SOME EVIDENCE ON SHORT-RUN MARKET OVERREACTION FOR THE KUALA LUMPUR STOCK EXCHANGE

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INTRODUCTION

This study attempts to test for the existence of short-run overreaction among shares traded on the Kuala Lumpur Stock Exchange over the 1990s. A substantial literature based on data from developed markets suggests that investors overreact to information such that returns exhibit a mean-reverting pattern. This paper examines whether Malaysian returns exhibit a similar predictable pattern.

For the past generation, the *Efficient Market Hypothesis* (EMH) has been one of the most dominant themes in finance literature. At its most basic level, this hypothesis argues that share price changes should not be predicted from historic data. However, a number of market anomalies have begun to emerge which have challenged this hypothesis. For example, empirical evidence suggests that share returns may be predictable in certain months of the year (Gultekin and Gultekin; 1983), on certain days in the week (French; 1980) and at particular times in the trading day (Harris; 1986). In addition, shares of smaller companies (Banz; 1981) and low P/E companies (Basu; 1977, 1983) seem to exhibit a recurring pattern. However, one of the newest and most controversial of these anomalies is the hypothesis that the market tends to overreact to news. The overreaction effect suggests that investors overreact to new information and as a result share prices can and do depart from their underlying fundamental values. As investors recognise their mistake, share prices return to equilibrium levels imparting a mean-reverting pattern on share returns.

One of the first studies of the overreaction hypothesis was conducted by DeBondt and Thaler (1985, 1987) who found evidence that US investors overreact to long period news. In particular, companies which had earned poor returns in the past ('losers') tended to improve their market performance while companies which had performed remarkably well in the past ('winners') tended to do less well in the future. They attributed this reversion to the mean to investor myopia. Inves-

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tors focused on the immediate past when forecasting share returns. Any unusually good or bad recent performance, therefore tended to be given undue emphasis rather than recognising that the performance tends to revert towards the mean. Using monthly return data for NYSE common stocks over the period 1926 to 1982, their results showed that the 'loser' portfolios of 35 stocks outperformed the market by an average of 19.6 per cent in the 36 months after the portfolio formation date. The 'winner' portfolios, on the other hand, underperformed the market by more than 5.0 per cent, so the difference in cumulative average residual returns between the two extreme portfolios equaled 24.6 per cent. The systematic price reversal patterns in the share returns of winning and losing firms which are documented by DeBondt and Thaler are inconsistent with an efficient market since the investor can outperform the market using past share price information.

DeBondt and Thaler (1987) hypothesised that the reason for the overreaction was the failure of investors to react "correctly" to new information in the fashion prescribed by Bayes' Rule, which is the principle for the revision of opinion on the basis of fresh information in rational choice theory. Investors based their estimate of the value of a share on recent extremely good or bad performance unaware of the phenomina of "reversion to the mean" where extreme performance tends to be followed by less extreme performance.

In the UK, Power, Lonie and Lonie (1991) found that a contrarian strategy based on investing in the shares of previously identified non-excellent companies and selling the shares of previously categorised excellent companies could earn abnormal returns, even allowing for changes in risk. Moreover, these excess returns showed no sign of disappearing for at least 5 years after the date when the firms were identified. Thus, the overreaction effect appeared to exist for UK companies as well as for their US counterparts.

The above studies look at the overreaction effect over time intervals of more than one year. There are other empirical studies which test for short-run overreaction. For example, Zarowin (1990) found that 'winners' and 'losers' that were identified on the basis of the previous months' returns experienced a reversal of fortune; 'winners' underperformed and 'losers' outperformed the market in the period after the month in which they were selected; a strategy of buying a portfolio of 'loser' shares and selling a portfolio of 'winner' shares therefore earned an abnormal return of 7.5 per cent. Howe (1986), Lehman (1990) and MacDonald and Power (1992) examined weekly data while Brown, Harlow and Tinic (1988), Atkins and Dyl (1990) and Bairaktis (1994) focused on daily data. Some of these studies found evidence of positive persistence where 'winner' shares continue to perform well while 'loser' shares continue to perform badly. Other studies suggest that a mean-reversion pattern better describes the data. A summary of some of the major empirical studies associated with the short-run overreaction effect is shown in Table 1.

