Original Research

Portfolio Returns of Islamic Indices and Stock Prices in GCC Countries: Empirical Evidence From the ARDL Model

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Abstract
This study aimed to analyze four portfolio returns of Islamic indices to determine the potential of attracting investments in the Islamic Stock Price Index of the six Gulf Cooperation Council (GCC) countries. Monthly data were collected from S&P Dow Jones Indices LLC reports covering the period from December 31, 2010 to December 31, 2019. The study applied the autoregressive distributed lag (ARDL) method for estimation. The findings show that the S&P GCC Composite Shariah, the S&P GCC Composite Shariah Dividend, and the S&P Shariah Domestic Total Return Index are positively related in the long run to the Islamic Stock Price Index but S&P GCC Investable Shariah is negatively related to the Islamic Stock Price Index. The error correction model (ECM) results for the short-run ARDL model indicate that the S&P GCC Composite Shariah and the S&P GCC Investable Shariah are positively related to the Islamic Stock Price Index but S&P Shariah Domestic Total Return Index is negatively related to the Islamic Stock Price Index. The main conclusion is that positive growth in the price of Islamic stocks depends on diversifying the Islamic investment portfolio to hedge against unexpected risks.

Keywords
Shariah domestic total return index, investable Shariah index, composite Shariah index, composite Shariah dividend index, stock price Islamic index, efficient market theory, dividend theory

Introduction
After the global financial crises in 2008, the financial and investment markets underwent a stage of radical transformation, and the Islamic economy has tried to demonstrate its ability to maintain its performance (Omar & Hasib, 2014). The recent development of Islamic performance indicators and Islamic related to Shariah has resulted in a significant expansion in investment and investor confidence in these financial instruments. As such, these indicators are now considered an important basis for developing financial performance (Mnif et al., 2020). Noticeable interest has been raised in Shariah-compliant investments and indicators due to the great equity in the distribution of profits from the Shariah perspective (Al-Rifai, 2012). Furthermore, Islamic indicators are more transparent than traditional performance indicators, which has led to the distribution of returns at minimum risks (Haghighi & Safari, 2020).

Islamic stock indices have gained high confidence among investors because of the possibilities of growth and safe profitability. Islamic Stock Exchange performance indicators are designed to comply with Islamic law in terms of regulating funds to avoid unethical fees (Naughton & Naughton, 2000). It is important for investors to have a clear understanding of the standards for compliance with Islamic Shariah rules (Ousama et al., 2020). In recent years, Islamic financial markets have been attracting international capital due to Islamic countries’ development, especially in the Gulf Cooperation Council (GCC) countries, which continue to progress rapidly with the accumulation of oil wealth.

Ensuring continued growth using Islamic indicators requires countries to provide investment alternatives that are compatible with innovations from major global financial centers (Lin & Kensinger, 2007). The Islamic capital markets continue to expand and achieve increasingly attractive and remarkable growth; this has encouraged financial intermediaries to provide services and products. Islamic indicators are marked by a social and moral responsibility regarding managing investments (Ousama et al., 2020). In line with the developments in the Islamic capital market, Islamic finance

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has also started to achieve liquidity in local capital markets by providing investments that are compatible with Islamic law (Hussein, 2004).

The measurement and selection of financial products should be consistent with Shariah criteria to avoid a conflict with the essence of Islam, which might create an obstacle in the development and growth of Islamic finance (Antar & Alahouel, 2020; Hakim & Rashidian, 2000). Financial products are evaluated through the Shariah Supervisory Board in accordance with Islamic Shariah, and products that do not conform to Shariah principles are excluded (Mansor & Bhatti, 2011). This evaluation may differ from indicator to indicator based on the data; therefore, the results may differ in terms whether or not products are accepted for trading in the Islamic market (Hashim, 2008). Meanwhile, many researchers, such as Mezghani and Boujelbène (2018) and Lin and Kensinger (2007), have shown that Islamic products and services are affected by consistent standards in Islamic law and that standardization is not easy due to the presence of different product brands.

By providing investment safety through their financial instruments, financial markets that are in accordance with Islamic Shariah are expected to have a prominent position in the Islamic stock market (Miglietta & Forte, 2007). Islamic indicators use special criteria to select companies for the financial market, and each Islamic market index includes specific rules, especially those of Islamic law (Fowler & Hop, 2007).

The GCC countries have attempted to differentiate between the returns of Islamic and conventional funds while trying to find solutions to the constraints of asset investment selection (Miniaoui et al., 2015). Providing products and services that comply with Shariah is not easy to achieve due to the existence of controls and standards that govern Islamic transactions. The present study aimed to address a research gap by answering the following question: to what extent can an investor build a competitive Islamic investment portfolio in understanding stock price behavior. This can help financial data users make better financial standard decisions and judgments for investment or the establishment of diversified full-fledged Islamic stock markets within mutual funds in emerging Islamic markets. Furthermore, knowledge of stock market co-movements is important for designing an investment portfolio for international investors. The empirical evidence of the importance of these markets lies in the implications of economically stable policies and international cooperation among the GCC countries. Undoubtedly, financial markets are integrating around the world; therefore, it is necessary to understand integration in financial markets in order to gain insights into the practical mechanisms or dynamics driving these relationships. Finally, the current paper shows different long- and short-term relationships between Islamic portfolio indices and stock prices over the period of 2010–2019.

The rest of the study is organized as follows. Section “Return of Islamic Indices and Islamic Stock Prices in the GCC Countries” presents an overview of the return of Islamic indices and the Islamic stock prices in the GCC countries. The literature review is given in Section “Literature Review.” Section “Study Methodology” outlines the methodology, and Section “Results and Discussion of Empirical Findings and Diagnostic Tests” includes the empirical results and discussion. Finally, the conclusion and policy implications are provided in Section “Conclusion and Policy Implications.”

**Return of Islamic Indices and Islamic Stock Prices in the GCC Countries**

In recent years, the GCC countries have witnessed stable growth in their markets compared with the rest of the world. However, the recent decline in oil prices is pushing these countries to develop and deepen their markets. Despite progress in this area, many challenges remain (Mezghani & Boujelbène, 2018). The Saudi Vision 2030 and the Oman...
Vision 2040 are particularly interesting as they push for an accelerated series of financial market and economic reforms, which are expected to impact the entire region. The Islamic financial markets in the GCC countries are still in their inception due to government control over the ownership of assets; the private sector is trying to gradually impose its hegemony by easing laws on foreign investment.

The United Arab Emirates (UAE) led reforms to open its markets to foreign flows and facilitate many rules for foreign qualified investors to bring investments into its stock markets. Currently, domestic commercial and institutional flows are still the biggest drivers for the stock markets in the GCC countries (Mezghani & Boujelbène, 2018). Furthermore, the trading volume is divided across many exchanges with few listings except in the case of the Saudi Stock Exchange (Dabeerru, 2006).

