
The Impact of Management Communications on Insurance Company Share Repurchases

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Abstract: The announcement of a share repurchase provides a firm's management with the opportunity to communicate with existing and potential shareholders. Our results indicate that voluntary information disclosed by management in an insurance company's repurchase announcement concerning the future prospects of the firm has little marginal impact on the market's reaction to the repurchase announcement. The one exception is management statements indicating that the repurchase of common shares represents a good investment for the firm. In contrast, our results indicate that information disclosed by management about the details of the repurchase program does have a marginal impact on the market's reaction to the repurchase announcement. For example, if the firm's management mentions the method of repurchase there is an increase in the market's reaction to the announcement, regardless of the method. In addition, the usage of a tender offer to repurchase stock has a large statistically significant positive effect on the market's reaction to the announcement of a repurchase. Variables that control for the size of the repurchasing firm, the relative size of the repurchase, and repurchases that are part of an ongoing multi-year repurchase program also have more impact on the market's reaction than most management statements concerning the future prospects of the firm. The implication for insurance company managers is that the market appears to assign value (abnormal returns) to the common stock repurchase announcement and the information about the terms of the deal, but the market does not appear to perceive management's statements about the condition of the firm as containing any additional information. [Key words: stock, repurchases, signals].

There is no regulation that requires a publicly traded firm to announce its intention to repurchase shares in the open market. In fact, a firm may repurchase its shares at any time in the market. However, if shareholders perceive the firm to be manipulating the stock price because the

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repurchase was not announced, an expensive lawsuit could result. SEC Rule 10b-18, which was adopted in 1982, provides a safe harbor from liability for stock price manipulation when companies repurchase their shares according to the rule. With the potential cost of litigation associated with not announcing share repurchases being high and the marginal cost of announcing a stock repurchase being low, one would expect that stock insurance companies would announce their intention to repurchase shares. Previous research has shown that the announcement of a common stock share repurchase generates positive abnormal returns, consistent with Vermaelen's (1981) signaling hypothesis.¹

The press releases and the news stories associated with an announcement of an offer to repurchase shares contain a plethora of information. Firms voluntarily disclose information about the quantity of shares being sought (expressed either in share terms or in dollar terms), the method and location of the repurchase, the types of securities being repurchased, and the purpose of the repurchase.

The announcement of a common stock repurchase gives managers an opportunity to communicate with existing and potential shareholders. When managers take advantage of this opportunity, they often include their perception of the current state of the firm and a forward-looking statement regarding the firm's prospects in the repurchase announcement. These statements are always qualified, but provide an opportunity to investigate how the market reacts to the information disclosed by management. In light of the information asymmetries that exist between insiders and outsiders, managers (as informed insiders) may communicate information that affects abnormal returns. Previous research on share repurchases has not attempted to determine whether management's statements at the time of the repurchase announcement affect the abnormal announcement period returns.

An economically rational investor will expend scarce resources monitoring an insurer to the extent that the expected marginal benefits from monitoring exceed the marginal monitoring costs.² Consequently, different classes of investors will have different incentives to monitor an insurer actively. Thus, information about the quality of an insurance company's portfolio, its expected future cash flows, or its capital position is likely to affect the market's valuation of the firm's shares. Managerial actions that alter a stock insurance company's capital position, such as a share repurchase, should be of major interest to the investors in a stock insurance company.³

Polonchek and Miller (2004) investigate common stock repurchases by traded insurance companies and do find a two-day abnormal return of 1.66% on 515 observations, while Born, Giaccotto, and Ritsatos (2004)

calculate a two-day abnormal return on 49 observations and find a positive abnormal return of 1.39%. These positive abnormal return results are consistent with the notion that common stock repurchase announcements are perceived by the market to reveal information about the quality of an insurance company's portfolio and the company's expected future cash flows. As Polonchek and Miller (1996) have documented, if management reduces the firm's capital via a share repurchase and later announces an equity issuance to raise capital, the market will reduce share prices an average of -3.09% over the two-day announcement period, making the firm's shareholders worse off than if the firm had not initially repurchased shares. Therefore, managers should have the expectation, in present value terms, that more capital will be created after the repurchase than will be expended in the repurchase. Rational managers, operating in a well-functioning market for managerial talent, would choose to reduce the firm's capital position via a stock repurchase only if they expect future cash flows to continue to increase the firm's capital position.

Insurance companies are regulated at the state level and are subject to regulations specifying minimum levels of acceptable risk-based capital. The decision to repurchase stock, reducing risk capital that is not easily replaced, is a significant and important managerial action for an insurer that may have significant adverse consequences for an insurance company. An insurance company that reduces its capital position today via a share repurchase may find its risk-based capital below the level required by regulators and may have to turn down profitable projects in the future; may have diminished capacity to deal with state-contingent losses, increasing the probability of bankruptcy; or may be forced to restructure the risk profile of its portfolio in response to market conditions. Because of the nature of these risks and the associated costs, the firm's managers must carefully consider the costs and benefits of a share repurchase.

Given that managers have made the decision to distribute cash to existing shareholders through a stock repurchase rather than to increase the accumulated capital of the insurer, we examine whether there is a differential market reaction based on the information voluntarily disclosed by insurance company management in the announcement of the repurchase. We develop a set of classification variables based on the qualitative statements by insurance company managers to test the null hypothesis that the information voluntarily disclosed in the management statements announcing the repurchase has no effect on the abnormal announcement period returns associated with an insurance company repurchase announcement.

SAMPLE AND METHODOLOGY

The sample includes announcements of share repurchases made by life, health, and property and casualty insurance companies obtained from the financial press.⁴ The sample period is from 1973 to 2000. After adjusting for the normal confounding factors we have a final sample of 515 repurchase announcements. Daily stock price returns are obtained from the Center for Research in Securities Prices (CRSP) database (sample firms are traded either over-the-counter or on the New York or American stock exchanges). Information about the details of the repurchase is obtained from the news stories in the financial press and/or the press release announcing the repurchase obtained from Dow Jones News Retrieval (Factiva). A set of classification variables is developed on the basis of our analysis of the information disclosed in the stories reporting the repurchase announcement.⁵

The dependent variable in our analysis of the effect of information disclosed by managers in a repurchase announcement is the two-day announcement period return. A standard market model methodology utilizing standardized prediction errors developed by Dodd and Warner (1983), based on methodology developed by Patell (1976) and Dodd (1980) was used to measure the abnormal returns associated with the repurchase announcement. Abnormal returns were measured over a two-day event window, $(-1,0)$, where day zero was the repurchase announcement publication date in the financial press. The market model parameters were estimated over a 120-day period beginning 200 days before the announcement date for each repurchase announcement in the sample.

