Developing Inclusive and Sustainable Economic and Financial Systems

Islamic Banking and Finance-Essays on Corporate Finance, Efficiency and Product Development

Volume 3

SELECTED PAPERS PRESENTED TO THE 8TH AND 9TH INTERNATIONAL CONFERENCE ON ISLAMIC ECONOMICS AND FINANCE

جامعة حمد بن خليفة
HAMAD BIN KHALIFA UNIVERSITY

كلية الدراسات الإسلامية في قطر
QATAR FACULTY OF ISLAMIC STUDIES

IRTI

INTERNATIONAL ASSOCIATION FOR ISLAMIC ECONOMICS

Is Shariah-compliant investment universally sustainable? A comparative study

Mehdi Sadeghi
Department of Applied Finance and Actuarial Studies, Macquarie University, Sydney-Australia,
T: (61) 2–98508527, E: msadeghi@efs.mq.edu.au

Abstract - The current paper reports the outcome of investigating the sustainability and efficiency of Shariah–compliant investment from the global and cross-country perspectives. Our findings, thus far, suggest that global Shariah compliant sustainable shares performed slightly better than global sustainable shares in general, during 2006-2011, and Shariah compliant shares performed substantially better than global market during the same period. The superior performances of Islamic market indexes suggest that Shariah compliant investment is more resilient and sustainable compared to their counterparts in the long term. Further evidence from our cross country study suggests that, Shariah compliant investments perform better than the market on whole in Muslim countries, and worse than the market in predominately non Muslim countries. These findings have important implications for investors, regulators, customers, and Islamic financial institutions.

Keywords: Shariah-compliant sustainable investment, Shariah-compliant investment, index addition and deletion, event study, abnormal returns, liquidity changes

JEL Classification: G14, G15

1. Introduction

The market for **Islamic** financial services is growing at an impressive rate, reaffirming its **position** as one of the most **dynamic** sectors in international **finance**. The Islamic finance industry enjoyed a compound annual growth rate for 2006–2009 of 28%[1]. The current value of Shariah compliant assets managed worldwide, according to the International Monetary Fund (IMF) estimates, now tops USD 1 trillion. The value of these assets is forecasted to hit US$1.6 trillion by 2013. This growth represents a major achievement, as well as new challenges for investors, regulators, customers, and also Islamic financial institutions themselves.

The biggest share of Islamic financial belongs to the Islamic banks. The S&P[2] report indicate that the assets of top 500 Islamic banks in 2008 was $639bn, and grew by 28.6 percent to $822 bn in 2009. There are also Shariah-compliant investment funds within Islamic financial system that cover a wide range of sectors including real estate, equities, infrastructure, and energy. According to Lipper data for 2010, 586 Islamic funds were in operation with $37bn of assets under management, with a bias towards equity funds (303), mixed asset (101), money markets (77), and sukuk funds (77).

With the recent troubles in the global economy, finance industry has been looking at Islamic contracts as the possible means of preventing such meltdowns from ever materializing again. Another area that has received more in-depth media coverage is the field of sustainability. Recent changes in the world of investment have made asset owners and managers increasingly aware of the potential risk and value impact of environmental, social, and governance (ESG) factors, on an investment profile. There are arguments in financial literature in favour of both areas as safer approaches, and less vulnerable to questionable financial transactions, which may have led to the global recession beginning in 2008. These arguments have been substantiated by some empirical findings that suggest some Islamic financial institutions and companies focused on sustainability have been more resilient to financial crisis. For instance, Hasan and Dridi (2010), report that Islamic banks have been more resilient than conventional banks during recent global financial crises. This view was also corroborated by external rating agencies' reassessment of Islamic banks' risk, which was generally found to be

Cite this chapter as: Sadeghi M (2015). Is Shariah-compliant investment universally sustainable? A comparative study. In H A El-Karanshawy et al. (Eds.), Islamic banking and finance – Essays on corporate finance, efficiency and product development. Doha, Qatar: Bloomsbury Qatar Foundation

more favourable than—or similar to—that of conventional banks (with the exception of UAE) (ibid). Some studies also suggest that companies with a strong commitment to sustainability have outperformed their industry averages by 17%[3].

But are Islamic finance and sustainability finance compatible? What's really involved in incorporating sustainability criteria and Islamic principles into investment decisions? Can they make a material difference to investment performance? We start answering these questions by highlighting similarities and differences between these two. Islamic finance and socially responsible investing (SRI) approaches have a lot in common with respect to the screening process, and criteria used for stock selection. Sustainability, on the other hand, goes above and beyond SRI by considering positive screens, promoting investment in companies with best practices. According to World Economic Forum Report (2011) "Sustainable investing is an investment approach that integrates long-term environmental, social and governance (ESG) criteria into investment and ownership decision-making with the objective of generating superior risk-adjusted financial returns"[4]. As the financial crisis receded into a period of uncertainty in the past two years, recognition that sustainability, corporate governance and transparency are important factors in portfolio management has emerged. This is a fundamental shift away from the ideological and political corner of SRI to the real performance of sustainability.

Some researches assert that Islamic finance holistic and dynamic perception of SRI is more effective in taking into consideration the reality and ever-changing circumstances of societies in contrast to Western humanistic theories. They conclude that corporations operation on a piety-based business paradigm acknowledge their social responsibility to their workers, managers, other corporations, customers, and society as a whole more significantly (Dusuki and Abdullah, 2007). However, regardless of their similarities, and theoretical arguments in support of one or another, sustainability and Shariah-compliant investments are assessed on the basis of long-term trends in yield, profitability, and efficiency in use of limited financial resources.

In January 2006, Dow Jones Indexes launched the world's first Dow Jones Islamic Market Sustainability Index. This index merges Islamic investing principles and sustainability criteria by combining the methodology of Dow Jones Islamic Market Indexes[5] and Dow Jones Sustainability Indexes. To be included in the index, companies must be components of both the Dow Jones Islamic Market Index and the Dow Jones Sustainability World Index. Linking Shariah compliant investment performance to sustainability is, perhaps, the most effective way to highlight the importance of ESG governing factors to Islamic finance. The time series data provided by Dow Jones Indexes is an invaluable resource to help us investigate whether Islamic finance is a sustainable practice in the long term.

