The Effects of Open-Market Stock Repurchases by Insurance Companies

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Abstract: We examine the effects of stock repurchase annnouncements on the value of the announcing insurance firms and on the value of rival insurance firms. We find that insurance firms experience a significant increase in value at the time of the announcement. Repurchasing firms continue to earn excess returns for several months after the announcement. We study the intra-industry effect of the announcements and find that there is a significant decrease in value of rival insurance firms. This suggests that perceived changes in the competitive positions of repurchasing firms occur at the expense of rival firms and dominate any signals of favorable industry conditions. Cross-sectional tests show that the increase in the value of repurchasing firms is related to the relative size of the buyback, stock returns prior to the announcement, and the market-to-book ratio. [Key words: Repurchase announcements; insurance stocks; stock buyback; intra-industry effects]

INTRODUCTION

Corporations distribute cash to shareholders primarily through cash dividends and share repurchase programs. Since 1984, there has been dramatic growth in the frequency and dollar volume of share repurchase programs. While stock repurchases amounted to only 12 percent of cash distributions prior to 1984, they accounted for over half of all cash distributions by 2000.[1] Grullon and Michaely (2004) estimate that firms spent approximately 26 percent of their total earnings between 1984 and 2000 on stock buybacks. Insurance companies have been active participants in this repurchase market. *Wall Street Journal* (WSJ) announcements of share

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repurchase programs by insurance companies indicate that between 1980 and 2000, insurance companies distributed at least $14.4 billion to shareholders through share repurchase.[2]

Several studies have examined both the rationale for the repurchases and the multiple impacts of these repurchase announcements (Vermaelen, 1981; Comment and Jarrell, 1991; Ikenberry, Lakonishok, and Vermaelen, 1995; Dittmar, 2000; Born, Giaccotto, and Ritsatos, 2004). These studies have consistently found that there is a positive stock price reaction for the firms making the repurchase announcement. Other studies have examined the impact of repurchase announcements on rival firms in the same industry (Hertzel, 1991; Erwin and Miller, 1998; Akhigbe and Madura, 1999). These studies of intra-industry effects have found that repurchase announcements do affect the value of rival firms. However, these studies have been limited to repurchase announcements made by industrial and banking firms.

The intra-industry effect of repurchase announcements by insurance firms has not been previously examined in the literature. It has been argued that the highly regulated nature of the insurance industry with its extensive reporting requirements decreases the information asymmetry between managers and investors (Born et al., 2004); therefore, a repurchase announcement by one firm may not convey significant information about the prospects for the industry. On the other hand, insurance firms operate in highly competitive and uncertain markets, despite all the regulations relating to rates, expenses, and reserves; given this, repurchase announcements may convey important information about the industry's future prospects.

In this paper, we contribute to the insurance literature by expanding our knowledge of intra-industry effects within the insurance industry, specifically those effects associated with insurance company repurchase programs.[3] We start with a study of the impact of stock repurchase announcements on the share price of the repurchasing firms and find that insurance stocks have positive abnormal returns around the announcement date. Interestingly, we find that the firms continue to experience substantial excess returns for up to 120 days following the announcement. We also find significant excess returns for firms in both the life/health and property/casualty insurance sectors.[4] Following this examination of the price effects on the repurchasing firms, we study the intra-industry impact of repurchase announcements and find that portfolios of rival firms experience a significant decrease in value in the announcement period. Finally, a cross-sectional study reveals that announcement period returns for the repurchasing firms are influenced by the fraction of the outstanding shares that are repurchased, the stock price performance in the period prior to the repurchase announcement, and the market-to-book ratio of the announcing firm.

In the next section of this paper, we briefly review the current literature on stock repurchases. In subsequent sections, we explain our data collection procedure and methodology, present a discussion of our results, and conclude.

LITERATURE REVIEW

Our effort is motivated by two existing streams of literature. Beginning with Dann (1981) and Vermaelen (1981), many studies have documented that announcements of open-market share repurchase programs are greeted with positive excess returns averaging around 3 percent for the announcing firms.[5] This price effect has been attributed to an undervaluation hypothesis, which suggests that managers, who possess superior information about the future prospects of their firm, behave opportunistically and announce repurchase programs only when they recognize that present market prices understate the true value of the firm, and markets respond positively to this undervaluation signal (Vermaelen, 1981; Comment and Jarrell, 1991). Repurchases may also be seen as reducing the firm's free cash flows and the potential for over-investment by managers; in this hypothesis, relieved investors react to repurchase announcements by bidding up the stock price (Grullon and Michaely, 2004; Born et al., 2004).

