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Islamic Market Index Behavior and Performance: Empirical Evidence from Dow Jones Market Indexes

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Abstract

The main objective of the study is to empirically investigate the impact of the Conventional stock market index on the Islamic stock market index and the comparative performance of the two stock market indexes. For the purpose of the study, daily observations of Dow Jones Islamic Market US Titans 50 (DJUS50) and Dow Jones Composite Index (DJA) spanning a period from January 2015 until December 2021 are obtained from the Investing.com database. Risk-adjusted performance, VAR model, granger-causality test, generalized impulse response functions, and Johansen cointegration tests are used to investigate the behavior and performance of the Islamic market index empirically. Results based on risk-adjusted performance indicate that the Islamic market index performs better than the Conventional market index. Furthermore, the results suggest no long-run association between the indexes, while there is short-run bidirectional causality. This study will contribute both to the literature and practice. It will contribute to the already existing literature through the usage of the newest data, while the practical implication will help investors to better understand the behavior of the Islamic stock market index.

Keywords: *Conventional stock market index, Islamic stock market index, Granger-Causality, generalized impulse-response functions, risk-adjusted performance*

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1. Introduction

The ignition spark started in the 1960s for the need for Islamic products due to the high volume of demand to comply with Shariah law. Shariah law forbids usury, interest, interest-bearing loans, various stocks, etc.; therefore, various kinds of conventional revenues are forbidden.

Islamic financial markets and their financial potential have had high growth rates since the recent world financial crisis. Even though the portion of Islamic financial markets money potential takes only a small proportion out of total world financial markets money mass, Islamic finance is becoming more and more attractive because it appears as an alternative to the conventional financial markets. (Djedovic & Ergun, 2018a)

There is a variety of studies investigating the Islamic and Conventional markets using different statistical theories and techniques to measure the variables. Notwithstanding, the results and conclusion of these researches motivate more researchers to go ahead and perform additional paperwork with deep analysis to test the relationship between markets as well as the regions.

The importance of this step is to measure the variables and monitor the result to enhance the understanding and knowledge of how the Islamic markets are influenced or affected by Conventional markets within different periods of time. Furthermore, it is important to investigate the performance of Islamic markets compared to conventional ones. Musallam (2018) states that the main goal of investors to invest in the company stocks is to maximize their wealth which will be accomplished through market stock return. Therefore, it is important to investigate Conventional as well as Islamic market indexes from the stock returns perspective.

Based on the abovementioned, the main objective of the study is to compare the performance of Islamic and Conventional stock market indexes in the United States and the impact of the Conventional stock market index on the Islamic stock market index in the United States. More precisely, the study aims to provide answers to the following research questions:

Does the Islamic market index show different performance compared to the Conventional market index in the United States in terms of return?

Is there an impact of Conventional market index return on Islamic market index return in the United States?

Is there a long-run association between the Islamic market index and the Conventional market index?

Statistical methods that are used to investigate the abovementioned research questions include risk-adjusted performance, VAR model, Granger-causality test, generalized impulse response function, and Johansen cointegration test. Microsoft Excel and EViews software were used to conduct the analysis.

The remainder of the paper is as follows. Section two reviews the literature. In section three, the data and methodology are presented. The empirical results of the study are presented in section four, while the conclusions of the study are found in section five.

2. Literature review

In the following paragraphs presented is relevant literature regarding Islamic market index performance compared to the Conventional market index performance, as well as the literature that empirically investigates the impact of Conventional market indexes on Islamic stock market indexes.

2.1. Performance of Islamic stock market index vs. Conventional stock market index

Hakim and Rashidian (2002) compared the performance of the Dow Jones Islamic Market Index (DJIMI) with Wilshire 5000 Index. The data used was for the period of 1999 to 2002. By using the cointegration technique, the findings indicated that on a risk-return basis, investors do not lose when investing in an Islamic index as a subset of a much larger market portfolio. Hassan and Girard (2011) examined the performance of seven indexes chosen from the Dow Jones Islamic Market Index (DJIM) vis-à-vis their non-Islamic counterparts using a variety of measures such as Sharpe and Treynor ratios. They found that The Dow Jones Islamic indexes outperformed their Conventional counterparts from 1996 to 2000 and underperformed them from 2001 to 2005. Overall, similar reward to risk and diversification benefits exists for both the Islamic and Conventional indexes. Walkshäusl and Lobe (2012) used a large international sample of 35 developed and emerging markets. They analyzed whether Islamic indexes had a different performance compared to Conventional counterpart indexes. The results suggested no evidence of performance differences when using robust Sharpe ratio tests and after controlling for market risk.

