THE STOCKS MARKET OVERREACTION ON THE KUALA LUMPUR STOCK EXCHANGE (KLSE)

by

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ABSTRAK

Kajian ini ialah untuk menguji saham-saham Malaysia yang telah bertindak melampaui batas pengembalian dari tempoh Januari sampai Desember 1997. Objektif utama ialah (1) untuk menguji apakah saham-saham yang telah bertindak baik pada periode yang lalu (pemenang) akan bertindak buruk pada Jangka waktu yang akan datang (kekalahan) dan saham yang telah bertindak buruk (kekalahan) akan bertindak baik pada jangka waktu yang akan datang (pemenang), apa yang telah dijelaskan oleh hipotesis kelampauan batas. (2) Untuk menguji apakah penanam modal boleh mendapat keuntungan oleh pembelian dari kerugian dan penjualan dari keuntungan. Tingkat atas dan bawah saham dalam waktu 10 minngu yang dilaporkan oleh suratkabar untuk digunakan menjelaskan keuntungan dan kerugian. Pertunjukkan saham diukur oleh kelebihan kembalinya pasar adalah kemudian dilihat dalam 3 minggu jika ada kekalahan dalam bertindak.

Hasil dari ujian menjelaskan bahwa ada terjadi kekalahan pengembalian. Kelebihan kembalinya dari kemenangan mendapat negatif untuk 3 minggu berikutnya pada jangka waktu urutan. Untuk kekalahan dari kembalinya adalah juga mendapat negatif pada jangka waktu ujian, jarak kerugian pengembalian dapat dikurangi. Hasil dari ujian yang lain menjelaskan bahwa strategi perdagangan oleh pembelian dari kerugian dan penjualan dari keuntungan tidak mendapat pengembalian yang positif. Dalam fakta, penanam modal boleh menghabiskan wangnya dari strategi tersebut. Walaupun pada sesuatu tingkat harga yang lalu akan digunakan untuk meramalkan harga yang akan datang, kajian ini berkesimpulan bahwa pasar itu cukup efisien dalam bentuk kelemahan.

ABSTRACT

This paper examines the short run overreaction in Malaysian stocks returns from January to December 1997. The main objectives of this study are (1) to examine whether stocks which performed extremely well in recent past (winners) tend to do less well in the following period and stocks which performed extremely bad in a period (losers) will perform better in the next period as claimed by the overreaction hypothesis. (2) to examine whether investors are able to earn abnormal profit by buying losers and selling winners short. The top and worst 10 weekly performing stocks as reported by The Sun are used to define winners and losers. The performance of these stocks measured by market excess return, are then tracked in the following 3 weeks to see if there is any reversals in the performance.

The results of the test indicate that there are indeed some degrees of return reversals. The excess returns of winners tend to be negative for the next three weeks subsequent to the ranking period. The excess return of losers are still negative in the test period, the magnitude of negative excess returns has been reduced. Results of another test reveals that a trading strategy of buying losers and selling winners short will not yield any positive abnormal return. In fact, investors may lose their money by employing that strategy. Even though to some extent past prices can be used to predict future prices, this study concludes the market is quite efficient in its weakest form.

Chapter 1

INTRODUCTION

1.1 Introduction

The efficient Market hypothesis as postulated by Eugene Fama (1970) has been one of the most dominant themes in financial research. It is a theory based on the principle of efficient trading markets in which the current price reflects all available information about the stocks. In such a market, past price and volume patterns cannot provide meaningful prediction of future price movements. Eugene Fama (1970) in his discussion on stock price behavior proposed three forms of market efficiency:

(1) the weak form efficiency, which states that all information contained in past price movements is fully reflected in current market prices. The short run future price movements of stocks are approximately random in character and are independent of past price movements

(2) the semi strong form efficiency, whereby historical prices plus other information that is publicly available (e.g. announcements of annual earnings, stock splits etc) have already been reflected in prices.

(3) the strong form efficiency, in which current market prices reflect all pertinent information, whether publicly available or privately held. Private information is insider information or private analyses done on stocks. Any type of investor would not be able to make access profits from the possible existence of private information.

