence: Due to volatility clustering, today's volatility shock will affect volatility in future periods. Volatility is said to be continuous (persistence) if today's index has a major influence on variance in the future period.
- d. Leverage Effect: Leverage effect is the effect on bad conditions which is different from the effect on good conditions. So that negative surprises will appear more often than positive surprises in the coming period.

According to Mandelbrot (1963) the stylized fact of volatility clustering which means that large and small values in the log-returns tend to occur in clusters. i.e., the large changes tend to be followed by large changes and small changes tend to be followed by small changes. When volatility is high it is likely to remain high and when it is low it is likely to remain low. Volatility clustering is nothing but accumulation or clustering of information. This feature reflects on the fact that news is clustered over time (Engle, 1993).

Return in Investment

Return is one of the factors that motivate investors to invest and is also a reward for the courage investors bear the risk of investing it. Return on investment can be estimated by estimation. Future investment return is expected return and different from actual return received (Tandelilin, 2010: 9). There are two types of return:

1. Realized return (actual return)

Realized return is the return that has occurred. Actual return used in analyzing data is the result obtained from investment by calculating the difference between individual stock prices for the current period and the previous period regardless of dividends, it can be written with the formula

$$R_{it} = (P_{it} - P_{it-1}) / P_{it-1} \dots \dots \dots (1)$$

Information:

R_{it} = Stock return i at time t

P_{it} = share price I in period t

P_{it-1} = Share Price in period I t-1

2. Return expected (expected return)

Expected return is the return expected by investors in the future. The calculation of Expected return according to Brown and Waren in (Jogiyanto, 2003), namely:

$$E(R_{it}) = R_{mt}$$

Information:

$E(R_{it})$ = The expected rate of return on the stock on day t

R_{mt} = The rate of market profit in period t

Previous Studies

There are specific features of difference between the conventional and the Islamic capital market, particularly in the specification of risk return profile. In this regard, the screening criteria undertaken by the Islamic investment is based on *Shariah* principles which exclude non-compliant companies from its pool of investable equities. Thus, only *Shariah*-compliant companies are considered, resulting in a smaller pool of investable equities with more volatile returns (Dewandaru et al., 2014). Returns which are more volatile usually depict a riskier market because it contains stocks which tend to have higher correlations with the overall market performance and the business cycle.

Karolyi (1995) and Nastiti, K. L. A., & Suharsono, A. (2012) exemplify most obvious application of the MGARCH (multivariate GARCH) model by studying of the relationship between volatility and volatility of several markets. He was examining the short-run dynamics of returns and volatility for stocks traded in the New York and Toronto stock exchanges with multivariate GARCH.

Bumi, (2013) his research describes the patterns of return volatility in Indonesia using Malaysian and Singaporean data as a comparison using the EGARCH Student-t model. The result mention, the existence of an asymmetric effect of a shock on return volatility is clearly detected, where the volatility of stock returns in Indonesia is more influenced by bad news (negative shock) than good news (positive shock).

Hung, N. T. (2019), De Almeida, D., Hotta, L. K., & Ruiz, E. (2018), Aielli, G. P., & Caporin, M. (2014), Romli, N., Mohamad, A. A. S., & Yusof, M. F. M. (2012) and Tse, Y. K., & Tsui, A. K. C. (2002), Aielli, G. P., & Caporin, M. (2014), they analysis the correlation between two and more capital market in several country to seek the flexibility and feasibility of the market, and provide some choice for investor to invest over the country. By using DCC MGARCH they could found the correlation of each market and come out with the suggestion for investor.

Purbasari, (2017) investigates the interdependence of volatility in five Southeast Asian markets. First, by creating a return model within the VAR-BEKK framework to obtain conditional variants, then applying a vector-autoregressive (VAR) model to the five market variants. The VAR estimation results show that the equity market conditional variance interdependence is high. The Singapore market, although the most exogenous and least susceptible to volatility stimuli from other markets, is the most influential in transmitting volatility to other ASEAN markets.

