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MARKET REACTIONS TO SHARE REPURCHASE ANNOUNCEMENTS IN MALAYSIA

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ABSTRACT

This paper examines share price behaviour surrounding share repurchase announcements in the context of information asymmetry and signalling hypothesis. We use event-type analysis to examine abnormal returns around three related repurchase announcements: announcement of the board's decision, announcement of shareholder approval and announcement of actual share purchase. The results show that stock prices increase significantly in response to each of the three repurchase announcements, but there is no significant difference in the market reaction to firms that eventually make a repurchase versus firms that do not. We conclude that our results are consistent with the underpricing signalling hypothesis. Our results also show that small firms earn greater abnormal returns than large firms during each of the announcements, lending support to the information asymmetry hypothesis. Our multivariate regressions indicate that firm characteristics such as firm size, return on assets and the market-to-book ratio are found to be significantly related to the announcement-related abnormal returns. Finally, logit and probit results indicate that firms' repurchase decision depends on firm size, profitability and price changes during announcements.

Keywords: share repurchase, signalling hypothesis, information asymmetry hypothesis, announcement return, Malaysian stock market

INTRODUCTION

Share repurchase has long been a common practice in developed markets and a subject of financial studies. However, there is a noticeable scarcity of research on this topic in the Asia-Pacific markets, perhaps because it is only rather recently that share repurchases began to become important in these markets after the widespread financial liberalisation in the 1990s. For example, Australia allowed repurchases in 1989, Hong Kong in 1991, Korea and New Zealand in 1994, Japan in 1995, and Malaysia in 1997. It is interesting to note that studies of these markets show positive market reactions to repurchase announcements, which is

similar to those found for developed markets. Therefore, the existence of regulatory differences and market characteristics between developing and developed markets do not appear to lead to meaning differences in market behaviour with regard to share repurchase signalling.

This study extends the previous studies on share repurchases by studying the Malaysian stock market. Studying the Malaysian market is interesting not only because it is a relatively small and less developed market but also because of its unique repurchases regulations; therefore, such a study may provide additional insights in explaining market behaviour with respect to share repurchase. Specifically, Malaysian regulations require companies to make three announcements related to repurchase – announcement of the board's decision to repurchase, announcement of shareholder approval and announcement of actual repurchase. The specific objectives of this study are as follows: first, to study the market reaction to each of the three related repurchase announcements; second, to study whether the market is able to differentiate between firms that eventually make a repurchase versus firms that do not; third, to analyse whether market reactions to repurchase announcements are influenced by firms' specific characteristics; and fourth, to provide an initial assessment of factors that determine the likelihood that a repurchase will occur.

The contributions of this study may be summarised as follows. First, the current study of the Malaysian market represents an out-of-sample study that serves to provide valuable evidence on the market behaviour in a small and developing market. Second, local regulations require firms to make announcements of the board's decision, shareholders' approval and the actual repurchase. With these requirements, we are able to study three consecutive repurchase event for each firm. It would be interesting to observe local market reactions to these mandatory announcements. Third, this study provides initial evidence on the factors that may assist in determining whether actual repurchase will occur when a firm make the initial announcement of the board's decision and subsequently upon shareholders' approval.

LOCAL REPURCHASE REGULATIONS

In Malaysia, regulations enabling share repurchase came into effect on 1 September 1997. Shareholders' approval in a general meeting is required before a company can engage in share repurchase activities. The exchange listing rules require companies to make an immediate announcement to the stock exchange upon the board's decision to engage in share repurchases and upon shareholders' approval in a general meeting. The approval is valid for a year or until the next shareholders' annual general meeting. The actual purchase of shares, if it occurs, is not a single-day event; rather, it is spread over a period of time and may even

be extended to more than a year. Companies are allowed to repurchase a maximum of 10% of the number of shares outstanding. Companies that purchase less than 10% in a year must obtain an extension of the approval in the following general meeting.

The source of funds rules state that repurchases can be funded only by retained earnings and/or the share premium account; they may also be funded by other sources but only if sufficiently backed by retained earnings and the share premium account. Local regulations also require that repurchases be made in the open market. The listing rules for the disclosure requirement state that firms making repurchases are required to disclose the details of such transactions, such as the repurchase price and volume, to the exchange no later than 6.30 p.m. on the day that the repurchase was made. The rules further stipulate that a listed firm may purchase its own shares only at a price that is not more that 15% above the average market price for that security as calculated over the last five market days immediately prior to the purchase date. The repurchased shares may be cancelled, retained as treasury shares, or partly cancelled and partly retained. The treasury shares may be used subsequently for stock dividend distribution or an employee share option scheme or may be resold to the market.

LITERATURE REVIEW

Existing studies of share repurchases in general find a positive market reaction to repurchase announcements. These studies include Dann (1981), Vermaelen (1981), Comment and Jarrell (1991), Ikenberry, Lakonishok and Vermaelen (1995), Chan, Ikenberry and Lee (2004), and Grullon and Michaely (2004). In theory, the positive price reaction may arise for various reasons, such as gaining a tax advantage when used as a dividend substitution, increasing leverage and signalling the undervaluation of companies' equity. Other repurchase motives are less frequently mentioned: taking advantage of investing in own shares because of undervaluation, distributing excess cash as an effort to prevent take-over attempts and absorbing the dilution of shares as a result of exercising share options.

Dittmar (2000) studies various motives for share repurchase and concludes that the most relevant motives are taking advantage of share undervaluation and distributing excess cash. Jagannathan, Stephens and Weisbach (2000), and Jagannathan and Stephens (2003) study the nature and usage of repurchase and find that repurchase and dividends are independently used by firms at different times in the business cycle and by different firm characteristics. In terms of repurchase versus dividends, Dittmar (2000) finds that repurchase does not replace dividends, but Grullon and Michaely (2002) find

evidence in support of the dividend substitution hypothesis. In subsequent studies, Skinner (2008), and Von Eije and Megginson (2008) examine the U.S. and European markets, respectively, and both find an observable trend among companies utilising share repurchase in replacing dividends as a form of cash distribution to shareholders.

