Evaluation of Long Term Performance for Initial Public Offerings using Market Adjusted Cumulative Abnormal Returns (MACAR): A Case Study of Islamic Finance in Malaysia

Nashirah Abu Bakar¹ Sofian Rosbi² and Kiyotaka Uzaki³

¹Islamic Business School, College of Business, University Utara Malaysia, Kedah, Malaysia
²School of Mechatronic Engineering, University Malaysia Perlis, Malaysia
³Faculty of Economics, Oita University, Japan

ABSTRACT

The main objective of this paper is to evaluate the long term performance of initial public offerings for sharia compliant companies listed on the Malaysia Stock Exchange. The number of selected companies is 17 that issued initial public offerings (IPO) in the year of 2014 and 2015. Data for analysis in this study are collected from Thomson Reuters Datastream. The daily stock price is collected and then averaged to attained monthly share price. Next, this study using market adjusted cumulative abnormal returns (MACAR) to evaluate the performance of initial public offerings. In the same time, this study implemented the Shapiro-Wilk normality test to check the normality of data distribution. The result shows the MACAR value is -46.0024 % for 17 sharia-compliant companies. The negative value indicates the companies performed less than the benchmarked market namely Kuala Lumpur Stock Exchange (KLSE). Therefore, the findings show the market performed better than companies that issued IPO. The importance of this finding is it will help investors to make a better decision in developing their investment portfolio in gaining better profit and reducing the loss. In addition, the findings also will help the financial analyst to understand the dynamic behavior of the financial environment in Malaysia Stock Exchange.

Key Words: Islamic Finance, Initial Public Offerings, Long Term Performance, Cumulative Abnormal Returns.

1. INTRODUCTION

Initial public offerings (IPO) have been studied extensively in the developed markets. In Malaysian market, IPO are found to underperform the market value. Study by Ahmad-Zaluki and Kect, (2012) found IPO companies are underperforms the market value during the period of study 2002 to 2005 in Malaysian market. While Zarafat and Vejzagic (2014) investigate the long run (six-month, one-year, two-year, and three-year) returns of IPO listed on the Malaysian Stock Exchange during the period of 2004 till 2007. They found that the long term performance of IPO companies are underperformance with average market adjusted return for the six-month, one-year, two-year, and three-year after listing are -5.2%, -10.8%, -21.4%, and -32.8%.

Besides that, several study regarding long run performance of IPO found that IPO are outperformed the market value. Corhay, et al., (2002) concluded that IPO tend to outperform the market with a positive cumulative adjusted market return (CAR) of 41.7% over three years from the listing day during the period of 1992-1996.

Recent study show the long term performance of IPO companies in Malaysian market is below than market value (Ahmad-Zaluki and Kect, 2012; Zarafat and Vejzagic, 2014). Although a number of research internationally and locally have investigated the aftermarket performance of initial public offerings, this study makes a new contribution to the expansion of the IPO literature by providing a comprehensive sample of sharia compliant companies listed on the Malaysian Stock Exchange. This study try to fulfill the gap by examine the long term performance of IPO for sharia compliant companies from 2014 till 2015 using a market adjusted cumulative abnormal return method (MACAR).
2. LITERATURE REVIEW

A number of theories have been put forward to explain the phenomenon of short term and long term performance of IPO (Chahine and Tohme, 2009; Islam, et al., 2010; Chi and Padgett, 2005; Heerden and Alagidede, 2012; Samarakoon, 2010; Ekkayokkaya and penngiti, 2012; Darmadi and Gunawan, 2012; Agathee, et al., 2012 Borges, 2007; Ahmad-Zaluki and Kect, 2012; Goergen, et al., 2007; Chi and Padgett, 2005; Drobetz, et al., 2005; Chan, et al., 2004; Ritter, 1991; Carter et al., 1998; Lee, et al., 1996; Abu Bakar and Rosbi, 2016). Previous study has shown that IPO companies experience stock price underperformed. Giudici and Roosenboom (2004) found that the average company that went public on the Europe markets has been a very poor long term investment.