Jawadi et al. (2014) studied the financial performance of Islamic and Conventional indexes for three major regions: Europe, the USA, and the World. The study covers the period 2000–2011. The authors used different performance ratios and estimated the CAPM-GARCH model to take into account the financial risk time variation. According to the results, conventional investments seemed promising before the crisis and during periods of calmness, while Islamic funds have outperformed them since the subprime crisis began and in turbulent times, but this result is specific to the region under consideration and to the performance criterion. Ho et al. (2014) provided empirical evidence on risk-adjusted performance comparisons of share indexes from global Islamic and Conventional markets. The treasury-bill rate and the MSCI All-World index are used as risk-free rates and world benchmarks, respectively. They found that Islamic indexes outperformed their Conventional counterparts during crisis periods, but results are inconclusive for the non-crisis periods. In

addition, Abduh (2020) found that the Islamic index in Malaysia is less volatile during the crisis compared to the Conventional Index, which indicates the resilience of the Islamic market, which absorbed the fluctuations during hard times. Asutay et al. (2022) examined the performance of Islamic and Conventional Stock Indexes in the US during the financial crises. The results of the study suggested that the Islamic indexes had an outstanding performance compared with Conventional indexes during this period of time. Furthermore, based on the results, it is evident that Islamic indexes demonstrated fewer losses and less risk compared with Conventional indexes.

2.2. Impact of Conventional stock market index on Islamic stock market index

Bahloul et al. (2017) examined the impact of Conventional index return and volatility, the inflation rate, and the short-term interest rate on Islamic stock market index returns from 2002 to 2014, using monthly data. They included ten developed and ten emerging market indexes. The results indicate that Conventional index return has a significant impact on Islamic index return. Jebran et al. (2017), in their study related to Pakistan, found significant long-run and short-run associations between Islamic and Conventional indexes. Furthermore, the study finds asymmetric bidirectional volatility spillover between Islamic and Conventional indexes.

Ng et al. (2017) used an asymmetric BEKK-GARCH model to examine the return and volatility linkages between the FTSE Bursa Malaysia Emas Shariah (FBMS) index and the sectoral indexes under a regular market. The analysis uses the daily historical data from 2009 to 2015, with a total of 1653 observations in each time series. The results suggest uni-directional mean return spillovers found in FBMS to KLCI, CON, CSU, FIN, IND, PRO, SER, and TIN. The converse is not true. Ahmed (2019) analyzed both mean and variance dynamics between the MSCI ACWI Islamic stock index on the one hand and three Conventional counterparts for the US, developed, and GCC markets on the other. The empirical evidence reveals the presence of substantial mean and volatility spillovers radiating from the mainstream stock market indexes to their Sharia-compliant counterpart, with the opposite direction being largely negated.

Shaari (2019) investigated the integration between Islamic and Conventional Stock Markets in Malaysia. The study focused on three key indexes to represent the stock markets in Bursa Malaysia, which are FTSE Emas Syariah Index (FBMESI), FTSE Kuala Lumpur Composite Index (FBMKLCI), and FTSE Ace Index (FBMAI). This study uses monthly data from January 2009 to December 2015. The results suggest that there is a significant correlation in the long-term relationship between FTSE Bursa Malaysia Emas Syariah Index (FBMESI) and with FTSE Bursa Malaysia KLCI (FBMKLCI) and FTSE Bursa Malaysia Ace Index (FBMAI). Furthermore, the results showed that there is a direct short-term Granger causality link between FTSE Bursa Malaysia Emas Syariah Index (FBMESI) to FTSE Bursa Malaysia KLCI (FBMKLCI).

3. Data and Methodology

Two types of data in terms of frequency were used in the study. Daily observations of Dow Jones Islamic Market US Titans 50 (DJUS50) (Islamic index) and Dow Jones Composite Index (DJA) (Conventional index) in the period from January 2015 until December 2021 are obtained from the investing.com database. The Dow Jones Islamic Market U.S. Titans 50 Index (DJUS50) is designed to measure the largest and most liquid U.S. domiciled companies that comply with Islamic investment guidelines. The Dow Jones Composite Index (DJA) aims to represent large and well-known U.S. companies. The data will be statistically analyzed and illustrated using Microsoft Excel and E-views software.