Table 1: Summary of the Major Empirical Studies Associated with the Short-run Overreaction

AUTHOR	SAMPLE	TIME PERIOD	RESULTS
Howe (1986)	Weekly returns for 299 good news companies and 118 bad news companies in the US	1963 - 1981	Good news sample performed poorly for the subsequent 50 weeks period following the event. Their average returns were 30% below the market.
Brown, Harlow and Tinic (1988)	Daily returns for 200 of the largest companies divided into positive and negative values in the US	July 1962 - Dec 1985	Average returns following both negative and positive events tend to be significantly positive. Positive events underperformed the market by 0.03% while negative events outperformed the market by 0.597% .
Zarowin (1990)	Monthly returns for winner and loser shares in the US	1927 - 1981	The excess returns for the "losers-winners" was 0.075 in the month following their formation date and was positive over the subsequent 36 months.
Atkins and Dyl (1990)	Daily returns of 835 losers and 836 winners in the US	1975 - 1984	Winners earned negative average daily returns in 9 of the 10 days following day 0 while losers earned positive abnormal returns in 8 of the 10 days after their selection date.
Lehman (1990)	Weekly returns for all companies listed on the New York and American Stock Exchanges were combined to form portfolios of winner and loser US shares	July 1962 - Dec 1986	1-week portfolio earned profits for the subsequent 49 26-week periods, even allowing for transaction costs.
Mac Donald and Power (1992)	Weekly returns for a random sample of 100 quoted companies were used to form a portfolio of 10 winner and loser shares in the UK	1982 - 1990	The winner portfolio earned a positive cumulative abnormal return of 0.44 of 1% over the following 12 week period while the loser portfolio underperformed the market by 0.21 of 1% over the same time period.
Bairaktis (1994)	Daily returns for 5 winner and 5 loser for Greek shares	1989 - 1993	The loser portfolio outperformed the market by 0.11% and winner portfolio also outperformed by a smaller positive cumulative excess return.

In conclusion, this overreaction effect has been extensively tested using developed-market data. This study seeks to extend this work with Malaysian data by using weekly share price information over a recent period. In particular, it investigates whether Malaysian investors appear to overreact in the short-run such that weekly share returns exhibit a mean-reverting pattern.

DATA AND METHODOLOGY

In this study, weekly share price data were obtained from Datastream for 47 individual shares registered on the Kuala Lumpur Stock Exchange over the period January 1990 to December 1994. The companies in the sample are selected according to their market valuation as at May 30, 1995. This selection is undertaken to provide a sample of actively traded shares of companies listed on the KLSE. The names of the companies, together with other descriptive information are included in Table 2. The actual tests are not performed on the weekly prices themselves but on the first differences of their natural logarithms[1]; weekly returns are calculated according to the following equation:

$$R_t = \log_e P_t - \log_e P_{t-1}$$

$$= \text{In}\left(\frac{P_t}{P_{t-1}}\right) \qquad [1]$$

where P_t the price of the share at the end of week t, P_{t-1} is the price of the share at the end of week t-1, and R_t is the weekly return.Weekly price information on the KLSE market index was also obtained over the same period and used to proxy for the market portfolio.

For each week beginning in January 1990, excess returns are calculated for each of the forty seven companies' shares in the sample according to the equation :

$$ER_{it} = R_{it} - R_{mt} \qquad [2]$$

where ER_{it} is the excess return on share i for week t, R_{it} is the actual week t return for share i, and R_{mt} is the return on the KLSE Composite Index for week t.

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[1] *According to Fama (1965) a change in log price is the yield. with continuous compounding from holding the security for that day, while Strong (1992) suggests that these log returns are more normally distributed and therefore satisfy the statistical assumptions of several analytical techniques more fully.*

