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The Announcement Effects of Off-Market Share Repurchases in Australia

by

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Abstract:

This paper investigates the price and volume behaviour around the announcement of a type of off-market repurchase (equal access repurchases) in Australia. In contrast to US studies which document abnormal returns of around 8% for off-market repurchases, we find much smaller but significant abnormal returns of around 1.2% on the announcement date for equal access repurchases. The evidence suggests that the abnormal returns are related to the discount-to-market price at which the offer is made (which reflects special taxation arrangements). We also document a dramatic increase in trading volume on the announcement and subsequent day and argue that this trading may be motivated by the level of tax benefits passed on to participating shareholders.

Keywords:

IMPUTATION; BUYBACK; REPURCHASE; OFF-MARKET; EQUAL ACCESS.

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1. Introduction

An important idea in the finance literature is that managers are better informed than outsiders. For example, if they believe that the firm's shares are undervalued then this information can be signaled to the market by announcing a stock repurchase.¹ Empirical studies investigating this signaling/undervaluation hypothesis include Dann (1981), Vermaelen (1981), Comment and Jarrell (1991) and D'Mello and Schroff (2000). These studies document that the pre-announcement cumulative abnormal returns are negative, while on the announcement date the share price increases significantly, thus supporting the undervaluation hypothesis. Other motivations for managers to undertake repurchases may also be consistent with the observation of significant abnormal returns on announcement. For example, the disbursement of cash to shareholders mitigates the overinvestment problem (Jensen 1986) and results in a reduction in agency costs. It is also possible that the market reacts positively if the disbursement of cash via share repurchases is tax-advantaged for shareholders (Anderson & Dyl 2004).

Much of our understanding about the effects of share repurchases on the behaviour of the underlying share price is based on research carried out on US data. The purpose of this paper is to investigate the effect of companies announcing repurchases in a different institutional setting: Australian companies undertaking equal access repurchases. An equal access repurchase is an offer by the company to all shareholders to buy back some or all of their ordinary shares.² In this paper 28 equal access repurchases conducted in the Australian market over the years 1996 to 2003 are examined. Our interest is motivated by key differences between the U.S. and Australian markets. First, the taxation treatment of the sale price is different from that of self-tender offers in the US. In Australia a portion of the sale price can be designated as a dividend, and because Australia operates a dividend imputation system, this can result in tax advantages for selling shareholders. Moreover, the remainder of the sale price, referred to as the capital component can be very low, even to the point of generating capital losses (and subsequent capital gains tax relief) for selling shareholders. Second, this tax treatment is important because it often results in companies buying back shares at a discount to the market price (Brown & Efthim 2005). This stands in stark contrast to the situation in the US where self-tender offers are almost always conducted at a premium to the market price. Third, because an offer to repurchase shares at a discount to the market price is a less credible signal of undervaluation, studying the announcement effects in this institutional environment, may contribute to an understanding of the extent to which taxes influence market reaction to the announcement.

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1. The terms 'repurchase' and 'buyback' are used interchangeably throughout the paper. In the US on-market repurchases are generally referred to as open-market and off-market repurchases are referred to as tender offers. In Australia, as in the US, in an off-market repurchase the buyback price can be fixed or determined through a Dutch auction.
 2. See Section 257B of the Corporations Act (2001). Although the Act states that 'the offers are to be made to every person who holds ordinary shares to buy back the same percentage of their ordinary shares' the Australian Securities and Investment Commission (ASIC) currently facilitates off-market buybacks by allowing companies to invite shareholders to tender some or all of their shares using a 'Dutch auction' system
(See: http://www.asic.gov.au/asic/asic_pub.nsf/print/05-44+ASIC%E2%80%99S+position+on+off-market+share+buy-backs+incorporating+fully+franked+dividends?opendocument).

In addition this paper analyzes the changes in the trading volume around equal access repurchase announcements. On average, volume increases dramatically in the days surrounding the announcement. There is evidence of abnormal trading volume in the days leading up to the announcement, and significant abnormal trading volume on the announcement day, indicative of tax motivated trading.

The structure of the paper is as follows. The next section reviews the relevant literature. Section 3 contains a description of the data and the research design. In section 4 we present the results and analysis and section 5 contains conclusions and suggestions for further research.

2. Previous Research

The literature is replete with possible motives for firms to repurchase their stock. Grullon and Michaely (2004) however argue that evidence from US studies suggests that the two predominant explanations are the information/signaling hypothesis and the free cash flow hypothesis. Information asymmetry arises because managers and other insiders possess information that outside investors do not have access to. Managers use the repurchase to signal disagreement with the current share price. The announcement of a repurchase may signal better prospects for the company as in Vermaelen (1981, 1984), or that the company is currently undervalued as in Barclay and Smith (1988). In both cases the market reacts positively. Grullon and Ikenberry (2000) argue that both views are consistent with undervaluation; the first arises because managers are unable to communicate future prospects whereas the second suggests market inefficiency. D'Mello and Schroff (2000) directly test whether firms announcing fixed-price tender offers are undervalued relative to their true economic value, measured using an earnings-based model. They find that repurchasing firms are significantly undervalued relative to a control group of companies.