Despite the various motives, signalling has emerged as one of the most prevalent explanations and has likely been the most widely studied explanation. The repurchase signalling hypothesis is motivated by information asymmetry between a firm's management and investors at large, where management is assumed to have superior information regarding the firm's value compared with outside investors. Based on this premise, a firm's decision to buy back shares may be taken as a signal that its management believes that shares are undervalued. Announcement of repurchase would therefore be expected to result in a positive reaction from the market. In fact, many empirical studies find evidence in support of the signalling hypothesis: Vermaelen (1981); Ikenberry et al. (1995); Grullon and Michaely (2004); Chan et al. (2004); and Firth, Leung and Rui (2010). These studies find that share repurchase announcements result in an increase in stock prices. Dann, Masulis and Mayers (1991), and Ikenberry, Lakonishok and Vermaelan (2000) suggest that undervaluation is observed in poor price performance prior to repurchase. Comment and Jerrell (1991), Stephens and Weisbach (1998), Kahle (2002), Hatakeda and Isagawa (2004), and Chan et al. (2004) use multivariate analysis and find a negative relationship between the announcement of abnormal returns and pre-announcement abnormal returns.

It may be argued that small firms would confront more serious information asymmetry than large firms would. Smaller firms disclose less information to capital markets and are less researched by institutional investors, rating agencies and equity analysts. It therefore follows that the effect of share repurchase announcements should convey more undervaluation information to investors in the case of smaller firms. This hypothesis is supported by Firth et al. (2010), who find a negative relationship between firm size and repurchase announcement returns. In addition, Vermaelen (1981), and Hatakeda and Isagawa (2004) conclude that smaller firms are more likely to be mispriced than larger firms; hence, the market reaction to repurchase announcements should be greater for small firms than for large firms.

Firms with a low market-to-book-value (MTBV) ratio are generally considered undervalued and more likely to pursue share repurchase. The market assumes that a repurchase made by low-MTBV firms signifies undervaluation. This assumption is supported by Dittmar (2000) and Firth et al. (2010), who find a negative coefficient for MTBV when regressed against repurchase

announcement returns. Share repurchase decisions also depend on the return on assets (ROA). Firm with high profitability are expected to have more investment opportunities. A high-ROA firm is more likely to use its cash for real investment, whereas a low-ROA firm may be more likely to invest in its own shares (i.e., share repurchase). This hypothesis also finds support in the works of Hatakeda and Isagawa (2004), Grullon and Michaely (2004), and Koerniadi, Liu and Tourani-Rad (2007).

Previous studies on share repurchases may be classified into two types: research that studies the announcement of a repurchase programme and research that studies the announcement of actual repurchases made by firms. Researchers who study the announcement effect of a repurchase programme in the US market include Dann (1981), Ikenberry et al. (1995), and Chan et al. (2004). In general, these studies find announcement of abnormal returns to be positively significant, ranging between 3.0% and 3.5%. In Australia, Otchere and Ross (2002) find an abnormal return of 4.3%; Lee, Jung and Thornthon (2005) find 2.7% for Korea; Zhang (2002), and Hatakeda and Isagawa (2004) find 4.6% and 2.1%, respectively, for Japan; Huang and Zhou (2007) find 3.4% for China; and Koerniadi et al. (2007) find 3.3% for New Zealand. Therefore, the collective international evidence clearly demonstrates the existence of a positive market reaction to repurchase announcements.

Researchers who study actual repurchases include Vermaelen (1981) in the US market, Zhang (2005), and Firth and Yeung (2005) for the Hong Kong market, McNally, Smith and Barnes (2006) for the Canadian market, Huang and Zhou (2007) for the China market, and Ginglinger and Hamon (2007) for the French market. In general, these studies find the abnormal returns surrounding repurchase days to be between 2.5% and 3.5%, except for the Hong Kong market, for which the abnormal return is much lower, at less than 1.0%. Collective evidence from previous studies appears to indicate that markets react to both the announcement of a repurchase programme and the announcement of actual repurchase of shares.

Subsequent studies on repurchases tend to be more focused on specific issues and implications of repurchase. For example, Hong, Wang and Yu (2008), and De Cesari, Espenlaub and Khurshed (2011) examine the issue of whether repurchases are used to stabilise firm stock prices. Hong et al. (2008) state that share buyback has little evidence in support of the price stabilisation hypothesis, whereas De Cesari et al. (2011) argue otherwise, finding that firms often buy their own shares after price drops and that these transactions produce short-term price stabilisation. A buyback of firm shares can successfully reduce short-term price instability, thereby smoothing price discovery. Price stabilisation helps

firms ensure that their market price fully reflects the information available to investors on the market.

For the Malaysian market, we find only two locally published studies on share repurchase: Lim and Bacha (2002), and Isa, Ghani and Lee (2011). Lim and Bacha study market reactions to repurchase announcements in the early years of share repurchase implementation from 1997 to 2001. Lim and Bacha find positive abnormal returns for the announcements of shareholders' approval and for actual repurchase announcement. Isa et al. (2011) examine share price reactions surrounding the announcement of actual share repurchases over the period from 2001 to 2005 and find significant abnormal market reactions to the announcement. Our study extends the previous local studies in two major respects. First, our study covers a much longer period, from 1997 to 2007, thus significantly extending the data of the previous studies. Second, the current study extends the analysis beyond the scope of the previous studies.

DATA AND METHODOLOGY

Data

Our sample consists of all repurchase announcements and actual purchases made between 1 September 1997 and 31 December 2007. Repurchase announcement dates and daily share repurchases are obtained from the Malaysian stock exchange website (www.bursamalaysia.com). Other information, such as daily stock prices, the market index, firm market value, PER, ROA and the MTBV ratio are obtained from the Bloomberg database.

Table 1 provides a yearly distribution of the sample, categorised by whether a repurchase was made after the announcement, beginning from 1997, the year in which share repurchase was allowed, until 2007. The table shows that firms are cautious in the beginning, likely needing time to assess the situation and the implications of share repurchase. The first two years also coincided with the 1997–1998 Asian financial crisis, which severely affected Malaysia; therefore, firms may be extremely cautious in spending cash to repurchase their shares in the declining market. However, beginning in 1999, more firms participated in repurchase programmes, with the peak occurring in 2005 and 2006. For the observed study period, we collected a total of 289 usable repurchase announcement data on the first 2 announcements. Of this total, approximately half or 143 companies (49.5%) made the actual repurchase, whereas 146 (50.5%) did not follow up with a repurchase within the approval period. The large number of no-purchase firms is quite surprising, given that obtaining shareholders' approval is a costly endeavour.

Table 1
Distribution of companies making repurchase announcements by year over the period from 1 September 1997 to 31 December 2007

Year	Announced and purchase *(N)*	Announced and no purchase *(N)*	*N*-total
1997	2	0	2
1998	1	3	4
1999	11	11	22
2000	8	4	12
2001	7	25	32
2002	10	9	19
2003	9	13	22
2004	19	11	30
2005	36	29	65
2006	22	30	52
2007	18	11	29
Total	143	146	289

Methodology

Univariate analysis

Our analysis is conducted in three stages. The first stage is a univariate analysis in which we use the standard event study methodology to analyse market reactions to the three announcements. The first announcement is the company's decision to repurchase shares, the second announcement is the shareholders' approval of the repurchase programme in a general meeting, and the third is the announcement of the actual repurchase of shares. The second stage is a multivariate analysis in which we run multiple regressions to check the robustness of our univariate results. The third stage is experimental in nature, aiming to analyse the factors that may influence firms' buyback decisions.