Risk-adjusted performance (Sharpe ratio), Vector Auto-regression (VAR), Granger-causality test, Impulse response function, as well as Johansen Cointegration tests are used in order to estimate the performance and impact.

The arithmetic return of the indexes is estimated by subtracting the index value at time t - 1 from the index value at time t and dividing it by the index value at time t, as shown in Eq. (1), where Rt is the return at time t, Pt is the index at time t, and Pt-1 is the index at time t - 1.

$$Rt = \frac{(Pt - Pt-1)}{Pt-1} \qquad (1)$$

In order to analyze risk-adjusted performance Sharpe ratio is used. The Sharpe ratio is a ratio of the risk premium to the standard deviation of the risk premium. Reminiscent of a Student t-test, this ratio attempts to measure the risk premium per unit of risk taken to acquire this premium.

The Sharpe Ratio is equal to:

$$S = \frac{(rp - rf)}{\sigma e} \qquad (2)$$

Where rp is the return of the portfolio in question, rf is the risk-free rate of return, and σe is the standard deviation of rp – rf (Sharpe, 1994). The risk-free rate considered for this study is the average three-month U.S. Treasury bill rate for the US.

When dealing with time-series data, it is important to examine the existence of unit root in the data series. If the variable is not stationary, we can obtain a high, although there is no meaningful relation between variables. To avoid spurious regression, it is necessary to apply the unit root test. There are numerous unit root tests, and one of the most popular among them is the Augmented Dickey-Fuller (ADF) test. Augmented Dickey-Fuller (ADF) is an extension of the Dickey-Fuller test. If the test shows that the data is non-stationary, the first difference of the variables will be employed before conducting the other analyses.

Furthermore, in order to analyze the dynamic linkages between the two markets, the basic VAR methodology from Campbell (1991) is applied. VAR models generalize the univariate autoregressive model (AR model) by allowing for more than one evolving variable. All variables in a VAR enter the model in the same way: each variable has an equation explaining its evolution based on its own lagged values, the lagged values of the other model variables, and an error term. Every variable is modeled as a linear combination of past values itself, combined with the past values of other variables in the system. Since there are multiple time series impacting each other, it is modeled as a system of equations with one equation per variable (time series). For example, if there are two variables (Time series), Y1 and Y2, and we need to forecast the values of these variables at a time (t), in order to calculate Y1(t), VAR will use the past values of both Y1 and Y2.

Vector Autoregressive Analysis (VAR) requires that the data is stationary in order to avoid spurious regression. Therefore, we conducted the ADF unit root tests on the specified series. The Var model satisfies the stability condition, which was checked through AR roots in Table A1 (see Appendix).

When the VAR model has been estimated, Granger causality analysis, a statistical method for investigating the flow of information between time series, and Impulse Response Analysis, whose goal is to describe the evolution of a model's variables in reaction to a shock in one or more variables, can be used (Lütkepohl et al., 2006).

Impulse response functions (IRFs) are used to study the dynamic effects of a particular variable's shock on the other variables that are included in the same model. Furthermore, through the IRF we can learn whether the response of one variable to changes in the other variables is positive or negative and whether it is significant or not. If the point estimate of the IRF is above the zero line, it means that the response is positive. On the other hand, if the point estimate of the IRF is below the zero line, the response is negative. Besides, if the point estimate of the IRF passes through the zero line, the response is insignificant. In this study, the Cholesky decomposition adjusted response functions are used.

Finally, to check whether there is a long-run relationship between the two market indexes, the Johansen test is used (Johansen, 1988, 1991). This is a test for cointegration that allows more than one cointegrating relationship, unlike the Engle-Granger method.

4. Results

Figure 1 and Figure 2 present Islamic and Conventional index price series as well as return series. Based on the graphical presentation, it can be noticed that the two series follow almost identical patterns.

