Examining anomalies in Islamic equity market of the emerging economies

Abstract. The purpose of this study is to evaluate the performance of Islamic stock indices in the presence of Islamic calendar anomaly in the context of emerging economies. The current study has considered daily data from 1 January 2010 to 1 September 2017. Standard & Poor’s (S&P) Shariah index, which comprises funds from 22 emerging economies, is used for the study. Descriptive statistics are applied to check the behaviour of the index. The Generalised Auto Regressive Conditional Heteroscedasticity Model (GARCH) model is applied to capture the seasonality in the returns and the volatility of the Islamic equity market. It has been found out that the effect of Ramadan, the holy month of Muslims, can be both significant and insignificant depending on different years. The Islamic indices during the earlier years of their establishment were performing poorly, if compared to the market benchmarks. But during the latter years, the markets have performed well or maintained a good place, as compared to market benchmarks. The results of Jensen’s alpha show that the returns during Ramadan improve significantly. This study will help the investors to efficiently time their trading. Based on the authors’ best knowledge, this is the first paper describing an investigation on Ramadan effect on the emerging Shariah index, which has also included the Ramadan period of 2017.

Keywords: Islamic Equity; Shariah Index; Emerging Economies; Anomalies; GARCH; Ramadan

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The efficiency of the market is questioned during the presence of the anomaly. Yet irregularities and anomalies are not explained properly in any of the existing finance theories. Khan and Jebran (2014) said that an efficient market is a market in which investors earn no excessive profits, or they do not earn the highest returns above average market returns. The returns of stock markets can be predicted because of the seasonality factor (Jensen, 1978). Seasonality is also known as the anomaly. This, in turn, affects the basic concept of efficient market hypothesis (EMH).

An irregularity in the financial market is known as «anomaly». When an anomaly occurs, financial markets behave differently. Efficient markets are those in which investors do not have any possibility of earning the highest returns. The EMH states that by using trend analysis, investors will not be able to get excessive profits. The only feature of the market which is against this hypothesis is calendar anomalies. Many studies have been conducted on the Gregorian’s calendar anomalies; however, different regions have different anomalies. They include all those mentioned in the Hindu, Chinese, Hebrew and Hijri Calendar. The Hijri calendar has the same number of months as the Gregorian calendar, though the number of average days is fewer in it than in the latter. The months in the Hijri calendar depend on the appearance of the new moon. The ninth month of the Hijri calendar is known as Ramadan, in which Muslims fast from Dusk to Dawn.

In this month, people are motivated towards religious activities. Ramadan is one of the five pillars of Islam. Muslims try to refrain themselves from ‘Haram’ doings. They avoid getting involved into gambling and speculation. Since these are an essential part of the stock market system, the theory of behavioural finance suggests that optimism biases and outcome biases depend on increased uncertainty. During the beginning and ending of Ramadan, high level of volatility is reported by many researchers (Bialkowski et al., 2010).

Ramadan is observed with great passion and enthusiasm. There are changes in the socio-economic lifestyle of individuals, so it is interesting to examine how the Islamic stock index performs during this month of the year, as compared to the other months.

This paper applies the S&P 500 and S&P Global Index. The objective of this paper is to analyse the performance of the stock market during the Ramadan period and the effect of Ramadan on the returns of the stock index.
conducted based on the Islamic emerging markets. Most of the Islamic countries are using the Islamic banking system in their transactions, and it is confirmed that Islamic banking has contributed to the growth of the economies in the relevant countries (Tabash, 2013; 2014). This study shows the performance and the impact of Ramadan on the Islamic emerging markets. During Ramadan, Muslims are involved in religious activities like fasting, reciting prayers and the Holy Quran, social welfare and charity (during the last ten days of Rajab). Muslims spend most of their time performing religious activities, which, in turn, leads to slowing down activities related to investing in stock markets. At the same time, the month also attracts investors by generating new business opportunities. In this period, the returns become abnormal. In the emerging markets, there exists a higher serial correlation (Harvey, 1995), leakage of information prior to announcements (Bhattacharya, Daouk, Jorgenson, & Kehr, 2000), and higher returns are generated through cross sectional trading (Rouwenhorst, 1999).

Investors’ decisions are strongly influenced by their social mood, which impacts the stock price (Edmans et al., 2007). Islamic stocks represent a developing investment category which is screened on the basis of Islamic principles (Masih et al., 2016). Ramadan being the holy month of the Hijri Calendar, the Muslims try not to get involved in Haram doings. They are less involved in social and economic activities.

Such behaviour leads to a reduction in returns and volatility (Husain 1998; Seyyed et al., 2005). Basing on studies of the Indian market, Mehta (2004) reports that Hindu festivals have an impact on the daily returns of the indices operating in India. Before a public holiday, the returns of the stock markets tend to increase. Thus, it leaves a significant impact on the stock markets (Noland, 2003). The Islamic month impacts the economic and financial activities, which can make it fluctuate at different times of the calendar, thus impacting the share returns (Halari et al., 2015). When studying Saudi Arabia, it was found out that religious beliefs have an impact on investors’ portfolio decisions (Canepa & Ibrunnubi, 2014).