Liang (2008) study the long term performance of IPO listed on the China’s Shanghai Stock Exchange found that the average market-adjusted cumulative return and buy-and-hold return over the three years after listing are -32.02% and -20.88% respectively. Chan, et al. (2003) has also reported the same results in China. They found IPOs in China also slightly underperformed. Cai and Wei (1997) measured IPOs performance in Japan and found that IPOs underperformed their benchmarks. The previous study shows that a significant negative long term performance indicates the companies are inconsistent performance with market efficiency.

Study by Kooli and Surett (2004) investigated long-term performance in Canada found that IPO are underperformed. Levis (1993) found the long-term performance of IPO in the United Kingdom are underperformed using the CAR and BHAR methods. Goergen et al., (2007) also investigates the long term performance of IPO in United Kingdom found that small company behave differently from large companies and suffer from worse long term performance than large companies. While, Levis (1993) examined long-term performance of IPOs in the United States and found the significantly underperformed their benchmarks using CAR and BHAR methods. Carter et al. (1998) also found IPO stocks were underperformed relative to the market over a three-year holding period and less severe for IPO handled by underwriters with more prestige.

While, Lee, et al. (1996) reported that Australian IPOs significantly underperformed market movements in the three-year period after list. Drobetz et al. (2005) indicated that long-term performance of Swiss IPO and found that IPO underperformed their benchmarks. How, et al. (2011) found robust results that companies, which initiated a dividend, perform significantly better up to five years after the initiation date in Australia. Bessler and Thies (2007) found that the subsequent financing activity on the equity market is the most important factor in determining the future performance of IPOs in Germany.

3. RESEARCH METHODOLOGY

In answering the research objective in this study, a few steps of calculation need to be performed to validate the findings. This study performed return calculation for stock price, abnormal return analysis and normality diagnostics checking.

3.1 Data selection and market adjusted cumulative abnormal returns (MACAR) calculation

This study selected 17 sharia compliant companies that issued IPO for year of 2014 and 2015. These companies are listed in main market of Malaysia Stock Exchange. This study collected daily stock price from Thomson Reuters Datastream. The selected periods is starting from January 2016 until December 2018 involving 36 months observations. The average monthly share price for one particular month $t$ is calculated using Equation (1).

$$ MP_t = \frac{\sum_{i=1}^{n} DP_i}{n} $$

In Equation (1), these variables are defined as follows:

$MP_t$: Average monthly share price for particular month $t$,
$DP_i$: Daily share price for particular trading day $i$, and
$n$: Number of trading days in particular month $t$.

Then, this study calculated the monthly return for particular month $t$ using Equation (2).

$$ R_{t,i} = \left( \frac{MP_i - MP_{i+1}}{MP_{i+1}} \right) \times 100\% $$

In Equation (1), these variables are defined as follows:

$R_{t,i}$: Monthly return for particular month $t$ and trading day $i$, (i.e. $1, 2, ..., n$)
In Equation (2), the variables are defined as below:

\[ R_{i,t} : \text{Return for company } i \text{ in month } t, \]
\[ MP_{t} : \text{Average monthly share price for particular month } t, \]
\[ MP_{t-1} : \text{Average monthly share price for particular month } t-1. \]

Next, this study calculated for return with benchmarking to the market namely Kuala Lumpur Stock Exchange. Equation (3) shows the equation for market adjusted return.

\[ AR_{i,t} = R_{i,t} - MP_{t} \] \hspace{1cm} (3)

In Equation (3), the variables are described as follows:

\[ AR_{i,t} : \text{Abnormal return for company } i \text{ in month } t, \]
\[ R_{i,t} : \text{Return for company } i \text{ in month } t, \]
\[ MP_{t} : \text{Return for benchmark market (Kuala Lumpur Stock Exchange) in month } t. \]

Then, this study derived average abnormal returns for each month in long term periods of 36 months as shown in Equation (4).

\[ \text{Average } AR_{i,t} = \frac{\sum_{t=1}^{N} AR_{i,t}}{N} \] \hspace{1cm} (4)

