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Does Bursa Malaysia Overreact?

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Abstract

Findings for the whole period from January 1987 to December 2006 reveal that loser has insignificantly becomes loser and winner has significantly reversed in the subsequent period. Arbitrage portfolio does not provide any significant abnormal return thus, not consistent with the overreaction hypothesis. This is due to the reason that Malaysian investors are overoptimistic. After controlling for size, both small and large stocks have significantly support the overreaction hypothesis even after adjustment for difference in risk. No evidence of January effect is reported during the period; however, there is evidence of Chinese New Year effect documented in the findings. The study also shows that Malaysian Stock Market overreacts prior to 1997 Asian Financial crisis. During the post crisis, the results are not consistent with overreaction hypothesis. One possible reason to this behaviour is that investors are more aware of the phenomenon and have altered their trading strategy. As a result, overreaction behaviour diminishes and stock market gradually becomes efficient in the post crisis. These findings suggest that stock overreaction behaviour in Malaysian stock market only benefited the short-term investors. However, when the strategy is based on a longer formation period such as 5-year formation period, long-term investors are able to earn significant positive abnormal returns.

Keywords: Market efficiency; behavioural finance; overreaction; abnormal return; arbitrage portfolio

1. Introduction

Overreaction is a tendency for stock return to experience reversals. This is generally resulting from the behaviour of market participants who tend to overreact to new information and correct their behaviour later. This behaviour of market overreaction implies that stocks that perform best (worst) over an initial period tend to perform worst (best) in the subsequent period. This is because investors tend to overreact to new information and generate such price movements that go beyond the new equilibrium

level justified by the news. Later, as investors realize that they have unduly reacted to the information and trade on the overreaction, price will change to the opposite direction of the initial movements and approached its equilibrium.

Stock overreaction hypothesis suggests that investors are likely to overreact to a series of news pointing towards the same direction such that companies that have performed badly (well) over a period of time (i.e. 3 years, 5 years) will subsequently reverse this trend. Therefore, stock Overreaction Hypothesis implies that there is some predictability exists in stock market. These easily implemented profitable trading strategies due stock overreaction have implication for the validity of the Efficient Market Hypothesis (EMH). Consistent abnormal profits earned by such strategies appear inconsistent with market efficiency, in which, it violates the weak form market efficiency. Fama (1970) defines stock market as efficient if stock prices fully "reflect" available information. This definition implies that the available information cannot be used to forecast stock prices in a fully efficient market. The theory argues that current prices formed in a competitive and well-regulated market place reflect all known relevant information. Ariff, Shamsher and Annuar (1998) assert that future prices will be based upon arrival of new information, or new interpretation of existing information given more recent developments. Therefore, price changes are not due to stock overreaction and underreaction, but are due to new information. Since these changes are equally likely to be in either positive or negative direction, thus, it is not possible to make consistent predictions about how future prices will move based on past price patterns. If stock overreaction is true, then it would be possible to predict future prices based upon past price information to earn excess profit. This also means that stock prices on Bursa Malaysia will not be in its weak form efficiency if the evidence supports the overreaction hypothesis.

The purpose of this paper is to empirically investigate evidence of stock overreaction behaviour in the Malaysian Stock Market over a period between January 1987 and December 2006. This study also attempt to find out what investment strategy could provide potential abnormal profit in this stock market. This paper is divided into five sections. Section two briefly reviews evidence of stock overreaction whereas section three and four elaborate the methodology and findings of this study. Section five concludes the study.

2. Literature Review

The empirical evidences on the reversal behaviour of stock price are inconclusive. De Bondt and Thaler (1985) reported that stocks that perform worst over a period subsequently outperform stocks that perform best over the same prior period. Chan (1988) and Ball, Kothari and Shanken (1995) argue that this winner-loser effect is due to time varying risk. In contrast, De Bondt and Thaler (1987), Zarowin (1990) and Spyrou et al (2005) document that risk differences cannot explain this overreaction effect. Zarowin (1990) proposes that size effect is one of the factors that could explain the winner-loser effect. However, De Bondt and Thaler (1987), and Chiao, et al (2005) conclude that the winner-loser effect is not primarily a size effect, because overreaction behaviour is still persist and significant even after controlling for size effect. Chen and Sauer (1997) and Otchere and Chan (2003) focus on the persistent of overreaction behaviour in different time period. Chen and Sauer (1997) find that overreaction effect is most evident during the pre-war and pre-energy-crisis periods and becomes weaker during the post war and post energy-crisis eras. Otchere and Chan (2003) also report inconsistency in the stock overreaction of Hong Kong Stock Market where overreaction effect exist prior to the 1997 Asian Financial Crisis but diminish during the post crisis period. With regard to the length of the formation period, Saleh (2007) and Campbell and Limmack (1997) show that loser continue to be loser in the shorter formation period, but in the longer formation period of up to five years, loser portfolio reversed and has outperformed the winner portfolio.

In Malaysia, evidences of overreaction in stock returns are documented in studies by Hameed and Ting (2000), Ahmad and Hussain (2001) and Lai et al (2003). Their results are robust in the sense that risk, size and January effects cannot explain the overreaction behaviour found in the Malaysian

Stock Market. Ahmad and Hussain (2001) however, report the existence of Chinese New Year effect in the overreaction profile of Bursa Malaysia. There is no study in Malaysia thus far that highlight the consistency of stock overreaction behaviour in different time period as well as the sensitivity of overreaction effect to the length of the formation period.

3. Methodology

3.1. Stock overreaction

The study follows a two-step procedure to test for overreaction in Malaysian stock market over a period of 20 years starting on January 1987 and ending on December 2006. Firstly, the study identifies non-overlapping 24-month periods. The availability of data over a period of 20 years provides 9 non-overlapping 24-month (two-year) portfolio formation (rank) periods, namely 1987-1988, 1989-1990, 1991-1992, 1993-1994, 1995-1996, 1997-1998, 1999-2000, 2001-2002, and 2003-2004, and the corresponding test periods, which are 1989-1990, 1991-1992, 1993-1994, 1995-1996, 1997-1998, 1999-2000, 2001-2002, 2003-2004 and 2005-2006. Secondly, at the end of each rank period, the study then identifies all companies with a complete set of return for a particular rank period. Gaunt (2000) suggests that this will avoid the look-ahead bias. In order to avoid the survivorship bias, the study follows Chiao and Hueng (2004), where the sample firms are not required to remain listed for any test period. The number of qualified firms in the sample is expected to gradually increase due to increase of new listing during the sampling period.

The study follows the basic framework of De Bondt and Thaler (1985) with adjustment to size effect, seasonality effect and time-varying risk of Chan (1988). 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*, P_{it} and P_{it-1} 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.*. 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 data is used because according to Mun et al (2000), daily data has substantial random white noise associated with it. The use of monthly data could avoid the problem that arise with using daily or weekly data, both with respect to risk and returns variables, including the bid-ask spread and the consequences of infrequent trading. This study then computes monthly market adjusted abnormal return (AR) for stock *i* 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 cumulative abnormal returns (CAR_i) for every stock over the 24-month period starting January 1987 and ending December 1988. This period is known as the portfolio formation period (FP).