DESCRIPTIVE STATISTICS

The average number of shares sought by the 121 different exchange-traded insurance companies announcing a repurchase was 1.8773 million (see Table 1).^{6,7} The range of shares sought in the repurchase announcements for this sample went from a low of .0245 million shares to a high of 20 million shares.⁸ The average dollar amount of funds committed to a share repurchase was \$286.3501 million. The range in dollar commitments to repurchases went from a low of \$400,000 to a high of \$3 billion. The average percentage of shares outstanding sought in the repurchase was 5.72%. The range in percentage of shares being repurchased ran from a low of .22% to a high of 24.66% of the shares outstanding. Thus, these repurchases represent a major change in the capital position of the insurance companies repurchasing stock. The average market value of an insurance

Table 1. Amount of Shares Sought in Repurchases

	Shares sought in the repurchase (millions of shares)	Funds committed to repurchase shares (millions of dollars)	Percentage of outstanding shares sought in the repurchase	Market value of repurchasing firm (millions of dollars)
Mean	1.8773	286.3501	0.0572	3,326.21
Median	1	50	0.049	710.771
Standard Deviation	2.3380	519.0048	0.0415	12,248.00
Minimum	0.0245	0.4	0.0022	6.2243
Maximum	20	3000	0.2466	156,621.50

company announcing a share repurchase was \$3.326 billion dollars.⁹ The range in market value of the repurchasing firms went from a low of \$6.224 million dollars to a high of \$156.622 billion dollars.

EMPIRICAL RESULTS

The press release and news stories associated with the announcement of a stock repurchase usually include a statement by the firm's management. The topics covered in the press release and news stories run the gamut from minimal statements regarding the repurchase to detailed statements about the terms of the transaction and extensive management statements regarding the future prospects of the firm.¹⁰ On the basis of our analysis of the information in the news stories found on the Dow Jones News Retrieval service, we develop a set of dummy variables that make it possible to classify firms by the statements made by the firm's management in the repurchase announcement. The classifications that we develop are not mutually exclusive.¹¹

This set of qualitative variables could be used to create portfolios of independent "events" that would form the basis of an event study. The results of the event studies could then be used to analyze the effects of the information disclosed by management in the repurchase announcement on the market. Because a "typical" repurchase announcement includes statements with multiple qualifiers, the resulting portfolios of independent

information events would suffer the problem of small sample size. Consequently, we analyze the marginal impact of management statements on the cumulative abnormal returns associated with common stock repurchases by insurance companies using a multivariate ordinary least squares regression methodology.

We can parse our explanatory variables into four groups based on our analyses of the news stories associated with the repurchase announcement. The first group includes variables related to the repurchasing firm and the transaction; the second group includes variables related to the method used to repurchase the stock; the third group includes variables related to the usage of the shares repurchased; and the fourth group includes the classification variables based on the information voluntarily disclosed in management's share repurchase announcement. The dependent variable in the multivariate regression analysis is the two-day abnormal announcement period return associated with each repurchase announcement in our sample. The average two-day abnormal return for the 515 announcements of stock repurchases by insurance companies is 1.66%, which is statistically significantly different from zero at the .1% level.¹²

Repurchasing Firm and the Transaction

Our analysis begins by evaluating variables that control for the effects of firm- and deal-specific factors on the two-day announcement period abnormal returns. Each repurchase announcement specifies the size of the repurchase. Size is specified as either the number of shares being sought in the repurchase or the dollar amount of funds committed to the repurchase.¹³ We calculate the percentage of shares sought in the repurchase (% Sought) by dividing the number of shares sought in the repurchase by the number of shares outstanding two weeks prior to the repurchase announcement. Given the previous empirical results that document positive announcement-period returns associated with insurance company repurchase announcements (see Polonchek and Miller, 2004, and Born et al., 2004), we would expect the sign on this coefficient to be positive. This would be consistent with the signaling hypothesis—the larger the percentage of shares sought in a repurchase, the larger the abnormal announcement-period return. We also examine the effect of the size of the repurchasing firm on the announcement-period return. Firm size is calculated by multiplying the shares outstanding two weeks prior to the repurchase announcement by the firm's stock price two weeks prior to the repurchase announcement. We use the natural log of the market value of the repurchasing firm (LMV) as an explanatory variable in the analysis. If smaller firms receive less coverage in the financial press (i.e., less available information about the firm), then we would expect that a repurchase

announcement made by a smaller firm would have a larger marginal impact than a repurchase announcement by a larger firm.

These repurchases represent a significant commitment of the firm's resources, whether measured in dollar or share terms, and potentially represent a major reduction in the capital and surplus position of an insurance company. The average firm repurchase is for 5.7% of the firm's outstanding common stock. To control for the capital position of the insurance company repurchasing the common stock, we include a capital ratio variable (Capital/Assets), which is calculated by dividing capital and surplus for the announcing firm, measured at the end of the year prior to the repurchase announcement, by total admitted assets, measured at the same time. We would expect the coefficient on this variable to have a positive sign. That is, given that the capital position of the insurer represents a potentially binding constraint on the firm's management, the lower the capital ratio of the announcing firm, the lower the abnormal announcement-period return.

We include a ratings variable (Best's Rating) based on the financial strength rating assigned to the repurchasing firm by A. M. Best, using the methodology employed by Doherty and Phillips (2002). The Doherty and Phillips methodology assigns an integer value to the A. M. Best letter rating according to the following scheme. For firms that A. M. Best rates as A++ or A+, the variable Best's Rating is assigned a value of 4; for the firms that are rated A by Best's, the variable Best's Rating is assigned a value of 3; for firms that are rated A-, the variable Best's Rating is assigned a value of 2; for firms that are rated B++ or B+, the variable Best's Rating is assigned a value of 1; and for firms receiving a rating of B or lower, the variable Best's Rating is assigned a value of 0. We would expect the coefficient on this variable to have a positive sign. The lower the financial strength of the firm, as proxied by the Best's rating, the lower the abnormal announcement-period return.

