

PRICE REACTION TO STOCK REPURCHASES; EVIDENCE FROM THE KLSE

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ABSTRACT

This paper examines several issues related to stock repurchases by Malaysian listed Companies. A total of 131 listed companies that announced repurchases over a 4 year period were examined. Of these, 43 companies followed through with stock buyback. The other 88 companies announced the repurchase but did not execute the buyback. We find that the buyback announcement is viewed positively. Stock prices react favourably to the announcement. Relative to main board firms, we found second board firms to react more favourably. Interestingly, the announcement effect on stock prices, appears to be more prominent than the effect of the actual repurchase. Companies that went on to execute the repurchase had experienced steeper price declines than those that only announced. Companies that chose to cancel the repurchased shares had no higher price impact than those that kept the shares bought back as treasury stock. As expected, stocks with warrants had a more subdued price reaction compared to those that did not. In examining the pre announcement price behaviour, we find evidence of information leakage. This leakage seems more prominent for second board firms.

INTRODUCTION

Open market stock repurchases, though fashionable among American firms is a relatively new phenomenon in Malaysia. Until recently, Malaysian firms were expressly prohibited from engaging in share buybacks. Such a prohibition was probably premised on the potential conflicts of interest that could arise. If stock prices reflect the collective judgment of markets on management, enabling management to engage in price support would constitute value destruction. Thus, it was not until September 1997, in the face of steep price declines, that the Registrar of Companies allowed Malaysian companies to undertake stock buybacks. Section 67A which was an addition to the 1965 Companies Act was the new amendment. This amendment which came into effect on 1st September 1997, required the cancellation of the repurchased shares. A subsequent amendment on 1st Nov. 1998, allowed companies to also retain the repurchased shares as treasury stock. These treasury stock could either be used for stock dividends or future resale in the open market.

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Since then, a total of 112 main board and 19 second board companies have made the necessary amendments to their M & A and sought shareholder approval for the repurchase programs. Of these however, the companies that actually undertook the repurchase have been far fewer. Over the period of this study (Sept. 97 to June 2001), only 38 main and 5 second board companies actually repurchased their shares. Companies having received shareholder approval are under no obligation to execute the actual buyback. Table A and B below show the breakdown of public-listed companies involved in share buybacks and breakdown by year of actual repurchase.

Table A : Breakdown of KLSE listed companies involved in share buyback

Breakdown by Type	Main Board Companies	Second Board Companies	Total
Announced/Obtained shareholders' approval at EGM/AGM	112	19	131
Actually repurchased shares	38	5	43

Sources:

Data from KLSE - period covering September 1, 1997 to June 30, 2001

Table B : Breakdown by year of companies that executed share repurchase.

Breakdown by Year	Main Board Companies	Second Board Companies	Total
1997	1	0	1
1998	11	3	14
1999	11	0	11
2000	9	1	10
2001 ^{#1}	6	1	7
Total	38	5	43

Sources: Data from KLSE

#1 indicates the period from January 1 up to June 30, 2001

Motivation / Justification For Study

Numerous reasons have been put forth to explain why companies would want to repurchase their own stock. The more common of these being, to signal stock undervaluation (Vermaelen (1981)), to "stabilize" demand/supply and price, to enable the distribution of cash to shareholders and to take advantage of tax differentials that would make it more advantageous to repurchase stock than pay higher

dividends. Yet other reasons motivating stock repurchase are to improve capital structure and as a defense mechanism against hostile takeover.

These justifications for stock buy-back programs have been extensively researched in the US and other developed markets. In Malaysia however, perhaps due to the newness of stock repurchases, we are aware of only one previous study. Jais & Chin (2001) examined the stock price reaction to repurchase announcements of 34 Malaysian companies. However, only four of their sample companies actually bought back the shares. Given the longer time lapse, this study not only uses a much larger sample size but also examines several related issues. A comprehensive examination of the stock repurchase decision and issues related, is the motivation for this study.

We examine a total of six research questions surrounding stock buybacks. These are as follows;

- (i) What is the stock price reaction to a buyback announcement?
- (ii) Are there any differences in stock price reaction between companies that only announce versus those that actually repurchase their stock?
- (iii) Is the stock price reaction any different for companies that retain the repurchased stock as "treasury stock" versus those that cancel them?
- (iv) Does the existence of warrants/TSRs on the stock make any difference to price reaction?
- (v) Is the price reaction different for Main Board as opposed to Second Board firms?
- (vi) Is there evidence of information leakage preceding the repurchase announcement?

Each of these questions would be highly relevant to understanding the impact of share buybacks. If a share buyback constitutes a significant event, then its announcement can be expected to cause a stock price reaction. If such an announcement is a signal by management to shareholders that the stock is undervalued, then a positive reaction is to be expected. Whether or not a firm actually undertakes the repurchase of stock should matter. For it is the repurchase that should cause the change in the demand/supply equilibrium. In an efficient market, the repurchase announcement if deemed credible by the market should lead to a quick adjustment in the stock price. This price adjustment ought to reflect the likely reduction in the number of outstanding shares post repurchase. This implies that it is the announcement not the actual repurchase that experiences the price reaction. On the other hand, rational

agents who believe that the announcing company may not actually buy back the stock might want to wait and see, in which case, the announcement in not being credible elicits little price response.

Whether the repurchased stock is kept as treasury stock or cancelled should also matter, for it will have a direct impact on stock valuation. Repurchased stocks that are kept as treasury stock for use as compensation or reward to employees, are essentially stock that have been temporarily taken out of circulation. Depending on how quickly the treasury stock is used up, there is no long term change in the number of stocks outstanding. Thus, valuation on a per stock basis is unchanged. On the otherhand, repurchased stock that is cancelled, leads to a reduction in the number of stocks outstanding. Even if there is no growth in profits, cash flow or assets, valuation on a per stock basis increases post repurchase. Logically, one should expect to see a larger and possibly more permanent positive price reaction in the cases where the repurchased stock is cancelled.

Previous studies, such as that of Kahle (2001), have shown that the price reaction to the repurchase decision can also depend on whether the underlying is an optioned stock. In Malaysia, several listed stocks now have warrants/TSRs traded on them. These warrants are in essence long – dated call options. Whether or not a stock has listed warrants traded on it should matter for two reasons. From the viewpoint of management, a listed company that has also issued warrants, comes under additional pressure when its stock price has declined. The warrants/TSRs would be out-of-the-money and practically worthless if maturity is in the near future. Thus management comes under pressure from both the shareholders and warrant holders to act. The implication being that a company with warrants outstanding is more likely to engage in repurchases than one without warrants. From the viewpoint of shareholders however, the repurchase decision should have a less significant impact on a stock with warrants than one that does not. This has to do with what happens when the warrants are exercised. When warrants/TSRs are exercised, the issuing company satisfies the exercise by issuing *new stock*. Thus, viewed on a longer term basis, the positive impact of a post repurchase reduction in the number of stocks would be easily neutralized by the issuance of new stock when the warrants/TSRs are exercised. The implication here is that, a stock with warrants outstanding ought to witness a more muted price reaction to the buyback announcement, relative to one that has no warrants outstanding.

The paper is divided into five sections. Section two below, reviews relevant previous literature. Section three, describes the buyback procedure in Malaysia and outlines our methodology and data. The fourth section presents the results and offers an interpretation. The final section, Section five concludes.

SECTION 2 : LITERATURE REVIEW

Recall that four of our six research questions revolve around price reaction to stock repurchases. This has indeed been the emphasis of most previous studies. Most studies have attempted at examining whether a repurchase announcement is a 'significant' event in terms of the market's price reaction. A positive price reaction to the announcement has been documented in most US based studies. Though several explanations have been put forth in the literature, three hypothesis appear to be the most commonly cited. These hypothesis being;

- The Personal Tax Saving Hypothesis
- Signaling or Information Hypothesis
- and
- Expropriation or Wealth Transfer Hypothesis

2.1: *Personal Tax Saving Hypothesis*

The first hypothesis argues that personal tax savings arise from the differential tax treatment (in United States) of dividends as opposed to capital gains. From the shareholders' perspective, the full amount of any dividend distribution received is taxable at ordinary income tax rates. Cash distributions by means of share repurchases however, are taxable only to the extent that the repurchase price exceeds the shareholder's price and then only at the capital gains tax rate. This results in a tax advantage because capital gains are taxed at a lower rate than dividend income. Hence when repurchases are used instead of dividend distributions, share value is increased. The empirical implication of this hypothesis is that share prices increase (a positive price effect) upon announcement of a forthcoming share repurchase.

Black and Scholes (1974), however argue that firms cannot affect their value by changing their distribution policy. Their contention is that firms will adjust their payout policies until the policies offered by the firms matches those demanded by investors. Once this equilibrium is achieved, the firm is not able to increase the price of its shares simply by changing the payout policy. Going by this, a share repurchase announcement should have no effect on the price of the share.

2.2: *Signaling or Information Hypothesis*

The signaling or Information hypothesis, has emerged as the most quoted and prevalent explanation for share repurchase. Several previous studies, Vermaelen, (1981); Dann, (1981); Asquith and Mullins, (1986); Ofer and Thakor, (1987). Constantitines and Grundy (1989); Comment and Jarrell, 1991;

Dann, Masulis and Mayers (1991), Hertz and Jain (1991) and Lee, Mikkelsen, and Partch (1992) have all used the signaling argument in explaining the price reaction. Mohamed Jais & Chin (2001) also point to the information hypothesis in explaining Malaysian price reaction.

The Signaling or Information hypothesis postulates that the announcement of share repurchase constitutes a revelation by the management of new information about the firm. The most widely cited motive for firms announcing open-market share repurchase is to signal undervaluation of the firms' shares. In their survey of repurchasing firms, Guthart (1967), reported that alleged undervaluation was a frequently mentioned reason for repurchase. Twenty years later, the same motive was still valid as found by Tesetsekos, Kaufman and Gitman (1988), for the majority of firms announcing share repurchase programs.