In a second stream of literature, researchers have examined the effects that open-market repurchases have on the share prices of firms that compete with repurchasing firms (Hertzel, 1991; Erwin and Miller, 1998; Akighbe and Madura, 1999). If repurchasing firms are signaling improvement in future prospects for total earnings, this signal may be transferable to the entire group of firms operating in the same sector of the industry. That is, a signal from a life insurance firm might not be firm specific, but may be indicative of an increase in total future earnings for all life insurance firms. If so, rival firms across the industry sector will experience an increase in share prices resulting from the signal transmitted by one firm that announces a repurchase program. A competing hypothesis is that the increase in earnings prospects signaled by the repurchasing firm may be coming at the expense of rival firms; as a result, the rival firms will experience a negative stock price reaction when a firm within their sector announces a repurchase program. A third possibility is that information revealed by repurchases is entirely firm specific, in which case we expect no share price reaction for the rival firms.

All three of these possible outcomes are supported by studies of repurchase announcements by industrial and banking firms. In a study of 134 tender-offer repurchase announcements made by industrial firms

between 1970 and 1984, Hertzel (1991) finds no significant intra-industry response across various industries, and concludes that information revealed by intra-firm tender offers is firm specific. On the other hand, Erwin and Miller (1998) examine open-market repurchase announcements by 240 industrial firms (in 140 industries) from 1985 to 1990 and find that, on average, rival firms react negatively to repurchase announcements within their industry (though they also report a wide variation in industry response to repurchase announcements, with many industries displaying positive, negative, or no reaction to the repurchase announcement). They cite this negative reaction as support for their hypothesis that repurchase announcements signal an improvement in the competitive position of the repurchasing firm vis-à-vis the industry. Finally, Akhigbe and Madura (1999) study a sample of 77 repurchase announcements by banking firms over the 1978–1995 period and find that both announcing firms and their rival firms experience positive returns in the announcement period. This is cited as support for the hypothesis that "good" news is contagious; what is seen as good news for the announcing firm is also seen as good news for the entire industry.

Intra-industry effects for a variety of events other than share repurchases have also been reported. Positive intra-industry "contagion" effects are reported for announcements of dividends (Firth, 1996), earnings (Foster, 1981), bank failures (Aharony and Swary, 1983), merger proposals (Eckbo, 1983), and management earnings forecasts (Baginski, 1987). Negative intra-industry "competitive" effects for bankruptcy announcements are reported by Lang and Stulz (1992). However, Lang and Stulz (1992), like Erwin and Miller (1998), document both competitive and contagion effects across a wide variety of industries with the variation in industry effect explained by measures of industry competitiveness. In the insurance literature, Carow (2001) investigates industrywide price effects of allowing banks to enter the insurance industry. He shows that Supreme Court rulings allowing banks to enter the insurance industry resulted in industrywide decreases in share price within the insurance industry. Cowan and Power (2001) show that charges for junk-bond losses at First Executive Corporation resulted in industrywide negative stock price effects within the life insurance industry.

SAMPLE DESCRIPTION AND METHODOLOGY

After examining the "reacquired shares" section of the *Wall Street Journal* Index and after doing a range of key-word searches on the Lexis-Nexis database, we prepared a list of all open-market repurchase

announcements by insurance firms in the *Wall Street Journal* from 1980 through 2000. This initial list had a sample of 112 repurchase announcements. We deleted 12 of these announcements because of the confounding signals conveyed if the repurchase announcement was made in conjunction with an earnings announcement or restructuring announcement. Four other announcements had to be dropped because stock return data for 200 days before and after the announcement date were not available on the Center for Research Security (CRSP) database. This screening process resulted in our final sample of 96 insurance company repurchase announcements over the 1980–2000 time period.