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

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). Buying loser and selling winner forms arbitrage portfolios. The winner, loser and arbitrage portfolios are then held for the next 24 months. In the subsequent test period, January 1989 to December 1990, the CARs of all stocks in the winner and loser portfolios are recomputed. For every test period at the interval of 1 and 24, the CARs for all stocks in the winner and loser portfolios are calculated as follows.

$$CAR_{p,n,t} = \sum_{t} \left(\frac{1}{N}\right) \sum_{i=1}^{N} AR_{it}$$

where *z* is the test period (*1,2, ... 9*), *N* is the number of stocks assigned in each portfolio for each formation period and $CAR_{p,z,t}$ is the cumulative abnormal returns in month *t* of the test period *z* for portfolio *p*. The study then repeats the above method for all nine-formation periods and their subsequent test periods. One sample t-test and independent sample t-test of mean difference of the two portfolios (portfolio winner and portfolio loser) were then applied to identify the difference in abnormal returns of these portfolios during the test period.

3.2. One sample t-test

One sample t-test is used to examine whether the loser portfolio and the winner portfolio reverse their fortune in the subsequent test period. To achieve this goal, the average CAR across all test periods (*z)* for each of the portfolio in each month between *t = 1* and *t = 24* are calculated

$$ACAR_{p,t} = \frac{1}{z}\sum_{z=1}^{z} CAR_{p,z,t}$$

where *p* could be a winner (*W*) or loser (*L*). ACAR is tested to see if they are significantly different from zero. The first part of the analysis investigates whether stocks with poor (good) price performance over a two-year period, become relatively better (worse) performers over the following two-year period. Then, the study compare the test period abnormal returns between winner and loser portfolios to see if there any potential for exploiting these patterns through arbitrage (i.e. contrarian strategy). The overreaction predicts that for $t > 0$, $ACAR_{W,t} < 0$ *and* $ACAR_{L,t} > 0$. Alternatively, the null hypothesis can be written as:

$H_{0:}\,[ACAR_{L,t} - ACAR_{W,t}] > 0.$

In order to examine the statistical significance of the difference between the loser and the winner portfolios, the study needs a pooled estimate of the population variance in *CARs*. As in De Bondt and Thaler (1985), the actual estimate is calculated as follows:

$$\sum^{z} \left[\left(CAR_{W,z,t} - ACAR_{W,t}\right)^2 + \sum_{z=1}^{z} \left[\left(CAR_{L,z,t} - ACAR_{L,t}\right]\right)^2 \right],$$

Where z is the number of the test period, which is 9. The t-statistic is therefore:

$$t_t = \frac{\left[ACAR_{L,t} - ACAR_{W,t}\right]}{\sqrt{\left(2S_t^2\right)/z}}$$

Negative significant t-values for the winner portfolio would suggest that there is evidence of stock overreaction existed in the sample, in which it implies that the winner portfolio has reversed and perform significantly badly during the test period. The reverse is true for the loser portfolio. Positive significant t-values for the loser portfolio support the overreaction hypothesis by suggesting that the loser portfolio has performed significantly better in the test period. Meanwhile, positive significant t-value for the arbitrage portfolio indicates that contrarian strategy of buying loser and selling winner portfolios would produce significant abnormal returns in the subsequent period as suggested by the overreaction hypothesis.

3.3. 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:

$$t - difference = \frac{\overline{CAR_L} - \overline{CAR_W}}{\sqrt{\frac{\sigma_L^2}{n_L} + \frac{\sigma_W^2}{n_W}}}$$

Where

$\overline{CAR_L}$: Mean Cumulative Abnormal Return of loser portfolio

$\overline{CAR_W}$: 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.

3.4. Long run overreaction with adjustment to size

The study extends the investigation of the long run overreaction by controlling for firm size to ascertain if the contrarian profits are just due to small firm size effect. 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 at the end of the formation period. 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.

3.5. Long run overreaction with adjustment to time varying risk

In view of the contention by Chan (1988) that risk associated with a portfolios are more likely to change overtime, this study extends the analysis by taking into consideration the aspect of time-varying risk. Consistent with Chan (1988), this study assumes that expected returns are generated by Sharpe-Lintner Capital Asset Pricing Model (CAPM). The study also assumes that the presence of abnormal returns can be tested via examining the value of α in the following equation:

$$R_{it} - R_{ft} = \alpha_i = \beta_i (R_{mt} - R_{ft}) + \varepsilon_{it}$$

In order to examine the change in risk from the formation period to the test period as well as the presence of abnormal returns in the formation period and the test period, the above equation is modified slightly to:

$$R_{it} - R_{ft} = \alpha_{1i} (1 - D_t) + \alpha_{2i} D_t + \beta_i (R_{mt} - R_{ft}) + \beta_{iD} (R_{mt} - R_{ft}) D_t + \varepsilon_{it}$$

Where t is between *1* and *24*, D_t is a dummy variable equal to zero in the ranking period *(t <= 24)* and to *1* in the test period (t > 24). The abnormal return in the ranking period is estimated by α_{1i} and that of the test period is estimated by α_{2i}. The ranking period risk is β_i and the test period's is $\beta_i + \beta_{iD}$. If the risk of a portfolio unchanged, then β_{iD}, which indicates the change in the risk of the portfolio from the rank to the test period, should be equal to zero. Hence, the study investigates if there is any change in the beta of the winner, loser and arbitrage portfolios from the rank to the test periods.

3.6. Long run overreaction with adjustment to seasonality effect

Several US studies, including De Bondt and Thaler (1985, 1987) and Zarowin (1990) have found evidence of a seasonality effect namely the January effect in the general level of stock returns. Such monthly seasonality in the overreaction profile is also investigated in this study. Ahmad and Hussain (2001) present that Bursa Malaysia abnormal returns are greater in February than any other months. Based on that, they suggest the existence of a February effect or Chinese New Year (CNY) effect in returns of Malaysian stock market. The study uses dummy variables to investigate monthly seasonality in the pattern of abnormal returns.

$$AR_t = \Psi_1 + \Psi_2 D_t + \varepsilon_t$$

Where AR_t means monthly abnormal returns of all stocks in a winner and loser portfolio in month *t*. D_t is dummy variable which takes *1* for monthly observation from February and a value of *0* elsewhere. Ψ_1 and Ψ_2 are the model's parameters and ε_t is random error following OLS assumptions. The above method is repeated to test for January effect. D_t is dummy variable which takes *1* for monthly observation from January and a value of *0* elsewhere. The null hypothesis is:

H_0 : $\Psi_2 = 0$

H_1 : $\Psi_2 > 0$

4. Findings

4.1. Long run stock overreaction

Table 1 displays results of differences in Cumulative Abnormal Returns (CAR) between loser and winner in the test period for 2-year portfolio formation in the Malaysian stock market over the period between January 1987 and December 2006.