Current paper is a progress reports on our ongoing long term research objective of testing the efficiency and sustainability of Shariah compliant investment opportunities around the world. We have used time series data on Dow Jones Islamic Market Index and Dow Jones Islamic Market Sustainability Indexes and their constituents to see if there is any significant difference between the performances of these indexes with Dow Jones Global Stock Market Index. We also investigate whether there is any significant change in the efficiency and liquidity of market following Islamic index addition and deletion events.

This study is important for several reasons. First, although Shariah-compliant investment is similar to SRI, an area that has already attracted a great deal of research interest, certain differences is evident in the screening procedures that make Shariah-compliant investment different. For instance, some Islamic funds do not exclude weapons manufacturers but they do exclude conventional banks, while SRI funds normally exclude weapon manufacturing firms and do not exclude banks. As another difference, concerns about environmental issues are not as important in screening Shariah-compliant companies as they are for SRI funds. Furthermore, Shariah-compliant companies are subject to certain financial ratio tests that are not relevant to conventional SRI companies[6].

Second, Miller-Modigliani capital structure theory contemplates that in an imperfect capital market with corporate taxes, companies can increase their assets' value by increasing their leverage. Given that Shariah-compliant companies are constrained by their level of borrowing, it would be interesting to investigate how this constraint can affect their value.

Third, finance theory based on the efficient market hypothesis (EMH) considers shares with identical risk and return as perfect substitutes for each other. This makes market demand for securities elastic and horizontal. Since Shariah-compliant equities are not a perfect substitute for the conventional equities, their demand may not be horizontal. This can bring about a different outcome to the study of a Shariah-compliant index revision.

Fourth, Islamic screening criteria reduce the number of available shares to invest. It is claimed by critics that the reduction of the investment universe through screening will reduce the performance. Similar counterarguments have been raised regarding sustainability criteria (Freidman, 1996). It would be interesting to investigate how this constraint can affect Shriah-compliant portfolios.

Finally, academic research on the performance of Shariah-compliant investments is rare, and to the best of our knowledge, no similar study on the impacts of the Shariah-compliant index revisions has been conducted before.

Our results, thus far suggest that global Shariah compliant sustainable shares perform worse than global Shariah compliant shares in the long term. However, they both perform better than global stock market as a whole. Further evidence from individual countries suggests that, Shariah compliant investments perform better than the market in Muslim countries, and worse than the market in predominately non Muslim world. The rest of this study is organized as follows: Section II is allocated to a short review of research background. We outline our methodology, data and hypothesis development in Section III. Empirical

findings are discussed in Section IV. Section V articulates our conclusions, and describes the limits of our study.

2. Research background and literature review

Research background

We started our study with an investigation of the market performance and liquidity of Shariah-compliant Index (SI) portfolio following its introduction by Bursa Malaysia. Malaysia has one of the largest Islamic fund markets in the world. It had 155 unit trusts and mutual funds at the end of June 2010 with a total volume of about RM22.69 billion. Our findings show that, overall, introduction of SI had a positive impact on the financial performance and the liquidity of included shares in this country[7].

As time series data on Shariah compliant indexes become more readily available for other parts of Muslim world through index providers, such as Dow Jones Islamic Market Index[8], we decided to extend our study to the MENA (Middle East and North Africa) market in the second stage of our study. MENA region is another important hub in Islamic finance, with large market and appropriate financial infrastructure. Constrained by the availability of times series data, we used event study methodology and the improved models of liquidity measures, first to index addition to equity markets in Qatar, Kuwait, Oman, and UAE. Our findings showed an even stronger result than for Malaysia in that market reacts positively to the introduction of Shariah compliant shares in these countries. This was reflected in short and long-term market performance and the improvement in the liquidity of shares[9]. One of the limitations of recent study was the small number of companies in our sample. To test the robustness of findings with larger samples, we extended our investigation to Jordan and Egypt. Our results overwhelmingly supported the robustness of our earlier findings of countries in the Gulf region[10].

Overall, our research on seven markets in Islamic countries in showed that investors' reaction to the introduction of Shariah-compliant shares is positive. This is reflected in improvement in the share price and market liquidity up to 150 days following the index addition. The positive outcome for six countries in MENA region is especially important because they were found from the data that became available by Dow Jones Indexes immediately following the start of financial crisis, suggesting that Shariah compliant investments in Islamic countries has been more resilient to financial crisis than conventional investments.

In addition to Muslim countries, Islamic finance is practiced outside the Muslim world without ties to any particular jurisdiction. Shariah compliant investments are defined according to certain norms and conditions that can be applied anywhere in the world where there is a market and people who wish to engage in financing transactions in a manner which is consistent with Shariah law. This progress is specially facilitated by a form of reverse financial engineering that reconstructs conventional financial products into Shariah compliant instruments. This innovation has significantly increased Muslims investments in Shariah compliant companies in non-Muslim countries around the world[11]. In the case of equities, the differences between Shariah compliant shares and their conventional forms are even less significant, only requires screenings. This screening process is similar to the screening of Socially Responsible Investing (SRI) instruments.

In the third stage of our research we decided to investigate Shariah-compliant index addition and deletion to predominantly non-Muslim countries, starting with Australia as the first sample. Australia's skills in complex financial engineering and experience in infrastructure, resources, property and agriculture provide her with a unique opportunity to develop Shariah-compliant investments. This country also has easy access to rapidly growing Islamic financial markets with over a billion in population to accommodate their demand[12].

A through presentation of our findings on all eight countries studied so far is too long to report here. In order to show the contrasting nature of market reaction to Index addition and deletion events in predominately Muslim and non-Muslim countries, we report the report the results on two sample countries of Egypt and Australia in section IV.

