

Robust Long Term Performance Analysis for Initial Public Offerings Using Market Adjusted Buy and Hold Returns (MABHR) Model

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-----ABSTRACT-----

The objective of this study is to investigate the long term performance of Initial public offerings (IPO) for sharia compliant companies listed on Malaysia Stock Exchange. This study selected 16 sharia complaint companies that issued IPO during year of 2014 and 2015. Daily share prices are collected from database of Datastream Thomson Reuters. The observation periods involved in this analysis is from December 2015 until December 2018. This study implemented market buy-and-hold abnormal returns (MABHR) method for evaluating long term performance of IPO. The main finding of this study shows MABHR is -43.161 percentages that indicates stock prices performed less than the market of Malaysia Stock Exchange. The findings of this study will help investors to select appropriate financial asset for developing investment portfolio that can contribute higher return.

KEYWORDS;-Long term performance, Initial public offering(IPO), Islamic Finance, Market Adjusted Buy and Hold Returns (MABHR)

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I. INTRODUCTION

There is a vast body of empirical literature on the short term and long term performance of Initial Public Offerings (IPO) in the worldwide(Chahine and Tohme, 2009; Islam, et al., 2010; Chi and Padgett, 2005; Heerden and Alagidede, 2012; Samarakoon, 2010; Ekkayokkaya and pengniti, 2012; Darmadi and Gunawan, 2012; Zhang and King, 2008; 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). This interest may be related to the importance of the IPO market for economic growth and employment, but often the focus is on the tremendous profit opportunities that IPO frequently offer to investors (Bessler and Thies, 2007). Previous study has shown that IPO companies experience stock price underperformed (Ritter, 1991). Study by Goergen et al., (2007) regarding 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. Killins and Egly (2018) suggested that IPO companies hiring respected ranked lead underwriters tend to experience better long term returns. This anomaly is found to be present in every country with a stock market including Malaysia, being the subject of investigation in this study.

IPOs are very important in most countries, particularly in countries like Malaysia. Study regarding performance of long term IPO in Malaysia found that IPO companies are underperforms the market for cumulative abnormal return (CAR) and the buy-and-hold abnormal return (BHAR) methods (Ahmad-Zaluki and Kect, (2012). Zarafat and Vejzagic (2014) investigate long term (six-month, one-year, two-year, and three-year) returns of IPO listed on the Malaysian Stock. They found that the 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% respectively. Several study regarding long term performance of IPO in Malaysian market found that IPO are outperformed the market value. Corhay, et al., (2002) concluded that IPOs tend to outperform the market with a positive cumulative adjusted market return (CAR) of 41.7% over three years from the listing day in Malaysian market. While, Jelic, et al. (2001) examined the financial performance of Malaysian IPO from 1980 to 1995. The results suggest extremely high and statistically significant initial premiums and positive and statistically significant long-term up to 3 years after listing.

Even there are many studies that focus on the long term performance of IPO in Malaysian market but study that focus on the sharia compliant companies listed on the Malaysian Stock Exchange is still lack of

researchers. Therefore, this study was developed to investigate the long term performance of IPO for sharia compliant companies listed on Malaysian Stock Exchange. This study used BHAR method in order to find long term performance of IPO for sharia compliant company in Malaysian market. Previous study suggests that BHAR is commonly used in the literature, as it precisely measures an investor's experience (Killins and Egly 2018; Dhamija and Arora, 2017; Komenkul and Siriwattanakul, 2016; Ahmad-Zaluki and Kect, 2012; Wu and Kwok, 2007; Goergen, et al., 2007).

II. LITERATURE REVIEW

Many theories have explained the long-term performance of IPO worldwide. In measuring the long-term performance of IPO, several benchmarks are used such as market index, portfolios of firms such as book-to-market ratio, size, or industry (Abu Bakar and Rosbi 2016). Previous studies documents the long term performance of IPO in the worldwide tends to underperformance the market value. Among other, Dhamija and Arora (2017) shows that Indian IPO outperforms the broad market initially followed by significant underperformance in the long term. The IPO underperformed the broad market generating -57.33 per cent BHAR over 36 months after listing. Carter, et al., (1998) investigates the long term performance of IPO in US market. They found that the underperformance of IPO stocks relative to the market over a three-year holding period is less severe for IPOs handled by more prestigious underwriters.

