Overreaction of Syariah Stocks:
Does Size Matter?

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ABSTRACT

The purpose of the study is to investigate stock overreaction behavior among syariah stocks in Bursa Malaysia using basic framework of De Bondt and Thaler (1985). Like its conventional counterpart, evidence of stock overreaction behavior is also observed in syariah compliant stocks in Malaysia. The study documents that both winner and loser portfolios experience reversal behavior even after adjustment for size, thus implies that size does not matter. Furthermore, after adjustment for size, loser portfolios outperform winner portfolios in the test period. This indicates that syariah compliant stocks in Malaysia also provide opportunity of earning abnormal profit by resorting to contrarian strategy.

INTRODUCTION

Efficient Market Hypothesis (EMH) states that stock prices fully reflect all available information. The hypothesis asserts that the market price of a stock reflects a rational assessment of its underlying value. This implies that information like accounting, political and social data as well as past stock prices patterns may not be useful to systematically earned returns above market as this information are already incorporated in stock prices accurately and immediately.

However, recent researches (De Bondt and Thaler, 1985, 1987; Jegadish and Titman, 1995; Mun, Vasconchellos and Kish, 2000; Antonio Galariotis and Spyrou, 2005 and Rastogi et al., 2009 among others) show that there is some predictability in stock returns existed in the stock market and investors are able to earn consistent profit by trading on such information. These studies documented that stock prices

may go way above their or below targeted fundamental equilibrium in response to new information but move backward in the following period. One possible explanation is that investors may have overreacted. The security's value immediately following the event may not be reflected correctly in its prices because investors may have overreacted and this overreaction behavior has caused the security price to change dramatically. However, as the security market realizes of the over or undervaluation in the security price and take necessary actions, the security price reverses from its initial direction.

This scenario allows investors to form a strategy such as contrarian strategy which may result in significant profit. This phenomenon is known as stock overreaction hypothesis. The stock overreaction hypothesis violates the weak form of Efficient Market Hypothesis as it implies that the return behaviour of stock market is predictable. Malaysian stock market has also being the subject of stock overreaction behaviour as presented by the studies of Norli et al. (2009), Norli et al. (2010), Norli et al. (2011) Lai, Guru and Fauzias (2003), Ahmad and Hussain (2001) and Hameed and Ting (2000). Their studies have documented evidence of stock overreaction hypothesis in this market even after controlling for size, risk and seasonality effect. Norli et al. (2011) documented the evidence of stock overreaction behavior among syariah stocks in Malaysia. However, the study did not take into consideration of size effect. This study attempts to fill the gap by taking into account the effect of size of the firms on stock overreaction behaviour.

The purpose of this paper is to investigate the existence of overreaction behavior on syariah-compliant stocks in the Malaysian stock market after adjustment for size during the period from January 1990 to December 2009. This study adds to the existing literature by addressing issues of overreaction hypothesis in syariah compliant stocks within the context of emerging market like Malaysia.

LITERATURE REVIEW

Efficient Market Hypothesis (EMH) states that in a weakly efficient market, investors will not be able to consistently earn abnormal returns by employing strategies that based on past price patterns. Therefore, strategies under overreaction hypothesis which offer consistent profit out of past price behavior entail violation to the weak form of EMH. Evidences of overreaction behavior of stock return have been vastly documented such as De Bondt and Thaler (1985, 1987), Ketcher and Jordan (1994), Ahmad and Hussain (2001), Hirschey (2003) and Lai, Guru and Fauzias (2003) Saleh (2007) and Morad and Salehi (2011) among others. These

studies have emerged suggesting that some predictability may exist in the stock returns which may be translated into inefficiency of the stock market.

Like other stock market such as US, Australia, Japan and many more, Malaysian stock market has also being the subject of stock overreaction behavior. This is reported in the studies by Lai, Guru and Fauzias (2003), Ahmad and Hussain (2001) and Hameed and Ting (2000). Their studies have documented evidence of stock overreaction hypothesis in this market even after controlling for size, risk and seasonality effect. Their data however covers up to 1999 thus excluding the effect on Asian Financial Crisis on stock overreaction behaviour in Bursa Malaysia. More recent studies by Norli et.al (2009, 2010, 2011) which include the period of Asian financial crisis reported that overreaction behavior was more pronounced in the period before the crisis.