Literature review

From a theoretical perspective, there are two explanations for the effects of stock additions to an index: demand-based and information-based. The demand-based explanation sees index changes as information-free events. For example, Shleifer (1986), by employing the downward-sloping demand curve hypothesis, showed that the price effects following index changes are due to the demand from index tracking. These effects can be temporary or permanent. The temporary effect is explained by the price pressure hypothesis, predicting a reversal of initial price increases in the long run (Harris and Gurel, 1986). The permanent effect is explained by the imperfect-substitute hypothesis, which assumes that there would be no price reversal, as the new price reflects changes in the distribution of security holdings in equilibrium[13].

Information-based explanations include the information hypothesis and the liquidity hypothesis. Unlike the demand-based explanations, information-based explanations assume that index changes are not information-free events. Some studies, such those by Dhillon and Johnson (1991) and Jain (1987), support the information hypothesis: they showed that the addition of a stock to the index conveys favorable news about the firm's prospects and a permanent price increase can result following this event. Amihud and Mendelson (1986), Beneish and Whaley (1996), and Hegde and McDermott (2003) contended that the price reactions can be explained by changes in market liquidity. According to the liquidity hypothesis, the price increase at index inclusion is caused by the increased liquidity due to the greater visibility of the shares, greater interest from institutional investors, higher trading volume, and lower bid-ask spreads. Amihud and Mendelson (1986) suggested that the increase in stock liquidity is positively related to the firm's value through a reduction in the cost of capital. Previous studies, such as Harris and Gurel (1986), and

Hegde and McDermott (2003) reported liquidity increases following index additions.

The topic of Shariah-compliant index revision is important from two perspectives. First, the nature of companies' activities and their capital structure makes them Shariah compatible in the first place. Second, changes in investors' demand result in subsequent market price reactions, according to our earlier discussion. For example, reduction in the level of debt in the capital structure can make a company Shariah-compliant, bringing about an increase in the demand from Muslims and higher share prices if demand is not fully elastic. At the same time, the lower level of debt may move the capital structure of the company to a suboptimal level, at a higher cost of capital than in equilibrium. This may send negative signals to the market when shares are added to a Shariah-compliant index. As a result, it is possible that the interaction of opposing market forces on index revision will bring about different outcomes compared with the effects of conventional index additions. Therefore, it is not possible to predict clearly how the performance and liquidity of shares included in or excluded from the DJIM index will change, as it largely depends on how the net effects of the influential factors are revealed through our empirical investigation.

3. Data and methodology

To determine the impact of additions to and deletions from the DJIM index, we applied several measures of both short and long-term price and liquidity performance. We applied standard event study methodology to find the initial stock price reaction of firms when an announcement of an index change was made. We also applied several liquidity measures to investigate the magnitude and direction of liquidity changes following the index revision. Data for this research has been collected through Dow Jones Indexes and Bloomberg.

Price effect

Our event-study methodology calculates the abnormal returns. An abnormal return is the difference between the realized return observed from the market and the benchmark return. The return to the market portfolio is estimated via both ordinary least square (OLS) and Scholes and William (1977) procedures. The latter method is usually used when stocks do not trade at the same level of frequency as the market index and OLS may produce biased beta estimates. This problem is exacerbated for infrequently or thinly traded stocks as the sampling interval is reduced[14]. The advantages of these models are that they control for the effect of market movements through the market portfolio, and also allow for an individual security's responsiveness as measured by beta. Return on the All Ordinaries index was used as a proxy for the market rate of return.

We defined the event date as the day that a stock was added to or deleted from the DJIM index. For each event, the return time series data were divided into an estimation period and an event window. The estimation time series data are used to calculate the benchmark parameters, and the event window period is used for computing prediction errors based on the estimated parameters. Abnormal returns are represented by the prediction errors. The abnormal returns during the event windows can be interpreted as a measure of the effect of the event on the value of the firms, which is reflected in their share price.

Our event window extended from 10 days before to 25 days after the event. This asymmetric event window was chosen to examine the extended effect of excess returns in the post-event period[15].

The normal returns of stocks are the expected returns if there are no events. The normal returns are estimated over a period of time outside the event window (Peterson, 1989). For applications in which the determinants of the normal return are expected to change due to the event, the estimation period can fall on both sides of the event window. This period commences 125 trading days before and ends 125 trading days after the event dates, excluding the event period of day –10 to Day 25. As a result, the estimation period consists of Day –135 to Day –11 and Day 26 to Day 150. We did not allow the event period to overlap with the estimation period, to avoid biasing the parameter estimates in the direction of the event effect.

The following section describes the event study methodology that we used in our study. MacKinlay (1997), and Kothari and Warner (2004) have provided a survey of event study methods, and we follow their papers to describe the models here.

Liquidity effect

Market liquidity is an elusive concept and difficult to measure. In this study, we use six proxies to evaluate changes in market liquidity during post-event periods, compared to the corresponding control periods. The large number of tests helps to confirm the robustness of our findings and reduces the chance of making wrong inferences.

These liquidity proxies include: 1) quoted spread, as the simple difference between bid and ask prices; 2) percentage spread, as the quoted spread normalized by the midpoint of the bid and ask prices; 3) changes in the volume of trade as the daily average of the transaction size, normalized on the average volume of trade in the control period; 4) changes in volatility, measured by the standard deviation of returns; 5) the Amivest liquidity ratio, as the average ratio of share volume to absolute return over all days with non zero returns; and 6) the proportion of zero daily returns. Zero daily return is related to trading speed because the days with zero return indicate delays or difficulties in executing an order, interrupting the continuity of trading.