In recent years, the GCC countries have grown their Islamic capital markets globally through the issuance of sukuk in U.S. dollars (Syed & Bajwa, 2018). The management of GCC assets in Kuwait has shown distinguished performance in recent years, and the assets have all exceeded their benchmarks (Dabeerru, 2006). The GCC countries’ funds have achieved outstanding performance in maximizing Islamic returns that are in line with the provisions of Islamic Shariah (S&P Dow Jones Indices LLC Reports, 2010–2019).

The strong growth of the Dow Jones Indices LLC Reports, 2010–2019. The Saudi financial market is the most preferred one because it has adequate demographic characteristics in accordance with Islamic law spending (Merdad et al., 2010). However, the remaining GCC financial markets have benefits from government spending on major industrial projects, which will contribute to revitalizing the financial markets (Mezghani & Boujelbène, 2018).

Essentially, stock price indices adjust quickly to the availability of new information in the financial market. Hence, the current study focuses on how the effective market theory protects the rights of investors in building a fair investment portfolio with ethical characteristics and good governance with a fair distribution of profits to investors. This theory was adopted, especially after the financial crises, so that its adoption works to mitigate the achievement of an extraordinary financial crisis and thus achieve extraordinary returns for any investment group (Ruhani et al., 2018). The effective market theory has achieved a prominent place in understanding stock behavior through time series models. In terms of the theory, Fama (1970) defined an effective market as one that reflects all information and data about the value of a company; therefore, this research is constantly being performed?

The Standard and Poor (S&P) Shariah of GCC Islamic Index was established in 2006 due to the increasing demand for Islamic financial products (S&P Shariah Indices Index Methodology, 2007). A Shariah supervisory body has been organized to include products that comply with Islamic Shariah and exclude products that do not. The S&P Shariah of the GCC Islamic Index was launched as the first indicator in the Arab region as GCC countries has similar social and cultural characteristics. The Saudi index was created first in 1996; the rest of the indices followed later, and the last one was established in 2007. The indicators refer to each country’s willingness to invest and liquidity ability. Each share, in line with Shariah, covers 60% of the market value of the state index. This percentage depends on the degree of compliance of the products with Islamic Shariah. Islamic indicators are evaluated on a continuous basis through their compliance with approved financial ratios according to the available financial and monetary leverage, the size of revenues and the determination of the percentage of profits and distributions to filter and select products that are compatible with Islamic Shariah.

The performance portfolio of the S&P Shariah Domestic Total Return Index (TOTRETU) is calculated according to the basic weighted sum methodology as it reflects the market value adjusted for flotation for a specified period. After adjusting the float, the TOTRETU is calculated by multiplying the share price by the number of available shares. Islamic indices include dividends and price adjustments and are thus reflected in the market value. Also, when using a stock replacement strategy, the index is modified so that an adjustment in the market value does not lead to an adjustment of the index level. The return index is calculated by the total and net cash profits that are reinvested. Tax is deducted for the reinvestment of profits, and the tax rate includes institutions that do not reflect double taxation. Both price return and total return index series are calculated. The cash dividend is applied at a prior dividend date.

Literature Review

The primary purpose of Islamic stock markets is to enable the flow of funds from units that contain financial surpluses to units of deficit within financial movements that do not allow riba. The units of deficit include business sector projects that issue equity capital to finance new funds. However, there are operational and financial risks surrounding the financing and investments of Islamic stock capital that must be absorbed (Noor et al., 2018). Furthermore, Islamic financial markets, including the long-term performance of the Islamic stock, must be evaluated (Albaity & Said, 2016). Indeed, during the 2008 global financial crisis, the decline in returns, losses and economic collapse were in traditional financial systems rather than in Islamic markets (Shiller, 2008), which support Islamic operations based on Shariah, such as profit and risk sharing without speculation (Aroui et al., 2013; Causse, 2012; Jawadi et al., 2014). Shariah generates a safe investment and minimizes risk, which, in theory, implies an effective financial industry. Markowitz (1952) pointed out in the efficient market hypothesis that financial
markets require optimal allocation and significant diversification as well as transparency. However, the literature on Islamic financial markets is still under development given the short history of their operations. In addition, comparing the performance of Islamic indicators is not easy due to the existence of an ethics index in the Islamic industry (El Khamlichi & Laarad, 2012). Furthermore, the ownership structure depends on the cost, diversification, and risk of products (Faysal et al., 2020). In view of these perspectives, the main question in the current study focused on whether there a long-term relationship between portfolio returns of Islamic indices and stock prices in GCC countries could be found using the ARDL model.

To answer this question, Abraham and Alsakran (2002), Adigwe et al. (2017), Awan and Subayyal (2016), Akbar et al. (2010) explained the relationship between Islamic returns of stock markets and Islamic stock prices using the market efficiency theory and the dividend theory. Therefore, the finance perspective supports the use of the theory of market efficiency (EMH) with Islamic markets (Khan, 2010). Indeed, Islamic markets suggest less volatility and risk and more stable stock prices, indicating an efficient system. In addition, Shariah supports standard financial risk and specific risk, which are used as the characteristics of Islamic finance. Finally, Engle et al. (2013), Hassan and Girard (2010) indicated that Islamic stock markets focus on economic, social, and societal matters.

At least four types of research emerged during the literature review. First, a number of studies demonstrated the efficiency of the Islamic capital market and dividend markets. For instance, according to efficient capital market theory, stock prices adapt to the information available. The market efficiency theory includes assumptions about the relationship between policy makers and stockbrokers in the stock industry. Therefore, the future performance of companies is reflected in the stock prices in Islamic markets. As a result, stock prices should be used as an indicator to evaluate performance. Furthermore, the dividend theory simplified the valuation of stock by supposing that the dividend of the stock price grows at a constant rate. There are no long-term abnormal returns that support the inefficient market hypothesis; however, there is a significant relationship between the buy-and-hold method and the semi-strong efficiency of the stock market (Albaity & Said, 2016). Hakim and Rashidian (2000) analyzed the Dow Jones Islamic Market Index (DJIM) with the Wilshire 5000 and 3-month T-bill performance, finding low performance in the Islamic index. Mnif et al. (2020) indicated a strong correlation between prices and returns and demonstrated that DJIM is the most efficient market. The Islamic stock markets of Middle East and North Africa (MENA) countries and the integration of financial markets were inefficient because of the predictability of these markets (Nor, 2012). Syed and Bajwa (2018) explained that the Saudi market significantly reflects abnormal returns and post-earnings announcement drift around earning announcement dates, indicating that the Saudi stock market does not bear a semi-strong form of the efficient market hypothesis (EMH). Omar and Hasib (2014) explained that performance based on the DJIM United States (US) Index (IMUS) is better and more efficient than other Islamic tools.