Al-Khazali, O., Lean, H.H., & Samet, A. (2014) analysis to examine whether Islamic stock indexes outperform conventional stock indexes by comparing nine Dow Jones Islamic indexes to their Dow Jones conventional counterparts. The results indicate that Islamic indexes outperform

their conventional peers during the recent global financial crisis. Thus, Islamic investing performs better than conventional investing during meltdown economy. The previous study from Saiti, B., Bacha, O. I., & Masih, M. (2014) classification Islamic and non-Islamic country. Furthermore, the comparison outperforms of Islamic was analysis by Al-Khazali et al (2014) but is was about CAPM performance using Dow Jones Islamic index. The model of GARCH in this research use DCC MGARCH that replicate from Hung, N. T. (2019) and Bala, D. A., & Takimoto, T. (2017), because DCC MGRACH could explain the correlation of volatility market. Lean, H. H., & Teng, K. T. (2013) is the other researcher that using DCC MGARCH on the Malaysian Market only.

Based on previous study, the novelty of the current paper is more specific to analysis between Indonesia and Malaysia equity market both conventional and Islamic. Next, the previous research was not providing conventional equity which never classified as Islamic. Most of the previous studies explain about composite index as their mention as conventional. In fact, the composite index contains two types of companies that are possible to index in sharia and impossible index in sharia. So, this research tries to collect the company that produce or have non-halal core business such as *riba*, liquor, etc. and combine it to develop a new index. The current research focus on Islamic country in Indonesia and Malaysia in Southeast Asia that have strong Islamic capital market, and provide new classification index, they are NST7 and NSTM.

Furthermore, the hypothesis of this research are:

1. H_{01} = Jakarta Islamic Index (JII) is more volatility and correlated with Non Sharia Top 7 (NST7) and Jakarta Composite Index
2. H_{02} = FTSE Bursa Malaysia Hijrah Shariah Index (Hijrah) is more volatility and correlated Non Syariah Top Malaysia (NSTM) and FTSE Bursa Malaysia EMAS (FTSE) index
3. H_{03} = Capital Market Indonesia and Malaysia are correlated

Research Methods

This research utilizes secondary data. Data taken in this study are daily transaction data, JKSE, JII, NST7, Hijrah, FTSE, and NST7M. The sample consists of 1230 daily observations from the period of April 2012 to December 2017. The data is the closing price of the indices used is in each selected Capital Market in Indonesia and Malaysia from April 2012 –December 2017 which has become the research sample. Data are collected from the historical prices of the Indonesia Stock Exchange Market and Malaysia Stock Market Exchanges. Daily data are used in order to get a robust result, while the period selection was intended to provide the most recent illustration of the Indonesian and Malaysia market condition.

Six equity indices are used in this research.

1. Return Jakarta Composite Index (JCI) as a proxy market return in Indonesia Stock Exchange
2. Jakarta Islamic Index or abbreviated (JII) is Islamic index which all shares must be periodically reviewed based on the finance performance that must not contain haram income, interest rate, also the business scope must halal.
3. Non-sharia top 7 (NST7) is a conventional where all the issuer never and impossible to index in sharia. The stock containing 7 stocks that have the largest capitalization in Indonesia, namely BBCA, HMSP, BBRI, BMRI, BBNI, GGRM, and BDMN. The top 7 non-Sharia companies were selected since the total market capitalization of these companies matches with the total market capitalization of all companies included in the Jakarta Islamic Index.
4. FTSE Bursa Malaysia Hijrah Shariah Index (Hijrah) is Shariah-compliant investment products that meet the screening requirements of international Islamic investors. The index are screened by the Malaysian Securities Commission's, Shariah Advisory Council (SAC) (Lean, H. H., & Parsva, P, 2012).
5. FTSE Bursa Malaysia EMAS (FTSE) index represents all the ordinary securities which are listed on the main board of the Bursa Malaysia that qualified for the rules of eligibility, free floating as well as liquidity (Lean, H. H., & Tan, V. K. M, 2010) and Chang, D. (2012).
6. Non-Shariah top 7 (NST7M) a conventional stock containing 8 stocks that have the largest capitalization in Malaysia. The 7 companies are AMMB, CIMB, Hong Leong Bank, Hong Leong Financial Group, MayBank, Public Bank, RHB.