The standard event study methodology is used to examine the stock return behaviour surrounding the share repurchase announcement, day 0. We estimate that a period of 20 trading days before and after day 0 is a suitable period in which to capture price movements resulting from the announcement, making the event window 41 days. This choice of event window is similar to that in Hatakeda and Isagawa (2004), Zhang (2005) and Koerniadi et al. (2007). The predicted stock return for a firm for a day in the event period is the return given by the market model on that day using these estimates. That is:

$$AR_{i,t} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t}) \quad (1)$$

where,

AR_i = the abnormal return on firm i at time t in the event period

R_{it} = the actual share return on firm i at time t in the event period

R_{mt} = the return on the market index (R_m) at time t in the event period (i.e., the FTSE Bursa Malaysia Kuala Lumpur Composite Index is used as a proxy for market return)

$\hat{\alpha}$ and $\hat{\beta}$ = the market model parameters estimated over a 100-day period prior to the event window, from day –120 to day –21.

We adopt the method of Boehmer, Musumeci and Poulsen (1991) to derive the standardised abnormal returns that account for event-induced variance. Abnormal return AR_i, in the event window is standardised by the time series standard deviation of AR_i in the estimation period of day –120 to –21. The standardised abnormal returns (SAR) are defined as follows:

$$CAR_{i,t} = \frac{AR_{i,t}}{s_i} \quad (2)$$

where

$SAR_{i,t}$ = standardised abnormal return for firm i for day t, t = –20 to +20,

s_i = the standard deviation of stock i, where

$$s_i = \sqrt{\frac{1}{100-1}\sum_{t=-120}^{t=-21}(AR_{i,t} - \overline{AR_i})^2} \quad (3)$$

$AR_{i,t}$ = abnormal return for firm i on day t, t = –20 to +20, where

$$\overline{AR_i} = \frac{1}{100}\sum_{t=-120}^{t=-21} AR_{i,t} \quad (4)$$

The Boehmer et al. (1991) t-test is constructed by dividing the average SAR_{it} (denoted by $ASAR$) by its cross-sectional standard deviation:

$$t = \sqrt{N}\left(\frac{ASAR_t}{s_t}\right) \quad (5)$$

where

$$CAR_t = \frac{1}{N}\sum_{i=1}^{N} CAR_{i,t} \quad (6)$$

$$s_t = \sqrt{\frac{1}{n-1}\sum_{i=1}^{N}(CAR_{i,t} - CAR_t)^2} \quad (7)$$

where s_t = cross-sectional standard deviation at time *t*.

The cumulative average standardised abnormal return (*CASAR* or simply *CAR*) from t_1 to t_2 is estimated as follows:

$$CAR_{t1,t2} = \sum_{t1}^{t2} CAR_t \quad (8)$$

The t-test statistic for the *CAR* for standardised residual cross-sectional is calculated as follows:

$$t = \frac{CAR_{t1,t2}}{\sqrt{\frac{1}{N(N-1)}\sum_{i=1}^{N}(CAR_{i(t1,t2)} - \sum_{i=1}^{N}\frac{CAR_{i(t1,t2)}}{N})^2}} \quad (9)$$

Multivariate analysis

To complement the univariate analysis, we examine the relationship between the repurchase abnormal returns and firm characteristics in the form of a multiple regression. We run three regressions using the two-day announcement returns as the dependent variable. The regression equations are as follows:

Regression 1: Announcement of the board's decision

$CAR_{(0,1)} = \alpha_1 + \beta_1(PRE) + \beta_2(SIZE) + \beta_3(PER) + \beta_4(MTBV) + \beta_5(ROA) + \beta_6(ACTPUR) + \varepsilon$

Regression 2: Announcement of shareholders' approval

$CAR_{(0,1)} = \alpha_1 + \beta_1(PRE) + \beta_2(SIZE) + \beta_3(PER) + \beta_4(MTBV) + \beta_5(ROA) + \beta_6(ACTPUR) + \beta_7(FAAR) + \varepsilon$

Regression 3: Announcement of actual repurchase

$CAR_{(0,1)} = \alpha_1 + \beta_1(PRE) + \beta_2(SIZE) + \beta_3(PER) + \beta_4(MTBV) + \beta_5(ROA) + \beta_6(ACTPUR) + \beta_7(FAAR) + \beta_8(SAAR) + \varepsilon$

where

CAR (0,1) = the combined announcement return over days 0 and 1;

PRE = the pre-event abnormal return, measured by CAR (–20, –1), used as a proxy for stock undervaluation. This coefficient is predicted to be negative;

SIZE = measured by the log of the prior month's market value. This variable is used as a proxy for information asymmetry. The coefficient is predicted to be negative;

PER = the price-earnings ratio is measured at the month end prior to the announcement. PER may be regarded as a relative measure of share valuation. A stock with high PER may be considered relatively overvalued, whereas a low-PER stock is considered undervalued. The coefficient is predicted to be negative;

MTBV = the ratio of market to book value is measured using the month-end prices prior to the announcement. This variable is used as a proxy for the general perception of market valuation. A high ratio indicates an overvaluation, and a low ratio indicates undervaluation. The coefficient is predicted to be negative;

ROA = the return on assets, measured by net income divided by total assets at the end of the month prior to the announcement. ROA is used as a proxy for the availability of alternative investment opportunities. A high-ROA firm is more likely to use cash for real investments, whereas a low-ROA firm is more likely to repurchase shares. This coefficient is predicted to be negative;

ACTPUR = a dummy variable to denote that the firm actually purchases its shares after the initial announcements. The variable takes the value of 1 if a repurchase is made and 0 otherwise. If the market is able to correctly anticipate an actual repurchase, then this coefficient should be positive. Conversely, a substantial price increase during the initial announcements may lead to a no-purchase decision by firms. In this case, the dummy variable may show a negative coefficient. The variable may also be insignificant, which means that the market is unable to anticipate whether actual repurchase will occur; and

FAAR, SAAR = the first and second announcement returns, respectively, CAR (0,1).

Repurchase prediction

Following Hatakeda and Isagawa (2004), and Firth and Yeung (2005), we attempt to conduct an initial analysis of the factors that may influence the likelihood of a firm to make an actual buyback. The following question will be answered: what is the likelihood that an actual purchase will occur, given the information available during the initial announcements? For this analysis, we run the following logit and probit regressions, with a binary dependent variable of firms' decision to repurchase or not repurchase.