In contrast to the information/signaling hypothesis, under the free cash flow hypothesis (which has its origins in Jensen 1986) the announcement of the repurchase serves as a signal that the firm's investment opportunity set is declining and that it is moving to a different stage in its life cycle. The signal serves to reassure investors that management will not squander resources and the market responds positively.

Anderson and Dyl (2004) find that offer premiums are negatively related to a firm's pre-announcement returns, suggesting that better performing firms use the repurchase to distribute free cash flow, whereas less well performing companies may use the repurchase to signal undervaluation. Brown (1988) and Anderson and Dyl find that taxes play a significant role in the structure of self-tender offers.

On-market repurchases are the predominant buyback method in the US. Hence much of the empirical evidence accumulated to investigate whether firms announcing repurchases are undervalued and whether firms can exploit this undervaluation, relates to on-market repurchases. See for example, Rau and Vermaelen (2002), Ikenberry, Lakonishok and Vermaelen (1995, 2000), Stephens and Weisbach (1998). Grullon and Michaely (2004) reject the information/signaling hypothesis for on-market repurchases because firms are not found to have increased profitability after the repurchase.

Both on- and off-market share repurchase announcements are associated with a positive stock price reaction. Evidence from US studies includes Dann (1981), Vermaelen (1981), Comment and Jarrell (1991), Ikenberry, Lakonishok and Vermaelen (1995, 2000), Stephens and Weisbach (1998), D'Mello and Schroff (2000) and more recently Anderson and Dyl (2004) and Grullon and Michaely (2004). Findings from these studies suggest that fixed price tender offers have the largest positive market reaction, followed by tenders offers conducted using a Dutch auction, with on market repurchases having the smallest market reaction. For example, Comment and Jarrell (1991) find average excess returns on announcement of 11% for fixed price tender offers, 7.7% for dutch auctions and around 2.3% for open market repurchases. Comment and Jarrell (1991) and Bagwell (1992) find that the size of the market response for dutch auctions is highly positively correlated with the ultimate offer premium (measured as the difference between the offer price and the market price on the day before the announcement).

Evidence outside the United States is provided by Ikenberry, Lakonishok and Vermaelen (2000) who document abnormal returns of 0.93% in the month of the announcement for Canadian firms undertaking on-market buybacks. In the UK Rau and Vermaelen (2002) find smaller excess returns on announcement of a repurchase than documented for US studies, and also smaller long-run excess returns. They reject the hypothesis that firms in the UK undertake repurchases because the stock is undervalued. They argue that the regulatory regime discourages stock repurchases in the UK and that firms are influenced by large institutional shareholders such as pension funds when deciding on payout policy. Oswald and Young (2004) suggest that the conclusions of Rau and Vermaelen are partly driven by an incomplete dataset; they find that undervaluation remains an important determinant of open market repurchase activity in the UK. In Taiwan Chen, Chen and Cheng (2004) find significantly positive cumulative abnormal returns of 1.64% in a three day window around the announcement date for restricted on-market repurchases.³ Hatakeda and Isagawa (2004) report that Japanese firms announcing stock repurchases experience average abnormal returns of 2.36% in the three day window surrounding the announcement. In their dataset it was not possible to distinguish between open-market and off-market repurchases at the announcement date.

In Australia, Balachandran and Faff (2004) report an average mean abnormal return of 2.72% for the three days surrounding the announcement of an on-market buyback over the period 1996-1999, while Lamba and Ramsay (2005) document abnormal returns of 3.3% for the same window over 1996-1998. Using a sample of on- and off market buybacks over the period 1996 to 2000 Mitchell and Watson (2004) find cumulative abnormal returns of 2.61% (1.73%) over the five days surrounding the announcement for on-market (equal access) buybacks. In Mitchell and Watson's study the abnormal returns are significant for on-market repurchases only.⁴ In sum, evidence both within and outside the U.S. supports the idea that on

3. The regulatory environment in Taiwan is similar to Australia: managers must announce to the stock market their motivation for undertaking the share repurchase.

4. Earlier studies which also find positive abnormal returns include Harris and Ramsay (1995), Christiano, Clarke and Mitchell (1997).

average the capital market views a repurchase (both on- and off-market) as a positive signal.

Evidence on abnormal volume around the announcement of repurchase programs is provided by Lakonishok and Vermaelen (1990) for fixed price tender offers. They report a substantial increase in trading activity after announcement of the repurchase, suggesting that shareholders may be willing to sell at a discount to avoid the uncertainty surrounding the buyback event. Alternatively, actions of arbitrageurs, buying in order to participate in the buyback may be driving the volume increase. Bagwell (1992) finds similar volume patterns for self-tender offers conducted by dutch auction, with average trading volume on announcement day over 800% of normal volume. Results from both these studies suggest an extremely liquid market around the announcement and up to expiration of the buyback, with trading volumes above normal.