A branch study on the efficient market hypothesis is the study on stock market anomalies. One of the newest and most controversial of these anomalies is the hypothesis that the market tends to overreact to news. It is based on psychology studies on human decision making which claims that human tend to display heuristic biases including overreacting to the most recent event. This so called overreaction effect claims that stocks, which under performed the market in the last period will beat the market in the next period and vice versa for the stocks, which over performed the market. It suggests that investors overreact to new information and as a result share prices can and do depart from their underlying fundamental values.

Overreaction is most likely to occur when dramatic, unanticipated news enters the market. Important "new news" is most likely to have an effect on stock prices. If overreaction accompanies these dramatic events, then we would expect large positive returns (generated by the arrival of favorable news) to be followed by a period of below normal returns, and large negative returns (caused by unfavorable events) to be followed by a period of above normal returns. Studies of the overreaction hypothesis are a direct test of the weak form of the efficient market hypothesis, since past prices are used to predict future movement of prices. The market is efficient in the weak form if current prices fully reflect all past market information (all historical market information). The overreaction hypothesis therefore stands in contradiction to the efficient market hypothesis.

The first study on the overreaction effect was conducted by De Bondt and Thaler (1985) who evidenced 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 immediate past (winners) tended to perform worse in the next period. They argued that investors overreact to good news which cause winners to increase their prices and also overreact to bad news which accompany the drop in loser's price.

Studies of the Efficient Market Hypothesis in developing countries, particularly in Asian countries have grown quite rapidly in recent years. In Malaysia studies of the EMH have been conducted since the 1980s using main board stocks on the Kuala Lumpur Stock Exchange (KLSE). A study by Saw and Tan (1985, 1989) examined the Malaysian all share indices for the period 1975-1983 and found that the KLSE is weak form inefficient. Yong (1987) conducted a study on 170 stocks using weekly price data from January 1977 to May 1985 on the KLSE. He concluded that a thin market is less efficient in weak form compared to larger stock markets. Nassir (1983) tested the weak form EMH using monthly data on 101 actively traded stocks over January 1974 to June 1980. He found evidence supporting weak form efficiency. Lim (1981) took a random sample of thirty actively traded stocks and six sectoral indices over the period from June 1974 to June 1980. He observed that stock price changes of actively traded counters were independent and random, suggesting that KLSE was weak form efficient for active stocks.

1.2 Research Problem

Since past prices are used to predict future performance, this study is a direct test of weak form market efficiency. This study will try to observe the following with regard to the overreaction effect:

1. If stock prices systematically overshoot, then their reversal should be predictable from past return data alone.

2. The more prices are initially out of line, the stronger they should bounce back later on. This may indicate the overreaction phenomenon.

1.3 Research Objectives

The purpose of this study is to investigate the existence of short run overreaction in Malaysian stock returns from January until December 1997. This study would create a better understanding of the investors' overconfidence in the stock market. It would also help explain whether the attitude of investors in the stock market play a significant role in explaining the behaviour of prices. The specific objectives are:

1. To examine whether stocks, which performed very well in a period will perform worse in the next period, and stocks which performed badly in a period will perform better in the next period, as claimed by the overreaction hypothesis.

2. To examine whether investors are able to earn abnormal profits by buying past losers and selling past winners short.

1.4 Organization of research paper

This study is organized into five chapters. Chapter 1 introduces the subject matter, explains the research problem and states the objectives of the study. Chapter 2 highlights the previous studies and their findings on the overreaction effect in stock markets. Chapter 3 describes the methodology used for the analysis. In chapter four, the results of the study will be presented and discussed. Chapter 5 will conclude the

study, discuss some limitations and implications and give some suggestions for future studies of overreaction.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

The weak form efficiency states that an investor cannot use past security price information to consistently earn a portfolio return in excess of the return that commensurate with the portfolio risk. The implication of this hypothesis is that current price changes and future price changes are unrelated or price changes are independent over time. Trading rules using past prices or changes in past prices to predict future prices or prices changes should have little economic value.

The overreaction hypothesis stands in contradiction to the weak form efficient market hypothesis. The overreaction hypothesis, which holds that if stock prices systematically overshoot as a consequence of excessive investor optimism or pessimism, price reversals should be predictable from past price performance. Winner shares, which have performed well in the past tend to do less well in the future, while loser shares which have performed badly in the past tend to improve their performance in the future.