Table 1: Differences in CARs the test period for 2-year portfolio formation

Formation Period	Test Period	Mean CAR			
		Loser	Winner	Loser - Winner	t-value
87-88	89-90	33.14	6.09	27.09	1.957**
89-90	91-92	7.53	-27.82	20.29	1.761*
91-92	93-94	66.31	16.94	49.37	5.073***
93-94	95-96	1.10	-13.02	14.19	1.801*
95-96	97-98	-38.35	-57.22	18.87	1.993**
97-98	99-00	-37.49	-20.04	-17.45	-2.151**
99-00	01-02	-35.75	-14.31	-21.44	-2.430**
01-02	03-04	-15.76	-10.75	-5.00	-0.652
03-04	05-06	-38.51	-31.45	-7.06	-0.861

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

$H_0 : ACAR_L = ACAR_W$; $H_a: ACAR_L > ACAR_W$

Table 1 presents that five out of nine test periods, mean CARs are significantly greater for loser than for winner. These results are therefore consistent with the overreaction hypothesis. The results also show that loser has significantly outperformed winner for portfolio formed before 1997 Asian Financial Crisis. Those that are formed after the crisis period, however does not follow the overreaction hypothesis where winner portfolio tends to significantly outperformed loser portfolio. The findings suggest that there exist strong overreaction phenomenon in the Malaysian stock market before the 1997 Asian Financial Crisis period. The results are also statistically significant in all the 5 periods before the crisis. These significant results of loser outperformed winner may have implications on the Efficient Market Hypothesis (EMH). Consistent abnormal returns earned by resorting to strategy based on overreaction of selling winner portfolio and buying loser portfolio during the period before the crisis may indicates the inconsistency of Bursa Malaysia to the weak-form of EMH. Bursa Malaysia may not be weakly efficient before the crisis.

However, after the 1997 Asian Financial Crisis, evidence of overreaction behaviour diminishes. Findings show that loser portfolio exhibit continuation behaviour by continually becoming loser in the test period, whereas winner portfolio displays reversal behaviour. Arbitrage strategy of selling winner portfolio and buying loser portfolio on the other hand does not earned positive return at all. The absent of the reversal behaviour after the crisis could be due to the reason that investors are more aware of the overreaction phenomenon and have altered their trading strategy. Another explanation may be the possible reduction of noise trader during the crisis period. De Long et. al (1990) argue that in the presence of noise trader, rational speculation can be destabilizing. Therefore, as time goes by, the stock overreaction behaviour gradually diminishes and stock market gradually becomes more "efficient".

These patterns are shown in Table 1 where the negative zero-investment returns of loser minus winner become insignificant during the 2001/2002 and 2003/2004 periods. Malaysian stock market seems to be more efficient after the 1997 Asian Financial Crisis period.

Tables 2 and 3 summarize the results of one-sample test for stock overreaction behaviour before and after 1997 Asian Financial Crisis. Table 2 corroborates findings of stock overreaction behaviour reported earlier in Table 1.

Table 2: Long run stock overreaction Pre-1997 Asian Financial

Month	Loser		Winner		Arbitrage	
	Mean Difference	t-value	Mean Difference	t-value	Mean Difference	t-value
1	1.67	0.925	-2.06	-0.781	3.74	1.092
2	5.90	2.365 *	0.21	0.062	5.69	1.344
3	6.56	2.311*	-0.85	-0.212	7.41	1.770*
4	6.92	1.404	1.49	0.444	5.43	1.976*
5	8.03	1.026	-0.09	-0.15	8.12	1.836*
6	5.78	1.193	-0.64	-0.107	6.41	1.710*
7	9.35	1.528	0.81	0.141	8.54	3.087**
8	10.72	1.389	5.83	0.771	4.90	0.571
9	12.68	1.263	3.39	0.465	9.29	1.084
10	11.38	0.912	4.73	0.536	6.65	0.525
11	9.37	0.608	5.79	0.557	3.58	0.191
12	5.90	0.282	3.02	0.311	2.89	0.120
13	5.38	0.256	-0.44	-0.065	5.82	0.288
14	13.02	0.612	-3.14	-0.409	16.15	1.089
15	9.56	0.451	-5.75	-0.634	15.20	1.194
16	7.11	0.310	-1.29	-0.618	8.40	0.487
17	4.63	0.215	-4.88	-0.569	9.51	0.639
18	4.49	0.217	-4.79	-0.571	9.28	0.592
19	5.78	0.266	-9.41	-0.838	15.20	1.354
20	8.38	0.399	-0.70	-0.075	9.07	0.530
21	14.19	0.671	3.36	0.353	10.83	0.598
22	11.47	0.600	-0.58	-0.076	12.05	0.810
23	15.98	0.995	-2.54	-0.339	18.52	1.868*
24	10.56	0.578	-6.12	-0.774	16.70	1.325

Note: *, and ** indicate significant at 10%, and 5% respectively. Statistical significant is reduced due to smaller size.

As shown in Table 2, both loser and winner portfolios have reversed in the subsequent period after portfolio formation. Loser portfolio has significantly reversed and becomes winner portfolio by earning abnormal profit of 5.9% and 6.56% in month 2 to month 3 of the test period respectively. However, the results of the study become insignificant from month 4 through month 24 of the test period. On the other hand, winner portfolio has insignificantly reversed and becomes loser from month 13 through month 24 of the test period. The findings simply convey that single trading strategy based on winner and loser alone will not earned significant abnormal returns. Although both portfolio exhibited reversal behaviour and are consistent with the overreaction hypothesis, the strategy is not be economically profitable. However, a strategy that combines loser and winner portfolio together such as contrarian strategy generates potential abnormal returns as exhibit in column three of Table 2. The findings show that arbitrage portfolio of selling winner and buying loser earns significant abnormal returns from month 3 through month 7 of the test period. The results suggest that Malaysian Stock Market overreacts prior to 1997 Asian Financial Crisis. This result is in agreement to those reported by Ahmad and Hussain (2001) and Lai et al (2003). Ahmad and Hussain (2001) find evidence of stock overreaction behaviour in the Malaysian Stock Market for the period of 1986-1996. The same findings are also reported by Lai et al (2003) for the same market over the period between January 1987 and December 1999.

Table 3: Long run stock overreaction Post 1997 Asian Financial

Month	Loser		Winner		Arbitrage	
	Mean Difference	**t-value**	**Mean Difference**	**t-value**	**Mean Difference**	**t-value**
1	0.33	0.319	-2.85	-1.430	3.18	1.065
2	-2.44	-3.429*	-5.32	-1.957*	2.88	0.862
3	-9.48	-2.180*	-8.82	-2.027*	-0.67	-1.793
4	-15.04	-1.806	-6.68	-4.226**	-8.36	-1.212
5	-25.36	-1.844	-7.24	-1.715	-18.12	-1.301
6	-22.17	-1.466	-6.91	-1.400	-15.25	-1.112
7	-18.89	-1.198	-6.48	-8.850	-12.41	-1.007
8	-18.09	-1.217	-7.85	-0.913	-10.25	-0.946
9	-18.16	-1.236	-10.89	-1.101	-7.27	-0.883
10	-19.66	-1.294	-10.36	-0.970	-9.30	-0.908
11	-21.87	-1.318	-10.79	-0.920	-11.07	-0.905
12	-26.24	-1.457	-15.45	-1.453	-10.80	-0.720
13	-27.76	-1.445	-13.74	1.552	-14.01	-0.748
14	-25.53	-1.419	-14.32	-1.644	-11.22	-0.648
15	-21.26	-1.477	-14.27	-2.040*	-6.98	-0.508
16	-14.48	-1.143	-11.68	-1.832	-2.80	-0.249
17	-15.88	-1.329	-14.19	-2.104*	-1.70	-0.151
18	-18.12	-1.550	-15.47	-2.703*	-2.65	-0.208
19	-20.33	-1.706	-16.37	-2.860*	-3.96	-0.300
20	-26.94	-2.020	-19.49	-3.289*	-7.45	-0.695
21	-33.78	-1.947	-20.13	-3.225*	-13.65	-0.636
22	-41.51	-1.764	-21.59	-3.949*	-19.23	-0.705
23	-51.33	-1.645	-21.33	-3.514*	-30.00	-0.818
24	-64.69	-1.499	-22.51	-4.615**	-42.18	-0.887

Note: *, and ** indicate significant at 10%, and 5% respectively. Statistical significant is reduced due to smaller size.