Our sample includes repurchase announcements made by property and casualty insurers as well as repurchase announcements made by life and health insurers. In order to examine any differential effects in the market reaction to repurchase announcements associated with the insurer's line of business we develop a variable (Property) that takes on the value 1 if the repurchase announcement is made by a property and casualty insurer. We have no prior expectations regarding the sign of this coefficient.¹⁴

The turn of the decade in 1990 was accompanied by the revelation that the quality of the assets held by life insurers was deteriorating. Two major life insurance firms had to write down assets because of nonperforming investments in commercial real estate and junk bonds, followed closely by

the bankruptcy of four large life insurance companies. The events involving life insurance companies may have affected the market's perception of the quality and riskiness of all insurance company portfolios regardless of the line of business of the insurer. Thus, the market's reaction to the announcement of a share repurchase by an insurance company may have changed after 1990 because of the widely publicized problems in the life insurance sector. To examine the impact of the crisis in the life insurance sector on the market's reaction to announcements of stock repurchases, we develop a variable (After 90) that takes on the value of 1 if the announcement occurred after January 1, 1990.¹⁵ If the events in the life insurance sector affected the perception of riskiness of all types of insurers, we would expect investors to monitor insurance companies more actively after 1990. This would imply share repurchase announcements made after 1990 would contain less unexpected information, resulting in smaller positive announcement-period returns.

When reading the repurchase announcements it became clear there were two types of repurchase announcements: a single announcement by a firm, and an announcement by a firm that had multiple repurchase announcements. Within the broad classification of multiple repurchase announcements we identified two types of repurchase announcements: (1) multiple announcements that were part of an ongoing multi-year repurchase program; and (2) multiple announcements that were not part of ongoing multi-year repurchase programs. The following quote from a repurchase announcement by Consec on August 4, 1989 (Consec, 1989) is representative of the statements made by the managers of the firms that had multi-year repurchase programs in place.

"Consec Inc., an insurance holding company based in Carmel, Friday announced that its board of directors authorized the repurchase of up to an additional 1 million common shares under the company's repurchase program. A total of 5 million common shares are now authorized for repurchase under the program, which was instituted in September 1987. To date, Consec and its subsidiaries have purchased approximately 3,920,000 shares under the program, leaving 4,760,000 shares currently outstanding."

These multi-year repurchase programs have become industry-wide phenomena, characterized by an annual review and approval by the firm's board of directors. In some cases these multi-year programs spanned as many as ten years.¹⁶

We develop two classification variables based on our analysis of the various multi-year repurchase programs. The first variable (Program) takes on the value of 1 if the repurchase is part of an ongoing multi-year

repurchase program, and the second variable (All First) takes on the value of 1 if the announcement is the first repurchase announcement by an insurance company (regardless of whether the announcement was part of an ongoing multi-year repurchase program). This variable permits us to determine if the market reacts differently to the first repurchase announcement by a firm.¹⁷ In the context of Vermaelen's (1984) signaling model we would expect there is less information regarding the future prospects of a firm in a repurchase announcement that is part of an ongoing multiyear repurchase program, and we would expect a negative coefficient on the variable Program. Conversely, if there is more positive information about the future prospects of the firm associated with first repurchase announcements, we would expect a positive coefficient on the variable All First.

We combine these explanatory variables in a single equation (Table 2, Equation 1):

$$(1) \text{ CAR} = + \% \text{Sought} + * \text{LMV} + * \text{Capital/Assets} + * \text{Best's Rating} + * \text{Property} + * \text{After 90} + * \text{Program} + * \text{All First}$$

The coefficient on %Sought, the percentage of shares sought in the repurchase, is positive and statistically significantly different from zero at the 1% level. As the percentage of shares sought in the repurchase increases, market response to the repurchase announcement increases. The coefficient on firm size, LMV, is negative and statistically significantly different from zero at the 1% level. As the size of firm announcing the repurchase increases, the market's response to the repurchase announcement becomes smaller. The coefficient on Program, the multiple-year variable, is negative and statistically significantly different from zero at the 10% level. This indicates there is a larger positive reaction by the market to repurchase announcements that are not part of an ongoing multi-year repurchase program. The coefficients on the variables All First, the variable for first repurchase announcements, Best's Rating, and Capital/Assets are positive, as expected, but are not statistically significantly different from zero. The coefficient on After 90, the variable that indicates that a repurchase occurred after January 1, 1990, is negative, but not statistically significantly different from zero.

Method Used to Repurchase the Stock

Ikenberry and Vermaelen (1996) argue that the authorization to repurchase shares by the firm's board of directors results in the granting of long-term rights to the firm's management to repurchase the firm's shares periodically. They argue that granting these rights expands the investment opportunity set of a firm's managers such that informed insiders may

Table 2. A Cross-Sectional Analysis of the Two-Day Abnormal Returns Associated with Insurance Company Share Repurchases

VARIABLE	(1)		(2)		(3)		(4)		(5)	
	Parameter estimate	t-value	Parameter estimate	t-value	Parameter estimate	t-value	Parameter estimate	t-value	Parameter estimate	t-value
LMV	-0.00385	-2.19*							-0.00372	-2.06*
CAPITAL/ASSETS	0.00733	0.31							0.01162	0.47
BEST'S RATING	0.00180	0.67							0.00254	0.93
PROPERTY	0.00405	0.64							0.00651	0.97
%SUGHT	0.17143	2.69**							0.11374	1.71†
BEFORE90	0.00672	1.15							0.00577	0.95
PROGRAM	-0.01091	-1.91\$							-0.01091	-1.87†
ALL FIRST	0.00309	0.52							0.00367	0.62
TENDER			0.07023	3.78***					0.04962	2.45*
OPEN ONLY			0.01665	2.39**					0.01691	2.34*
OPEN&PVT			0.01931	3.29***					0.01354	2.11*
PRIVATE			0.01852	1.32					0.00994	0.68
EMP COMP					-0.00067	-0.09				
GENERAL USE					-0.00002	-0.00				
HOUSEKEEPING					0.00110	0.07				
UNDERVALUED							0.01135	1.31	0.01497	1.66\$
PRICE							-0.00267	-0.36	-0.00431	-0.58
BELOW BOOK							-0.00789	-0.60	-0.00878	-0.66
INVESTMENT							0.02424	2.58**	0.02156	2.31*
USE OF FUNDS							0.01988	1.37	0.02207	1.46
CAPITAL MGMT							-0.00020	-0.02	0.00427	0.47
PRICE MGMT							-0.02594	-1.45	-0.02042	-1.17
CONFIDENCE							0.00005	0.00	-0.00498	-0.43
MAX VALUE							-0.00948	-1.21	-0.00758	-0.94
INTERCEPT	0.0277	1.91†	0.00481	0.18	0.01629	5.73***	0.01437	4.62***	0.01161	0.74
R-square	0.0617		0.0548		0		0.0260		0.1126	
F-value	3.86		7.24		0		1.47		2.76	
p-value	<.0002		<.0001		0.9996		0.1573		<.0001	