2.2 An Overview of Overreaction and Underreaction

One of the first studies on long-term anomalies is De Bondt and Thaler (1985). They argue that overreaction to past information is a general prediction of a behavioral decision theory of Kahneman and Tversky (1982). Thus, one could take

overreaction to be the prediction of a behavioral finance alternative to market efficiency.

Lakonishok, Shleifer, and Vishny (1994) argue that ratios involving stock prices proxy for past performance. Firms with high ratios of earnings to price, cash flow to price, and book to market equity tend to have poor past earnings growth, and firms with low earnings to price, cash flow to price, and book to market equity tend to have strong past earnings growth. Because the market overreacts to past growth, it is surprised when earnings growth mean reverts. They found that high earnings to price, cash flow to price, and book to market equity stocks (poor past performers) have high future returns, and low earnings to price, cash flow to price, and book to market equity stocks (strong past performers) have low future returns.

The under-reaction events are the evidence that stock prices seem to respond to earnings for about a year after they are announced (Ball and Brown (1968), Bernard and Thomas (1990)). More recent phenomenon is the momentum effects identified by Jegadeesh and Titman (1993) who argue that stocks with high returns over the past year tend to have high returns over the following three to six months.

Other recent event studies also produce long-term post event abnormal returns that suggest under-reaction. Desai and Jain (1997) and Ikenberry, Rankine, and Stice (1996) found that firms with split their stock experience long-term positive abnormal returns both before and after the split. They attribute the post split returns to market under-reaction to the positive information signaled by a split. Michaely, Thaler and Womack (1995) found that stock prices seem to under-reaction to the negative information in dividend omissions and the positive information in initiations.

2.3 Psychology of Investor in Stock Market

Evidence in cognitive psychology literature reveals that humans are poor Bayesian decision makers. From a series of experiments, Kahneman and Tversky (1972, 1973) find that humans appear to give more weight to recent information without much consideration to prior or base rate data. People tend to make predictions based on judgmental heuristics, which often lead to biased decisions, and sometimes result in systematic errors (Bazerman, 1986).

One of the reasons why individuals tend to regress insufficiently towards the mean in making predictions is due to what Andreassen (1987) terms the attributional effect. The expectations that change will either persist or regress to previous level depends in large part on whether causal attributions are provided to explain recent changes. If these attributions are provided, then the tendency to make regressive predictions will diminish. Using financial markets as an illustration, Andreassen argues that the news media provide such causal attributionals when describing price changes. Similarly, bad news will be provided to explain recent price falls. Daryl J. Bern (1969) suggest that individuals too strongly attribute events that confirm the validity of their actions to high ability, and events that disconfirm the action to external noise or sabotages. This relates to the motion of cognitive dissonance, in which individuals internally suppers information that conflicts with past choices. Another characteristic of human decision-making is undue optimistic bias or overconfidence (Griffin and Tversky, 1992, Pulford & Colman 1996). An overconfident investor is investor overestimate the true value of the news or information. This overconfidence is usually more associated with positive outcomes. Griffin and Tversky suggest that overconfidence is not universal, it is prevalent, often

massive, and difficult to discriminate. It can lead people to focus on the strength or control actions (Health and Tversky 1991). I t has also been argued that overconfidence, like optimism, makes people feel good and moves them to do things that they would have not done otherwise.

Another interesting finding on human decision-making is that individuals tend to follow others when making a decision. This is called herd behaviour or herding (Banerjee, 1992, Scharfstein and Stein 1990). These individuals are noticed to ignore their own beliefs and information in forming decision rules even though the information may possess' substantive value. Benerjee shows that the resulting equilibrium of herding is inefficiency, in business; Scharfstein and Stein argue that managers are reluctant to act according to their own beliefs or information for fearing that their contrarian behaviour will damage their reputation as sensible decision makers. In the financial market context, De Bondt (1989) described some evidence, which suggested some indications of market overreaction. Prices tend to overshoot due to the presence of optimistic traders, who are argued to determine the stock market value (e.g Miller 1977), and that the market, due to waves of optimism and pessimism, may temporarily overvalue or undervalue stocks based on their current or future earnings and dividends.