We then examined the full text of each repurchase announcement to determine if the announcement related to the initiation of a new repurchase program or the continuation of a previously announced repurchase program.[6] We classified a repurchase announcement as a "continuation" if the WSJ announcement explicitly stated that the repurchase program was a continuation or an expansion (in length of time or volume of shares to be repurchased) of a previously announced repurchase program or if the firm had announced a repurchase at any time in the previous two years. All other announcements were classified as "initiations" of repurchase programs. In our sample of 96 announcements, we classified 44 announcements as continuations and the remaining 52 announcements as initiations. We also identified the firms as operating primarily in either the life/health sector or the property/liability sector of the insurance industry on the basis of the contemporaneous 4-digit SIC code of the firm on the CRSP database. In the few cases where there was some ambiguity (for example, where the SIC code applied to all insurance holding companies) we classified the firm as belonging to one of the two sectors according to whether the firm's performance was reported in the life/health edition or the property/casualty edition of Best's Annual Reports. Life/health insurers made 57 announcements and property/liability insurers made the remaining 39 announcements. Year-wise details of these announcements are provided in Table 1. The table also displays the total dollar value of the repurchases for 91 of the 96 announcements as determined by either the proposed number of shares to be repurchased or the proposed dollar amount to be spent on repurchases; in five cases, we could not identify the dollar value for the repurchases. Our final sample of 96 announcements over the 1980–2000 period yields an average of 4.6 repurchase announcements per year; of this, repurchase initiation announcements average 2.5 per year.[7]

We used the standard event study methodology described in Brown and Warner (1985) to study the abnormal returns around the announcement date. With the CRSP value-weighted index as the benchmark, we estimated the market model parameters over day –200 to day –50 relative

Table 1. Insurance Stock Repurchase Announcements between 1980 and 2000

Year	Number of repurchase announcements	Initiations of repurchases	Continuations of repurchases	Dollar value of repurchases ($ million)
1980	4	2	2	$79
1981	3	2	1	163
1982	3	1	2	237
1983	2	2	0	57
1984	4	2	2	59
1985	4	2	2	126
1986	6	5	1	34
1987	9	5	4	753
1988	6	1	5	303
1989	3	0	3	831
1990	5	1	4	4,415
1991	3	3	0	218
1992	8	4	4	550
1993	2	1	1	16
1994	6	6	0	195
1995	5	1	4	332
1996	7	6	1	536
1997	9	5	4	4,028
1998	2	0	2	301
1999	4	2	2	165
2000	1	1	0	1,041
Total	96	52	44	$14,439

to the announcement date, and computed the abnormal daily returns from day –30 to day +200 using these parameters.

To study the intra-industry effects of the repurchase announcements, we identified, for each of the 96 announcements in our sample, a set of rival firms by selecting all firms on the CRSP database with (a) the same contemporaneous 4-digit SIC code as that of the announcing firm and (b) complete returns data for 200 days before and after the announcement date.

The stock returns of announcing firms and rivals are potentially cross-sectionally correlated, since the announcing firms and the rivals have the same event date. Jaffe (1974) argues that this correlation could result in biased statistical tests of significance and proposes a procedure to measure the price effect of rival firms that overcomes this potential bias. Following Jaffe's procedure, we formed 96 equal-weighted portfolios of rival firms and computed the abnormal returns for these portfolios.[8]

Finally, we obtained data on firm characteristics such as the earnings growth and the market-to-book ratio from the Compustat database, to examine the relationship between these factors and the stock price response of announcing firms. We were able to get the relevant Compustat data for only 61 of the 96 announcements in our sample; this limits our cross-sectional analysis to those 61 firms.

EMPIRICAL RESULTS

Price Effects of Repurchase Announcements

We present the cumulative abnormal returns for our full sample of 96 repurchase announcements and for subsamples based on the type of repurchase (initiations or continuations) in Table 2. As shown in Panel A, the repurchasing firms experience a significant increase in value of 2.73 percent over the three-day announcement interval (day –1 to day +1), with 71 percent of the repurchasing firms displaying a positive price reaction at the time of their repurchase announcement. This positive reaction is consistent with studies of the wealth effect of open-market repurchases in other industries; for example, Comment and Jarrell (1991) report excess returns of 2.3 percent over a seven-day window, Ikenberry et al. (1995) report cumulative abnormal returns of 3.54 percent over a five-day window, and Erwin and Miller (1998) report excess returns of 3.35 percent over a three-day window. In their study of 49 insurance stock repurchase announcements, Born et al. (2004) report three-day abnormal returns of 1.86 percent.

