Jurnal Ekonomi dan Bisnis Airlangga Volume 33, No. 2, June – November 2023
p-ISSN : 2338-2686 e-ISSN : 2597-4564 Page 174 – 187
Available online at https://e-journal.unair.ac.id/JEBA doi: 10.20473/jeba.V33I22023.174-187

PERFORMANCE OF MSCI ISLAMIC INDICES: A COMPARATIVE STUDY OF MALAYSIA AND GULF COUNTRIES

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ARTICLE HISTORY

Received:
21 June 2023
Revised
26 September 2023
Accepted:
10 October 2023
Online available:
30 November 2023

Keywords:
MSCI Islamic Indices,
Time Series Analysis,
Malaysia,
GCC Countries.

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ABSTRACT

Introduction: The Islamic finance industry has attracted increasing research interest, particularly in Islamic equity markets, in both academia and the corporate world during the past few decades. However, COVID-19 has caused a downturn in the Islamic stock markets. This study empirically explores and compares the performance of the MSCI Indices of Malaysia and each of the other MSCI Islamic indices in Gulf Cooperation Council (GCC) countries.

Methods: To address the research questions, time series techniques, namely, the unit root test, cointegration, long-Run Structural Model (LRSM), Vector Error Correction Model (VECM), variance decomposition, impulse response, and persistence profile techniques, were used as the main method by utilizing monthly data from August 15, 2011, to November 15, 2020.

Results: The results show that cointegration exists between the Malaysian Islamic indices and the six Islamic indices of GCC countries, which indicates that diversification benefits are limited in the long run because the indices move together. Additional results show a significant causality among the indices in both the short-run and long-run. (as shown in the LRSM and VECM tests).

Conclusion and suggestion: The findings may have significant implications for portfolio diversification of Islamic indices among investors interested in Shariah-compliant securities in Malaysia and GCC countries, particularly in the COVID-19 era. Further research can be conducted for an in-depth analysis to examine the performance of these indices in terms of risk and return after the COVID-19 era using a more advanced technique.

INTRODUCTION

The Islamic finance industry has witnessed an interrupted progression in terms of asset growth and institutional diversification globally during the last few decades, owing to its sustainable and asset-based nature, which promotes inclusive growth and

development. The industry has experienced positive growth rate and as of 2018, the global Islamic financial industry as computed by the total volume of shariah-compliant assets, is estimated to grew to US$ 2.5 trillion, covering Islamic financial institutions, capital markets, and Islamic insurance (ICD, 2019). Islamic financial investment is a system of finance in which underlying financial instruments are supposed to comply with Shariah principles. The basic Shariah principles upon which Islamic investment is based include the prohibition of interest-based transactions and gharar, risk sharing and responsibility, real assets underlying all financial transactions, and Shariah-approved activities (Srairi & Kouki, 2012). It is also prohibited from investing in economic activities that are against Islamic law, such as alcohol and pork, casinos, pornography, or similar products. Hence, Islamic financial institutions and investors looking for profit should only invest in equities listed on an Islamic index whose underlying economic activities are permissible according to the Shariah principles (Mohammad & Assistant, 2016). To meet the rising demand for shariah-compliant investment avenues in capital markets as an alternative to conventional investment instruments, the Dow Jones Islamic Market Index (DJIMI) and the FTSE Global Islamic Index Series (GIIS) were introduced in 1999 to cater to the needs of those who wish to invest in Shariah-compliant equity products both in Muslim majority and non-Muslim majority countries alike (Habib & Islam, 2014). Subsequently, numerous indices were created by Standard & Poor and MSCI Barra in 2006 and 2007, respectively (Habib & Islam, 2014). In addition, the financial markets of Malaysia and GCC countries have introduced Islamic indices through MSCI Barra to suit the needs of their investors. Since then, the Islamic equity market has become systematically significant and has experienced remarkable growth over the last two decades. As of 2019, the sector accounts for 27% of total Islamic finance assets worth approximately USD 591.9 billion (IFSB, 2019).