Numerous studies have been conducted on the impact of Islamic months on the stock markets. Khalid Mustafa studied the Islamic calendar months like Muharram, Shahban, Ramadan, Shawwal, Ziqad and Zilhaj’s effect on the Karachi stock markets. He found that the effect of Ziqad and Shawwal has an impact on the stock markets, and that during Ramadan the market is less risky as compared to the other months. A study was also conducted on the Indian and Pakistani markets for the period between 1997 and 2003. It was found that the markets in Pakistan were less volatile during Ramadan and Rabi ul Awal period, whereas they were highly volatile in the Indian market during Muharram and Shawaal. Kouser et al (2013) found that there was a significant impact of Ramadan on the markets due to the usage of the OLS technique. In the study conducted with regard to the Turkish markets, it was found that the funds gained positive returns during the Ramadan period (Bialkowski et al., 2013). In their study, Onguzsoy and Guyen (2004) showed that the impact of Ramadan on the Istanbul Stock Exchange had significant positive returns. Some studies were conducted on the markets which purely deal with Islamic finance, like in the case of Saudi Arabia. It was found that there were negative returns during the Ramadan period. This can be explained by the fact that investors divert their funds towards the socio-religious causes rather than investing in markets (Seyyed et al., 2005). One of the requisite of Ramadan is that Muslims have to give Zakat (Charity) to the poor. This can also be one of the reasons behind stable or negative returns during the Ramadan period. Positive moods of the investor lead to significant returns, like in the case of an odd number of days during the last ten days of this month (21st, 23rd, 25th and 29th). The highest returns were reported in the study conducted by Al-Issais (2015). He reported that the Islamic markets were behaving abnormally on the 27th Ramadan.

As the month Ramadan finished, people go back to their daily lives. Businesses are back to normal or, in some cases, they earn higher returns during the following months. There were some studies, in which it was found out that during Eid ul Fitr, the markets were not affected at all, and the results were similar to the ones in the preceding months. The study was conducted basing on the Malaysian markets by Carl and Jakob (2010) by using the regression (OLS) technique. The Malaysian markets had a significant Christmas effect, but not the Eid ul Fitr effect (Wong and Lim, 2016).

3. Data and Methodology

In this study, we have collected the daily data for the S&P Emerging Shariah Index for the years between 2010 and 2017. This index includes securities from 22 countries, as shown in Table 1. The countries included in this index comprise stocks which are Shariah compliant by either choice or by chance. Those stocks which are Shariah compliant by have no significant effect on this index. The total number of securities included in this index is 1,126.

We have evaluated the performance of the index during both the Ramadan period and the overall period. Jensen’s alpha is calculated with the help of regression. GARCH test is used to check the impact of Ramadan on the market. To examine the anomaly OLS, regression is used by taking Ramadan period as a dummy (0, 1) (Kouser et al., 2013; Seyyed et al., 2005).

The model used for calculating Jensen’s alpha is:

\[ R_t = R_{Ft} + \alpha + \beta (RM_t - R_{Ft}) + \epsilon_t, \]

where:

- \( R_t \) is the daily returns of the portfolios;
- \( R_{Ft} \) is the risk free rate;
- \( RM_t \) is the daily return on the market index;
- \( \alpha \) is Jensen’s alpha;
- \( \beta \) is the systematic risk;
- \( \epsilon_t \) is the error term.

The risk free rate in this study is the US Treasury bill rate. The daily beta is calculated by taking one-month lag time period.

The volatility among different markets is checked with the help of the threshold GARCH (TGARCH) (Halari et al., 2015; Kenourgios et al., 2016). The GARCH model is divided into two parts: the mean equation and the variance equation:

\[ R_{jt} = \mu_j + \sum_{k=1}^{11} \alpha_{ij} D_{it} + \epsilon_{jt}; \]

\[ \epsilon_{jt} = \theta_0 + \sum_{k=1}^{11} \alpha_{ij} \epsilon_{jt-2} + \theta_0 \epsilon_{jt-1}^2 + \epsilon_{jt}; \]

Equation 1 is the mean equation, and Equation 2 is the variance equation. In the mean equation, \( R_{jt} \) represents the return