† t-statistic significant at the .10 level of significance
 * t-statistic significant at the .05 level of significance

** t-statistic significant at the .01 level of significance
 *** t-statistic significant at the .001 level of significance

Table 2. (Continued)

CAPITAL / ASSETS is the ratio of policyholder surplus to admitted assets
BEST'S RATING is as follows: A++/A+ = 4, A = 3, A- = 2, B++/B+ = 1, B or lower = 0
PROPERTY is a dummy variable for companies that are predominantly property/casualty
% SOUGHT is the percentage of shares outstanding sought in the repurchase
BEFORE 90 is a dummy variable for announcements that occurred prior to January 1, 1990
PROGRAM is a dummy variable for repurchases that are part of an ongoing multi-year repurchase program
ALL FIRST is a dummy variable for announcements that are the first repurchase announcement by an insurance company
TENDER is a dummy variable for repurchases via a tender offer
OPEN ONLY is a dummy variable for repurchases occurring only in the open market
OPEN&PVT is a dummy variable for repurchases occurring in either the open or private market
PRIVATE is a dummy variable for repurchases occurring only in the private market
EMP COMP is a dummy variable for articles indicating that the repurchased shares will be used for employee compensation programs
GENERAL USE is a dummy variable for management statements that the shares repurchased will be used for general corporate purposes
HOUSEKEEPING is a dummy variable for management statements that the purpose of repurchasing shares is for general housekeeping purposes
UNDERVALUED is a dummy variable for management statements in the press release that managers feel the firm is undervalued by the market
PRICE is a dummy variable for management statements that a repurchase is taking place because the firm's stock is trading at an attractive price, or that the stock represents a good value, or that the stock price is advantageous
BELOW BOOK is a dummy variable for management statements that the firm's stock is trading below book value, or an excellent, or an attractive investment
USE OF FUNDS is a dummy variable for management statements that the repurchase of the firm's stock represents the best, or an appropriate, or an excellent use of the firm's funds
CAPITAL MGMT is a dummy variable for management statements that the repurchase represents the best use of the firm's excess capital, or the repurchase is being undertaken to manage the firm's capital position
PRICE MGMT is a dummy variable for management statements that the purpose of the repurchase is to manage the firm's earnings per share
CONFIDENCE is a dummy variable for management statements that the repurchase signals management's confidence in the firm, or management's confidence in the future prospects of the firm
MAX VALUE is a dummy variable for press releases that state the repurchase is being undertaken to increase, or to enhance, or to maximize the value of the firm's stock

periodically repurchase undervalued shares. The expected benefit from the periodic repurchase of undervalued shares produces an increase in the firm's stock price when a repurchase is announced.¹⁸

Using the terminology of Ikenberry and Vermaelen (1996), a tender offer represents a definitive commitment to purchase "undervalued" equity at a stated price (or range of prices, in the case of a Dutch auction tender offer). The authorization of an open-market repurchase represents the granting of a long-term right to the firm's managers that may be periodically exercised to repurchase undervalued equity. A priori, we would expect that the announcement of a tender offer to repurchase common stock will have an additional positive effect on the market's reaction to an announcement of a repurchase beyond the effects associated with the granting of the right to periodically repurchase shares in the open market.

The next analysis uses a set of explanatory variables based on management's choice of method selected to repurchase shares. The following statement from Travelers Corporation (Travelers, 1982) is representative of statements that include information about the method of repurchase.

Travelers Corporation said it plans to resume the purchase of its common stock in an amount not to exceed 1.9 million shares through open market and negotiated transactions. The company said the repurchase program would be of significant benefit to shareholders. The timing of purchases will depend on market conditions and applicable regulatory limitations it said.

The first variable (Tender) takes on the value of 1 if the repurchase is via a tender offer. The second variable (Open Only) takes on the value of 1 if the repurchase will occur only in the open market. The third variable (Open&Pvt) takes on the value of 1 if the repurchase can occur in either the open or the private market, and the fourth variable (Private) takes on the value of 1 if the repurchase will occur only in the private market. Following Ikenberry and Vermaelen (1996) we expect the coefficients on these variables to be positive, and that the coefficient on the variable Tender will be larger than the other coefficients.

We combine these explanatory variables in a single equation, Table 2, Equation 2,

$$(2) \quad \text{CAR} = + * \text{Tender} + * \text{Open Only} + * \text{Open\&Pvt} + * \text{Private}$$

The coefficient on tender offers, Tender, is positive and statistically significant at the .1% level, and this coefficient is larger than the other coefficients. The coefficient on Open, the variable indicating that repurchases will take

place only in the open market, is positive and statistically significant at the 5% level. The coefficient on *Open&Pvt*, the variable indicating that repurchases will take place in open and private markets, is positive and statistically significant at the 1% level. The coefficient on *Private*, the variable indicating that repurchases will take place only in the private market, is positive but not statistically significantly different from zero at normal levels of significance. If the firm's management mentions the method of repurchase, regardless of the method of repurchase, there is an increase in the market's reaction to the announcement. In addition, the usage of a tender offer to repurchase stock has a large statistically significant positive effect on the market's reaction to the announcement of a repurchase.

Use of the Repurchased Shares

The next specification uses classification variables based on management's stated purpose for the repurchase or the usage of the shares to be acquired. The following statement from Financial Security Assurance (Financial Security Assurance, 1994) is representative of repurchase announcements with statements about the usage of the shares repurchased.

Today's announcement reflects the Company's decision to employ repurchased shares rather than newly issued shares to fund its obligations in respect of performance shares and stock options and to begin repurchasing shares to fund expected 1994 equity bonus awards. Funding the performance share/stock option program through share repurchases rather than newly issued shares will protect shareholders from dilution that would otherwise result from the issuance of additional shares.

The first variable (*Emp Comp*) takes on the value of 1 if the article indicates that the repurchased shares will be used for employee compensation programs. The second variable (*General Use*) takes on the value of 1 if management states that the shares repurchased will be used for general corporate purposes. We have no prior expectations regarding the sign of these coefficients. The third variable (*Housekeeping*) takes on the value of 1 if management states that the purpose of repurchasing shares is for general housekeeping purposes. A priori, we would not expect a market reaction (positive or negative) to a managerial statement that the reason for the repurchase was for housekeeping purposes. While a repurchase for housekeeping purposes may marginally reduce overhead costs, the announcement of this type of repurchase is not likely to be viewed by the market as a signal of a significant increase in future cash flows or an improvement in the quality of the firm's portfolio.