The positive price effect from the open market repurchases has been well documented. For example, Vermaelen (1981) examined 243 open-market repurchase announcements by NYSE-listed firms during 1970 to 1978 and found abnormal price increases of 3.37% after the announcement of a share repurchase while Comment and Jarrell (1991) documented a similar result with an average positive excess return of about 2% to 3% for open market repurchase announcement in the period 1984 to 1988. An analysis of a sample of 121 open market repurchase announcements by Dann (1980) showed a mean rate of return of slightly more than 3% for a 2-day span over the announcement date. Ikenberry, Lakonishok and Vermaelen (1995) found that the average market response to the announcement of an open market repurchase is 3.5% and that the market reacted more favorably to announcements made by low market capitalization firms. A more recent local study by Mohamad Jais (2001) showed a difference between those firms that followed through with the share buyback exercise (a gain of about 4%) and those who did not follow through (a gain of 1.2% but not statistically significant).

Vermaelen (1981), Comment and Jarrell (1991) and Ikenberry and Vermaelen (1996) also find that the proportion of stocks repurchased is significant in signaling. They found a significant positive correlation between the announced target repurchase proportion and the market's price response in the announcement period. Ikenberry and Vermaelen (1996) also found a significant positive relationship between the firm's total risk and the announcement return i.e. the repurchase increases the riskiness of the firm. This is because the firm pays cash for the share repurchase and reduces its holdings of its least risky asset, or if the payment is via borrowing, then its leverage is increased. In addition, Comment and Jarrell (1991) reported a pattern, consistent with the signaling hypothesis, in which the share price falls before the announcement and then drifts upward post-announcement.

The degree of prior stock price decline has also been found to impact post announcement returns. Benberry, Lakonishok and Vermaelen (1995) examined the long term returns following repurchase announcement. Over the long run, they found that the largest abnormal returns following buyback announcements are observed for high book-to-market firms (i.e. "value" stocks that are significantly undervalued) and no abnormal performance is observed for low book-to-market firms (i.e. "glamour" stocks). For "value" stocks, companies are more likely to be repurchasing shares due to undervaluation, their average abnormal return over the next four years is 45.3% while no positive drift in abnormal returns is observed for "glamour" stocks. The combined results gave an average abnormal 4-year buy-and-hold return measured after the initial announcement of 12.1%.

2.3: The Expropriation or Wealth Transfer Hypothesis

The third hypothesis, The Expropriation or Wealth Transfer hypothesis argues that an unanticipated repurchase of shares represents a wealth transfer from the firm's senior claimants i.e. bondholders and other debt holders to the shareholders. The empirical implication of this wealth transfer hypothesis is that the share price increases and the market value of senior securities (eg. Bonds) declines. This is consistent with an information signal that conveys an increase in the riskiness of the firm. Such an increase constitutes an expropriation of debtholders' wealth by imposing additional risk on the debt of the firm. Of the three hypothesis, the Signaling or Information Hypothesis is found to be the most pervasive and well documented.

2.4: Information Leakage/Insider Trading

If management can signal undervaluation using stock buybacks, it is possible for management to take advantage of the information asymmetry that causes the undervaluation.

Insiders, directors and executives tend to have superior knowledge about a public listed company's prospects because they have inside information. Insiders who obtain news about a potential corporate announcement have the incentive to trade the shares before the announcement date. Depending on whether the event is expected to have a positive or negative share price effect, they would either buy or sell. Such pre-emptive trading which would impact prices before public announcement constitutes information leakage.

Raad and Wu (1995) conducted a study on a sample of 204 firms that announced open-market repurchases in the period 1982 to 1990 and found that insider activities during the month that

immediately precedes the announcement date have a significant effect. Shareholders of firms with net insider selling activity earned positive abnormal returns while those of firms with net insider buying activity earn larger and more significant abnormal returns.

In the same study, Raad and Wu also found that insider trading during more distant period (more than 1 month) do not show any significant effect on share returns. Another finding was that stock returns are positively and significantly affected by the extent of management ownership and the percentage of authorized amount of shares to be repurchased. This study essentially confirmed the findings of Nettem and Mitchell (1987) who examined insider trading in stock repurchases post October 1987 market crash.

Previous Malaysian studies, for example Khameel & Obiyathulla (1996), who examine bonus stock issuance, have shown that announcements that could have a price impact, have often been subjected to information leakage. This is usually evidenced by abnormal returns in the immediate period preceding announcement. Since a stock repurchase decision has an obvious price impact, our final research question seeks to examine if stock repurchases are also plagued by information leakage.

SECTION 3

This section is divided into two parts. We first provide a brief overview of the procedures governing the share buyback process in Malaysia. Procedures that could potentially impact price reaction are highlighted. The latter part of this section presents the data and outlines our research methodology.

3.1: The Share Buyback Procedure/Process

Following the Section 67A amendments to the Companies Act which came into effect on 1st November 1998, The Board of Directors (BOD) was empowered to deal with the repurchased shares in the following manner.

- (a) Cancel the repurchased shares,
- or
- (b) Retain as treasury shares for distribution as dividends to shareholders (and employees) or resale in the open market
- or
- (c) Retain a part as treasury shares and cancel the remainder.

According to the KLSE's; Chapter 12 – Share Buyback, Listing Requirements; the sequence of events that should take place relating to the authority for share buybacks are as follows:

- (i) Following the Board of Director's decision to buy back its shares, the company must make an immediate announcement to the KLSE of its decision and to submit to shareholders a proposal for the buyback.
- (ii) The draft circular of the proposal to shareholders is to be submitted to the KLSE together with a checklist showing compliance with the exchange's requirements.
- (iii) Upon approval by the KLSE, the circular to shareholders is to be sent out and an announcement made in the local press with the same circular date. The circular specifies the venue and date of the EGM to be held specifically for the purpose or following the conclusion of an AGM.
- (iv) Shareholders vote at the EGM/AGM. Approval is required from at least 75% of the shareholders. The company is required to make an immediate announcement of the outcome of the vote to the KLSE. The mandate given by the shareholders is valid only for a maximum of one year or until the next AGM.

The KLSE also has a number of stipulations governing this process. The most binding of these to potential stock price reaction are;

- (i) The maximum buyback is limited to 10% of the issued and paid up capital.
- (ii) The buyback should not result in the public shareholding falling below 25%.
- (iii) The approval from shareholders should not be viewed as an indication of a definite repurchase, the BOD needs to proceed only if it wishes to carry out the purchase.
- (iv) The purchase price must not be more than 15% above the weighted average market price of the shares for a period of 5 market days immediately prior to the purchase.

Finally, the KLSE requires that the exchange be informed of all purchases by 6.30 p.m. of the same day. The exchange is also to be notified of the highest, lowest and average prices paid, the total amount of funds used and how the repurchased shares are to be treated, cancelled, retained or some combination.

It should be obvious that each of these stipulations is likely to limit the extent of potential price reaction.

In particular, stipulations (i) and (iv), which limit the proportion of outstanding shares that can be repurchased and the price at which they can be repurchased can be expected to dampen price reaction. These stipulations appear to be much more binding and quite unlike the rules governing repurchases in developed markets such as the US.

3.2: *Data & Methodology*

As was mentioned earlier, this study has a total sample size of 131 Malaysian public listed companies. These were essentially companies that had obtained shareholder approval for stock repurchase at EGMs or AGMs. Recall, that on attaining shareholder approval, the KLSE requires the public announcement of the intended stock buyback. Of the 131 companies, 112 were Main Board and 19 Second Board listed. Of these, only 38 Main Board and 5 Second Board companies followed through with actual purchase of stock. The study covers the period September 1997¹ to 30th June 2001. The sample list of firms and announcement dates are shown in Table A in Appendix.

As with most previous studies of stock repurchases, we use the Event-Study methodology. Daily price data for sample companies for a period of 150 trading days before and 100 days post announcement was sourced from Bloomberg. In identifying the event dates (EGM, Announcement date, actual purchase dates), several sources were used. These were, the KLSE, Price Waterhouse Coopers, Bloomberg and various business magazines.

3.2.1: *Research Design*

Given our research questions and our sample which constitutes both main and second board companies and companies that merely announced and those that did actually repurchase, we had to divide our sample data. Accordingly we divided our sample into 4 groups. The 4 groups which we designate Type 1 to Type 4 are as follows:

- **Type 1** – Main Board companies that actually bought back their own shares (sample size = 38).
- **Type 2** – Main Board companies that only announced but did not follow through with the actual repurchase i.e. only obtained shareholders' approval (sample size = 74).
- **Type 3** – Second Board companies that actually bought back their own shares (sample size = 5).

¹ Note that Section 67A first came into effect on 1st September 1997, it was subsequently amended on November 1998.

- **Type 4** – Second Board companies that only announced but did not follow through with the actual repurchase i.e. only obtained shareholders' approval (sample size = 14).

Such a grouping enables us to carry out the cross comparisons needed to address our research questions.² The number of comparisons tested would of course vary by research question. For example, in addressing question (2), which examines whether there is any difference in price reaction between companies that cancel the repurchased shares versus those that keep them as treasury stock, we only examine the sample of companies that actually bought back the stock. Dividing them into two subgroups, those that cancelled versus treasury stock.

In using the Event Study Methodology we designate that event date; "Day 0" as the date of public announcement. Recall that KLSE regulations require announcement in the public press to coincide with the date of circular to shareholders. Thus the date of the circular (press release) is taken as announcement date.³

Though the company would need shareholder endorsement at an EGM or AGM before being authorized to repurchase, we found shareholder authorization to be a non-event. In all 100% of the cases, shareholder approval was received. It appears that such approval is automatic. The event study methodology, in examining price reaction, requires the computation of different types of returns. These being, (i) Expected Returns (ii) Abnormal Returns (iii) Cumulative Abnormal Returns, (iv) Mean Abnormal Returns and (v) Mean Cumulative Abnormal Returns. (MCAR). It is the MCAR, computed for select window periods that is used in cross comparisons. Following standard procedures, the returns were computed as follows:

(i) Expected Returns

The expected returns of each sample stock is estimated from historical daily stock price collected for a period starting from 150 trading days before the announcement date to 30 trading days before the announcement date i.e. a window period of [-150, -30).