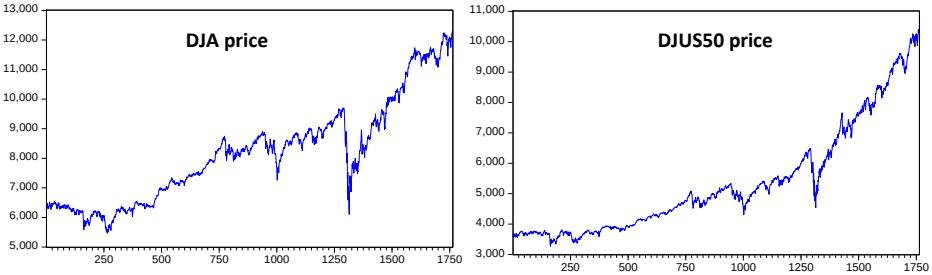

Figure 1. Dow Jones Composite Index (DJA) price and Dow Jones Islamic Market US Titans 50 (DJUS50) price

Source: Authors' calculations

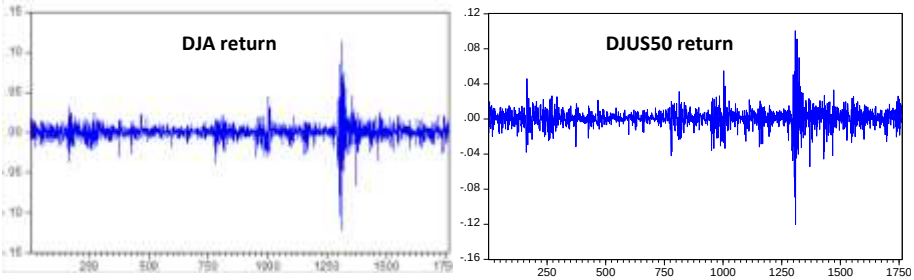

Figure 2. Dow Jones Composite Index (DJA) and Dow Jones Islamic Market US Titans 50 (DJUS50) return

Source: Authors' calculations

Table 1 present the results of descriptive statistics for the price and return series of the Islamic and the Conventional index.

Table 1. Descriptive Statistics

	Conventional Index Price	Islamic Index Price	Conventional Index Return	Islamic Index Return
Mean	8,178	5,358	0.000428	0.000657
Median	8,200	4,868	0.000821	0.000744
Maximum	12284.3	10404.80	0.114339	0.100613
Minimum	5,467	3,268	-0.122733	-0.120531
Std. Dev.	1,703	1,780	0.011427	0.011783

The ADF test results have been exhibited in Tables 2, Table 3, Table 4, Table 5, Table 6, and Table 7. It is found that the Islamic index and Conventional index price are non-stationary at levels, while the data are stationary at the first difference. The return values of the Islamic and the Conventional indexes are found to be stationary at levels. This suggests that the data are fit enough to apply Granger causality, VAR, and other tests. In other words, the return series have no unit roots. Hence, the level form of returns will be used for further estimation throughout the analysis, while the price series in the level form will be used for the cointegration test.

Table 2. Stationarity test for unit root for Conventional index price

Null Hypothesis: Conventional_Price has a unit root			
Exogenous: Constant			
Lag Length: 9 (Automatic - based on SIC, maxlag=24)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.085747	0.9491
Test critical values:	1% level	-3,433,878	
	5% level	-2,862,985	
	10% level	-2,567,586	

Note: *MacKinnon (1996) one-sided p-values.

Table 3. Stationarity test for unit root for first difference of Conventional index price

Null Hypothesis: D(Conventional_Price) has a unit root			
Exogenous: Constant			
Lag Length: 8 (Automatic - based on SIC, maxlag=24)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1,275,163	0.0000
Test critical values:	1% level	-3,433,878	
	5% level	-2,862,985	
	10% level	-2,567,586	

Note: *MacKinnon (1996) one-sided p-values.

Table 4. Stationarity test for unit root for Islamic index price

Null Hypothesis: Islamic_Price has a unit root			
Exogenous: Constant			
Lag Length: 9 (Automatic - based on SIC, maxlag=24)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1,786,186	0.9998
Test critical values:	1% level	-3,433,878	
	5% level	-2,862,985	
	10% level	-2,567,586	

Note: *MacKinnon (1996) one-sided p-values.

Table 5. Stationarity test for unit root for the first difference of Islamic index price

Null Hypothesis: D(Islamic_Price) has a unit root			
Exogenous: Constant			
Lag Length: 8 (Automatic - based on SIC, maxlag=24)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1,320,407	0.0000
Test critical values:	1% level	-3,433,878	
	5% level	-2,862,985	
	10% level	-2,567,586	

Note: *MacKinnon (1996) one-sided p-values.