We combine these explanatory variables in a single equation, Table 2, Equation 3,

$$(3) \quad \text{CAR} = + * \text{Emp Comp} + * \text{General Use} + * \text{Housekeeping}$$

All variables have positive coefficients, but none are statistically significantly different from zero. Thus, managerial statements regarding the purpose or usage of the shares repurchased appear to have no marginal impact on the market's reaction to the announcement of a repurchase.

Management's Qualitative Statements

The fourth specification uses classification variables based on management's qualitative statements (found in the news stories/press releases announcing a repurchase) regarding the perceived prospects of the firm. These statements may be further classified into three subgroups of statements reflecting (1) the relative value of the firm's stock; (2) the appropriateness of using the firm's capital to repurchase stock; and (3) the firm's future prospects.

Value: Our first subgroup of explanatory variables in this specification is developed from the qualitative statements made by management on the relative value of the firm's stock. The first variable (Undervalued) takes on the value of 1 if the firm's management states in the press release that they feel the firm is undervalued by the market. The second variable (Price) takes on the value of 1 if the firm's management states that a repurchase is taking place because the firm's stock is trading at an attractive price, or that the stock represents a good value, or that the stock price is advantageous. The third variable (Below Book) takes on the value of 1 if the firm's management states that the firm's stock is trading below book value. The fourth variable (Investment) takes on the value of 1 if the firm's management states that the repurchase of the firm's stock represents a sound, or a good, or an excellent, or an attractive investment. If management statements concerning the firm in the repurchase announcement result in the market attaching marginal value beyond the positive reaction to the repurchase announcement itself, we would expect to observe positive coefficients on these variables.

The following statements taken from Dow Wire news stories are representative of management statements regarding the relative value of their firm's stock that are used to create the variables Undervalued, Price, Below Book, and Investment.

"At present, the stock market is undervaluing the company and its prospects and accordingly, management feels the repurchase of our

stock is one of the best possible uses of our cash resources." (Hilb, 1995)

"The repurchase program reflects the board's belief that our stock is significantly undervalued and, in view of the company's strong financial position, represents a very attractive investment opportunity for the company." (Smith, 1993)

The company said, "at current levels, we regard USLife common stock as being intrinsically undervalued, selling at a substantial discount from the June 30, 1982 book value of \$31.09 per share." (USLife, 1982)

Appropriateness: The next subgroup of classification variables is based on management statements regarding the appropriateness of using the firm's capital to repurchase stock. The firm's managers may choose to retain cash flows and increase the capital position of the insurer, or to distribute those cash flows to shareholders via a dividend or through the repurchase of shares. The classification variables developed reflect the tenor of management statements that are made, in part, to justify the decision to reduce risk capital through a cash distribution (via a stock repurchase) to existing shareholders. These statements are implicitly forward-looking and represent an important opportunity for managers to communicate their perceptions about the future prospects of the firm to current and potential investors.

The first variable (Use of Funds) takes on the value 1 if the management states that the repurchase of the firm's stock represents the best, or an appropriate, or an excellent use of the firm's funds. The second variable (Price Mgmt) takes on the value of 1 if management states that the purpose of the repurchase is to manage the firm's earnings per share, and the third variable (Capital Mgmt) takes on the value of 1 if management states that the repurchase represents the best use of the firm's excess capital, or the repurchase is being undertaken to manage the firm's capital position. In the context of a signaling model (Vermaelen, 1984), we would expect the market to react adversely to a statement by management that the repurchase was being undertaken to manage the firm's EPS. Thus, we expect to observe a negative coefficient on the variable price management.

Future Prospects: The final two explanatory variables are based on management statements regarding the firm's future prospects. If the press release includes management statements that the repurchase signals management's confidence in the firm, or management's confidence in the future prospects of the firm, the first variable (Confidence) takes on the value of 1. If the press release states that the repurchase is being undertaken

to increase, or to enhance, or to maximize the value of the firm's stock, then the second variable (Max Value) takes on the value of 1.

The following management statements regarding the appropriateness of repurchasing shares are representative of the nature of the type of statement used to create the variables Use of Funds, Price Mgmt, Capital Mgmt, Max Value, and Confidence.

President and Chief Executive Officer Barth T. Murphy said, "We believe that the relatively depressed market value of our common stock is due, in large part, to the uncertainty created from the health care reform process. ... The Company believes that Bankers' stock is undervalued and that Bankers' stock is the best place to invest the Company's excess cash flow." (Murphy, 1994)

William G. Schuett Sr., president and chief executive officer of Security Capital, stated that the share repurchase program continues to provide an attractive investment which improves earnings per share. "The Board recognizes the repurchase program as an investment alternative which is in the best interests of Security Capital Corporation and its shareholders and is consistent with our goal of enhancing long-term shareholder value." (Schuett, 1995)

Eli Broad, chairman and chief executive officer, noted that the company's common stock has recently appeared to be undervalued by the market and that purchases by the company could potentially enhance the company's earnings per share. (Broad, 1994)

"We believe that the current stock price, which is substantially below book value, fails to reflect the value of our businesses and our future prospects. Under these circumstances, a repurchase program represents compelling value, and underscores our confidence in Allmerica Property and Casualty's strategies and long-term performance outlook." (Simonsen, 1994)

We combine these explanatory variables in a single equation, Table 2, Equation 4,

$$(4) \quad \text{CAR} = + * \text{Undervalued} + * \text{Price} + * \text{Below Book} + * \text{Investment} + * \text{Use of Funds} + * \text{Price Mgmt} + * \text{Capital Mgmt} + * \text{Confidence} + * \text{Max Value}$$

The coefficient on Investment, the variable indicating that the firm's shares represent a good investment, is positive and statistically significant at the 1% level. There is a statistically significant positive effect on the market's reaction to repurchase announcements when the firm's management

indicates they perceive the firm's stock represents a good investment. The coefficient on the variables Price, Below Book, Capital Mgmt, Confidence, Max Value, and Price Mgmt, as expected, are negative, but are not statistically different from zero. The coefficients on the variables Use of Funds and Undervalued are positive but not significantly different from zero.¹⁹

In Equation 5, Table 2, we combine the variables found in specifications one, two, and four in a single equation.²⁰ The changes between specification 4 and specification 5 are that the level of significance on the coefficient on Investment falls to the 5% level, the coefficient on % Sought, the percentage of shares sought in the repurchase, is positive but statistically significantly at the 10% level, and the coefficient on the variable Undervalued is positive and statistically significantly different from zero at the 10% level.