The outbreak of Coronavirus disease 2019 (COVID-19) whose origin can be traced back to the Wuhan province in China, has severely caused a downturn in Islamic stock markets. This study investigates the performance of the MSCI Indices of Malaysia and each of the other MSCI Islamic indices in Gulf Cooperation Council (GCC) countries. GCC countries include Saudi Arabia, Oman, Qatar, the United Arab Emirates (UAE), Kuwait, and Bahrain.

These countries have experienced relatively rapid Islamic stock growth in recent years. Accordingly, the following questions form the framework of this study.

- Is there any difference in the performance of the MSCI Indices of Malaysia and those of GCC countries?
- Does cointegration exist between Malaysian Islamic indices and Islamic indices of GCC countries?

- Is there any causality between Malaysian Islamic indices and Islamic indices of GCC countries?

The findings of this study are expected to have significant implications for investors in their decisions on portfolio diversification of Islamic stock indices in Malaysia and GCC countries. The remainder of the paper is organized as follows: Section 2 presents a brief literature review on the topic under study; Section 3 details the data and methodological approach; and Section 4 contains the research findings and conclusions. References and appendix are provided at the end.

LITERATURE REVIEW

Many empirical studies have explored Islamic Indices' performance in different parts of the world, such as Tükenmez et al. (2019), Aisjah and Hadianto (2013), and Jabeen et al. (2018). Some studies that have focused on the performance of Islamic indices between different countries have found varying results. This study focuses on Malaysia and GCC Countries (Qatar, Saudi Arabia, UAE, Oman, and Bahrain) and reviews the literature related to the performance of Islamic indices in different countries.

Dewandaru et al. (2013) analyzed the co-movements of the Gulf Cooperation Council (GCC) Islamic equity index with other Islamic equity indices in the Asia-Pacific, US, Eurozone, and ASEAN regions using multi-time scale wavelet analysis over the period–2006-2011. The authors' findings suggest that the US-born subprime crisis created both long- and short-term shocks to the volatility of all Islamic equity indices. Further, they also revealed that GCC Islamic equity index is the most vulnerable with negative shocks as a result of the subprime crisis mostly transmitted via fundamental linkages. In another study, Miniaoui (2015) used the GARCH model from January 5, 2006, to December 26, 2012, to examine the performance of Islamic and conventional indices of the Gulf countries during the 2008 financial crisis. The findings suggest that the financial crisis severely impacted volatility in some GCC markets (Kuwait, Bahrain, and the UAE), while the impact on the remaining markets (Saudi Arabia, Oman, and Qatar) and the Islamic index is insignificant. While employing the GARCH Model and capital asset pricing model (CAPM), Hooi Lean and Parsva (2012) examine the performance of Islamic Indices in Malaysia's financial times stock exchange market over the period 2007 -2011 while using daily data. The authors found that Islamic indices have high risk-adjusted returns and low risks, whereas after the financial crisis, all Malaysian Islamic indices were converted into risky and sensitive indices. Comparing the performances of Islamic and conventional Dow

Jones and Morgan Stanley indices created for Turkey between 2005-2015, Ata and Buğan (2015), while using the ADF unit root test and causality analysis, found a strong causal relationship between the positive and negative shocks of the Dow Jones market indices during the crisis period under study. A similar study was conducted by Tükenmez et al. (2019), in which the authors compared the return performances of Islamic and conventional indices from 2010 to 2019. They found that Islamic indices performed better than their counterparts.