3. Share Buy Backs in Australia

Until 1989 companies in Australia were prohibited from undertaking share repurchases. It was not until after December 1995⁵ when the laws governing buybacks were substantially liberalized, that there was a large increase in the number of share repurchase programs. Companies can repurchase shares in the ordinary course of trading on the stock exchange: these repurchases are known as on-market share buybacks. This paper focuses upon off market buybacks which take the form of equal access repurchases. An equal access buyback is one in which the company makes an offer to repurchase shares from all eligible shareholders at a price which is either fixed by the company or determined by a tender process. Other forms off market repurchases include selective buybacks and minimum holding buybacks. Brown and O'Day (2007) provide more detail.

Over the years from 1996 to 2003 inclusive approximately \$10.5 billion (\$12.1 billion) of shares were repurchased by Australian companies in around 350 (45) on-market (off-market) buybacks. While the number of off-market buybacks is small by comparison with on-market repurchases the size of each repurchase is large.⁶ Equal access share buybacks⁷ are common in both Australia and in the US markets, however because of differing tax regimes the relation between buyback and market prices differs substantially different between the two countries.

In Australia equal access repurchases are generally completed at a discount to the announcement date price, while in the US they are generally completed at a premium.⁸ The reason for this difference is the special taxation treatment in Australia of the sale price for shareholders. Australia operates under a dividend imputation system, where dividends may have franking credits attached to them that allow shareholders to claim the tax paid at the company level as a credit

5. First Corporate Law Simplification Bill, December 1995.

6. The average percentage of shares repurchased in the equal access (on-market) buybacks is 14.8% (6.4%) over 1997–2003, as reported by Brown and O'Day (2007). Data for the on-market repurchases is sourced from Securities Data Company (SDC) and the IRESS Signal G Database.

7. In the US such off-market repurchases are called self-tender offers. The shares may be offered using fixed pricing or a Dutch auction as the mechanism for setting the offer price. See Hodrick (1999) and Comment and Jarrell (1991) for a detailed description of the two methods.

8. In a sample of over 400 fixed price tender offers in the US fewer than 5 were completed at a discount (Anderson & Dyl 2004).

against their personal income tax liability. Under the rules governing equal access repurchases in Australia, companies can designate a portion of the repurchase price as a dividend and, providing the company has franking credits in its Franking Account Balance, imputation tax credits can be attached to that portion. The remainder of the repurchase price is a capital component.⁹ Because a large portion of the buyback price can be a fully franked dividend the capital component (treated, subject to some qualification, as the sale price for tax purposes) can be quite low, which may result in participating shareholders incurring a capital loss for tax purposes (depending on their purchase price or cost base).¹⁰ This tax structure has benefits for some Australian resident shareholders such that they may be willing to sell shares into the buyback at a price below the market price of the shares. In contrast in a US self-tender offer shares are generally bought back at a premium, because tendering the shares implies that the capital gains tax immediately becomes due for the participating shareholders.

As a consequence of this tax treatment in Australia many fixed price equal access repurchases are announced with a repurchase price that is lower than the current share price, while in the case of Dutch auctions the indicative price range generally has an upper limit below the market price of the shares at announcement of the buyback. As discussed in the previous section the information signaling/undervaluation hypothesis developed by Dann (1981) and Vermaelen (1981) is consistent with the observation of positive abnormal returns on announcement of self-tender offers in the US where shares are generally offered at a *premium* to the market price. Moreover, as found in Bagwell (1992) and confirmed in the study by Anderson and Dyl (2004), the magnitude of the response is positively related to the premium over market price (measured either 1 or 10 days prior to the announcement) at which the offer is made. Although the empirical evidence appears limited, it seems not unreasonable to assume that in countries where the sale price is subject to capital gains tax only that off-market repurchases will generally occur at a premium to market price, because selling the shares triggers the tax liability, as argued by Anderson and Dyl (2004). In the US the size of the market response to the announcement is positively related to the premium. In Australia where such repurchases often occur at a discount to market price, *a priori* one might expect the market response to be somewhat lower than in the US. Furthermore, announcing a repurchase that is to be completed at a discount is a far less credible signal of undervaluation.

4. Data

Our sample of equal access repurchases commences in January 1996 after the First Corporate Law Simplification Bill, and finishes in December 2003 prior to the changes in the way in which the capital gains tax must be calculated for

9. Australia's tax system is regulated under the Income Tax Assessment Act (ITAA) 1936 and 1997. The rules governing equal access repurchases include seeking a ruling from the Commissioner of Taxation when the company wants to structure the buyback with a dividend component with franking credits attached.