In Table 3 we re-estimate specifications two through four and include the variables LMV, Best's Rating, and Capital/Assets to control for firm-specific factors. The only change occurs in specification 4, where the coefficient on the variable Use of Funds is statistically significant at the 10% level, Table 3, versus the 5% level, Table 2.

CONCLUSIONS

The announcement of a share repurchase provides a firm's management with the opportunity to communicate with existing and potential shareholders. Each repurchase announcement contains a broad spectrum of information about the repurchase, and affords managers (informed insiders) the chance to disclose their perceptions of the current and future prospects of the firm. The question we analyze in this paper is whether the information voluntarily disclosed in qualitative statements by the firm's managers in a repurchase announcement affects how the market reacts to the repurchase announcement.

Our results indicate that voluntary information disclosed by management in an insurance company's repurchase announcement concerning the future prospects of the firm has little marginal impact on the market's reaction to the repurchase announcement. The one exception is management statements indicating that the repurchase of common shares represents a good investment for the firm. In contrast, our results indicate that information disclosed by management about the details of the repurchase program do have a marginal impact on the market's reaction to the repurchase announcement. For example, if the firm's management mentions the method of repurchase, regardless of the method of repurchase, there is an increase in the market's reaction to the announcement. In addition, the use of a tender offer to repurchase stock has a large statistically significant

Table 3. A Cross-Sectional Analysis of the Two-Day Abnormal Returns Associated with Insurance Company Share Repurchases

VARIABLE	(2)		(3)		(4)	
	Parameter		Parameter		Parameter	
	Estimate	t-value	Estimate	t-value	Estimate	t-value
LMV	-0.00462	-2.82**	-0.00548	-3.24**	-0.00559	-3.26**
CAPITAL/ASSETS	0.01560	0.69	0.01675	0.73	0.01434	0.60
BEST'S RATING	0.00196	0.75	0.00254	0.93	0.00279	1.04
PROPERTY	0.00162	0.27	0.00011	0.02	0.00217	0.34
TENDER	0.06263	3.20**				
OPEN ONLY	0.01619	2.30*				
OPEN&PVT	0.01704	2.89**				
PRIVATE	0.01519	1.08				
EMP COMP			0.00244	0.31		
GENERAL USE			-0.00220	-0.32		
HOUSEKEEPING			0.00428	0.26		
UNDERVALUED					0.01114	1.25
PRICE					-0.00238	-0.32
BELOW BOOK					-0.00733	-0.56
INVESTMENT					0.02307	2.47*
USE OF FUNDS					0.02519	1.73 [†]
CAPITAL MGMT					0.00572	0.62
PRICE MGMT					-0.02306	-1.30
CONFIDENCE					-0.00441	-0.38
MAX VALUE					-0.00467	-0.59
INTERCEPT	0.02226	1.63	0.04037	3.15**	0.03678	2.79**
R-square	0.0691		0.0280		0.0542	
F-value	4.54		2.02		2.14	
p-value	<.0001		0.0505		0.0113	

[†] t-statistic significant at the .10 level of significance

* t-statistic significant at the .05 level of significance

*** t-statistic significant at the .001 level of significance

*** t-statistic significant at the .001 level of significance

Table 3. (Continued)

Variable definitions in the order of the results presented.

CAPITAL/ASSETS is the ratio of policyholder surplus to admitted assets

BEST'S RATING is as follows: A++/A+ = 4, A = 3, A- = 2, B++/B+ = 1, B or lower = 0

PROPERTY is a dummy variable for companies that are predominantly property/casualty

% SOUGHT is the percentage of shares outstanding sought in the repurchase

BEFORE 90 is a dummy variable for announcements that occurred prior to January 1, 1990,

PROGRAM is a dummy variable for repurchases that are part of an ongoing multi-year repurchase program

ALL FIRST is a dummy variable for announcements that are the first repurchase announcement by an insurance company

TENDER is a dummy variable for repurchases via a tender offer

OPEN ONLY is a dummy variable for repurchases occurring only in the open market

OPEN&PVT is a dummy variable for repurchases occurring in either the open or private market

PRIVATE is a dummy variable for repurchases occurring only in the private market

EMP COMP is a dummy variable for articles indicating that the repurchased shares will be used for employee compensation programs

GENERAL USE is a dummy variable for management statements that the shares repurchased will be used for general corporate purposes

HOUSEKEEPING is a dummy variable for management statements that the purpose of repurchasing shares is for general housekeeping purposes

UNDERVALUED is a dummy variable for management statements in the press release that managers feel the firm is undervalued by the market

PRICE is a dummy variable for management statements that a repurchase is taking place because the firm's stock is trading at an attractive price, or that the stock represents a good value, or that the stock price is advantageous

BELOW BOOK is a dummy variable for management statements that the firm's stock is trading below book value

INVESTMENT is a dummy variable for management statements that the repurchase of the firm's stock represents a sound, or a good, or an excellent, or an attractive investment

USE OF FUNDS is a dummy variable for management statements that the repurchase of the firm's stock represents the best, or an appropriate, or an excellent use of the firm's funds

CAPITAL MGMT is a dummy variable for management statements that the repurchase represents the best use of the firm's excess capital, or the repurchase is being undertaken to manage the firm's capital position

PRICE MGMT is a dummy variable for management statements that the purpose of the repurchase is to manage the firm's earnings per share,

CONFIDENCE is a dummy variable for management statements that the repurchase signals management's confidence in the firm, or management's confidence in the future prospects of the firm

MAX VALUE is a dummy variable for press releases that state the repurchase is being undertaken to increase, or to enhance, or to maximize the value of the firm's stock

positive effect on the market's reaction to the announcement of a repurchase. Variables that control for the size of the repurchasing firm, the relative size of the repurchase, and repurchases that are part of an ongoing multi-year repurchase program also have more impact on the market's reaction than most management statements concerning the future prospects of the firm. The implication for insurance company managers is that the market appears to assign value (abnormal returns) to the common stock repurchase announcement and the information about the terms of the deal, but the market does not appear to perceive management's statements about the condition of the firm as containing any additional information.

APPENDIX A

Sample Repurchase Announcements

The ST. Paul Companies Begins Stock Repurchase

ST. PAUL, Minn., Sept. 18 /PRNewswire/—The St. Paul Companies today said it may repurchase on the open market up to five percent of its outstanding common stock, or 2,120,000 shares, from time to time as conditions warrant.

Douglas W. Leatherdale, chairman and chief executive officer, said the current stock price, which has declined due to general conditions in the stock market, provides an opportunity to repurchase stock at a very attractive price. He said that at the current price of its stock, the company expects to commence the repurchase program immediately.

