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Shariah-compliant investments and stock returns: evidence from the Indonesian stock market

Devi Lusyana
Business School, University of Edinburgh, Edinburgh, UK, and
Mohamed Sherif
Department of Accountancy, Economics and Finance, School of Management and Language, Heriot-Watt University, Riccarton, Edinburgh, UK

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Abstract

Purpose – The purpose of this paper is to investigate the impact of the Indonesia *Shariah*-compliant Stock Index (ISSI) on the performance of included shares. In essence, the authors ask whether the establishment of the ISSI provides abnormal returns for the firms that are not included in the Jakarta Index.

Design/methodology/approach – The authors use an event study methodology to estimate cumulative abnormal returns in the days surrounding the event to examine the relationship between *Shariah*-compliant investments and stock returns. The estimation window of 90 trading days prior to the event (−30) to day 60 after (+60) is adopted. They also use a range of investment performance measures to provide new evidence on whether faith-based ethical investments generate superior performance compared to their unscreened benchmarks.

Findings – Using daily returns, the Indonesia ISSI and panel data model, the findings show that the inclusion of the ISSI has a positive impact on the financial performance of the included shares during the 41-day event window. The evidence also suggests that the ethical investment has a significant influence on the performance of stock market returns.

Research limitations/implications – This study offers insights to policymakers, investors and fund managers interested in the indices' performance. A key conclusion that could be derived by bodies that regulate Islamic products and services is that investors are not only concerned about what is profitable but also what makes their investments ethical.

Originality/value – Although the global growth of the Islamic capital market products and services has been tremendous in recent years, very few studies focus on the Indonesian market and indeed, none of them devote sufficient attention to *Shariah*-compliant investments and stock returns.

Keywords Indonesia, Event study, Abnormal returns, *Shariah*-compliant investment

Paper type Research paper

1. Introduction

Islamic investment and finance have long been developed as a form of financial intermediation for the Islamic community to conduct financial transactions that conform to Islamic tenets. This decade in particular has witnessed a rapid evolution and expansion of the Islamic financial services industry, which has gained wider acceptance and appreciation and has expanded beyond the traditional borders of the Muslim-based economies into the major industrial economies (Wahida, 2011). Today, Islamic Finance has grown from its former "niche" product status and expanded to over 60 countries (Sherif and Shaairi, 2013). Global Islamic finance assets reached $1.9tn by mid-2014 (ADB and IFSB, 2015; Mumtaz *et al.*, 2015), and Islamic banking remains the dominant sector within the Islamic financial

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industry, holding approximately 80 per cent of the total Islamic financial assets. In terms of growth, the Islamic finance industry, including Islamic capital markets, has grown, on average, by 17.5 per cent since the onset of the Global Financial Crisis (GFC) in 2008 (Ernst and Young, 2015). Further, the international dimension of Islamic finance has gained greater significance, as it has become increasingly integrated with the international financial system. In a global environment that has become increasingly challenging, and characterised by volatile and unstable market conditions, Islamic finance has emerged as a competitive and resilient form of intermediation (Sherif and Shaairi, 2013).

Alongside the increasing developments of the Islamic financial system, the Islamic investment industry has experienced significant growth and developments, indicating a clear manifestation of the recognition of the Islamic index as an important source of enhancing the *Shariah* (Islamic law) compliant protection against vulnerability or risk arising from untoward events. For example, Webley *et al.* (2001) claim that there has been an increase in the literature of economic theory that extends beyond simple optimality. In other words, that economics has a moral dimension and investors are not only concerned about what is profitable, but also what makes their investments ethical (Etzioni, 1988).

Overall, the Islamic finance industry aims to promote particular firms that are included in sectors or industries that add value to the real economy. Furthermore, the investors concerned with adhering to the Islamic way nevertheless have an expectation of gaining wealth of their investment. The Islamic screening method, i.e. that which is guided by the consideration of low-debt, non-financial and social-ethical investment, is well known as "ethical investing", "faith investing" and can also be called "socially responsible investing" (DeLorenzo, 2001). For example, Cowton (1994) argued that the selection of an investment portfolio should take into account the ethical side of investment, implying that investors will pay more attention and consideration to these ways of managing their investments. Accordingly, *Shariah* compliance has become one of the most significant factors for such investors when making investment decisions.

Recently, much attention has been given to the impact of the GFC on *Shariah*-complaint stocks compared to conventional stocks. Since then, many researchers have debated whether the GFC has had less impact on the *Shariah*-complaint stocks compared to conventional stocks. Some researchers (Abbes, 2012) have also argued that the difference in performance between the two types of stocks should be minimal, and others have argued that conventional stocks should outperform the Islamic stocks (McGowan and Junaina, 2010). Further, if a stock that was previously *Shariah*-compliant is announced as non-*Shariah*-compliant, it is expected that investors or fund managers who are concerned that their wealth, investments and profits are compliant with *Shariah* would then sell those stocks and replace them with *Shariah*-compliant stocks. This would adversely affect the price of the stock. Conversely, however, stocks that were previously non-*Shariah* compliant but are now recognised as *Shariah* compliant are expected to increase in value.