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. Cai and Wei (1997) measured IPOs performance in Japan and found that IPOs underperformed their benchmarks. It seems to show that a significant negative long term performance indicates the inconsistent performance with market efficiency (Peng and Isa, 2012). Kooli and Suret (2004) investigated long-term performance in Canada found that IPO are underperformed.

Ahmad Zaluki, et al., (2007) investigates the long term performance of IPO in Malaysian found the significant overperformance for equally-weighted event time CARs and buy-and-hold returns. Abu Bakar and Rosbi (2016) investigate the long-term (one to three year) performance of IPO for sharia compliant companies listed on the Malaysian Stock Exchange found IPO are outperformance the market. Kim, et al. (1995) found that long term performance of IPOs was observed to be better in Korea with an excess return of IPO that ranged from 80.63% to 91.59%.

III. METHODOLOGY

The objective of this study is to develop robust method in evaluating long term performance of initial public offerings in Malaysia Stock Exchange. In developing the robust estimation, this study performed data selection process, return calculation, analysis of market adjusted buy and hold return, and normality diagnostics checking.

3.1 Data selection and return calculation

This study selected 17 sharia compliant companies that listed on Malaysia Stock Exchange. These companies issued initial public offering in year of 2014 and 2015. In evaluating the long term performance of initial public offerings, share price data is collected daily from Thomson Reuters Datastream. Data are collected from 1st December 2015 until 31st December 2018. Daily data is averaged to attain average monthly price.

Next, this study performed return calculation for each company using Equation (1).

$$R_{i,t} = \frac{P_t - P_{t-1}}{P_{t-1}} \dots \dots \dots (1)$$

In Equation (1), the parameters are described as below:

- $R_{i,t}$: Monthly share price return for company i in month t ,
- P_t : Average of monthly share price in month t , and
- P_{t-1} : Average of monthly share price in month $t-1$.

3.2 Market adjusted buy and hold returns (MABHR) calculation

The performance of initial public offerings is validated using long term method namely market adjusted buy and hold returns (MABHR). The performance of selected initial public offerings for a company is benchmark with market return (Malaysia Stock Exchange). Market adjusted buy and hold returns for company i (MABHR $_i$) is calculated using Equation (2).

$$MABHR_i = \prod_{t=1}^{36} (1 + R_{i,t}) - \prod_{t=1}^{36} (1 + R_{m,t}) \dots\dots\dots (2)$$

In Equation (2), the variables are described as follows:

- MABHR $_i$: Market adjusted buy and hold returns for company i ,
- $R_{i,t}$: Monthly share price return for company i in month t , and
- $R_{m,t}$: Monthly share price return for market (Kuala Lumpur Composite Index) in month t .

Data for this calculation is selected from December 2015 until December 2018 involving 37 monthly average returns. In Equation (2), the first monthly return value is considered in January 2016. The performance of initial public offering is validated using 36 months for return evaluation process.

The benchmark is FTSE Bursa Malaysia KLCI Index considered as market. The positive value of MABHR can be interpret that buy and hold returns show better performance of the respective initial public offerings (IPO) compared to benchmark. Meanwhile, negative value of MABHR exhibits that buy and hold returns show lower performance of the respective IPO compared to benchmark.

3.3 Normality diagnostics checking

An assessment of the normality of data is a prerequisite for many statistical tests because normal data is an underlying assumption in parametric testing. Shapiro-Wilk test is to evaluate the characteristics of data distribution according to normal distribution. The null-hypothesis of this test is that the population is normally distributed. If the p-value is less than the chosen alpha level (0.05), then the null hypothesis is rejected and there is evidence that the data tested are not normally distributed. If the p-value is greater than the chosen alpha level (0.05), then the null hypothesis that the data came from a normally distributed population cannot be rejected.