In Equation (4), the variables are described as below:

\[ \text{Average } AR_{i,t} : \text{Average abnormal returns for month } i, \]
\[ AR_{i,t} : \text{Abnormal return for company } i \text{ in month } t, \]
\[ N : \text{Number of companies in sample.} \]

Next, this study calculated long term performance of IPO using market adjusted cumulative abnormal returns (MACAR) as described in Equation (5).

\[ \text{MACAR} = \sum_{t=1}^{36} \left( \frac{\sum_{i=1}^{N} AR_{i,t}}{N} \right) \] \hspace{1cm} (5)

3.2 Statistical test for normality of data distribution

Shapiro-Wilk normality test is performed to evaluate the normal distribution of data. The normal distribution, also known as the Gaussian distribution, is a probability distribution that is symmetric about the mean, showing that data near the mean are more frequent in occurrence than data far from the mean.

A normal distribution for variable \( x \) with mean \( \mu \) and variance \( \sigma^2 \) is a statistic distribution with probability density function as stated in Equation (6).

\[ P(x) = \frac{1}{\sigma \sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}} \] \hspace{1cm} (6)

Domain for \( x \) variable is considered in the range of \( x \in (-\infty, +\infty) \).
The statistical test performed in this study is using Shapiro-Wilk normality test. The Shapiro–Wilk test tests the null hypothesis that a sample \((x_1, x_2, x_3, ..., x_n)\) came from a normally distributed population. The test statistic is represented by Equation (7).

\[
W = \left( \frac{\sum_{i=1}^{n} a_i x_{(i)}}{\sum_{i=1}^{n} (x_i - \bar{x})^2} \right)
\]  

Equation (7)

In Equation (7), the parameters are described as follows:

- \(x_{(i)}\) : Order statistics for \(x\) variable. The variable \(x_{(1)}\) is the smallest order statistics.
- \(\bar{x}\) : Sample mean of variable \(x\). The equation of sample mean is represented by \(\bar{x} = \frac{(x_1, x_2, x_3, ..., x_n)}{n}\).
- \(a_i\) : The coefficient for \(W\) statistics.

\[
(a_1, a_2, a_3, ..., a_n) = \frac{m^T V^{-1}}{(m^T V^{-1} V^{-1} m)^{\frac{1}{2}}}
\]  

Equation (8)

The parameters for Equation (4) are described as follows:

- \(m\) : A vector made of the expected values of the order statistics of independent and identically distributed random variables sampled from the standard normal distribution.
- \(V\) : The covariance matrix of order statistics.

If the significant value (p-value) of Shapiro-Wilk test is larger than 0.05, the data distribution follows normal distribution. However, if the significant value (p-value) is less than 0.05, the data distribution deviates from normal distribution.

### 4. RESULT AND DISCUSSION

The objective of this study is to validate the long term performance of IPO for companies listed on the Malaysia Stock Exchange. The selected companies are 17 sharia compliant companies that issued initial public offerings in year of 2014 and 2015. Table 1 shows the list of 17 selected companies and year of initial public offering issued.

