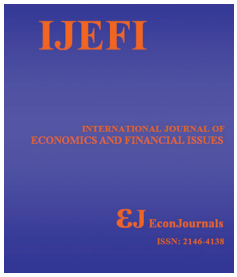

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Impact of Inclusion into and Exclusion from the Shariah Index on a Stock Price and Trading Volume: An Event Study Approach

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ABSTRACT

Does the inclusion or exclusion from the Shariah index have any effect on the performance of a stock? This study aims to examine the impact of stock inclusion (or exclusion) on the stock prices and trading volume of the firms. Based on the case of selected stocks in Bursa Malaysia, our sample consists of 107 additions and 95 deletions from the Financial Times Stock Exchange Bursa Malaysia EMAS Shariah Index in the period of June 2007 - June 2014. Event study methodology is used to estimate the abnormal returns and abnormal volumes in the days surrounding the announcement and change dates (CDs). The study finds the included stock shows significant and permanent excess returns and abnormal volumes. On the other hand, deleted stocks earn temporary significant negative returns and below normal volumes after the announcement and change dates.

Keywords: Shariah Screening Methodology, Shariah Compliant Stocks, Shariah Index, Stock Price, Stock Trading
JEL Classifications: G12, G14, G18

1. INTRODUCTION

Shariah rules are the guiding principles and play an imperative role in every aspect of Muslims activities. Even though investors aim to increase returns, for Muslim investors, Shariah compliance is very crucial in making any decisions regarding their business return. Therefore, increasing business profit appears to be not the company's first priority, particularly for those companies that grasp the status of Shariah compliance (Derigs and Marzban, 2008; Arham, 2010).

Due to increasing needs of Shariah-compliant investment worldwide, a number of index providers have already started to establish Shariah indices that conforming to the Islamic ideology. Among the largest Shariah index is Dow Jones Islamic Market (DJIM) index which was established in 1999 by Dow Jones Company, a well-known index provider in the world. Among other top equity index providers that embraced Shariah indices including Financial Times Stock Exchange (FTSE), standard and poor (S&P), Morgan Stanley Capital International (MSCI), Barra, and Russel Investments. In 1999, the Securities Commission of Malaysia (SCM) established the Kuala Lumpur Stock Exchange Shariah Index (KLSE SI) (Ahmad and Ibrahim, 2002) which serves the same task as those of the other index providers mentioned earlier. The KLSE SI index was deactivated on 1st November 2007 following the launch of the two new Shariah indeces; FTSE Bursa Malaysia EMAS Shariah index (FBMESI) and FBM Hijrah index.

There are two known screening process (qualitative and quantitative) which are being used by the leading Shariah index providers before the stock can be classified as Shariah compliant. In Malaysia, the Shariah Advisory Council (SAC), an independent body under SCM which consists of Shariah experts and market practitioners is responsible for issuing ruling related to the stock screening methodology. In terms of business activities the qualitative process used by the SCM and other indices are quite similar with only a minor difference (Khatkhatay and Nisar, 2007; Derigs and Marzban, 2008; Abdul Rahman et al., 2010). However, a big difference appears in terms of quantitative screening process; meaning that each provider uses different criteria in evaluating

the liquidity, debt level and other non-permissible income. In calculating liquidity, interest and debt ratios for example, the DJIM and S&P use market capitalization as a denominator while FTSE uses total assets as a denominator in all of its ratios except for non-permissible income ratio. Nevertheless, SCM did not apply any ratio in its quantitative screening. Effective September 2013, SCM's SAC adopted a new stringent screening approach which also includes two financial ratios similar to those of other Shariah index providers.

Various studies on the effect of stock index composition changes (inclusion/exclusion), most specifically on stock return and trading volume have been explained extensively in the finance literature (Harris and Gurel, 1986; Lynch and Mendenhall, 1997; Liu, 2000, 2011; Denis et al., 2003; Bechmann, 2004; Chen et al., 2004; Chakrabarti et al., 2005; Lin and Kensinger, 2007; Yun and Kim, 2010; Gregoriou, 2011). However, most of them focused on the non-Shariah compliant securities such as S&P 500 constituents, and less attention has been made on the Shariah compliant stocks.

Inclusion of the stock into the index is usually considered as positive occurrence and it is well documented that when the stock is added in the index, it earns positive returns and increase in volume (Shleifer, 1986; Hariss and Gurel, 1986; Jain, 1987; Lynch and Mendenhall, 1997; Chen et al., 2004; Bacha and Abdullah, 2001; Bechmann, 2004). On the other hand, deletion from the index has the negative effect on both trading volume and stock. The inclusion/deletion from the Shariah index should have more impact on the stocks concerned than the conventional one (Batcha and Abdulla, 2001). This is because inclusion/deletion exercise of conventional indexes may or may not require portfolio rebalancing but deletion from the Shariah index due to Shariah non-compliant status of the stocks leads to a compulsory/automatic portfolio rebalancing by Shariah compliant funds because those stocks become ineligible for investment by Shariah index funds.

Due to the revision of the SCM' SAC screening methodology which is now more stringent and is in line with the most popular index providers screening methodologies like Dow Jones and FTSE; the inclusion/exclusion is expected to have a larger impact on stock price and trading volume. This is because revision of screening methodology was expected to attract more Muslim investors around the world who prefer the stringent methodology. Shariah screening plays an imperative role in Islamic capital market. Since it is very difficult to find an investment that totally comply with Shariah principles, Shariah experts tried to set some benchmarks of tolerance in which companies must pass the minimum criteria before they are considered as permissible for investment according to Islamic principles. After the introduction of new strict methodology by SAC, it is believed that greater inflow of foreign Islamic funds into Malaysian equities will be encouraged (Securities Commission 2013). Whether the revision of screening attracts new Islamic funds and creates any value to the performance of Shariah compliant companies is the phenomenon that needs to be investigated. Therefore, the positive results of this study provide evidence that screening play a crucial role in the development of the Islamic capital market in Malaysia and clarify the negative perception that SCM' SAC methodology is lenient. Hence, more foreign investors will be attracted particularly from the Gulf Cooperation Council countries.

Another implication of this study is, if the inclusion (exclusion) in the Shariah index is proved to have positive (negative) effect on stock prices and trading volume, it will be necessary for the stock issuing companies to ensure that their activities qualify to be treated as Shariah compliant and continuing to remain as Shariah complaint in the subsequent periods.

The objective of the study is to provide the empirical evidence on the impact of inclusion into or exclusion from the Shariah index on stock return and trading volume before and after the revision of SAC screening methodology. This study focuses not only on the impact of inclusion-deletion from the Shariah index but also incorporate the effect of the revision of the SAC screening methodology on stock price and trading volume. Due to the revision of screening methodology few companies qualified as Shariah compliant on November 2013 SAC's list compared to the list released before the revision, on May 2013 list, 88% of the securities on Bursa Malaysia were considered as Shariah compliant but on November 2013 the only 71% were listed as Shariah compliant stocks (Securities Commission, 2013). This is due to the use of the more stringent methodology than before as some of the companies were not quickly ready to adjust their activities to be in line with new methodology. As a result large number of companies that became non-Shariah compliant has to be removed from the FBM EMAS Shariah and Hijrah indices as well. Therefore it is also the aim of this study to examine if the new stringent methodology has positive or adverse impact on the stocks considered as Shariah compliant and included in from the FBMESI.