Multivariate Generalized Autoregressive Conditional Heteroskedasticity

Generalized ARCH (GARCH) is an extension of the ARCH model. When modeling using ARCH it may require a large lag value p , therefore a large number of parameters Worthington, A., & Higgs, H. (2001). This research model estimates the variance of return at time t as a weighted average of a constant, variance of return in the previous period, and last period's squared residual return. To find out the time-varying relation among the index we use a Dynamic Conditional Correlation Multivariate GARCH model that was widely accepted, because DCC MGARCH incorporates the time-dependent conditional correlation, also could observe behavior time-series data (Rizvi & Arshad, 2014). According to Cho and Choi (2015), the DCC MGARCH model has a number of advantages such as parsimonious, theoretically sound, and computationally flexible. There are two step before using the MGARCH (Multivariate Generalized Autoregressive Conditional Heteroscedasticity) method, they are LM test and the Wald test. Both necessary to check whether an MGARCH effect on the model residues. LM are the standard approaches to constructing test statistics for parametric hypotheses (Abduh, 2020).

The Lagrange Multiplier (LM) test is one of the principal tools to detect GARCH effects in financial data analysis Gel, Y. R., & Chen, B. (2012). One of the important step before applying GARCH methodology is to examine the residual of risk and return for evidence of heteroscedasticity Abdalla, S. Z. S. (2012). The test is based on decomposing the GARCH model multiplicatively into two components, one of which represents the null hypothesis, whereas the other one reject the null hypothesis Catani, P., Teräsvirta, T., & Yin, M. (2017):

$H_0 =$ residue heteroscedasticity ($\sigma^2 = \omega$), if obs-R-square $> 5\%$, then the null hypothesis is accepted, which means the residue is homoscedastic

$H_1 =$ residue heteroscedasticity ($\sigma^2 = \omega$), if obs-R-square $< 5\%$, then the null hypothesis is rejected, meaning that the residue is in a heteroscedastic condition

The GARCH model allows conditional variance to exist at the previous lag. GARCH (1,1) with the mean equation can be expressed as

$$r_t = \mu + u_t, u_t \sim N(0, \sigma_t^2) \dots\dots\dots (2)$$

$$\sigma_t^2 = \gamma_0 + \gamma_1 u_{t-1}^2 + \lambda \sigma_{t-1}^2 \dots\dots\dots (3)$$

the model can be extended to the GARCH (p, q) model in which the current conditional variant is parameterized to depend on the p lag term of the squared error and the q term of the lagging conditional variant.

$$\sigma_t^2 = \gamma_0 + \gamma_1 u_{t-1}^2 + \gamma_1 u_{t-2} + \dots + \gamma_p u_{t-p} + \lambda_1 \sigma_{t-1}^2 + \lambda_2 \sigma_{t-2}^2 + \dots + \lambda_q \sigma_{t-q}^2 \dots\dots\dots (4)$$

Also the constraints $\gamma_0, \gamma_1, \gamma_2, \dots, \gamma_p \geq 0$, and $\lambda_1, \lambda_2, \dots, \lambda_p \geq 0$. is applied so that the variant σ_t^2 becomes positive. In general, the GARCH model (1,1) is sufficient to capture volatility in the data (Brook, 2008).

For the correlations, we assume that they evolve dynamically. We employ Engle's (2002) DCC model. The model can be show as:

$$H_t = D_t R_t D_t$$

$$D_t = \text{diag}(h_{11,t}^{0.5}, \dots, h_{mm,t}^{0.5}),$$

$$Q_t = (1 - \alpha - \beta)R + \alpha \varepsilon_t - 1 \varepsilon_0 t - 1 + \beta Q_t - 1$$

$$R_t = (\text{diag} Q_t) - 0.5 Q_t (\text{diag} Q_t) - 0.5$$

Results and Discussion

We take data from six different markets, namely FTSE, JII, JKSE, NST7, NST7M, and Hijrah, with length data from April 2012 to December 2017. Using MGARCH-DCC, it is found that FTSE is the most volatile, followed by Jakarta Islamic Index, Hijrah, NST7, JKSE, and NST7M as the less volatile index.

From the above ML Estimates of the t-DCC model on stock market indices, we observe that most return volatility estimates are statistically significant and near to unity, except NST7M. This finding implies most parameters of the model experience gradual decay in volatility under t-DCC model as well. The maximized log likelihood value (-636.6169) under t-DCC model. The estimated degrees of freedom is 5.8652, well below the value of 30. These conclusions are robust to the way returns are standardized for computation of cross asset return correlations.

