

Share Repurchase in New Zealand

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ABSTRACT

This paper examines the on market and tender offer share repurchase programs in New Zealand from 1995 to August 2004. The average magnitude of excess return on the announcement day for open market repurchase is 2.8%, and 3.4% for tender offer share repurchase announcements. This study finds evidence in favour of agency free cash flows hypothesis for tender offer repurchase, and evidence on the undervaluation hypothesis for open market repurchases. Moreover, there is an indication that managers engage in earnings management prior to the open market announcement.

Share Repurchase in New Zealand

Introduction

In the past two decades share repurchases have grown in popularity and importance as a method to distribute cash flows back to shareholders. In the U.S., this popular form of payout method seems to be becoming a preferred alternative to historically popular cash dividends (Grullon and Michaely (2004), and Brav, Graham, Campbell, and Michaely (2004)).

Literature on share repurchases reports that there are at least four main reasons why companies choose this payout method. First is tax consideration. Share repurchases are preferred to cash dividends because selling shareholders are subject only to capital gains tax, which is lower than ordinary income tax as in the case of cash dividend (Grullon and Michaely (2002), Lie and Lie (1999)). Moreover, non selling shareholders benefit from the increase proportion of their ownership in the firm, and pay capital gains tax only when they sell the shares.

Second motivation is to signal to the market that firm stock price is undervalued. Ikenberry, Lakonishok, and Vermaelen (1995) examine U.S. on market stock repurchase announcements from 1980 to 1990. They find significant abnormal stock returns of 12.14% over a four year period after the announcements. They also find that value stocks experience significant abnormal return of 10% per year. Using Canadian on market stock repurchase data from 1989 to 1997, Ikenberry, Lakonishok, and Vermaelen (2000) report similar evidence of positive long term returns. The post announcement excess return over a three year period is 7% per year. Canadian value firms earn annual 9.1% abnormal returns, which is similar to that of the U.S. value firms. Chan, Ikenberry, and Lee (2000) also find similar results in support of the undervaluation hypothesis of share repurchase.

Third is to signal to the market that the firm profitability will increase in the future. Firms announcing tender offer repurchase programs seem to have different motivation from that of on market repurchase. Vermaelen (1981), Hertz and Jain (1991), Persons (1994), and Lie and Mc Connell (1998) find that firms profitability improve significantly following the tender offer repurchase announcements. They also find that the abnormal return during the

announcement period is correlated with the improvement in firms operating performance after the announcements.

Fourth, managers have no alternative profitable investment and decide to distribute excess cash back to their shareholders (Lang and Litzenberger (1989), Nohel and Tarhan (1998), and Lie (2000)).

New Zealand environment for share repurchases is different from that of the U.S. and other countries. It has dividend imputation system, which favours cash dividends relative to share repurchases because of tax credit attached to cash dividends. Another distinction is that in some situations a share repurchase program is not taxable. This makes New Zealand market unique and empirical results from previous studies may not be applicable to New Zealand. Moreover, there has been no study on share repurchases in New Zealand and thus, this study is intended to fill the gap in the literature.

Using the event study methodology, this study investigates the stock price behaviour around the initial announcements of share repurchases from 1995 to August 2004. The empirical results show that the market reacts positively and significantly on the announcement day. The average abnormal return on open market (tender offer) share repurchase announcement programs is significant, and the magnitude is 2.8% (3.4%).

Further, this study examines the motivations of the firms conducting share repurchase programs. The results for tender offer and on market repurchase support the agency free cash flows and undervaluation hypothesis respectively.

Looking into the actual value of shares repurchased, the evidence confirms the undervaluation hypothesis for small firms. The smaller the firms, the more they spend to buy back their shares. In addition, it seems that firms use share repurchase as a substitute for cash dividends. The change in cash dividends is negatively related to the value of shares actually repurchased.

This study also finds an indication that managers manipulate the discretionary accruals in their reported earnings prior to the open market share repurchase programs. The pre announcement discretionary accrual is negatively related to the event abnormal return and it is significantly positive after the event year.

