



American Finance Association

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Source: *The Journal of Finance*, Vol. 46, No. 2 (Jun., 1991), pp. 707-716

Published by: Blackwell Publishing for the American Finance Association

Stable URL: <http://www.jstor.org/stable/2328843>

Accessed: 25/11/2009 12:07

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The Effects of Stock Repurchases on Rival Firms

MICHAEL G. HERTZEL*

ABSTRACT

This paper investigates the stock price behavior of rival firms in the same industry as firms announcing stock repurchase tender offers. Using a sample of 134 repurchase announcements, I find that rival firms on average realize insignificant announcement period abnormal returns. Negative rival stock price performance is detected over longer intervals surrounding the announcement period and for a subset of announcements which *ex ante* were identified as most likely to affect rivals. This evidence, however, is statistically weak and does little to alter the overall conclusion that the information in repurchase announcements is primarily firm-specific.

STOCK PRICES INCREASE DRAMATICALLY when firms announce stock repurchase tender offers.¹ The most plausible explanation for the sizeable stock price increases is that new information about future earnings is revealed. By documenting the stock price effects for other firms in the same industry, this study adds to our understanding of the nature of the information that investors infer from repurchase announcements.

A broad class of theories suggests that there is a connection between stock repurchases and industry rivals. This connection is most strongly emphasized in recent theoretical work that focuses on the link between capital structure decisions and product market conditions. For example, Titman (1984), Brander and Lewis (1986), and Maksimovic (1988) develop models which imply that rivals can be affected by strategic changes in a firm's debt/equity ratio. Theories advanced by Jensen (1986) and Stulz (1988) suggest that repurchases can also have corporate governance effects that affect rivals. Rival stock price effects are also consistent with information signalling explanations of repurchases (see, e.g., Vermaelen (1981) and Miller and Rock (1985)). Although signalling models do not stress the connection between stock repurchases and industry rivals, information about the repurchasing firm may lead investors to revise expectations of rivals' earnings prospects.

* Assistant Professor of Finance, College of Business, Arizona State University. This paper is based on my dissertation written at the University of Oregon. I gratefully acknowledge the guidance and assistance of the members of my dissertation committee—Larry Dann, Kelly Eakin, Peggy Wier, and especially Wayne Mikkelson (chairman). I also wish to thank Hank Bessembinder, Andrew Christie, Paul Healy, Cole Kendall, David Mayers (the editor), Rick Smith, Rex Thompson, and an anonymous referee for many helpful comments. Financial support from the Center for Financial Systems Research at Arizona State University is acknowledged.

¹ See Masulis (1980), Dann (1981), Vermaelen (1981), and Rosenfeld (1982). Smith (1986) reports that on average for these papers the unexpected stock price change is 16.2%.

The information conveyed by repurchase announcements may be relevant for rivals in at least two ways. First, the information may reflect economic conditions facing the industry as a whole (e.g., an increase in demand for the industry product). Second, the information may reflect a change in the competitive balance within the industry (e.g., the repurchasing firm is a more efficient, stronger competitor). Thus, repurchase announcements can have positive, negative, or heterogeneous stock price effects for rivals.

Alternatively, there is a broad class of theories implying that repurchases are events containing firm-specific information with little or no consequences for rivals. Theories in this class deal with tax effects, wealth transfers between the repurchasing firm's security holders, and purely firm-specific changes in the firm's future earnings. The prediction of this class of theories, that rival stock prices are unaffected by repurchase announcements, serves as the null hypothesis for this study.

The remainder of my paper is organized as follows. Section I describes the sample selection procedure, three alternative industry classifications, and the final sample of repurchase announcements. Section II presents the empirical findings. Section III summarizes the results and compares them with previous studies that document rival stock price effects around other types of announcements.

I. Sample Selection and Industry Definitions

The analysis in this paper is based on an initial sample of 231 repurchase announcements for the years 1970 through 1984 compiled by Dann, Mikkelson, and Partch (1987). Of these, 28 are deleted because of insufficient data on the Center for Research in Security Prices (CRSP) Daily Returns File.²

The repurchasing firm's industry is identified using the 4-digit SIC code assigned by CRSP on the announcement date. Announcements by firms with "miscellaneous" or "not elsewhere classified" SIC codes (27 announcements) and by finance, real estate, and insurance companies (33 announcements) are also deleted.³

Firms on the CRSP file which are assigned the same SIC code as the repurchasing firm are classified as rivals. Nine repurchase announcements are deleted because no SIC rivals were listed on CRSP. The remaining 134 repurchases form the final sample.

This paper also reports results for three subsamples of repurchases which are formed using alternative industry classifications. The three subsamples

² Repurchasing firms and rivals with missing announcement period returns or less than 50 2-day returns in the estimation period are deleted. The estimation period covers 150 nonoverlapping 2-trading-day periods beginning 10 days after the expiration of the repurchase tender offer.

³ A number of announcements in the latter set were made by holding companies. The results of tests based on cross-sectional averages which included these announcements are similar to those reported.

are: 1) the Value Line subsample, 2) the Dominant Firm subsample, and 3) the Homogeneous Line of Business subsample.