Second, significant Islamic diversification benefits or investments in different regions when investing in Islamic stock assets were noted. For instance, Elfakhani & Kabir (2005) evaluated the performance of Islamic mutual funds and found no difference between the funds and no effect of the Islamic mechanism of investments. Majid and Kassim (2010) used the ARDL model over the period of 1999–2006 to explore integration of the Islamic stock market; their findings focused on interlinkages between Islamic stock markets, and the diversification benefits declined when investing in stocks globally. Meanwhile, Tulasmi and Trihariyanto (2016) used the Sharpe ratio, the Treynor ratio and Jensen’s alpha to evaluate the returns of the Islamic stocks of Malaysia and Indonesia and found that investors had more returns in the Indonesian Islamic markets than in the Malaysian markets due to differences in the macroeconomic determinants of the Islamic stock. This result was confirmed by Majid (2016), who found that economic development, money supply, interest rate and exchange rate affected the Islamic stock market. Due to the small and illiquid stock market and difficulties in generating foreign trading volumes, many countries create linkages with other Islamic exchange markets (Hassan & Yu, 2007). According to Antar and Alahouel (2020), there are some regional differences in stock market performance; thus, MENA investment portfolio managers should not invest in indices in Europe, the United Kingdom or emerging markets.

Third, other studies investigated risks according to sacred and non-sacred months, crisis and non-crisis periods and discrepancies between Islamic indicators. For instance, Saiti et al. (2014) explained the volatility shocks of traditional and Islamic finance returns in terms of taking risks. They applied the dynamic multivariate generalized autoregressive conditional heteroskedasticity (GARCH) method, showing that traditional and Islamic stock indices provide a special avenue for the U.S. market as well as better diversification. Other studies involving performance analysis of global Islamic indices include Arouri et al.’s (2013) examination of the impact of the global financial crisis on three DJIMs to assess the financial system and provide solutions to its flaws. In addition, Islamic financial products have higher returns in light of systemic risks that include these investment portfolios. Meanwhile, Al-Zoubi and Maghyereh (2007) used value-at-risk (VaR) methodology to compare the risk performance of the Dow Jones Islamic Index (DJIIS) with the DJIM World Index over the period of 1996–2005. The findings showed that there was a significantly lower risk on the Islamic index than on the market basket of stocks because of the sharing profit and loss as per Shariah Miglietta and Forte (2007) compared the Financial Times Stock Exchange (FTSE)
Global Islamic Index Series to a social index, finding a discrepancy between Islamic indicators regarding investing in the oil and gas sector. According to Hashim (2008), although the FTSE Islamic Index is riskier, its performance is more effective, whereas the Socially Responsible Investing (SRI) Index has unusual positive returns. Girard and Hassan (2008) applied the Sharpe ratio, the Treynor ratio and Jensen’s alpha in a comparison of Islamic and traditional indicators, demonstrating that the method of diversification must be considered to find funds. The Islamic funds of the GCC countries focus on competitive and international equity market benchmarks (Hoepner et al., 2011). Many studies used qualitative indicators to assess the performance of Islamic financial market shares, such as financial regulations, principles and market framework systems (Fowler & Hope, 2007; Naughton & Naughton, 2000). Al-Najaf et al. (2018) used the autoregressive integrated moving average (ARIMA) time series model to test the infrastructure of capital markets in sacred and non-sacred months, finding no significant relationship between stock prices and sacred and non-sacred month markets, while the Iranian stock market had significant effects on non-sacred month markets. Al-Rifai (2012) found that Islamic indicators in Malaysia achieved high and positive returns during non-crisis periods, while the DIIM exceeded the traditional indicators since many operations complied with Shariah. However, Kassim (2013) documented that Islamic stock market integration caused changes during financial crisis and non-crisis periods. The policy maker in the financial Islamic markets set international policies to develop a sound Islamic stock exchange in different countries.

Finally, a few studies investigated stock prices, structural capital and trading volume in long- or short-run Islamic markets. For instance, Sadeghi (2011) showed long- and short-term positive results for returns of added shares and liquidity matching with the Shariah of the DJIM. Sadeghi (2008) focused on the compliance index of the Malaysian Stock Exchange to examine the liquidity of stocks by estimating extraordinary returns, showing that the Islamic Compliance Index has a positive impact on the liquidity of the stock and financial performance in the long term. Hassan and Girard (2010) examined the degree of diversification and choice between Islamic stocks and the extent of their impact on financial performance, finding no differences between Islamic and non-Islamic stock indices, which outperformed Islamic indicators in the early stages but were similar in terms of the degree of risk and diversification in both indicators. In addition, Mansor and Bhatti (2011) showed that risk-adjusted returns and beta for the Kuala Lumpur Shariah Index (KLSI) were in the Islamic financial markets in long run more than the short run. Shaikh et al. (2019) explained that the relationship between beta and returns is positive in large markets compared with small market shares. Ousama et al. (2020) showed that structural capital has an insignificant effect on the financial performance of Islamic banks compared with employed capital and human capital.

To our knowledge, the current paper is the first attempt to fill this gap by investigating the efficiency of several Islamic return indicators on stock prices using monthly time series Shariah data for the period of 2010–2019. These indicators are considered an Islamic performance portfolio for the financial market. To our knowledge, this is the first study to examine the effect of Islamic indicators on stock prices in the GCC countries and the long- and short-term relationships between all of the variables. Although assessing the effect of the Islamic performance portfolio on the Islamic stock market has become necessary to assess the health of financial markets, it has not yet received the required attention. Therefore, the current study had a clear purpose in analyzing the performance of these markets and the extent of their interaction with each other in evaluating stocks. Overall, the main investigation in the current study offers interesting result that the Islamic stock markets of GCC countries are efficient and provide attractive investment opportunities in the long run rather than the short run.

**Study Methodology**

This quantitative study used time series analysis for the six GCC countries (Qatar, UAE, Saudi Arabia, Kuwait, Oman, and Bahrain). Specifically, average monthly time series data from December 2010 to December 2019, which comprised 120 observations, was used. The data were collected from the monthly S&P Dow Jones Indices LLC Reports (2010–2019). We used four proxy measures of the portfolio return of Islamic indices in the GCC countries—TOTRETU, the S&P GCC Investable Shariah (INVES), the S&P GCC Composite Shariah (COMPS), and the S&P GCC Composite Shariah Dividend (DIVID)—and the Islamic Stock Price Index (DOMPRIC) as the dependent variable. All variable definitions are available in the appendix.