The remainder of this study is organised as follows. Section II provides a description of the legislative environment of New Zealand share repurchases. Section III presents the methodology and the data. Section IV presents empirical findings on the stock price behaviour surrounding the share repurchase announcements. Section V explores earnings management possibility on share repurchases. Section VI concludes.

II. Legal Review of New Zealand Share Repurchases

Share buybacks, permitted in New Zealand since amendments to the Companies Act in 1994, allow a company effectively to invest in itself. If a company believes its share price is undervalued by the market, it can buy the shares and cancel or hold them as "treasury stock" for potential reissue.

To be able to conduct a share repurchase program, a company listed in the New Zealand Stock Exchange must pass two solvency tests. The first test is to ensure that the company's cash flows are sufficient to sustain its solvency after cash distribution has been made. The second test is to ascertain that after the share repurchase, the value of a firm's assets is greater than all of its liabilities. These restrictions are intended to protect creditors of a company that, after making cash distribution through a share repurchase program, this company will not be financially insolvent.

Fenwick (1997) report that there six ways in which a company in New Zealand can legally attain its own shares. First, through a pro rata offer to all shareholders. This offer would leave shareholders' proportionate voting and distribution right unaffected. Second, by a selective offer to some shareholders. This is allowed when all shareholders have given their approval in writing. Third, by a special offer. The board may make a selective offer to buy back shares from specific shareholders if the firm constitution expressly permits the offer. Fourth, through on market acquisition subject to prior notice to shareholders. Fifth, through on market acquisition not subject to shareholders. This method is allowed as long as the number of shares acquired does not exceed five percent of the number of shares in that class of shares at the beginning of the period. Sixth, by unanimous written agreement executed by all entitled parties. A company can buy back its shares if all entitled persons agree and give their

consents in writing. Additionally, the offer or the on market announcement must be carried out no less than ten working days and no more than twelve months after the announcement.

In some situations, stock repurchase in New Zealand is not taxable (i.e. not considered as a dividend). Section CF 3 of the Income Tax Act 1994 states that for pro rate off market repurchase, a stock repurchase is not taxable if it results in a 15% reduction in capital, or a 10% reduction in capital and the Inland Revenue is satisfied it is not in lieu of a dividend. For non pro rata off market repurchase, if it results in a 15% capital reduction. For on market repurchase, it is not taxable if it is sourced from the company's subscribed capital. In addition, if it is purchased as treasury stock, it must be cancelled or sold within 12 months and sourced from subscribed capital.

III. Data and Methodology

This study examines the open market and tender offer share repurchases individually because they serve different purposes within a firm (Vafeas (1997)). Vafeas reports that firms are more likely to use on market repurchase for signalling that their stocks are undervalued, while tender offer or off market repurchase are more consistent with the agency cost of free cash flow theory. Share repurchases announcements of non financial companies and the companies' accounting data were collected from New Zealand Stock Exchange (NZX) and Datex New Zealand financial database from 1995 to August 2004. Some companies, however, did not announced their intention to conduct open market share repurchases but directly bought back their shares on market and reported their buy back activity to the NZX several days after. Therefore, these repurchases were not included in the sample. The final samples consist of 37 open market and 20 tender offer share repurchase programs respectively. This is surprisingly small compared to that of in the U.S. and Australia. Daily stock returns are calculated from the closing price taken from Datastream Advance database, and all companies share price data in New Zealand Stock Exchange is used as the market portfolio.

Insert Table 1

IV. Announcement effect

This study uses a market model methodology to estimate the announcement abnormal returns. When an event causes minor increases in variance, traditional event study methods too frequently reject the null hypothesis of zero abnormal return even when it is true (Boehmer, E., J.Musumeci, and A.Poulsen (1991)). In order to overcome the bias due to event-induced heteroskedasticity of the abnormal returns, the abnormal returns are adjusted using a method suggested by Boehmer et al. (see Appendix). However, due to small sample size, the parameter estimates are likely to produce biased values. Therefore, this study also employs a bootstrap methodology to allow for testing of the significance despite the small sample size. The estimation period of the market model is -220 days to day -21 relative to the announcements. The event window is from day -20 to day +20.