The Shapiro–Wilk test tests the null hypothesis that a sample $(x_1, x_2, x_3, \dots, x_n)$ came from a normally distributed population. The test statistic is represented by Equation (3).

$$W = \frac{\left(\sum_{i=1}^n a_i x_{(i)} \right)^2}{\sum_{i=1}^n (x_i - \bar{x})^2} \dots\dots\dots (3)$$

In Equation (3), 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 $\bar{x} = \frac{(x_1, x_2, x_3, \dots, x_n)}{n}$.

a_i : The coefficient for W statistics.

$$(a_1, a_2, a_3, \dots, a_n) = \frac{m^T V^{-1}}{(m^T V^{-1} V^{-1} m)^{\frac{1}{2}}} \dots\dots\dots (4)$$

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.

IV. RESULT AND DISCUSSIONS

This objective of this paper is to evaluate long term performance of initial public offering using method of market adjusted buy and hold returns (MABHR). Therefore, this study performed return calculation, normality statistical test, outliers test, skewness and kurtosis analysis.

4.1 Market adjusted buy and hold returns (MABHR)

This study calculated market adjusted buy and hold returns (MABHR) for sharia compliant companies that public listed on Malaysia Stock Exchange (Bursa Malaysia). Table 1 shows the value of MABHR for 17 sharia compliant companies that issued initial public offerings (IPO) in year of 2014 and 2015. The average of market adjusted return is -28.95 percentages. The results found in this study similar with the emerging market like United State of America and United Kingdom (Ritter, 1991; Goergen, 2007)

Next, this study performed normality statistical analysis for MABHR value among 17 sharia compliant companies that issued IPO during year of 2014 and 2015. The normality of data is performed using graphical and numerical statistical test. The graphical test is performed using box-plot and the numerical test is performed using Shapiro-Wilk normality test. Figure 1 shows the box-plot for MABHR value for 17 sharia compliant companies. Result shows there is one outlier in the data distribution. The outlier is the 17th data which is Kronologi Asia Berhad. The outlier contributes to the non-normal data distribution.

Then, this study performed numerical normality test using Shapiro-Wilk method. Table 2 shows the Shapiro-Wilk normality test for 17 of sharia compliant companies listed in Malaysia Stock Exchange. The significant value is 0.000. Therefore, the significant level is less than 0.05 that indicates the data distribution does not follow normal distribution. In descriptive statistics, the skewness 2.652 is positive skewness that the mass of the distribution is concentrated on the left of distribution graph. Meanwhile, the kurtosis value is 9.030. Therefore, the distribution is following leptokurtic distributions.

As a conclusion, the distribution of data may suffer of inaccurate value because the existence of outliers.

Table 1: Market adjusted buy and hold returns for 17 companies issued initial public offerings (IPO) in year of 2014 and 2015

Number	Company name	Market adjusted buy and hold returns (MABHR)
1	Bioalpha Holdings Berhad	-0.0987
2	Malakoff Corporation Berhad	-0.5493
3	Dolphin International Berhad	-0.9189
4	XinHwa Holdings Berhad	-0.2602
5	Ikhmas Jaya Group Berhad	-0.8868
6	Sunway Construction Group Berhad	-0.0336
7	Aemulus Holdings Berhad	-0.4394
8	Al-Salam Real Estate Investment Trust	-0.1978
9	IOI Properties Group Berhad	-0.0215
10	SCH Group Berhad	-0.4445
11	Icon Offshore Berhad	-0.8191
12	Boustead Plantations Bhd	-0.3159
13	Econpile Holdings Bhd	0.0496
14	Sasbadi Holdings Bhd	-0.7715
15	Carimin Petroleum Berhad	-0.4726
16	E.A.Technique (M) Berhad	-0.7257
17	Kronologi Asia Berhad	1.9847
	Average MABHR	-0.2895