2.4 Evidence of Overreaction in the Stock Market

Studies on overreaction have been categorized into two: long run overreaction and short run overreaction. Long run overreaction refers to return reversals of extreme performance stocks in a period of over one year. We will first review some studies on long run overreaction followed by short run overreaction.

2.4.1 Long Run Overreaction

De Bondt and Thaler (1985) observe that NYSE stocks, which perform very well (badly) relative to the market, over a period of 3-5 years, tend to earn lower (higher) returns than the market over the subsequent 3-5 year period. The fact that an investor can earn abnormal profits by buying past losers and selling past winners short, a trading strategy using past prices as the information set, implies that the market is not efficient in its weakest form. A consistent abnormal profit earned by such a contrarian investment strategy that exploits negative serial dependence in asset returns may provide strong evidence against market efficiency. De Bondt and Thaler's overreaction hypothesis asserts that stock prices take temporary swings away from their fundamental values due to waves of optimism and pessimism. De Bondt and Thaler (1985) examine monthly returns of NYSE firms between 1926 to 1982. Two portfolios are formed, consisting of 35 extremely bad performing stocks (losers), and 35 extremely good performing stocks (winners) based on the stock past three years market adjusted excess returns. This 3-year period is described as the portfolio formation period. The excess returns in the subsequent 3-year period called the test period, are then calculated for both winner and loser portfolios. Using this procedure they find that in the test period, losers outperform the market by 19.6% and winners underperform the market by 5.0 percent, so that excess returns for the former are 24.6 percent higher than the latter. They also find that the excess returns in the 3- year test period is asymmetric, i.e. much larger for losers. Most of the winner loser effects occur during the second and third years of the test period.

Zarowin (1990) challenges the overreaction hypothesis on the grounds of market value differentials. Zarowin claims that loser firms are smaller firms, i.e.

losers tend to be smaller by the end of the 3-year formation period because their prices are getting lower. When both winner and loser groups are matched by size, all return discrepancies disappear, except in January. Zarowin also analyses the periods when losers are smaller than winners and periods when winners are smaller than losers. The results indicate that when losers are smaller, they outperform the winners. When winners are smaller, they outperform the losers. Therefore, Zarowin concludes that the loser superior performance over winners during the 3-year test period is due, not to overreaction, but to size discrepancies.

Chan (1988) argues that stocks with a series of negative abnormal returns will experience an increase in their equity betas, and this increases their expected returns. This is because an equity beta is a function of gearing (i.e. the relative market values of debt and equity). With other factors remaining constant, a reduction in stock prices will lead to increased gearing and therefore, increased equity risk. Likewise, the winner stocks that experience a series of positive abnormal returns have their beta decreasing, and thus lower the expected returns. Therefore, the loser stocks which experience a series of negative returns have their betas increasing and thus higher expected returns.

Campbell and Limmack (1993) tested for long-term reversals in the abnormal returns of UK companies over the period from January 1979 to December 1990. The results of this study for the 12 months following portfolio formation show that loser companies continued to experience negative abnormal returns and winner companies persisted in generating positive abnormal returns This appeared to contradict the findings of US studies which support the winner-loser effect. The possible influence of firm size was examined by splitting the winner and loser portfolios into groups

based on equity market capitalization. It was found that the very smallest loser companies did experience a reversal in their abnormal returns over the following 12 months, but that no such reversal existed for the smallest winner companies. From two years to five years following initial portfolio formation, reversals in excess returns for the winner and loser portfolios were observed in each of years 2 to 5 (with the exception of year 4 for winners using market adjusted returns and year 2 for losers using size adjusted returns). The cumulative excess returns on the arbitrage portfolio were found to be negative in year 1 but positive in year 2 to 5.

Clare and Thomas (1995) tested for overreaction using UK data from the period 1955 to 1990. Using the London share price database (LSPD), market-adjusted returns were obtained for a random sample of 1000 stocks over no overlapping one, two, and three year periods. Portfolios were then formed by allocating the top quintiles of stocks to winner portfolios and the bottom quintiles to loser portfolios. The results were initially supportive of the overreaction hypothesis over the two and three years post formation periods. After controlling for firm size, they concluded that UK stock market could be attributed to the small firm effect.