IV.1. Results

Table 2 presents the average abnormal return during the event window. On average, the open market share repurchase announcements have a significant average excess return on the event day and the day after of 2.8% and 1.2%. For the tender offer announcements, firms experience significant abnormal return on day -1 (1.6%) and on the event day (3.4%), suggesting a leakage of information.

Insert Table 2

Figure 1 shows the cumulative abnormal return jumps from around 2% on day -1 to around 5% on the announcement day, increases steadily until day +20 at around 7%. The cumulative abnormal return up to day +20 is significant (Table 3-Panel A). This evidence seems to support the hypothesis that the market underreacts to open market announcements (Ikenberry et al. (1995, 2000), and Chan et al. (2000)). It is unclear, however, whether this pattern is going to reverse or continue for longer period afterwards.

Insert Figure 1

Insert Figure 2

The accumulative abnormal return for tender offer repurchases is significant only in a short interval around the announcement date (Table 3-Panel B). CARs from -1 to +1 and from -10

to +10 are significant at 1%, but not significant when the event window is extended from -20 to +20.

Insert Table 3

IV.2. Announcement effects and firm characteristics

This section examines the relations between the magnitudes of the announcement effects and specific firm characteristics.

One of the main reasons firms undertake open market share repurchases programs is because they believe that their stocks are undervalued (Ikenberry et al. (2000)). To investigate this motivation on share repurchases, book to market ratio is used as a proxy for firm undervaluation (Ikenberry, et al. (2000), and Kahle (2002)). However, this undervaluation may also occur due to asymmetric information between management and public investors. Several studies on share repurchase use firm size as a proxy for undervaluation (Lakonishok and Vermaelen (1990), and Hatakeda and Isagawa (2004)). These authors find that smaller firms use repurchase as signals of undervaluation. Thus, firm size is also used as another proxy for firm undervaluation.

Firms with high profitability (ROI) are expected to have more investment opportunities. When firms have positive net present value investment, they are preferred to invest excess cash into real assets rather than into buying back their stocks. Low profitability firms whose investment opportunity appear to have declined, may find it desirable to repurchase their outstanding shares. Hatakeda and Isagawa (2004) and Grullon (2000) support this hypothesis. To analyse if this motive is also be the case in NZ, Return on Assets (ROA) is used as a proxy for firms' profitability.

Firms may use share repurchase as a substitution to cash dividends for their payout method (Grullon and Michaely (2000), and Lie and Lie (1999)). This is because in a classical tax system share repurchase avoids double taxation on shareholders' income as in the case of cash dividends. Therefore, under a classical tax system, share repurchase is preferred to cash dividend. In New Zealand the relation between cash dividend and share repurchase is not clear to predict. Due to dividend imputation system shareholders are effectively taxed only once at their personal tax level for the cash dividends they receive, eliminating the tax

advantage of share repurchase. However, the New Zealand Income Tax Act 1994 allows share repurchase to be non taxable under certain circumstances, which makes share repurchase more favourable than cash dividends.

It is also possible that firms use share repurchase as a complement to cash dividends. Firms that are going to undertake share repurchases programs may have large transitory earnings which are unlikely to sustain in the future. The decision to distribute this excess cash through cash dividends may not be a popular choice as previous studies document large penalties for reducing dividends (Bajaj and Vijh (1990), Denis, Denis, and Sarin (1994)). Because of flexibility inherent in share repurchases, managers may launch share repurchase programs to adjust their payouts (Guay and Harford (2000)).