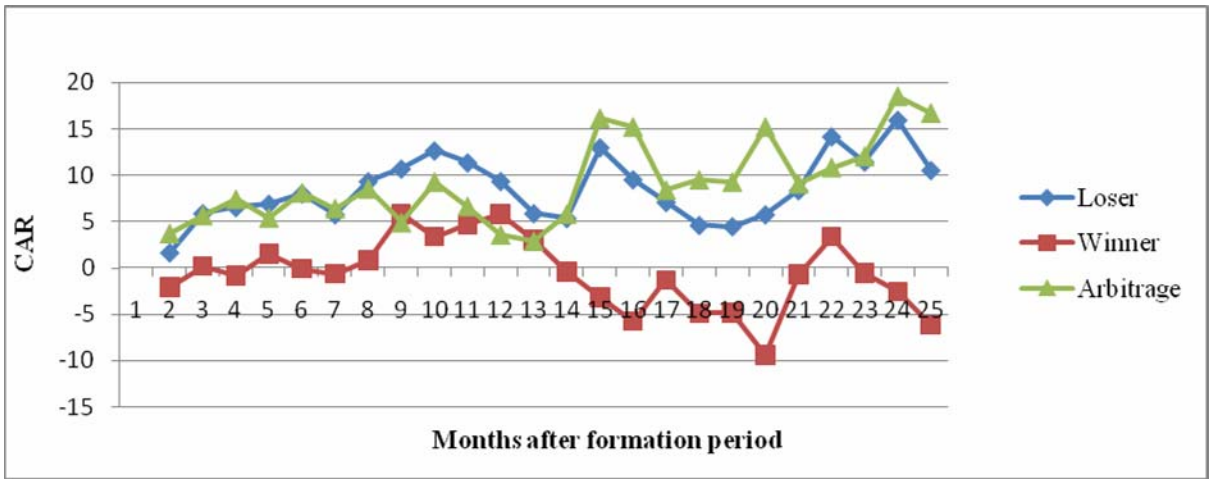
After 1997 Asian Financial Crisis, evidence of stock overreaction behaviour as described in Table 2 seems to diminish. Loser portfolio exhibits continuation behaviour whereas winner portfolio displays reversal behaviour. Furthermore, arbitrage strategy does not provide any potential abnormal returns as reported by column three of Table 3. The findings support earlier conclusion that Malaysian stock market is "more efficient" after the crisis.

The study suggests that stock overreaction behaviour in Bursa Malaysia is not consistent. During the sub-period of Pre-1997 Asian Financial Crisis, there are evidences of overreaction in stock returns existed in the market. In contrast, the Post 1997 Asian Financial Crisis shows no evidence of the existence of stock overreaction behaviour in market during the sub-period. These findings are in agreement to those documented by Chen and Sauer (1997) and Otchere and Chan (2003). Chen and Sauer (1997) also reported inconsistency of stock returns behaviour in the U.S market, where the overreaction hypothesis is most evident during the pre-war period but becomes ambiguous during the post war period of 1940s and 1950s. Overreaction however, becomes evident again during the pre-energy-crisis regime of 1960s and 1970s, but weakens substantially during the post energy-crisis era.

According to Chen and Sauer (1997), this inconsistency in results of the study suggest that returns obtained from the contrarian strategy utilizing the overreaction concept are not time stationary because there are periods when the strategy becomes profitable, and there are periods when the strategy earns negative returns as well as no abnormal returns at all. Therefore, if consistent performance is important for contrarian strategy that based on overreaction hypothesis to be successful as suggested by Chen and Sauer (1997), then the overreaction hypothesis is not working in Bursa Malaysia. Furthermore, inconsistent overreaction effect in the market implies that the anomaly is not exploitable to systematically beat the market, or in other word, one cannot manipulate the stock overreaction behaviour existed in the market to earn abnormal returns on a consistent basis. Therefore, as suggested by Ariff, Shamsher and Annuar (1998), this anomaly may not in itself be a sufficient condition to reject the Efficient Market Hypothesis (EMH). This study suggests that Malaysian stock market is inefficient

in the period prior to Asian Financial Crisis. However, the inefficiency slowly fades away and market becoming more efficient in the post crisis period. The inefficiency in the prior period may have contributed to the efficiency of the market. Figure 1 further demonstrates the behaviour of loser, winner and arbitrage portfolio before 1997 Asian Financial Crisis.

Figure 1: Test Period Cumulative Abnormal Returns for Loser, Winner and Arbitrage Portfolio Pre-1997 Asian Financial Crisis



To further examine evidence of stock overreaction in Bursa Malaysia, this study repeats the above methodology on full sample period ranging from January 1987 to December 2006. The results of one-sample test are summarized in Table 4.

Table 4: CARs for Loser, Winner and Arbitrage Portfolios for 2-Year formation period.

Month	Loser		Winner		Arbitrage	
	Mean Difference	t-value	Mean Difference	t-value	Mean Difference	t-value
1	1.31	1.267	-1.97	-1.259	3.27	1.623*
2	2.06	1.030	-1.49	-0.677	3.57	1.327
3	-1.41	-0.373	-3.31	-1.168	1.90	0.532
4	-2.59	-0.500	-2.29	-0.966	-0.29	-0.88
5	-6.00	-0.750	-4.04	-1.076	-1.97	-0.312
6	-4.05	-0.594	-4.16	-1.104	0.12	0.020
7	-0.49	-0.068	-3.21	-0.779	2.72	0.494
8	-0.44	0.058	-0.80	-0.148	1.24	0.195
9	1.30	0.154	-2.65	-0.495	3.95	0.678
10	-0.42	-0.045	-2.20	-0.354	1.78	0.227
11	-2.50	-0.234	-1.74	-0.245	-0.76	-0.071
12	-6.36	-0.480	-5.00	-0.737	-1.37	-0.101
13	-7.19	-0.532	-6.75	-1.335	-0.44	-0.035
14	-0.66	-0.048	-8.16	-1.583*	7.50	0.721
15	-0.28	-0.022	-9.23	-1.717*	8.50	1.011
16	0.15	0.011	-5.74	-1.197	5.89	0.591
17	-2.38	-0.193	-8.91	-1.724*	6.53	0.745
18	-4.33	-0.360	-9.28	-1.839*	4.96	0.535
19	-3.79	-0.299	-11.83	-1.893*	8.04	1.046
20	-5.54	-0.425	-8.08	-1.339	2.54	0.241
21	-5.22	-0.359	-5.94	-0.906	0.72	0.060
22	-10.07	-0.674	-9.43	-1.691*	-0.64	-0.052
23	-11.09	-0.670	-10.53	-1.964*	-0.56	-0.040
24	-19.86	-0.993	-13.13	-2.522**	-6.73	-0.374

Note: *, and ** indicate significant at 10%, and 5% respectively

The results of the study are consistent with international evidence such as Brailsford (1992), McInish et al (2006) and Ising et al (2006) for Australian, German and Asian stock market (Japan, Taiwan, Korea, Hong Kong, Malaysia, Thailand and Singapore stock markets) respectively. The findings of this study reveal that loser has becoming winner by earning positive abnormal returns one month to two month after portfolio formation; however the results are not significant. In month 3 up to month 24, loser exhibits continuation behaviour with insignificant negative ACAR. This implies that there is no significant difference in ACAR for loser in the formation and the test period. Meanwhile, the winner portfolio displays a reverse in fortune for the next subsequent period. This asymmetry behaviour of winner and loser suggest that Malaysia's investors are overoptimistic. According to Ising et al, evidence of overreaction behaviour in the winner portfolio together with underreaction behaviour in the loser portfolio indicates that investors are overoptimistic, where they overreact to good news and responds only slowly to bad news.