Clayman (1987) found that companies identified ex post as excellent on the strength of accounting performance measures subsequently experienced lower growth and diminished profitability. By contrast, a matched sample of non-excellent companies achieved significant improvements in earnings and in the strength of their balance sheet. As a result, the performance of the equally weighted portfolio of the shares of non excellent companies far outstripped the corresponding performance of the portfolio of the excellent companies shares over the 5 period following the classification into excellent and non excellent companies. The market usually

overestimates the future growth potential and equity return of past excellent companies, causing an overpricing of winner shares compared with a fundamental valuation based on the discounted stream of future company earnings. The market also overreacts to current information about non-excellent companies: investors tend to make pessimistic predictions about the companies potential growth and future profits resulting in underpriced loser shares.

Fama and French (1988) reported that 25 to 45% of the variations in 3 to 5 year monthly returns were predictable from past returns. If share returns have been above for the previous 3 to 5 year holding period the returns are likely to be below average for the current 3 to 5 year holding period. They argue that returns tend to mean revert in longer period horizon.

Power et al (1991) constructed winner and loser portfolios from a list of the top 200 UK companies reported in Management Today rather than by measuring excess stock returns over a defined formation period. They assigned the 30 best performing stocks from the list, which appeared in the June 1982 issue of Management Today to a winner portfolio and the bottom 30 companies to a loser portfolio. They found that the loser portfolio yielded a cumulative average return of +80% during the five years period following portfolio formation. The winner portfolio generated a cumulative average return of -47%.

2.4.2 Short Run Overreaction

Return reversals are not only found for longer period intervals, as reviewed in the above studies. Researchers also document what is termed as short run

overreaction. This refers to mean return reversals observed in the winner and loser portfolios within a period of several months to several days.

Howe (1986) found that shares, which exhibited a large positive or negative return in particular weeks experienced a reversal of performance in the following weeks. Specifically, the 'winner' shares of excellent companies, which earned a large, positive weekly return, underperformed the market by 30% in the 50-week period following that event. However, the prices of loser shares, which declined sharply in the 'winner-loser' identification week, rebounded strongly in the subsequent 5-week period.

Dyl & Maxfield (1987) found that in each two hundred randomly selected trading days in the period 1974-1984 the three shares with the largest one-day gain underperformed the market by 1.8% in the 10 trading days following their categorization as 'winner'. The selection of three 'loser shares', on the other hand, outperformed the market by 3.6% over the same 10-day period following their classification as 'losers' with the largest one-day losses.

Atkins & Dyl (1990) estimated the share performance of six shares from all the shares listed on the NYSE for each of 300 randomly selected trading days; the six shares included three 'loser' shares that exhibited the largest percentage loss in value and the three 'winner' shares with the largest percentage increase in value on a particular day. They found that the average abnormal return for the 'loser' shares was positive for 8 of the 10 days following the initial price drop and was statistically significant for the first 2 days after the price decline. For the 'winner' shares the average abnormal return was negative for 9 of the 10 days following the sharp

increase in the price of these shares. In particular, the abnormal return was statistically significant in days one, three and seven. Overall, the 2 days abnormal return for the trading strategy of buying losers and selling winners short was around 3%.

Lehmann (1990) estimated weekly returns for all companies listed on the New York and American Stock Exchanges combined to form portfolios of winner and loser shares from July 1962 to December 1986. He formed arbitraged portfolios that involved taking short positions in shares that had experienced recent price increases and long positions in shares that had suffered recent price declines. The portfolios weights were set proportional to the previous period excess return over the return of an equally weighted portfolio of all the shares being considered. He found that 1-week portfolio earned profit for the subsequent 49-26 week periods. even after allowing for transaction cost.

Mac Donald and Power (1992) estimated weekly UK stocks returns. A random sample of 100 quoted companies were used to form a portfolio of 10 winner and loser shares in the UK over the period January 1982 to June 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.

Brown & Harlow & Tinic (1988) have analysed the stock market response to events ranging from 1 to 6 months duration. They use daily returns for 200 of the largest companies divided into positive and negative values in the US over the period July 1962 to December 1985. The average returns following both negative and

positive events tend to be significantly positive. Positive events under performed the market by 0.03% while negative events outperformed the market by 0.597%.