<table>
<thead>
<tr>
<th>No.</th>
<th>Companies</th>
<th>Year of IPO issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BIOALPHA HOLDINGS BERHAD</td>
<td>2015</td>
</tr>
<tr>
<td>2</td>
<td>MALAKOFF CORPORATION BERHAD</td>
<td>2015</td>
</tr>
<tr>
<td>3</td>
<td>DOLPHIN INTERNATIONAL BERHAD</td>
<td>2015</td>
</tr>
<tr>
<td>4</td>
<td>XIN HWA HOLDINGS BERHAD</td>
<td>2015</td>
</tr>
<tr>
<td>5</td>
<td>IKHMAS JAYA GROUP BERHAD</td>
<td>2015</td>
</tr>
<tr>
<td>6</td>
<td>SUNWAY CONSTRUCTION GROUP BERHAD</td>
<td>2015</td>
</tr>
<tr>
<td>7</td>
<td>AEMULUS HOLDINGS BERHAD</td>
<td>2015</td>
</tr>
<tr>
<td>8</td>
<td>AL-SALAM REAL ESTATE INVESTMENT TRUST</td>
<td>2015</td>
</tr>
<tr>
<td>9</td>
<td>IOI PROPERTIES GROUP BERHAD</td>
<td>2014</td>
</tr>
<tr>
<td>10</td>
<td>SCH GROUP BERHAD</td>
<td>2014</td>
</tr>
<tr>
<td>11</td>
<td>ICON OFFSHORE BERHAD</td>
<td>2014</td>
</tr>
</tbody>
</table>
Next, this study performed calculation of average cumulative abnormal return to evaluate the performance of IPO among 17 sharia compliant companies. Figure 1 shows average abnormal returns for long term performance of 36 months. The first observation is in January 2016 with average abnormal return is 0.6827 %. The value of average abnormal return in last observation of 36th month (December 2018) is -10.9647 %. Meanwhile, the value of market adjusted cumulative abnormal returns (MACAR) is -46.0024 %.

![Average abnormal returns for long term performance of 36 months](image)

**Figure 1: Average abnormal returns for long term performance of 36 months**

Then, this study performed normality statistical test using graphical and statistical method. Figure 2 shows histogram for average abnormal returns for sharia compliant companies that issued IPO in year of 2014 and 2015. The red line in the histogram indicates the reference line of normal data distribution. Figure 1 indicates the data distribution follow normal distribution.

In addition, this study performed normal Q-Q (quantile - quantile) plot analysis. Figure 2 shows the normal Q-Q plot for average abnormal returns of sharia compliant companies that issued IPO in year of 2014 and 2015. The red line is the reference line for normal distribution. Figure 2 shows all data are distributed near to normal distribution line. Therefore, data distributions of average abnormal returns follow normal distribution.

<table>
<thead>
<tr>
<th></th>
<th>Company Name</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>BOUSTEAD PLANTATIONS BHD</td>
<td>2014</td>
</tr>
<tr>
<td>13</td>
<td>ECONPILE HOLDINGS BHD</td>
<td>2014</td>
</tr>
<tr>
<td>14</td>
<td>SASBADI HOLDINGS BHD</td>
<td>2014</td>
</tr>
<tr>
<td>15</td>
<td>CARIMIN PETROLEUM BERHAD</td>
<td>2014</td>
</tr>
<tr>
<td>16</td>
<td>E.A.TECHNIQUE (M) BERHAD</td>
<td>2014</td>
</tr>
<tr>
<td>17</td>
<td>KRONOLOGI ASIA BERHAD</td>
<td>2014</td>
</tr>
</tbody>
</table>

DOI: 10.31695/IJASRE.2019.33050
Next, this study performed statistical test to evaluate the normality of data distribution in validating the findings in graphical method. Table 2 shows Shapiro-Wilk normality test for average abnormal return of sharia compliant companies that issued IPO in year of 2014 and 2015. Table 2 shows the significant value is 0.060. This value is larger than 0.05. Therefore, this study failed to reject null hypothesis of Shapiro-Wilk normality test. As a conclusion, the data distributions of average abnormal return follow normal distribution according to Shapiro-Wilk normality test.

Table 2: Shapiro-Wilk normality test for average abnormal return

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Degree of freedom</th>
<th>Significant value (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.942</td>
<td>36</td>
<td>0.060</td>
</tr>
</tbody>
</table>
5. CONCLUSION

The main objective of this paper is to evaluate the long term performance for 17 sharia compliant companies that issued IPO in year of 2014 and 2015. The main finding of this study is the value of market adjusted cumulative abnormal returns (MACAR) is -46.0024 %. Negative value MACAR indicates companies performed less than the market (Kuala Lumpur Stock Exchange). This finding from this study will help investors to understand the financial environment in Malaysia. In addition, it will help investors to make proper evaluation in developing investment portfolio between different financial assets.

REFERENCES