The daily returns for each company and the KLCI index is calculated based on the daily closing prices as;

Daily Return on day $t = P_t/P_{t-1} - 1$, in % terms

² Note that no adjustment is made for market capitalization nor liquidity.

³ In a later section, we change the event date to the date of first repurchase to see if the actual buyback leads to significant price reaction.

- Where; P_t = closing price on day t
- P_{t-1} = closing price of previous day

These historical daily returns spanning the [-150, -30] period for each company is regressed against the KLCI daily return for the same period. The market model parameters α and β are estimated from the linear regression results for each company.

The expected daily return ($\hat{E} \hat{R}_{i,t}$) on day t for each sample company is given by:

$$E R_{i,t} = \alpha_i + \beta_i RM_t$$

where

$\hat{E} \hat{R}_{i,t}$ = expected daily return for company i on day t

$\alpha_i + \beta_i$ = market model parameter for company i .

RM_t = market (KLCI) return on day t .

(ii) **The abnormal return** $AR_{i,t} = R_{i,t} - \hat{E} \hat{R}_{i,t}$

where

$R_{i,t}$ = actual daily return for company i on day t

$\hat{E} \hat{R}_{i,t}$ = expected daily return for company i on day t

The daily abnormal return for all 131 sample companies are computed for a window period of [-60, +60].⁴

(iii) **Cumulative Abnormal Returns**

For each sample company, the daily cumulative abnormal return CAR for the [-60, +60] window period is computed as:-

$$CAR_{i,t} = \sum_{t=-60}^t AR_{i,t}$$

$$t = -60$$

where;

$t = -60, \dots$ Until +60; and i and = 1 to 131

(iv) **Mean Abnormal Returns**

The daily mean abnormal return on t is defined as the average abnormal return across all samples on day t . The daily mean abnormal return (MAR) can be computed as:-

$$MAR_t = \frac{\sum_{i=1}^N AR_{i,t}}{N}$$

⁴ There were 6 exceptions to [-60, +60] window period due to the recency of these companies' circular (announcement) dates (all in year 2001) and the cut-off data date of 24th July 2001.

where;

$t = -60, \dots, \text{until } +60$;

and $N = \text{no. of sample companies on day } t$.

Mean Cumulative Abnormal Returns

The mean cumulative abnormal return (MCAR) is then computed for the $[-60, +60]$ window period as:

$$MCAR_t = \frac{\sum_{i=1}^N CAR_{i,t}}{N}$$

$$= \sum_{t=1}^T MAR_t$$

where;

$t = -60, \dots, \text{until } +60$;

and $N = \text{no. of sample companies on day } t$

3.2.2: Hypothesis Testing

It should be evident that each of our research questions involves a comparison of means. The hypothesis tested in each case is that there is no significant difference in the MCARs (i) either between the samples tested or (ii) for a given sample; pre/post event.

In testing for difference of MCAR for a given sample pre/post event, the standard t-test is employed. This is used instead of z-test since the sample size for two of the sub-samples are small and the population standard deviation of all four sub-samples are not known.

The MCARs for each of the four sub-samples are evaluated for statistical significance at 5% and 10% levels for select window periods.

$$T \text{ stat} = \frac{MCAR_T}{\sqrt{\text{Var}(MCAR_T)}}$$

Where;

$MCAR_T = \text{MCAR for select window period.}$

Testing for Difference in Means of 2 sub-samples

In addition to the testing of means, another statistical test is conducted to examine if there is a significant difference between the MCAR across two sub-samples.

For example, between Type 1 and Type 2 samples (companies that actually repurchased vs. those that only announce) or between those with warrants vs those that did not.

The pooled variance t-test is used to compare for the statistical significance of the difference between the MCARs at 5% and 10% levels for select window periods.

The pooled variance t-statistics is determined as follows:-

$$\text{T-statistic} = \frac{MCAR_{Type1,T} - MCAR_{Type2,T}}{\sqrt{S_p^2(1/n_1 + 1/n_2)}}$$

Where

$MCAR_{Type1,T}$ = mean cumulative abnormal return for sub-sample Type 1

$MCAR_{Type2,T}$ = mean cumulative abnormal return for sub-sample Type 2

n_1 = 38, the sum-sample size for Type 1

n_2 = 74, the sub-sample size for Type 2

T = window periods analyzed

S_p^2 = pooled variance

$$= \frac{(n_1 - 1) S_1^2 + (n_2 - 1) S_2^2}{(n_1 - 1) + (n_2 - 1)}$$

S_1^2 = variance for $MCAR_{Type1,T}$

S_2^2 = variance for $MCAR_{Type2,T}$

Again, as in the previous case, the null hypothesis tested is that there is no difference in MCARs

SECTION 4: RESULTS & ANALYSIS

In this section we present our results and analysis/interpretation. For ease of elucidation, we present results in the order of our research questions.

4.1: Price Reaction to Repurchase Announcement

Our first research question examines the stock price reaction to the buyback announcement. We address the issue in two ways, first by means of a plot of MCARs across all 131 sample companies and second, by testing the MCAR for select window periods using the earlier mentioned t-test. Figure 1, in Appendix shows the plot of our sample companies. The figure plots the MCAR for a period of 60 days before and after announcement. The announcement day is designated 'day 0'. Visual examination of Figure 1, shows two interesting features. First, the announcement is obviously a positive event. We see substantial up movement in stock price for about 20 days following announcement. The overall price trend for the entire 60 days post announcement is certainly positive. It should be kept in mind here, that the underlying market trend is neutralized and does not influence the MCAR analysis of Figure 1. This is due to the fact that our sample companies' announcement dates were spread over a four year period from late 1997 to mid 2001.

Aside from the fact that stock prices react favorably to a buyback announcement, a second interesting feature that emerges from Figure 1 is the price dynamics around announcement. More specifically, we do not see an immediate/sharp reaction to the announcement. While prices rise steadily just after day 0, it appears that a rising trend has already been in place even before. We will explore this in greater detail when addressing the issue of information leakage. Table 1 in Appendix shows the results of our t-test for several window periods of the pooled MCAR. Given the plot in Figure 1, it should not be surprising that the positive MCAR is mostly statistically significant. The null hypothesis being tested is that the abnormal/excess return is no different from zero. As shown in Figure 1, Table 1 again confirms that most of the upmovement in price happens 15 days before and after announcement.

4.2: Stock Price reaction; Companies that bought back vs those that only announced.

Figures (2) and (3) in Appendix show the plot of the MCAR for each category of our sample. The most striking observation is that both categories of firms that only announced (Type 2 & 4), had MCARs that are generally higher than that of companies which subsequently bought back their shares. (Type 1 & 3). In particular, the Type 1 and Type 3 companies show negative MCAR in the pre announcement period. This is in contrast to the positive pre announcement MCARs shown by the companies that did not follow through with a repurchase. The earlier result that the buyback announcement led to positive reaction is borne out here. Types 1,2 & 4 all show substantial upmovement post announcement. Type 3 companies, (second board companies that actually bought back), however, appear to show little reaction to the announcement.

These observations are confirmed in Tables 2a and 2b. Taking Type 1 and Type 2, main board companies for comparison, we see that over the entire 121 day period the magnitude of up movement in the MCAR is similar. The MCAR for the -60, +60 window being 13.9% and 16.4% respectively. Both are significant at the 5% level. However, when examining the post announcement window (0, +60), we see a marked difference in the magnitude of the MCAR's increase. Type 1 companies have an MCAR which is almost twice that of Type 2 companies. We can deduce two important implications from this. The first and most obvious implication is that the repurchase announcement has a much more favourable impact on Type 1 rather than Type 2 companies. This is also borne out in the other shorter term, post announcement windows, (0, +30; 0, +15; and 0, +2). Notice too, that all the MCARs for Type 1 companies are significantly positive at the 5% level.

It is obvious from Table 2(a) that the repurchase announcement has a much more significant impact on Type 1 firms. This however begs the question; why should it be so? Recall from section 1, that an announcing firm is not binded to repurchasing its shares. Thus, on announcement at 'day 0', there is no way of telling whether a firm will actually carry out the repurchase at a future date or not. So, at announcement, there is nothing to distinguish a Type 1 firm from a Type 2 firm. Since the market cannot be reacting to an event ex-ante, we believe the more favourable reaction witnessed by Type 1 firms has to do with the extent of underpricing pre announcement. Recall from Figures (2) and (3), that pre-announcement Type 1 (and Type 3) firms generally had negative daily MCARs. This implies that unlike the Type 2 and Type 4 firms, these stocks were continuing to fall in prices pre announcement. Given the persistent fall in stock price, the repurchase announcement represents a very positive development. To see if this argument, that Type 1 and Type 3 have indeed had steeper price declines than the other two category of firms, we examined the mean percentage price decline for each category over the 6 month period 1 July 1997 to 1 Jan 1998⁵. As Table C below shows; Type 1 and Type 3 companies were indeed companies whose stocks had seen steeper declines. On a weighted basis, Type 1 and Type 3 companies had an average price decline of 49% as opposed to 32% for the other categories. These difference is statistically significant at the 5% level.

⁵ Note : July 97 was the month in which the currency crisis and stock market crash began. This six month period is just before most of the buyback announcements were made.