As the country with the world's 4th largest population, with around 246.6 million people, Indonesia is rich in both renewable (agricultural products) and non-renewable sources (mining and minerals). Geographically, Indonesia's total area is 5,020,606 km^2 with 17,508 islands. According to Mood's Investors Service, a definitive rating of Baa3 (stable outlook) for the Indonesian government is awarded, due to the country's narrow fiscal deficits, low public indebtedness, healthy economic growth prospects and the large size of the Indonesian economy. However, Indonesia, as one of the biggest Moslem countries in the world, is still behind Malaysia, when based on Islamic finance fundamentals (Yusof and Majid, 2007). Notwithstanding an increasing need to the *Shariah* interest trend, there are only a few pieces of research in this field. Along with the increasing numbers of the investment need and the

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potential as the biggest Moslem population in the world, the opportunity to develop the *Shariah* investment is becoming higher. The performance of the Indonesia *Shariah*-compliant Stock Index (ISSI), Jakarta Index (JII) and Jakarta Composite Index (JCI) can be seen in Figure 1 that compares those indices, with normalisation, during the ISSI launching to the end of 2014. As Figure 1 shows, ISSI shows a close performance with JCI and is also compatible with the JII. This arguably shows that the *Shariah* investment still has much potential, due to the increasing number of investors whose concern is in the "ethical investing". Thus, in this paper, we extend the literature on the debate and undertake a comparative performance analysis of the conventional and Islamic stocks using the announcement of the Indonesia *Shariah* Index (SI) as an event study.

The objective of this paper is twofold. First, to investigate the effects of *Shariah* announcements on the pricing behaviour of previously *Shariah*-compliant stocks becoming non-*Shariah* compliant. Second, to investigate the effects of *Shariah* announcements on the pricing behaviour of previously non-*Shariah*-compliant stocks becoming *Shariah* compliant.

The remainder of the paper is set out as follows. Section 2 is a brief literature review. Section 3 provides details of the data, models and methodology. Section 4 presents the empirical findings and Section 5 concludes.

2. Literature review

2.1 Shariah *compliance framework*

Islamic investment principles emphasise ethical investing (known as *Shariah*-compliant investments) that comply with the principles of *Shariah*, which is the Islamic law that governs every facet of each Muslim's life. Investments in financial instruments with fixed incomes, such as preferred stocks, bonds and some derivatives (e.g. options), are unacceptable, as they promise a fixed rate of return and grant no voting rights (Walkshäusl and Lobe, 2012). Furthermore, Islamic investors are not permitted to purchase the stocks of companies whose main business activities are alcohol, gambling, conventional financial services, entertainment, pork-related products, tobacco and weapons (Reddy and Fu, 2014). Furthermore certain financial ratios have been used to screen companies. For example, Hussein and Omran (2005) reported that when the levels of debt in companies are over one-third of market capitalisation, they are not *Shariah*-compliant stocks. A purification process is then undertaken to eliminate or clean the portfolio of interest income or other impermissible revenue sources (Abdelsalam *et al.*, 2014). The most fundamental difference

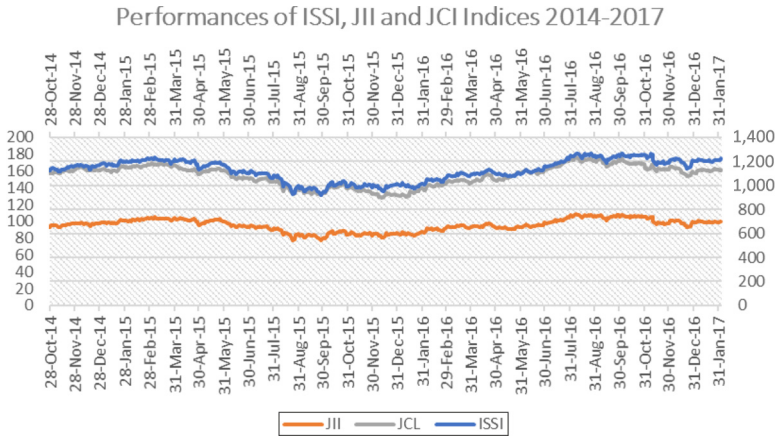

Figure 1. Performances of ISSI, JII and JCI Indices 2014-2017

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between Islamic and other investment is the exclusion of particular sectors such as the fixed income market and the payment of interest (Hussein, 2004). Arguably, these prohibitions are mainly to protect the interest of all parties involved in the market in the objective of the *Shariah* or *maqasid al-Shariah* (Dusuki and Abozaid, 2007).