The remaining part of this paper is organized as follows. Section 2 reviews the literature on the effects of inclusion or exclusion from index. Section 3 explains the data and the methodology used. Section 4 presents the results and Section 5 concludes and provides the implications of the findings.

2. LITERATURE REVIEW

2.1. Effects of Inclusion or Exclusion from Index

Most of the conventional studies show that an inclusion of stock into an index results in a significant enhancement in both price and trading volume of the respective stock. On the other hand the exclusion is argued to result into reduction in stock price and trading volume. Whether the increase of stock price and trading volume is permanent or not, is a debatable issue.

Shleifer (1986) uses event study methodology to analyze stock inclusion into the S&P 500 index in order to empirically examine the downward sloping (DS) hypothesis (or imperfect substitute hypothesis) in the situation where information effect plays no role. His results support the downward slowing demand curves hypothesis. He finds that the price increase upon addition is permanent and is due to increase demand. He argues that since September 1976, stocks added into the S&P 500 list have gained a significant positive excess return after the announcement of the inclusion, and the return does not disappear for at least 10 days.

In contrast, Harris and Gurel (1986) analyzed the price and volume effect associated with S&P 500 composition changes for the period from 1973 to 1983 find immediate increase in both price and volume but only short-term increase in the price after the addition is announced, in which the price increase by more than 3% but reversed back after 2 weeks. Their results are consistent with the price pressure hypothesis.

Jain (1987) examined the reaction on stock price of inclusion and exclusion of various S&P 500 indexes. The period under investigation is from November 1977 to 1983. They find significant positive and permanent price reactions of the firms added into the index. Although the price effect was significant, there was no evidence supporting either price pressure hypothesis or imperfect substitute hypothesis. This is because firms that were included in S&P supplementary indexes earn permanent positive significant excess return as well. On the other hand, firms excluded from the S&P 500 index experienced an excess negative return on first day after the announcement of −1.16% on average.

In another study done by Lynch and Mendenhall (1997), who empirically analyzed price and volume data for the firms added or deleted from the S&P 500 from 1990 to 1995. Their results reveal significant positive abnormal return on the announcement day (AD) for the additions. Furthermore, they find positive abnormal return (3.807%) from the day after the announcement to the day before the effective date of change. For deletion, they find significant negative AD abnormal return. They argue that their results can be interpreted in the context of efficient market hypothesis, this is because of the significant abnormal return that have been earned following the announcement date are not consistent with semi-strong form of efficiency. They further argue that their results are consistent with the price-pressure hypothesis due to significant temporary stock price effect and price reversal on and after the effective date of the change.

Unlike S&P 500 studies, Beneish and Gardner (1995) who examine the DJIA listing, they find no evidence of effect on price or trading volume for firms included into the DJIA. They argue that this may be due to a lack of portfolio rebalancing since most of the index funds track the S&P, and not the DJIA. However, they find that firms excluded from the index experience significant decrease in the stock price. They further argue that their findings are consistent with information cost/liquidity hypothesis.

Chen et al. (2004) documented an asymmetric price response; this is due to fact that their results show permanent increase in the stock price of firms that are included in the S&P 500 index while there is no permanent decline in price for the deleted firms. Due to this price asymmetric effect their results become not totally consistent with the information hypothesis, DS demand curve hypothesis (DSDC), and the liquidity hypothesis, these hypotheses predict a symmetric effect. According to them, the asymmetric response can be better explained by the increase in the investor awareness because of the asymmetric changes in investor awareness. Their results show that there was a large increase in the awareness for the stocks added to the index, but deleted stock experienced only a small drop in investor awareness.

Elliot et al., (2006) present an analytical survey of various explanation hypothesis consist of price pressure hypothesis, downward-sloping demand curves, improved operating performance, improved liquidity, and increased investor awareness for the effect in stock value associated with the inclusion in the S&P 500. Similar to Chen et al. (2004), they find that increase in investors' awareness to be the primary factor the abnormal announcement returns. Furthermore like Chen et al., they find no evidence that the inclusion returns are related to the stocks long-run downward-sloping demand curves or increased liquidity.

Lin and Kensinger (2007) investigated the effect of inclusion-deletion on trading volume and return volatility from 1986 to 2005; this period is after the introduction of S&P 500 index futures and options. They find significant increase in both trading volume and volatility for the firms included into the index following the introduction of index derivative securities. For stocks deleted from the index, no significant effect in trading volume and return volatility is found. Furthermore, they find increase in both daily and monthly return variance for the added firms, implying that price effect is not exclusively due to short-term price pressure. Their evidence supports a long-run DS demand curve for stocks. No significant effect is found on trading volume and return volatility for the deleted stocks.

Chakrabarti et al., (2005) by using cross-sectional data of 29 countries for the period from 1998 to 2001, examined the effect of changes in the MSCI country indices on the return and trading volume of stocks added or deleted from the indices. They find that stocks added to the MSCI indices experience a significant positive abnormal return of 3.4% and 4.5% on the day following the announcement and on the next day to the effective date respectively. On the other hand, the deleted stocks show the significant negative cumulative abnormal return (CAR) of about −7.5% over the entire period. In terms of trading volume, stocks added to the indices experience a significant increase in abnormal trading volume of about 3.3%. Their evidence seemed to more consistent with the DSDC because of the permanent return and volume effect.

Despite the fact that finance literature on stock index inclusion-exclusion and its effect on the stock price and trading volume are dominated by the US based stock, specifically S&P 500, there are also extensive studies in the literature analyzing the relationship between index changes and behavior of the stock price for European Stock markets. For instance, study done by Bechmann (2004) examined the Danish blue-chip KFX index change and its impact on stock price and trading. He reports that in general, deletion from the KFX index have negative effect on stock price while additions show positive price effects. These effects on stock price are permanent and consistent with selection criterion hypothesis. The trading volume decreases for deletions while additions show only a small increase in trading volume.

Gregoriou and Nguyen (2010) examined the association between stock liquidity and investment opportunities for the firms that have experienced a negative exogenous liquidity shock, and deleted from the FTSE 100 stock index. They find no statistical

relationship between stock liquidity and investment opportunities. They suggest that corporate investment decisions are not influenced by the deletion from the major stock index because change in the cost of capital is not significant.

Gregoriou (2011) investigated the liquidity effects following the index revision for French CAC 40 index over the period between 1997 and 2001. His results are consistent with information cost/liquidity hypothesis, because the results show long-term enhancement (reduction) in the liquidity of CAC40 stocks associated with index additions (deletion).

For Asian stock Markets, empirical studies on the relationship between index changes and stock price behavior are still limited. Liu (2000) investigated the effects of changes in the Nikkei 500 on stock price and trading volume over the period 1991-1999. They used standard market model approach to measure the stock price effects of additions and deletions. Volume ratio approach suggested by Harris and Gurel (1986) and the mean trading volume of the market were used in order to estimate the effects on trading volume. Firstly, they find significant price increase for addition and significant price decrease for deletions. No significant price reversal for additions and deletions were found, hence price pressure hypothesis was easily rejected. Secondly, trading volumes show short run significant increase for both addition and deletions in the short run. Thirdly, trading volume for the added (deleted) stocks drops (rises) significantly in the long-run. They argue that their evidences support only DSDC.