Several studies have revealed the impact of COVID-19 on the performance of Islamic equity indices (see, for instance, Sen and Mallick, (2020); Gormsen and Koijen (2020). Takyi and Bentum-Ennin (2020) explored the potential effects of COVID-19 on stock market performance in 13 African countries using daily data from the period 1st October 1, 2019, to June 30, 2020. Using the Bayesian structural time series approach, the authors find that COVID-19 has drastically reduced stock performance before and during the pandemic, within a range of -2.7 % and -21%. In a separate study, Erdogan et. al (2020) while using the DD-GARCH method, found evidence that Islamic stock markets are more resilient to the COVID-19 pandemic shock than their conventional counterparts in Turkey. Furthermore, the study recommends that policymakers in Turkey effectively implement policies and take steps geared toward the development of the Islamic financial system. Ahmed (2020) investigated the impact of COVID-19 on the performance of Pakistan Stock Exchange by using daily data. Findings from the study suggest that only COVID-19 recoveries provide a positive prediction of the performance of the stock market indices, while positive cases and fatalities show no significant relationship with the performance of the stock market.

The studies above, including other studies conducted in this area, have focused mainly on the performance of Islamic indices in comparison to conventional indices in terms of country specificity. Consequently, there is limited empirical evidence about Islamic stock index comparisons in terms of performance in Malaysia and GCC countries; therefore, this study attempts to investigate the performance and causality relationship between Malaysia and GCC countries using data from August 2011 to November 2020.

RESEARCH METHODS

This section discusses the sample data and methodology employed to evaluate the performance of the Islamic indices. The data source used in this study was secondary data drawn from time series. Monthly data from August 15, 2011, and November 15, 2020, consisting of 119 observations, were used for analysis. The Islamic stock indices and their codes used in this study are listed in table 1.

Table 1. List of Stock Indices

Islamic Stock Indices	Code
MSCI Malaysia Islamic Index	MAL
MSCI Bahrain Islamic Index	BAH
MSCI Kuwait Islamic Index	KUW
MSCI Oman Islamic Index	OMA
MSCI Saudi Arabia Islamic Index	SAU
MSCI UAE Islamic Index	UAE

Source: Microfit Processing Result

To assess and compare the performance of MSCI Malaysian Islamic indices with those of GCC countries, the VAR/VECM approach to time series analysis was used throughout the analysis process. The Microfit 5 software was used for the analysis. First, the unit root test was used to test the stationarity of the series. Second, a vector autoregressive (VAR) model was used to evaluate short-run dynamic interactions.

Third, a cointegration analysis was conducted to investigate the linear combination of nonstationary variables. Fourth, LRSM was used to examine the long-run relationship among variables.

Finally, vector error correction and variance decomposition techniques, impulse response function (IRF), and persistence profile (PP) were used to address the issues under study.

RESULT AND ANALYSIS

Unit Root Test Results

In this step, we use three tests, namely the Augmented Dickey-Fuller test, Phillip-Perron, and KPSS tests to determine if there exist unit roots in the data using trend and intercept for variables in Level form and intercept with no trend for variables in Difference form. The null hypothesis is nonstationary, meaning that each variable contains a unit root test in its level form. The results of the unit root tests are presented in Table 2.

Table 2. Unit Root Test

Variable	Level Form			First Difference		
	ADF	PP	KPSS	ADF	PP	KPSS
MAL	-2.6030	-2.3837	0.12276	-7.6504	-8.7300	0.17412
OMA	-1.8157	-2.3076	0.15406	-6.7299	-8.7581	0.25925
QAT	-1.8577	-2.2608	0.11565	-7.5324	-8.2456	0.18576
SAU	-2.6085	-1.4488	0.06712	-6.6394	-9.1941	0.065879
UAE	-1.0876	-1.4688	0.13773	-7.7454	-9.4775	0.14244
BAH	-2.2535	-1.5021	0.10398	-5.6032	-8.3754	0.26377
KUW	-1.8328	-1.2163	0.14798	-5.1214	-8.7206	0.21182

SBC = Schwarz Bayesian Criterion; AIC = Akaike Information Criterion; CV = 95% simulated critical value.
Source: Microfit processing results

Based on the results presented in Table 2, all indices are integrated of order one, I (1), that is, the series becomes stationary after the first differencing for the ADF and PP tests. However, variables such as LUAE, LKUW, DSAU, DBAH, and DKUW had inconsistent results for AIC and SBC but had the same conclusion in the comments. As for the KPSS test, the variables MAL, QAT, SAU, UAE, and BAH are all stationary in their level form, while the variables OMA and KUW are non-stationary in their level form. Given these unit root test results, we proceed with a cointegration test.