Table 1. Multivariate GARCH with underlying multivariate t-distribution
Converged after iterations

Parameter	Estimate	Standard Error	T-Ratio [Prob]
Lambda_FTSE	.97553	.017493	55.7686 [.000]
Lambda_JII	.95832	.014534	65.9365 [.000]
Lambda_HJR	.95133	.044838	21.2170 [.000]
Lambda_JKSE	.88663	.046738	18.9700 [.000]
Lambda_NST7	.89480	.049032	18.2495 [.000]
Lambda_NST7M	.57254	.068964	8.3020 [.000]
Delta	.86316	.011827	72.9843 [.000]
Df	5.8652	1.0708	5.4772 [.000]
Maximized Log-Likelihood = -636.6169			
df is the degrees of freedom of the multivariate t distribution			

The observation of market performance must also consider the correlation among indices. The following table shows correlation matrix among variables in this study. From Table 1, it can be seen that all Indonesian and Malaysian capital markets have a positive dynamic correlation with each other and are significant at the 5% level. The Indonesian and Malaysian markets are increasingly converging. There are indications that the members of the Islamic, non-Islamic stock Index show some development in the level of market integration, but this sign is clear in the relationship between Indonesia, Malaysia.

Table 2. Estimated unconditional Volatility Matrix

	FTSE	JII	HJR	JKSE	NST7	NST7M
FTSE	12.5147	.79601	.99126	.8648	.65803	.13398
JII	.79601	5.6311	.79019	.95486	.77339	.059441
HJR	.99126	.79019	12.5680	.84418	.65148	.12619
JKSE	.84648	.95486	.84418	6.3263	.87620	.080201
NST7	.65803	.77339	.65148	.87620	5.1286	.0057102
NST7M	.13398	.059441	.12619	.080201	.0057102	.28758

For the time-varying conditional Volatilities and correlations see the Post Estimation Menu.

From the above result, we can see that the index specific estimates of the volatility and correlation decay parameters. In Indonesia, JKSE has a strong correlation with JII, namely 0.95486,

Regarding the cross return correlation, JKSE and JII seems to be positively correlated (0.95486), which shows the possible direction of movement and the degree of association (+95%) between JKSE and JII. Similar case is also found in Malaysian market, where the Hijrah Index is highly correlated with the FTSE Malaysia with positive association (0.99126 or about 99%). FTSE also has the strongest correlation with the Islamic Malaysia stock market 0.99126. It also a concern for investors as any movement in the return of Islamic indices and the composite indices to move in the same direction.

Between Islamic and pure conventional, it has a fairly low correlation number in Malaysia. HJR have low correlation to NSTM (0.12619) this means that it can be used as an attractive composition for investors against the risks they will face later. However, of course conventional investment is not an option for investors who truly focus on sharia. Unfortunately, in Indonesia

correlation between Islamic (JII) and pure conventional quite high 0.77339. Seems like investor in Indonesia have not opportunity to have good portfolio diversification because Islamic index are strongly correlated with composite market also with pure conventional.

Meanwhile, the NST7 non-sharia (pure conventional) index also has a correlation with the Indonesian stock market (JCI) 0.87620. Meanwhile for Malaysia, pure conventional market has a small correlation with Malaysian capital market or FTSE only 0.13398.

In a view of the index correlation between countries JKSE and FTSE are representations of the country's capital market (JKSE for Indonesia and FTSE for Malaysia) so it is very likely correlated with their Islamic market about 0.84648. JII and Hijrah also have 0.79019 volatility correlation, so both Indonesia and Malaysia investor could not have strong diversification. The result of the research was in pursuance of with Longin, F., & Solnik, B. (2001), that there is strong correlation distribution of return in general between US and UK market. Investors in Malaysian and Indonesia market should be aware of this before investing in both markets. Furthermore, NST7M index return looks to be more stable in comparison to NST7 (0.0057). This means that the two stocks have the smallest correlation, this can be said the funding compliance to a snazzy portfolio, because the less correlated is the best the diversification (Theron, L., & van Vuuren, G. (2018).

Based on the result, the best portfolio diversification is related to pure conventional index from Malaysia. Unfortunately, as investor that considering about sharia, the conventional index is not a choice and must be avoid. The composition of pure conventional index is conventional bank that the income is not sharia compliance due to interest rate that represent of *riba*. More over the sharia index both Malaysia and Indonesia have correlation, the composite index also the same, meaning that the investor could not have best diversification in the cross country model. Thus result contrary with Hung, N. T. (2019), he mentions in the Emerging market the correlation was lower than development market. Table 3. depicts the mean reversion based on the Wald test estimation.