Bairaktis (1994) estimated daily returns for 5 winners and 5 losers for Greek shares from 1989 to 1993. The loser portfolio outperformed the market by 0.11% and winner portfolio also outperformed by a smaller positive cumulative excess return in the test periods.

2.5 Evidence Of Market Efficiency in Malaysia

A number of previous studies have investigated issues relating to market efficiency in the KLSE, although the overreaction issue is not investigated. Using monthly price data, Lanjong (1983) and Barnes (1986) find results, which are generally supportive of weak form efficiency. Laurence (1986) who examines daily returns for the 16 most traded stocks on the KLSE. Yong (1987) uses weekly data for 170 stocks and finds a high degree of serial independence for most stocks. Nassir and Mohammad (1987) document significantly higher returns in January. However, the tax loss-selling hypothesis proposed to explain this phenomenon in the US is inappropriate for Malaysia, since there is no capital gains tax arising for securities transactions in Malaysia. Ho (1990) find the presence of a February effect in KLSE stock returns, similar to the January effect in US stocks and this effect may be related to the chinese lunar year. The turn of the lunar year occurs during February and represents the new years for ethnic Chinese, who are the dominant investors in the Malaysian market.

Mohd Arifin and Power (1996) estimates the weekly share price data obtained from datastream for 47 individual shares listed on the Kuala Lumpur Stock Exchange over the period January 1990 to December 1994. For each week beginning in January 1990, excess returns are calculated for each of the forty-seven companies shares in the sample. 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 performances of the winner and loser portfolios are then tracked over the next ten weeks. The authors found that the loser portfolio performed badly earning an average excess return of –51.63%, while the winner portfolio performed very well earning a positive average excess return of 6.34 percent in the week that the portfolio were formed. 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. There is some evidence of short run overreaction in the shares prices of companies traded on the KLSE. 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.

2.6 Conclusion

Based on the previous research, the overreaction hypothesis holds that stocks which performed best in the recent past (winners) seem to underperform the rest of the market in following periods and stocks which performed badly in recent past tend to improve their performance. However, Some of the previous studies show that the tendency for losers to outperform winners is not due to investor overreaction, but to the tendency for losers to be smaller sized firms than winners.

Studies of the overreaction hypothesis are a direct of test weak form efficiency market hypothesis. The overreaction hypothesis stands in contradiction to the efficient market hypothesis. The weak form efficiency states that an investor cannot use past security price information to consistently earn a portfolio return in excess of the return that commensurate with the portfolio risk. The implication of the weak form efficiency states that current price changes and future price changes are unrelated or price changes are independent over time.

Chapter 3

RESEARCH METHODOLOGY

3.1 Theoretical Framework

The theoretical framework in this study is based on the weak form of the EMH, which states that all information contained in past price movements is fully reflected in current market prices. In this study, past (ranking) period returns are used to predict future (test) period returns. Therefore, the two types of variables in this study are the ranking period returns as the independent variable and the test period returns as the dependent variables. The following schematic diagram represents the theoretical framework. which shows the relationship between the two variables: Ranking period returns and test period returns.

Independent Variable Dependent Variable

3.2 Description of Data

The basic data used in this study is the 10 top and worst performing stocks on the KLSE as reported weekly by The Sun Newspaper from January to December 1997. These are the shares with the most extreme change in weekly prices (i.e. the return). The 10 shares with the biggest positive change is termed the winner portfolio while the 10 shares with the biggest negative change in price is termed as a loser

portfolio. The data for the market proxy, i.e. the KLSE composite index is taken from the Investor's Digest, a publication of the Kuala Lumpur Stock Exchange.

3.3 Computation Method

Returns will be calculated as follows:

$$R_{j,t} = \left[\frac{P_{j,t} - P_{j,t-1}}{P_{j,t-1}} \right] \quad \text{(1)}$$

where $R_{j,t}$ = return of the security j at week t.

$P_{j,t}$ = price of the security j at the end of week t.

$P_{j,t-1}$ = price of the security j at the end of week $_{t-1}$.

The returns of the top 10 performing stocks are then averaged to obtain the returns of the winner portfolio. The same procedure is used to obtain the returns of the worst 10 stocks, i.e. the loser portfolio.