Equation (1) analyse the effects of both undervaluation-proxy variables on the cumulative announcement returns.

$$CAR_{-20 \text{ to } +20} = \alpha_{0it} + \alpha_1 B/M + \alpha_2 Size + \alpha_3 ROA + \alpha_4 \Delta Div + e \dots \dots \dots (1)$$

Previous studies find a significant correlation between the likelihood of a tender offer share repurchase with the firm excess cash flows, and its pre buyback level of leverage (Lie (2000), Vafeas (1997), and Nohel and Tarhan (1998)). According to agency cash flows theory, the change in pre buy back leverage is related to the announcement because the higher a firm leverage, the smaller the agency cost of free cash flows is expected. Thus, when a firm increases its debt to finance a share repurchase, the market should react positively to the announcement.

When a firm has no positive NPV projects, it is desirable to return the excess cash back to its shareholder. The higher excess cash flow, the more positive market reaction is when the cash flow is distributed to its shareholders. Firm size is expected also to be positively related to the announcement because the bigger the firm, the larger its cash flows is expected (Dittmar (2000)). Dividend is also expected to be positively related to the announcement because as large cash flows is normally temporary, firm use share repurchase to adjust their payout, and thus a complement to cash dividend (Jagannathan, Stephens, and Weisbach (2000) , and Guay and Harford (2000)). Therefore, repurchase announcements for off market repurchases should

be positively related to the firm size, its cash flows, its dividends, and its pre buy back leverage.

The following model is to examine the tender offer share repurchase:

$$CAR_{-10\text{ to }+10} = \alpha_{0it} + \alpha_1\text{Size} + \alpha_2\text{FCF} + \alpha_3\Delta\text{Div} + \alpha_4\Delta\text{Debt} + e_t \dots\dots\dots(2)$$

Table 4 presents the correlations among the independent variables. These correlations are small in magnitude and not significant. Thus, multicollinearity among the explanatory variables is not an issue in the regression models.

Insert Table 4

Panel A of Table 5 presents the relation between firm characteristics and the undervaluation motive of share repurchase. Although insignificant, the signs on the coefficients of book to market and size variables are, however, as expected. The coefficient of the change in dividends is inconclusive. The coefficient on the change in dividend is positive and negative when book to market ratio and size is used respectively as a proxy for undervaluation. Consistent with the investment hypothesis, the coefficient on ROA is negative and significant. This means that share repurchase announcements are desirable for unprofitable firms.

Insert Table 5

Panel B of Table 5 shows that the signs of the coefficients variables for tender offer repurchase are as predicted. The coefficient on Size is positive, which confirms previous finding that bigger firms spend more to repurchase their stocks. Free Cash Flow is also positive as predicted by the agency theory. The market seems to accept managers' decision on firm leverage as a good signal. The change in leverage is positively related to the announcement. Again, the small sample size may account for the insignificant relation between the announcement return and these firm characteristics. The change in dividend is positive as predicted and significant at 1%. This evidence seems to indicate that firms use repurchase not as a substitution but as a complement to cash dividends. This evidence is also consistent with the view that tender offer repurchase is used to distribute temporary excess cash back to shareholders (Guay and Harford (2000)).

IV.3. Actual share repurchases and firms characteristics

This section investigates the actual value of stocks bought back in the open market repurchases. In open market share repurchase announcement, firms may, or may not buy back their stocks, or they may not buy back stocks as much as they initially announce to. This is different from the tender offer share repurchase which is usually executed after the announcement. As the market reaction on the initial announcement was not as expected (although the signs are as predicted, but not significant), the undervalued firms may buy back their shares and release their reported activities as stronger signals to the market. Thus, it is predicted that the more undervalued firms are to buy back more of their shares.

The dependent variable in the next regression model is the aggregate value of shares actually repurchased (Jagannathan, Stephens, and Weisbach (2000), and Grullon and Michaely (2000)). Book to market and size variables are used as proxies for undervaluation. As the money spent to finance buy back is a firm payout, change in dividend is also used as another control variable. If share repurchase is a substitute for dividend, change in dividend should be negatively related to the money spent to buy back firm shares.

$$\text{ValSR} = \alpha_0 + \alpha_1\Delta\text{Div} + \alpha_2\text{B/M} + \alpha_3\text{Size} + e_t \dots\dots\dots(3)$$

Insert Table 6

Table 6 presents more clear evidence on the relation between dividend and share repurchase. Share repurchase seems to be used as a substitute for cash dividends. This negative correlation, however, is not significant. Firm size is significantly related to the value of shares repurchased. The smaller the firms, the more they buy back their shares, which is as predicted if these firms are undervalued, and use their actual buy back activities as stronger signals to the market. For value stocks, in contrast to expectation, the sign on book to market variable is negative and not significant. Thus, based on this sample, it seems that undervalued firms are more of small stocks than of value firms.