Order of Var

Here, we determine the number of lags to be used. For ease of analysis, we use six lags based on the adjusted LR test.

Cointegration

After determining the number of lags to be used, we can now test whether there is any cointegration relationship among our variables, that is, if our variables are not spurious and move together. We used the Johansen test based on the maximal eigenvalue and trace tests. The results are summarized in table 3.

Table 3. Johansen Results for Cointegrating Vectors

Based on Maximal Eigenvalue Test				
Null	Alternative	Statistics	95% Critical Value	90% Critical Value
r = 0	r = 1	54.0559	49.3200	46.5400
r<= 1	r = 2	36.6654	43.6100	40.7600
Based on Trace Test				
Null	Alternative	Statistics	95% Critical Value	90% Critical Value
r = 0	r = 0	164.8852	147.2700	141.8200
r<= 1	r>= 2	110.8293	115.8500	110.6000

Source: Microfit processing result

From the above table, the null hypothesis is rejected because the t-test is greater than the critical value. Hence, the results above suggest that there exists one cointegration based on both the eigenvalue and trace tests. Therefore, the variables are not spurious, and we can conclude that the MSCI Islamic indices of Malaysia are integrated with those of GCC countries in the long run. This implies that the indices of both countries move together in the long run. This is in line with the findings of Saiti & Masih (2016), who observe that several major equity markets have at least one cointegration. Hence, there exists a cointegration between Malaysian Islamic indices and the Islamic indices of GCC countries.

Long Run Structural Modelling (LRSM)

After finding one cointegration, we can verify the linkages among the variables by applying long-run structural modeling. The variable of interest in this study was LMAL and was set to A1=1.

Table 4. Implication of LRSM with exact identification (LMAL=1)

Variable	Coefficient	Standard Error	T-ratio	Comments
LBAH	-1.662	0.5220	3.183	Significant
LKUW	0.803	0.2588	3.100	Significant
LOMA	-.1936	0.2606	0.742	Insignificant
LQAT	0.278	0.358	0.776	Insignificant
LSAU	-0.933	0.456	2.046	Significant
LUAE	-0.041	0.0870	0.471	Insignificant

Source: Microfit processing result

After normalizing our variable of interest to 1, the results indicate that both the LOMA and LQAT indices are insignificant. An over-identifying restriction was applied to check the significance and non-significance of the indices under study. That is, the variables to keep and, which to drop. The analysis indicates that the variables LBAH, LKUW, and LSAW have a significant long-term relationship with Malaysia's LMAL. Hence, our cointegrating equation becomes:

$$LMAL - 1.66BAH + 0.803LKUW - 0.456LSAU - 0.024$$

Vector Error Correction Model (VECM)

In this step, we test the causality among the variables to describe the short-run dynamics of the variable under study. That is, we will determine, based on the results given below, which variable is the leader (exogenous) and which is the follower

(endogenous) after already confirming from the previous step that three of the variables are moving together.

Table 5. Vector Error Correction Estimates

Variable	ECM(-1) P-Value	Implication
DMAL	-0.755(0.452)	Exogeneous
DBAH	3.5635(.001)	Endogenous
DKUW	-1.3250[.189]	Exogeneous
DLOMA	0.9433[.348]	Exogeneous
DQAT	-0.3446[.731]	Exogeneous
DSAU	1.9487[.054]	Exogeneous
DUAE	-0.5607[.576]	Exogeneous

Source: Microfit processing result

The table above shows the causal short-run relationship among the variables and indicates that all Islamic indices are leaders (exogenous) except DBAH, which is the follower. According to these results, all series will receive market shocks and transmit the effects of those shocks to the MSCI Islamic indices of Bahrain. The implication is that in the long run, investors base their decisions on all exogenous variables, which brings the endogenous variable (DBAH) into equilibrium. The speed of adjustments to the long-term equilibrium is shown by the coefficient of the error-correction term. The results indicate that if the long-term equilibrium between the variables is disturbed by any shock, it will take 3.56 days to restore the equilibrium.