"We believe the current stock price does not reflect our future earnings prospects," he said. "Repurchasing and retiring these shares will produce a positive impact on earnings per share without straining our capital capacity."

During the first half of 1990, the company repurchased and retired 6.9 million common shares, or about 14 percent of those outstanding at the end of 1989. It currently has 42.4 million common shares outstanding.

The St. Paul Companies is a worldwide property-liability insurance organization. (St. Paul, 1990)

USLIFE Corporation extends stock repurchase program

NEW YORK—(BUSINESS WIRE)—October 24, 1995—USLIFE Corporation (NYSE:USH) today announced the extension of its stock repurchase

program. The board of directors has extended the current program through November of 1996 and authorized the purchase of up to 1.5 million common shares or convertible preferred equivalents. This action was announced by Gordon E. Crosby, Jr., chairman of the board of USLIFE.

Excluding treasury stock, USLIFE Corporation had 34,421,062 common shares issued and outstanding as of September 30, 1995, as adjusted for the 3-for-2 common stock split on September 1, 1995.

Since the inception of the stock repurchase program in 1981, USLIFE has repurchased approximately 26 million shares of its common stock at a cost of approximately \$373 million, which equates to an average price of \$14.54 per share compared with book value, before FASB 115 securities "mark-to-market" adjustment, at September 30, 1995 of \$31.29 per share. USLIFE's reported book value per share, including this adjustment, is \$34.38 at that date.

Subject to prevailing market conditions and other factors, repurchases are being made in the open market or through negotiated transactions.

USLIFE Corporation is a life insurance-based holding company composed of eleven wholly owned subsidiaries. With \$152 billion of life insurance in force and more than \$7 billion in assets, USLIFE Corporation operates nationwide through three ordinary life insurance companies, a credit insurance group, and six other companies that provide investment advisory, broker-dealer, marketing, real estate, data processing, and administrative services. USLIFE Corporation common stock is traded under the symbol "USH" on the New York, Chicago, Pacific, and London stock exchanges. (USLife, 1995)

The Liberty Corp. Announces Self-Tender for Up to 2 Million Shares

GREENVILLE, S.C.—(BUSINESS WIRE)—Feb. 10, 1998—The Liberty Corp. (NYSE: LC) announced that its board of directors today has authorized the company to repurchase up to 2 million shares of its common stock (including associated preferred stock purchase rights) pursuant to a "Dutch auction" self-tender offer. The offer is expected to begin on Wednesday, Feb. 11, 1998, and will expire at midnight, New York City time, Wednesday, March 11, 1998, unless extended by Liberty. On Feb. 10, 1998, Liberty shares closed at \$46.75.

The tender offer will be subject to various terms and conditions described in offering materials to be distributed to shareholders this week. Under the terms of the tender offer, Liberty shareholders will be given the opportunity to specify prices between \$45.50 and \$52.00 at which they are

willing to tender their shares. Upon receipt of tenders, Liberty will determine a final price that enables it to purchase up to 2 million shares from those shareholders who agreed to sell at or below the determined price. All shares purchased will be at the determined price.

If more than 2 million shares are tendered at or below the purchase price, there will be a proration. The tender offer will not be contingent upon any minimum number of shares being tendered. Liberty currently has 20,695,140 shares of common stock outstanding. Liberty intends to finance the tender offer with a new bridge loan. The company expects to repay the bridge loan with proceeds to be received from the previously announced sale of its subsidiary, Pierce National Life Insurance Co.

Neither Liberty nor its board of directors makes any recommendation to any shareholder as to whether to tender all or any shares. Liberty has been advised that no director or executive officer of the company intends to tender shares pursuant to the tender offer.

"Using cash and borrowings to fund the tender offer will result in a stronger and more efficient capital structure for Liberty and is consistent with our goal of increasing shareholder value," said Hayne Hipp, president of Liberty.

Goldman, Sachs & Co. will act as the dealer managers for the tender offer. D.F. King & Co., Inc. will act as the information agent, and Wachovia Bank, N.A. will act as the depository.

The Liberty Corporation is a holding company with operations in insurance and broadcasting. Annual revenues in 1997 were \$660 million. Company headquarters is in Greenville, S.C. (Liberty, 1998)

APPENDIX B

Multi-Year Repurchase Program Announcements

Penn-America Group, Inc.

PR Newswire, June, 18 1998

... The company also announced that its board of directors has authorized a buy-back of up to 350,000 shares of the company's common stock during the next 18 months. ... Commenting on the planned stock buy-back program, Saltzman added, "The recent stock price is not indicative of a change in the fundamentals of the company, all of which remain solid. We want the buy-back to send the unmistakable signal that we have great confidence in the continued fundamental strengths of the company."

PR Newswire, September, 16 1998

... The board of directors of Penn-America Group, Inc. (NYSE: PNG) has authorized the company to repurchase up to one million shares of common stock. The action represents an expansion of the repurchase program, announced on June 18, that authorized the company to buy up to 350,000 shares during the ensuing 18 months.

PR Newswire, February, 23 1999

... Penn-America Group, Inc. (NYSE: PNG) will expand its stock repurchase program from one million to 1.5 million shares. ... Jon S. Saltzman, president and CEO of the company, explained, "Our common stock is undervalued compared with our price-to-book ratio and those of our peers. By expanding our repurchase program we are using our stockholders' capital wisely and sending the unmistakable message that we have great confidence in the fundamental strengths of Penn-America."

Allstate Corporation

PR Newswire, August, 14 1997

... "In less than three years, Allstate's strong financial results, the sale of non-core businesses and a reduction in catastrophe exposure have resulted in a doubling of our capital position. This gives the company the opportunity to fund continued market share growth in auto, home, and life insurance, as well as an expanded stock repurchase program," said Jerry D. Choate, chairman and chief executive officer of Allstate.

PR Newswire, August, 13 1998

... "We are proud that Allstate's strong financial performance has enabled the company to implement three stock buyback programs in the last three years. Combined with our strategy of focusing on our core businesses, this action demonstrates our commitment to maximizing shareholder value," said Jerry D. Choate, Allstate's chairman and chief executive officer.

PR Newswire, November, 10 1999

... Allstate also announced that it would accelerate and expand its share repurchase program. "We have completed just over half of a \$2 billion share buyback first announced in August 1998 and originally scheduled to be completed by the end of 2000," said John Carl, Allstate's chief financial officer. "We are confident the major operational moves we are making will add strong growth over time. We also see a unique opportunity to enhance

both our earnings per share growth and our return on equity through aggressive share repurchases. We plan completion of our current buyback program as well as an additional \$2 billion by year end 2000."