In calculating the percentage bid-ask spread and change in the volume of trade, we largely follow Hegde and McDermott (2003). Changes in the volume of trade are directly related, and changes in the bid-ask spreads and volatility are inversely related to the market liquidity. It is important to note that an increase in the volume accompanied by an increase in volatility can actually impede market liquidity. The Amivest liquidity ratio is estimated according to Amihud and Mendelson (2002). This ratio measures the ability of a share to absorb changes in trading volume without any significant change in share price. Change in this variable is directly related to the liquidity. In estimating the proportion of zero daily

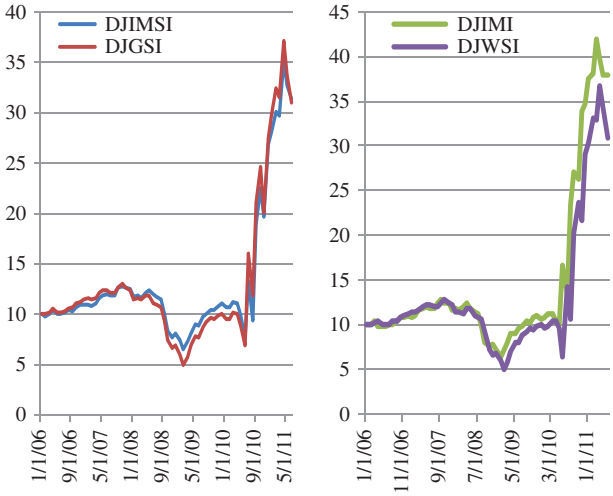

Figure 1. The Performance of Dow Jones Islamic Market Sustainability Index (DJIMSI), Dow Jones Islamic Market Index (DJIMI), Dow Jones Sustainability Index (DJGSI), and Dow Jones World Stock Index (DJWSI) during 1/1/2006 to 1/5/2011.

returns, we follow Bekaret et al. (2004), as they found it a reasonable proxy for a liquidity measure to use in their study. Change in this variable is inversely related to the market liquidity.

4. Results

Global findings

Figure 1 presents the Performance of Dow Jones Islamic Market Sustainability Index (DJIMSI), Dow Jones Islamic Market Index (DJIMI), Dow Jones Global Sustainability Index (DJGSI), and Dow Jones World Stock Index (DJWSI) during 1/1/2006 to 1/5/2011. Our findings show that Dow Jones Islamic Market Sustainability Index out performs Dow Jones Global Sustainability Index by less than 1% during this period. However, Dow Jones Islamic Market stock Index shows a much higher return of 22% compare to Dow Jones World stock Market Index. The superior performances of Islamic Market indexes suggest that Shariah compliant investment is more resilient and sustainable compare to their counterparts within the family of Dow Jones Indexes in the long term.

Cross country findings

A through presentation of our findings for all eight countries studied so far is too long to report here. The Results reported here is only from Egypt and Australia, in order to show the contrasting nature of market reaction to Index addition and deletion in two predominately Muslim and non Muslim country.

Price effect

Table 1 presents the estimated CARs for index additions in the pre- and post-event periods for Egypt. The coefficient for CARs, accumulated during the period (–10, 0), is –1.71%. However, it is not statistically significant at the conventional levels. The CARs coefficient estimated over the shorter period (–5, 0) increases to 2.41% and becomes statistically significant at the 0.05 level. CARs coefficients for Day 0 (the event day) and for (0, 5) increase further to 2.85% and 3.44%, respectively, and become highly significant at the 0.01 level. CARs for (0, 15) drop to 2.69% and remain statistically significant at the 0.01 level. CAR coefficients increase further to 6.31% during (0, 30) and remain statistically significant at the 0.01 level.

The prolonged effects of the index additions on CARs in Table 1 indicate that these events are likely to contain information, thus sending signals about the features of the index additions to the market. To test this hypothesis, we compared the cumulative returns (CRs) for the added firms with the cumulative return for the market over the period (–10, 150)[16].

Table1. Cumulative abnormal returns and relevant statistics for stock additions to the DJIM index in Egypt.

This table presents the cumulative abnormal returns (CARs) around the index addition for the 25 Egyptian firms in our sample. Results are presented for the windows (–10, 0), (–5, 0), (0, 0), (0, +5), (0, 15), and (0, 30), where day 0 represents the addition date. The Generalized Sign *Z*-test is a test with the null hypothesis that the fraction of positive cumulative returns is the same as in the estimation period. The Positive/Negative column reflects how many firms had positive cumulative abnormal returns in the window. The symbols $, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 1-tail test. The symbols), >, etc., correspond to $,* and show the significance and direction of the Generalized Sign-*Z* test.

Scholes-Williams Market Model				
Intervals	**MCARs**	***t*-Statistics**	**Generalized Sign *Z*-test**	**Positive/ Negative**
(–10, 0)	1.71%	1.12	1.15	15/10
(–5, 0)	2.41%	1.75*	1.55$	16/9)
(0, 0)	2.85%	6.36***	4.35***	23/2 >>>
(0, +5)	3.44%	2.63**	2.74**	19/6 >>
(0, +15)	2.69%	1.72*	2.35**	18/7 >>
(0, +25)	6.31%	2.69**	1.95*	17/8 >

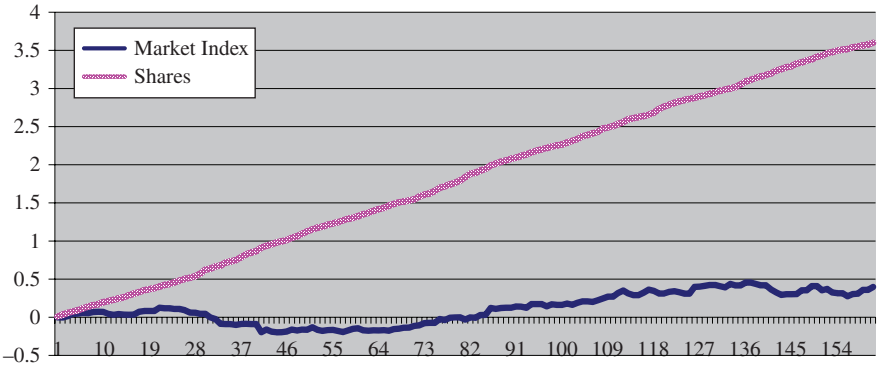

Figure 2. Cumulative firm return and market return around day –10 to Day 150 egyptian stocks addition to DJIM index.