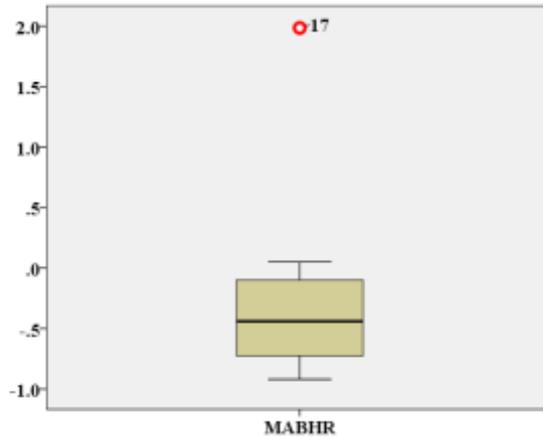


Figure 1: Box-plot for MABHR value for 17 sharia compliant companies listed on Malaysia Stock exchange

Table 2: Statistical normality test and descriptive statistics

Shapiro-Wilk normality test	
Statistics	0.717
Degree of freedom	17
Significant value	0.000
Descriptive statistics	
Mean	-0.2895
Standard deviation	0.6649
Skewness	2.652
Kurtosis	9.030

4.2 Robust data analysis of Market adjusted buy and hold returns (MABHR)

In developing robust conclusion regarding the financial environment for initial public offerings, data of MABHR should be free from outliers. Therefore, this study removed the outlier of 17th data (Kronologi Asia Berhad) to develop more robust estimation for long term performance of initial publics offering. After this study deleted the outlier, this study performed normality checking, box-plot analysis, and descriptive statistics to validate the findings.

Table 3 shows the statistical normality and descriptive statistics for 16 sharia compliant companies that listed on Malaysia Stock Exchange. The significant value for Shapiro-Wilk normality test is 0.337. This value is larger than 0.05. Therefore, this study failed to reject null hypothesis of Shapiro-Wilk normality test. It is concluded that the data distribution for MABHR of 16 sharia-compliant companies is follows normal distribution.

Table 3: Statistical normality test and descriptive statistics

Shapiro-Wilk normality test	
Statistics	0.939
Degree of freedom	16
Significant value	0.337
Descriptive statistics	
Mean	-0.4316
Standard deviation	0.3244
Skewness	-0.078
Kurtosis	-1.315

Next, Table 3 also indicates the descriptive about the data distribution of MABHR. Mean value of MABHR is -43.16 percentages that is larger than value mean MABHR with outliers in section 4.1. The larger value represents the dynamic financial environment of the population. Then, the standard deviation is 0.3244 that is less than value of standard deviation with outlier. Thesmaller value of standard deviation indicates dispersion of data distribution is smaller and more reliable.

In the same time, the skewness value is -0.078. Although this value is negative, but this value is close to zero skewness that indicates normal distribution. Skewness indicates which direction and a relative magnitude of a distribution deviates from normal. Skewness can be used to obtain approximate probabilities and quantiles

of distributions. Therefore, the distribution of MABHR is approximated as normal distribution because close to zero value. In real data distribution, most data points may not be perfectly symmetric.

In addition, Table 3 shows kurtosis value is -1.315. This value indicates negative kurtosis that represents platykurtic data distribution. The magnitude value of kurtosis for data distribution without outliers is smaller compared to value with outliers in section 4.1. Therefore, the data distribution without outlier is closed to mesokurtic of normal distribution.

Next, the findings of normal distribution need to be supported with other method in validating the result. This study using three graphical methods in proving the normality of data distribution for MABHR of 16 sharia compliant companies listed on Malaysia Stock Exchange. The three methods are histogram, normal Q-Q (quantile-quantile) plot and box-plot.

Figure 2 shows histogram of MABHR value for 16 sharia compliant companies listed on Malaysia Stock Exchange. The blue line is normal distribution line. Figure 2 indicates the distribution of MABHR data follows normal distribution.

Figure 3 shows normal Q-Q (quantile-quantile) plot for MABHR value for 16 sharia compliant companies listed on Malaysia Stock Exchange. The red line is the normal distribution line. Figure 3 indicates the distribution of data close to normal distribution line. Therefore, the data distribution of MABHR values follows normal distribution. Mean value of MABHR is -43.161 percentages and the standard deviation is 0.32445.

Next, Figure 4 shows box plot for MABHR value for 16 sharia compliant companies listed on Malaysia Stock Exchange. Figure 4 indicates there is no outlier in the data distribution.