Time series analysis includes methods that extract meanings to describe data properties and estimate future values from previously available values. In other words, many business sectors use time series analysis as a statistical tool to analyze data point patterns. The major pattern points refer to trend, seasonality, cyclicity, and irregularity. This method is heavily used in financial and business forecasts based on historical values; it adds value by assisting decision makers in organizations in the planning industry. Time series analysis can be divided into two methods: the frequency domain method, which includes wavelet analysis and spectral analysis, and the time domain method, which includes cross-correlation and autocorrelation. In addition, a parametric approach can be adopted to address the underlying stationary process hypothesis via small parameters, while a non-parametric approach can estimate covariance instead of assuming any structure. These statistical tools are widely used in financial and economic studies, such as those considering the price of a security and over a range of investments; their robustness has been confirmed.
The limitation of the current study is the period of study because data before 2010 were not available. The results of this study highlighted the wealth of the GCC region enhance its investments compared to other regions. Furthermore, this period is after the financial crises, and most GCC countries have worked heavily to develop the infrastructure of their financial markets. The main model of this study is as follows:

\[ \text{DOMPRIC}_{it} = \beta_0 + \beta_i \text{Independent.Var}_{it} + \epsilon_{it}, \]

where DOMPRIC\(_{it}\) is the Islamic Stock Price Index proxy of country \(i\) at time \(t\) as a dependent variable. The Independent Var\(_{it}\) are the proxies for TOTRETU, INVES, COMPS, and DIVID. This study used EVIEWS 10 statistical software to test the hypotheses and many tests to ensure robustness: unit root tests; co-integration of lag criteria; bound tests; long- and short-run ARDL error correction models (ECMs); diagnostic tests, such as serial correlation; and normality, stability and heteroskedasticity tests.

First, we ran descriptive statistics to show the characteristics of the variables followed by unit root tests and bound tests for cointegration after selecting the lag criteria (Pesaran et al., 2001). Since the data were integrated at the first difference, we were able to use the ARDL bound test. Even in the presence of endogeneity, fair results emerged in the \(t\)-statistic value of the lag modification of the ARDL model. Hence, to analyze cointegration among the TOTRETU, INVES, COMPS, DIVID and DOMPRIC proxies, we used the ARDL model.

The current study applied ARDL bound testing using the following equations:

\[
\Delta \text{DOMPRIC}_j = \beta_0 + \sum_{k=1}^{w_1} \beta_{1k} \Delta \text{DOMPRIC}_{j-1} + \sum_{k=1}^{w_2} \beta_{2k} \Delta \text{DIVID}_{j-1} + \sum_{k=1}^{w_3} \beta_{3k} \Delta \text{TOTRETU}_{j-1} + \sum_{k=1}^{w_4} \beta_{4k} \Delta \text{INVES}_{j-1} + \sum_{k=1}^{w_5} \beta_{5k} \Delta \text{COMPS}_{j-1} + \delta_1 \text{DOMPRIC}_{j-1} + \delta_2 \text{DIVID}_{j-1} + \delta_3 \text{TOTRETU}_{j-1} + \delta_4 \text{INVES}_{j-1} + \delta_5 \text{COMPS}_{j-1} + \mu_i
\]

\[
\Delta \text{DIVID}_j = \beta_0 + \sum_{k=1}^{w_1} \beta_{1k} \Delta \text{DIVID}_{j-1} + \sum_{k=1}^{w_2} \beta_{2k} \Delta \text{DOMPRIC}_{j-1} + \sum_{k=1}^{w_3} \beta_{3k} \Delta \text{TOTRETU}_{j-1} + \sum_{k=1}^{w_4} \beta_{4k} \Delta \text{INVES}_{j-1} + \sum_{k=1}^{w_5} \beta_{5k} \Delta \text{COMPS}_{j-1} + \delta_0 \text{DIVID}_{j-1} + \delta_1 \text{DOMPRIC}_{j-1} + \delta_2 \text{TOTRETU}_{j-1} + \delta_3 \text{INVES}_{j-1} + \delta_4 \text{COMPS}_{j-1} + \mu_i
\]

\[
\Delta \text{TOTRETU}_j = \beta_0 + \sum_{k=1}^{w_1} \beta_{1k} \Delta \text{TOTRETU}_{j-1} + \sum_{k=1}^{w_2} \beta_{2k} \Delta \text{DOMPRIC}_{j-1} + \sum_{k=1}^{w_3} \beta_{3k} \Delta \text{DIVID}_{j-1} + \sum_{k=1}^{w_4} \beta_{4k} \Delta \text{INVES}_{j-1} + \sum_{k=1}^{w_5} \beta_{5k} \Delta \text{COMPS}_{j-1} + \delta_0 \text{TOTRETU}_{j-1} + \delta_1 \text{DOMPRIC}_{j-1} + \delta_2 \text{DIVID}_{j-1} + \delta_3 \text{INVES}_{j-1} + \delta_4 \text{COMPS}_{j-1} + \mu_i
\]

\[
\Delta \text{INVES}_j = \beta_0 + \sum_{k=1}^{w_1} \beta_{1k} \Delta \text{INVES}_{j-1} + \sum_{k=1}^{w_2} \beta_{2k} \Delta \text{DIVID}_{j-1} + \sum_{k=1}^{w_3} \beta_{3k} \Delta \text{TOTRETU}_{j-1} + \sum_{k=1}^{w_4} \beta_{4k} \Delta \text{DOMPRIC}_{j-1} + \sum_{k=1}^{w_5} \beta_{5k} \Delta \text{COMPS}_{j-1} + \delta_0 \text{INVES}_{j-1} + \delta_1 \text{DIVID}_{j-1} + \delta_2 \text{TOTRETU}_{j-1} + \delta_3 \text{DOMPRIC}_{j-1} + \delta_4 \text{COMPS}_{j-1} + \mu_i
\]

\[
\Delta \text{COMPS}_j = \beta_0 + \sum_{k=1}^{w_1} \beta_{1k} \Delta \text{COMPS}_{j-1} + \sum_{k=1}^{w_2} \beta_{2k} \Delta \text{DIVID}_{j-1} + \sum_{k=1}^{w_3} \beta_{3k} \Delta \text{TOTRETU}_{j-1} + \sum_{k=1}^{w_4} \beta_{4k} \Delta \text{INVES}_{j-1} + \sum_{k=1}^{w_5} \beta_{5k} \Delta \text{DOMPRIC}_{j-1} + \delta_0 \text{COMPS}_{j-1} + \delta_1 \text{DIVID}_{j-1} + \delta_2 \text{TOTRETU}_{j-1} + \delta_3 \text{INVES}_{j-1} + \delta_4 \text{DOMPRIC}_{j-1} + \mu_i
\]

\[\Delta\] was added for the above equations at the first difference, \(\mu_i\) is the residual term of the bound tests and \(H_0 = \nu_0 = \nu_1 = \nu_2 = \nu_3 = \nu_4 = \nu_5 = 0\). The null hypothesis was rejected when the \(F\)-test was above the upper bound value. Otherwise, the null hypothesis was accepted. If the value was between the upper and lower bound tests, it was considered inconclusive. We used the following ECM to estimate the short-run relationships:
The value of lagged $ECT_{t-1}$ is negative and significant as $\lambda_1$ to $\lambda_5$ refer to the speed of adjustment as a lagged error correction. The selection of the study variables in relation to the Islamic performance portfolio was based on the market efficiency hypothesis, which assumes a relationship between returns and share price, assuming that there is complete information for all investors. All available performance indicators, were selected to examine the long- and short-term relationships with the share price to build a strategy around the stock’s behavior. Investors rely on investing with safety and a specific degree of certainty. The GCC countries were selected because of the need to diagnose these important markets in a region rich in oil wealth, which may be considered the main driver for financial market efficiency.