10. The manner in which the capital gains tax liability is calculated changed after January 2004. This new tax treatment does not affect the sample studied here, which includes data up to December 2003. See footnote 11.

shareholders participating in an equal access repurchase. The sample was constructed using Signal G announcements to the ASX sourced from Aspect Financial Database and verified using announcements on the ASX web-site. We constructed the returns series from share prices and the volume statistics from data supplied by Securities Industry Research Centre of Asia-Pacific (SIRCA) on behalf of ASX. There were some exclusions from the sample of around 45 companies that completed off-market buybacks over the period January 1996 to December 2003. Companies were excluded from the final sample if they completed equal access buybacks in response to a takeover or as an alternative to a pure capital return when winding up, or if they subsequently were delisted. Companies that issued publicly traded rights to participate in their buyback and companies that bought back ordinary shares for convertible notes were also excluded. Companies that announced buybacks but did not subsequently complete a buyback were also excluded. This resulted in a sample of 28 companies. Details of our sample (and exclusions) are given in the Appendix. In addition, one company was excluded from the final sample for the volume analysis because it had a trading volume 38 times the normal average volume on the announcement day.¹¹

Table 1 presents summary statistics for the sample. Even though the sample contains a small number of cases, the total value of shares repurchased is equivalent to around 3 times the average daily turnover on the Australian Stock Exchange. The average (median) proportion of outstanding shares bought back is 11.6 (7.3)%, with 21 of the repurchases buying back less than 10% of the outstanding stock. Ten repurchases were fully subscribed or oversubscribed with the mean (median) ratio of shares sought to shares repurchases 85.2 (91.9)%. The mean (median) offer premium is 8.40 (3.59)%. However, the total aggregate discount for the 28 companies in the sample is approximately \$150 million. That is, companies in the sample paid in total \$150 million less than the total market value (measured ten days prior to the announcement) for shares repurchased. Although only 11 of the 28 companies actually repurchased shares at a discount to market price, these tend to be the larger repurchases and consequently the aggregate 'premium' to market price is negative.

11. Capral Aluminium was excluded from the volume analysis. The abnormal returns analysis is also run excluding this company. The results do not change, as the abnormal return for CAA on the announcement day (0.542%) is not an outlier.

Table 1
Descriptive Statistics

This table reports the descriptive statistics for a sample of 28 companies conducting equal access repurchases from January 1996 to December 2003. The offer premium (%) is measured as the difference between the offer price and the share price 10 trading days before the announcement (S_{t-10}), divided by S_{t-10} . Trading volume is measured as the average daily trading volume from $t-40$, to $t-10$, where t is the announcement date. Daily volume is calculated over the period from 120 days before to 21 days before the announcement of the buyback, in order to calculate standardized abnormal volumes.

Variable	Mean	Median
Shares sought	68,151,064	50,000,000
Shares bought back	58,945,761	40,271,620
Shares bought back (percent of outstanding)	11.58%	7.29%
Total dollar value of repurchased shares	\$9.83 billion	
Shares sought/shares repurchased	85.2%	91.9%
Offer premium (equally weighted) (percent)	8.40%	3.55%
Offer premium total (\$m)	-\$149.51	
(percent of total repurchase amount)	-1.5%	
Trading volume (percent of shares sought)	2.84%	1.56%
Pre-offer share price	\$7.52	\$4.68
Average daily volume of shares traded over days [-120,-21]	2.23 million	1.40 million

5. Price and Volume Effects

Important dates for a company engaging in an off-market buyback are the announcement date, the ex-entitlement date and the date when the offer closes. For the companies in the sample the earliest ex-entitlement date is 3 days after the announcement. The ex-entitlement date occurs on average 14 days after announcement for the 22 firms for which this data was available. The average time taken to complete the buyback is 57 days.

To be entitled to a franking credit, franking rebate, or intercorporate dividend rebate in relation to a particular dividend for the purposes of Division 1A of Part IIIA of the ITAA 1936, a taxpayer must have held the shares for at least 45 days, as described in section 160APHO of the ITAA 1936. Thus, investors intending to buy shares around the announcement date in order to participate in the buyback and gain the tax advantages of the buyback must hold the shares for at least 45 days (not including the purchase date and the resale date) to be eligible for the franking credits attaching to the dividend component (if any) of the buyback. We hypothesize that regulation may induce tax-motivated trading around the announcement date and lead to abnormal volumes as investors buy the shares in order to participate in the buyback.