Variance Decomposition

In this step, we find the relative exogeneity or endogeneity of the variables under study, which can be determined by the proportion of variance explained by its own past shocks. We used generalized variance decomposition to describe the analysis.

Table 6. Generalized Forecast Error Variance Decomposition for Variables

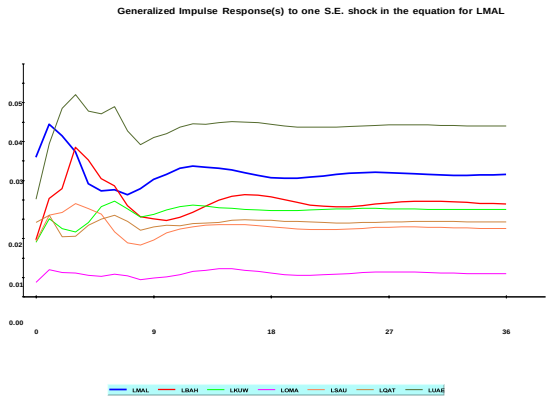
Variable	Horizon	LBAH	LMAL	LQAT	LKUW	LSAU	LUAE	LOMA
LBAH	6	24%	16%	8%	19%	12%	20%	2%
LMAL	6	4%	65%	15%	4%	5%	6%	2%
LQAT	6	3%	7%	45%	6%	20%	14%	5%
LKUW	6	7%	5%	6%	48%	26%	8%	0%
LSAU	6	1%	9%	19%	15%	42%	12%	1%
LUAE	6	9%	10%	11%	11%	16%	37%	5%
LOMA	6	3%	1%	10%	4%	6%	13%	64%

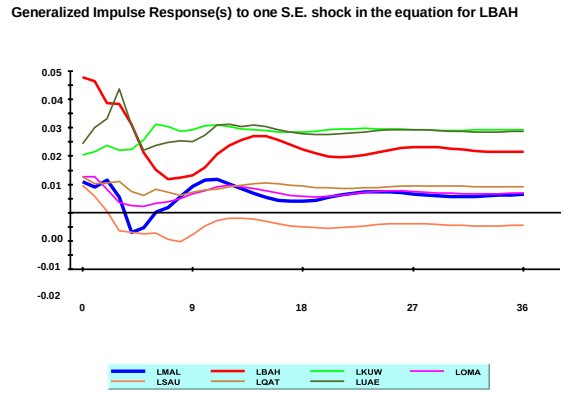
Source: Microfit processing result

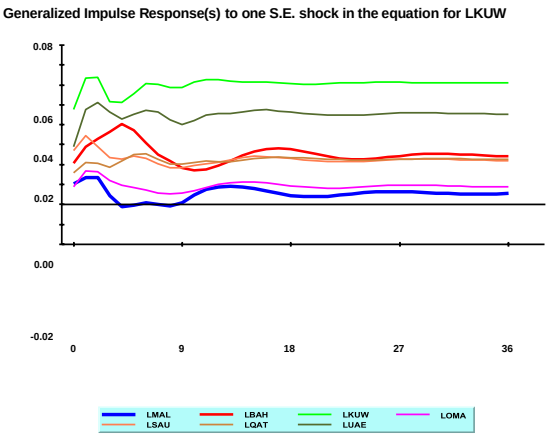
Table 6 shows that, LMAL is the most exogenous variable for up to 6 months, 65% of which is dependent on its own pass. This was followed by variable LOMA (64%), LKUW (48%), and so on. Variable LBAH is consistent with the VECM results and it is found to be less endogenous, with 24% of it being dependent on its own pass. This implies that Malaysian investors are less vulnerable to shocks in GCC countries.