Table 2: Companies in the Sample

COMPANY No.	COMPANY NAME	SECTOR	SIZE	TRADING VOLUME
1	ADVANCE SYNERGY	INDUSTRIAL PRODUCTS	219344	2131042
2	AMMB HOLDINGS	FINANCE	587125	1161314
3	AMSTEEL CORP.BHD.	INDUSTRIAL PRODUCTS	213810	2343874
4	ARAB-MALAYSIA CORP.	FINANCE	220059	394700
5	ASIATIC DEV.	PLANTATION	202536	1682294
6	BOUSTEAD HOLDINGS	TRADING/SERVICES	170858	651762
7	COMMERCE ASSET-HDG	FINANCE	296758	648168
8	DCB HOLDINGS	FINANCE	570611	1817141
9	DUNLOP ESTATES	TRADING/SERVICES	226014	914220
10	ESSO MALAYSIA	INDUSTRIAL PRODUCTS	191700	1430348
11	FABER GROUP	HOTELS	205814	4591992
12	GENTING	TRADING/SERVICES	1825231	3910919
13	GOLDEN HOPE PLTN.	PLANTATION	450279	2725403
14	HICOM HOLDINGS	INDUSTRIAL PRODUCTS	541732	290616
15	HIGHLANDS& LOWLANDS	PLANTATION	279202	1405806
16	HONG LEONG CREDIT	FINANCE	440216	709276
17	HONG LEONG INDS.	CONSUMER PRODUCTS	211904	903198
18	HUME INDUSTRIES MAL	INDUSTRIAL PRODUCTS	344415	1379132
19	I.O.I.	PLANTATION	221655	2597411
20	JASA TIASA HOLDINGS	CONSUMER PRODUCTS	256275	367141
21	K.LUMPUR KEPONG	PLANTATION	370656	2117990
22	LAND & GENERAL	PROPERTIES	395556	1271064
23	MAGNUM CORPORATION	TRADING/SERVICES	587345	1717763
24	MALAYAN BANKING	FINANCE	2286394	4408737
25	MALAYSIA MINING	MINING	183950	1504618
26	MALAYSIAN AIRLINE SY.	TRADING/SERVICES	609000	2249870
27	MALAYSIAN RESOURCES	TRADING/SERVICES	215313	1556897
28	MALAYSIAN UNITED IND	INDUSTRIAL PRODUCTS	282719	2474225
29	MBF CAPITAL	FINANCE	174566	2005298
30	METROPLEX	PROPERTIES	179933	2302061
31	MALAYSIAN INTL.SHIPP.	TRADING/SERVICES	679830	4313824
32	ORIENTAL HOLDINGS	CONSUMER PRODUCTS	184689	1112769
33	PERLIS PLANTATIONS	CONSUMER PRODUCTS	235498	2217796
34	PUBLIC BANK	FINANCE	428299	2491249
35	RASHID HUSSAIN	FINANCE	221548	549147
36	RENONG	CONSTRUCTIONS	1156743	6878078
37	ROTHMANS-PALLMALL	CONSUMER PRODUCTS	531085	3944883
38	SHELL REFINING	INDUSTRIAL PRODUCTS	238500	1524289
39	SIME DARBY	TRADING/SERVICES	1489645	7410129
40	SIME UEP PROPERTIES	PROPERTIES	194044	702103
41	SUNGEI WAY	CONSTRUCTIONS	182514	378978
42	TAN CHONG MOTORS	CONSUMER PRODUCTS	187488	2811504
43	TECHNOLOGY RES.INDS.	TRADING/SERVICES	526155	2122914
44	TIME ENGINEERING	TRADING/SERVICES	372320	937225
45	UMW HOLDINGS	CONSUMER PRODUCTS	175027	1956700
46	UNITED ENGINEERS MAL.	CONSTRUCTIONS	867091	1932872
47	YTL CORPORATION	CONSTRUCTIONS	381599	489752

Note: The table shows background information for the companies in the sample. NAME is the name of each company, SECTOR is the sector in which each company is located. SIZE is the market value (in million Ringgit Malaysia) of each company as at May 30, 1995 and TRADING VOLUME is the size of share transactions (in thousand of units) that took place during the period 1990 - 1994.

The weekly excess returns are then ranked from high to low to form two portfolios. The top ten securities in this ranking had their shares grouped into a 'winner' portfolio, while the bottom ten securities are combined to form a 'loser' portfolio. The respective performance of the 'winner' and 'loser' portfolios are then tracked over the next ten weeks. This process is repeated two hundred and fifty two times for every portfolio formation period.

The cumulative excess returns for these 'winner' and 'loser' portfolios are then calculated for each of the ten weeks (CER_w and CER_l).

$$CER_p = \frac{1}{10} \sum_{i=1}^{10} ER_i \qquad [3]$$

Using the CER's from the ten week periods, average CER's are estimated for both portfolios (ACR_w and ACR_l).

The overreaction hypothesis then predicts that the average cumulative excess returns from purchasing the 'loser' portfolio shares and selling the shares in the 'winner' portfolio will be positive in such that:

$$ACR_l - ACR_w > O$$

RESULTS

Table 3 provides summary statistics for the average 'winner' and 'loser' portfolios in the event week. As one would expect the 'loser' portfolio performed badly reporting an average excess return of -0.5163 per cent, while the 'winner' portfolio performed very well earning a positive average excess return of 0.0634 per cent in the week that the portfolios were formed. The evidence from the minimum (MIN) and maximum (MAX) values supports this statement. The 'loser' portfolio typically had a lower MIN and MAX excess return than its 'winner' counterpart; for example the maximum excess return for the 'winner' portfolio throughout the 263 week period was 0.3321 per cent while the similar figure for the 'loser' portfolio was 88.86 per cent less at 0.0370. On average, the standard deviation for the 'winner' portfolio is twice that of the 'loser' portfolio indicating that the 'winner' portfolio may have been riskier than the 'loser' portfolio. The p-values indicate that the average excess returns in the week that the portfolios were formed was significantly different from zero.