### Results and Discussion of Empirical Findings and Diagnostic Tests

#### Descriptive Statistics

As shown in Table 1, the logarithm described the variables and reflected the main model of the study. The table includes the mean, median, maximum, and minimum for the described variables. The average of the standard deviation ($SD$) of all variables is less than 0.06. The coefficient of variation is below 1, indicating that the study data had a low variance.

To determine symmetry, skewness measures the relative size of the tails to the left and right of the center point. For the univariate data $Y_1, Y_2, Y_3, \ldots, Y_n$, the equation for skewness is:

$$SK_1 = \left\{ \sum_{i=1}^{n} (a - \bar{a})^3 / N \right\} / SD^3,$$

where $SD$ is the standard deviation, $\bar{a}$ is the mean, and $N$ is the number of data points. In addition, $SD$ measures depend on $N$ rather than $N - 1$ in the dominator. The above skewness equation represents the Fisher–Pearson coefficient of skewness. The other adjusted Fisher–Pearson coefficient of skewness is derived from the following equation:

$$SKN_1 = \sqrt{N(N-1)} \sum_{i=1}^{n} (a - \bar{a})^3 / N \{ / SD^3.$
There is an adjustment for sample size 1, as $N$ becomes large. Skewness refers to the normal distribution, which is equal to 0; this means that any symmetric data should have a skewness near 0. If the values are negative, the data are skewed left, and the left tail is long relative to the right tail; if the values are positive, the opposite is true. Joanes and Gill (1998) show skewness as Galton skewness or Bowley skewness via the equation below:

$$GS = \frac{q_1 + q_1 - 2q_2}{q_3 - q_1},$$

where $q_1$ refers to the lower quartile, $q_2$ is the median, and $q_3$ is the upper quartile. The Pearson 2 skewness coefficient is as follows:

$$SK_2 = 3 \left( \bar{A} - \bar{a} \right) / R,$$

where $\bar{A}$ is the sample median.

Kurtosis indicates whether data are heavy tailed (high kurtosis) or light tailed (low kurtosis) relative to a normal distribution. The value related to kurtosis of the normal distribution is equal to 3 (Westfall, 2014).

In the univariate data $Y_1, Y_2, Y_3, \ldots Y_n$, the equation for kurtosis is:

$$SK_k = \frac{\sum_{i=1}^{n} (a - \bar{a})^4 / N}{SD^4},$$

where $SD$ is the standard deviation, $\bar{a}$ is the mean, and $N$ is the number of data points. In addition, $SD$ measures should depend on $N$ rather than $N - 1$ in the dominator. Balanda and MacGillivray (1988) used the following formula, depending on a kurtosis of 3 for a standard normal distribution:

$$SK_k = \frac{\sum_{i=1}^{n} (a - \bar{a})^4 / N}{SD^4} - 3.$$

Table 1 shows that the average skewness of the data is 0.63; when skewness is between −1 and −0.5 or between 0.5 and 1, the data are moderately skewed. The average kurtosis of the data was 3.10; when kurtosis is near 3, the data are mesokurtic. In other words, the kurtosis statistic was normally distributed, and the distribution of extreme values was similar to characteristics of normal distribution.

### Unit Root Tests

First, we run unit root tests to show the stationarity of variables. The augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) test results are presented in Table 2 (Dickey & Fuller, 1979; Phillips & Perron, 1988). As a rule, the Order I (2) should be avoided when using the ARDL model as the data would be invalid in this order. Hence, there was no unit root test, and the variables were stationary and integrated at the Order I (1).

### Table 1. Descriptive Statistics.

| Item       | COMPS       | DIVID       | DOMPRIC    | INVES       | TOTRETU     |
|------------|-------------|-------------|------------|-------------|-------------|
| Mean       | 2.777087    | 2.040051    | 2.891780   | 2.029606    | 2.157558    |
| Median     | 2.765639    | 2.020070    | 2.878018   | 2.033001    | 2.198944    |
| Maximum    | 2.918607    | 2.211388    | 3.053224   | 2.165719    | 2.289567    |
| Minimum    | 2.700557    | 1.950121    | 2.793469   | 1.944976    | 1.987666    |
| SD         | 0.044114    | 0.062901    | 0.053252   | 0.051649    | 0.092529    |
| Skewness   | 1.257748    | 1.124307    | 0.850573   | 0.406664    | −0.470759   |
| Kurtosis   | 4.416185    | 3.273065    | 3.483275   | 2.865568    | 1.646473    |
| Sum        | 333.2504    | 244.8061    | 347.0136   | 243.5527    | 258.9069    |
| Sum Sq. Dev.| 0.231580   | 0.470825    | 0.337451   | 0.317444    | 1.018830    |
| Observations | 120        | 120        | 120        | 120        | 120        |

Source. E-views 10 output.

### Table 2. Augmented Dickey–Fuller and Phillips–Perron tests is a unit root test.

| Variable | Individual intercept | ADF (sig) | Order | Individual intercept and trend | ADF (sig) | Order | Individual intercept | PP (sig) | Order | Individual intercept and trend | PP (sig) | Order |
|----------|----------------------|-----------|-------|--------------------------------|-----------|-------|----------------------|----------|-------|--------------------------------|----------|-------|
| COMPS    | −11.40852***         | 1(1)      |       | −11.33720***                   | 1(1)      |       | −11.46823***         | 1(1)      |       | −11.39226***                   | 1(1)      |       |
| DIVID    | −9.887368***         | 1(1)      |       | −9.838879***                   | 1(1)      |       | −9.883853***         | 1(1)      |       | −9.834842***                   | 1(1)      |       |
| DOMPRIC  | −9.733654***         | 1(1)      |       | −9.683406***                   | 1(1)      |       | −9.683184***         | 1(1)      |       | −9.623307***                   | 1(1)      |       |
| INVES    | −10.73900***         | 1(1)      |       | −10.69237***                   | 1(1)      |       | −10.75933***         | 1(1)      |       | −10.70990***                   | 1(1)      |       |
| TOTRETU  | −10.42481***         | 1(1)      |       | −10.38777***                   | 1(1)      |       | −10.43615***         | 1(1)      |       | −10.41333***                   | 1(1)      |       |

Source. Software of E-views 10 output.