V. Share Repurchases and Earnings Management

Under the Generally Accepted Accounting Principles (GAPP), accrual accounting is subject to managerial discretion. As a result, managers may have incentives to manage accruals in their reported earnings for their own purposes.

Managers may manipulate reported earnings to maximise benefits from bonus plan (Healy (1985) and Holthausen, Larcker, and Sloan (1995)), reduce cost of equity from capital markets (Teoh, Welch, and Wong (1998a, 1998b)), and obtain regulatory support (Jones (1991), and Navissi (1999)).

It is not unlikely that managers may have incentives to manage earnings prior to share repurchase announcements. When reported earning is manipulated downward prior to repurchase announcement, firm’s share price is kept at a level that maximise return when the reversal effect of the managed accruals take place (Vafeas, Vlittis, Katranis, and Ockree (2003)).

New Zealand tends to have more restricted Generally Accepted Accounting Standards (GAPP) on company reporting than the most countries in the world (Deegan and Samkin (2004)). Consequently, the empirical results of previous studies that earnings management has negative effects on the market may not be the case in New Zealand. Thus, this section investigates whether managers engaged in earnings management prior to share repurchase announcements.

Total accrual is defined as the difference between earnings and operating cash flows.

$$\text{Accrual} = \text{Net Income} - \text{Operating Cash Flows},$$

Nondiscretionary and discretionary accruals are determined using the modified Jones model (Dechow, Sloan, and Sweeney (1995)). The nondiscretionary accrual (NDA) is the fitted value, and the discretionary accrual (DA) is the residual value of the modified Jones model:

$$TA_t = \alpha_1(1/A_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t)/A_{t-1} + \alpha_3(PPE_t)/A_{t-1} + u_t \dots \dots \dots (6)$$

TA = Total Accrual

ΔREV = Change in Sales

ΔREC = Change in Receivables

PPE = Gross Property, Plant and Equipment

To examine the possibility that managers engaged in earnings management prior to share repurchases announcements, the following regression model is estimated:

$$\text{CAR}_{-t \text{ to } t} = \alpha_0 + \alpha_1 \text{NDE}_{it-1} + \alpha_2 \text{DA}_{it-1} + e_{it-1} \dots \dots \dots (7)$$

NDE, which is an estimate of earnings not subject to managerial discretions, is defined as NDAC + Operating Cash Flows (Subramanyam (1996)).

The discretionary accrual prior to the share repurchase announcements is expected to be negatively related to the announcement return. Moreover, if managers manipulate discretionary accruals downward prior to share repurchase announcements, the post announcement discretionary accruals are expected to be positive or less negative than those of previous year. Thus, a nonparametric sign test is used to compare the discretionary accruals before and after the announcement.

Insert Table 7

Panel A of Table 7 presents the relation between discretionary accruals and abnormal returns prior to on market share repurchase announcements. Discretionary accrual is negatively related to the abnormal return but not significant. The sign test result on Panel B, however, presents a stronger indication that managers manage earnings downward prior to repurchase announcement. The positive (negative) pre announcement discretionary accruals are 18 (11) and the positive (negative) post announcement discretionary accruals are 24 (5) significant at 1%. Panel C, however, shows no indication that managers of tender offer repurchase engage in earnings management prior to the announcement.

VII. Conclusion

On average, the market reacts positively and significantly on the open market and tender offer share repurchase announcements in NZ. The magnitude of abnormal return on tender offer on the event day is 3.4% and 2.8% for open market share repurchase announcements.