At the time of the first announcement (i.e., the board's decision):

$$ACTPUR_i = a + b_1\, ROA_i + b_2\, SIZE_i + b_3 FAAR_i + b_4 FPRE_i + \varepsilon$$

At the time of the second announcement (i.e., shareholder's approval):

$$ACTPUR_i = a + b_1\, ROA_i + b_2\, SIZE_i + b_3 SAAR_i + b_4 SPRE_i + \varepsilon$$

In the above regression, ACTPUR is a zero-one dependent variable that takes the value of 1 for firms making a repurchase and 0 otherwise. ROA, SIZE, FAAR and SAAR are as explained above. FPRE and SPRE are the pre-announcement abnormal returns measured by CAR (–20, –1) for the first and second announcements, respectively.

In these regressions, ROA may be positive or negative. As argued by Grullon and Michaely (2004), Hatakeda and Isagawa (2004), and Koerniadi et al. (2007), low-ROA firms are more likely to repurchase than high-ROA firms are. However, local regulations require that repurchases be made from retained earnings or share premium accounts, which points to a positive coefficient for ROA. As for firm SIZE, because of information asymmetry, we expect that small firms would have a greater likelihood of executing a repurchase, thus yielding a negative coefficient. FAAR and SAAR are the first and second announcement abnormal returns, respectively, CAR (0,1). We argue that a large increase in share prices during the announcement may have the effect of mitigating underpricing, and the firm may no longer need to repurchase shares. The coefficients are expected to be negative. FPRE and SPRE are CAR (–20, –1) and are included to denote share price movements prior to announcements. Similar to announcement returns, the pre-announcement returns are expected to have a negative influence on the likelihood of repurchase.

RESULTS

Price Reaction to the Announcement

First announcement

Table 2(a) presents the abnormal returns surrounding the first announcement of the repurchase programme for the entire sample. This announcement indicates the board's decision to engage in a share repurchase programme. Panel A of the table shows that the effect of the announcement, as shown by the abnormal return, is 0.42% (significant at the 1% level) on day 0 and 0.25% (significant at the 5% level) on day 1. This result gives us a 2-day abnormal return of 0.66%, which is significant at the 1% level (see Panel B). The results clearly indicate a positive market reaction to repurchase announcements. Although there is a gradual buildup in share prices prior to the announcement, the pre-announcement CAR is insignificant, as shown in Panel B of the table. However, in the post-announcement period, there is a significant uptrend of prices that amounts to 1.65% (significant at the 5% level). The overall gain in companies making a repurchase announcement is 3.33% over the 41-day event window, which is significant at the 1% level.

Our positive announcement day results are consistent with most of the earlier studies, such as Ikenberry et al. (2000), Grullon and Michaely (2004), and Chan et al. (2004). However, the upward trend in share prices in the post-announcement period appears to be inconsistent with the notion of an efficient market. Our explanation is that the market is incorporating not only the announcement effect but also subsequent actions taken by the company in obtaining the approvals for the repurchase programme. Therefore, the continuous upward movement of prices may result from the new information on the subsequent development of the repurchase programme.

It is widely known that repurchase approvals do not guarantee that firms will actually make the repurchase. Our data show that roughly half of the approvals are not followed by actual purchase within the approval period. Because firms are given one year to make the repurchase after obtaining the necessary approvals, it would be interesting to observe whether the market is able to identify which firms will eventually make a repurchase. For this purpose, we divide our sample into two categories: firms that announced and followed by making a repurchase and those that announced but did not make a repurchase.

Table 2(a)
Abnormal returns (AR) and cumulative abnormal returns (CAR) around the announcement date of the board's decision to repurchase shares: The entire sample (N=289)

Panel A: Daily AR and CAR			
Day	AR (%)	*t*-test	CAR (%)
–20	0.1328	0.7529	0.1328
–15	–0.0931	–0.8031	0.5030
–10	0.0689	0.4300	0.9283
–9	0.1803*	1.8458	1.1086
–8	–0.1145	–0.6540	0.9941
–7	0.1333	1.0902	1.1274
–6	0.1265	0.7506	1.2540
–5	0.0947	0.8535	1.3486
–4	–0.0283	–0.1904	1.3203
–3	–0.1004*	–1.7135	1.2199
–2	–0.0615	–0.4297	1.1584
–1	–0.1427**	–1.9766	1.0157
0	**0.4168*** **	**2.9774**	**1.4326**
1	0.2453**	2.0837	1.6778
2	0.0794	0.5002	1.7572
3	–0.0842	–0.6205	1.6730
4	0.1667	1.1247	1.8398
5	0.1621**	2.0329	2.0019
6	0.1610	0.9904	2.1629
7	0.1632	1.2502	2.3261
8	0.2493*	1.7804	2.5754
9	–0.0698	–0.6369	2.5056
Panel A: Daily AR and CAR			
Day	AR (%)	*t*-test	CAR (%)
10	0.1328	0.8362	2.6384
15	0.1027	0.8162	3.0702
20	0.0546	0.3556	3.3309

(continued on next page)

Table 2(a) (*continued*)

Panel B: CAR over different intervals		
Interval	CAR (%)	*t*-test
Day –20 to –1	1.0157	1.4595
Day 0 to 1	0.6621***	2.9003
Day 2 to 20	1.6531**	2.3960
Day –20 to 20	3.3309***	2.8880

Note: ***, ** and * denote significance at the levels of 1%, 5% and 10%, respectively.

Table 2(b) shows that the effect of the announcement of the board's decision is positive and significant for both groups, with the 2-day abnormal returns for the no-purchase group 0.70% higher than the 0.40% found for the repurchase group. However, the difference between them is not significant, as indicated by the *p*-value. In the pre-announcement days (days –20 to –1), both the CAR for the two groups and the difference between them are insignificant. Interestingly, only the no-purchase group shows significant post-event price appreciation. The overall gains over the event window are significant for both groups. Although the abnormal returns for no-purchase firms tend to be greater than those for purchase firms, the differences are insignificant.

Table 2(b)

Cumulative abnormal returns (CAR) for various sub-windows around the announcement date of a board's decision to repurchase: Those followed versus not followed by actual repurchase

Interval	Announcement and repurchase (N=143)		Announcement and no repurchase (N=146)		*p*-value
	CAR (%)	*t*-test	CAR (%)	*t*-test	
Day –20 to –1	1.0374	1.1366	0.8177	0.8049	0.6546
Day 0 to 1	0.4020*	1.7477	0.6988**	2.2649	0.3580
Day 2 to 20	1.5154	1.5930	2.0440**	2.1622	0.4141
Day –20 to 20	2.9548*	1.9200	3.5605**	2.3435	0.5858

Note: ** and * denote significance at the levels of 5% and 10%, respectively.