Table 3: Portfolio Characteristics of 'Winner' and 'Loser' in Event Week

	'Winner'	'Loser'	'Loser-Winner'
Average	0.0634	-0.5163	-0.1151
Minimum	-0.0637	-0.2600	-0.4138
Maximum	0.3321	0.0370	-0.0523
Standard Deviation	0.0419	0.0288	0.0430
p-value	0.0000 (24.01)*	0.0000 (-28.46)*	0.0000 (42.52)*

Table 4: Portfolio Characteristics of 'Winner' and 'Loser' in Post Event Week

	'Winner'	'Loser'	'Loser-Winner'	p-value
ER_{t+1}	-0.0067	0.0077	0.0144	0.00 (3.64)*
ER_{t+2}	-0.0002	0.0009	0.0011	0.70 (0.39)
ER_{t+3}	0.0053	-0.0009	-0.0061	0.02 (-2.27)*
ER_{t+4}	0.0017	0.0016	-0.0001	0.98 (-0.03)
ER_{t+5}	0.0008	0.0026	0.0018	0.36 (0.92)
ER_{t+6}	0.0019	0.0004	-0.0015	0.57 (-0.57)
ER_{t+7}	0.0021	0.0038	0.0018	0.52 (0.64)
ER_{t+8}	0.0044	0.0003	-0.0041	0.13 (-1.53)
ER_{t+9}	0.0028	0.0003	-0.0025	0.32 (-0.99)
ER_{t+10}	-0.0041	-0.0033	0.0008	0.72 (0.36)

Note: The tables show the characteristics of 'winner' and 'loser' portfolios, (a) in the week of the portfolio selection, and (b) in the ten-week period after the 'winner' and 'loser' shares were identified. ER denotes average excess returns. The numbers in parenthesis are *t*-statistics. An * indicates significance at the 5 per cent level.

Table 5: Average Cumulative Excess Returns For 'Winner' and 'Loser' Portfolios

	'Winner'	'Loser'	'Loser-Winner'
$ACER_{t+1}$	-0.0067	0.0077	0.0144
$ACER_{t+2}$	-0.0069	0.0086	0.0155
$ACER_{t+3}$	-0.0017	0.0077	0.0094
$ACER_{t+4}$	0.0000	0.0094	0.0094
$ACER_{t+5}$	0.0008	0.0119	0.0111
$ACER_{t+6}$	0.0027	0.0123	0.0096
$ACER_{t+7}$	0.0048	0.0161	0.0114
$ACER_{t+8}$	0.0091	0.0164	0.0073
$ACER_{t+9}$	0.0119	0.0167	0.0048
$ACER_{t+10}$	0.0078	0.0134	0.0056

Note: The table shows the average cumulative excess returns (ACER) for 'winner' and 'loser' portfolios in the ten-week period after the portfolio formation date.

The performance of the 'winner' and 'loser' portfolios after the portfolio formation date is shown in Table 4. The results for the first two weeks following their categorisation seems to contradict the EMH. The 'winner' portfolio typically earned a negative average excess returns for the two weeks following its categorisation, while the 'loser' portfolio typically achieved a positive average excess returns over the same two-week period. This is consistent with the predictions of the overreaction hypothesis suggesting that the strategy of buying the 'loser' portfolio and selling the 'winner' portfolio, significantly outperformed the market; the average excess returns on week t+1 was 0.0144 with a *t*-statistic of 3.64 which is greater than the critical value at the 5 per cent level. For five of the remaining nine weeks in the portfolio test period, the overreaction strategy earns a

negative average excess return varying from -0.0061 on week t+3 to -0.0015 on week t+6. This negative average excess return is statistically significant only on week t+3 where the t-value is greater than 2.

Further, the strategy of buying the 'loser' portfolio and selling the 'winner' portfolio earns a small positive cumulative excess return. On average this strategy outperforms the market by an average cumulative excess return of 0.0056 per cent for the ten-week period after the portfolio formation date. As Table 5 and Figure 2 indicate, this strategy initially outperforms the market, but after two weeks underperforms to earn approximately zero cumulative average excess returns. The overreaction effect therefore disappears after two weeks.