Table C
Absolute % Price Decline. (July 97 – Jan. 98)

Type	Category	% Price Fall
Type 1	MB, Buyback	50.34
Type 3	SB, Buyback	42.31
Type 2	MB, Ann. Only	33.12
Type 4	SB, Ann. Only	31.33
Type 1 & 3	Buyback	49.36
Type 2 & 4	Ann. Only	32.83**

MB = Main Board, SB = Second Board

*H₀ that MCAR for Type 1 & 3 = 2 & 4; is rejected at 5% level.

To conclude on our analysis thus far, companies that subsequently engaged in the buyback of their stocks witnessed a more favourable stock price reaction relative to those that only announced. These more favourable reaction is however due to the larger price declines that these stocks had experienced. These results are largely consistent with the findings of Vermaelen (1981) and Comment & Jarrell (1991) who find an immediate average positive MCAR of between 2 % to 3 % to the repurchase announcement. It should be pointed out that our Type 3 category does not appear to follow the overall pattern in MCAR of the other categories. We believe this is largely due to the small sample size of only 5 companies.

4.2.1: Announcement vs Repurchase, which has greater price impact?

To further explore the price reaction issue, we looked at what happens at the time of the actual first repurchase. We recomputed daily MCAR for Type 1 and Type 3 firms using the first *purchase date* as event 'day 0'. The results are shown in Table 3 in appendix. Comparing these results to that of the same post announcement windows of the earlier Table 2(a) and (b), we find two interesting features. First, in the case of the main board, Type 1 firms, the announcement appears to have been more important than the actual repurchase. Though the repurchase does push up prices, as shown by the positive MCARs, they are smaller than those following the announcement. For example, for the (0, +2) and (0, +60) windows, the MCAR for announcement is 2.97% and 14.31% whereas for the actual repurchase it is 2.29 % and 9.03% respectively. The second finding is that, where Type 3 companies (second board) are concerned, the opposite is true. The repurchase action has a much greater impact than the

announcement. The 15, 30 and 60 day post event windows all have significantly higher positive price reaction when compared to when only the announcement is made. For the same window periods, the MCARs post announcement continued to be negative. While the lower outstanding number of stock and lower liquidity may also be reasons, we believe 'credibility' may be also a key factor for the difference in reaction. Thus, the announcement alone does not create the kind of interest for Type 3 (second board) companies as it does for Type 1 companies. That 'credibility' could be an issue, has been documented in previous studies. Known as the *Underreaction Hypothesis*; Ikenberry, Lakonishok and Vermaelen (1995), postulate that the market often treats the repurchase announcement with skepticism. Prices only adjust slowly over time. Our results for Type 3 firms appear consistent with the Underreaction Hypothesis.

4.3: Treasury Vs Cancellation of Stock

Our third research question examines the potential difference in price reaction to companies that choose to retain purchased stock as treasury stock as opposed to those that cancel them. To assess this difference, we examined the 38 main board companies that actually repurchased their stock.⁶ Of the 38, 27 companies kept the repurchased stock for treasury purposes while 6 others, cancelled them. The remaining 5 main board companies chose to do both. These 5 were therefore dropped. Tables 4(a) and (b) show the daily MCAR for the respective windows. Since a cancellation would result in a permanent reduction in the number of stocks outstanding, one should expect a more favourable reaction, relative to treasury stock, which would only have a temporary reduction if at all. Table 4(b) shows our test for difference in MCAR between the two. There clearly is no difference in the MCAR of both sets. Given the likely change in the number of stocks, stock valuation should be different for companies that choose to cancel. We believe the muted impact shown by our results is due to two reasons. First and foremost is the KLSE regulation that limits repurchases to a maximum 10 % of outstanding stocks. Second, given the regulation on daily price impact, repurchases are always staggered and can be carried out over a long period. Thus, even our longest, 60 day window may not be sufficient to capture the impact of these staggered later repurchases.

4.4: Existence of Warrants on Price Reaction

As was argued in Section 2, the existence of warrants can be expected to temper the potential movement in a stock's price resulting from a repurchase announcement. This has to do with the fact that

⁶ The five second board companies were ignored given the small sample size of those that chose to keep as treasury stock or cancel. (3 vs. 2)

warrants, upon their exercise would cause dilution given that new stocks would be issued. As such, in relative terms, stocks without warrants ought to react more positively compared to those with warrants.

Our results, shown in Tables 5 (a) and (b), appear to be consistent with this expectation. 14 of 38 main board stocks that repurchased had warrants. The other 24 did not. For almost all the window periods examined, stocks with warrants had lower MCARs. When the MCARs were tested for difference using the pooled t-test, only 2 windows were significant. The others, though higher for stocks without warrants, were not significantly so.

4.5: Stock Price Reaction; Main Vs. Second Board

Fig. 4 and Table 6 show our analysis of the relative stock price reaction of main versus Second Board companies. Fig. 4 shows the repurchase announcement to be more favourable overall for second board firms. As the plot of pooled MCARs show, second board firms have higher MCARs throughout the 60 days before and after announcement. This is borne out in Table 6 which shows the $(-60, +60)$ window to be statistically significant. The 60 days post announcement also shows significantly higher MCAR for second board firms. The pooled variance t-test however, does not show statistical significance for any of the other windows.

4.6: Information Leakage pre Announcement

Our final research question evaluates price behaviour for evidence of information leakage. Since a stock repurchase is a positive event, information leakage and/or insider trading if present, should lead to price increases *prior* to the public announcement. We therefore examine our MCAR results for the window periods prior to announcement. Re examining Fig. 1 for the period just before day 0, we do indeed see a steady build up of prices from about day -20. The abnormal returns as portrayed by MCAR is approximately 4% for that 20 day period. Interestingly, neither the announcement day itself, nor the two days immediately following, show much of the spike in stock prices that one would expect if the repurchase announcement was truly a "surprise". Table 1, which shows the statistical test of Figure 1, by window periods, confirms this. Every one of the 4 pre announcement window periods $(-60, -30, -15, -5)$ all have MCARs that are statistically significant. And, as we saw in Fig. 1, the $(0, +2)$ window which includes the announcement day and 2 days following is not statistically significant. It appears that the market had clearly expected the impending announcement. These results seem consistent with the findings of Obiyathulla & Khameel (1996) who show a similar buildup in cumulative abnormal returns, just prior to the announcement of bonus stock issues.

On a relative basis, when main and second board firms are compared, though statistically insignificantly, second board sample firms show a higher magnitude of MCAR buildup pre announcement⁷. Both Fig. 4 and Table 6 confirm this. Thus, going by pre announcement price dynamics, it appears that there is evidence of information leakage.

SECTION 5: SUMMARY AND CONCLUSION

This study examined several key issues related to stock repurchases by Malaysian listed companies. A total of 131 listed companies that announced repurchases over a 4 year period were examined. Of the 131 companies, 43 companies followed up their announcement with actual repurchase. The study emphasized the stock price reaction to the buyback announcement. Comparisons were also made of the price reaction given the different features of the announcing companies.

Our findings show that the buyback announcement is viewed positively. Stock prices react favourably to the announcement. Relative to main board firms, we found second board firms to react more favourably. This is line with Ikenberry et.al. (1995) whose study of US stock repurchases, finds that low market capitalization firms react more favourably. Surprisingly, the announcement appears to have a more prominent price impact than the actual repurchase. Our findings from comparison of Type 1 and Type 2 firms also confirm the findings of Comment & Jarrel (1991) who find that companies repurchasing had experienced steeper stock price declines. Our Type 1 firms which repurchased had experienced steeper price declines than Type 2 firms that only announced.

Contrary to expectations, we did not find meaningful difference in the price reaction of companies that chose to cancel the repurchased stocks as opposed to those that kept them as treasury stock. Stocks with warrants had a somewhat more subdued price reaction relative to those that did not. Though this is in line with expectation, the statistical significance was mixed. In examining the pre announcement price behavior, our results show evidence of information leakage. There appears to be a buildup in price (MCARs) approximately 20 trading days or one calendar month *before* announcement. This leakage seems more prominent for second board firms.

Overall, our findings are largely consistent with the previous studies cited. Most US based studies of stock repurchase cite the importance of the percentage of stocks repurchased as being a key determinant

⁷ See the pre announcement windows of Table 6..

of price reaction. The percentage repurchased is shown to be positively correlated with the magnitude of price appreciation. Given Malaysian regulation that limits the total repurchase to a maximum 10% of stocks outstanding, it is apparent that the overall price increases will undoubtedly be limited.

Recall that three hypothesis have been put forth to explain the favourable price reaction to stock repurchases. We believe that two of the hypothesis may be applicable in explaining our results. The Signaling or Information Hypothesis is certainly congruent with our findings. The sample stocks had indeed fallen substantially pre announcement but had increased to a higher level post announcement. If management was signaling undervaluation, the market appears to have picked up the cue. The second hypothesis, the Personal Tax Saving Hypothesis also predicts a reaction in line with our findings. Infact, this hypothesis may be even more relevant in the Malaysian case, given that the capital gains tax is not just lower but is zero. Thus, the after tax saving in the choice between returning cash to shareholders by means of dividends or repurchase ought to be larger in Malaysia. While these two hypothesis are relevant, we do not think the Expropriation or Wealth Transfer Hypothesis is relevant. This, due to the fact that Malaysian firms are not allowed to use borrowed funds to repurchase stock. Thus, no expropriation from bond holders to shareholders can occur as a result of increased riskiness.

So, are stock repurchases useful? From a public policy viewpoint, we believe allowing repurchases is sensible and does have benefits. In particular, it may be a more sensible way out for cash rich firms in mature industries. For such firms, finance theory would suggest that stock repurchase is more sensible than trying to rejuvenate their growth by diversifying into other industries. Studies have shown that diversification more often leads to value destruction not creation. Thus, regulation preventing stock repurchases may be nudging firms in precisely that direction. Finally, stock repurchases enable firms wanting to optimize their capital structure, to do so without taking on additional debt. For example, a firm wanting to increase its Debt-Equity ratio, can do so by means of a stock repurchase rather than add debt to its capital structure. While large dividend payments could also achieve the same result, dividends would be less efficient in that, shareholders would be burdened by larger tax bills.