Yun and Kim (2010) studied the impact of changes in Korea Stock Exchange Price Index 200 on stock return, trading volume and volatility. The period covered is from June 1995 to June 2008. They find the evidence of permanent price effect and no full return reversal for the event stocks. They also find significant increase in trading volumes after the announcement date which continue to remain higher than before the event. The results also reveal some evidence of the existence of volatility effect and anticipatory trading effect.

For Chinese equity markets, Li and Sadeghi (2009) investigated the effect of addition into deletion from the S&P/CITIC 300 index on stock price and liquidity for the period from October 2004-August 2007. Event study methodology is used to estimate the CARs to test the price effect on the days surrounding the event. Their results show positive respond to index additions and negative effect for index deletions. Consistent with Chen et al. (2004) they find that the price effect is asymmetry; this is because of permanent increase in stock price for index additions, and a temporary decline in price for the deletions. These findings are consistent with the findings of Chen et al. (2004). Changes in liquidity of the firm added-deleted were analyzed by comparing the bid-ask spread percentage change and percentage change in the trading volume after the event. Their findings show long-term improved liquidity for both stock inclusions and deletions.

Hanaeda and Serita (2003) examined the effects of change in the composition of the Nikkei 225 index in Japan. Their findings show that added stocks experience significant positive returns of 19% after the announcement of change while deleted stock show negative return of −36%. Trading volume increases significantly for both added and deleted stocks.

For Malaysia stock Market Azevedo et al., (2013) investigated the effects on stock price and volume associated with changes in the FTSE Bursa Malaysia Kuala Lumpur Composite Index (KLCI) for the period from 2005 to 2012. Their results are consistent with the price pressure hypothesis for both additions and deletions; this is because the effects on stock price and trading volume in the pre index revision period are totally reversed to their original level after the announcement of the news. They argue that the reversal of stock price and trading volume is due to significant changes in liquidity.

2.2. Effects of Inclusion and Exclusion from Shariah Indices

Bacha and Abdullah (2001) analyzed the impact on price and volume of the stocks included/deleted from the SAC list. They used 3 year sample data for the period from 1997 to 1999 and consist of 39 additions and 21 deletions. For inclusions, they find positive impact on both stock price and trading volume. However, the stock price effect was not immediate as there was significant increase after 30 and 60 days following the announcement. Volume increase was immediate but temporary. On the other hand, deletion showed negative respond on both stock prices and trading volume. However, the Mean CAR (MCAR) is statistical significant only after 60 days following the announcement.

Sadeghi (2008) examined the impact on the performance (return) and liquidity of the shares included into the Shariah compliant index (SI) after it was first introduced by Bursa Malaysia in April 1999. Event study methodology is used to estimate MCARs. Changes in the volume of trade and bid-ask spread were used to measure the liquidity in window surrounding the event day. Despite negative MCARs that were found immediately after the event day. Findings show that in general the introduction of SI by Bursa Malaysia had a positive effect of the financial performance of the stocks included. The estimated MCAR and change in volume of transactions during day 16 to day 135 was 21.73% and 110.22% respectively. They also found percentage changes in bid-ask spread of 19.63% during the same period.

Further, using event study methodology, Muhammad et al. (2009) provided evidence of positive effect on the average returns of stocks and trading volume after the announcement of the inclusions into the KLSE SI index, and negative impact for the exclusion from the KLSI for the period from 1999 to 2007. Masulis's (1980) comparison return approach was used to compare the difference in stocks return and trading volumes before and after the announcement (event) date. In general, their results show that there is significant difference in average returns and trading volume for the stocks included into and excluded from the KLSE SI. This is implied by the significant t-statistics of the mean daily returns at 5% and 1% levels. They further argued that inclusions into the KLSI convey good news while exclusions convey negative news to the investors.

Sadeqhi (2011) investigated the effect of inclusion into the DJIM index on return and liquidity of Shariah compliant stocks in Egypt and Jordan. Their sample consists of 25 Egyptian firms and 9 Jordanian firms. The period covered is from January 2008 to December 2009. The results show positive respond to index addition for both countries. Moreover, their study shows evidence of both short and long-term increase in returns and liquidity of shares added to the index. Ahmad et al., (2003) examined the effect of delisting from the KLSE SI on firms stock prices by using standard event study methodology over the period from April 1999 to January 2002. Their results show that deletion from the Shariah index do not have any significant negative impact on stock prices as for the 52 deleted stocks show no significant negative abnormal returns earned due to the event.

In a similar study done by Shaft (2011) no significant abnormal return was found before and after the announcement of addition into or deletion from the SAC list. The period under investigation is from 2005 to 2007. In terms of volatility, the addition of stock into the SAC list show positive MCARs while deletions shows negative MCARs. This imply that market volatility affect the stock price reactions.

Febrian et al., (2013) empirically examined market reactions to composition changes of Jakarta Islamic Index (JII). In order to be able to compare the results of JII with other indices response, other five conventional indices on the Indonesian stock exchange were also investigated. This includes Kompas 100, Bisnis 27, Sri Kehati, LQ45 and Pefindo. Abnormal return, abnormal volume relatives, abnormal bid-ask spread relatives and abnormal frequency relatives were calculated in order to measure the market reactions. Their results show positive market reaction to stocks newly added into JII as well as conventional indices. On the other hand, stocks deleted for JII show unfavorable effect on the stock indicated by significant negative return and decrease in liquidity. Conventional stocks behave in the similar way as Islamic stocks.

3. METHODOLOGY

3.1. Data Collection

Daily data on stocks prices and volumes of the constituents of the FBMESI over the total sample period from 2007 to 2014 were extracted from Bloomberg. Other information about the companies included and excluded is obtained from Bursa Malaysia website. The review and announcement of the compositions changes of FTSE indices are made after every 6 month i.e., June and December. Constituent changes are implemented on the third Friday after the close of business and effective on the following Monday. The data for announcement and effective dates as well as list of stocks included and excluded from FTSE Bursa Malaysia indices are obtained from FTSE website.

The original sample comprises of all inclusions and exclusions occurred between June 2007 and June 2014. The information about these compositions changes were gathered from FTSE website. Our final sample comprise of 107 inclusions and 95 exclusions for the entire period. The period before revision consists of 58 inclusions and 49 exclusions while for the period after the revision comprises of 57 additions and 38 deletions. We divide our sample into two periods i.e., period before the revision of the SAC screening methodology (June 2007 to June 2013) and the period after the revision (December 2013 to June 2014). The stocks included in our sample must have historical data for at least 120 days before and after the announcement date. The list of the companies included in the sample is shown in Appendix A.

Table 1 shows announcement and effective dates and respective number shares included and excluded from the FTSE EMAS Shariah indices since their introduction in 2007.

3.2. Data Analysis

3.2.1. Stock price effect

Event study methodology proposed by MacKinlay (1997) is applied in order to examine the effect associated with the changes of the composition of FBMESI on stock prices. The event in this study is inclusion or deletion announcement. Announcement dates as well as effective dates were used in the event window. Similar to Bacha and Abdullah (2001) and Shaft (2011) the event window covers the period between 60 days before the announcement and 60 days after the change date (CD) (−60 to +60). This window period was applied so as to see whether the impact of inclusion/deletion is immediate or is delayed.