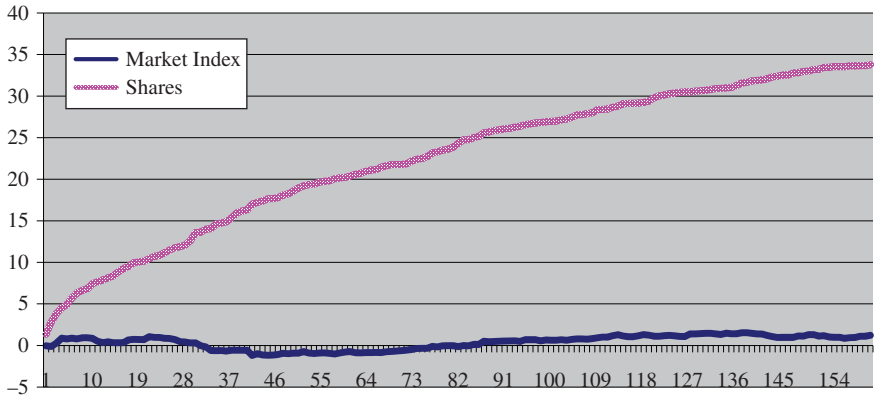

Figure 3. Risk adjusted cumulative firm return and market return around day –10 to day 150 Egyptian stocks addition to DJIM index

Figure 2 illustrates CRs for the portfolio of added stocks, compared with the market CRs during (–10, 150) for Egypt, showing the shares' superior performance of 352% gain, compared with less than 48% for the market by Day 150. Figure 3 compares the performance of the same variables on a risk-adjusted basis, calculated using the Sharpe Ratio. According to this figure, the Sharpe Ratio for the shares shows a value of 34 compared with a ratio of 1.4 for the market.

Table 2 and Table 3 present mean cumulative abnormal returns (CARs) for the added and the deleted Australian firms, respectively. To test the robustness of our findings, we have used both the single-factor and Scholes-Williams market models as the benchmarks for estimating normal return. Our results show that the magnitudes of CARs and the level of their statistical significance from the application of the two methods are similar. Nevertheless, we report and discuss the results from the Scholes-Williams model to avoid non-synchronous trading bias, as a considerable proportion of shares included in this study are likely to trade *less frequently*.

Table 2 presents the estimated CARs for index additions in the pre- and post-event periods. The coefficient for CARs accumulated during Day –10 to Day 0, is –1.22%, and is statistically significant at the 0.05 level. When the CARs coefficient is estimated over the shorter interval of Day –5 to Day 0, it increases slightly to –1.18% and remains statistically significant at the 0.05 level. CARs for Day 0 (the event day) and Day 0 to Day 5 increase to –0.32% and 0.21%, respectively. However, they are not significantly different from zero at the conventional levels.

CARs for the intervals Day 0 to Day 10 and Day 0 to Day 25 decline continuously, dropping to –4.04% and become highly significant at the 0.01 level. CARs for the entire window (Day –10 to Day 25) is –4.94% and significant at the 0.01 level. The temporary upward trend in CARs around the event day may have been caused by the positive reactions of some Muslim investors to the additions news. However, this reaction was perhaps not strong enough to fully offset a negative response from the market as a whole. The coefficients for generalised sign tests are consistent with the coefficients for *t*-statistics, although they are not as strongly significant as the later ones. It is mainly the coefficient for Day 0 to Day 25 and the entire event window (Day –10 to Day 25) that are statistically significant at the conventional level, indicating that the significance of our findings is robust to both parametric and non-parametric

Table 2. Mean cumulative abnormal return and relevant statistics for stock additions to the DJIM index in Australia.

This table presents the mean cumulative abnormal returns (CARs) around the index addition for the 117 firms in our sample. Results are presented for the windows (−10, 0), (−5, 0), (0, 0), (0, +5), (0, +10), (0, 15), (0, 25), and (−10, 25), where day 0 represents the addition date. The third column is the precision-weighted cumulative mean abnormal return. The generalized sign *Z* is a test of the null hypothesis that the fraction of positive cumulative returns is the same as in the estimation period. The symbols $, * and ** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a 1-tail test.

Scholes-Williams Market Model				
Intervals	**Cumulative average abnormal return (CAAR)**	**Precision-weighted CAAR**	***t*-statistics**	**Generalized sign *Z*-test**
(–10, 0)	–1.22%	–1.06%	–1.70*	–0.65
(–5, 0)	–1.18%	–0.78%	–2.24*	–1.21
(0, 0)	–0.32%	–0.15%	–1.16	–0.47
(0, +10)	–1.11%	–0.36%	–1.24	–1.21
(0, +15)	–1.62%	–0.65%	–1.55$	–1.39
(0, +25)	–4.04%	–2.03%	–2.71**	–1.58$
(–10, +25)	–4.94%	–2.94%	–3.02**	–1.76*

Table 3. Mean cumulative abnormal return and relevant statistics for Australian stock deletions from the DJIM index.

This table presents the mean cumulative abnormal returns (CARs) around the index deletion for the 87 firms in our sample. Results are presented for the windows (–10, 0), (–5, 0), (0, 0), (0, +5), (0, +10), (0, 15), (0, 25), and (–10, 25), where day 0 represents the addition date. The third column is the precision-weighted cumulative mean abnormal return. The Generalized Sign *Z* is a test of the null hypothesis that the fraction of positive cumulative returns is the same as in the estimation period. The symbols $, * and ** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a 1-tail test.