2.2 Recent literature

Indeed, there has been a long-running debate regarding the efficiency of *Shariah*-compliant investment and conventional financial markets. Recent literature has investigated the relationship between the Islamic and conventional financial markets in regard to the returns and their variability, and has also analysed the correlative performance of those markets during the financial crises. Further, the indices of different regions have been used to evaluate those markets, such as the Dow Jones indices or The Financial Times Stock Exchange (FTSE) indices (Ahdi *et al.*, 2013). Wilson (2004), Keigher and Bauer (2000) and Derigs and Marzban (2008) have presented the standard rules to examine or screen whether a specific company based on *Shariah* law is *halal* (lawful) or *haram* (unlawful). Some researchers argue that investment in Islamic stocks leads to the avoidance of speculation and the avoidance of any unnecessary risk-taking (Obaidullah, 2001; Naughton and Naughton, 2000). Dewi *et al.* (2010) argue that Islamic finance is free of interest, gambling and ambiguity, and that it can therefore help resolve the financial crisis issues. In a key study, Ahmed (2009) argued that financial crisis arose because financial organisations charge interest and engage in risky investments and consequently, the obeying of Islamic financial requirements can help avoid future financial crises. In another study, Usmani (1999) indicated that it is difficult to find companies that strictly comply with *Shariah*-based principles. However, a number of studies have compared the performance of conventional indices and Islamic indices of equity investment (Siddiqui, 2000, 2002; Ahmad and Mustafa, 2002; Mamat, 2002). Indeed, Forte and Miglietta (2007) were the first to examine whether the Islamic mutual funds belong to the socially responsible mutual funds social responsibility investing (SRI) group or are fundamentally different. Their findings suggest a significant difference between Islamic investments and both traditional and SRI indices, in particular in terms of profile and portfolio. SRI funds tend to perform well, have a better reputation and have lower costs due to their lower turnover rate. Although there are similarities between the Islamic and SRI funds, the main difference is that the Islamic funds are non-interest-bearing investments (Osamah *et al.*, 2014). As evidence in support of the ethical investments, Orlitzky *et al.* (2003) found that the SRI fund outperformed the conventional fund. In contrast, however, Girard *et al.* (2007) found a poor performance of SRI portfolios using 117 US ethical mutual funds.

Another strand of research has focused on the relationship between the SI and other indices. For example, the relationship between the Jakarta Islamic Index (JII) and other indices has been estimated using the vector regressive model (Beik and Wardhana, 2009). They found evidence supporting significant correlations between those indices in the long run. Further, a comparison between the S&P CNX Nifty SI and the S&P CNX Nifty Index from 2007 to 2010 shows a significant return difference between both indices. Similarly, Albaity and Ahmad (2008), using both the Islamic index and the general index in Malaysia, find insignificant return with both indices. In other research, through examining the *Shariah* and conventional stock markets in Malaysia, Yusof and Majid (2007) and Warrick and Yaksick (2004) considered the relationship between the volatilities of both indices and the monetary policy variables, and found significant results. In addition, comparing the Dow Jones Islamic Market Index (DJIMI) Titans (100) and the Dow Jones World Index during 1996-2002, they claimed that Islamic market titans have outperformed the Dow Jones World

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Index. The outperforming Islamic index is also confirmed when comparing DJIMI and the Wilshire 5,000 Index (Hakim and Rashidian, 2002).

In contrast, Hassan (2002) shows that Islamic indices are in fact not highly specialised, and that in fact the FTSE and Dow Jones have different Islamic market benchmark for different sectors. These findings support the existence of operational inefficiencies in DJIMI using serial correlation, variance ratio and Dickey–Fuller tests. In another study, Hussein (2004) examined whether ethical investments have an inferior performance when comparing share performance in the FTSE Global Islamic Index and the FTSE All-World Index by dividing the bull period (July 1996-March 2000) and bear period (April 2000-August 2003). Their study found supportive evidence that the SI has a significant positive abnormal return during the bull period, but that it underperformed for the bear market. Such findings imply that the ethical screening or *Shariah* screening has no impact on the FTSE Global Islamic Index Performance.

Similarly, Sadeghi (2008) examined the impact of the *Shariah*-compliant index (SI) using data from Bursa Malaysia on the stock's performance. Using event study methodology, mean cumulative abnormal return (MCARs), the volume of trade and bid-ask spread as proxy of liquidity, Sadeghi's results show that overall *SI* has a positive impact on the share performance by around 21.73 per cent MCAR and 110.22 per cent volume transaction for an event window of 16-135 days after the event period. He argued that 19.63 per cent changes in bid-ask spread send a clear signal of the success of *Shariah* investments in terms of the cost of information between market makers and informed traders.

3. Data, models and methodology

3.1 Data sources

The data adopted in this study were Daily data on stock returns of Indonesian companies, and span the period 12 May 2010 to 12 May 2014. The data were obtained for 33 stocks which were added to the approved list (see Tables I and II) that were not included in JII as of 12 May 2011. The data were collected from a variety of sources. The Daily returns adjusted for dividend payments, stock splits and right issues were obtained for a sample of Indonesian firms from Bloomberg and DataStream.

To ensure consistency in the analysis, in the sample, all companies in question were selected from several subindustries, which are available for each company on Bloomberg website. There are a number of sectors in the sample: trade, services and investment, property, real estate and building construction, infrastructure, utilities and transportation, consumer goods and energy. All of these subindustries are listed under the major standard industrial classification (SIC) group. The percentual proportion in the sample supplied for each sector is shown in Figure 2.

3.2 Research methodology

Event study method has been widely used to measure the impact of an event on a firm's value. The main purpose of this method is to identify the event windows that examine the security price during that period (MacKinlay, 1997).

For the event study methodology, the estimation window is used to estimate the values of the parameters required to calculate abnormal returns during the event window. A sufficient event window is necessary to minimise any confounding effects. The decision to use an estimation window of 90 trading days prior to the event (−30) to day 60 after (+60) was employed in our study. The effect of the issue of share price performance was estimated by choosing an event window of −20 to +20 trading day's post-event (Bradley, 1980; and Bradley and Jarrel, 1980) given the assumption that a calendar year contains approximately 250 trading days. Figure 3 shows the days determining the time intervals denoted by T_0, T_1, T_2.