This study finds evidence that on market and tender offer repurchase are used for different purposes. Managers use open market share repurchase to signal to the market that their stocks are undervalued. Moreover, this study finds evidence that managers engage in earnings management prior to open market share repurchase announcements. The results on the test of the tender offer repurchase are consistent with the agency free cash flows hypothesis.

It seems that as a payout method, share repurchase is not popular in New Zealand. There are only 37 (20) firms undertake on market (tender offer) repurchase programs during 1995 to August 2004. Firms prefer to distribute their excess cash flows back to their shareholders through cash dividends. This is likely due to the dividend imputation effect which favours cash dividends than capital gains from repurchased shares. However, evidence suggests that, due to flexibility inherent in share repurchase, tender offer share repurchase programs are used, along with cash dividends, to distribute transitory cash in their payouts.

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Appendix

Boehmer et al. (1991) method.

$$SR_{iE} = A_{iE} / \hat{s}_i \sqrt{1 + \frac{1}{T_i} + \frac{(R_{mE} - \bar{R}_m)^2}{\sum_{t=1}^{T_i} (R_{mt} - \bar{R}_m)^2}}$$

$$t \text{ adjusted statistic} = \frac{1}{N} \sum_{i=1}^N SR_{iE} / \sqrt{\frac{1}{N(N-1)} \sum_{i=1}^N SR_{iE} - \sum_{i=1}^N \frac{SR_{iE}}{N}}^2$$

N = number of firms in the sample

A_{iE} = security i 's abnormal return on the event day

A_{it} = security i 's abnormal return on day t

T_i = number of days in security i 's estimation period

R_{mt} = market return on day t

\bar{R}_m = average market return during the estimation period

\hat{s}_i = security i 's estimated standard deviation of abnormal returns during the estimation period

SR_{iE} = security i 's standardized residual on the event day

Table 1. Firm's Initial Announcements Across Years

Year	Open market	Tender offer/off market
1995	0	1
1996	1	1
1997	2	3
1998	7	1
1999	3	1
2000	3	2
2001	5	4
2002	9	3
2003	7	5
2004	1	1
Total	37	20

Table 2. Abnormal Returns for On Market and Off Market/Tender Offer Repurchases

On Market			Off Market		
Day	t stat	Abnormal Return	Day	t stat	Abnormal Return
-20	0.761	0.006	-20	0.535	0.008
-19	-0.329	-0.002	-19	-1.592	-0.005
-18	-0.917	-0.002	-18	-0.504	-0.003
-17	-0.345	0.000	-17	0.725	0.004
-16	1.130	0.001	-16	-2.709	-0.013
-15	0.555	0.003	-15	0.894	0.007
-14	-0.556	0.000	-14	0.322	0.003
-13	-0.315	-0.001	-13	0.807	0.004
-12	1.540	0.003	-12	-0.550	-0.001
-11	-0.096	-0.003	-11	-0.510	0.000
-10	1.019	0.004	-10	-0.657	0.010
-9	-0.692	0.002	-9	1.658	0.006
-8	0.218	0.001	-8	0.216	0.001
-7	0.796	0.000	-7	-1.555	-0.022
-6	0.832	0.003	-6	-0.790	0.000
-5	0.762	0.004	-5	0.153	0.001
-4	0.213	0.000	-4	-0.558	-0.002
-3	-1.170	-0.004	-3	1.271	0.014
-2	-0.327	0.000	-2	0.689	0.010
-1	0.395	0.004	-1	1.985	0.016***
0	3.003	0.028***	0	2.426	0.034***
1	2.563	0.012***	1	1.398	0.019
2	0.607	0.000	2	0.319	0.013
3	-0.009	0.000	3	-0.826	0.001
4	-0.068	-0.002	4	-0.664	-0.002
5	-0.611	-0.007	5	0.970	0.020
6	-1.202	-0.004	6	0.532	0.022
7	-0.041	0.003	7	-0.599	-0.013
8	0.479	0.003	8	-0.843	-0.001
9	1.926	0.005	9	-1.084	0.002
10	1.937	0.004	10	1.385	0.014
11	-1.023	-0.003	11	-0.361	0.003
12	0.571	0.003	12	0.419	0.007
13	-0.782	-0.004	13	1.188	0.007
14	-0.770	-0.001	14	-1.869	-0.009
15	-0.091	0.002	15	0.126	0.001
16	3.029	0.009	16	0.445	0.003
17	0.026	-0.001	17	-0.540	0.002
18	-0.707	0.001	18	-0.782	-0.002
19	0.747	0.002	19	1.436	0.009
20	-0.331	-0.003	20	1.485	0.010