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APPENDIX A

LIST OF PUBLIC-LISTED COMPANIES INVOLVED IN SHARE BUYBACK EXERCISE AND ANNOUNCEMENT DATES.

TYPE 1 - MAIN BOARD COMPANIES THAT REPURCHASED STOCK

NO.	NAME OF COMPANY	ANNOUNCEMENT DATE	EGM/AGM DATE	FIRST PURCHASE DATE
1	ACP Industries Bhd	25-Feb-98	19-Mar-98	26-May-98
2	AIC Corporation Bhd	13-Nov-98	8-Dec-98	13-Jun-01
3	Amway (Malaysia) Holdings Bhd	12-Dec-97	12-Jan-98	22-May-98
4	Ancom Bhd	21-Oct-97	12-Nov-97	28-Nov-97
5	Batu Kawan Bhd	10-Jan-98	17-Feb-98	18-Nov-99
6	Berjaya Sports Toto Bhd	26-Feb-99	15-Mar-99	20-Sep-99
7	Bolton Bhd	4-Feb-98	26-Feb-98	16-Feb-01
8	Carlsberg Brewery Malaysia Bhd	30-Mar-98	23-Apr-98	11-Aug-99
9	Chemical Company of Malaysia Bhd	27-Mar-98	23-Apr-98	27-Aug-98
10	Choo Bee Metal Industries Bhd	29-May-98	26-Jun-98	28-Jan-99
11	Commerce Asset-Holding Bhd	14-Apr-98	8-May-98	26-Dec-00
12	Hap Seng Consolidated Bhd	2-Nov-98	17-Nov-98	29-Dec-98
13	Hong Leong Industries Bhd	10-Dec-97	5-Jan-98	27-Aug-00
14	Hume Industries (Malaysia) Bhd	8-Oct-98	26-Oct-98	30-Sep-99
15	Hunza Properties Berhad	28-Mar-01	12-Apr-01	25-May-01
16	Hwang-DBS (Malaysia) Bhd	12-May-00	7-Jun-00	5-Dec-00
17	IOI Corporation Bhd	28-Oct-99	18-Nov-99	1-Dec-99
18	Jaya Tiasa Holdings Bhd	23-Sep-97	15-Oct-97	20-Jan-98
19	Kejora Harta Bhd	3-Jul-98	29-Jul-98	19-Apr-00
20	Kuala Lumpur Kepong Bhd	10-Jan-98	17-Feb-98	29-Oct-98
21	Malaysian Pacific Industries Bhd	22-Dec-98	15-Jan-99	5-Mar-99
22	Nanyang Press (Malaya) Bhd	12-Oct-99	27-Oct-99	16-Dec-99
23	Oriental Holdings Bhd	4-Jun-99	28-Jun-99	7-Sep-00
24	OSK Holdings Bhd	25-Nov-00	18-Dec-00	18-Dec-00
25	OYL Industries Bhd	7-Sep-98	22-Sep-98	5-Mar-99
26	Padiberas Nasional Bhd	12-May-98	3-Jun-98	29-Sep-98
27	Phileo Allied Berhad	15-Nov-00	8-Dec-00	6-Feb-01
28	Pilecon Engineering Bhd	4-Nov-97	26-Nov-97	4-Dec-97
29	PK Resources Bhd	3-Dec-97	30-Dec-97	3-Mar-98
30	Reliance Pacific Bhd	1-Nov-97	24-Nov-97	11-Dec-97
31	Sarawak Enterprise Corporation Bhd	17-Nov-97	10-Dec-97	15-Dec-97
32	Scientex Incorporated Bhd	3-Dec-98	18-Dec-98	14-Jan-99
33	United Malayan Land Bhd	7-Oct-98	22-Oct-98	11-Mar-99
34	V.S. Industry Bhd	9-Dec-00	6-Jan-01	9-Mar-01
35	WTK Holdings Bhd	8-Jun-98	30-Jun-98	19-Jan-01
36	YTL Cement Bhd	23-Jun-00	15-Jul-00	30-Nov-00
37	YTL Corporation Bhd	8-Sep-00	2-Oct-00	21-Nov-00
38	YTL Power International Bhd	23-Jun-00	15-Jul-00	11-Sep-00

TYPE 2 - MAIN BOARD COMPANIES THAT ONLY ANNOUNCED BUT DID NOT BUYBACK

NO.	NAME OF COMPANY	Announ. Date	EGM/AGM DATE
1	Aluminium Company of Malaysia Bhd	23-Nov-99	15-Dec-99
2	Amsteel Corporation Bhd	22-Nov-97	17-Dec-97
3	Antah Holdings Bhd	12-Nov-97	4-Dec-97
4	Asia Pacific Land Bhd	6-Apr-98	4-May-98
5	Asiatic Development Berhad	5-Jun-00	28-Jun-00
6	Bandar Raya Developments Bhd	13-Oct-97	6-Nov-97
7	Bintai Kinden Corporation Bhd	15-May-01	30-May-01
8	Brisdale Holdings Bhd	1-Dec-97	23-Dec-97
9	Bukit Katil Resources Bhd	24-Nov-00	20-Dec-00
10	Bumi Armada Bhd	29-May-01	21-Jun-01
11	Cahya Mata Sarawak Bhd	2-Mar-98	24-Mar-98
12	Camerlin Group Bhd	5-May-98	1-Jun-98
13	CI Holdings Bhd	8-Oct-98	26-Oct-98
14	CSM Bhd (old name Cold Storage (Malaysia) Bhd)	3-Feb-98	25-Feb-98
15	Cycle & Carriage Bintang Bhd	9-Apr-98	5-May-98
16	Daiman Bhd	28-Oct-99	1-Dec-99
17	Datuk Keramat Holdings Bhd	6-Oct-97	28-Oct-97
18	Delloyd Ventures Bhd	2-Jun-98	25-Jun-98
19	DNP Holdings Bhd	29-May-01	21-Jun-01
20	Eastern Pacific Industrial Corporation Bhd	2-Jun-98	24-Jun-98
21	Ekran Bhd	27-Oct-97	19-Nov-97
22	FA Peninsular Bhd	27-Jul-98	27-Aug-98
23	Far East Holdings Bhd	3-Jun-98	30-Jun-98
24	Gamuda Bhd	11-Feb-98	5-Mar-98
25	Genting Bhd	6-Jun-00	29-Jun-00
26	George Town Holdings Bhd	6-Oct-97	28-Oct-97
27	Golden Hope Plantations Bhd	16-Apr-01	8-May-01
28	Gopeng Bhd	16-Apr-98	9-May-98
29	Guthrie Ropel Bhd	15-May-99	10-Jun-99
30	Hicom Holdings Bhd	25-Feb-98	23-Mar-98
31	Highlands & Lowlands Bhd	19-May-99	17-Jun-99
32	Hong Leong Properties Bhd	23-Dec-97	16-Jan-98
33	Hume Cemboard Berhad	12-Oct-99	27-Oct-99
34	Inch Kenneth Kajang Rubber Public Limited Company	28-May-98	29-Jun-98
35	Inter-Pacific Ventures Bhd (old name Innovest)	31-Mar-98	30-Apr-98
36	Keck Seng (Malaysia) Bhd	7-Jun-99	29-Jun-99
37	Kedah Cement Holdings Bhd	9-Jan-98	6-Feb-98
38	Konsortium Logistik Bhd (old name Kon. Perkapalan)	15-Sep-98	7-Oct-98
39	Kumpulan Guthrie Bhd	30-Sep-97	22-Oct-97
40	Leader Universal Holdings Bhd	5-Jun-98	29-Jun-98
41	Lien Hoe Corporation Bhd	8-Feb-98	5-Mar-98
42	Lion Land Bhd	24-Nov-97	16-Dec-97
43	MAA Holdings Bhd	15-May-00	12-Jun-00
44	Magnum Corporation Bhd	10-Oct-97	5-Nov-97
45	Malayan Cement Bhd	8-Jan-98	6-Feb-98

TYPE 2 - MAIN BOARD COMPANIES THAT ONLY ANNOUNCED BUT DID NOT BUYBACK

(continued)

NO.	NAME OF COMPANY	Announ. Date	EGM/AGM DATE
46	Malayan United Industries Bhd	4-May-98	27-May-98
47	Malpac Holdings Bhd	29-May-01	21-Jun-01
48	Mamee-Double Decker (M) Bhd	6-Jun-00	22-Jun-00
49	Maruichi Malaysia Steel Tube	16-Jun-00	11-Jul-00
50	Mega First Corporation Bhd	26-Dec-97	20-Jan-98
51	Metrojaya Bhd	1-Aug-98	25-Aug-98
52	Metroplex Bhd	7-Jul-98	30-Jul-98
53	MUI Properties Bhd	4-May-98	27-May-98
54	Multi-Purpose Holdings Bhd	9-Oct-97	3-Nov-97
55	Mycom Bhd	24-Nov-97	18-Dec-97
56	North Borneo Corporation Bhd	21-Nov-97	12-Dec-97
57	Olympia Industries Bhd	24-Nov-97	18-Dec-97
58	Pacific & Orient Bhd	7-Jan-00	28-Jan-00
59	Pan Malaysian Industries Bhd	7-Sep-98	29-Sep-98
60	Pan Pacific Asia Bhd	3-Jun-98	25-Jun-98
61	Pasdec Holdings Bhd	1-Jun-98	30-Jun-98
62	Press Metal Bhd	11-May-99	2-Jun-99
63	Public Bank Bhd	13-Feb-01	8-Mar-01
64	Public Finance Bhd	12-Feb-01	7-Mar-01
65	Putera Capital Bhd	11-Mar-98	2-Apr-98
66	Resorts World Bhd	6-Jun-00	29-Jun-00
67	Road Builder (M) Holdings Bhd	4-Dec-97	30-Dec-97
68	S P Setia Bhd	13-Dec-97	5-Jan-98
69	Suremax Group Bhd	22-Jun-01	17-Jul-01
70	Talam Corporation Bhd	3-Apr-01	26-Apr-01
71	Tanco Holdings Bhd	11-Jun-98	26-Jun-98
72	Tasek Corporation Bhd	13-Oct-98	7-Nov-98
73	Tekala Corporation Bhd	5-Sep-98	28-Sep-98
74	United Malacca Rubber Estates, Bhd	28-Aug-00	20-Sep-00

TYPE 3 - SECOND BOARD COMPANIES THAT REPURCHASED.