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Ticker	Name
JAKISL Index	
ASII IJ Equity	Astra International Tbk PT
TLKM IJ Equity	Telekomunikasi Indonesia Persero Tbk PT
UNVR IJ Equity	Unilever Indonesia Tbk PT
UNTR IJ Equity	United Tractors Tbk PT
ADRO IJ Equity	Adaro Energy Tbk PT
SMGR IJ Equity	Semen Indonesia Persero Tbk PT
INTP IJ Equity	Indocement Tunggal Prakarsa Tbk PT
ITMG IJ Equity	Indo Tambangraya Megah Tbk PT
CPIN IJ Equity	Charoen Pokphand Indonesia Tbk PT
PTBA IJ Equity	Tambang Batubara Bukit Asam Persero Tbk
KLBF IJ Equity	Kalbe Farma Tbk PT
AALI IJ Equity	Astra Agro Lestari Tbk PT
INCO IJ Equity	Vale Indonesia Tbk PT
ICBP IJ Equity	Indofood CBP Sukses Makmur Tbk PT
HRUM IJ Equity	Harum Energy Tbk PT
ANTM IJ Equity	Aneka Tambang Persero Tbk PT
LSIP IJ Equity	Perusahaan Perkebunan London Sumatra Ind
BSDE IJ Equity	Bumi Serpong Damai Tbk PT
SMCB IJ Equity	Holcim Indonesia Tbk PT
BORN IJ Equity	Borneo Lumbung Energi & Metal Tbk PT
LPKR IJ Equity	Lippo Karawaci Tbk PT
PGAS IJ Equity	Perusahaan Gas Negara Persero Tbk PT
KRAS IJ Equity	Krakatau Steel Persero Tbk PT
AKRA IJ Equity	AKR Corporindo Tbk PT
TRAM IJ Equity	Trada Maritime Tbk PT
JPFA IJ Equity	Japfa Comfeed Indonesia Tbk PT
TINS IJ Equity	Timah Persero Tbk PT
ASRI IJ Equity	Alam Sutera Realty Tbk PT
BTEL IJ Equity	Bakrie Telecom Tbk PT
ENRG IJ Equity	Energi Mega Persada Tbk PT
ELTY IJ Equity	Bakrieland Development Tbk PT

Table I. Jakarta Islamic index (JAKISL)

3.3 Hypothesis

As noted above, the hypothesis we tested is that, Islamic finance has become more important since the ISSI was established on 12 May 2011 as a product of the fatwa by the Indonesia stock exchange, so that the investors were given the confidence to arrange *Shariah* transactions. The ISSI consists of 335 firms that represent around 60 per cent of the stock exchange public companies. Before the ISSI was established, only the Jakarta Islamic Index (JII) existed, that consisted of only 30 *Shariah* firms and was required to compete with the LQ45 index. The JII was in existence on 5 May 2000, more than 10 years before the ISSI was established by Islamic Index (IDX) and PT Danareksa Investment Management.

Our study seeks to test the hypothesis that companies included in JII as of 12 May 2011, exhibit positive cumulative abnormal returns (CARs) during the short-run period following the issue of ISSI as another SI benchmark. The study examines the null hypothesis of an aggregated CAR of zero during the event window.

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No.	Ticker	Name	Sector
1	EPMT	Enseveal Putra Megatrading Tbk.	Trade, services and investment
2	CTRP	Ciputra Property Tbk	Property, real estate and building construction
3	DVLA	Darya-Varia Laboratoria Tbk	Miscellaneous industry
4	ELTY	Bakrieland Development Tbk	Property, real estate and building construction
5	GDYR	Goodyear Indonesia Tbk	Miscellaneous industry
6	GJTL	Gajah Tunggal Tbk	Infrastructure, utilities and transportation
7	IATA	Indonesia Transport & Infrastructure Tbk	Infrastructure, utilities and transportation
8	INDF	Indofood Sukses Makmur Tbk	Consumer goods industry
9	INDY	Indika Energy Tbk	Energy
10	ISAT	Indosat Tbk	Communications
11	JRPT	Jaya Real Property Tbk	Financials
12	JSMR	Jasa Marga Tbk	Industrials
13	KAEF	Kimia Farma (Persero) Tbk	Consumer staples
14	LTLS	Lautan Luas Tbk	Materials
15	MERK	Merck Tbk	Health care
16	MYOR	Mayora Tbk	Consumer staples
17	TSPC	Tempo Scan Pacific Tbk	Health care
18	ADRO	Adaro Energy Tbk	Energy
19	ICBP	Indoofood CBP Sukses Makmur Tbk	Consumer staples
20	HRUM	Harum Energy Tbk	Energy
21	BORN	Borneo Lumbung Energi & Metal Tbk	Mining
22	KRAS	Krakatau Stell (Persero) Tbk	Materials
23	AKRA	AKR Corporindo Tbk	Materials
24	JPFA	JAPFA Comfeed Indonesia Tbk	Consumer staples
25	BTEL	Bakrie Telekom Tbk	Communications
26	VOKS	Voksel Electric Tbk	Industrials
27	AUTO	Astra Otoparts Tbk	Consumer discretionary
28	BRPT	Barito Pacific Tbk	Materials
29	ADHI	Adhi Karya Tbk	Industrials
30	SMDR	Samudera Indonesia Tbk	Industrials
31	SMRA	Summarecon Agung Tbk	Financials
32	TCID	Mandom Indonesia Tbk	Consumer staples
33	ULTJ	Ultra Jaya Milk Industry Tbk	Consumer staples