The estimation period is from -220 to -21 days prior to the announcements. t stat is the heteroskedasticity-adjusted t statistics. It tests the null hypothesis that Abnormal Return = 0.

Table 3. Cumulative Abnormal Returns

Panel A. On market				
	-1,+1	-10,+10	-20,+20	-20,+50
CAR	4.43%	5.66%	6.63%	7.45%
	(0.000)	(0.000)	(0.009)	(0.018)
Panel B. Off Market				
	-1,+1	-10,+10	-20,+20	
CAR	6.94%	14.45%	1.05%	
	(0.000)	(0.000)	(0.357)	

CAR is cumulative abnormal return over estimated event windows. p-values from bootstrapping are reported in parentheses.

Table 4. Correlation Coefficient of Independent Variables

Panel A. On Market

	B/M	Size	ROA	Δ DIV
B/M	1.000			
SIZE	0.031 (0.853)	1.000		
ROA	-0.176 (0.297)	0.065 (0.701)	1.000	
Δ DIV	-0.096 (0.573)	0.212 (0.208)	-0.039 (0.820)	1.000

Panel B. Off Market

	Size	FCF	Δ DIV	Δ Debt
Size	1.000			
FCF	-0.294 (0.078)	1.000		
Δ DIV	0.069 (0.683)	-0.008 (0.961)	1.000	
Δ Debt	-0.171 (0.312)	-0.064 (0.707)	-0.134 (0.429)	1.000

B/M is firms Book to Market ratio. Size is the natural logarithm of total assets. ROA is Return on assets computed as net income over total assets. Δ DIV is the change in dividend scaled by total assets. FCF is the firm free cash flow and computed following Vafeas (1997): operating income before depreciation - Dividend - Interest - Tax, scaled by total assets. Δ Debt is the change in long term debt scaled by total assets. Pearson Correlation p-values are reported in parentheses.

Table 5. Cross Sectional Model Analysis

Panel A. On Market

Intercept	B/M	Size	ROA	Δ DIV
0.076 (0.03)	0.014 (0.681)		-0.349 (0.014)	-0.083 (0.910)
0.362 (0.018)		-0.022 (0.066)	-0.341 (0.010)	0.174 (0.806)
0.353 (0.023)	0.018 (0.579)	-0.023 (0.064)	-0.328 (0.016)	0.221 (0.760)

Panel B. Off Market

Intercept	Size	FCF	Δ DIV	Δ Debt
-0.067 (0.860)	0.020 (0.551)	0.078 (0.754)	11.791 (0.008)	0.929 (0.117)

In Panel A, the dependent variable is CAR from day -20 to day +20. Size is approximated by the natural logarithm of total asset. B/M is firms Book to Market ratio. ROA is Return on assets computed as net income over total assets. Δ DIV is the change in dividend scaled by total assets. The number of sample is 37 firm announcements. For Panel B, the dependent variable is CAR from day -10 to day +10. FCF is the firm free cash flow and defined as earnings before depreciation, interest and tax - Dividend - Interest - Tax. Δ Debt is the change in long term debt scaled by total assets. The number of sample is 18 firm announcements. p-values are reported in parentheses.