***p < .01.
The lag criteria for co-integration were run for this model. As shown in Table 3, the most appropriate lag, as per the Akaike information criterion (AIC), was lag 3. This criterion is the best option when the sample size is small.

### Table 3. Co-Integration: Lag Length as Per Criterion.

| Lag | LogL     | LR         | FPE         | AIC         | SC          | HQ          |
|-----|----------|------------|-------------|-------------|-------------|-------------|
| 0   | 1,252.919| NA         | 3.11e–16    | −21.51585   | −21.39716   | −21.46767   |
| 1   | 2,074.412| 1,558.004  | 3.39e–22    | −35.24849   | −34.53635*  | −34.95940*  |
| 2   | 2,096.485| 39.95955   | 3.57e–22    | −35.19802   | −33.89244   | −34.66803   |
| 3   | 2,124.915| 49.01637*  | 3.38e–22*   | −35.25715*  | −33.35812   | −34.48625   |
| 4   | 2,133.826| 14.59592   | 4.52e–22    | −34.97976   | −32.48728   | −33.96795   |

Source. E-views 10 output.

Note. AIC = Akaike information criterion; LR = sequential modified LR test statistic (each test at 5% level); SC = Schwarz information criterion; HQ = Hannan-Quinn information criterion; FPE = Final prediction error.

*The best lag order as per criterion.

### Table 4. Serial Correlation and Heteroskedasticity Test.

| Serial correlation: LM test |  |
|-----------------------------|---|
| **F-value**                 | 1.427187 |
| **Obs. × R²**               | 4.897682 |

| Heteroskedasticity test: BPG |  |
|------------------------------|---|
| **F-value**                  | 1.152362 |
| **Obs. × R²**                | 17.09758 |

Source. E-views 10 output.

Note. LM = Lagrange multiplier; BPG = Breusch–Pagan–Godfrey.

### Table 5. Normality Test and Ramsey RESET Test for Misspecification.

| Test of normality | J-B test (Sig. value) |  |
|-------------------|-----------------------|---|
| **Ho:** Residuals are normal | 0.395039 (0.820764) |

| Test of Ramsey RESET | t-value | 1.867841 | 100 | 0.0647 |
|----------------------|---------|----------|-----|--------|
| **F-value**          | 3.488828 | (1, 100) | 0.0647 |

| Test of stability | CUSUM | CUSUM square |
|-------------------|-------|--------------|
| Stable            |       |              |

Source. E-views 10 output.

### Co-Integration: Lag Length Criteria

The lag criteria for co-integration were run for this model. As shown in Table 3, the most appropriate lag, as per the Akaike information criterion (AIC), was lag 3. This criterion is the best option when the sample size is small.

### Diagnostic Tests

Table 4 shows the diagnostic test results. The $F$-values for the serial correlation Lagrange multiplier (LM) test and the Breusch–Pagan–Godfrey (BPG) heteroskedasticity test were 1.427187 and 1.152362, respectively, with a significance of more than 5%. This means that the study data had no heteroskedasticity as well as no serial correlation issues.

The normality test, the Ramsey RESET test and the stability test were also run, and the findings shown in Table 5 indicate that the data were stable as the RESET test and the normality of the J-B test with a significance of more than 5%. Furthermore, the results were not spurious; Figures 1 and 2 present the stability of the coefficient, which is indicated by the blue line included between the two red lines.
goodness of fit and satisfactory as the DOMPRIC. The ARDL model is the model demonstrated 0.725882, 0.867365 and 0.576861 increases, respectively, in 1% increase in TOTRETU, COMPS and DIVID led to and DIVID proxies and DOMPRIC in the GCC countries. A significant relationships between the TOTRETU, COMPS and DIVID decreased in DOMPRIC. Meanwhile, there were positive and GCC countries. A 1% increase in INVES led to a 1.353282 relationships between the INVES proxy and DOMPRIC in the variables. The same results were indicated using the second formula. Using the third and fourth formulas, the bound test F-value was between the lower and upper values, which was interpreted as an inconclusive result. Finally, when considering the formula as FTOTRETU (TOTRETU) COMPS, DIVID, INVES, DOMPRIC, the findings showed no cointegration between the variables since the F-value was less than the lower bound value.

Co-Integration Bounds Tests
The ARDL cointegration relationship test results for all variables are presented in Table 6, and the findings show the bound test F-value of every model with each variable as the dependent variable. The F-value for the first formula for DOMPRIC (DOMPRIC | COMPS, DIVID, INVES, TOTRETU) was 3.530724, which was above the upper bound value at 10%. This indicated that co-integration existed among the variables. The same results were indicated using the second formula. Using the third and fourth formulas, the bound test F-value was between the lower and upper values, which was interpreted as an inconclusive result. Finally, when considering the formula as FTOTRETU (TOTRETU) COMPS, DIVID, INVES, DOMPRIC, the findings showed no cointegration between the variables since the F-value was less than the lower bound value.

Long-Run ARDL Results
After confirming the cointegration relationship between the variables in this study, we estimated the long-run ARDL, as shown in Table 7. There was a negative and significant relationship between the INVES proxy and DOMPRIC in the GCC countries. A 1% increase in INVES led to a 1.353282 decrease in DOMPRIC. Meanwhile, there were positive and significant relationships between the TOTRETU, COMPS and DIVID proxies and DOMPRIC in the GCC countries. A 1% increase in TOTRETU, COMPS and DIVID led to 0.725882, 0.867365 and 0.576861 increases, respectively, in DOMPRIC. The ARDL model is the model demonstrated goodness of fit and satisfactory as the $R^2$ was 0.981484; there were no spurious regressions in the model because the Durbin–Watson (DW) statistic was below 2, and the model was significant below 5%. The AICs (top 20 models) are presented in Figure 3 and selected the lowest model of ARDL (2, 1, 1, 1, 0).

The interoperations of the positive and negative result relationships can be explained by the close relationship between the Islamic stock market and investment, indicating that fluctuations in the Islamic stock market can affect companies’ investments, as illustrated by Tobin’s (1961, 1987) modern investment theory. The stock price refers to the duration of the stock market value for each unit of real capital. Therefore, to apply the modern investment theory, the purchase price of each additional unit of capital must be compared with the price that the stock market wants to pay for it. Tobin (1961, 1987) argued that the investment rate for any type of capital can be anticipated by knowing the market value of capital attributable to the cost of replacement. In other words, the higher the Tobin’s $q$, the higher the value of the capital relative to the current purchase price; these higher values result in increased investment. Consequently, the growth in the Islamic stock market has a positive effect on companies, and external capital is used to finance real investment.