The signalling hypothesis is based on the argument that information asymmetry exists between a firm's management and investors. Generally, it can be assumed that small firms have greater information asymmetry than large firms because small firms are subject to less media coverage, less scrutiny by analysts and less investment by institutional investors, among other reasons. Vermaelen (1981) suggests that "small firms are expected to signal more information when

they repurchase their shares". A number of studies find a negative relationship between firm size and the abnormal return on the repurchase announcement programme (for example, Stephens & Weisbach, 1998; Grullon & Michaely, 2004; and Chan et al., 2004). Firm size may be regarded as a proxy for information asymmetry, and small firms may be expected to show greater price reactions to repurchase announcements than large firms do.

To analyse the effect of firm size on the announcement, we divide the sample into two groups – small and large firms – based on their month-end market values prior to the board announcement. To provide further insight, we examine the size effect separately for the sample that made the announcement and repurchase versus those that announced but did not repurchase. Table 2(c) shows that the 2-day market reaction to the board's decision announcement is positive and significant for both the small and large firms and for both the purchase and no-purchase subsamples. It is interesting to note that in terms of magnitude, small firms' CAR are greater than those for large firms for all windows, which is consistent with the information asymmetry hypothesis. This finding applies to both the purchase and no-purchase groups.

Table 2(c)
Cumulative abnormal returns (CAR) for various subwindows around the announcement date of the board's decision to repurchase: Small versus large firms

Panel A: Announcement followed by repurchase					
	Small firm size (N=72)		Large firm size (N=71)		
Interval	CAR (%)	t-test	CAR (%)	*t*-test	*p*-value
Day –20 to –1	1.1687	0.9487	0.5272	0.5272	0.4964
Day 0 to 1	0.4576**	2.0800	0.3315**	2.0716	0.3272
Day 2 to 20	2.2921*	1.8519	1.2143	0.8249	0.0441**
Day –20 to 20	3.9183*	1.9209	2.0729	1.1516	0.0661*
Panel B: Announcement but not followed by repurchase					
	Small firm size (N=73)		Large firm size (N=73)		
Interval	CAR (%)	*t*-test	CAR (%)	*t*-test	*p*-value
Day –20 to –1	1.4808	1.0888	0.4502	0.4722	0.5360
Day 0 to 1	0.9402**	2.0064	0.4904*	1.9231	0.4424
Day 2 to 20	1.8098	1.4953	0.7087	0.6620	0.0849*
Day –20 to 20	4.2309**	2.0341	1.6493	1.0611	0.0687*

Note: ** and * denote significance at the levels of 5% and 10%, respectively.

Second announcement

As noted previously, after making the first announcement, regulations require companies to obtain shareholders' approval in a general assembly, and this approval must be immediately announced to the market. Our sample shows that all repurchase proposals from the first announcement successfully obtained the approval of shareholders. Although it may appear to be a mere formality, shareholder approval is required before a company is allowed to actually make a share purchase. The announcement of shareholder approval marks the date that a company has acquired the right to buy back, which may be exercised at an appropriate time.

Table 3(a) presents our results pertaining to share price behaviour surrounding the announcement of shareholder approval. The table shows that there are significant market reactions to the announcement on day 0 and day 1 of 0.50% (significant at 1% level) and 0.28% (significant at 10% level). Panel B of the table shows that the combined 2-day abnormal return is 0.78% (significant at the 1% level). Similar to the first announcement, there is an insignificant price increase prior to day 0 and a significant price increase in the post-announcement period. The total increase for the second event window is 2.97% (significant at the 5% level). Our findings of positive announcement returns and positive post-announcement returns are similar to the results obtained by Lim and Bacha (2002) and Zhang (2002).

Since there is hardly any surprise for the shareholder approval, the positive market reaction to the approval announcement is somewhat counterintuitive. However, we may justify the positive effect of the second announcement as the value of the right that the company has acquired from its shareholders. Armed with this right, the company may exercise the right, that is, buy back its shares if and when it deems buyback appropriate.

Similar to the first announcement, we divide the sample into those firms making and not making repurchases and analyse the market reaction surrounding the approval announcements. The results are shown in Table 3(b). We find that the behaviour of the abnormal returns for the second announcement is remarkably similar to that for the first announcement. The 2-day announcement returns are positive and significant for both groups. The pre-event abnormal returns are insignificant, and only the no-purchase group shows a significant post-event abnormal return. The overall event window returns are significant for both groups. Similar to the first announcement, we find that abnormal returns for the no-purchase group appear to be greater than those for the purchase group, but again, none of the differences are significant.

Our results in this section are remarkably similar to those of Lim and Bacha (2002), and Hatakeda and Isagawa (2003), who conduct similar analysis of the period surrounding the announcement of repurchase approval. Both of these studies divide their sample into repurchase and non-repurchase subsamples, and both studies find qualitatively similar results; the two subsamples show a positive price reaction to the announcement, and the difference between the announcement returns is insignificant.

Table 3(a)
Abnormal returns (AR) and cumulative abnormal returns (CAR) around the announcement date of shareholders' approval of repurchase: The entire sample (N=289)

Panel A: Daily AR and CAR			
Day	AR (%)	*t*–test	CAR (%)
–20	0.1530	0.1872	0.1530
–15	0.2022	1.5568	0.7151
–10	0.0989	0.6619	0.9414
–9	–0.1028	–0.7467	0.8385
–8	0.0553	0.3819	0.8939
–7	–0.0246	–0.1839	0.8693
–6	–0.1261	–0.7818	0.7432
–5	–0.0941	–0.6385	0.6491
–4	0.1117	0.8114	0.7608
–3	–0.1412	–0.9797	0.6196
–2	0.0993	0.7108	0.7189
–1	–0.0123	–0.1057	0.7066
0	**0.5016*****	**3.1482**	**1.2082**
1	0.2828*	1.7678	1.4911
2	–0.1747	–0.9467	1.3164
3	0.0449	0.2765	1.3613
4	0.1161	0.7234	1.4774
5	–0.0023	–0.0142	1.4751
6	0.1785*	1.7853	1.6536
7	0.1173	0.6379	1.7709
8	0.1311	0.9507	1.9020
9	0.1180	0.8374	2.0200
10	0.0450	0.2847	2.0650

(continued on next page)

Table 3(a) (*continued*)

Day	AR (%)	*t*-test	CAR (%)
15	0.2214	1.1020	2.7565
20	0.1109	0.6560	2.9732
Panel B: CAR over different intervals			
Interval		CAR (%)	*t*–test
Day –20 to –1		0.7066	0.7080
Day 0 to 1		0.7845***	3.2392
Day 2 to 20		1.4821**	2.0114
Day –20 to 20		2.9732**	2.2198

Note: ***, ** and * denote significance at the levels of 1%, 5% and 10%, respectively.