This study finds no clear evidence of stock overreaction hypothesis in Malaysian stock market during the period between January 1987 and December 2006 as presented by the insignificant results of the arbitrage portfolio. The arbitrage portfolio of selling winner and buying loser earned significantly positive ACAR at 10% significant level within one month after portfolio formation. However, as time passing by, the ACAR diminishes and sometimes the strategy gives negative ACAR. The absence of stock overreaction behaviour suggests that Bursa Malaysia is consistent with weak-form of EMH, thus, confirms the earlier conclusion of the study.

Findings of this study have several investment implications. The non-persistence of stock overreaction behaviour in the Malaysian stock market only benefited short-term investors, but not the long-term investors. Nevertheless, while confined mainly to the winner portfolio, the overreaction effect does provide a trading strategy, which appears to offer the potential for significant trading gains for those long-term investors. However, these results are based on shorter formation period than that of De Bondt and Thaler (1985). Previous studies such as Saleh (2007) and Campbell and Limmack (1997) present evidence suggesting that loser tend to underperform winners in the short and medium term but tend to outperform winners in the longer terms. To address the issue, this study repeats the above test on an extended formation period up to 5 years. The results are discussed in the following section.

4.2. Sensitivity to the length of the formation period

Table 5 documents the same results as those described in Table 1. Although the study extends portfolio formation period to five years, stock overreaction behaviour is only significantly evidenced in the period before the crisis.

Table 5: Differences in CARs in the test period for 5-year portfolio formation

Formation Period	Test Period	Mean CAR			
		Loser	Winner	Loser - Winner	t-value
87-91	92-96	47.33	4.88	42.45	2.534***
92-96	97-01	-57.99	-93.48	35.49	2.117**
97-01	02-06	15.39	2.97	18.36	0.815

Notes: *,** and *** denotes significant at 10% , 5% and 1% respectively

Table 6 presents the results when the CARs are calculated over a 60-month period or 5-year period. Findings suggest that there are evidences of stock overreaction existed in Bursa Malaysia when CARs are calculated over 60-month periods.

Table 6: CARs for Loser, Winner and Arbitrage Portfolios for 5-Year formation period

Month	Loser		Winner		Arbitrage	
	Mean Difference	t-value	Mean Difference	t-value	Mean Difference	t-value
1	3.24	0.912	0.35	0.306	2.89	1.008
2	-0.67	-0.075	2.00	0.755	-2.68	-0.427
3	-2.54	-0.345	3.53	1.032	-6.07	-1.466
4	5.26	0.634	1.69	0.682	3.57	0.584
5	0.73	0.136	0.12	0.034	0.61	0.186
6	-0.25	-0.046	-1.05	-0.247	0.80	0.180
7	1.73	0.332	-1.73	-0.322	3.46	0.843
8	2.02	0.283	-5.86	-0.902	7.88	2.375*
9	-1.04	-0.174	-2.80	-0.407	1.76	0.250
10	3.79	0.359	-3.90	-0.540	7.70	1.044
11	8.26	0.476	-10.85	-0.645	19.11	2.331*
12	-6.66	0-.337	-21.23	-0.901	14.57	1.809
13	-0.20	-0.009	-21.31	-0.902	21.11	1.687
14	-2.92	-0.341	-14.98	-0.760	12.07	1.081
15	-4.30	-0.375	-18.81	-0.858	14.51	1.327
16	-0.10	-0.005	-19.42	-0.737	19.32	2.140*
17	11.28	0.482	-18.32	-0.700	29.61	10.551***
18	19.12	0.625	-20.52	-0.798	39.64	3.406**
19	31.36	0.800	-20.42	-0.788	51.79	2.658*
20	46.94	1.018	-16.38	-0.732	63.33	2.200*
21	47.86	1.372	-11.84	-0.585	59.70	3.341**
22	53.83	1.412	-14.04	-0.709	67.87	3.425**
23	47.73	1.636	-7.43	-0.588	55.15	3.314*
24	40.14	1.185	-13.69	-0.747	53.83	3.207*
25	37.02	1.171	-14.60	-0.856	51.62	3.412*
26	44.91	1.158	-13.57	-0.718	58.49	2.930*
27	40.53	1.014	-17.23	-0.774	57.77	3.256*
28	28.48	0.884	-15.152	-0.680	43.63	3.512*
29	17.899	0.597	-17.57	-0.799	35.46	3.054*
30	19.15	0.785	-14.22	-0.893	33.37	2.460*
31	22.74	0.926	-13.72	-0.824	36.46	3.309*
32	25.30	0.938	-13.823	-0.749	39.12	2.948*
33	32.33	1.052	-11.59	-0.643	43.92	3.063*
34	25.26	0.844	-13.08	-0.690	38.34	2.948*
35	28.41	0.893	-12.53	-0.653	40.95	3.218*
36	21.92	0.683	-13.45	-0.664	35.36	2.831*
37	13.70	0.452	-15.57	-0.796	29.27	2.221*
38	15.78	0.530	-12.08	-0.662	27.80	1.829
39	12.14	0.423	-12.55	-0.708	24.70	1.618
40	10.73	0.397	-14.47	-0.788	25.20	1.885
41	-1.41	-0.051	-18.30	-0.933	16.89	1.019
42	1.29	0.047	-18.97	-0.860	20.26	1.888
43	5.06	0.189	-17.32	-0.801	22.381	2.559*
44	2.92	0.102	-16.93	-0.738	19.85	1.890*
45	3.58	0.125	-21.47	-0.877	25.05	3.416*
46	-4.69	-0.160	-23.82	-0.887	19.13	2.054*
47	-7.14	-0.243	-25.05	-0.928	17.91	1.694
48	-8.12	-0.258	-29.08	-0.956	20.96	2.256*
49	-4.377	-0.126	-28.65	-0.927	24.28	2.322*
50	-6.87	-0.191	-30.84	-0.940	23.97	2.265*
51	-5.25	-0.135	-32.46	-0.921	27.22	2.618*
52	9.336	0.239	-26.76	-0.810	36.10	4.466**
53	7.52	0.214	-26.83	-0.864	34.35	5.17**1
54	5.46	0.150	-28.07	-0.853	33.53	4.558**
55	4.22	0.121	-24.63	-0.830	28.86	2.638*
56	2.96	0.083	-25.99	-0.840	28.95	2.247*