However, the studies mentioned above are based on the conventional stock market. In comparison to studies on conventional stock market, there still lack of research with respect to syariah compliant stock. Abdul Majid and Mohd Yusof (2009) tested the long run relationship between Islamic stock returns and macroeconomics variables in Malaysian stock market using autoregressive distributed lag model. Their study documented that macroeconomics variable like real effective exchange rate, money supply, treasury bills and federal funds rate are significant factors that influence the Islamic stock returns. Earlier, Muhammad (2002) found that conventional indices moves parallel to Islamic index. Recent study by Romli et.al (2012) reported that the return of Islamic index is more volatile than its conventional counterpart. The study concluded that the Islamic index may become an option for investors that have an interest in high-risk market. With regard to study on overreaction behavior in syariah compliant stocks, Norli et al. (2011) found evidence overreaction behavior in syariah stocks in Malaysia. However, their study did not take size of the firm into consideration. According to Zarowin (1990), evidence of overreaction behavior observed in the stock price data may be due to size effect. He argued that small stocks tend to overreact and after adjustment for size, the overreaction effect diminishes. This study attempts to fill the gap by investigating the overreaction behavior of syariah stocks after controlling for size.

In comparison to conventional stocks, syariah compliant stocks have different characteristics in the sense that these stocks are required to comply with syariah principle before they are given the syariah compliant status. In order to comply with syariah principle, these companies should avoid activities considered non-permissible by syariah such as practice of riba, gambling, manufacture or trade in non-halal product and related product, manufacture or sale of tobacco products or related products, stock broking or share trading in non-syariah compliant securities

or other activities deemed non permissible by syariah (Bursa Malaysia, 2011). Furthermore, for Malaysian stock market, there are two additional criteria need to be taken into account before a company is awarded with syariah compliant status. First, the public perception and the image of the company must be good. Second, the Muslim nation and the country must get the benefit form the core business of the company. As such, the behavior of syariah stocks might be different from those of conventional stocks.

METHODOLOGY

This study examines the long-run overreaction in the Malaysian stock market over a period between 1988 and 2009. The study follows the basic framework of De Bondt and Thaler (1985) with adjustment to size.

This study forms winner and loser portfolio based on stocks that have experienced extreme capital gains or losses over the period of two-year. Firstly, the study calculates returns for stock listed on Bursa Malaysia by using the following formula:

$$R_{it} = [(\ln P_{it}) - (\ln P_{it-1})] *100$$

Where, R_{it} represents return on security i at period t, and P_{it} represent price on security i at period t and period $t-1$. The return metric used here is the natural logarithmic of the stock monthly closing price obtained from *Datastream*. These logarithmic returns are equivalent to continuous time returns. The same calculation is carried out for return on market with the Kuala Lumpur Stock Exchange Composite Index (KLSE CI) being used as a proxy for the market.

Monthly market adjusted abnormal return (AR) for stock i is calculated as:

$$AR_{it} = R_{it} - R_{Mt}$$

Where R_{it} and R_{Mt} are returns for stock i and market m, respectively. Secondly, the study computes the portfolio formation period (FP)'s cumulative abnormal returns (CAR$_i$) for every stock over the 24-month period starting January 1987 and ending December 1988.

$$CAR_i = \sum_{t=1}^{24} AR_{it}$$

These stocks are then ranked based on their CARs over the two-year formation period and portfolios are formed. Firms in the top 20% are assigned to the winner

portfolio (W) and in the bottom 20% to the loser portfolio (L). The winner and loser portfolios are then held for the next 24 months.

In the subsequent period that is known as test period, January 1989 to December 1990, the CARs of all stocks in the winner and loser portfolios are recomputed.