To measure the return of the market, the weekly changes in the KLSE Composite Index is used. The market return on week t is estimated using the following formula,

$$R_{mt} = \frac{I_t - I_{(t-1)}}{I_{(t-1)}} \quad \text{(2)}$$

where, I_t = KLSE Composite Index at end of a week t

I_{t-1} = KLSE Composite Index at end of previous week.

To measure abnormal returns, the returns of the winners and losers portfolios are compared to the returns of the market as used in many overreaction studies. These

weekly market adjusted excess returns for losers and winners portfolios, ER_p, are calculated as follow,

$$ER_{pt} = R_{pt} - R_{mt} \quad \text{(3)}$$

where R_{pt} and R_{mt} are the returns of the portfolios and market respectively. Results from a number of studies (e.g. De Bondt and Thaler, 1985) indicate that evidence of overreaction is not sensitive to whether abnormal performance is measured relative to the market as above or relative to some expected returns model (e.g CAPM). This conclusion is perhaps not surprising; a major study conducted by Brown and Warner (1980) finds that sophisticated expected returns models perform no better than simple models, for identifying abnormal performance in equities.

The excess return ER_p, of both winners and losers portfolios are calculated for the test period i.e. week 1, week 2, and week 3 subsequent to the portfolio formation week or ranking period, to examine whether there are any evidence of returns reversals in the winners and losers portfolios. This whole procedure is done for every week from week t=1 until week t=52 throughout 1997. Therefore, there are altogether 52 portfolios of winners and losers for the analysis. Beside looking at the whole period from January until December 1997, the period of study will also be divided into two sub periods: pre crisis period from January until June 1997 and during the crisis period from July until December 1997 to examine whether the asian financial crisis has any effect on the overreaction hypothesis.

3.4 Hypotheses

There are two major hypotheses that are generated in this study. The first hypothesis is concerning the differences between ranking period and test period performance for winners and losers portfolios. If the market is weak form efficient, past performance as measured by market excess returns, cannot be used to predict future performance. The overreaction hypothesis, however, argues that extreme movement in prices or returns in one period will be followed by an opposite movement in the following period. Therefore, the following hypotheses are generated for the research:

For winner portfolios:

H0: There is no significant difference between their performances in the ranking period (RP) and test period (TP).

H1: The performance of winners in the test period is significantly worse compared with their performances in the ranking period.

For loser portfolios:

H0: There is no significant difference between their performance in the test period (TP) and ranking period (RP).

H1: The performance of losers is significantly better in the test period compared to their performance in the ranking period.

The second hypothesis is concerning the differences between winners and losers performance in the test period. If what is claimed by overreaction is correct, then we should expect that arbitrage trading strategy of short selling winners and buying losers

would generate positive excess returns. Therefore, the following hypothesis is generated.

H0: There is no difference between winners and losers performance in the test period.

H1: The performance of losers is better than the performance of winners in the test period.

3.5 The Research Design

Research design involves a series of rational decision-making choices. The discussion in this section will discuss the issues as below;

3.5.1 Type of Study

The type of study is a market-based study, looking at real prices of stocks in the KLSE. The purpose of the research project is to test for the existence of short-run overreaction among shares traded on the Kuala Lumpur Stock Exchange. It defines winners as the 10 top weekly performing stocks as reported by The Sun, whereas, it defines losers as the 10 worst weekly performing stocks. The independent variable is past price behaviour reflecting the information and the dependent variable is current price behavior reflecting the information.

3.5.2 Nature of Study

The nature of this study is both time series and cross sectional, since it detects the movement of prices / returns over time, and also looks at some groups of stocks.

3.5.3 Study Setting

The study examines return patterns of stocks listed on KLSE. The period of study is between January until December 1997.

3.5.4 Unit of Analysis

The units of analysis are individual stocks listed on Kuala Lumpur Stock Exchange (KLSE).

3.5.5 Data Collection Methods

This study will use weekly data because it is more appropriate. The following sources were used for the collection of the secondary data:

- Newspaper- The Sun and the Investor Digest Magazine
- Kuala Lumpur Stock Exchange Handbooks and Daily Diaries.