Scholes-Williams market model				
Intervals	**Cumulative average abnormal return (CAAR)**	**Precision-weighted CAAR**	***t*-statistics**	**Generalized sign *Z*-test**
(–10, 0)	1.57%	1.36%	1.29$	0.11
(–5, 0)	2.11%	1.62%	2.51**	2.60*
(0, 0)	0.47%	0.41%	1.35$	1.19
(0, +5)	0.04%	–0.04%	–0.05	–0.31
(0, +10)	5.34%	2.24%	2.28*	1.40$
(0, +15)	6.05%	2.68%	2.33**	1.83*
(0, +25)	7.45%	3.82%	2.82**	2.05*
(–10, +25)	8.55%	4.77%	3.02**	2.06*

tests. Our findings are also consistent with the results of Clarke and Russell's (2008) study on Socially Responsible Investing (SRI): they found significant negative CARs for DS400 additions that persisted at least 30 days after the events.

Table 3 presents the estimated CARs for index deletion in the pre- and post-event periods for Australian shares. The coefficient for CARs, accumulated during Day –10 to Day 0, is –1.57% and is marginally significant at the 0.10 level. The CARs coefficient estimated over the shorter interval of Day –5 to Day 0, increases to 2.11% and becomes statistically significant at the 0.05 level. This coefficient for Day 0 (the event day) is 0.47% and statistically significant at the 0.10 level. CARs for Day 0 to Day 5 is negative and statistically insignificant at the conventional levels. This coefficient quickly rises to 5.34% during the interval Day 0 to Day 10, and becomes statistically significant at the 0.05 level. CARs increases further to 6.05% during the interval Day 0 to day 15, and to 7.45% during the interval Day 0 to Day 25, respectively. Both coefficients remain highly significant at the 0.01 level. CARs for the entire window (Day –10 to Day 25) is 8.55% and significant at the 0.01 level. The temporary downward trend in CARs after the event day may have been caused by the negative reactions of Muslim investors to the deletion news. However, this reaction did not seem to be strong enough to fully offset the positive response from the market as a whole.

Results in Table 2 and Table 3 show CARs of up to 25 days after additions and deletion, respectively. Some studies in the literature, such as one by Nesbitt (1994), suggest that the value of socially responsible investing may be more apparent in the long-run. To examine whether DJIM Index additions and deletions have any prolonged information effects on shares, we compared the cumulative returns

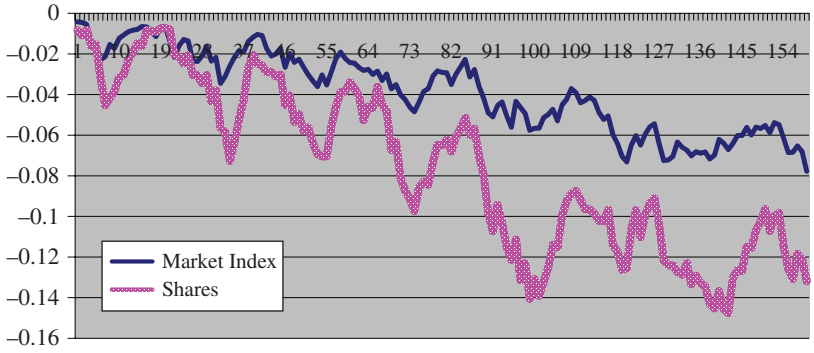

Figure 4. Cumulative return on a portfolio of added Australian shares, compared with cumulative return on the market for the 160-day period from Day –10 to Day 150 around the event day.

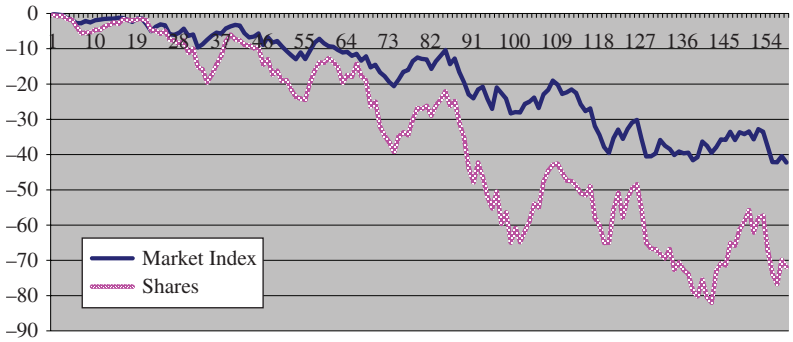

Figure 5. Cumulative risk adjusted return on a portfolio of added Australian shares, compared with risk-adjusted cumulative return on the market for the 160-day period from Day –10 to Day 150 around the event day. Risk-adjusted returns are estimated according to the Sharpe performance index.

Table 4. Measures of liquidity changes from pre- to post-stock additions to the DJIM index in Egypt.

This table presents the change of a variety of liquidity measures around the index addition day for an equally weighted portfolio of 25 Egyptian firms in our sample. Results are presented for the windows (1, 25), (1, 50), (1, 100), and (1, 150), compared with the control periods (–35, –10), (–60, –10), (–110, –10), and (–160, –10), respectively. The bid-ask mean difference represents the difference between average liquidity measures in each interval compared with the corresponding interval in the control period. The symbols $, *, **, and *** denote statistical significance at the 10%, 5%, 1%, and 0.1% levels, respectively, using a 1-tail test.

Intervals **Liquidity measures**	**(1, 25) vs. (–35, –10)**	**(1, 50) vs. (–60, –10)**	**(1, 100) vs. (–110, –10)**	**(1, 150) vs. (–160, –10)**
Standard Deviation (SD)	1.05%	0.85%	0.89%	0.85%
SD (control period)	1.49%	2.56%	2.05%	1.80%
SD change	**–0.44%**	**–1.71%*** **	**–1.16%*** **	**–0.95%*** **
Relative bid-ask spread	1.53%	1.36%	1.35%	1.36%
Relative bid-ask spread (control period)	0.80%	0.71%	0.55%	0.45%
Bid-ask mean difference	**0.73%**	**0.65%**	**0.80%**	**0.91%**
Average daily volume	40.24	53.97	130.73	202.37
Average daily volume (control period)	25	50	100	150
Average daily volume change	**60.95%***	**7.94%**	**30.73%** **	**34.91%*** **
Amivest liquidity measure	13.85	13.84	13.68	13.69
Amivest liquidity measure (Control period)	13.29	13.32	13.81	13.88
Amivest liquidity measure change	**0.56*** **	**0.52*** **	**–0.13$**	**–0.19** **

Table 5. Measures of liquidity changes from pre- to post- Australian stock additions to the DJIM index.