There are various methods of calculating the abnormal returns but the mostly used methods are the market adjusted model and the market model. In this study we use both methods to calculate the excess returns. Lynch and Mendenhall (1997) used both model and their results were very similar for both methods.

The market model is employed to calculate the expected return of a particular stock in relation to the market return. In this model certain period of time known as model estimation window has to be established in which some estimates (parameters) based on the actual returns over this estimation

Table 1: Number of shares included and excluded from the FTSE EMAS Shariah indices since 2007

Announcement date	Effective date	Number of stocks added	Number of stocks deleted
June 12, 2007	June 18, 2007	5	5
December 20, 2007	December 24, 2007	52	13
June 12, 2008	June 23, 2008	11	8
December 11, 2008	December 22, 2008	22	48
June 11, 2009	June 22, 2009	9	0
December 10, 2009	December 21, 2009	36	35
June 10, 2010	June 21, 2010	38	8
December 9, 2010	December 20, 2010	22	9
June 9, 2011	June 20, 2011	21	9
December 8, 2011	December 19, 2011	4	19
June 7, 2012	June 18, 2012	12	19
December 13, 2012	December 24, 2012	17	24
June 13, 2013	June 24, 2013	12	15
December 12, 2013	December 23, 2013	24	30
June 5, 2014	June 23, 2014	30	12
		315	254

Source: FTSE website. FTSE: Financial Times Stock Exchange

period are calculated. The estimation window period interval is −61-120 and +61-120 (120 days before the AD and 120 days after the change date (CD) excluding the event window period (Figure 1). Scholes (1972) suggested that the event window has to be excluded in order to avoid biased estimate, this is due to the fact that one could expect that addition (deletions) over perform (underperform) the market in the period prior to the changes. Harris and Gurel (1986), Beneish and Gardner (1995), Benchmann (2002) and Sadeghi (2008) are among the others who estimates returns by using the estimation window prior and after the event window.

3.2.1.1. The market adjusted model

The market adjusted model relates the returns of the market with the return of a given security. The market adjusted model is used by several authors including Barontini and Rigamonti (2000); Lynch and Mendenhall (1997); Yun and Kim (2010); and Azevedo et al. (2013).

The market adjusted abnormal return is given by:

$$AR_{it} = R_{it} - R_{mt} \quad (1)$$

Where,
R_{it} = The return on security i on day t
R_{mt} = The return on KLCI index on day t.

3.2.1.2. The market model

The market model also known as single-index model assumes a linear relationship between the return of a security and the market portfolio return (Equation 2). It is a statistical model that relates the return of the market portfolio with the return of security (Brown and Warner, 1985; MacKinlay, 1997). For each security, the parameters of the market model were estimated by running the following ordinary least square (OLS) regressions over the estimation window (−61, −120:+61, +120). The normal assumptions of the OLS must be satisfied.

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \epsilon_{i,t} \quad (2)$$

$$E(\epsilon_{i,t}) = 0 \text{ and } Var(\epsilon_{i,t}) = \sigma^2$$

Where,
$R_{i,t}$ = Return of security i at time t
$R_{m,t}$ = Return of the market portfolio at time t (KLCI return is used)
α_i = Intercept for security i
β_i = Slope coefficient for security i
$\epsilon_{i,t}$ = Residual for security i at time t

Estimates (intercept and betas) obtained from the Equation 2 was then used to calculate the expected return of each security i over the event window period. It is given as:

$$\hat{R}_{it} = \hat{\alpha}_i + \hat{\beta}_i \times R_{mt}$$

3.2.1.3. Market model abnormal returns calculations

After obtaining the estimates for the expected returns from the above model, the abnormal return is calculated. The abnormal return (Equation 3) is defined as the difference between stock's actual returns and the expected returns.

$$AR_{it} = R_{it} - \breve{\alpha}_i - \breve{\beta}_i R_{mt} \quad (3)$$

AR_{it} is the abnormal return for security i at time t, R_{it} is the actual return for security i at time t, and R_{mt} is the market's return for time t, and α and β are the estimated parameters of the market model.

The stock's percentage daily actual return is computed as:

$$R_{it} = I_n \left(\frac{P_t}{P_{t-1}} \right) \times 100 \quad (4)$$

Where P_t is the closing price at trading day t.

In order to be able to draw the overall inference for the event; the abnormal returns need to be aggregated. The aggregation can be divided into two dimensions:
1. Through time
2. Across firms

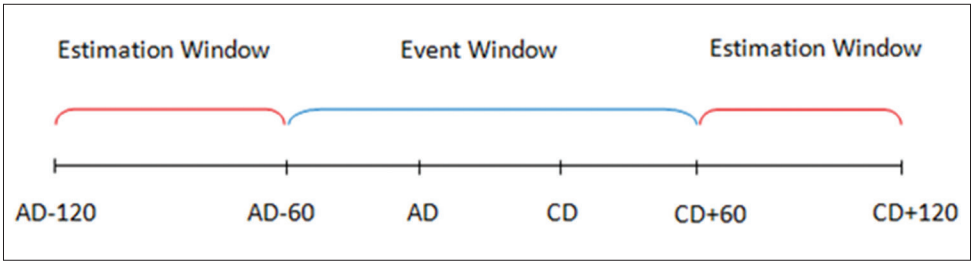
Through time aggregation of abnormal return is done by calculating the mean abnormal return (MAR) for securities at event day t. MAR is used to measure the excess return movement of all stock on specific day t.

$$MAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \quad (5)$$

Where,
N = Number of sample firms
AR_{it} = Abnormal return on security i on day t.

For across securities aggregation of abnormal return, the firm's CAR over the window is calculated by summing up each security's abnormal returns over the window. MCAR is then calculated across all firms over the event window period, separate for additions and deletions. Unlike MAR, the MCAR measures the

Figure 1: Timeline for estimation and event windows



abnormal price movement of all firms over the selected window period t_1 to t_2. The CAR is defined as follows:

$$CAR_i(t_1,t_2) = \sum_{t=t_1}^{t_2} AR_{it} \quad (6)$$

Finally, we aggregate the abnormal returns across all firms, separate for inclusion and deletions. The MCAR is given as:

$$MCAR\ (t_1, t_2) = \frac{1}{N}\sum_{i=1}^{T} CAR_i\ (t_1, t_2) \quad (7)$$

Where,
N = Number of sample stocks
MCAR = Mean cumulative abnormal returns for window period t_1 to t_2.

3.2.1.4. Testing for significance

We calculated sample variances and perform t-test (Equation 8) to test statistical significance of the CARs. The null hypothesis is that the event change has no effect on abnormal returns.

The t-test is given by:

$$t = \frac{MCAR(t_1, t_2)}{Var(MCAR(t_1, t_2))^{\frac{1}{2}}} \sim N(0,1) \quad (8)$$

3.2.2. Trading volume effect

Harris and Gurel (1986) methodology is used to examine whether the trading activities increase or decrease after the addition into/deletion from the Shariah index. In this methodology the trading volumes for stock i are adjusted for market volumes during period t. The volume ratio is calculated using the Equation 9.

$$VR_{it} = \frac{V_{it}}{V_{mt}} \cdot \frac{V_m}{V_i} \quad (9)$$

Where, VR_{it} is volume ratio, V_{it} is the volume of stock i, and V_{mt} is the total market (exchange) trading volume in the event time period t, here is represented by KLCI volume. V_i and V_m represent the average trading volume of the security and the market (KLCI) in the estimation periods AD-120: AD-61, and CD+61: CD+120.