Figure 1
Cumulative Abnormal Returns Over the Event Window

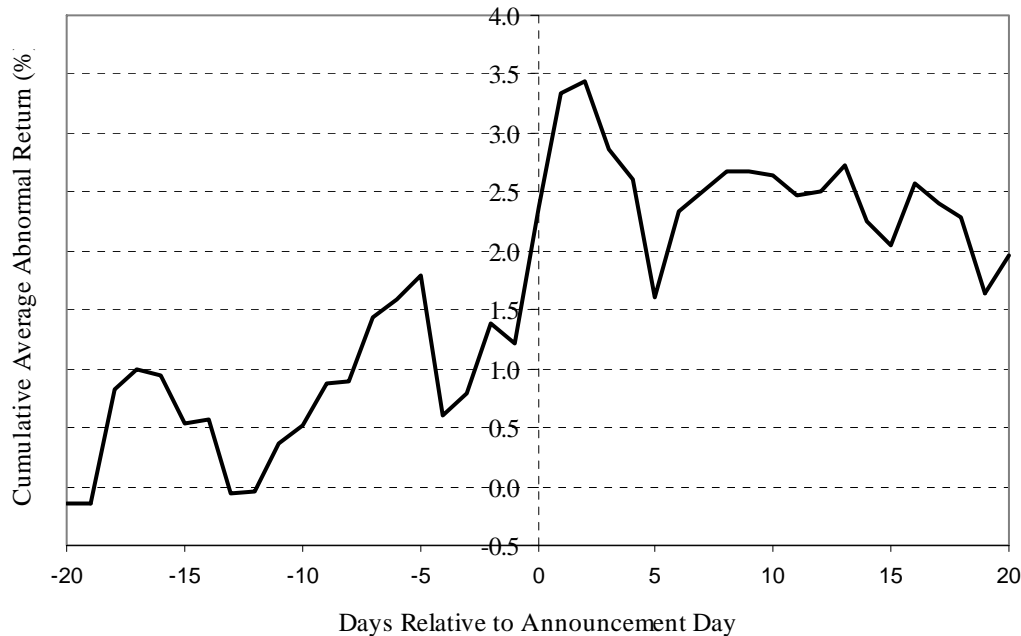


Figure 1 shows the cumulative abnormal returns over the window $(-20,+20)$ relative to the announcement date of 0 and table 2 presents the results for the daily average abnormal (market-adjusted) returns¹² and standardized abnormal volumes (SAV) over $(-3,+20)$. We focus our discussion first on the price behaviour. Figure 1 shows that on average investors think buybacks are a good idea. Even after a drop-off on day 3 and subsequently, in the twenty day window the average cumulative abnormal returns are around two percent.

To ensure that outliers are not affecting the conclusions we also use a non-parametric binomial test to calculate p-values under the hypothesis that the probability of observing positive abnormal returns on any day should be 0.5. Using the parametric test, on day 0 and day 1 positive and significant abnormal returns are observed at the 10 and 5% levels respectively. The non-parametric test of abnormal returns on the announcement date is significant (p-value of 0.0063).

We note that the abnormal returns are much lower than the 7.7% reported by Bagwell (1992) for self-tender offers in the US. This observation is consistent with the argument that announcement of off-market repurchases in Australia (which are often) executed at a discount to market price is a less credible signal of

12. Abnormal returns are measured as continuously compounded returns minus the return on the All Ordinaries Accumulation Index. See Brown and Warner (1985). Companies EPI and IBC are excluded from this analysis. Data was not available from SIRCA and there were few trades over the event window in these two companies. The sample size is thus reduced to 28. The last two columns of the table refer to standardized abnormal volumes which are discussed in the next section.

undervaluation than the announcement of self-tender offers in the U.S. that are (almost always) executed at a premium to market price. If the announcement is not signaling undervaluation, the market could be reacting to the reduction in agency costs (Jensen 1986) or an increase in leverage (Young 1969; Lie 2002).

Table 2
Summary of Abnormal Returns and Standardized Abnormal Volumes (SAVs)

This table gives the abnormal returns (column 2) and the standardized abnormal volumes (column 5). The p-values correspond to a non-parametric binomial test.

* Statistically significant at the 0.10 level (two-tailed test)