The study then repeats the above method for the rest of formation periods and their subsequent test periods. The formation periods and their respective test periods are summarized in Table 1. The pair sample t-test is used to test for the difference in mean between the formation and test period for the loser and winner portfolios. Independent sample t-test of mean difference of the two portfolios (portfolio winner and portfolio loser) is then applied to identify the difference in abnormal returns of these portfolios during the test period.

Table 1 Summary of formation period and test periods

Set	Formation period	Test period
1	2006-2007	2008-2009
2	2004-2005	2006-2007
3	2002-2003	2004-2005
4	2000-2001	2002-2003
5	1998-1999	2000-2001
6	1996-1997	1998-1999
7	1994-1995	1996-1997
8	1992-1993	1994-1995
9	1990-1991	1992-1993
10	1988-1990	1990-1991

Independent Samples t-test

The study employs the independent samples t-test to ascertain the difference in mean cumulative abnormal return (CARs) of the two portfolios in the independent samples t-test over the test period. The t-test used is:

$$t - difference = \frac{\mu_L - \mu_W}{\sqrt{\dfrac{\sigma_L^2}{n_L} + \dfrac{\sigma_W^2}{n_W}}}$$

Where

μ_L : Mean Cumulative Abnormal Return of loser portfolio

μ_W : Mean Cumulative Abnormal Return of winner portfolio

σ_L^2 : Standard deviation of the loser portfolio

σ_W^2 : Standard deviation of the winner portfolio

n_L : Number of firms in the loser portfolio
n_W : Number of firms in the winner portfolio

The null and the alternative hypotheses are as follows:

$$H_0: \overline{CAR_L} = \overline{CAR_W}$$

$$H_1: \overline{CAR_L} > \overline{CAR_W}$$

The mean difference in the CARs of the two portfolios are estimated and tested. Significant t-values in the differences would suggest that the mean returns of the two portfolios are different. A positive significant t-values support the overreaction hypothesis. It implies that loser portfolio has outperformed winner portfolio in the test period.

Long Run Overreaction with Adjustment to Size

The study controls for firm size by constructing three sizes sorted groups which are small, medium and large based on market value of the stocks. Stocks are first assigned to winner and loser portfolio based on rank period return, then each of the loser and winner portfolios are broken into three size portfolios of small, medium and large. The methodology describes in the previous section is repeated here for the small winner, small loser, large winner and large loser portfolios.

RESULT

Table 1a and 1b illustrates the results of the difference between mean cumulative abnormal returns (CAR) for loser and winner portfolio for small sample of syariah stocks respectively.

Table 1a CAR in formation period and test period of loser portfolios for small sample

Formation period	Test period	Mean CAR Test period – Formation period	t-value
06-07	08-09	0.874	12.998***
04-05	06-07	1.196	14.620***
02-03	04-05	0.145	1.182
00-01	02-03	0.748	4.599***
98-99	00-01	1.228	5.351***
96-97	98-99	1.629	24.304***

Table 1a (*Cont'd*)

94-95	96-97	0.055	0.423
92-93	94-95	1.7121	12.735***
90-91	92-93	0.2145	1.269
88-89	90-91	0.937	7.889***

Notes: i. * and ** denotes significant at 1% respectively.

          ii. $H_0 : CAR_{LTP} = CAR_{LFP}$ $Ha : CAR_{LTP} > CAR_{LFP}$

Table 1a shows that mean cumulative abnormal returns of loser portfolios for small samples in the formation period are significantly different from those in the test period in seven out of ten periods under study. The findings indicate that stocks that are categorized as loser stocks which deeply underperformed in the initial period have reversed their fortune in the subsequent period. This scenario is also reported in Ahmad and Hussain (2001)'s study for sample that comprise of syariah and non syariah stocks in Malaysia, while Norli et al. (2011) also reported similar findings for syariah stocks before adjustment for size.