Table 3. Mean Reversion

Wald test of restriction (s) imposed on parameters		
List of restriction (s) for the Wald test:	Wald Statistic	
0=1- LAMBDA_FTSE	CHSQ(1)= 1.9561 [.162]	Non-Mean Reverting
0=1- LAMBDA_HJR	CHSQ(1)= 1.1784 [.278]	Non-Mean Reverting
0=1- LAMBDA_JII	CHSQ(1)= 8.2248 [.004]	Mean Reverting
0=1- LAMBDA_JKSE	CHSQ(1)= 5.8840 [.015]	Mean Reverting
0=1- LAMBDA_NST7	CHSQ(1)= 4.6032 [.032]	Mean Reverting
0=1- LAMBDA_NST7M	CHSQ(1)= 38.4183 [.000]	Mean Reverting

FTSE and Hijrah market return index shows non-mean reversion, which signifies that the overall performance would be less likely to return to its long-run means. In other words, if shocks occur in the Malaysian market, the market may have differed greatly from the past average. This is also implies that investors in the Malaysian market do not take into account the historical return on their investment decision.

In Indonesian market, JKSE and JII market index shows mean-reversion situation. It means the market performance would be more likely to revert to its historical mean, thus enabling investors to predict future return based on historical or average level. For non-sharian compliant stocks, noth both NST7 and NST7M shows similar result of mean reversion. It suggests the return will eventually revert to the long-run mean.

To check model validity, Lagrange Multiplier (LM) test is conducted. The result of the LM test is shown in table 4. The table shows that the LM test stastic is equal to 15.4848 with p-value of 0.216. Thismeans the LM test is not statistically significant andwe cannot reject our null hypothesis. In other words, t-DCC model is correctlyspecified Bala, D. A., & Takimoto, T. (2017).

Table 4. LM Test Result

Regressor	Coefficient	Standard Error	T-Ratio [Prob]
OLS RES (-1)	.050348	.19229	.26184 [.795]
OLS RES (-2)	.36713	.19100	1.9222 [.063]
OLS RES (-3)	-.031737	.20147	-.15753 [.876]
OLS RES (-4)	-.25961	.19912	-1.3038 [.201]
OLS RES (-5)	-.049470	.19849	-24923 [.805]
OLS RES (-6)	.043468	.19889	.21855 [.828]
OLS RES (-7)	-.091262	.19901	-.45859 [.649]
OLS RES (-8)	.12662	.20085	.63039 [.532]
OLS RES (-9)	.44814	.20073	2.2325 [.032]
OLS RES (-10)	.018223	.22034	.082705 [.935]
OLS RES (-11)	-.46026	.21365	-2,1543 [.038]
OLS RES (-12)	.29384	.22118	1.3269 [.193]
Langrange Multiplier Statistic		CHSQ(12)=	15.4848 [.216]
F Statistic		F(12,35)=	1.3890 [.217]
U-Hat denotes the probability integral transform.			
Under the null hypothesis, U-Hat should not display any serial correlation.			

Implication and Conclusion

The paper examines the dynamic link between conventional and Islamic stocks in the Indonesian and Malaysian Islamic stock markets and determine whether the investors should invest in composite, conventional or Islamic equity market to gain international portfolio diversification benefits or not. This result has an important implication for the investors to choose better portfolio against risks. The conclusion of the research, our research shows strong evidence that conditional correlations between Islamic Index Indonesia and Malaysia. The FTSE Bursa Malaysia Hijrah Shariah Index and JII has a quite high correlation for each index but still lower 100% and acceptable, regardless of being conventional or Islamic. The Indonesian and Malaysian Islamic stock market investors who have allocated their investment globally may not to overly enjoy portfolio diversification benefits. However, Indonesian and Malaysian Islamic stock market investors may not savor the real benefit if they allocate their funds in local or international index, for example JII with JCI or FTSE and HJR because they have strong correlation.

For the next research, several studies need to continue specially for analysis the correlation of volatility market and economic development, also tries another tools such as VAR or another tools that could prove the correlation among variable

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