NO.	NAME OF COMPANY	CIRCULAR DATE	EGM/AGM DATE	FIRST PURCHASE DATE
1	Amtel Holdings Bhd	12-Dec-97	9-Jan-98	10-Jun-98
2	Hunza Consolidation Bhd	27-Apr-98	20-May-98	19-Apr-99
3	Linear Corporation Bhd	12-Dec-97	8-Jan-98	13-Jan-98
4	Multi-Code Electronics Industries (M) Bhd	5-Mar-98	27-Mar-98	23-Apr-98
5	Paragon Union Bhd	24-Nov-00	18-Dec-00	2-Jan-01

TYPE 4 - SECOND BOARD COMPANIES THAT ONLY ANNOUNCED BUT DID NOT BUYBACK

NO.	NAME OF COMPANY	CIRCULAR DATE	EGM/AGM DATE
1	Aktif Lifestyle Corporation Bhd	10-Jun-98	25-Jun-98
2	Computer Systems Advisers (M) Bhd	12-May-98	8-Jun-98
3	Hing Yiap Knitting Bhd	2-Dec-99	24-Dec-99
4	Malaysian Merchant Marine Bhd	4-Nov-98	27-Nov-98
5	Measurex Corporation Bhd	26-Aug-98	10-Sep-98
6	Merces Holdings Bhd (old name CCM Bioscience Bhd)	20-Mar-98	21-Apr-98
7	Ngiu Kee Corporation (M) Bhd	23-Apr-98	25-May-98
8	Promto Bhd	29-May-98	22-Jun-98
9	Rubberex Corporation (M) Bhd	21-Mar-01	13-Apr-01
10	Sarawak Concrete Industries Bhd	1-Oct-98	26-Oct-98
11	Tajo Bhd	20-Nov-97	12-Dec-97
12	Timberwell Bhd	20-Aug-98	12-Sep-98
13	Transmile Group Bhd	31-May-01	28-Jun-01
14	TSH Resources Bhd	10-Jul-98	1-Aug-98

Table 1

Mean Cumulative Abnormal Return by Window Period for All Sample Companies (Main Board and Second Board)

Window Period	Tests on Mean Cumulative Abnormal Return (MCAR)		
	MCAR	t-stats	Statistical Significance
[-60, + 60]	19.1671%	4.5628	Significant at 5%
[-30, + 30]	9.0908%	2.6305	Significant at 5%
[-15, + 15]	8.3290%	3.5467	Significant at 5%
[-5, + 5]	3.4256%	2.6437	Significant at 5%
[-2, + 2]	1.4721%	1.6774	Significant at 10%
[0, + 2]	1.0670%	1.4467	Not Sig.
[0, + 15]	4.7194%	3.4535	Significant at 5%
[0, + 30]	4.5185%	1.6717	Significant at 10%
[0, + 60]	12.7886%	4.2836	Significant at 5%
[-60, 0]	6.7554%	2.5357	Significant at 5%
[-30, 0]	4.9492%	2.3241	Significant at 5%
[-15, 0]	3.9865%	2.2050	Significant at 5%
[-5, 0]	1.4861%	1.6936	Significant at 10%

NOTE :

Sample size for All Types sample = 131

z-critical = +/- 1.64 for 10% sig. level and +/- 1.96 for 5% level (2-tailed test)

Table 2 (a)
Mean Cumulative Abnormal Return by Window Period for Main Board sub-
samples Type 1 and 2

Window Period	Tests on Mean Cumulative Abnormal Return (MCAR)		
	MCAR	t-stats	Statistical Significance
Type 1			
[-60, + 60]	13.89%	2.1376	Significant at 5%
[-30, + 30]	9.66%	1.9383	Significant at 10%
[-15, + 15]	7.47%	2.3321	Significant at 5%
[-5, + 5]	4.07%	2.6805	Significant at 5%
[-2, + 2]	2.82%	2.2031	Significant at 5%
[0, + 2]	2.97%	2.1356	Significant at 5%
[0, + 15]	5.76%	2.3643	Significant at 5%
[0, + 30]	7.23%	2.0652	Significant at 5%
[0, + 60]	14.31%	2.9910	Significant at 5%
[-60, 0]	0.43%	0.1303	Not Sig.
[-30, 0]	3.29%	0.9734	Not Sig.
[-15, 0]	2.58%	0.9777	Not Sig.
[-5, 0]	1.33%	1.0372	Not Sig.
Type 2			
[-60, + 60]	16.34%	2.6253	Significant at 5%
[-30, + 30]	5.57%	1.0869	Not Sig.
[-15, + 15]	7.46%	2.0792	Significant at 5%
[-5, + 5]	2.80%	1.3933	Not Sig.
[-2, + 2]	0.55%	0.4088	Not Sig.
[0, + 2]	-0.01%	-0.0144	Not Sig.
[0, + 15]	3.39%	1.8359	Significant at 10%
[0, + 30]	1.30%	0.3078	Not Sig.
[0, + 60]	7.93%	1.7969	Significant at 10%
[-60, 0]	8.66%	1.8359	Significant at 10%
[-30, 0]	4.52%	0.3078	Not Sig.
[-15, 0]	4.32%	1.7969	Significant at 10%
[-5, 0]	1.58%	2.3473	Significant at 5%

NOTE :

Sample size for Type 1 subsample = 38

t-critical = +/- 1.6871 for 10% sig. level and +/- 2.0262 for 5% level (2-tailed test), d.o.f = 37

Sample size for Type 2 subsample = 73

t-critical = +/- 1.666 for 10% sig. level and +/- 1.993 for 5% sig. level (2-tailed test), d.o.f = 73

Table 2 (b)
Mean Cumulative Abnormal Return by Window Period for Second Board sub-
samples; Type 3 and 4

Window Period	Tests on Mean Cumulative Abnormal Return (MCAR)		
	MCAR	t-stats	Statistical Significance
Type 3			
[-60, + 60]	-11.38%	-0.9745	Not Sig.
[-30, + 30]	-4.57%	-0.9557	Not Sig.
[-15, + 15]	-1.95%	-0.2681	Not Sig.
[-5, + 5]	-1.62%	-0.5072	Not Sig.
[-2, + 2]	-1.70%	-0.4792	Not Sig.
[0, + 2]	-3.13%	-1.1201	Not Sig.
[0, + 15]	-0.42%	-0.0544	Not Sig.
[0, + 30]	-5.68%	-1.5827	Not Sig.
[0, + 60]	-6.05%	-1.2212	Not Sig.
[-60, 0]	-6.06%	-2.2826	Significant at 10%
[-30, 0]	0.38%	0.1679	Not Sig.
[-15, 0]	-2.27%	-1.7669	Not Sig.
[-5, 0]	1.37%	1.6290	Not Sig.
Type 4			
[-60, + 60]	59.54%	4.6745	Significant at 5%
[-30, + 30]	30.98%	2.8537	Significant at 5%
[-15, + 15]	18.91%	3.1187	Significant at 5%
[-5, + 5]	6.76%	1.6821	Not Sig.
[-2, + 2]	3.81%	2.3441	Significant at 5%
[0, + 2]	3.13%	2.1011	Significant at 10%
[0, + 15]	10.74%	2.6346	Significant at 5%
[0, + 30]	17.74%	2.5244	Significant at 5%
[0, + 60]	41.24%	5.1518	Significant at 10%
[-60, 0]	18.42%	4.3090	Significant at 5%
[-30, 0]	13.35%	3.6619	Significant at 5%
[-15, 0]	8.29%	3.7727	Significant at 5%
[-5, 0]	1.48%	0.9104	Not Sig.

NOTE :

Sample size for Type 3 subsample = 5
t-critical = +/- 2.1318 for 10% sig level and +/- 2.7764 for 5% sig level (2-tailed test), d.o.f = 4
Sample size for Type 4 subsample = 14
t-critical = +/- 1.7709 for 10% sig level and +/- 2.1604 for 5% sig level (2-tailed test), d.o.f = 13

Table 3 : MCAR with first buyback date as Day "0"

Window Period	Mean Cumulative Abnormal Return (MCAR)			
	Type 1	t-stats	Type 3	t-stats
[0,+2]	2.29% *	1.7277	-1.08%	-0.1999
[0,+15]	2.89%	1.2548	7.72%	0.6485
[0,+30]	1.35%	0.4660	7.76%	0.4351
[0,+60]	9.03% *	1.8000	24.40%	1.0052

Note:

* denotes significant at 10% level while ** denotes significant at 5% level.

Table 4(a)

Main Board Companies that Repurchased.