Table II. Islamic Sharia stock index (ISSI) sample consists of 33 firms included in ISSI but not included in JII as of 12 May 2011

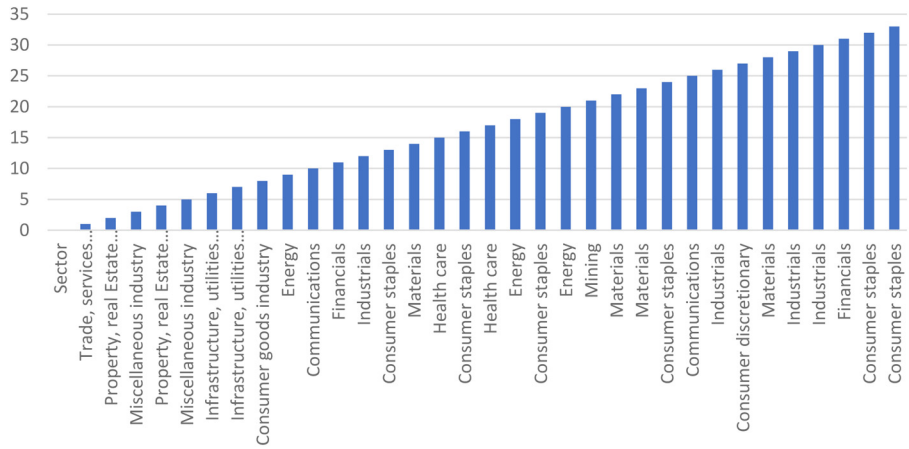

Figure 2. Sample composition of sub-industry

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Based on the above discussion and reviewed literature, the hypothesis (*H1*) related to *Shariah* compliance and stock returns is stated as follows:

H1. Returns on *Shariah*-compliant investments following ISSI are not significantly different from the returns on stocks listed on JII before ISSI's inclusion.

One strand of existing studies has investigated the impact of ethical screening on the performance of Islamic indexes relative to their conventional counterparts using standard financial performance ratios (Sharpe, 1966) and found mixed results. Our study, therefore, reappraises the *Shariah* and conventional index performance associated with the ISSI, JII and JCI during the period 2011-2014. Hence, the hypothesis can be identified as follows:

H2. *Shariah* stocks listed on ISSI and JII perform better than those listed on the conventional JCI index.

3.4 Return models

The daily raw returns of stock i, R_i, is identified using the closing price of stock i at the end of the last trading day of month t, P_{it}. The raw return of a stock is identified as:

$$R_{it} = (P_{it} - P_{it-1})/P_{it-1} \tag{1}$$

where P_{it} is the closing price at the end of the last trading day t, and P_{it-1} is the closing price at the end of the last trading day $t-1$.

The benchmark-adjusted abnormal return AR_{it} of stock i seen in equation (2) is the difference between the daily raw return (R_{it}) and a daily benchmark market return (R_{mt}), excluding the initial returns. Therefore, AR_{it} is identified as:

$$AR_{it} = R_{it} - R_{mt} \tag{2}$$

In our analysis, we employ the market index as benchmark, where the R_{mt} in equation (2) represents the market returns. Previous literature has documented that using different abnormal return benchmarks in the event studies is not beneficial and might generate poorer results (Brown and Warner, 1980). In addition, according to Chandra *et al.* (1990), the mean adjusted returns and market adjusted returns have a power equal to the market and any risk adjusted returns in estimating parameters. Further, Castillo (2004) indicates that the market corrected model and the market model minimise the variance of the abnormal return by removing the portion of the returns related to the market movements; hence, this increases the greater possibility of detecting the event effect and justify our selection to the market model as a benchmark model in calculating the Appraisal Ratio (AR).

It is well documented in the literature that abnormal returns are sensitive to the benchmark used (Barber and Lyon, 1997; Kothari and Warner, 1997). Given that there is no consensus on the most accurate benchmark, this highlights the importance of testing multiple models to control for potential misspecification and to compare the sensitivity of outcomes.

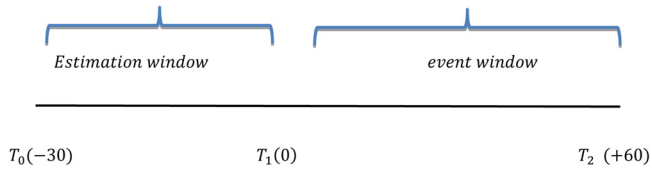

Figure 3.
Time line windows (30, +60), (−20, +20)

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The CAR is a traditional performance measure (Ritter, 1991; Fama and French, 1993). The CAR from event day q to event day s is the summation of the mean benchmark-adjusted abnormal returns during the two-month aftermarket period. The CAR approach involves daily rebalancing of the portfolio to achieve equal weighting each day. The mean benchmark-adjusted abnormal returns in event day t, AR_t is the equally weighted arithmetic mean of the benchmark-adjusted returns, calculated as follows:

$$AR_t = \frac{1}{n}\sum_{i=1}^{s} AR_{it} \tag{3}$$

The CAR is consequently calculated using the following formula:

$$CAR_{q,s} = \sum_{t=q}^{s} \omega_t AR_t \tag{4}$$

where ω is the equal or value weighting of the abnormal returns.