** Statistically significant at the 0.05 level (two-tailed test)

***Statistically significant at the 0.01 level (two-tailed test).

Event Day	Average Abnormal Returns	t-statistic	p-value (non-parametric)	SAV	t-statistic	p-value (non-parametric)
-3	0.243	0.570	0.1725	0.143	0.7197	0.2210
-2	0.398	0.775	0.4253	-0.027	-0.1374	0.0261
-1	-0.371	-0.430	0.2858	-0.107	-0.5382	0.0610
0	1.235	1.914*	0.0063***	0.856	4.2926***	0.0261**
1	0.925	2.188**	0.1725	0.531	2.6647***	0.1239
2	0.105	0.308	0.4253	0.312	1.5675	0.5000
3	-0.473	-1.452	0.5747	0.277	1.3882	0.0261**
4	-0.462	-1.688*	0.0436*	-0.075	-0.3772	0.0610
5	-0.828	-3.069***	0.0178**	-0.312	-1.5650	0.0096**
6	0.846	1.583	0.0925	-0.376	-1.8874*	0.0000***
7	0.023	0.069	0.4253	-0.501	-2.5156***	0.0000***
8	0.179	0.565	0.5747	-0.239	-1.2014	0.0002***
9	-0.059	-0.283	0.4253	-0.067	-0.3360	0.0610
10	0.116	0.421	0.5747	-0.110	-0.5528	0.0261**
11	-0.105	-0.278	0.5747	-0.105	-0.5260	0.0008***
12	0.104	0.384	0.4253	-0.034	-0.1722	0.0008***
13	0.236	0.991	0.2858	-0.154	-0.7728	0.0030***
14	-0.438	-0.726	0.4253	0.021	0.1069	0.0096**
15	-0.192	-0.549	0.1725	0.006	0.0287	0.0030***
16	0.471	1.542	0.4253	0.040	0.1988	0.1239
17	-0.115	-0.380	0.4253	0.084	0.4212	0.0096**
18	-0.134	-0.603	0.5747	-0.133	-0.6685	0.0096**
19	-0.711	-2.377**	0.0436*	0.106	0.5322	0.1239
20	0.298	0.722	0.5747	0.078	0.3932	0.2210

Another explanation for the positive and significant response to the announcement may be a revaluation of the shares on the information that franking credits are to be distributed. Anderson and Dyl (2004) argue that taxes affect the structure of open-

tender repurchases in the U.S., and in Australia Brown and Efthim (2005) find a positive and significant relation between the discount in off-market repurchases and the imputation tax credits passed on to participating shareholders. Brown and Davis (2006) argue that because the buyback triggers an overall reduction in shareholder tax liabilities to the cost of the government, shareholders in aggregate must be better off.

To investigate the relation between the returns and the structure of the buyback we run a regression of the cumulative abnormal returns (CARs) over the window [0,+5] on the premium to the market price

$$CAR = \alpha + \beta Premium \quad (1)$$

where *Premium* measures the offer price in the buyback less the share price ten days before the announcement day. We find a coefficient for β of -0.0813 with p value 0.0918. This (marginally significant) result is consistent with the observation that the abnormal returns observed over the period between the announcement date and the ex-entitlement date are related to the share of the tax gains flowing to participating shareholders, because only companies distributing imputation tax credits are able to buy back shares at a discount to market price. These results present preliminary evidence that is contrary to the positive relationship found between the premium and abnormal returns for self-tender offers in the U.S., and suggest that taxes play an important role in the observed abnormal returns in Australia.

The structure of many off-market buybacks is most tax advantageous to shareholders with low marginal tax rates (Brown & Efthim 2005). Desire by such low tax rate investors to participate in the buyback may lead to temporary demand pressure following the announcement. We might therefore expect that the significantly positive (negative) abnormal returns observed on days 0 and 1 (4 and 5) are associated with abnormal trading activity on those days. We measure standardized abnormal trading volume using the measure of Lakonishok and Vermaelen (1986). Abnormal trading volume for each day for each share i is defined as $AVol_i = (Vol_i - NVol_i)/NVol_i$ where Vol_i is daily trading volume in share i and $NVol_i$ is an estimate of normal trading volume for each share. We use the 100 days immediately prior to our event window to estimate normal trading volume as the average daily trading volume over the window $[-120, -21]$. Using the announcement date as the event date we compute daily standardized abnormal volume over the window $[-20, +20]$. Standardised abnormal volume (SAV) for share i is defined as

$$SAV_i = \frac{AVOL_i}{\sigma(AVol_i)},$$

where $\sigma(AVol_i)$ is the estimated standard deviation computed over the 100 day period $[-120, -21]$ prior to the announcement of the buyback.

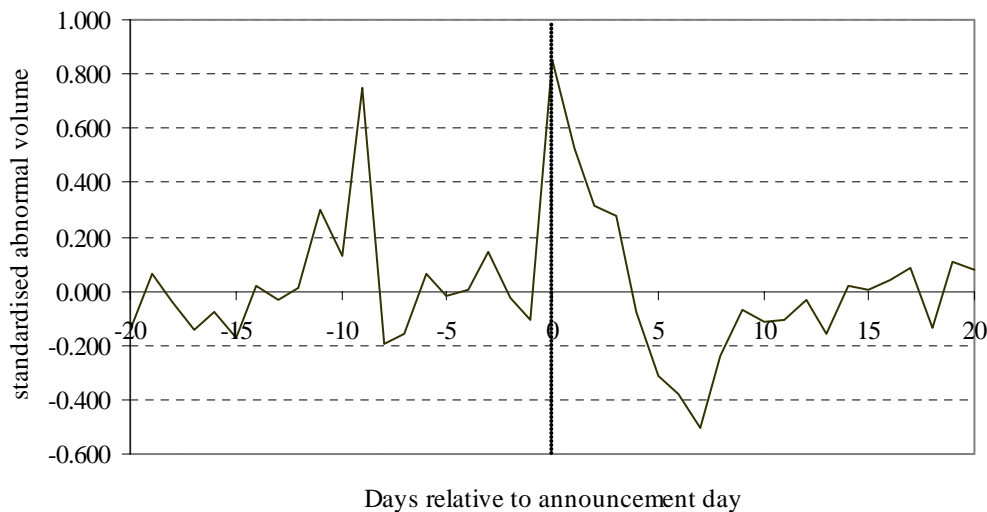
Following Lakonishok and Vermaelen (1986) we compute the t-statistic as