These findings are similar to the results of Howe (1986) and Lehmann (1990) who noted that contrarian strategies based on weekly return data usually earned significant

Figure 1

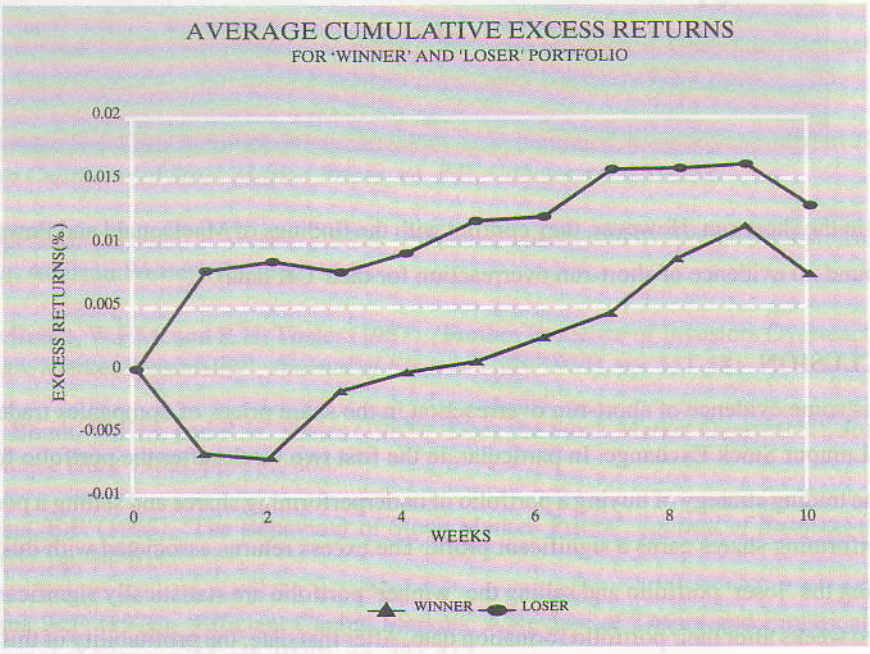
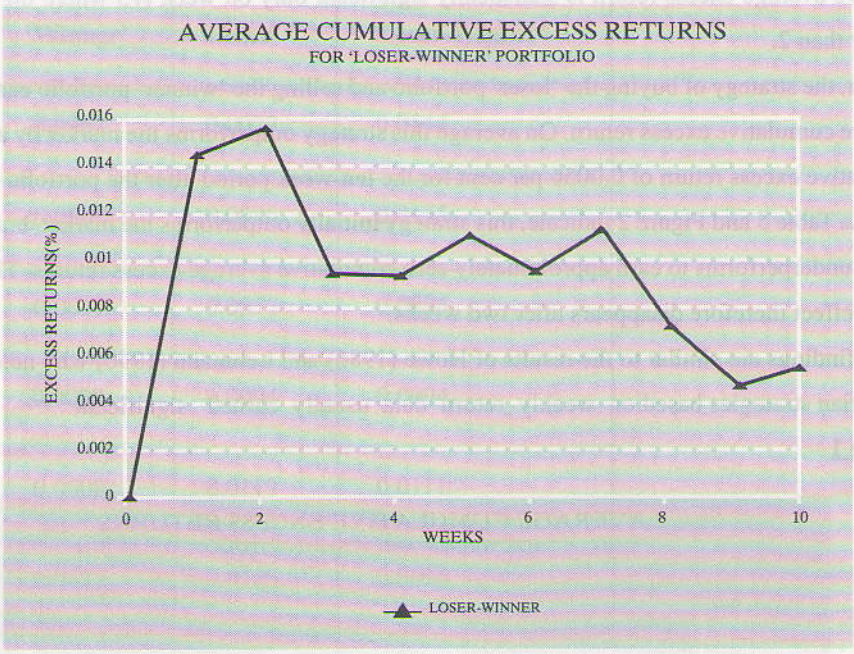


Figure 2



profits in the short-run. However, they conflict with the findings of MacDonald and Power (1992) who found no evidence of short-run overreaction for their UK data.

CONCLUSION

There is some evidence of short-run overreaction in the share prices of companies traded on the Kuala Lumpur Stock Exchange. In particular, in the first two weeks after the portfolio formation date, the trading strategy of buying a portfolio of underperforming shares and selling a portfolio of overperforming shares earns a significant profit. The excess returns associated with this strategy of buying the 'loser' portfolio and selling the 'winner' portfolio are statistically significant for the first two weeks after their portfolio formation date. After that date, the profitability of this strategy began to disappear suggesting that the 'winner' portfolio starts to recover its profits whereas the 'loser' portfolio declined in value. This is consistent with the prediction of short-run overreaction hypothesis but inconsistent with the weak form of the EMH. However, the level of transaction costs associated with implementing this strategy might wipe out any gains which might be achieved.

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