Table 6. Stationarity Test for Unit Root for Conventional Index Returns

Null Hypothesis: Conventional_Return has a unit root			
Exogenous: Constant			
Lag Length: 8 (Automatic - based on SIC, maxlag=24)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1,302,330	0.0000
Test critical values:	1% level	-3,433,878	
	5% level	-2,862,985	
	10% level	-2,567,586	

Note: *MacKinnon (1996) one-sided p-values.

Table 7. Stationarity Test for Unit Root for Islamic Index Returns

Null Hypothesis: Islamic_Return has a unit root			
Exogenous: Constant			
Lag Length: 8 (Automatic - based on SIC, maxlag=24)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1,364,920	0.0000
Test critical values:	1% level	-3,433,878	
	5% level	-2,862,985	
	10% level	-2,567,586	

Note: *MacKinnon (1996) one-sided p-values.

Table 8 shows the results of risk-adjusted performance through the Sharpe ratio. From the results of the Sharpe ratio analysis, it can be stated that the Islamic index shows better results compared to the Conventional index. This suggests that when including both returns and standard deviations of the two indexes, considering the risk-free rate, the Islamic market index is having better performance (0.75) than the counterpart Conventional market index (0.42).

Table 8. Sharpe ratio results for Conventional and Islamic index in the US (Risk-Adjusted Performance)

	Islamic index	Conventional index
Average return	0.159	0.096
Average risk-free rate	0.020	0.020
St. deviation	0.187	0.181
Sharpe ratio	0.75	0.42

Table 9 present the results of the VAR model. The results suggest that the Conventional market index returns have a significant negative impact on the Islamic market index return in the second lag, while there is a significant positive impact of the Conventional market index return on the Islamic market index return in the second lag. Furthermore, the results from the VAR model suggest that there is also a significant negative impact of the Islamic market index return on the Conventional market index return in the first lag.

Table 9. VAR Results

Vector Autoregression Estimates		
Sample (adjusted): 4 1763		
Included observations: 1760 after adjustments		
Standard errors in ( ) & t-statistics in [ ]		
	Islamic_Return	Conventional_Return
Islamic_Return(-1)	-0.113899	-0.120100
	(0.05024)	(0.04898)
	[-2.26698]	[-2.45194]
Islamic_Return(-2)	-0.130947	-0.068953
	(0.05002)	(0.04876)
	[-2.61804]	[-1.41407]
Conventional_Return(-1)	-0.103856	-0.052350
	(0.05149)	(0.05020)
	[-2.01708]	[-1.04291]
Conventional_Return(-2)	0.205752	0.169585
	(0.05152)	(0.05023)
	[3.99359]	[3.37632]
C	0.000791	0.000521
	(0.00027)	(0.00027)
	[2.88914]	[1.95275]
R-squared	0.059415	0.048882
Adj. R-squared	0.057271	0.046714
Sum sq. resids	0.229633	0.218253
S.E. equation	0.011439	0.011152
F-statistic	2,771,509	2,254,903
Log likelihood	5,373,688	5,418,419
Akaike AIC	-6,100,782	-6,151,613
Schwarz SC	-6,085,233	-6,136,064
Mean dependent	0.000671	0.000445
S.D. dependent	0.011781	0.011422
Determinant resid covariance (dof adj.)		3.66E-09
Determinant resid covariance		3.64E-09
Log likelihood		12105.85
Akaike information criterion		-1,374,529
Schwarz criterion		-1,371,419

In Table 10, the results of the Granger-Causality test are presented. The results suggest that there is a bidirectional causality among Islamic and Conventional market index returns. These results are in line with the results from the VAR model. The results suggest that the returns of the two indexes contain significant information to forecast each other.

Table 10. Granger Causality Test

Pairwise Granger Causality Tests			
Sample: 1 1763			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
Conventional_Return does not Granger Cause Islamic_Return	1760	972,235	6.E-05
Islamic_Return does not Granger Cause Conventional_Return		399,514	0.0186

In Figure 3, the results of impulse responses for the given period of time are presented. The results suggest that Islamic market index return is in the first two lags slightly negatively affected by the shocks in Conventional market index returns, while in the third lag this effect becomes slightly positive. In the fourth lag this effect diminishes. Furthermore, from the impulse response analysis, it can be seen that Conventional index returns react negatively to the shocks in Islamic index return in the second lag, while the effect becomes positive in the third lag, and it disappears in the fourth lag. This suggests that there is a similar pattern of reaction to the shocks coming from Conventional market index return to the Islamic index return and vice versa. It can be concluded that there is a bidirectional causality in terms of impulse responses, while the Conventional market index responds more to shocks in the Islamic market index than vice versa.