Table 6. Cross Sectional Model for Actual Repurchases

Intercept	B/M	Size	Δ Div
0.080 (0.035)	-0.027 (0.478)		-1.227 (0.361)
0.325 (0.020)		-0.022 (0.050)	-0.690 (0.570)
0.369 (0.013)	-0.036 (0.324)	-0.023 (0.040)	-1.039 (0.413)

Dependent variable is CAR from day -20 to day +20. Size is approximated by the natural logarithm of total asset. Δ Div is the change in dividend. B/M is book to market ratio, and Δ Div is the change in cash dividends scaled by total assets. The number of sample is 32 firm announcements. p-values are reported in parentheses.

Table 7. Earnings Management and Share Repurchases

Panel A. Open Market

Intercept	DAC	NDE
0.066 (0.001)	-0.061 (0.722)	0.000 (0.287)

Panel B. SIGN TEST (+/-)

DAC ₋₁	DAC ₀	DAC ₀ – DAC ₋₁
18/11 [0.132]	24/5 [0.000]	20/9 [0.031]

Panel C. Tender Offer

Intercept	DAC	NDE
0.101 (0.218)	0.177 (0.613)	-0.105 (0.471)

The dependent variable in Panel A is the cumulative average abnormal return of the sample firms computed -20 days before and 20 days after the repurchase announcements. DAC is the firm discretionary accruals. NDE is the sum of non discretionary income and cash flows. The number of sample is 36 firm announcements. There are 29 data used in the nonparametric sign test in Panel B. The dependent variable in Panel C is the cumulative average abnormal return of the sample firms computed over 10 days prior to and 10 days after the announcements. The number of sample is 18 firm announcements. p-values are reported in parentheses and one tail probability values are reported in brackets.

Figure 1. On market cumulative abnormal return from day -20 to +20.

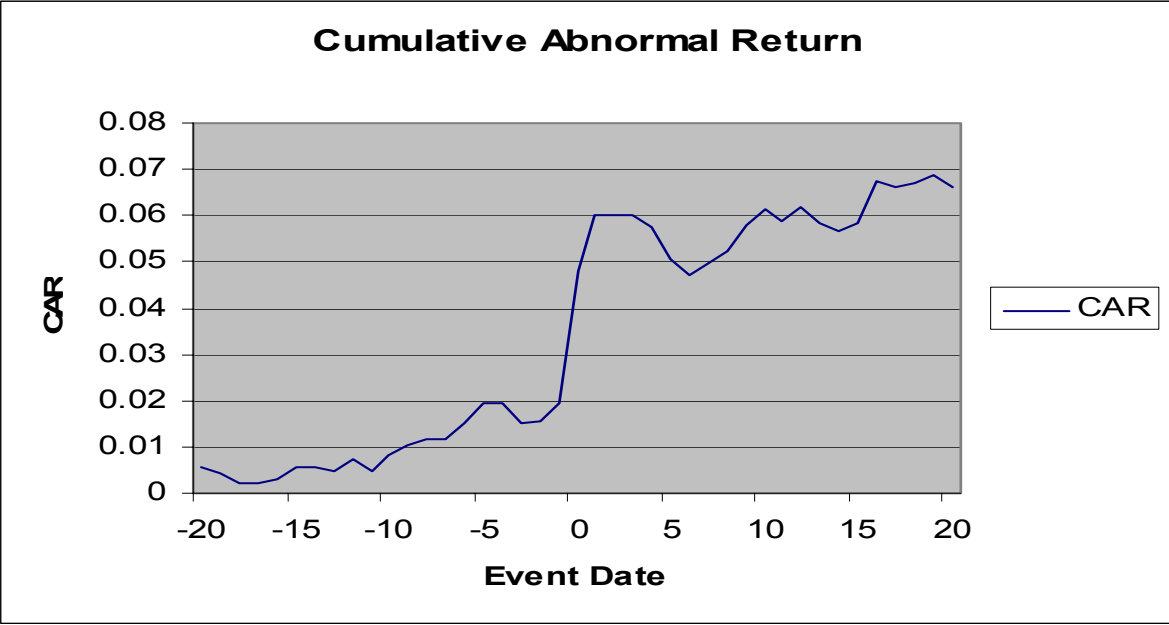


Figure 2. Off market cumulative abnormal return from day -20 to +20.