To estimate whether the CARs are significantly different from *0*, we employ a conventional t-statistic. For the CAR in event day t, CAR_{it} is:

$$CAR_t = \frac{\overline{CAR_{it}}}{\sigma\left(CAR_{it}/\sqrt{n}\right)} \tag{5}$$

where σ is the standard deviation of the abnormal return in the sample, and n is the number of firms event in event day t.

3.5 Risk-adjusted performance measures

3.5.1 Sharpe Ratio (1966). This ratio was advocated by Sharpe (1966), and measures the average return on a portfolio in excess of the risk-free rate of return or the risk premium of a particular portfolio contrasted to the total risk of a portfolio measured by its average deviation. For example, if the return on stock investments is less or equal to the risk-free rate, then it makes no need to invest in the risky assets. Consequently, the Sharpe ratio (SR) is a performance measure for portfolio compared to the risk taken. In other words, if the SR is significantly higher, then the performance will be much better, and the profits for taking on additional risk are greater (Sherif, 2016). The SR for the portfolio which is initially called the reward-to-variability ratio is then identified as:

$$SR_{it} = (AR_{it} - AR_{fr})/\partial_i \tag{6}$$

where S_{it} is the Sharpe Index ratio, AR_{it} is daily average return for the index over the period; AR_{fr} is the daily average of risk free rate and ∂_i is standard deviation of the index return.

3.5.2 The Treynor Black AR and Jensen's Alpha (1968). The AR is a developed version of Jensen's alpha, and the relevant risk-adjusted performance statistic when evaluating new investments. It measures the systematic risk adjusted reward per unit of specific risk taken. AR, which was first advocated by Treynor and Black (1973), is comparable in concept to SR. According to Sharpe (1994), the AR is set with the assumption that the risk-free asset is substituted by a benchmark portfolio and identified as:

$$AR_\rho = \alpha_\rho/\sigma_{\mu\rho} \tag{7}$$

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where α_ρ is the Jensen's alpha of the portfolio and $\sigma_\mu\rho$ is the non-systematic risk. Jensen's $\sigma_\mu\rho$ is the excess return adjusted for systematic risk in the numerator divided by the portfolio's non-market risk (i.e. unsystematic risk) in the denominator.

4. Empirical findings

4.1 Short-run performance using event study methodology

We begin our analysis by reporting the summarised statistics. Table III includes the mean, standard deviation, minimum, median, maximum of the dependent and independent variables.

The raw sample size measured by the abnormal return during the period in question was 1,345. The mean of abnormal return is 0.392 per cent. The standard deviation and minimum value are 3.99 and −15.35 per cent, respectively.

Now we move on to test the impact of the ISSI launching reflected in the stock market's reaction after the announcement date. Table IV provides the estimates of cumulative abnormal returns ($\overline{CAR}$) and standardised cumulative abnormal returns ($\overline{SCAR}$) of bidder's across the firm's performance. Also reported is the data on the aggregated firms' sample performance during the 41-day event window (t−20, t+20). As can be seen from Table IV, the companies earn higher significant abnormal returns over the 41-day event window. Further, Table IV shows the positive abnormal returns since day −19. The results are significant at the 10 per cent level using J2. Then, the results are significant at the 1 per cent level of significance for both J1 and J2 starting from day −13 except for day −8, which, overall, are significant at the 5 per cent level of significance. Furthermore, the $\overline{CAR}$ of the overall sample firms after the ISSI's announcement date is substantially above the $\overline{CAR}$ before the announcement date. The estimates of $\overline{CAR}$ are seen in Figures 4-6. Consequently, this result implies that the launching of ISSI incurred positive abnormal returns for the firms that are not included and listed in JII.

To conclude, there is a clearly significant difference in performance between faith-based ethical indices and conventional indices. The investor and fund manager that adhere to *Shariah* can use the information associated with the ISSI and consider including the firms associated with ISSI among their portfolio. Before the launching of ISSI, the *Shariah* benchmark was only that of JII, and this in turn only consisted of 30 firms that were compatible with LQ 45. By launching the ISSI, more *Shariah*-screening investments have become available, due to the existence of large firms that are included in ISSI, which are more compatible with the JCI.

4.2 Sharpe measurement

To enhance our analysis and also to test hypothesis 2, in our study we applied different performance measures, and show the main results for all samples of our indices under

Table III. Samples' descriptive statistics

Statistics	Coefficient
N	1.345 firms
Mean	0.00392
SD	0.03995
First quartile	−0.01424
Median	0.00080
Third quartile	0.02507
Minimum	−0.15353
Maximum	0.16015