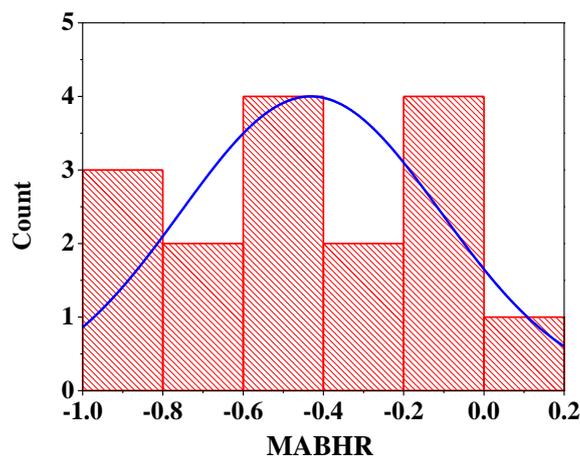


Figure 2: Histogram for MABHR value for 16 sharia compliant companies listed on Malaysia Stock exchange

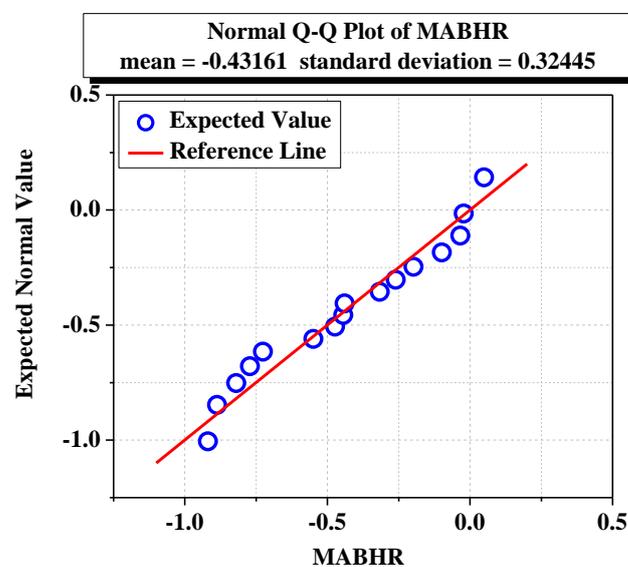


Figure 3: Normal Q-Q plot for MABHR value

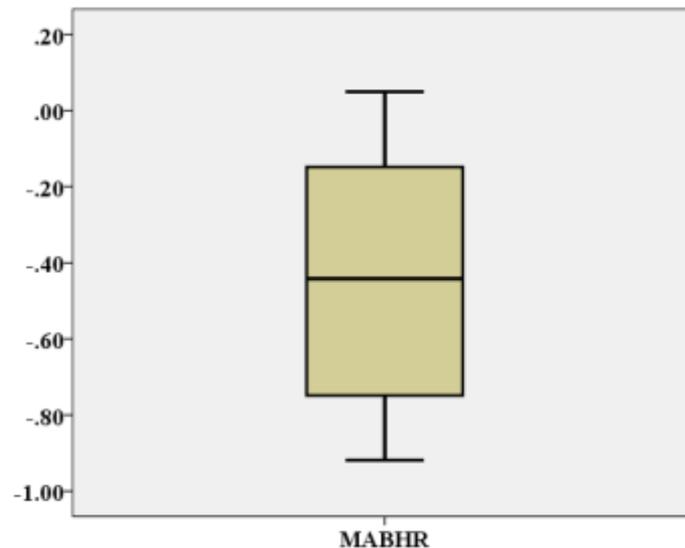


Figure 4: Box plot for MABHR value for 16 sharia compliant companies listed on Malaysia Stock exchange

V. CONCLUSION

The objective of this paper is to evaluate long term performance of initial public offerings using market adjusted buy and hold return (MABHR). In developing robust estimation, normal distribution is evaluated to develop conclusion that represent the real financial dynamic behavior in Malaysia Stock Exchange. The main findings of this study is the mean MABHR is -43.161 percentages that indicates stock prices performed less than the market of Malaysia Stock Exchange. The findings of this study will help investors to select appropriate financial asset for developing investment portfolio that can contribute higher return.

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