$$\hat{t} = \frac{\sum_{i=1}^n SAV_i / n}{\sigma(SAV)}$$

where $\sigma(\overline{SAV})$ is the standard deviation of the mean standardized abnormal volume.

Figure 2 and the results in the last three columns of table 2 illustrate the trading behaviour around the announcement of the buyback. Prior to the announcement there is some evidence of abnormal trading volume. On the announcement day standardized abnormal volume is over 85% above normal levels and is significant using both the parametric and non-parametric tests. It remains positive on day 1 at over 53% above normal levels. The standardized abnormal volume remains positive until four days after the announcement when there is a substantial reduction in trading volume. Using the non-parametric test the standardised abnormal volume becomes significantly negative from day 4 and remains negative (and mostly significant) until day 13.

Figure 2
Standardised Abnormal Volumes



One way in which these results can be interpreted is the following. On days 0, 1, 2, and 3 volumes are above normal. This temporary demand for the shares is argued by Brown and Efthim (2005) and Brown and Davis (2006) to originate mainly from superannuation funds which gain tax advantages from participating in the buyback because of their low marginal tax rate. Once positions in the stock have been set, abnormal volume and abnormal returns drop and become significantly negative by day 4.

The standardized abnormal volumes observed in figure 2 around 10 days before the announcement are the subject of an investigation by Brown (2007). It

appears that there has been anticipatory trading prior to the announcement of the buyback in situations where the buyback intention has been announced at the previous AGM. This happens in instances of buybacks where there were fewer than 45 days between the announcement and close of the buyback. In these instances investors could purchase the shares and receive the tax benefits from selling those shares into the buyback only by purchasing shares *prior* to the announcement date. Note that for our sample of buyback companies the average time between the entitlement date and the closure of the offer is around 57 days.

In order to investigate whether abnormal trading activity is related to the structure of the buyback we examine the relation between abnormal volume and the discount to market price of the buyback, by running the following regression.

$$SAV_W = \alpha + \beta Premium \quad (2)$$

where *Premium* has been defined previously and SAV_W refers to the standardized abnormal volume measured on different days relative to the announcement day. Under the hypothesis that there is some tax-motivated trading around announcement of the buyback, we expect abnormal volume to be negatively related to the premium at which the shares are offered to be bought back. Put differently, on the days following the announcement the abnormal volume is expected to be positively correlated with the discount to market price.

Table 3 provides the results of running the regression in equation (2). It is clear that abnormal volumes one and two days after the announcement are significantly and positively related to the *discount* to market price at which the buyback occurs. This abnormal trading activity is consistent with the notion that tax-motivated trading is induced when the off-market buyback is offered at a discount to the market price.

Table 3
The Relation Between Abnormal Volumes and the Discount

This table gives the results of running the regression $SAV_W = \alpha + \beta Premium$ across the stocks in the sample for each of the days relative to the announcement day.

	Days Relative to Announcement Day (day 0)								
	-4	-3	-2	-1	0	1	2	3	4
α	-0.0532 (-0.3461)	0.1428 (0.6552)	-0.1403 (-0.6820)	-0.2116 (-1.4735)	2.1671 (1.5902)	0.6981 (2.8753)	0.3195 (1.9173)	0.2487 (0.7723)	-0.1032 (-0.8942)
β	0.0369 (0.3573)	0.0170 (0.1158)	0.2100 (1.5164)	0.1932 (1.9987)	-0.5543 (-0.4963)	-0.3407 (-1.7123)	-0.4005 (-2.9331)	-0.1841 (-0.6977)	-0.0347 (-0.3665)

6. Summary and Conclusions

In this paper we conduct an empirical examination of the stock price and trading behaviour around announcements of equal access repurchases for Australian firms. Australia offers a unique environment for investigating announcement effects, because equal access repurchases often occur at a discount to the market price. We

find that on average stock prices experience significant positive abnormal returns on announcement. There is marginal support for the proposition that these abnormal returns are positively related to the amount by which the offer price is *discounted* relative to the market price. This is in stark contrast to empirical results based on U.S. data where the announcement returns have been shown to be positively related to the repurchase *premium*.