The positive reaction to the repurchase announcement holds for both the repurchase "initiations" and "continuations" subsamples; these results are presented in Panel B and Panel C of Table 2. For the 52 initiation announcements, the announcement period abnormal return is 3.18 percent, and for the 42 continuations, the abnormal return is 2.20 percent[9]; the difference between the two subsamples is not statistically significant. Between 69 percent and 73 percent of the firms in the subsamples record positive abnormal returns.

The returns in the pre-announcement window (days –30 to –2) are not statistically significant for the full sample or for the two subsamples

Table 2. Cumulative Abnormal Return (CAR) for Insurance Companies Announcing (a) the Initiation or (b) the Continuation of an Open-Market Stock Repurchase Program

Period (days)	CAR	t-stat	% positive
Panel A: CAR for all repurchasing firms (N = 96)			
(–30 to –2)	–2.11%	–1.67	45%
(–1 to +1)	2.73%***	5.25	71%
(+2 to +30)	1.80%	1.92	57%
(+2 to +120)	6.87%**	2.45	57%
Panel B: CAR for subsample of firms announcing initiation of stock repurchase programs (N = 52)			
(–30 to –2)	–1.63%	–1.00	44%
(–1 to +1)	3.18%***	4.27	69%
(+2 to +30)	3.58%**	2.40	65%
(+2 to +120)	9.57%**	2.45	62%
Panel B: CAR for subsample of firms announcing continuation of stock repurchase programs (N = 44)			
(–30 to –2)	–2.68%	–1.35	45%
(–1 to +1)	2.20%***	3.07	73%
(+2 to +30)	–0.30%	–0.31	48%
(+2 to +120)	3.69	0.92	52%

***Significant at the 1% level
**Significant at the 5% level

considered above. However, prices do appear to be declining before the announcement date, particularly for the subsample of firms announcing continuations of repurchases. This decline in price is illustrated in Figure 1, which shows that continuation firms lose nearly 2.7 percent of their value in the period prior to the announcement (compared to 1.6 percent for the firms initiating repurchases). This decline in value may be a motivating factor for launching the repurchase programs, especially in the case of continuation announcements where firms announce that they are extending and/or adding on more shares to their existing repurchase plans. Vermaelen (1981) reports similar pre-announcement period declines in

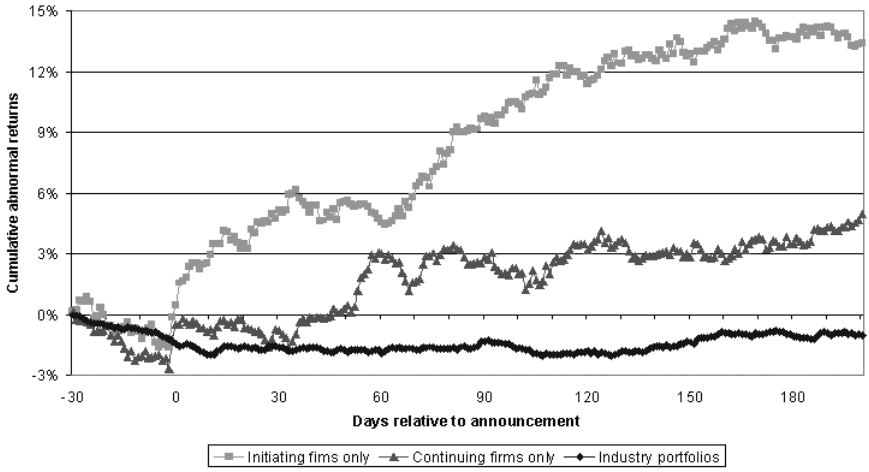

Fig. 1. Cumulative abnormal returns for insurance firms announcing (a) the initiation or (b) the continuation of stock repurchase programs and (c) for matching portfolios of rival firms in the insurance industry.

value for a sample of firms over a wide variety of industries, as do Comment and Jarrell (1991) and Ikenberry et al. (1995).