Standard Management Corporation

Dow Jones News Service, April, 21 1993

.... Standard Management said it believes its stock is "significantly undervalued" at its current price, noting that it has paid of all its debt as of April 2.

PR Newswire, June, 6 1995

... Ronald D. Hunter, chairman and chief executive officer of SMC, stated, "We are pleased to announce that we have nearly completed our initial stock buy-back program. As our stock continues to sell at a substantial discount to book value, we believe it to be in the best interest of our shareholders to continue to purchase our shares. These newly authorized shares represent nearly 10% of the outstanding shares of the company."

PR Newswire, March, 28 1996

... Ronald D. Hunter, chairman and chief executive officer of SMC, stated, "We have repurchased over 17% of the original issued common shares of the company, with this additional repurchase authorization representing another 11% of our outstanding shares as of March 25. Our efforts over the past several years have been to maximize shareholder value. We believe this additional repurchase builds upon those efforts and takes advantage of the fact that our stock is selling at a substantial discount to book value."

NOTES

¹See research by Masulis (1980), Dann (1981), Vermaelen (1981), Rosenfeld (1982), Vermaelen (1984), Billingsley, Fraser, and Thompson (1989), Dann, Masulis, and Mayers (1991), Hertzell (1991), Comment and Jarrell (1991), Singh, Zaman, and Krishnamurti (1994), Ikenberry, Lakonishok, and Vermaelen (1995), Choi and Chen (1997), Liu and Ziebart (1997), Erwin and Miller (1998), Born, Giaccotto, and Ritsatos (2004), and Polonchek and Miller (2004). Born, Giaccotto, and Ritsatos (2004), and Polonchek and Miller (2004) document positive abnormal returns associated with common stock repurchases by insurance companies.

²The National Association of Insurance Commissioners (NAIC) established minimum standards for financial regulation by the states in 1989 to remedy deficiencies in state regulation. In addition to establishing minimum standards for financial regulation, the NAIC designed an accreditation program of 16 model laws to assist states in developing an effective system of

solvency regulation in 1990. Forty-nine states and the District of Columbia had been certified as meeting the accreditation standards of the NAIC as of March 2004.

³Capital requirements in the insurance industry are regulated at the state level (i.e., state regulations specify the capital conditions needed to operate an insurance business). Once a company is in operation, it is up to the state regulator to ensure that companies operating in their state have sufficient capital to meet their obligations. The National Association of Insurance Commissioners (NAIC), an organization of insurance regulators, has developed a risk-based capital system that calculates an estimate of the minimum capital needed to support the business being written. State regulators can then compare the NAIC's estimate of the minimum risk-based capital needed to support the business to the actual capital available to determine if the insurer is technically solvent. The greater the risk associated with an insurer's portfolio, the larger the capital base required to support that risk. Given the same level of risk, an insurer with more capital can support greater growth, *ceteris paribus*. Insurance companies with capital constraints may encounter regulators that want to limit the firms' ability to exercise valuable growth options. Common stock repurchases reduce the firm's available capital, reducing either the maximum amount of business the firm can write or the level of risk the insurance company can support.

⁴The sample includes repurchases that are made in open or private market transactions and repurchases made via tender offers. The insurance companies in this sample rarely used an open market tender offer as a means to repurchase stock, as repurchases by tender offer represent less than 1.8% of the repurchases in the sample. In addition, repurchases made only in the private market accounted for less than 2.2% of total repurchases announced.

⁵It is not unusual to find a story about the repurchase in all the major national daily newspapers, the primary daily financial press (including the domestic, Asian, and European versions of the *Wall Street Journal*), the Dow Jones News Service, the Business Wire and the PR Newswire.

⁶The growth in stock repurchases by insurance companies increased substantially following the stock market's plunge in October of 1987 and continued throughout the 1990s, with more than 70% of the repurchase announcements by insurance companies being made in the 1990s.

⁷During the 1973 to 2000 sample period, 121 different insurance companies made 515 common stock repurchase announcements. There were 16 firms, 3.11% of the sample of repurchase announcements, that made only one repurchase announcement during the sample period. There were 105 different firms that made multiple common stock repurchase announcements, or 86.78% of the 121 firms in this sample.

⁸Stephens and Weisbach, in their 1998 *Journal of Finance* article, find that industrial firms that initiated open market repurchase programs between 1981 and 1990 generally repurchased either almost all or almost none of the shares authorized to be repurchased. It was evident from reading the repurchase announcements found on the various wire services that most of the firms in the sample did follow a repurchase announcement with an actual repurchase of shares.

⁹The market value of an insurer is calculated two weeks prior to the repurchase announcement.

¹⁰Please see Appendix A for several examples of a "typical" repurchase announcement.

¹¹An example of this would be a press release that states the repurchased shares (1) will be used to compensate employees, (2) are being repurchased because the firm is undervalued, and (3) signal management's confidence in the firm's future prospects. The article may also specify the method of the repurchase.

¹²The t-statistic for the two-day abnormal return is 13.91 and 65% of the two-day returns are positive; see Table 5 in Polonchek and Miller (2004). The nonparametric rank test (Corrado, 1989) is statistically significant at the .1% level, indicating that the positive abnormal returns reported are not generated by outliers.

¹³If the firm specifies the dollar amount of funds committed to the repurchase, we calculate the share equivalent as the dollar amount committed to the repurchase divided by the share price two weeks prior to the repurchase announcement.

¹⁴There is no difference in the statistical significance of the coefficients on the classification variables that are based on the information in the management statements announcing the repurchase when we estimate separate regression equations for the life and health firms and the property and casualty firms. A more detailed analysis of repurchases based on the line of business of the repurchasing firm can be found in Polonchek and Miller (2005).

¹⁵Polonchek and Miller (2004) find statistically different market responses to repurchases announced before and after January 1, 1900 (see Table 10).

¹⁶Appendix B includes a series of announcements by three different firms that are representative of the type of announcements associated with a multi-year repurchase program.

¹⁷Polonchek and Miller (2004) find statistically different market responses to first repurchases announcements (see Table 7).

¹⁸The empirical repurchase literature, for both insurance firms and non-financial firms, has generated results consistent with this hypothesis.

¹⁹When we create a single classification variable based on the individual subgroup classification variables, none of the coefficients on the broader classification variables are statistically significantly different from zero. For example, if an announcement that includes a statement that the firm is undervalued ($\text{Undervalued} = 1$), then we would assign the broader classification variable Relative Value a value of 1.

²⁰None of the variables in equation three were statistically significant, and these variables were not included in this specification.

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