One possible explanation for the scenario is investor's overreaction. Based on overreaction hypothesis, investors tend to undervalue stocks that have a record of underperformance for a few consecutive years. The loser portfolios used in this study are comprised of stocks that have negative cumulative abnormal returns for the last 24-month. Therefore, investors may have deeply undervalued these stocks. If this is true, according to overreaction hypothesis, these losing stocks will outperformed others in the subsequent period. This is because, as stipulated by the mean reversion theory, stocks prices moves to their mean over time. They may deviate from their mean in the current period but will move to the equilibrium in the long run. This condition is observed in the study. As shown in the table, the positive mean difference of test period means CAR minus formation period means CAR imply the overreaction behavior. The findings suggest that investors have undervalued the loser stocks in the formation period. As correction takes place, these stocks moves to their true value and as a result, in the test period, they perform well above the formation period. The results are significant at 1% significant level. The effects also have economic value as the mean difference is quite large (range between 0.1 to 1.7%).

Similar findings are also observed for winner portfolio of small samples. Evidence of stock overreaction behavior is observed in six out of ten periods and significant at 1% significant level. The reversal behavior observed in the winner portfolio is due to the reason that investors may have over valued those stocks in the initial period. The overvalued stocks will move to their true value and therefore reverse in the test period. This circumstance is shown in Table 1b. The

mean difference in the formation period is higher compared to those of the test period as shown by positive value of Formation period mean CAR minus Test period mean CAR.

Table 1b CAR in formation period and test period of winner portfolios of small samples

Formation period	Test period	Mean CAR Formation period –Test period	t-value
06-07	08-09	1.060	3.977***
04-05	06-07	1.203	5.637***
02-03	04-05	1.669	11.937***
00-01	02-03	0.033	0.340
98-99	00-01	-0.048	-0.142
96-97	98-99	-0.077	-0.535
94-95	96-97	0.774	6.932***
92-93	94-95	0.262	8.800***
88-89	90-91	-0.937	-7.889***

Notes: i. * and ** denotes significant at 1% respectively.
ii. $H_0 : CAR_{LTP} = CAR_{LFP}$ $Ha : CAR_{LTP} > CAR_{LFP}$

Evidence of stock overreaction behavior for loser and winner portfolio of large samples is documented in Table 2a and 2b. The findings are similar to those of small sample. In conclusion, after adjustment for size, syariah stocks are also overreacted as shown by the significant mean difference between formation period and test period of loser and winner portfolios for both large and small samples. The results are consistent to Norli et al. (2009) and Lai et al. (2003).

Table 2a CAR in formation period and test period of loser portfolios for large sample

Formation period	Test period	Mean CAR Test period – Formation period	t-value
06-07	08-09	1.021	7.267***
04-05	06-07	2.098	8.606***
02-03	04-05	0.052	0.306
00-01	02-03	0.891	6.514***
98-99	00-01	0.890	1.878*
96-97	98-99	1.832	11.903***
94-95	96-97	0.374	1.855*

Table 2a (*Cont'd*)

92-93	94-95	0.718	4.464***
88-89	90-91	0.210	2.029*

Notes: i. * and ** denotes significant at 1% respectively.
        ii. $H_0 : CAR_{LTP} = CAR_{LFP}$ Ha : $CAR_{LTP} > CAR_{LFP}$

Table 2b CAR in formation period and test period of winner
portfolios of large samples

Formation period	Test period	Mean CAR Formation period –Test period	t-value
06-07	08-09	1.106	12.937***
04-05	06-07	0.078	1.272
02-03	04-05	0.702	8.365***
00-01	02-03	-0.146	-2.076**
98-99	00-01	-0.092	-1.234
96-97	98-99	-0.260	-2.163**
94-95	96-97	0.196	1.277
92-93	94-95	-0.051	-0.782
90-91	92-93	-0.098	-0.724
88-89	90-91	-0.937	-7.889***

Notes: i. * and ** denotes significant at 1% respectively.
        ii. $H_0 : CAR_{LTP} = CAR_{LFP}$ Ha : $CAR_{LTP} > CAR_{LFP}$

    If syariah stocks overreact, will investors be able to earn abnormal returns by resorting to contrarian strategy of selling winner portfolios and buying loser portfolios? To answer the question, the study test for possibility of contrarian strategy by comparing the mean CAR between loser and winner portfolio in the test period. If the mean CAR of loser portfolios in the test period is significantly higher than those of winner portfolios in the same period, contrarian strategy is viable for syariah stocks in Bursa Malaysia. The results of the difference in mean CAR between loser and winner portfolios in the test period for small and large sample are presented in Table 3a and 3b respectively.