The announcements of stock repurchases appear to put a stop to the fall in value and, particularly in the case of initiation announcements, lead to a period of upward drift in share prices lasting for up to 120 days following the repurchase announcement. The statistical significance of the upward drift in the post-announcement period illustrated in Figure 1 can be seen in Table 2. In Panel A, we show that the full sample of announcing firms gain 6.87 percent in value over the post-announcement (+2 days to +120 days) period. This result (for the full sample) appears to be driven mainly by the subsample of firms initiating new repurchase programs; the abnormal return for this subsample is an economically and statistically significant 9.57 percent over the post-announcement period. Combining this return with the announcement period abnormal returns of 3.18 percent, we get a remarkable 12.75 percent total abnormal return resulting from the announcement initiating stock repurchases. This finding is consistent with Ikenberry et al. (1995), who report that repurchasing firms across a wide range of industries experience positive abnormal returns of 12.1% over the four years following a repurchase announcement.

The results from partitioning the full sample of announcements into subsamples of life/health (L/H) insurers and property/casualty (P/C) insurers are presented in Table 3. Both subsamples react positively to

Table 3. Cumulative Abnormal Return (CAR) for (a) Life/Health Insurance Companies and (b) Property/Liability Insurance Companies Announcing Stock Repurchase Programs

Period (days)	CAR	t-stat	% positive
Panel A: CAR for subsample of life/health insurance firms announcing stock repurchase programs (N = 57)			
(–30 to –2)	–2.06%	– 1.28	44%
(–1 to +1)	3.16%***	4.66	74%
(+2 to +30)	2.85%**	2.09	61%
(+2 to +120)	7.70%**	2.03	56%
Panel B: CAR for subsample of property/liability insurance firms announcing stock repurchase programs (N = 39)			
(–30 to –2)	–2.18%	– 1.06	46%
(–1 to +1)	2.11%***	2.60	67%
(+2 to +30)	0.26%	0.23	51%
(+2 to +120)	5.67%	1.37	59%

***Significant at the 1% level
**Significant at the 5% level

repurchase announcements. The fifty-seven life/health firms have an abnormal return of 3.16 percent over the three-day window, with three-fourths of the firms experiencing positive excess returns, and the thirty-seven property/casualty insurance firms have abnormal returns of 2.11 percent with two-thirds of the firms experiencing positive returns. Born et al. (2004) report that the announcement-period cumulative abnormal returns for the 17 L/H insurers in their study are significantly higher than the cumulative abnormal returns for the 32 P/C insurers. They speculate that this difference may arise from the differences in information asymmetry between the two lines of business and that the repurchase announcement may convey a stronger signal for the L/H business than for the P/C business. However, we do not find the difference in the cumulative abnormal returns between the two subsamples to be statistically significant, either in the announcement period (day –1 to day +1) or in the post-announcement period (day +2 to +120).

Table 4. Cumulative Abnormal Return for Matching Portfolios of Rival Firms of Insurance Companies Announcing Open-Market Repurchase Programs

Period (days)	CAR	t-stat	% positive
Panel A: CAR for matching rival firm portfolios of **all** insurance companies announcing repurchases(N = 96)			
(–30 to –2)	–1.26%***	–2.68	43%
(–1 to + 1)	–0.32%***	**–2.99**	38%
(+2 to + 30)	–0.07%	–0.15	56%
(+2 to + 120)	0.34**%**	–0.24	51%
Panel B: CAR for matching rival firm portfolios of insurance companies announcing repurchase **Initiations** (N = 52)			
(–30 to –2)	**–2.18**%***	**–3.12**	35%
(–1 to + 1)	–0.40%**	–2.43	38%
(+2 to + 30)	0.32%	0.45	52%
(+2 to + 120)	–0.27%	–0.13	48%
Panel C: CAR for matching rival firm portfolios of insurance companies announcing repurchase **Continuations** (N = 44)			
(–30 to –2)	–0.18%	–0.31	52%
(–1 to + 1)	–0.21%	–1.76	36%
(+2 to + 30)	–0.53%	–0.85	61%
(+2 to + 120)	–0.43%	–0.21	55%

***Significant at the 1% level
**Significant at the 5% level

Price Effects on Rival Firms

Earlier studies of the intra-industry effects of repurchase announcements for non-insurance firms have reported varying results. Hertzel (1991) reports that rival firm portfolios did not have a statistically significant reaction to repurchase announcements in the 1970–1984 period. Erwin and Miller (1998) report a statistically significant negative return of 0.25 percent for rival firms' portfolios in the 1985–1990 period; their findings support the "competitive" effect. Both these studies excluded banks, insurance firms, and real estate firms in their samples. Akhigbe and Madura (1999) study banking firm repurchases and find that, in the 1978–1995 period, the rival firms portfolios experienced significant positive returns

of 0.19 percent in the announcement period; this evidence supports the 'contagion' effect.