(A Comparison of those that kept as Treasury Shares vs those that Cancel Shares)

Testing of Statistical Significance in MCAR

Window Period	Tests on Mean Cumulative Abnormal Return (MCAR)		
	MCAR	t-stats	Statistical Significance
Keep as TS			
[-60, + 60]	19.33%	2.5291	Significant at 5%
[-30, + 30]	10.58%	1.9733	Significant at 10%
[-15, + 15]	7.32%	2.2613	Significant at 5%
[-5, + 5]	5.22%	2.9223	Significant at 5%
[-2, + 2]	3.48%	2.1860	Significant at 5%
[0, + 2]	3.96%	2.1717	Significant at 5%
[0, + 15]	6.66%	2.2516	Significant at 10%
[0, + 30]	8.73%	1.9970	Significant at 5%
[0, + 60]	18.87%	3.4256	Significant at 5%
[-60, 0]	1.32%	0.3155	Not Sig.
[-30, 0]	2.72%	0.8823	Not Sig.
[-15, 0]	1.53%	0.7316	Not Sig.
[-5, 0]	1.11%	1.3546	Not Sig.
Cancel Shares			
[-60, + 60]	13.41%	0.7579	Not Sig.
[-30, + 30]	22.69%	1.2050	Not Sig.
[-15, + 15]	14.09%	1.0622	Not Sig.
[-5, + 5]	1.65%	0.4032	Not Sig.
[-2, + 2]	3.36%	1.3657	Not Sig.
[0, + 2]	2.36%	1.2434	Not Sig.
[0, + 15]	6.28%	1.2263	Not Sig.
[0, + 30]	10.61%	1.3329	Not Sig.
[0, + 60]	12.53%	1.0847	Not Sig.
[-60, 0]	3.59%	0.4022	Not Sig.
[-30, 0]	14.79%	0.9136	Not Sig.
[-15, 0]	10.52%	0.7385	Not Sig.
[-5, 0]	3.19%	0.4265	Not Sig.

NOTE :

Sample size for TS subsample = 27

t-critical = +/- 1.706 for 10% and +/- 2.056 for 5% significance level (2-tailed test), d.o.f = 26

Sample size for CS subsample = 6

t-critical = +/- 2.015 for 10% and +/- 2.571 for 5% significance level (2-tailed test), d.o.f = 5

Table 4 (b)

Testing of Differences in MCAR (Treasury Vs Stock Cancellation)

Window Period	MCAR		Pooled Variance t-test	
	Keep as TS	Cancel Shares	t-stats	Significance
[-60, + 60]	19.33% **	13.41%	0.3252	Not Sig.
[-30, + 30]	10.58% *	22.69%	-0.8504	Not Sig.
[-15, + 15]	7.32% **	14.09%	-0.7422	Not Sig.
[-5, + 5]	5.22% **	1.65%	0.8421	Not Sig.
[-2, + 2]	3.48% **	3.36%	0.0344	Not Sig.
[0, + 2]	3.96% **	2.36%	0.3990	Not Sig.
[0, + 15]	6.66% **	6.28%	0.0553	Not Sig.
[0, + 30]	8.73% *	10.61%	-0.1870	Not Sig.
[0, + 60]	18.87% **	12.53%	0.4915	Not Sig.
[-60, 0]	1.32%	3.59%	-0.2313	Not Sig.
[-30, 0]	2.72%	14.79%	-1.2363	Not Sig.
[-15, 0]	1.53%	10.52%	-1.1587	Not Sig.
[-5, 0]	1.11%	3.19%	-0.5520	Not Sig.

Note:

* denotes significant at 10% level while ** denotes significant at 5% level

Table 5(a)

Main Board Companies that Repurchase
(A comparison of those with Warrants vs those without warrants.)
Testing of Statistical Significance in MCAR

Window Period	Tests on Mean Cumulative Abnormal Return (MCAR)		
	MCAR	t-stats	Statistical Significance
<u>with Warrants</u>			
[-60, + 60]	-1.70%	-0.2405	Not Sig.
[-30, + 30]	-1.89%	-0.2685	Not Sig.
[-15, + 15]	5.11%	1.0556	Not Sig.
[-5, + 5]	4.21%	1.4391	Not Sig.
[-2, + 2]	4.39%	1.4754	Not Sig.
[0, + 2]	4.66%	1.3513	Not Sig.
[0, + 15]	5.57%	1.1043	Not Sig.
[0, + 30]	1.93%	0.3447	Not Sig.
[0, + 60]	4.12%	0.6544	Not Sig.
<u>No Warrant</u>			
[-60, + 60]	22.98%	2.5504	Significant at 5%
[-30, + 30]	16.40%	2.5455	Significant at 5%
[-15, + 15]	8.86%	2.0744	Significant at 5%
[-5, + 5]	3.99%	2.2843	Significant at 5%
[-2, + 2]	1.91%	1.7704	Significant at 10%
[0, + 2]	1.98%	2.1140	Significant at 5%
[0, + 15]	5.87%	2.2635	Significant at 5%
[0, + 30]	10.33%	2.3205	Significant at 5%
[0, + 60]	20.26%	3.1610	Significant at 5%

NOTE :

Sample size for Warrant subsample = 14

t-critical = +/- 1.771 for 10% and +/- 2.160 for 5% significance level (2-tailed test), d.o.f = 13

Sample size for No Warrant subsample = 24

t-critical = +/- 1.714 for 10% and +/- 2.069 for 5% significance level (2-tailed test), d.o.f = 23

Table 5 (b)

Testing of Differences in MCAR
(Stocks with vs without Warrants)

Window Period	MCAR		Pooled Variance t-test	
	Warrants	No Warrants	t-stats	Significance
[-60, + 60]	-1.70%	22.98% **	-1.8961	Sig. at 10%
[-30, + 30]	-1.89%	16.40% **	-1.8256	Sig. at 10%
[-15, + 15]	5.11%	8.86% **	-0.5590	Not Sig.
[-5, + 5]	4.21%	3.99% **	0.0712	Not Sig.
[-2, + 2]	4.39%	1.91% *	0.9340	Not Sig.
[0, + 2]	4.66%	1.98% **	0.9304	Not Sig.
[0, + 15]	5.57%	5.87% **	-0.0585	Not Sig.
[0, + 30]	1.93%	10.33% **	-1.1626	Not Sig.
[0, + 60]	4.12%	20.26% **	-1.6650	Not Sig.

Note:

* denotes significant at 10% level while ** denotes significant at 5% level

Table 6

Test of Differences in MCAR. Main Board Vs Second Board Sample Companies

Window Period	MCAR		Pooled Variance t-test	
	MB Type 1+2	SB Type 3+4	t-stats	Significance
[-60,+60]	15.54% **	40.53% **	-2.1218	Significant at 5%
[-30,+30]	6.96% *	21.62% **	-1.5011	Not Sig.
[-15,+15]	7.47% **	13.42% **	-0.8923	Not Sig.
[-5,+5]	3.23% **	4.55%	-0.3579	Not Sig.
[-2,+2]	1.32%	2.36%	-0.4170	Not Sig.
[0,+2]	1.00%	1.48%	-0.2299	Not Sig.
[0,+15]	4.20% **	7.80% **	-0.9288	Not Sig.
[0,+30]	3.32%	11.58% **	-1.0767	Not Sig.
[0,+60]	10.13% **	28.44% **	-2.1900	Significant at 5%
[-60, 0]	5.87% **	11.98% **	-0.8064	Not Sig.
[-30, 0]	4.10% *	9.94% **	-0.9647	Not Sig.
[-15, 0]	3.73% *	5.51% *	-0.3461	Not Sig.
[-5, 0]	1.49%	1.45%	0.0181	Not Sig.
[-2, 0]	0.78%	0.78%	0.0036	Not Sig.

Note:

* denotes significant at 10% level while ** denotes significant at 5% level

FIGURE 1
Mean Cumulative Abnormal Return for period [- 60, + 60]
for sample Companies
(N = 131)