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Event date	CARs	J1	SCARs	J2
−20	0.00377	1.00385	0.17700	0.97981
−19	0.00775	1.45808	0.31500	1.74561*
−18	0.01270	1.95136*	0.40700	2.25059**
−17	0.01460	1.94342*	0.40500	2.24266**
−16	0.01340	1.59420	0.34700	1.91890*
−15	0.01320	1.42920	0.28800	1.59453
−14	0.01870	1.88160*	0.34400	1.90650*
−13	0.03010	2.82760***	0.50100	2.77505***
−12	0.03820	3.38435***	0.58700	3.24969***
−11	0.03800	3.20167***	0.54800	3.03363***
−10	0.04150	3.32615***	0.56000	3.10055***
−9	0.03890	2.98474***	0.49300	2.72785***
−8	0.04020	2.96578**	0.45800	2.53427**
−7	0.05500	3.91116***	0.62000	3.43058***
−6	0.06120	4.20439***	0.67900	3.76116***
−5	0.06580	4.38107***	0.72700	4.02511***
−4	0.06870	4.43248***	0.72500	4.01596***
−3	0.07700	4.83230***	0.78500	4.34635***
−2	0.07770	4.74189***	0.76000	4.20685***
−1	0.08510	5.06561***	0.79100	4.37626***
0	0.09570	5.55742***	0.87000	4.81827***
1	0.10300	5.84627***	0.90200	4.99454***
2	0.11200	6.22913***	0.96700	5.35204***
3	0.11800	6.43276***	1.00000	5.54238***
4	0.11600	6.15510***	0.95700	5.29492***
5	0.11700	6.10387***	0.94500	5.23093***
6	0.11700	5.97591***	0.92700	5.12941***
7	0.12800	6.42027***	1.01000	5.59819***
8	0.12800	6.32256***	1.01000	5.58574***
9	0.12900	6.25900***	1.00000	5.53982***
10	0.13200	6.29144***	1.01000	5.59093***
11	0.13100	6.16167***	0.98300	5.44245***
12	0.13800	6.41349***	1.04000	5.74358***
13	0.13800	6.29760***	1.02000	5.62490***
14	0.13600	6.11104***	0.97900	5.42028***
15	0.13900	6.17058***	1.00000	5.53392***
16	0.14800	6.47230***	1.04000	5.74790***
17	0.15400	6.62787***	1.07000	5.92373***
18	0.15600	6.64380***	1.08000	5.96400***
19	0.15700	6.59600***	1.07000	5.93353***
20	0.16000	6.64537***	1.08000	6.00373***

Notes: Test statistics of the $\overline{CAR}$ with corresponding test J1 and J2 test during the 41-day event window; *, **, *** denote statistical significance at the 0.10, 0.05 and 0.01 level, respectively

Table IV. Test statistics

consideration. Table V presents the results associated with our three indices (ISSI, JII and JCI) during the period 2011-2015.

While panel *A* presents the descriptive statistics for ISSI, JII and JCI, Panel *B* shows the results associate with the performance measures SR and AR. The results show that the lowest mean or average return is given by the JII and the highest average return is associated with the companies listed on JCI. Further, we find that the JII has the highest standard

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Figure 4.
CARs around the ISSI launching

Note: The announcement date is day zero and the event window is from −20 to +20

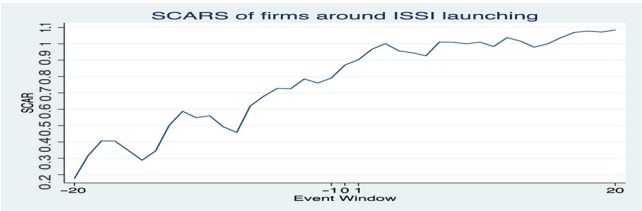

Figure 5.
SCARs around the ISSI launching

Note: The announcement date is day zero and the event window is from −20 to +20

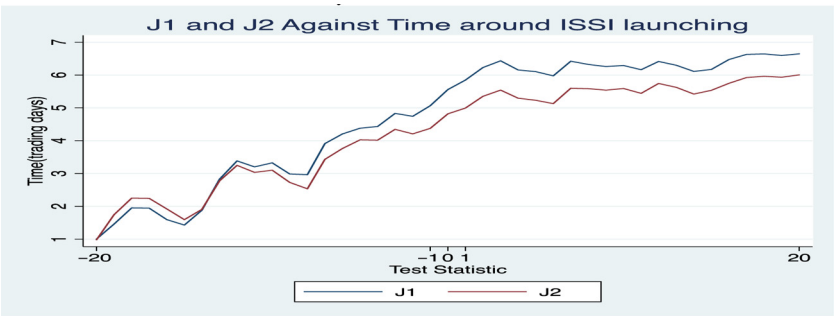

Figure 6.
SCARs around the ISSI launching

Note: Show the test statistics results of J1 and J2 around the ISSI launching.The announcement date is day zero and the event window is from −20 to +20

deviation or level of risk at about 1.3 per cent compared to ISSI and JCI (1.1 and 1.04 per cent, respectively).

Table V shows the descriptive Statistics and Sharpe ratio performance associated with the three above-mentioned indices. As can be seen, JCI has the lowest Sharpe ratio at −1.04 per cent; the lowest among the other two indices −0.96 and −0.99 per cent, respectively. The same pattern of results holds for the Treynor Black AR. These results imply that Islamic

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indices in Indonesia are performing better and are less risky than those in the conventional index.

The performances of the closing value of the indices are shown in Figure 7-9. Figure 7 shows the ISSI graph during 2011-2014, which implies a slightly increasing performance.