We present the announcement period price effects for portfolios of rival insurance firms in Table 4. In the first panel, we show that rival firms' portfolios fall in value by a statistically significant –0.32 percent. The next two panels show that this negative reaction is predominantly driven by initiation announcements; announcements of continuations of repurchases do not evoke a statistically significant industry reaction. This negative reaction is consistent with the "competitive effect" hypothesis as opposed to the "contagion" hypothesis in explaining the intra-industry effects of repurchase announcements in the insurance industry.

Table 4 further shows that rival firms experience a significant decline in value in the pre-announcement period; this is also illustrated in Figure 1. The decline for rivals in this illustration is similar to that for the repurchasing firms themselves, so it appears that the entire industry was declining in value prior to the announcement. Stock prices of rival firms level off at the time of repurchase announcements, whereas the repurchasing firms (or, more particularly, the firms initiating repurchases) start gaining in value after announcing their intent to repurchase stocks.

Cross-Sectional Analysis

Comment and Jarrell (1991) find that the price reaction to an open-market share repurchase announcement is significantly related (i) to the percentage of the shares involved in the buyback and (ii) the stock price performance of the firm prior to the repurchase announcement. In addition to these factors, a repurchase announcement may be seen as a signal from the managers that (a) the firm is undervalued and/or (b) the firm is likely to experience an improvement in future earnings (Asquith and Mullins, 1983; Ikenberry et al., 1995). In this scenario, we would expect that firms with low market-to-book ratios would react more positively to repurchase announcements. Further, the announcement may also lead to a re-evaluation of the firm based on the profits reported in prior periods; we hypothesized that firms reporting higher rates of growth in net income would experience the most positive reactions when announcing repurchases, because their signal that the market is undervaluing them would be deemed the most credible.

We performed a series of tests on our sample of 61 firms analyzing the cross-sectional variation in the announcement period returns, with the fraction of the outstanding shares mentioned in the repurchase announcement, the prior period stock price performance (measured as the cumulative abnormal return over the pre-announcement window of day –30 to day –2), the market-to-book ratio, and the prior period net income growth

Table 5. Results of OLS Regression of the Announcement Period Cumulative Abnormal Returns on the Announcing Firm's Characteristics (N = 61 firms)

Variable	Model 1	Model 2	Model 3	Model 4
Constant	2.14***	0.09	1.37	1.59
	(3.62)	(0.11)	(1.23)	(1.42)
Pre-announcement CAR	–0.19**	–0.21***	–0.22***	–0.22***
(days –30 to –2)	(–2.36)	(–2.65)	(–2.86)	(–2.89)
Fraction repurchased	0.35***	0.35***	0.33***	
		(3.04)	(3.11)	(2.90)
Market-to-book ratio			–0.82*	–0.86*
			(–1.79)	(–1.89)
Growth in net income				1.16
(years –1 to +1)				(1.27)
R^2	0.09	0.21	0.25	0.27
F-statistic	5.55**	7.79***	6.46***	5.31***

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level

(measured as the annualized growth in net income over the two years prior to the repurchase announcement) as independent variables. We estimated several regression equations using these variables in different orders and combinations and obtained coefficients and results that were consistent across all the models. The results of one set of regression equations using these four variables are presented in Table 5.

As seen in Table 5, the fraction to be repurchased is a significant variable in explaining announcement period returns; the higher the fraction to be repurchased, the more positive the reaction to the announcement. The prior stock price performance, as measured by the cumulative abnormal returns in the day –30 to day –2 period, is another significant variable; the greater the decline in this prior period, the more positive the announcement period reaction. We have a negative coefficient for the market-to-book ratio variable, suggesting that undervalued stocks or stocks with low market-to-book ratios gain more after the repurchase announcement. However, we find that the earnings growth rate is not a statistically

significant variable in explaining the announcement period returns. Our results are similar to the results reported by Comment and Jarrell (1991), who find that announcement period returns are influenced by prior period stock price performance and the fraction of shares that are being repurchased. Born et al. (2004), in their cross-sectional study of 36 firms, also find that the coefficients of prior period stock price performance and the market-to-book ratio are statistically significant; however, they find that the fraction of shares repurchased is not statistically significant.[10]