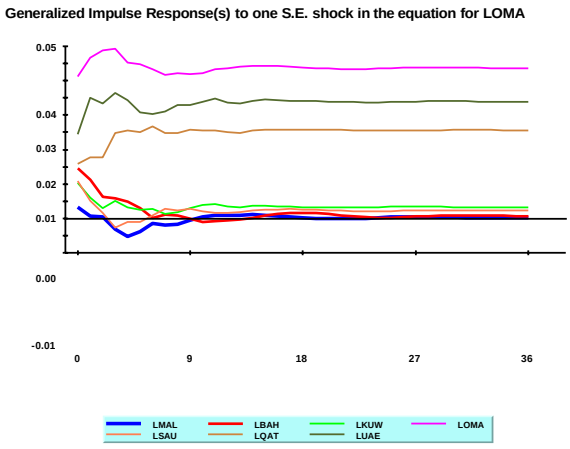
Impulse Response Functions

Here, we present the results of the VDC obtained in the previous step for each variable in a graphical form.









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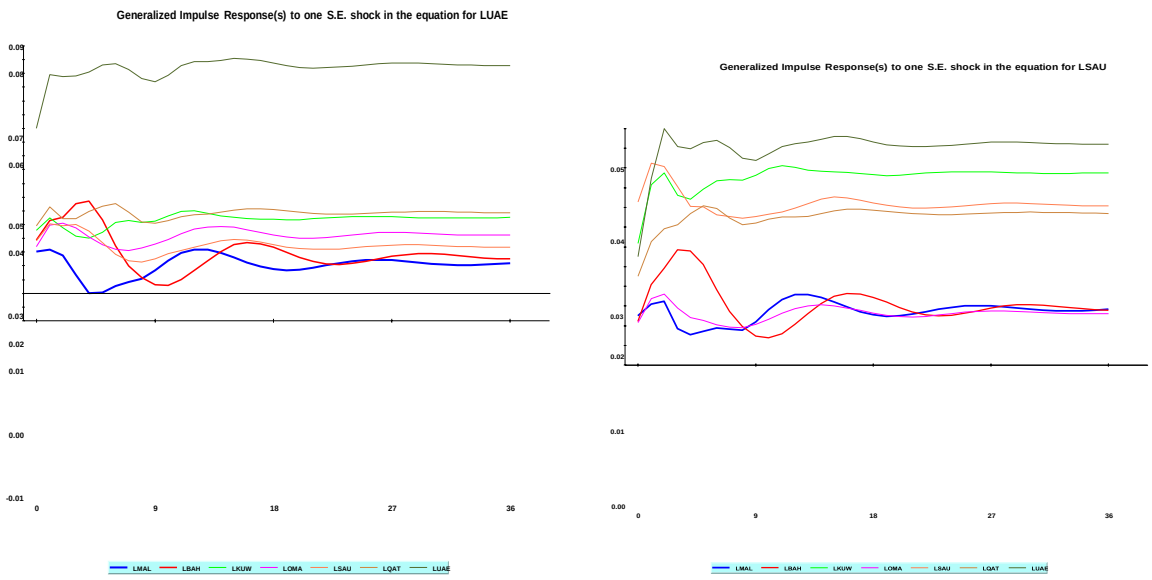

As can be observed from the charts above, there is a short-run relationship between the individual variables. Nevertheless, the shock of each variable affects the other variables. This means that any shock or disturbance on each of the variables will be felt by other variables.