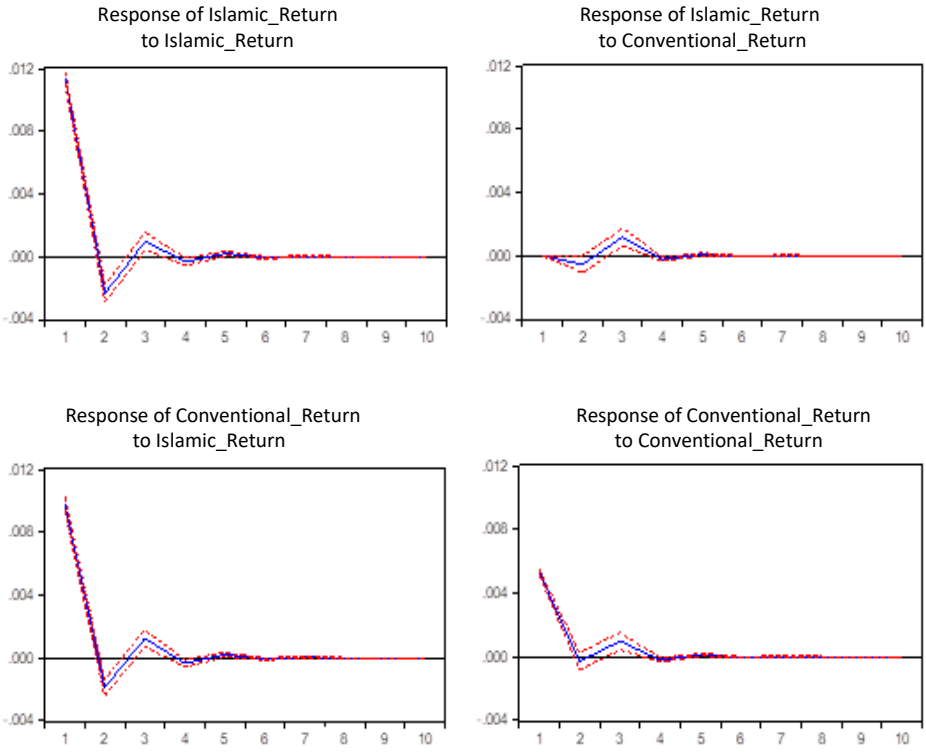

Figure 3. Impulse responses

Source: Authors' calculations

In Table 11, the results of the Johansen Cointegration Test are shown. Based on the results, it can be stated that there is no cointegration between Dow Jones Islamic Market US Titans 50 (DJUS50) and Dow Jones Composite Index (DJA). This suggests that these two indexes are not associated in the long run.

Table 11. The Johansen Cointegration Test

Sample (adjusted): 6 1763				
Included observations: 1758 after adjustments				
Trend assumption: Linear deterministic trend				
Series: Conventional_Price Islamic_Price				
Lags interval (in first differences): 1 to 4				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.003737	1,058,042	1,549,471	0.2387
At most 1 *	0.002272	3,998,460	3,841,466	0.0455

Notes: Trace test indicates no cointegration at the 0.05 level
* Denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

5. Discussion

This study approached the Islamic market index from several different angles. The first part of the analysis is related to the risk-adjusted performance of the Islamic market index compared to the Conventional market index. The results showed that the Islamic market index performs better than the Conventional market index during the observed period of time since the Sharpe ratio of the Islamic market index of 0.75 is higher than the Sharpe ratio of the Conventional market index of 0.42. The results of the analysis are in line with Hakim and Rashidian (2002), who concluded that the risk per unit of return on the Conventional Wilshire 5000 (W5000) index is higher than the risk per unit of return on the Dow Jones Islamic Market (DJIM) index. Previous studies highlight that in some instances, Conventional market indexes outperformed Islamic indexes, and in some others, the reverse was the case. In summary, existing literature relating to index performance is contradictory and limited (Ho et al., 2014)

The results of the VAR analysis and Granger-causality test showed that there is bi-directional causality between the two indexes. The results of impulse response analysis that shows the behavior of the Islamic market index based on the shocks coming from the Conventional market index showed that there is bidirectional causality and responsiveness to the shocks. The results are in line with the results of the study conducted by Albaity and Ahmad (2008), who found similar results for Islamic and Conventional market indexes in Malaysia.