CONCLUSIONS

In this paper we examine the market reaction to stock repurchase announcements by insurance companies. We find that the announcement of open-market repurchase programs leads to significant positive abnormal returns to announcing firms. This is true regardless of whether the firm is announcing the initiation of a new repurchase program or the continuation of an existing program. Interestingly, we find that the repurchasing firms have substantial excess returns for up to 120 days following the announcement; this is particularly true for repurchase initiations, indicating that the process of re-evaluation following the announcement of a new repurchase program extends far beyond the three-day announcement period window.

Turning to the intra-industry effects, we find that the announcement of a buyback program by an insurance firm has a negative effect on the value of rival insurance companies. This industry reaction to the buyback program supports the "competitive effect" hypothesis; it suggests that a repurchase announcement signals an improvement in the firm's earnings prospects and that this improvement comes at the expense of the rival firms in the industry. Cross-sectionally, we show that announcement day abnormal returns of repurchasing firms can be explained by the size of the repurchase, the stock price behavior prior to the announcement, and the market-to-book ratio of the firm. Previous studies of intra-industry effects have not included firms in the insurance industry, citing the highly regulated nature of this industry. Our study finds that the reaction to repurchase announcements in the insurance industry is similar to the reaction reported in other industries where firms compete with each other.

NOTES

[1] Bagwell and Shoven (1989) document the growth in repurchase programs from 1977 to 1987. Ikenberry, Lakonishok, and Vermaelen (1995) show that by 1993, share repurchases accounted

for nearly 50 percent of corporate payout. Grullon and Michaely (2004) report that money spent on repurchases exceeded cash dividends in 1999 and 2000.

[2] This is based on our sample of 96 insurance company repurchases reported in the WSJ. Because the WSJ may not have reported all insurance company repurchase programs, this $14.4 billion figure may understate the true economic value of insurance company repurchases. Moreover, in some cases, the WSJ did not report the dollar amount or the number of shares to be repurchased; the report simply stated the firm's intention to repurchase stocks.

[3] In this paper, we consider only open-market repurchases, i.e., where firms announce their intent to repurchase a fraction of the outstanding shares at market prices. Firms also repurchase through tender offers, in which case they offer to repurchase a specified number of shares at a specific price over a limited length of time. Tender offers are much less frequent than open-markets repurchases (see Comment and Jarrell, 1991).

[4] Our overall results are similar to those reported in a recent article by Born, Giaccotto and Ritsatos (2004); however, there are some minor differences that may be due to the difference in sample sizes.

[5] Studies confirming the findings of Dann (19981) and Vermaelen (1981) include Hertzel (1991), Comment and Jarrell (1991), Miller and McConnell (1995), Ikenberry, Lakonishok, and Vermaelen (1995), Erwin and Miller (1998), Jagannathan and Stephens (2003), and Grullon and Michaely (2004).

[6] We separate the announcements into these "initiations" and "continuations" subsamples because of potential differences in information being conveyed by the two different types of announcements. Jagannathan and Stephens (2003) separate their open-market repurchase announcements into "infrequent," "occasional," and "frequent" using a slightly different definition.

[7] In their study of 141 nonfinancial industries, Erwin and Miller (1998) report an average frequency of 1.7 repurchases per year over the 1985–1990 period. In 90 of the 141 industries, they find, there was only one repurchase program announced during the entire six-year (1985–1990) period.

[8] This procedure is described in detail in Jaffe (1974) and is the procedure followed by Hertzel (1991), Lang and Stulz (1992), Firth (1996), and Erwin and Miller (1998) in their studies of intra-industry price responses to announcements of significant corporate events.

[9] Jagannathan and Stephens (2003) report similar results. They find positive excess returns for all their subsamples, with the "infrequent" repurchasers subsample experiencing the highest excess returns; the differences between the groups are statistically significant.

[10] Born et al. (2004), in their cross-sectional study of 36 firms, report that the fraction repurchased variable is not statistically significant (p-value = 13%) but the sign and magnitude of their coefficient is similar to the statistically significant values reported in Comment and Jarrell (1991) and this paper.

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