Table 3(b)
Cumulative abnormal returns (CAR) for various subwindows around the announcement date of the shareholders' approval of repurchase: Those followed versus not followed by actual repurchase

Interval	Announcement and repurchase (N=143)		Announcement and no repurchase (N=146)		*p*-value
	CAR (%)	*t*-test	CAR (%)	*t*-test	
Day –20 to –1	0.6868	0.4549	0.7284	0.5690	0.7131
Day 0 to 1	0.5365*	1.7306	0.6924**	2.2214	0.3830
Day 2 to 20	1.2917	1.1015	1.7366**	1.9758	0.5704
Day –20 to 20	2.5150*	1.6766	3.1573**	1.9669	0.5564

Note: ** and * denote significance at the levels of 5% and 10%, respectively.

Our results of the lack of difference in abnormal returns between firms that announced and repurchased and those that announced and did not repurchase may be justified as follows. Approval for repurchase gives management a call option on the company's shares. To repurchase or not repurchase depends largely on price movements after approval – a substantial decline in share prices may prompt management to exercise the option, whereas a price increase may merely pull shares out of the exercised price range. Consistent with this explanation, we observe in Tables 3(b) and 2(b) that the no-purchase groups generally tend to generate higher abnormal returns than the purchase group over the event period.

As for the signalling hypothesis, supporting evidence includes the existence of a general price decline over a period of time, followed by the announcements of the board's decision and shareholders' approval. Although there is no evidence of a price decline over the 20-day period prior to the

announcement, companies' decision may have been based on long-term price trends that may have occurred long before the announcements were made. When share prices are on an extended downward trend, management may be worried that their shares would continue to be seriously undervalued by the market. Obtaining shareholders' approval to repurchase shares therefore reflects desire of firms to have a tool that enables them to take quick action when share prices worsen. Our evidence of significantly positive market reactions to both the repurchase announcements constitutes supporting evidence of the signalling hypothesis.

Table 3(c) shows the results of our size analysis for the shareholders' approval announcement. The results are strikingly similar to those of the first announcement; in particular, the abnormal returns for small firms are generally larger than those for large firms for all windows, which is consistent with the information asymmetry hypothesis. Our results for the size analysis are consistent with those of Ikenberry et al. (1995), Zhang (2002), and Firth and Yeung (2005).

Table 3(c)
Cumulative abnormal returns (CAR) for various subwindows around the announcement date of the shareholders' approval of repurchase: small versus large firms

Panel A: Announcement followed by repurchase					
Interval	Small firm size (N=72)		Large firm size (N=71)		*p*-value
	CAR (%)	*t*-test	CAR (%)	*t*-test	
Day –20 to –1	0.9796	1.0885	0.2925	0.3250	0.3259
Day 0 to 1	0.5465**	2.7324	0.3291*	1.7742	0.3834
Day 2 to 20	1.4618	1.6243	0.9031	1.0035	0.0591*
Day –20 to 20	2.9879*	1.6600	1.5248	1.6051	0.0730*
Panel B: Announcement but not followed by repurchase					
Interval	Small firm size (N=73)		Large firm size (N=73)		*p*-value
	CAR (%)	t-test	CAR (%)	*t*-test	
Day –20 to –1	1.0016	0.5146	0.4281	0.5148	0.2744
Day 0 to 1	0.7240**	2.0687	0.5015**	1.9975	0.2899
Day 2 to 20	1.7006*	1.6591	0.7209	0.5726	0.0839*
Day –20 to 20	3.4262*	1.7046	1.6505	0.9773	0.0418**

Note: ** and * denote significance at the levels of 5% and 10%, respectively.

Third announcement

Repurchase rules stipulate that approvals are valid for one year, after which new approvals must be obtained. As discussed previously, given the one-year validity

period, there exists a great deal of uncertainty at the time of the announcement as to whether an actual purchase of shares will occur. The previous section showed that there are significant market reactions on the announcements of the board's decision and shareholders' approval. However, because of the associated uncertainty, we expect there to be another reaction from the market upon the announcement of the actual purchase of shares. Actual repurchase may be regarded as a confirmation that shares are indeed undervalued, thereby giving an unambiguous signal to the market. Firms making repurchases normally do so in a series of transactions over a period of time. However, the first purchase is the act that resolves this uncertainty. In this section, we analyse market reactions to the first purchase made by firms after obtaining shareholders' approval. The results are presented in Table 4(a).

Table 4(a) shows that the two announcement days of day 0 and day 1 are positive and highly significant. The combined 2-day abnormal returns amount to 1.80% (significant at the 1% level). Another feature of our results is that share prices appear to be rather unstable in the pre-purchase period, with more incidents of negative daily abnormal returns than positive returns, indicating a general decline in share prices. This finding augurs well with the signalling hypothesis. However, there is another explanation for the consecutive negative returns in the days immediately before repurchase. Although repurchases are made in the open market through regular stock brokers, purchase prices are regulated. A firm may not make a buyback at a price greater than 15% of the previous 5-day moving average. Thus, if the market price of a share is on an uptrend for 5 consecutive days, such that the last price is greater than the moving average by more than 15%, then a buyback cannot occur. The implication of this rule is that in general, a purchase can be made only during stable or declining market prices. The empirical implication of this price rule is that it would be unlikely to observe a positive daily average abnormal return in each of the five days prior to the repurchase day.

In the post-event period, prices continue to rise to record a positive abnormal return of 3.44% (significant at the 1% level). Because we examine only the market reaction to the first purchase, we reason that market adjustment may continue as a result of subsequent repurchases made by a firm. Considering the general pre-purchase price decline and the positive market reaction to the actual purchase, our evidence is clearly consistent with the signalling hypothesis. Our findings regarding the price reaction to actual repurchases are consistent with most previous studies, such as Vermaelen (1981), Zhang (2005), Lim and Bacha (2002) and Isa et al. (2011).