We then compute the cross-sectional mean volume ratio (MVR) as follows:

$$MVR_t = \frac{1}{N}\sum_{i=1}^{N} \beta VR_{it} \quad (10)$$

The expected value of the volume ratio/MVR is 1 if there is effect on volume effect during the event period. We used t-test to test whether the MVR is significant different from 1.

3.2.3. Event window and implications of the explanation hypotheses

Various hypotheses that can explain the price movements around the day of announcement and change date of index changes have been discussed above in the literature review part. Among others these hypotheses includes: Price pressure hypotheses, the imperfect substitutes hypotheses/DSDC, the information hypothesis, and liquidity hypothesis. The whole event window begins 60 days prior to the day of announcement to 60 days after the change date. However, the window is divided into 7 sub-windows so as to be able to test the above hypotheses. The sub-window division follows Lynch and Mendenhall (1997) and Hacibedel (2008). Figure 2 summarizes the timeline for event window.

1. Pre-announcement/anticipation window: Starts 60 days before the announcement to 1 day before the AD (AD-60: AD-1). This period is considered to check if there are early expectations of the news about additions/deletion before the AD
2. AD: It is the actual day of announcement of changes: If there are early market expectations, it is expected that price effect will be positive (negative) for inclusion/deletion. Trading volume (liquidity) is also expected to be positive (negative) for inclusion (deletion)
3. Run-up window. Starts the one day after the announcement until one day before the change date (AD+1: CD-1). This window reflects the index fund's portfolio rebalancing. It can also be seemed as a strategy for arbitragers to make profit, when they think that the index funds will do adjustment of their portfolio for rebalancing on CD-1, they can purchase extra stocks on AD+1 so as to sell them on CD-1
4. Change day (CD): Is the actual day of index composition changes
5. Price reversal window: Starts from one day after the change date to 10 days after the change date (CD+1: CD+10). In order

Figure 2: Timeline for event window. There is an average of 6 trading days' interval between the announcement date and the change date. Table 1 for the announcement and change date information

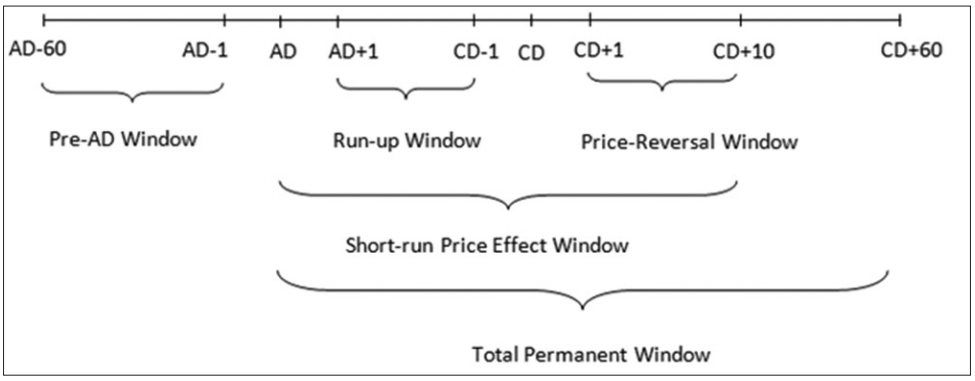


Table 2: Market adjusted model abnormal returns for inclusion and exclusion

Panel A inclusions									
Window	Period before SAC revision (June 2007 - June 2013)				Period after SAC revision (December 2013 - June 2014)				Difference on mean
	N	MCAR	Standard	t-statistics	N	MCAR	Standard	t-statistics	t-statistics
AD-60, AD-1	58	0.0444	0.2025	1.671	49	0.0758	0.1732	3.066***	−0.855
AD	58	−0.0047	0.0216	−1.645	49	0.0046	0.0201	1.608	−2.285**
AD+1, CD-1	58	−0.0117	0.0487	−1.831*	49	0.0073	0.0473	1.085	−2.041**
CD	58	0.0002	0.0266	0.063	49	0.0077	0.0261	2.060**	−2.243**
CD+1, CD+10	58	−0.0001	0.0511	−0.022	49	0.0216	0.0695	2.176**	−1.863**
AD, CD+10	58	−0.0180	0.0838	−1.636	49	0.0412	0.0850	3.396***	−3.619***
AD, CD+60	58	−0.0027	0.1531	−0.135	49	0.0859	0.1848	3.254***	−2.713***
Panel B exclusions									
Window	Period before revision				Period after SAC revision				Difference on mean
	N	MCAR	Standard	t-statistics	N	MCAR	Standard	t-statistics	t-statistics
AD-60, AD-1	57	−0.0029	0.0913	−0.240	38	−0.0833	0.1989	−2.580**	2.663**
AD	57	−0.0012	0.0102	−0.901	38	0.0030	0098	1.827*	−1.961
AD+1, CD-1	57	−0.0060	0.0313	−1.444	38	−0.0209	0.0292	−4.400***	2.333**
CD	57	−0.0025	0.0168	−1.144	38	0.0051	0.0239	1.308	−1.315
CD+1, CD+10	57	−0.0147	0.0466	−2.379**	38	0.0188	0.0532	2.180**	−3.242**
AD, CD+10	57	−0.0244	0.0555	−3.323***	38	0.0059	0.0680	0.536	−2.383**
AD, CD+60	57	−0.0160	0.1086	−1.111	38	0.0597	0.2022	1.820*	−2.364**

*,** and ***indicate significance at the 10%, 5%, and 1% level, respectively. MCAR refers to mean cumulative abnormal returns calculated using equation (7). SAC: Shariah Advisory Council, MCAR: Mean cumulative abnormal return

for the price pressure hypothesis to hold, the abnormal return should be in another direction in the price-reversal window, this is because PPH assume the change in abnormal return/volume is only temporary shift in demand, hence it should reverse back to its normal level after the index fund rebalance their portfolio. If there is no significant price reversal, then the price impact is permanent supporting the DSDC

6. Short-run permanent effect window: Starts from AD to CD+10. This window is used to check if there is temporary or permanent price/volume effect. If the abnormal return/volume is not fully reversed in this window period, then there is evidence to support the permanent effect (DSDC) or other similar hypotheses that assume permanent price/liquidity effect like information and liquidity hypothesis
7. Long-run/total permanent price effect window: Cover the total event window period from AD to CD+60. This window captures the total magnitude of the abnormal return form the announcement news. Similar to the short-run window, this window also examine whether there is temporary or permanent effect but in longer term horizon (complete even window). If there is no reversal of abnormal return in this period it is assumed that there is the permanent effect and thus supports the DS demand curve.

4. RESULTS AND DISCUSSION

4.1. Price Effect

The result of price effect on inclusion for the seven event windows by using the market adjusted model is shown in Table 2 (Panel A).The Market model is used here to check the robustness of our result, and the results from both models are quite similar, therefore our analysis is based on market adjusted model only[1]. Market adjusted is argued to be less biased compared to market model (Edmister et al., 1994; Lynch and Mendenhall, 1997; and Barontini and Rigamonti, 2000). This result is divided into two sample period-period before SAC revision and period after SAC revision. The t-test of the difference in means of the two periods is provided in the last columns of Table 2.