The most important point here is deciding whether firm products are in accordance with Shariah. The exclusion of firm products for noncompliance will be negatively reflected in the sale of shares by Islamic investors, leading to an oversupply and a decrease in the share price. The strong F-test results relate to the integration of Islamic indices with the financial position of companies; this is in line with Mnif et al. (2020), who indicated a strong correlation between prices and returns and demonstrated that DJIM is the most efficient market. Meanwhile, Syed and Bajwa (2018) explained that the Saudi market significantly reflects abnormal returns, indicating that the Saudi stock market does not bear a semi-strong form of the EMH. According to Majid and Kassim (2010), global diversification benefits affect Islamic stock prices. Furthermore, Islamic markets achieved high performance due to sharing profit and loss as per Shariah, which means that Islamic stock prices are less risky than other commercial stocks (Al-Zoubi & Maghyereh, 2007). Al-Rifai (2012) found that Islamic indicators in Malaysia achieved high and positive returns during non-crisis periods. According to Sadeghi (2008), the Islamic Compliance Index has a positive impact on the liquidity of the stock and financial performance in the long term. Mansor and Bhatti (2011) showed that risk-adjusted returns and beta for the KLSI are in the financial markets on the long run.

The negative and significant relationship between the INVES proxy and DOMPRIC in the GCC countries matches Nor’s (2012) assertion that the Islamic stock markets of MENA countries and the integration of financial markets were not efficient because of the predictability of these markets. Furthermore, Tulasmi and Trihariyanto (2016), Majid (2016) and Hassan and Yu (2007) demonstrated that differences in macroeconomic determinants of economic development, money supply, interest rate and exchange rate affected the Islamic stock market’s effect on Islamic stock prices.

Short-Run ARDL Model: ECM Results
The error correction model (ECM) results for the short-run ARDL model are shown in Table 8. There was a positive and
significant relationship between the second lagged COMPS proxy at a 10% significance level and DOMPRIC. A 1% increase in COMPS led to a 0.616020 increase in DOMPRIC. There was a positive and significant relationship between the second lagged INVES proxy at a 5% significant level. A 1% increase in INVES led to a 2.085549 increase in DOMPRIC. There was a negative and significant relationship between the second lagged TOTRETU proxy at a 1% significance level. A 1% increase in TOTRETU led to a 2.635625 decrease in DOMPRIC. Finally, the first lagged DOMPRIC was significant at 1%.

The positive significant relationship between second lagged COMPS, INVES and DOMPRIC, consistent with Sadeghi (2011), shows long- and short-term positive results for returns of added shares and liquidity matching with the Shariah of the DJIM. Arouri et al. (2013) found higher returns in light of systemic risks that included these investment portfolios. The insignificant relationship between the second lagged TOTRETU and DOMPRIC indicates that some companies use qualitative indicators to assess the performance of Islamic financial market shares, such as financial regulations, principles and market framework systems; these results match those of Naughton and Naughton (2000) and Fowler and Hope (2007). In addition, Al-Najaf et al. (2018) pointed out that there was no significant relationship between stock prices and sacred and non-sacred months in capital markets. Hassan and Girard (2010) found no differences between Islamic and non-Islamic stock indices and degree of diversification benefits in the short run. In addition, Ousama et al. (2020) showed that structural capital has an insignificant effect on the financial performance of Islamic banks compared with employed capital and human capital.

**Table 6.** Co-Integration: Bounds Test.

| Dependent variables                                    | F-values         | Results          |
|--------------------------------------------------------|-----------------|-----------------|
| DOMPRIC (DOMPRIC | COMPS, DIVID, INVES, TOTRETU) | 3.530724         | Co-integration   |
| FCOMPS (COMPS | DOMPRIC, DIVID, INVES, TOTRETU) | 6.183035         | Co-integration   |
| FDIVID (DIVID) COMPS, DOMPRIC, INVES, TOTRETU          | 2.793048         | Inconclusive     |
| FINVES (INVES | COMPS, DIVID, DOMPRIC, TOTRETU) | 2.659543         | Inconclusive     |
| FTOTRETU (TOTRETU) COMPS, DIVID, INVES, DOMPRIC        | 1.089145         | No co-integration|

Critical bounds, F-values

| Sign. level | Lower value | Upper value |
|-------------|-------------|-------------|
| Sign. level 10% | 2.45        | 3.52        |
| Sign. level 5%  | 2.86        | 4.01        |
| Sign. level 2.5%  | 3.25        | 4.49        |
| Sign. level 1%   | 3.74        | 5.06        |

**Source.** E-views 10 output, Case 3: unrestricted constant and no trend.

**Table 7.** Long Run ARDL Results.

| Variables | Coefficients | SE      | t-value | Significance |
|-----------|--------------|---------|---------|--------------|
| COMPS     | 0.867365     | 0.214673| 4.040405| 0.0001****   |
| DIVID     | 0.576861     | 0.116766| 4.940315| 0.0000****   |
| INVES     | −1.353282    | 0.439970| −3.075854| 0.0027****   |
| TOTRETU   | 0.725882     | 0.179419| 4.045734| 0.0001****   |
| $R^2$     | 0.981484     |         |         |              |
| $F$-value (Sig) | 636.1016 (0.000) |      |         |              |
| Durbin–Watson stat | 1.958751 |      |         |              |

**Source.** E-views 10 output.

ARDL (2, 1, 1, 1, 0) Model, Case 3: unrestricted constant and no trend.

*$$p < .01.$$

**Figure 3.** Akaike information criteria.
In the present study, the error correction model (ECT-1) was negative and significant at \(-1.136666\), reflecting the adjustment speed of the variables to the long-run equilibrium. The \(R^2\) was 0.222309 as a medium value for the ARDL model. The F-value was significant in the model at 5%. The DW statistic for the model was near 2 (1.945983).

**Diagnostic Tests—ARDL Model: ECM Results**

Table 9 shows that the F-values for the serial correlation LM test and the BPG heteroskedasticity test were 1.900066 and 6.501687, respectively, with a significance of more than 5%. This means that the study data had no heteroskedasticity as well as no serial correlation issues.

![Figure 4. Recursive residuals CUSUM.](image)

In the present study, the error correction model (ECT-1) was negative and significant at \(-1.136666\), reflecting the adjustment speed of the variables to the long-run equilibrium. The \(R^2\) was 0.222309 as a medium value for the ARDL model. The F-value was significant in the model at 5%. The DW statistic for the model was near 2 (1.945983).