Table 4(a)
Abnormal returns (AR) and cumulative abnormal returns (CAR) around the first actual repurchase date: The entire sample (N=143)

Panel A: Daily AR and CAR			
Day	AR (%)	*t*–test	CAR (%)
–20	–0.1291*	–1.8446	–0.1291
–15	–0.1049	–0.5455	–0.4472
–10	–0.1934**	–2.1494	–0.6236
–9	–0.1651*	–1.8341	–0.7887
–8	0.1465	0.7788	–0.6422
–7	0.1737	0.8882	–0.4685
–6	–0.1115	–0.4827	–0.5801
–5	0.1245	0.5894	–0.4556
–4	–0.1442	–0.7163	–0.5998
–3	–0.1466	–0.6128	–0.7464
–2	–0.0693	–0.3129	–0.8157
–1	–0.2827**	–2.3559	–1.0984
0	**0.9173*** **	**3.6728**	**–0.1811**
1	0.8809***	3.7474	0.6998
2	0.3652*	1.7384	1.0650
3	0.3164*	1.7197	1.3815
4	0.1945	0.9559	1.5760
5	–0.0975	–0.5527	1.4785
6	0.1326	0.6838	1.6111
7	0.3010*	1.7707	1.9121
8	0.2263	1.1539	2.1384
9	0.2149	1.0627	2.3532
10	0.2625**	2.0067	2.6157
15	0.1992	1.0093	3.2694
20	0.2607*	1.8622	4.1419

Panel B: CAR over different intervals		
Interval	CAR (%)	*t*–test
Day –20 to –1	–1.0984	–1.1202
Day 0 to 1	1.7982***	4.5906
Day 2 to 20	3.4421***	3.7319
Day –20 to 20	4.1419***	2.8629

Note: ***, ** and * denote significance at the levels of 1%, 5% and 10%, respectively.

To provide more insight into our results, we divide the actual purchase sample into two groups based on their market values. The results are shown in Table 4(b). The results show that the purchase day return, CAR (0,1), for small firms at 2.45% is significantly greater than that for large firms, at 0.98%. The post-purchase day returns and the entire event window returns for small firms are also greater than those for large firms. It is also interesting to note that small firms show a greater price decline in the pre-purchase period and a greater price increase during the announcement and in post-announcement periods, and these findings are consistent with the information asymmetry and signalling hypothesis.

Table 4(b)
Cumulative abnormal returns (CAR) for subwindows around the actual first repurchase date: Small versus large firms

Interval	Small firm size (N=72)		Large firm size (N=71)		*p*–value
	CAR (%)	*t*–test	CAR (%)	*t*–test	
Day –20 to –1	–1.1084	–0.8638	–0.5843	–0.4743	0.6465
Day 0 to 1	2.4537***	2.9547	0.9807**	2.2282	0.0639*
Day 2 to 20	3.1889**	2.5713	2.3173**	1.9875	0.3235
Day –20 to 20	4.5343**	2.0278	2.7137	1.4410	0.3498

Note: ***, ** and * denote significance at the levels of 1%, 5% and 10%, respectively.

Comparing the price reaction of the first two announcements with that of the actual purchase, we find that the market reaction to the actual purchase is greater than the reaction to any of the repurchase announcements. For example, the 2-day abnormal returns, CAR (0,1), for the first and second announcements for firms that announced and made repurchases [Tables 2(b) and 3(b)] are 0.40% and 0.54%, respectively, whereas that for the actual purchases [Table 4(a)] is 1.80%. Similarly the abnormal returns for the entire window, CAR (–20,20), are 2.95% and 2.52% for the first and second announcements, respectively, whereas the return is 4.14% for the actual purchase announcement. Similar behaviour is also observed in the size subsamples; both the small and large firms show that the actual repurchase announcement generates greater market reactions than each of the prior repurchase announcements. This observation indicates that the signalling effect is stronger for the actual repurchase of shares than the initial repurchase announcements.

Multivariate Analysis

The results of the regression are presented in Table 5. For the first regression (on the announcement of the board's decision), except for the pre-event abnormal return (PRE), all other variables are significant with the expected signs. The results indicate that the event-period return is significantly related to SIZE, PER, ROA and MTBV. However, the 20-day pre-announcement returns appear to be unrelated to the announcement returns. The ACTPUR coefficient is found to be negative. This result is consistent with the univariate analysis that indicates lower abnormal returns for the purchase group compared with the no-purchase group. This finding is also consistent with the explanation that a large price increase may have taken the shares out of the under-pricing zone.

The second regression is on the announcement of shareholders' approval. The results are more or less similar to those in the first regression. Significant negative relationships are observed between the announcement return and the SIZE, ROA and ACTPUR variables. However, the coefficients for PRE, PER and MTBV are insignificant. The results also show that the abnormal return is unrelated to the first announcement abnormal return. It is possible that the market may be treating the second announcement as a separate event. The insignificance of our PRE coefficient is consistent with Zhang's (2002) finding. Zhang's regression results indicate that the announcement abnormal return [CAR (–1,2)] is uncorrelated with the pre-announcement returns [CAR(–24, –1)].

The third regression is on the announcement of actual repurchases. The results indicate a positive intercept that is higher than the intercept of the first two regressions, indicating a greater actual purchase effect. The results also show a significantly negative relationship between the announcement return and PRE (the pre-purchase abnormal returns), which is consistent with the univariate results. This finding is consistent with the signalling hypothesis and largely indicates that companies time their repurchases after a period of price decline. This result is consistent with those of Stephens and Weisbach (1998), Hatakeda and Isagawa (2004), and Firth and Yeung (2005). As for other variables, the actual repurchase returns show negative relationships with SIZE, PER, ROA and the MTBV ratio, and this finding is consistent with our expectations. The repurchase announcement return is also found to be negatively related with SAAR, the approval announcement abnormal returns. The negative coefficient for ROA is consistent with the findings of Hatakeda and Isagawa (2004) and Koerniadi et al. (2007), who conclude that investors perceive that low-ROA firms have limited profitable investment and prefer to buy back shares. The negative coefficient for MTBV is consistent with the findings of Firth et al. (2010).