4.1.1. Index inclusion

From the market adjusted model results, the price effect differ between the two periods. In the first period, the MCAR is significant only in the run-up period (AD+1, CD-1) the excess return is −1.17%, t = −1.831 but significant only at 10% level. No significant MCAR is found over all other event windows. Therefore, we cannot reject the null hypothesis that there is no effect on price of the stock included into the FBMESI on the first period (period before revision).

The results are remarkable different in the second. In the pre-event period (60 days before the announcement date) the mean cumulative excess return is 7.59%, t = 3.066, and P = 0.004 at 0.05 alpha level. Although the abnormal return fall on the AD but remain positive. The abnormal return keep rising in the period between one day after announcement and one day before change date (AD+1, CD-1) and stay significant positive for the whole event period, until reaches 8.6% with the t = 3.25, and P = 0.002 on post announcement permanent price effect window (AD, CD+60). There was no sign of price reversal after the change date. This shows that the inclusion into the Shariah index have permanent positive effect after the revision of the SAC SM, hence, the null hypothesis is rejected.

4.1.2. Index exclusion

In the first period in Table 2 (Panel B) the excess returns in all window periods are negative but significant only on CD+1, CD+10 and AD, CD+10. This is the period from the change date to 10 days after the change; this implies that the effect is

1 Results for market model will be provided upon request.

not immediate and short-lived. Over the longer window period (AD, CD+60), the excess return is still negative (−1.59%) but not significant. therefore, even though the effect on the exclusion is only temporary, but we rejected the null hypothesis.

In the second period, results show that there was an anticipation of the changes, the excess return in 60 days before announcement is −8.3%, t = −2.58 and P = 0.014 at 0.05 alpha level. In the run-up period (AD+1, CD-1) the abnormal return was still negative and significant (−2%), on the change date (CD) the excess return is positive but not significant, this evidence the price reversal after the change. The mean excess return remains significant positive afterwards and reaches 5.97% over the whole post-announcement permanent price effect window (AD, CD+60). The price reversal shows that the effect was only temporary due to price pressure effect. Therefore we rejected the null hypothesis and conclude that there is short-term price effect on price.

4.2. Trading Volume Effect

The trading volume effect for included stocks is shown in Table 3 (Panel A) while that of exclusion is shown in Panel B of the Table 3.

4.2.1. Index inclusions

Prior to the revision of SM, the trading volume effect is above normal (more than 1) for the whole event period, but significant only in the pre-announcement period at 10% level. This shows that there is no significant effect of index inclusion on volume and is consistent with the result for excess return of the included stock shown in Table 2 (no significant excess returns in first period). The null hypothesis cannot be rejected.

In the second period, the volume ratio is 1.095 times normal but not significant different from 1 in the pre-event period (AD-60, AD-1). In the period from one day after change date to 10 days after change date (CD+1, CD+10), the MVR is 1.63 times normal, t = 3.122, and P = 0.003. This shows that the volume effect appear after the change day but not before. This result is also consistent with the price effect because the significant excess positive returns of the included stocks starts to appear on the change date and not on AD. The volume ratio is significant above normal in the permanent window period (AD, CD+60), this shows that although the volume effect is not immediate it is permanent, and there was no sign of reversal and therefore we reject the null hypothesis. The result is again consistent with the price effect results in Table 2 for the period after screening.

4.2.2. Index exclusions

In the first period, the index exclusion shows below normal volume effect with t = −3.593, P = 0.001 on the run-up period (AD+1, CD-1), the result is interesting since this is the period when the index funds trying to rebalance their portfolios (buying the included stocks and selling the deleted shares), and therefore support price pressure hypothesis. Due to the significant negative abnormal return in the run-up period, we reject null hypothesis but we conclude that the effect on the exclusion on trading volume is only temporary.

In the second period, from the period before the announcements up to the CD there is no significant effect on volume. The MVR becomes >1 and significant after the change date until 60 days after the change. Significant positive ratios support the price reversal in Table 2 (Panel B), this confirm that the significant positive excess returns after the change date is due to short-term price pressure on the included shares. The reversal occurs after the change date. Therefore we reject the null hypothesis.

5. CONCLUSION

In this study we examined the impact on stock price and volume associated with FBMESI composition changes. We divide our

Table 3: Volume ratios for stocks included into and excluded from Shariah index

Panel A inclusions									
Window	Period before revision (June 2007 - June 2013)				Period after SAC revision (December 2013 - June 2014)				Difference on mean
	N	MVR	Standard	t-statistics	N	MVR	Standard	t-statistics	t-statistics
AD-60, AD-1	58	1.3214	1.3295	1.841*	49	1.0959	0.7399	0.907	1.057
AD	58	1.1577	1.8123	0.663	49	0.9962	1.5803	−0.017	0.487
AD+1, CD-1	58	1.0578	1.2446	0.353	49	0.8965	0.9708	−0.746	0.737
CD	58	1.2221	1.6774	1.008	49	0.9962	1.5803	−0.017	0.713
CD+1, CD+10	58	1.1847	1.1111	1.266	49	1.6337	1.4206	3.122***	−1.833*
AD, CD+10	58	1.1368	0.9698	1.074	49	1.2836	1.0242	1.938**	−0.760
AD, CD+60	58	1.0691	0.7122	0.739	49	1.1619	0.6724	1.685*	−0.689
Panel B exclusions									
Window	Period before revision				Period after SAC revision				Difference on mean
	N	MVR	Standard	t-statistics	N	MVR	Standard	t-statistics	t-statistics
AD-60, AD-1	57	1.0502	0.9747	0.388	38	1.2302	1.1517	1.232	−0.820
AD	57	0.9299	1.6268	−0.325	38	0.8775	1.0781	−0.701	0.175
AD+1, CD-1	57	0.6982	0.6340	−3.593***	38	0.9480	0.6482	−0.494	−1.864*
CD	57	0.9299	1.6268	−0.325	38	0.8774	1.0781	−0.701	0.175
CD+1, CD+10	57	1.200	1.7290	0.875	38	2.3762	3.1408	2.701**	−2.347**
AD, CD+10	57	0.9793	1.0902	−0.143	38	1.6381	1.5820	2.486**	−2.404**
AD, CD+60	57	0.9940	0.8133	−0.056	38	1.6168	1.3346	2.849***	−2.827***

*. ** and ***indicate significance at the 10%, 5%, and 1% level, respectively. MVR stands for mean volume ratio calculated using equation (10). SAC: Shariah Advisory Council, MVR: Mean volume ratio

sample period into two period (period before and period after revision of SAC methodology) so as to examine if whether the SAC revision of the screening methodology have any significant impact on price and volume of the stocks considered as Shariah compliant and included into the list. The results show that in the period before revision, there is no significant effect on both price and volume of the included stocks. On the other hand the excluded stocks earn negative return and below normal volume but only in the short-term period.

The interesting results are found in the period after the revised screening, the index addition and deletion show asymmetric behavior. Stocks added into the index exhibit significant excess return which persists over the long-term permanent price effect window. Trading volume ratio is significant higher than normal after the change date and there was no sign of reverting. On the other hand, index exclusion shows negative but temporary price and volume effects. Price reversal starts from the change date and remain significant positive over the whole post-announcement permanent effect window.