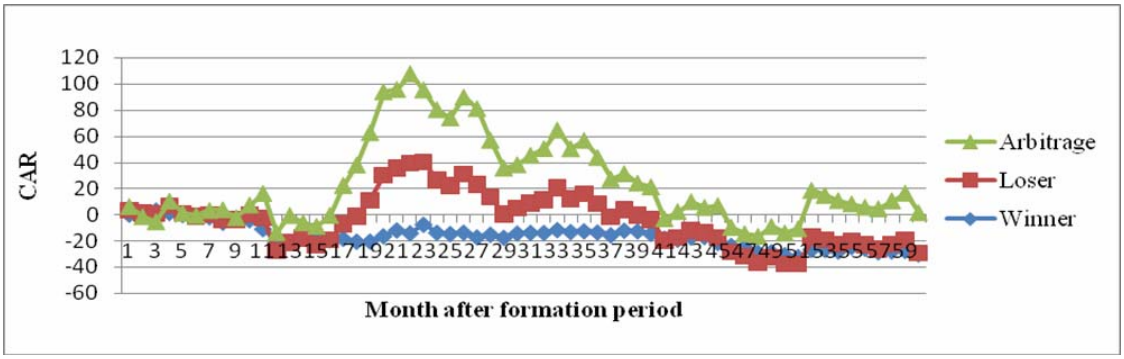
Month	Loser		Winner		Arbitrage	
	Mean Difference	t-value	Mean Difference	t-value	Mean Difference	t-value
57	2.39	0.063	-28.72	-0.869	31.11	3.377**
58	5.43	0.151	-27.98	-0.886	33.40	4.918**
59	8.32	0.253	-27.69	-0.948	36.01	6.414**
60	0.86	0.026	-30.34	-0.994	31.20	4.389**

Note: *, and ** indicate significant at 10%, and 5% respectively. Statistical significant is reduced due to smaller size.

The study shows that evidence of overreaction behaviour could be detected even after four months up to five years of portfolio formation. Column three of Table 6 presents results of arbitrage portfolio of selling winner and buying loser portfolios. Findings also reveal that arbitrage portfolio starts earning significant positive abnormal returns of 11.8% eight months after portfolio formation. As time passes by, abnormal returns earned increases to 20.6%, 54.7%, 39%, 27% and 32.42% after 1 year, 2 years, 3 years, 4 years and 5 years of portfolio formation respectively. This finding indicates that strategy that based on the overreaction hypothesis such as contrarian strategy of selling winner and buying loser has given the long term investors an opportunity to earn significant positive abnormal returns if the strategy is based on 5-years performance.

Generally, the results of the study demonstrate that overreaction behaviour in Malaysia stock market is sensitive to the length of the formation period. Loser portfolio will continue to be loser in shorter formation period such as two-year formation period. In the longer formation period namely five-year formation period, loser and winner portfolio has reversed, and loser has significantly outperformed winner portfolio in the test period. These findings lend support to those reported by Saleh (2007), and Campbell and Limmack (1997) for Jordon and UK stock market. Their study also find that loser continue to be loser in the short term. In the longer term of up to five years, loser portfolio reversed and has outperformed winner portfolio. Figure 2 further illustrates the results of stock overreaction effect in a graphical form.

Figure 2: CARs for Loser, Winner and Arbitrage Portfolios for 5-Year formation period



4.3. Stock overreaction with adjustment to firm size

One explanation of the overreaction hypothesis as described in the previous studies is that losers tend to be small and that small firms outperform large firms. Therefore, this study repeats the previous test by using size-adjusted returns of winner and loser portfolios. Table 7a displays results of overreaction hypothesis for small firms. The findings reveal that both loser and winner portfolio of small firms exhibit reversal behaviour. Loser portfolio starts to reverse by earning positive abnormal returns from month 7 through month 23 of formation period. Winner portfolio on the other hand starts to reverse as early as three months after portfolio formation. The reversal behaviour could be seen to take place throughout the test period. Results also suggest that loser has significantly outperformed winner from month 12 through month 18 at 10% significant level as exhibit by arbitrage portfolio in column 3 of Table 7a. Findings of this study are generally consistent with overreaction behaviour, which asserts

that extreme initial movement of stock returns will head for an opposite direction in the subsequent period. The same conclusion could be made for large firm as reported in Table 7b.

Both portfolios of loser and winner of the large firm's exhibit reversal behaviour with loser significantly outperformed winner in month 8 through month 24. The arbitrage portfolios for both large and small firms are able to earn significant abnormal profit after about one year from formation period.

Table 7a: CARs for Loser, Winner and Arbitrage Portfolios for small firms.

Month	Loser		Winner		Arbitrage	
	Mean Difference	t-value	Mean Difference	t-value	Mean Difference	t-value
1	0.38	0.292	1.04	0.476	-0.65	-0.428
2	0.69	0.266	2.29	0.696	-1.59	-0.504
3	-1.63	-0.404	-0.34	-0.085	-1.28	-0.362
4	-1.54	-0.350	-1.07	-0.250	-0.46	-0.157
5	-2.86	-0.244	-3.07	-0.487	0.21	0.048
6	-2.15	-0.489	-1.02	-0.156	-1.12	-0.263
7	2.69	0.508	2.13	0.249	0.56	0.118
8	4.15	0.607	-0.58	-0.069	4.73	1.105
9	5.47	0.658	-0.74	-0.080	6.22	1.315
10	3.51	0.373	-2.47	-0.224	5.99	1.133
11	3.64	0.317	-3.53	-0.318	7.18	1.177
12	0.66	0.045	-11.65	-1.047	12.31	1.609*
13	0.65	0.048	-8.79	-0.793	9.44	1.386
14	6.52	0.448	-4.91	-0.441	11.43	1.568*
15	6.27	0.446	-6.02	-0.505	12.29	1.929*
16	7.78	0.534	-3.81	-0.333	11.59	1.785*
17	3.88	0.293	-6.95	-0.598	10.83	1.827*
18	2.13	0.166	-8.71	-0.773	10.85	1.572*
19	1.65	0.123	-7.29	-0.674	8.94	1.282
20	1.46	0.103	-7.36	-0.608	8.82	1.163
21	4.71	0.308	-5.34	-0.430	10.06	1.359
22	1.86	0.135	-10.03	-0.939	11.89	1.762*
23	2.60	0.202	-8.99	-0.850	11.58	1.923*
24	-2.25	-0.169	-14.12	-1.419*	11.87	1.693*

Note: *, and ** indicate significant at 10%, and 5% respectively

Table 7b: CARs for Loser, Winner and Arbitrage Portfolios for large firms.