Table 5
Regression results on the determinants of the announcements and actual share repurchase abnormal returns

Variables	Regression 1	Regression 2	Regression 3
	Announcement of board's decision	Announcement of shareholders' approval	Actual repurchase
Constant	0.0690***	0.0774***	0.1521***
	(0.0004)	(0.0084)	(0.0039)
PRE	0.0288	0.0117	–0.0550*
	(0.1558)	(0.4415)	(0.0958)
SIZE	–0.0023**	–0.0027*	–0.0056**
	(0.0224)	(0.0789)	(0.0488)
PER	–0.0003*	–0.0002	–0.0006*
	(0.0774)	(0.1940)	(0.0574)
ROA	–0.0007*	–0.0011**	–0.0012**
	(0.0786)	(0.0113)	(0.0378)
MTBV	–0.0049**	–0.0031	–0.0063**
	(0.0411)	(0.2195)	(0.0231)
ACTPUR (dummy)	–0.0114**	–0.0098*	
	(0.0185)	(0.0573)	
FAAR, first announcement, CAR (0,1)		–0.0447	–0.0582
		(0.4962)	(0.5445)
SAAR, second announcement, CAR (0,1)			–0.2168**
			(0.0209)
Adjusted *R*-squared	7.10%	5.18%	23.19%
F-statistic	4.23***	2.98***	6.34***
N	255	255	125

Notes: Dependent variable is CAR (0,1). PRE is the pre-event abnormal returns measured by CAR (–20,–1), SIZE is the natural logarithm of the market capitalization, PER is the market value per share divided by the earnings per share at the end of the month prior to the event date, ROA is return on assets, measured as the net income divided by total assets at the end of the month prior to the event date, MTBV is market to book value ratio measured at the end of the month prior to the event date, ACTPUR is a dummy variable, which takes the value of 1 if the firm actually repurchases shares after announcement, and 0 otherwise. The numbers in parentheses are *p*-values. ***, ** and * denote significance at the levels of 1%, 5% and 10%, respectively.

Overall, our multivariate analysis results are consistent with the univariate analysis and with the signalling hypothesis. First, the results indicate the existence of a positive announcement effect for all three announcements studied, with the actual purchase announcement generating a greater effect than the board and approval announcements. Second, there is a negative relationship between pre-purchase abnormal returns and the purchase announcement

abnormal return. Third, there is a negative relationship between abnormal returns and firm size, which is consistent with the information asymmetry hypothesis. Fourth, the negative relationships between abnormal returns and PER, ROA and MTBV ratio indicate that signalling effects are greater for firms that are perceived to be undervalued by the market.

Factors Influencing Repurchase

Our univariate analysis appears to suggest that firms making repurchases generate lower abnormal returns than firms that do not make repurchases (see Tables 2 and 3). Although the differences are statistically insignificant, this insight may be important information for the market to anticipate whether a repurchase will actually occur. As discussed earlier, we test the predictability of a repurchase at the time of the first two announcements using logit and probit regressions.

Table 6 presents the logit and probit regression results. Regression 1 is for the board announcement, and Regression 2 is for the shareholders' approval announcement. Our results in Table 6 indicate that all independent variables are significantly related to the dependent variables. For Regression 1, the results indicate that at the time of the board's announcement, which may be several months before the first repurchase is made, the explanatory variables are already significantly related to the repurchase likelihood. All dependent variables are significant, which means that they play significant roles in determining the likelihood of repurchase. ROA has a positive influence on the repurchase likelihood, which is consistent with the local regulations that require repurchases to be financed by retained earnings. SIZE has a negative influence, and both the announcement returns (FAAR) and pre-announcement returns (FPRE) show a negative influence on the repurchase likelihood. Similar results are found for the announcement of shareholders' approval. Our results for ROA and pre-announcement returns are similar to those obtained by Hatakeda and Isagawa (2004). Firth and Yeung (2005) also show a negative relationship on the pre-announcement returns.

These important findings indicate that when holding other things constant, a small firm has a greater likelihood of exercising a buyback than a large firm and is thus a relatively more profitable firm. In addition, price increases during the initial announcements and during the month before the announcement are inversely related to the repurchase likelihood, which is consistent with the hypothesis that prior price increases mitigate the necessity of repurchase.

Table 6
Logit and Probit Regressions on the likelihood of an actual repurchase

Variables	*Logit model*		*Probit model*	
	Regression 1	Regression 2	Regression 1	Regression 2
	Coefficient	Coefficient	Coefficient	Coefficient
Constant	2.6956**	3.1590**	1.6835**	1.9669**
ROA	0.0491**	0.0405*	0.0297**	0.0247*
SIZE	–0.1538**	–0.1770**	–0.0960**	–0.1100**
FAAR [CAR(0,1)]	–9.8943**		–6.0730**	
FPRE [CAR (–20,–1)]	–2.7407**		–1.6540**	
SAAR [CAR(0,1)]		–8.2656**		–5.0469**
SPRE [CAR (–20,–1)]		–2.6749**		–1.6365***
LR statistic	22.12	23.40	22.09	23.43
McFadden *R*-squared	0.062	0.044	0.063	0.063
N	255	255	255	255

Notes: Regression 1 is for the announcement of board's decision and Regression 2 is for the announcement of shareholder approval. The dependent binary variable takes the value of 1 if a firm makes an actual repurchase and 0 otherwise. SIZE is the natural logarithm of the market capitalization, ROA is return on assets, measured as the net income divided by total assets at the end of the month prior to the event date, FAAR and SAAR are first and second announcement abnormal return respectively, CAR (0,1). FPRE and SPRE are the cumulative abnormal returns in the pre-announcement period, CAR (–20.–1) for the first and second announcement respectively. ***, ** and * denote significance at the levels of 1%, 5% and 10%, respectively.

CONCLUSION

This study examines the market reaction to three related share repurchase announcements in the Malaysian stock market over the period from 1997 to 2007. Using the market model to calculate abnormal returns based on an event study methodology, we find that the results are generally consistent with previous studies in other countries despite the legal and institutional uniqueness of the local market. The most important finding is that our results indicate a positive market reaction to each of the three related events studied: the board's decision announcement, the shareholder approval announcement and the actual repurchase announcement. Our results may be regarded as consistent with the information signalling hypothesis.

Additionally, we find evidence of greater information asymmetry in small firms than in large firms. This finding is indicated by the greater market reaction to repurchase announcements for small firms compared with large firms. Our results of the regression analysis generally corroborate the univariate

analyses. We find that abnormal returns during announcements and during actual repurchases are negatively related to firm size, the price-earnings ratio, returns on assets and the market-to-book-value ratio. In general, these results may be interpreted as indicating that firms that are perceived as undervalued by the market are likely to gain the most from repurchasing their own shares. The logit and probit regression analysis indicates an increased likelihood for an actual buyback for small firms, firms with high profits and firms that generate low price changes prior to and during the announcement of the board decision and the announcement of shareholder approval.

There are, however, limitations to our study. Share repurchase has a relatively short history in the Malaysian market, and our sample size is somewhat limited. Although we highlight the signalling motive in our analysis, there may be other reasons for local firms to engage in a repurchase programme. A rather puzzling phenomenon is the large number of firms undergoing the repurchase approval process and not making a repurchase; the market appears to be unable to differentiate between repurchase and no-repurchase firms at the time of the announcement. Further studies are therefore needed to understand firms' repurchase decisions and to help the market differentiate between firms that are likely to make a repurchase from those that are not.

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