**Table 9. Serial Correlation and Heteroskedasticity Test, ARDL Model: ECM Results.**

| Variables | Coefficients | SE | t-value | Significance |
|-----------|--------------|----|---------|--------------|
| C         | 0.000117     | 0.002559 | 0.045548 | 0.9638       |
| D(DOMPRIC(-1)) | 1.055589 | 0.340567 | 3.099509 | 0.0025*** |
| D(DOMPRIC(-2)) | -0.110845 | 0.230485 | -0.480921 | 0.6316 |
| D(DOMPRIC(-3)) | -0.106932 | 0.233922 | -0.457125 | 0.6486 |
| D(COMPS(-1)) | -0.064029 | 0.344421 | -0.191462 | 0.8486 |
| D(COMPS(-2)) | 0.616020 | 0.314363 | 1.858638 | 0.0660* |
| D(COMPS(-3)) | -0.113434 | 0.286121 | -0.396453 | 0.6926 |
| D(DIVID(-1)) | 0.287770 | 0.234329 | 1.228060 | 0.2223 |
| D(DIVID(-2)) | -0.093686 | 0.232755 | -0.402508 | 0.6882 |
| D(DIVID(-3)) | 0.003484 | 0.233333 | 0.014931 | 0.9881 |
| D(INVES(-1)) | -1.448032 | 0.971884 | -1.490200 | 0.1394 |
| D(INVES(-2)) | 2.085549 | 0.978702 | 2.130933 | 0.0356** |
| D(INVES(-3)) | -1.427999 | 1.039496 | -1.373742 | 0.1726 |
| D(TOTRETU(-1)) | 1.250564 | 0.833132 | 1.501040 | 0.1365 |
| D(TOTRETU(-2)) | -2.635625 | 0.901936 | -2.922186 | 0.0043*** |
| D(TOTRETU(-3)) | 1.696884 | 1.026575 | 1.652958 | 0.1015 |
| ECT(-1) | -1.136666 | 0.306255 | -3.711505 | 0.0003*** |

\(R^2\) 0.222309

F-value (Sig) 1.768743 (0.046279)

Durbin-Watson stat 1.945983

Source. E-views 10 output.

*** \(p < 0.01\). ** \(p < 0.05\). * \(p < 0.1\).

The normality test, the Ramsey RESET test and stability test were also run, and the findings shown in Table 10 indicate that the data were stable as the RESET test and the normality of the J-B test with a significance of more than 5%. Furthermore, the results were not spurious; Figures 4 and 5.
present the stability of the coefficient, which is indicated by the blue line included between the two red lines.

**Conclusion and Policy Implications**

According to the market efficiency theory, investors must receive complete information in a fair manner in order to safely invest in Islamic stocks. In recent years, especially after the 2008 global financial crisis, the necessity of adopting Islamic financial tools has increased in order to increase the degree of financial security through profit sharing. Therefore, to protect investors, Islamic financial performance and its relationship to stock prices must be understood and evaluated. This study aimed to analyze the long- and short-run relationships of Islamic return performance indicators on the Islamic stock price of GCC countries between 2010 and 2019.

The current findings show a negative and significant relationship between the INVES proxy and DOMPRIC in the GCC countries. A 1% increase in INVES led to a 1.353282 decrease in DOMPRIC. Meanwhile, there were significant positive relationships between the TOTRETU, COMPS, and DIVID proxies and DOMPRIC in the GCC countries. Specifically, 1% increases in TOTRETU, COMPS, and DIVID led to 0.725882, 0.867365, and 0.576861 increases, respectively, in DOMPRIC. Furthermore, the ECM results for the short-run ARDL model show a significant positive relationship between the second lagged COMPS proxy at a 10% significance level and DOMPRIC. A 1% increase in INVES led to a 2.085549 increase in DOMPRIC. In addition, there was a significant negative relationship between the second lagged TOTRETU proxy at the 1% significance level. A 1% increase in TOTRETU led to a 2.635625 decrease in DOMPRIC.

The main conclusion drawn from the study findings is that investors’ returns are considered in the long term because they keep pace with their projects in accordance with Shariah. Meanwhile, Islamic investors are constantly trying to increase their returns in the short term. Furthermore, the Islamic stock markets in GCC countries appear less efficient in the short run than in the long run, suggesting good investment opportunities for diversification of benefits in the long run. In addition, inefficiency can be explained by less liquidity, Shariah and a lack of diversification in the products offered. Indeed, the long-run relationship is interpreted by greater efficiency but fewer investment opportunities.

Overall, the current findings have diverse economic and policy implications. First, the findings can help investors evaluate the performance of the most acceptable Islamic stocks in the financial market. Second, they can stimulate investment in the most ethical and safe securities based on profit and loss sharing and identify the motives behind the fluctuations of the Islamic market index. Third, they can improve investors’ ability to control risk in the Islamic performance portfolio by investing in Islamic stocks. Therefore, decision-makers in financial markets can review the legislation and restrictions to enable the financial markets to continuously display new products that have similar characteristics and are compatible with Shariah. Fourth, the reaction of the returns of Islamic indices toward the Islamic stock price can also be evaluated.

A limitation of this study was that it used monthly data collected for the period of 2010–2019 because data before 2010 was unavailable. In addition, while the GCC countries have common characteristics in terms of their environments and some available resources, they have built different long-term economic strategies in response to the development of the financial markets. Future studies could analyze performance portfolios in the presence of controlling variables, such as risk, inflation and gross domestic product, which could be considered controls of financial performance measures. In addition, the latest methodologies should be applied as alternatives for measuring the performance portfolio of Islamic indices.
Appendix

Definitions of Variables.

| Variables                                      | Acronyms | Definition                                                                                                                                 |
|------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------|
| S&P GCC Composite Shariah                      | COMPS    | An S&P Dow Jones compliance benchmark that offers investors a comprehensive Shariah perspective and reflects a broad definition of foreign investment, which is more foreign investment in the GCC countries than outside this region |
| S&P GCC Investable Shariah                     | INVES    | A benchmark that was designed for international investors in the GCC countries and reflects the float available to non-GCC residents           |
| S&P Shariah Domestic Total Return Index         | TOTRETU  | An S&P Dow Jones index that indicates total local returns of the GCC countries from Shariah investments                                     |
| S&P GCC Composite Shariah Dividend             | DIVID    | An index that meets dividend growth and sustainability criteria and reflects the high yield performance of Shariah-compliant stocks from the GCC countries |
| S&P GCC Shariah Stock Price Islamic Index      | DOMPRIC  | An index that indicates the Islamic stock performance of the GCC countries and reflects the compliant equity investments of a portfolio of Shariah investments |

Source. S&P Dow Jones Indices LLC reports from 2010–2019.

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