<p>| Tab. 1: List of countries and number of constituents in the S&amp;P Emerging Shariah Index, 2010-2017 |</p>
<table>
<thead>
<tr>
<th>Country</th>
<th>Number of constituents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>1</td>
</tr>
<tr>
<td>Greece</td>
<td>1</td>
</tr>
<tr>
<td>Peru</td>
<td>2</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>2</td>
</tr>
<tr>
<td>Chile</td>
<td>6</td>
</tr>
<tr>
<td>Egypt</td>
<td>6</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>10</td>
</tr>
<tr>
<td>Iran</td>
<td>15</td>
</tr>
<tr>
<td>Russia</td>
<td>15</td>
</tr>
<tr>
<td>Philippines</td>
<td>15</td>
</tr>
<tr>
<td>Poland</td>
<td>17</td>
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<tr>
<td>Turkey</td>
<td>17</td>
</tr>
<tr>
<td>Mexico</td>
<td>18</td>
</tr>
<tr>
<td>Pakistan</td>
<td>21</td>
</tr>
<tr>
<td>Bahrain</td>
<td>23</td>
</tr>
<tr>
<td>Indonesia</td>
<td>30</td>
</tr>
<tr>
<td>South Africa</td>
<td>41</td>
</tr>
<tr>
<td>Thailand</td>
<td>67</td>
</tr>
<tr>
<td>Malaysia</td>
<td>82</td>
</tr>
<tr>
<td>China</td>
<td>229</td>
</tr>
<tr>
<td>India</td>
<td>244</td>
</tr>
<tr>
<td>Others</td>
<td>267</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors based on S&P’s website.
of S&P Emerging Shariah Market at time \( t \), while \( D_t \) is the dummy variable of Ramadan (1 for Ramadan and 0 for the rest of the dates of the other months), \( \epsilon_t \) is the error term. In the variance equation, \( \beta \) is the conditional variance; \( \epsilon_t^2 \) is the ARCH which will capture the volatility from the previous period. \( \theta \) and \( \mu \) are the effect of the excluded dummy variables. This model is similar to the one used in the studies by Jebran and Chen (2017).

4. Empirical Results

4.1. Descriptive Statistics

The Jarque-Bera test results suggest that the returns are not normally distributed. The results relating to the years 2010, 2013, 2014 and 2015 were negatively skewed as shown in Table 2. 2012 and 2013’s returns were significant at the 5 percent level. The kurtosis value was higher than the critical value of 3 in all the years except 2011 and 2015. The results are similar to the results obtained by Halari et al., (2015). The results also showed that during 2011 the mean of the returns was positive, as compared to the rest of the months. For the year 2017, the return is positive. However, we cannot judge it on the basis of just 9 months taken in this study. The standard deviation is approximately the same all throughout the years.

4.2. Overall performance versus performance during Ramadan

To evaluate the performance during both the Ramadan period and the overall period, Jensen’s alpha is calculated by taking one-month lag. In the years 2010, 2012 and 2017, the overall index performed well, but in the rest of the months they were underperforming, compared to market benchmarks. In the year 2010, the performance of the index during Ramadan was poor, as compared to the rest of the months. This can be explained by the fact that the index was not well established in all the regions of the emerging markets. In some of the markets, the index started operating from the year 2009. After that year, the markets stabilised and investors started investing in the Islamic index, which is why from the year 2011, the performance during Ramadan considerably improved. There were no financial shocks during those years except for the year 2016, when Brexit took place. If we compare the performance of the market in terms of the preceding years, it can be observed that the overall market was performing better. During the Ramadan of 2016, the market outperformed the market benchmark. The results of the Jensen’s Alpha are given in Table 3. The relevant results are also represented in Figure 1.

4.3. GARCH results

The results of the GARCH test are given in Table 4. As we can see from the table below, Ramadan had no significant effect on the returns of the market in the period between 2010 and 2013. The study is similar to the one conducted by Jebran and Chen (2017), in which it was reported that there was an insignificant Ramadan effect on the market, however during the period between 2014 and 2017, a significant effect was observed in the market. The results are similar to the results reported by Al-Ississ (2010), Al-Hajieh et al., (2011) and Almudhaf (2012).

5. Conclusion

In the present study, we have examined the Islamic calendar anomaly, i.e. the Ramadan period with regard to the S&P Emerging Shariah Market in view of the period from 2010 to 2017. In some studies, the calendar anomalies were the Zil Haj period, Muharram and Ramadan. However, taking into account a larger number of countries in our study, we have considered only the Ramadan period. Jensen’s alpha was used to evaluate the performance of the index during both Ramadan and the overall period. The results of Jensen’s alpha have indicated that the performance during Ramadan was slightly getting better year wise.

The GARCH results have indicated both a significant and insignificant effects of Ramadan over the index. The study has useful implications for the investors, so that they can time their trading strategies and invest during the Ramadan period because the returns during this period are either high or stable. The effects of the Islamic calendar can only be found in the regions which are under Islamic law. The financial shocks also had an effect on the performance of the markets. During the bearish periods, the Islamic markets were performing better than the market benchmarks, whereas during the bullish periods the benchmark markets were outperforming the Islamic markets. This study will also help the ‘active investors’ to decide when to invest for higher returns. Future studies should be done with regard to evaluating the performance of the indices during the calendar anomaly in conventional and Islamic markets.
Source: Calculated by the authors

References