This table presents the change of a variety of liquidity measures around the index addition for an equally weighted portfolio of 117 firms in our sample. Results are presented for the intervals in days (1–25), (1–50), (1–100), and (1–150), compared with the control periods (–35 to 10), (–60 to –10), (–110 to –10), and (–160 to –10), respectively. Day 0 represents the addition date. The mean difference represents the difference between average liquidity measures in each interval compared with the corresponding interval in the control period. The symbols $, *, **, and *** denote statistical significance at the 10%, 5%, and 1%, and 0.1% levels, respectively, using a 1-tail test.

Intervals Liquidity measures	Day 1 to 25 (–35 to –10)	Day 1 to 50 (–60 to –10)	Day 1 to 100 (–110 to –10)	Day 1 to 150 (–160 to –10)
Absolute bid-ask spread	6.02¢	6.17¢	6.24¢	6.48¢
Absolute bid ask (control period)	5.61¢	5.63¢	6.14¢	5.84¢
Absolute bid-ask mean difference	**0.41¢***	**0.54¢****	**0.10¢**	**0.64¢*****
Relative bid-ask spread	0.43%	0.45%	0.49%	0.51%
Relative bid-ask (control period)	0.47%	0.46%	0.47%	0.46%
Relative bid-ask mean difference	**–0.04%**	**–0.01%**	**0.02%$**	**0.05%****
Average volatility (SD)	3.60%	3.51%	3.61%	3.66%
Average volatility (SD) (control period)	3.45%	3.15%	2.87%	2.91%
Average volatility ratio	**0.15%**	**0.36%****	**0.74%*****	**0.75%*****
Average daily volume	27.10	54.15	106.35	157.56
Average daily volume (control period)	25.00	50.00	100.00	150.00
Average volume difference	**8.40%**	**8.30%$**	**6.35%***	**5.04%***
Zero-return	12.12%	11.33%	12.79%	13.15%
Zero-return (control period)	8%	7.84%	12.77%	12.64%
Zero-return mean difference	**4.12%*****	**3.49*****	**0.02%**	**0.51%**
Amivest liquidity measure	12.44	12.38	12.40	12.33
Amivest liquidity measure (Control period)	12.53	12.50	12.46	12.44
Amivest liquidity measure mean difference	**–0.09*****	**–0.12*****	**–0.06*****	**–0.11*****

(CRs) for the added and deleted firms with cumulative return for the market over the period from Day –10 to Day 150[17].

Figure 4 and Figure 5 provide long-term evidence of negative market reaction to the index addition. Figure 4 illustrates CRs for the portfolio of added stocks, compared with the market CRs during Day –10 to Day 150, showing the market's superior performance of –7.8% compared with –13.1% for the shares by Day 150. Figure 5 compares the performance of the same variables on a risk-adjusted basis, calculated according to the Sharpe performance index (SPI). According to this figure, SPI for the market shows a figure of –42.9% compared with the SPI of –70.8% for the shares.

Table 4 provides evidence of changes in liquidity measures for Egypt. The results show a decline in the standard deviation of returns between 0.95% and 1.71%, accompanied by an increase in the volume of trade from 30.73% to 60.95%. Amivest liquidity measure changes also suggest an increase in the market liquidity over the short to medium term and a decline over the medium to long term. The coefficients for changes in the bid-ask spread is positive; however, they are not statistically significant. Overall, there is more evidence for improvement in the liquidity of the Egyptian stock market than for decline.

5. Concluding remarks

Current paper reports the outcome investigating the sustainability and efficiency of Shariah –compliant investment from the global and cross-country perspectives. Our findings, thus far, suggest that Dow Jones Islamic Market Sustainability Index out performs Dow Jones Global Sustainability Index by less than 1% during 1/1/2006–1/5/2011. However, Dow Jones Islamic Market stock Index shows a much higher return of 22% compare to Dow Jones World Stock Market Index during the same period. The superior performances of Islamic Market indexes suggest that, relative to their counterparts within the family of Dow Jones Indexes, Shariah compliant investments are generally more resilient and sustainable in the long term.

In the cross country component of our study, we used data from eight countries (only one is reported in this paper) and an event study methodology to estimate cumulative abnormal returns in the days surrounding index additions and deletions for testing the price effects of market reaction. We also used several liquidity measures; including the bid–ask spread, the Amivest liquidity ratio, standard deviation of returns, and volume of trade to estimate changes in the liquidity of the added shares around these events. Our results show that stock prices respond positively to index additions for Muslim countries and negatively for non Muslim countries, both in the short and long terms. Further

evidence from non Muslim countries suggests that stock market react positively to index deletions.

Observing negative abnormal return for index additions, and positive abnormal return for index deletions in Australia suggests that market in this country perceives these events as a value destroying, and value adding exercises, respectively. This view is in line with Friedman (1996) agency theory, perceiving any effort by companies to go beyond maximising their profit as a burden on their return. These opposing reactions can also be explained by differences in both fundamental and socio-cultural factors in Muslim vs. non Muslim countries. For instance, a company in the West world can become Shariah compliant by chance, or by force, not necessarily by choice. A low debt/equity ratio in the capital structure of companies in Western countries can make them Shariah-compliant. However, this may occur, perhaps, due to their inability to borrow money if they are relatively small. While a company in a Muslim world may intentionally borrow less to comply with Shariah- principles.

These findings have important implications for the development and growth of Islamic finance around the world. For example, if Western countries plan to promote themselves as a centre for Islamic finance, they need to overcome certain impediments to be successful. This includes reduction in psychological barriers, as well as revision in taxation laws and non-taxation regularities to ensure that they do not inhibit the development of Islamic finance. There is also need for a trained work force in financial sector (education in Islamic economics, finance, banking, insurance, accountancy, and business law), and ability to market Islamic financial products overseas once they are developed.