Month	Loser		Winner		Arbitrage	
	Mean Difference	t-value	Mean Difference	t-value	Mean Difference	t-value
1	3.75	1.857*	0.76	0.602	2.99	1.704*
2	2.21	0.642	2.32	1.030	-0.12	-0.054
3	-0.99	-0.216	2.49	0.785	-3.48	-0.986
4	2.16	0.458	1.13	0.455	1.03	0.257
5	2.60	0.421	-0.76	-0.258	3.37	0.682
6	4.88	0.945	-0.68	-0.221	5.55	1.093
7	7.87	1.188	-0.71	-0.233	8.58	1.360
8	2.27	1.168	-3.29	-1.012	10.57	2.001*
9	6.34	1.024	-3.88	-1.130	10.23	2.860**
10	8.34	0.915	-5.23	-1.393	13.58	2.137*
11	6.72	0.635	-9.40	-1.767*	16.12	2.400**
12	1.71	0.145	-14.91	-1.738*	16.62	2.611**
13	7.88	0.493	-14.33	-1.714*	22.21	1.991*
14	10.81	0.690	-12.18	-1.933*	22.99	1.902*
15	10.84	0.691	-12.74	-1.970*	23.58	2.004*
16	11.35	0.761	-12.94	-1.527	24.30	2.398**
17	7.53	0.523	-15.04	-1.761*	22.57	2.404**
18	7.41	0.541	-15.60	-1.916*	23.00	2.646**
19	10.37	0.715	-15.28	-1.933*	25.65	2.752**
20	7.38	0.580	-14.95	-2.148*	22.33	2.886**
21	6.35	0.522	-13.29	-1.942*	19.65	2.547**
22	6.09	0.515	-14.39	-2.213**	20.49	2.702**
23	9.05	0.822	-11.32	-2.233**	20.37	2.796**
24	2.90	0.231	-15.67	-2.486**	18.56	2.067*

Note: *, and ** indicate significant at 10%, and 5% respectively

Findings generally suggest that strategy based on overreaction hypothesis of buying loser and selling winner could generate potential abnormal profit for both large and small firms. Figure 3 and 4 present the results of stock overreaction with adjustment to size in graphical form.

Figure 3: CARs for Loser, Winner and Arbitrage Portfolios of Large Firms.

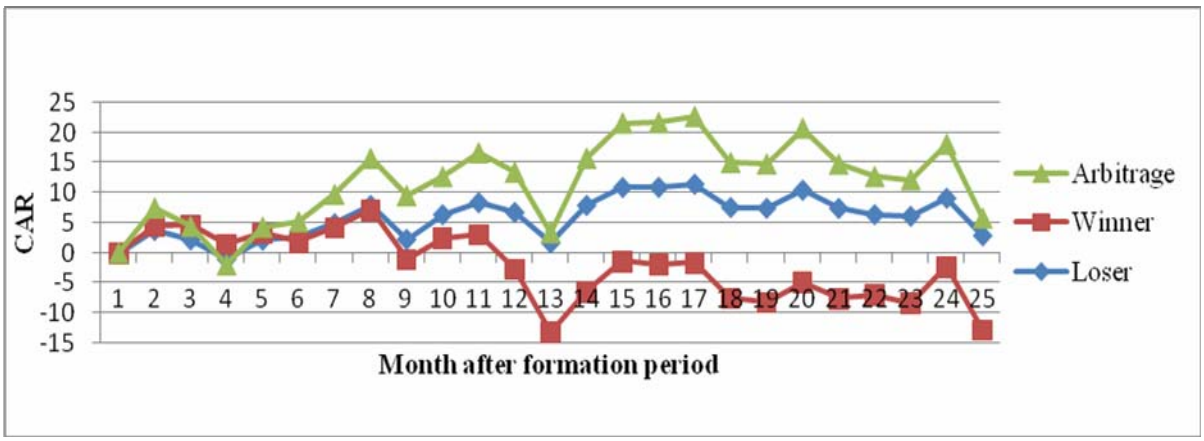
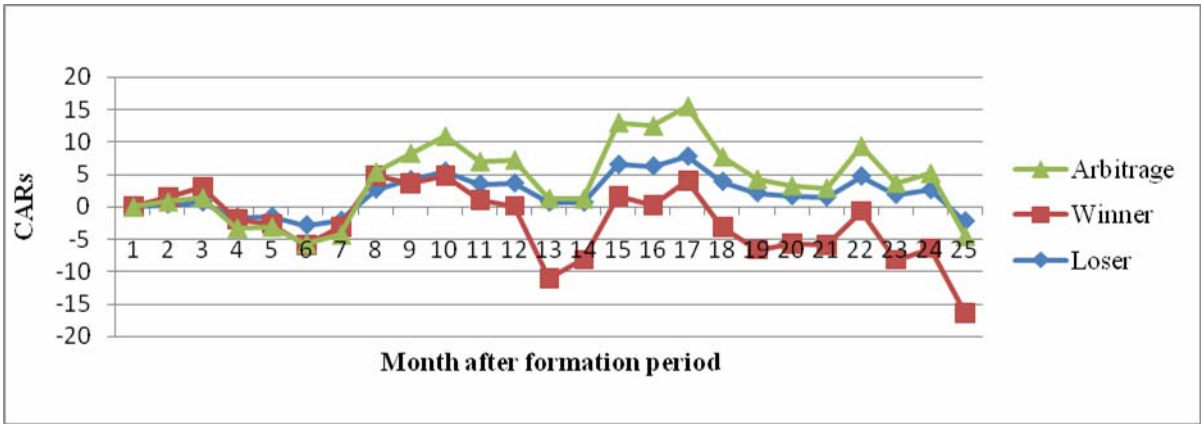


Figure 4: CARs for Loser, Winner and Arbitrage Portfolios of Small Firms.



4.4. Stock overreaction with adjustment to time varying risk

Chan (1988) proposes that the risk of winner and loser stocks is not constant overtime. Therefore, loser outperforms winner portfolio in the test period may be due to the reason that loser portfolio is less risky than the winner portfolio in the subsequent period following the formation period. Following Gaunt (2000) and Lai et al (2003), this study extends the analysis by taking into consideration adjustment for time varying risk. Table 8 and Table 9 summarize results of long run stock overreaction after controlling for time varying risk.

Table 8: Overreaction effect with adjustment to risk: Mean abnormal return

Period	Loser		Winner		Arbitrage	
	α_{1i}	α_{2i}	α_{1i}	α_{2i}	α_{1i}	α_{2i}
Aggregate	-3.57 (-10.47)***	-1.32 (-3.88)***	1.01 (2.98)***	-1.62 (-4.75)***	-4.58 (-13.44)***	0.30 (0.87)

Notes:
1. *, ** and *** denotes significant at 1%, 5% and 10% respectively.
2. α_{1i} and α_{2i} represents mean abnormal returns for rank period and test period respectively.
3. t-value is in parenthesis.

As is expected from the construction of the winner portfolio, aggregate rank period mean abnormal returns (α_{1i}) are significantly negative for loser portfolio and significantly positive for the winner portfolio. While the winner portfolio displays significant aggregate performance reversal during the test period (α_{2i} = -1.62%), there is no significant reversal for the loser portfolio. Instead, the loser portfolio shows significant continuation behaviour with test period mean abnormal returns (α_{2i}) of -1.32%. Arbitrage portfolio (loser – winner) however, presents a reverse in performance of mean abnormal returns of 0.3% during the test period, which is consistent with overreaction hypothesis. The results however, are not significant.