The findings show that there is significant difference on the impact of the index composition changes between the period before revision (June 2007 - June 2013) and the period after the revision (December 2013 - June 2014). Our results are consistent with many other similar studies on both conventional and Shariah indices. However, they are in contrast with empirical analysis on Shariah index done by Ahmad et al. (2003); they found that being delisted from the KLSI does not have any negative effect on stock price. Likewise they contradict the study done by Shaft (2011), in which the empirical investigation shows that neither addition nor deletion from the SAC list leads to significant change in abnormal return. In terms of price effect, no significant effect is found for the included companies. For the excluded stocks, the excess return is found after the change date until 10 days after the change date. This suggests that the price effect on deletion is not immediate and short-lived. In the second period, similar to Chen et al. (2004) and Li and Sadeghi (2009), addition and deletion show asymmetric behavior.

Chen et al. (2004) went further and investigate the reason behind the asymmetric effect, and evidenced that it was due to increase in investors awareness for added stock. The added shares earn permanent positive excess return from the change date onwards while the deleted stocks earns temporary negative excess return, the reversal occur after the change date.

As for the volume effect, inclusion exercise shows no significant effect in the first period, this is consistent with the price effect for added stocks. The deleted stocks exhibit temporary negative abnormal return on the run up period only. In the period after revision, the abnormal volumes effect is significant positive and permanent for added stocks. The MVR of the deleted companies is >1 and significant after the change date until 60 days after the change. This significant positive effect supports the price effect for the deleted stocks in the second period.

Insignificant effect that is found in the first period (June 2007 - June 2013) for inclusion, and temporary short-term significant negative effect for the deletion is something that could be predicted especially for Shariah compliant index changes. Deletion should have more effect since being considered as Shariah non-compliant by SAC will lead to not only automatic deletion from the Shariah index like FBMESI but excluded from Shariah funds that like ETFs because those stocks are disqualified for investment by Islamic funds. On the other hand being included into the index does not necessary lead to the inclusion into the Shariah funds and hence there may be no much effect especially if there are a lot of Shariah stocks in the market. Therefore, this means that Shariah compliant companies should try to maintain the Shariah status so as to be able to remain in the index and Shariah funds in the subsequent periods.

The asymmetric response-permanent effect for inclusion and temporary impact for deletion in the second period (December 2013 - June 2014) may be among other factors due to increase in investor's awareness for included stocks. Index addition may result into the increase in awareness about the stock to investors and the financial analyst but deletion does not necessary leads to decrease in awareness.

REFERENCES

Abdul Rahman, A., Yahya, M.A., Mohd Nasir, M.H. (2010), Islamic norms for stock screening: A comparison between the Kuala Lumpur stock exchange Islamic index and the Dow Jones Islamic market index. International Journal of Islamic and Middle Eastern Finance and Management, 3(3), 228-240.

Ahmad, Z., Ibrahim, H. (2002), A study of performance of the KLSE Syariah index. Malaysian Management Journal, 6(1-2), 25-34.

Ahmad, Z., Ibrahim, H., Zainuddin, Y. (2003), The impact of delisting from KLSE Syariah index: An empirical study. The Journal of Accounting, Management, and Economics Research, 3(2), 109-118.

Arham, M. (2010), Islamic perspectives on marketing. Journal of Islamic Marketing, 1(2), 149-164.

Azevedo, A., Karim, M., Gregoriou, A., Rhodes, M. (2013), Stock price and volume effects associated with changes in the composition of the FTSE Bursa Malaysian KLCI. Journal of International Financial Markets, Institutions and Money, 28, 20-35.

Bacha, O.I., Abdullah, M.H. (2001), Halal stock designation and impact on price and trading volume. The Journal of Accounting, Commerce and Finance - Islamic Perspective, 5(1), 66-97.

Barontini, R., Rigamonti, S. (2000), Stock index futures and the effect on cash market in Italy: Evidence from changes in indexes composition. In: EFMA 2000 Athens Meeting.

Bechmann, K. (2004), Price and volume effects associated with changes in the Danish blue-chip index: The KFX index. Multinational Finance Journal, 8, 3-34.

Beneish, M.D., Gardner, J.C. (1995), Information costs and liquidity effects from changes in the Dow Jones Industrial Average list. Journal of Financial and Quantitative Analysis, 30(1), 135-157.

Brown, S., Warner, J. (1985), Using daily stock returns: The case of event studies. Journal of Financial Economics, 14(1), 3-31.

Chakrabarti, R., Huang, W., Jayaraman, N., Lee, J. (2005), Price and volume effects of changes in MSCI indices-nature and causes. Journal of Banking and Finance, 29, 1237-1264.

Chen, H., Noronha, G., Singal, V. (2004), The price response to S&P 500 index additions and deletions: Evidence of asymmetry and new explanation. Journal of Finance, 59, 1901-1930.

Denis, D.K., McConnell, J.J., Ovtchinnikov, A.V., Yu, Y. (2003), S&P 500

index additions and earnings expectations. The Journal of Finance, 58(5), 1821-1840.
Derigs, U., Marzban, S. (2008), Review and analysis of current Shariah - Compliant equity screening practices. International Journal of Islamic and Middle Eastern Finance and Management, 1(4), 285-303.
Edmister, R., Graham, S., Pirie, W. (1994), Excess returns of index replacement stocks: Evidence of liquidity and substitutability. Journal of Financial Research, 17, 333-346.
Elliott, W.B., Ness, B.F.V., Walker, M.D., Wan, R.S. (2006), What drives the S&P 500 inclusion effect? An analytical survey. Financial Management, 35(4), 31-48.
Febrian, E., Herwany, A., Primadhi, A. (2013), Market response to the composition change of Islamic index: Evidence from Indonesia. The International Journal of Business and Finance Research, 7(5), 23-34.
FTSE Website. Available from: http://www.ftse.co.uk.
Gregoriou, A. (2011), The liquidity effects of revisions to the CAC40 stock index. Applied Financial Economics, 21, 333-334.
Gregoriou, A., Nguyen, N. (2010), Stock liquidity and investment opportunities: New evidence from FTSE index deletions. Journal of International Financial Markets, Institutions and Money, 20, 267-274.
Hacibedel, B. (2008), Index Changes in Emerging Markets. Swedish Institute for Financial Research Working Paper, Stockholm, Sweden.
Hanaeda, H., Serita, T. (2003), Price and volume effects associated with a change in the Nikkei 225 index list: New evidence from the big change on April 2000. International Finance Review, 4, 199-225.
Harris, L., Gurel, E. (1986), Price and volume effects associated with changes in the S&P 500 list: New evidence for the existence of price pressures. Journal of Finance, 41, 815-829.
Jain, P.C. (1987), The effect on stock price of inclusion in of exclusion from the S&P 500. The Financial Analysts Journal, 43(1), 58-65.
Khatkhatay, M.H., Nisar, S. (2007), Shariah compliant equity investment: An assessment of current screening norms. Islamic Economic Studies, 15(1), 47-76.
Li, Y., Sadeghi, M. (2009), Price performance and liquidity effects of index additions and deletions: Evidence from Chinese equity markets. Asian Journal of Finance and Accounting, 1(2), 16-52.
Lin, E., Kensinger, J. (2007), Impact of Inclusion in the S&P 500 Index on a Stock's Trading Volume and Return Volatility. Working Paper.
Liu, S. (2000), Changes in the Nikkei 500: New evidence for downward sloping demand curves for stocks. International Review of Finance, 1(4), 245-267.
Liu, S. (2011), The price effects of index additions: A new explanation. Journal of Economics and Business, 63, 152-165.
Lynch, A., Mendenhall, R. (1997), New evidence on stock price effects associated with changes in the S&P 500 index. Journal of Business, 70, 351-383.
MacKinlay, C.A. (1997), Event studies in economics and finance. The Journal of Economic Literature, 35(1), 13-39.
Masulis, R. (1980), The effects of capital structure change on security prices: A study of exchange offers. Journal of Financial Economics, 8(2), 139-178.
Muhammad, J., Ibrahim, I., Sufar, S.B., Rahman, N.M. (2009), The efficiency of stock market based on the inclusion-exclusion exercise of the Kuala Lumpur Syariah index (KLSI). Journal of Applied Finance, 15, 33-48.
Sadeghi, M. (2008), Financial performance of Shariah-compliant investment: Evidence from Malaysian stock market. International Research Journal of Finance and Economics, 20, 15-26.
Sadeghi, M. (2011), Shariah-compliant investment and shareholders' value: An empirical investigation. Global Economy and Finance Journal, 4(1), 44-61.
Scholes, M. (1972), The market for securities: Substitution versus price pressure and the effects of information on share prices. Journal of Business, 45, 179-211.
Securities Commission. (2013), List of Shariah-Compliant Securities by the Shariah Advisory Council of the Securities Commission. Available from: http://www.sc.com.my/data-statistics/list-of-Shariah-compliant-securities-by-scs-Shariah-advisory-council/.
Shaft, R.M. (2011), Sensitivity on stock returns and volatility: The case of Shariah-compliant securities in Bursa Malaysia. Academic Journal UiTM Johor, 10, 105-117.
Shleifer, A. (1986), Do demand curves for stocks slope down? Journal of Finance, 41, 579-590.
Yun, J., Kim, T. (2010), The effect of changes in index constitution: Evidence from the Korean stock market. International Review of Financial Analysis, 19, 258-269.