Notes

1. HSBC Report, Islamic Banking and Finance Summit, Reuters' Offices, Dubai, 2009.
2. S&P Press Release, 1st February 2010.
3. Daniel Mahler, A.T. Kearney, Inc. Report, titled *Green Winners: The Performance of Sustainability-focused Companies in the Financial Crisis*, 2009.
4. *Transition Towards Sustainable Investing*, World Economic Forum White paper, 2011.
5. DJIM Indices were introduced in 1999 as the benchmarks to represent Shariah-compliant portfolios.
6. Socially responsible fixed-income securities are found in conventional financial markets, while, at least in theory, they are banned by Shariah.
7. Refer to Sadeghi (2008) for more details.
8. Companies from Islamic countries were added to Dow Jones Islamic market Index in 2009 for the first time.
9. Refer to Sadeghi (2010a) for more details.
10. Refer to Sadeghi (2010b) for more details.
11. This is a pragmatic compromise, rather than an ideal situation from an Islamic perspective.
12. The DJIM index constituents are screened from around the globe and are mostly located in non-Muslim countries. For instance, from 2403 DJIM index constituents on 30th November 2009, 2204 originated in the non-Muslim world, especially in the West.
13. Refer to Beneish and Whaley (1996), Lynch and Mendenhall (1997), Kaul et al. (2000), and Wurgler and Zhuravskaya (2002) for more details.
14. The frequency of trading declines with the reduction in the sampling interval.
15. This allowed for slow responses from overseas Muslims that might cause delays in the market reaction to the index revision.
16. We believe that if index inclusion contains information, this information must have been reflected in share prices earlier than the event day and should extend for some time afterwards. As a result, we have used a sample of data that extends from 10 days before to 150 days after the event.
17. We believe that if index inclusion and exclusion contain information, this information must have been reflected in share prices earlier than the event day and should extend for some time afterwards. As a result, we have used a sample of data that extends from 10 days before to 150 days after the event.

References

Amihud Y, Mendelson M. 1986. Asset pricing and the bid-ask spread. *Journal of Financial Economics*. 17:223–49.

Amihud Y. 2002. Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets*. 5:31–56.

Asyraf Wajdi Dusuki AW, Abdullah NI. 2007. Maqasid al-Shari`ah, Maslahah, and Corporate Social Responsibility. *The American Journal of Islamic Social Sciences.* 24(1):25–45.

Becchetti LL, Ciciretti I, Hasan. 2009. Corporate social responsibility and shareholder's value: An empirical analysis. *Bank of Finland Research Discussion Papers.* 1.

Beneish M, Whaley R. 1996. An anatomy of the "S&P 500 Game: The effects of changing the rules. *Journal of Finance*. 51:1909–30.

Boehmer E, Poulsen A. 1991. Event-study methodology under conditions of event-induced variance. *Journal of Financial Economics*. 30:253–72.

Chen HG, Noronha VS. 2004. The price response to S&P 500 Index additions and deletions: Evidence of asymmetry and a new explanation. *Journal of Finance*. 59:1901–29.

Clarke S, Russell W. 2008. Stock price effects associated with socially responsible index constituent changes. Paper presented at Midwest Finance Association Conference. San Antonio, Texas, USA.

Dhillon U, Johnson H. 1991. Changes in the Standard and Poors 500 list. *Journal of Business*. 64:75–85.

Friedman M. 1996. The social responsibility of business is to increase profits. In: Schwartz MS (Ed.). *Beyond Integrity: A Judeo-Christian Approach*. Zondervan Publishing House. Grand Rapids.

Harris L, Gurel E. 1986. Price and volume effects associated with changes in the S&P 500: New evidence for the existence of price pressures. *Journal of Finance*. 41:815–30.

Hasan M, Dridi J. 2010. Islamic Banking: Put to the Test. *Finance & Development.* 47(4):45–47.

Hegde S, McDermott J. 2003. The liquidity effects of revisions to the S&P 500 Index: An empirical analysis. *Journal of Financial Markets*. 6:413–59.

HSBC Report. 2009. Islamic Banking and Finance Summit, Reuters' Offices, Dubai.

Jain P. 1987. The effect on stock price of inclusion in or exclusion from the S&P 500. *Financial Analysts Journal*. 43:58–65.

Karpoff J. 1987. The relation between price changes and trading volume: A survey. *Journal of Financial and Quantitative Analysis.* 22:109–26.

Kothari S, Warner J. 2004. Econometrics of event studies, Working *Paper.* (Tuck School of Business at Dartmouth, Hanover, USA).

Merton R. 1987. A simple model of capital market equilibrium with incomplete information. *Journal of Finance*. 42:483–510.

Nesbitt S. 1994. Long-term rewards from shareholder activism: a study of the CalPERS effect. *Journal of Applied Corporate Finance*. 6:75–80.

Price Waterhouse Coopers International Limited Report. 2009. Shariah-compliant funds: A whole new world of investment.

Sadeghi M. 2011a. Investment opportunities and stock liquidity: evidence from DJIM index additions in the Gulf States. *Investment Management and Financial Innovations*. 8(1):50–59.

Sadeghi M. 2011b. Shariah-compliant Investment and Shareholders' Value: An Empirical Investigation. *Global Economy and Finance Journal.* 4(1):44–61.

Sadeghi M. 2012. Are Faithful Investors Rewarded by the Market Place? Evidence from Australian Shariah-compliant Equities. Qualitative Research in Financial Markets, forthcoming.

Sadeghi M. 2008. Financial Performance of Shariah-Compliant Investment: Evidence from Malaysian Stock Market. *International Research Journal of Finance and Economics*. 20:15–26.

ISBN 9789927118234
90100
9 789927 118234

دار بلومزبري - مؤسسة قطر للمجلات العلمية
BLOOMSBURY
QATAR FOUNDATION
JOURNALS