The two predominant explanations for the positive and significant abnormal returns on announcement of a buyback are that the firm is signaling undervaluation or a reduction in agency costs through distribution of free cash flows. We have argued that off-market buybacks executed at a price below market are a less credible signal of undervaluation. While the agency cost argument has not been addressed in this study, we suggest that the positive market reaction is at least in part a response to the distribution of imputation tax credits. This argument is supported by the significantly positive abnormal trading volume on announcement of the repurchase, which is related to the discount to market price at which the company offers to repurchase the shares.

Future research can investigate the relation between the tax credits associated with the equal access repurchases and the announcement returns. One possible experiment could be a detailed comparison of returns before and after the changes to the capital gains tax calculations announced in January 2004, once sufficient data is available.¹³

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13. Preliminary investigations by the author on a sample of 36 equal access repurchases over the period 1996 to 2004 find the CARs peak on day 1 at 2.94%, whereas for the current study (where the tax benefits are greater) the CARs peak on day 2 at 3.52%.

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Appendix

Sample of Equal Access Share Repurchases

Our sample was constructed using off-market share repurchases completed over the period 1st January 1996 to 31st December 2003 utilizing Aspect Financial Database and complemented with checking the ASX site for company announcements. The results were screened to exclude companies that undertook buybacks in response to a takeover or as an alternative to a pure capital return when winding up. Companies that bought back ordinary shares and subsequently issued convertible notes were also excluded, as were those that did not actually complete the buyback. Selective buybacks are also excluded. The premium measures the percentage of the offer price over the share price 10 days prior to the announcement. The total premium is measured as the total cost to the company of shares repurchased relative to what it would have cost to purchase the same number of shares 10 days prior to the buyback. Exclusions included: (i) Equity and Property Investment Corporation as it subsequently requested to be delisted from the stock exchange because it failed to satisfy the listing requirement of a minimum spread of shareholders; (ii) St George Bank and West Australia Newspapers because they issued publicly traded buyback rights to participate in their equal access buybacks; and, (iii) Guinness Peat Group because it offered to buyback ordinary shares for convertible notes. Selective buybacks exclusions were: CocaCola Amatil, Jupiters, Rio Tinto, Crown Diamonds, Cable & Wireless Optus, Merchant House International, Vealls Limited, Atlas Group, Australian Food & Fibre Ltd, Fosters, Orica, John Fairfax. Howard Smith and Just Jeans Group were companies that were excluded because they were taken over or wound up.

Company	Date announced	Dividend component (%)	Premium (%)	Total Premium (\$m)	% repurchased
Ansell (Pacific Dunlop)	2-Oct-00	0.00	5.96	9.18	9.9
Aurion Gold (Goldfields Limited)	17-Mar-99	0.00	41.13	38.62	31.6
Bank of Qld	6-Apr-01	51.16	9.69	2.21	5.9
Capral Aluminium	13-Feb-01	31.51	-6.01	-19.45	67.5
Carlton Investments Limited	30-Sep-99	60.00	23.76	2.14	3.2
CBA 1	12-Nov-97	59.02	-0.41	-2.67	4.0
CBA 2	10-Feb-99	62.15	-6.01	-41.60	2.9
CBA 3	30-Sep-99	0.00	17.19	81.12	2.2
CBA 4	13-Feb-01	64.08	-13.00	-104.59	2.0
Fosters Brewing Group	6-Nov-03	54.75	-8.37	-63.50	7.6
Gowing Brothers	7-Oct-99	61.54	5.98	0.0768	1.5
GUD Holdings	8-Aug-00	0.00	0.00	0.00	0.9
Gympie Gold Limited	28-Oct-96	0.00	30.95	1.23	7.6
IAG (NRMA)	2-Mar-01	34.56	-1.09	-4.46	9.6
Insurance Australia Group Ltd	6-May-02	41.64	-8.96	-29.36	7.0
Lend Lease	18-Aug-00	64.79	-4.88	-90.04	17.2
Port Douglas Reef Resorts Limited	23-Oct-00	0.00	71.43	0.768	4.6
Santos	17-Oct-01	57.37	1.31	3.24	6.5
Seven Network 1	5-Jul-99	0.00	14.68	41.60	20.4
Seven Network 2	27-Aug-02	65.00	4.50	8.36	13.4
Seven Network 3	24-Oct-03	40.00	0.17	0.334	13.4
Software Communication Group Limited	15-Oct-02	0.00	21.21	0.596	48.8
TAB Limited	21-Mar-02	14.23	-0.72	-0.978	9.8
Telstra Corporation	3-Oct-03	64.29	-15.93	-188.20	1.9
Wattyl Limited	17-May-99	58.13	2.44	0.692	7.7
Woolworths 1	14-Feb-00	50.20	1.65	8.00	8.7
Woolworths 2	30-Apr-01	66.90	-0.34	-1.20	3.7
Woolworths 3	24-Feb-03	74.74	-2.48	-13.53	4.4