Table 9: Overreaction effect with adjustment to risk: Beta

Period	Loser		Winner		Arbitrage	
	β_i	β_{iD}	β_i	β_{iD}	β_i	β_{iD}
Aggregate	0.11 (0.31)	-0.04 (-0.13)	0.15 (0.43)	-0.13 (-0.37)	-0.04 (-0.12)	0.08 (0.24)

Table 9 presents the time varying risk as measured by beta. The rank period beta is estimated by β_{1i}, whereas the test period beta is estimated by $\beta_{1i} + \beta_{iD}$. Change in beta from rank period to test period is given by β_{iD}. The findings reveal that the risk of loser portfolio is reduced during the test

period (β_{iD} = -0.04) rather than increased as expected. This is contradictory to Chan (1988)'s argument that the risk of loser portfolio increased thus resulting the test period beta being greater than the rank period beta. This implies that the loser portfolio is less risky during the test period than the rank period. The winner portfolio is also less risky in the test period than the rank period as reported by change in beta from rank period to test period (β_{iD}) of -0.13. As expected, loser portfolio is more risky in the test period than the winner portfolio as presented by the arbitrage portfolio's β_{iD} of 0.08.

Generally, findings of the long run stock overreaction after adjustment for risk present mixed results of for and against the overreaction hypothesis. Given the mixed results, the risk factor cannot completely account for the performance of the winner, loser and arbitrage portfolios in the test periods. It is worth noting that the same results were also reported by earlier studies namely Gaunt (2000) and Lai et al (2003) for Australian stock market and Malaysian stock market respectively. Similar results are also documented for small and large portfolio.

4.5. Stock overreaction with adjustment to seasonality effect

Earlier studies including De Bondt and Thaler (1985, 1987) and Zarowin (1990) indicate that most of the overreaction effect occurs in January, and this has been linked to the evidence of January effect in the stock returns. Therefore, this study extends the analysis by taking into account such monthly seasonality in the overreaction profile. Not only the January effect, but this study also investigates evidence of February effect in the study of stock overreaction in Bursa Malaysia. Previous study by Ho (1990) and Wong et al. (1990) provide evidence of February effect and Chinese New Year effect in the level of Malaysian stock returns. Ahmad and Hussain (2001) on the other hand, have conjectured that evidence of stock overreaction in Bursa Malaysia could be due to abnormal returns earned in the month of February, the month which the Chinese New Year frequently took place.

The results of stock overreaction with control for seasonality effect are presented in Table 10. The findings suggest evidence of February effect in the monthly excess returns of Malaysian stocks. Arbitrage, winner and loser portfolios provide quite similar results. The slope coefficient (Ψ_2) for the February dummy variable is positive for seven of the nine test periods; only periods 7 and 8 for both winner and loser generate negative coefficient and these are not significant except for period 8 for loser portfolio and period 7 for arbitrage portfolio. The findings imply that abnormal returns earned (if any) in the test period could be due to abnormal returns earned in the month of February.

Table 10: Seasonality effect

Test Period	January			February		
	Winner	Loser	Arbitrage	Winner	Loser	Arbitrage
	Ψ_2	Ψ_2	Ψ_2	Ψ_2	Ψ_2	Ψ_2
89-90	0.80	9.08**	7.81**	1.36	2.29	1.54
91-92	1.20	-1.08	-1.23	2.84	-1.44	-1.51
93-94	-0.10	-9.30*	-9.09	5.07***	11.56*	4.34
95-96	1.20	-0.45	-2.84	1.63	2.50*	0.79
97-98	6.95	2.49	6.84	16.01**	15.02*	10.73***
99-00	-0045	2.82	5.61	2.44	6.11*	2.71
01-02	-1.76	2.24	6.02	-1.71	-9.32	-8.58
03-04	-0.02	-0.50	2.54	-1.53	-0.99	-1.38
05-06	2.96*	3.87	1.06	1.33	0.99	0.04

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

Compare to winner portfolio, the February effect is more noticeable for the loser portfolio. The finding, however, is not surprising since the overreaction effect, as suggested by earlier studies tends to be asymmetric in nature. It is worth to note that Ahmad and Hussain (2001) have linked the evidence of February effect to the Chinese New Year effect. They argue that February is important because it is the month in which the Chinese New Year most often falls, and in Malaysia, all ethnic groups living in the country celebrate the Chinese New Year in a grand scale. Furthermore, many companies also pay

bonuses in occasion with the festival. Therefore, like in Western market where overreaction effects are greater in January, the Chinese New Year effect, which is proxies by the February effect, has similar impact in Malaysia.

In addition to that, no evidence of the existence of January effect is observed in this study. Five of nine slope coefficients (Ψ_2) for January dummy variable are positive for both winner and loser portfolios, while six out of nine for arbitrage portfolio. Of all positive slope coefficients, only one gives significant t-value, which are period 9 for winner (significant at 10%) and period 1 for loser and arbitrage portfolio (significant at 5% level). The results imply that abnormal returns earned (if any) are due to stock overreaction effect and not because of abnormal returns earned in the month of January.

5. Conclusion

The objective of this paper is to investigate whether overreaction hypothesis could best describe the Bursa Malaysia over a period between January 1987 and December 2006. Results of the 2-year stock overreaction behaviour for the whole period from January 1987 to December 2006 are in agreement to those reported by Brailsford (1992), Ising et al (2006) and McInish et al (2006). This study reveals that loser portfolio exhibit continuation behaviour whereas winner portfolio went on to become loser in the test period. Findings also show that combines strategy based on overreaction hypothesis does not provide potential trading profit. Nevertheless, overreaction effect does provide a strategy that offer potential abnormal gains for winner portfolio. When the study test the 2-year stock overreaction behaviour based on size, both small and large firms exhibit reversal behaviour that is consistent with the overreaction hypothesis. Furthermore, arbitrage portfolio for both large and small firms provides significant positive abnormal returns that are consistent with the hypothesis even after adjustment for time varying risk. No evidence of January effect is reported during the period, but there is evidence of Chinese New Year effect existed in the data.

The study then extends the duration of the formation period to 5 years to test for the sensitivity of the overreaction effect to the length of the formation period. The study finds evidence of stock overreaction behaviour for the 5-year formation period over a period between January 1987 and December 2006. Using standard methodology of De Bondt and Thaler (1985), this study find that Malaysian stock market overreacts prior to the 1997 Asian Financial Crisis. The overreaction behaviour diminishes during the post crisis period. Although loser portfolio exhibit continuation behaviour and winner portfolio has outperformed the loser, the results however are not significant. Thus, finding after the crisis period do not significantly support overreaction hypothesis. However, single trading strategy that based on winner alone may produce potential abnormal profit. Generally, results of the study suggest the inconsistency of the stock overreaction behaviour in Bursa Malaysia. According to Chen and Sauer (1997), consistent overreaction behaviour is an important factor for overreaction hypothesis to succeed. Therefore, given the inconsistent performance of stock returns in Bursa Malaysia, this anomaly may not be exploitable to earn abnormal returns on a consistent basis. As suggested by Ariff, Shamsher and Annuar (1998), this anomaly may not be in itself a sufficient condition to reject the Efficient Market Hypothesis (EMH). In light of that contention, this study concludes that Bursa Malaysia is consistent with the weak form of EMH. Any inefficiency that existed may have contributed to the efficiency of the market. On the word of Dimson and Mussavian (1998, page 96), " It is important to note that EMH does not rule out small abnormal profit before fees and expenses ..... to make sense, the concept of market efficiency has to admit the possibility of minor market inefficiency" . Close to home, Annuar (2002, page 15) writes, "market efficiency and behavioural finance co exists just God created us and many observations in pairs. Chaotic (irrational) and rational behaviours co-exist in any market be it efficient, moderately efficient and inefficient".

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