In order to investigate the long-run relationship between two indexes, the Johansen cointegration test is used. The results showed that there is no long-run relationship between the two indexes. This result is in accordance with the results of Hakim and Rashidian (2002), where it was found that DJIMI (Islamic index) is not cointegrated with Wilshire 5000 in a bivariate model. Furthermore, it is in line with the study of Reyes and Grieb (1998), who did not find any cointegration relationship between socially responsible and non-socially responsible funds. However, it is not in line with

the results of the study by Albaity and Ahmad (2008), who found cointegration between KLSI (Islamic index) and KLCI (Conventional index) in Malaysia.

6. Conclusion

The task of this research was to study the Islamic stock market index performance relative to the Conventional counterpart stock market index performance, as well as to investigate the impact of the Conventional stock market index on the Islamic stock market index in the US. Furthermore, the study investigated the long-run association between the two stock market indexes.

Results based on risk-adjusted performance (Sharpe ratio) indicate that the Islamic market index performs better than the Conventional market index. In order to examine the impact and the shocks, conducted are the Vector autoregressive analysis (VAR), Granger-Causality test, and the generalized impulse-response functions. Furthermore, through VAR analysis and impulse-response functions, the impact of the Islamic market index on the Conventional market index could also be examined.

The VAR analysis results indicated that there is a significant bi-directional impact between the Conventional market index return and the Islamic market index return. Furthermore, the results of the Granger-causality test are in line with the results of the VAR model, suggesting that the Conventional market index return granger causes the Islamic market index return and vice versa. Generalized impulse-response functions showed that there is also bi-directional responsiveness of Islamic market index return to the shocks in the Conventional market index return and vice versa.

Furthermore, the results of the Johansen Cointegration test indicate that there is no long-run association between the two indexes. The results suggest that the movement of Islamic market index return, in the long run, can not be explained by following the behavior of the Conventional market index return since, in the long-run Islamic market index is moving independently from the Conventional market index.

Based on the results of the study, several conclusions can be highlighted. The Islamic equity market showed slightly better results compared to the Conventional one regarding risk-adjusted performance. This suggests that investors who are investing in Islamically compliant equities do not have any disadvantage; on the contrary, they can even have slightly better risk-adjusted returns. However, general results according to the abovementioned literature show mixed results related to the performance.

Furthermore, the Islamic market index is not independent of the Conventional market index impact, which suggests that in the short-run, it is affected by the movements/shocks in the Conventional market index. Therefore, if we consider diversification opportunities, the Islamic market index is not such a safe way of investing compared to the Conventional counterpart. The results cast doubts on the

diversification gains from including the Shariah-compliant stocks with the Conventional ones in a portfolio. Furthermore, there was a doubt regarding how Shariah principles make Islamic market indexes different from Conventional ones. Hammoudeh et al. (2014) suggested that both the Islamic and Conventional stock markets were driven by common economic and financial factors in most cases and that it seemed that the gap between the Islamic and Conventional stock markets decreased significantly as a result of globalization. Therefore, the Islamic stock markets were also exposed to major economic and financial shocks affecting the world finance system (Djedovic & Ergun 2018b).

The explanation for this can be found in the following arguments. In a market economy, the value of a firm can be influenced both directly and indirectly. Also, Islamic scholars have made some concessions on the permissible degree of financial leverage and the level of interest income in relation to DJIMI constituent firms. Thus, Dow Jones Islamic equity returns could be expected to be sensitive to Conventional stock index changes (Djedovic & Ergun 2018b).

However, as already mentioned, the results suggest that for the US, the movement of Islamic index return, in the long run, can not be explained by looking at the behavior of Conventional index return since, in the long run, it is moving independently from Conventional index.

This study will contribute both to the literature and practice. It will contribute to the already existing literature through the usage of the latest data covering pre and crisis periods, while the practical implication will help investors to better understand the behavior of the Islamic market index.

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Appendix

Table A1. Stability of the VAR Model

Roots of Characteristic Polynomial	
Endogenous variables: ISLAMIC_RETURN CONVENTIONAL_RETURN	
Exogenous variables: C	
Lag specification: 1 2	
Root	**Modulus**
-0.415810	0.415810
0.283115	0.283115
-0.016777 - 0.260461i	0.261001
-0.016777 + 0.260461i	0.261001
No root lies outside the unit circle.	
VAR satisfies the stability condition.	