	ISSI	JII	JCI
Panel A			
N	938	938	938
Mean	0.00016	0.00013	0.00018
SD	0.01098	0.01305	0.01045
Median	0.00098	0.00088	0.00089
Minimum	−0.05754	−0.06602	−0.30300
Maximum	0.04603	0.05639	0.04544
Panel B			
Sharpe ratio (%)	−0.96	−0.99	−1.04
Treynor black appraisal ratio	−0.0640	−0.0650	−0.0700

Table V. Descriptive statistics and performance measures (Indices)

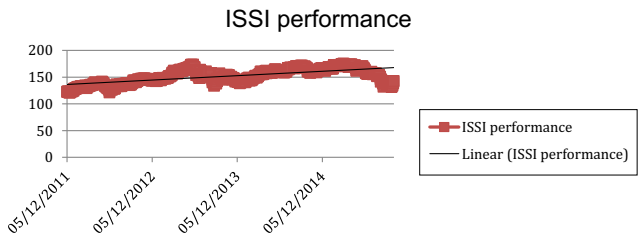

Figure 7. ISSI performance during 2011-2014

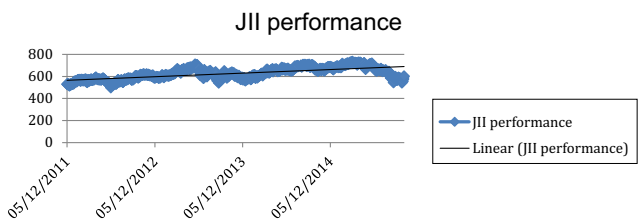

Figure 8. JII performance during 2011-2014

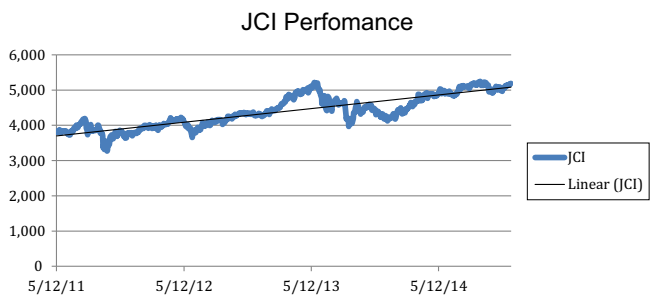

Figure 9. JCI performance during 2011-2014

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Further, Figure 8 shows approximately the same results as Figure 7, whereas in contrast, Figure 9 shows a fluctuating movement of JCI performance. To summarise, the graph begins on 12 May 2011 when the ISSI was established, and compared to the other indices, it shows a slightly better performance.

To conclude, our study indicates that SIs perform slightly better than conventional indices, as measured by the Sharpe ratio and Treynor Black AR in the Indonesian stock market. These results are in line with Hussein (2004) and Sherif and Erkol (2017) who found that Islamic indices yield statistically significant abnormal returns during the bull market period, but they contrast with the findings provided by Dharani and Natarajan (2011) that indicated both *Shariah* and conventional indexes performed equally in India. This is in favour of hypothesis H2 and supports our research question.

5. Conclusions

Islamic finance has the same purpose as conventional finance, except that it operates in accordance with the rules of *Shariah*. The basic principle of Islamic banking is the sharing of profit and loss, and the prohibition of *riba* (usury). Over the past decade, *Shariah* investment in general, and in Indonesia in particular, has witnessed a rapid evolution and an impressive increasing wave (Sherif, 2016). Therefore, this study examined the practical implications of *Shariah*-compliant investments and stock returns.

We answered a question regarding whether SI that was represented by the ISSI would provide abnormal return to the firms that were not included in the JII. Using event study methodology, we estimated CARs using a selective event window and found a significant positive impact for *Shariah* compliance on stock returns during the 41-day event window, implying that the SI inclusion has a positive impact on the stock market.

The present study finds that the ISSI and the JII performed slightly better than the JCI, based on their Sharpe performance. This can be seen as an opportunity to encourage investors to invest within *Shariah*-screened firms that are included in SIs.

Our study offers insights to policymakers, investors and fund managers interested in the indices' performance. Moreover, ISSI can be used as "Indonesia *Shariah* proxy" indices to benchmark the "*Shariah* firms" activity and *Shariah* market. Also, the regulator of the capital market, especially the Financial Service Authority, could also pay more attention to promoting *Shariah* investing. As the findings of this study are consistent with the previous studies on other countries, a key conclusion that could be derived by bodies that regulate Islamic products and services is that investors are not only concerned about what is profitable but also what makes their investments ethical.

While this study helps fill some of the gaps in existing literature on Islamic investment structures in general, and in Indonesia in particular, it highlights a number of other areas for further research. The most possible immediate expansion would be to include certain variables such as the factors included in the three- and four-factor models (Carhart, 1997; Fama and French, 1998; Fama and French, 2004). Further, the accounting and operating performance of post-acquisition performance will add value to our knowledge of the *Shariah* field.

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About the authors

Devi Lusyana is a finance researcher whose initial contributions to the Finance literature were in the Shariah-compliant investments, high-tech acquisitions and firm value fields. Also, she designed, prepared and participated in a number of the managerial programs and modules on Islamic finance for trainees on different managerial levels in Indonesia.

Mohamed Sherif received his PhD from the University of Manchester, Manchester Business School, UK. Sherif was previously at Cairo University Business School where he was Professor of Finance and investment. He is an interdisciplinary finance researcher whose initial contributions to the finance literature are in behavioural finance, ethical finance and asset pricing fields. He is a fellow of the higher education academy in the UK and a member of American Finance association in the USA. He is currently the director of taught postgraduate programmes in Finance (AEF) at School of Social Science, Heriot-Watt University. Mohamed Sherif is the corresponding author and can be contacted at: m.sherif@hw.ac.uk

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