Persistence Profile

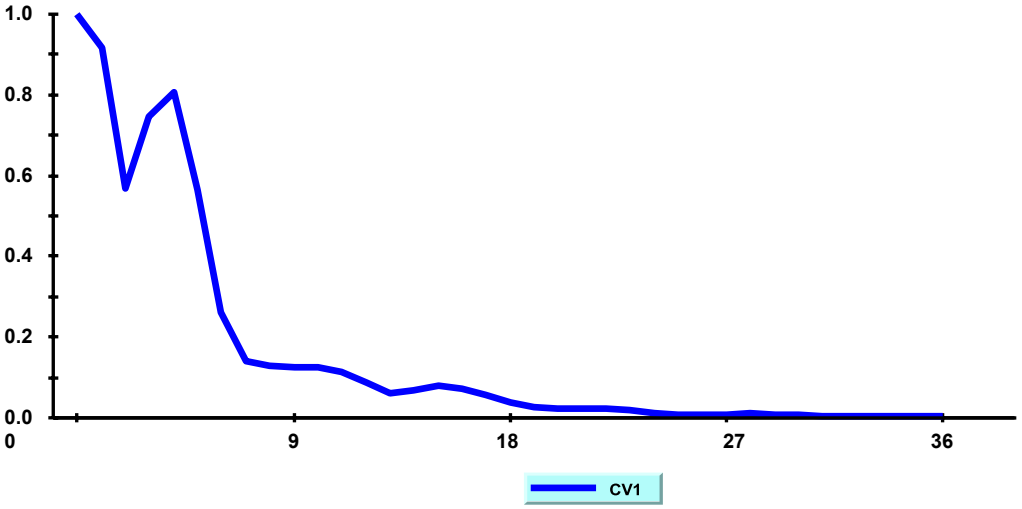

Figure 2. Persistence Profile Of The Effect Of A System-Wide Shock To CV(S)
Source: Author's Construct

Here, we illustrate the situation in which all our series are shocked and when the series returns to equilibrium when there is a system-wide shock. In the previous step, we focused on the individual series shock on other variables, whereas in this step, we want to illustrate

in the case of external shock how the variables will react in the long run. As can be seen from the chart above, it would take approximately 24 months for the cointegrating relation to return to equilibrium if a system-wide shock from outside occurred at any point.

CONCLUSION

The Islamic finance industry has attracted increasing research interest, particularly in Islamic equity markets, in both academia and the corporate world during the past few decades. This study empirically explores the performance of the MSCI Indices of Malaysia and each of the other MSCI Islamic indices in GCC countries. To achieve this, time-series techniques, namely, the unit root test, cointegration, long-run structural model, vector error correction model, variance decomposition, IRFs, and persistence profile techniques, have been used as the main method by utilizing monthly data from August 15, 2011, and November 15, 2020.

The findings show that Malaysian stock indices perform better than their GCC counterparts do. The unit root results show that the series has a unit root problem and is integrated into order one. Subsequently, according to the analysis, the study found that cointegration exists between the Malaysian Islamic indices and the six other Islamic indices of GCC countries, which indicates that, in the long run, the indices tend to move together. Although the presence of cointegration suggests diversification in the short run, investors in Malaysia may not benefit from long-run portfolio diversification in GCC countries, and vice versa. This suggests a long-run relationship among the indices under study, and hence, there are no diversification opportunities for investors in these countries according to the analyses of this study.

Moreover, the results also indicate a short-run relationship between the Islamic indices of Malaysia, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE and that of Bahrain. The implication shows that, other than Bahrain, all the other indices are exogenous/leaders, and there is a causal relationship among the series. A causal short run implies that both indices move in the same direction and tend to cause each other. This indicates the adjustment of DBAH to any deviation from equilibrium, and it will take about 3.56 days to restore equilibrium in the long run. Investors in Bahrain will monitor any movements that may occur in the other selected indices, as any external shocks, such as COVID-19, in those countries' indices will have a significant impact on Bahrain's investment.

Furthermore, VDC results indicate that over six months, LMAL leads in the long run followed by LOMA, while variable LBAH is the least follower, as evidenced in the VECM test. The leading exogeneity of variable LMAL as per the VDC result is agreeable, as Malaysia has been a leading figure in Islamic finance in general and specifically in the Islamic capital market.

The findings may have significant implications for the diversification of Islamic indices among investors interested in Shariah-compliant securities in Malaysia and the GCC countries. Further research can be conducted for an in-depth analysis to examine the performance of these indices in terms of risk and return after the COVID-19 era using a more advanced technique.

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