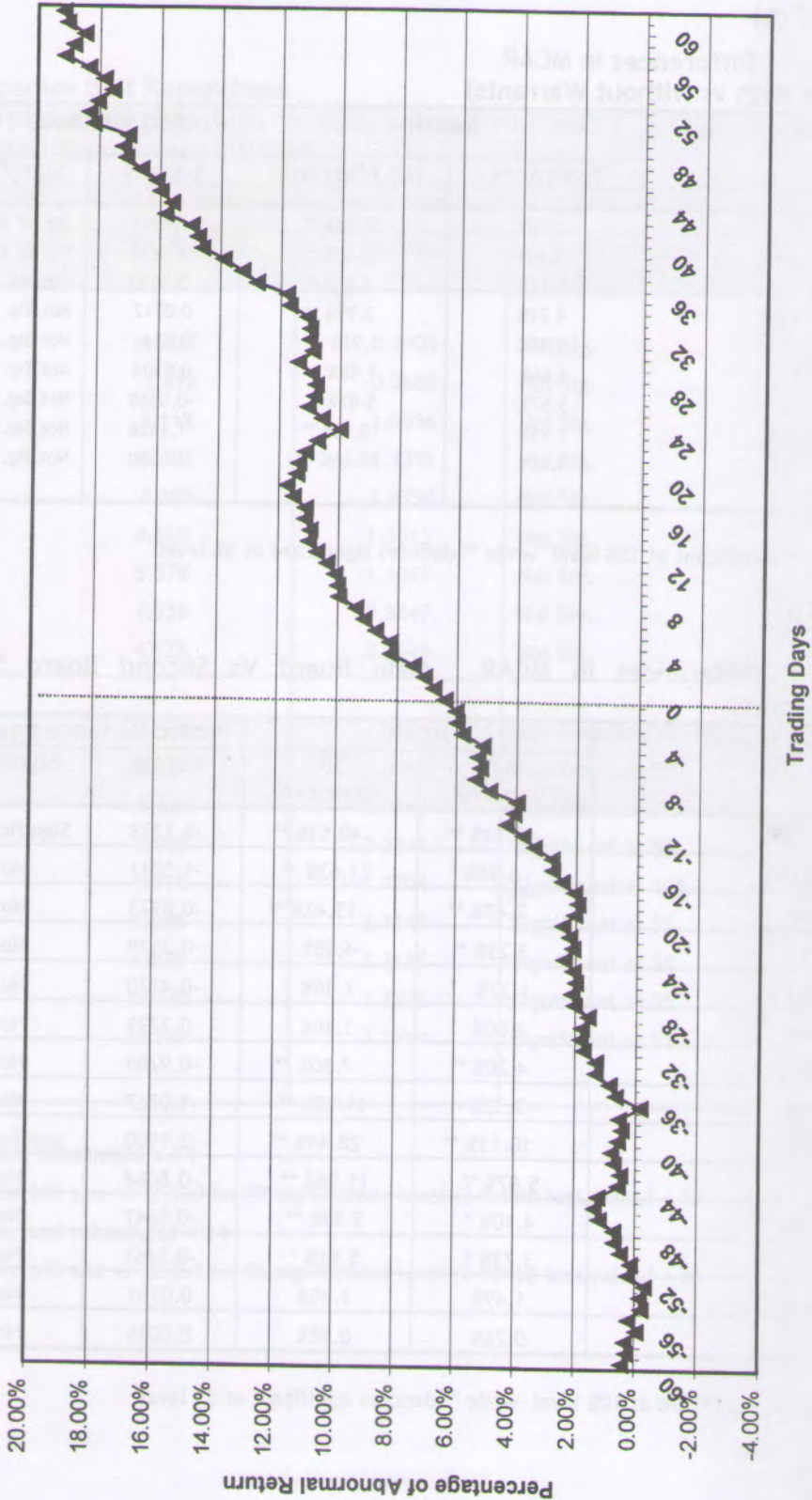


FIGURE 2

Mean Cumulative Abnormal Return for period [- 60, + 60] Comparison
of Price Reaction. Main Board Firms that Repurchased (Type 1) vs those that
only Announced. (Type 2)
($N_1 = 38, N_2 = 74, N_{1+2} = 112$)

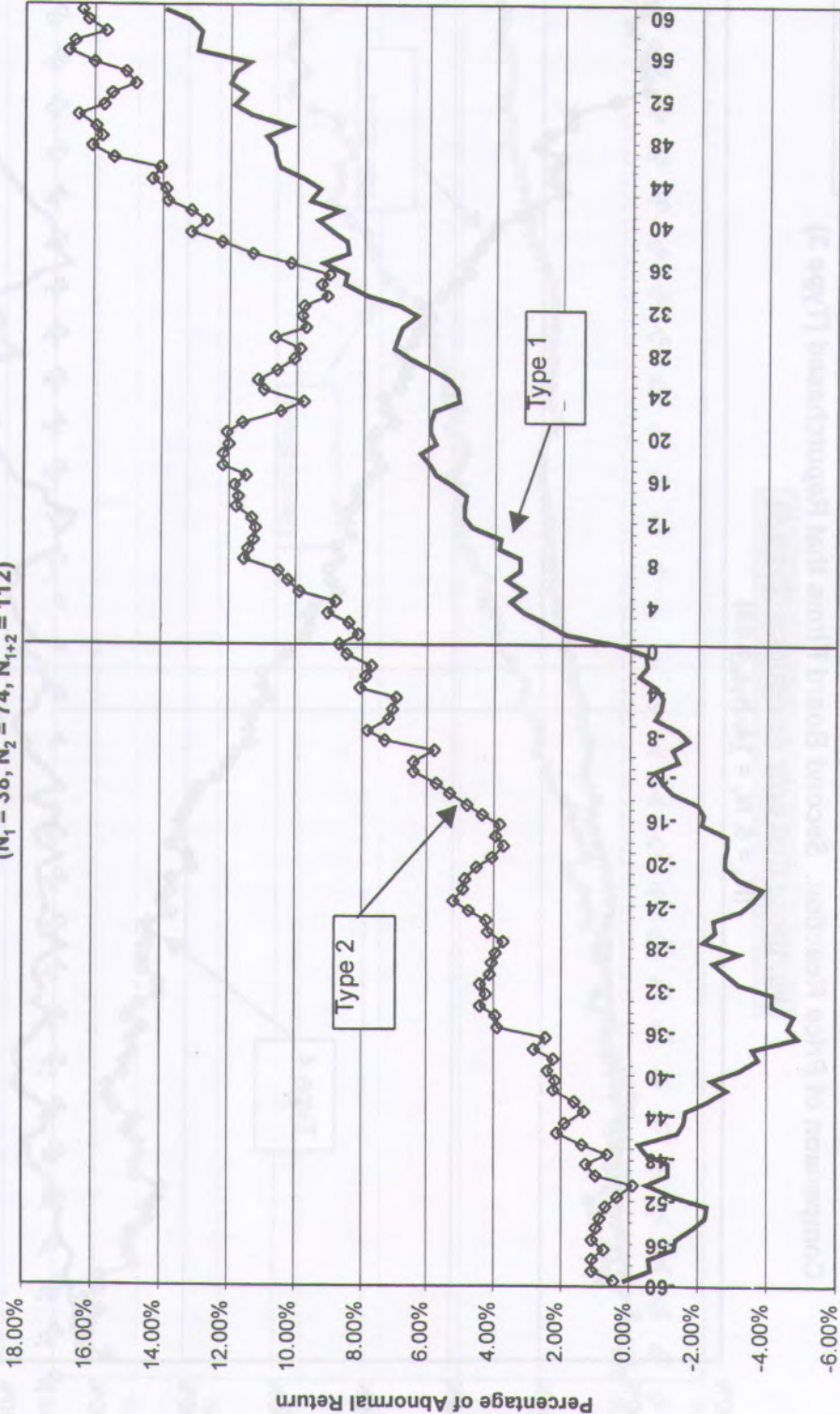


FIGURE 3

Mean Cumulative Abnormal Return for period [- 60, + 60]
Comparison of Price Reaction. Second Board Firms that Repurchased (Type 3)
vs. those that only Announce (Type 4)
($N_3 = 5, N_4 = 14, N_{3+4} = 19$)

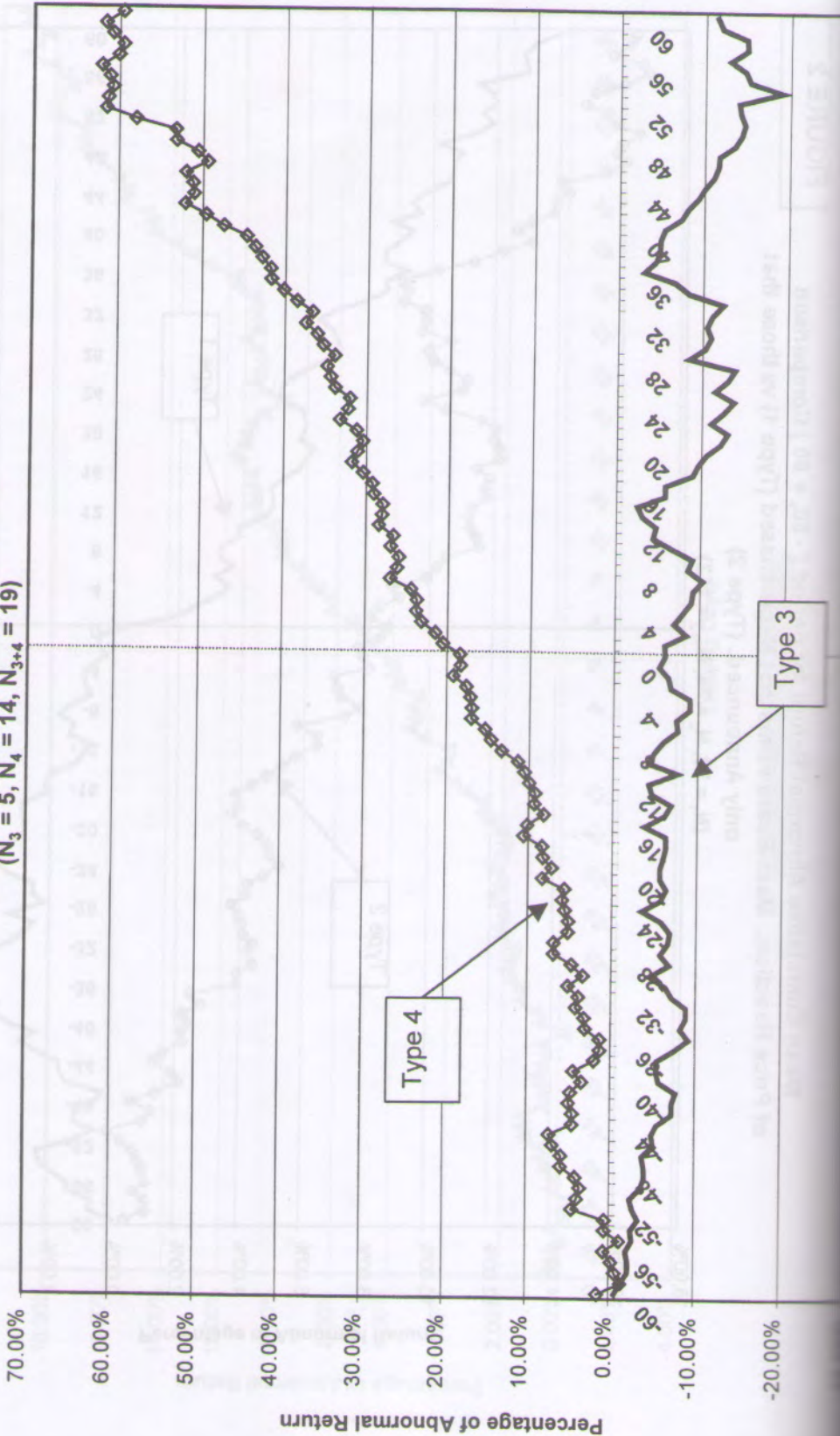


FIGURE 4

Mean Cumulative Abnormal Return for period [-60, +60]
Comparison of Price Reaction Between
All Main Board and Second Board Sample.
($N_{MB} = 112$, $N_{SB} = 19$)