Table 3a Differences in CARs in the test period for 2-year portfolio
formation for small sample

Formation period	Test period	Mean CAR	
		Loser - Winner	t-value
06-07	08-09	0.510	2.399***
04-05	06-07	0.544	3.274***
02-03	04-05	0.300	1.801*
00-01	02-03	-0.113	0.807
98-99	00-01	-0.148	0.364
96-97	98-99	0.561	3.155***
94-95	96-97	-0.174	0.703
92-93	94-95	1.296	0.621
90-91	92-93	1.296	0.621
88-89	90-91	-0.449	2.483**

Notes: i. *, ** and *** denote significant at 10%, 5% and 1% respectively.
ii. $H_0 : CAR_L = CAR_W$ $\qquad$ $Ha : CAR_L > CAR_W$

Table 3a and Table 3b prove that contrarian strategy works for syariah stocks in Bursa Malaysia. Significant evidence of contrarian strategy of selling winner portfolios and buying loser portfolios is revealed by the positive value of mean CAR loser minus mean CAR winner for both small and large samples. The positive value of mean CAR loser minus mean CAR winner suggest that investors have earned positive significant abnormal returns by resorting to contrarian strategy of selling winner and buying losers portfolios.

Table 3b Differences in CARs in the test period for 2-year portfolio
formation for large sample

Formation period	Test period	Mean CAR	
		Loser - Winner	t-value
06-07	08-09	0.509	2.399***
04-05	06-07	0.545	3.406***
02-03	04-05	-0.305	1.880*
00-01	02-03	-0.094	0.696
98-99	00-01	-0.149	0.549
96-97	98-99	0.553	2.545***
94-95	96-97	-0.174	0.662
92-93	94-95	0.129	0.621

90-91	92-93	1.296	0.621
88-89	90-91	-0.449	2.082*

Notes: i. *, ** and *** denote significant at 10%, 5% and 1% respectively.

ii. $H_0 : CAR_L = CAR_W$ $Ha : CAR_L > CAR_W$

Contrarian strategy works in this case because;

- Investors able to earn abnormal returns by selling winner portfolio at higher price. Since the winner portfolios are overvalued, they will reverse in the subsequent period as stocks normally will revert to their equilibrium mean. When the winner portfolios revert in the subsequent period, their price will drop and investors are able to buy them back at a cheaper price than before. Therefore, they will earn positive return.

- The other part of contrarian strategy is to buy the loser portfolios and of course at a low price. Since they are theoretically undervalued, the portfolios will revert and their price will rise. This scenario will give the opportunity for the investors to earn profit when they sell the portfolios.

Therefore, contrarian strategy gives investors chances to earn positive returns. As shown in this study, the returns earned by investors of syariah stocks in Bursa Malaysia are positive and significant. In conclusion, as in conventional stocks, contrarian strategy also works for syariah stocks in Bursa Malaysia even after adjustment for size.

CONCLUSION

The objective of the study is to investigate evidence of stock overreaction behaviour among syariah stocks in Malaysian Stock Market. This study finds that syariah compliant stocks in Malaysia, like its conventional counterparts show evidence of stock overreaction behaviour. The study records significant evidence of reversal behaviour experienced by loser and winner portfolios of syariah stocks after adjustment for size. Evidence also shown that after adjustment for size, loser portfolios of syariah stocks outperform those of winners in the test period. These findings indicate that as in conventional stocks, investors may also have opportunity of earning abnormal profit by resorting to contrarian strategy comprising Malaysian syariah compliant stocks.

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