APPENDIX

Appendix A: List of companies included in our observation

Inclusions	Exclusions
Hap Seng Plantations Holdings Bhd	Sunway Holdings Bhd
Sunway City Bhd	Daiman Development Bhd
Lingui development Bhd	Metro Kajang Holdings Bhd
Lion Corp Bhd	AiranIhsan Resources Bhd
Green Packet Bhd	Land & General Bhd
Progressive Impact Corp Bhd	Pan Malaysian Industries
Metacorp Bhd	Nestle Malaysia Bhd
Hexagon Holdings Bhd	Hong Leong Industries Bhd
Hap Send Consolidated Bhd	Chemical Co of Malaysia Bhd
Selangor Properties Bhd	KrisAssets Holding Bhd
TAN Chong Motor Holdings Bhd	FAR East Holdings Bhd
United Malacca Bhd	Oritental Holdings
Chin Teck Plantations Bhd	United Plantations
UBG Bhd	Sarawak Plantations
Sunway Holdings Bhd	Selangor Properties
Cahya Mata Sarawak Bhd	United Malacca
Jobstreetcorp Bhd	Nestle (Malaysia)
Daiman Development Bhd	Ta Ann Holdings
PJ Development Bhd	KriAssets Holdings
Symphony House Bhd	Asia File Corp
Integrated Logistics Bhd	PJ Development
Nestle Malaysia	Hexagon Holdings
Krisassets Holdings	Leweko Resources
Atlan Holdings	PPB Group
NTPM Holdings	Amway (Malaysia) Holdings
APM Holdings	Padiberas Nasional
NCB Holdings	Atlan Holdings
TA Global	Acoustech
Hong Leong Industries	Transmile Group
Keck Seng Malaysia	SweeJoo
MTD Capital	BatuKawan
United Plantations	Shell Refining Co (F.O.M.)
Proton Holdings	Aeon Co. (M)
Shin Yang Shipping Corp	Hong Leong Industries
Selangor Properties	Lingui Development
Masterskill Education Group	George Kent (M)
Tasek Corporation	Muda Holdings
Nestle (M)	Goh Ban Huat
Krisassets Holdings	Ancom
Ta Ann Holdings	MISC
Sarawak Oil Palms	Nestle (Malaysia)
Tsh Resources	United Plantations
UOA Development	Hap Seng Consolidated
Sarawak Cable	Bintulu Port Holdings
Fraser &Neave Holdings	Amcorp Properties
Lingui Development	Brem Holdings
Malayan Flour Mills	Cahya Mata Sarawak
Shin Yang Shiping Corp	DaimanDev
Yinson Holdings	Delloyd Ventures
Malaysia Airline System	Ekovest
Pharmaniaga	Fraser &Neave Holdings
Oldtown	Tan Chong Motor Holdings
Boustead Heavy Industries Corp	Hock Seng Lee
GabunganAgrs	CSC Steel Holdings
MISC	Pj Development
Sunway Lady Milk Industries	MSM Malaysia Holdings
MKH	Sarawak Oil Palms
Wing Tai Malaysia	IJM Plantations Bhd
PPB Group	Press Metal
DRB-Hicom	Kim Loong Resources
AirAsia X	YTL Power International
Cahya Mata Sarawak	Bumi Armada
Star Publication Malaysia	SP Setia
Scientex	AirAsia
Datasonic Group	Parkson Holdings
Matrix Concepts Holdings	Dutch Lady Milk Industries
Eversendai	Malaysian Resources
Crescendo	Media Chinese International
PJ Development	Padiberas Nasional
Amcorp Properties	Tropicana
Salcon	Yinson Holdings
Inch Kenneth Kajang Rubber	MKH
Symphony Life	YTL Land & Development
Sumatec Resources	Boustead Heavy Industries
Brahims Holdings	Guan Chong
Perak	Ann Joo Resource
GUH Holdings	Pantech Group Holdings
SP Setia	Wellcall Holdings
Parkson Holdings	Berjaya Food
Jaya Tiasa Holdings	SKP Resources
Malaysian Resources Corp	Malaysia Smelting
Hong Leong Industries	Ivory Properties Group
Tropicana Corporation	China stationery
Berjaya Auto	Kinsteel
MKH	Zelan
Eco World Development Group	Ho Wah Genting
Kretam Holdings	Compugates Holdings
Bonia Corporation	Multi Sports Holdings
YNH Property	Perwaja Holdings
Titijaya Land	Hap Seng Plantations Holdings
Daiman Development	Airasia X
Uchi Technologies	Padini Holdings
A & M Realty	APM Automotive Holdings
PBA Holdings	MBM Resources
Hunza Properties	Petron Msia Refining & Mktg
Pestech International	Wing Tai Malaysia
Caring Pharmacy Group	Daibochi Plastic & Packaging
Silk Holdings	Inch Kenneth Kajang Rubber Plc
Sarawak Cable	
Chin Well Holdings	
I-Bhd	
SBC Corporation	
Gadang Holdings	
Scicom (Msc)	
Destini	
Century Logistics Holdings	
Latitude Tree Holdings	

(*Contd...*)

Appendix A: *Continued...*