The Value Line subsample (68 repurchases) includes the subset of repurchasing firms and rivals which are classified in the same industry by *The Value Line Investment Survey*. In effect, this group includes only the repurchases where the rivals are identified as economically relevant by *Value Line*.

The Dominant Firm subsample (66 repurchases) includes the subset of repurchasing firms and rivals where each have market shares greater than 10%. For several reasons, industry effects are more likely to be empirically detectable for this subsample. For example, there is likely to be a greater similarity in the geographical markets served by the larger firms in that larger firms tend to sell in national markets whereas smaller firms are more regional.

The Homogeneous Line of Business subsample (19 repurchases) includes the subset of repurchasing firms and rivals which have only one SIC code reported in the Standard and Poor's *Registry of Corporations*. Excluding firms with diverse product lines reduces the ambiguity associated with identifying the relevant set of rivals. In addition, the exclusion of rivals with diverse product lines yields a group of rivals for which the information is likely to be important.

Table I contains summary statistics for the full sample (column 1) and the three subsamples (columns 2, 3, and 4). Panel A shows that the median number of repurchase tender offers is 1.0 per industry indicating that the repurchases are not clustered in a few industries. Panel B shows that repurchasing firms in the full sample have between one and 47 rivals with an average of 13. Alternative industry classifications significantly reduce the number of rivals. Panel C reports that the average market share of repurchasing firms in the full sample is 19.5%, showing that the repurchasing firms are relatively important firms.⁴

II. Stock Return Evidence

A. Cross-Sectional Average Performance

Table II reports average cumulative abnormal returns (ACAR) of repurchasing firms and equally weighted portfolios of rivals around repurchase announcements. Abnormal returns are measured as market-adjusted returns: the difference between a security's return and the contemporaneous return to a market portfolio. Denoting CAR_i as the 2-day market-adjusted returns of

⁴ Market shares are computed using the revenues of the repurchasing firm and its rivals for the 3 years prior to the repurchase announcement collected from the *Compustat Annual Industrial and Research Tapes* and *Moody's Industrial Manuals*. Total revenues for the 3 years are calculated for each firm, and total industry revenues for the period are calculated by summing the 3-year totals of each of the firms in the industry.

Table I
**Descriptive Statistics for the Full Sample and Three
 Subsamples of Repurchases (1970–1984)**

This table presents descriptive statistics for the full sample of repurchase tender offer announcements and for three subsamples which are formed using alternative industry definitions. Rivals in the full sample include the set of firms on the CRSP file which are assigned the same 4-digit SIC code as the repurchasing firm. The *Value Line* subsample contains the subset of repurchasing firms and rivals in the full sample which are also identified as in the same industry by *The Value Line Investment Survey*. The Dominant Firm subsample contains the subset of repurchasing firms and rivals in the full sample which each have market shares larger than 10%. The Homogeneous Line of Business subsample contains the subset of repurchasing firms and rivals in the full sample which have only one SIC code listed in the Standard and Poor's *Registry of Corporations*. The market share of the repurchasing firm is defined as total sales of the repurchasing firm over the 3-year period prior to the repurchase announcement divided by total industry sales over the same period.

		Alternative Industry Definition Subsamples		
	Full Sample	Value Line	Dominant Firm	Homogeneous Line of Business
Panel A. Number of repurchase announcements per industry				
Mean	1.6	1.6	1.3	1.4
Median	1.0	1.0	1.0	1.0
Range	1 to 8	1 to 6	1 to 3	1 to 4
Std. Dev.	1.7	0.9	0.6	0.8
Panel B. Number of rivals per repurchase announcement				
Mean	13	6.2	1.9	6.7
Median	8	4	2	4
Range	1 to 47	1 to 26	1 to 4	1 to 22
Std. Dev.	12.8	6.0	0.9	7.0
Panel C. Market share of repurchasing firm				
Mean	19.5%	18.0%	33.2%	7.7%
Median	10.1	11.6	22.4	1.8
Range	0 to 91	0 to 81	10 to 88	0 to 69
Std. Dev.	23.7	18.6	23.4	16.0
Sample Size	134	68	66	19

firm (portfolio) i cumulated over the period of interest, ACAR is the cross-sectional average of CAR_i .

Panel A of Table II shows that shareholders of repurchasing firms on average earn statistically significant announcement period abnormal returns of 11.87%.⁵ This result is consistent with previous studies and illustrates that a repurchase announcement is an important event for the repurchasing firm. Significant pre-announcement period $\{-5, -1\}$ abnormal returns of 2.39% suggests leakage of news of the repurchase tender offer.

⁵ Tests of significance are based on the cumulative standardized abnormal returns procedure described by Patell (1976).

Table II
Abnormal Returns of Repurchasing Firms and Rivals
(1970–1984)

This table presents average cumulative abnormal returns (ACAR) surrounding the announcement of repurchase tender offers for the repurchasing firms and equally weighted portfolios of their corresponding horizontal rivals in the full sample and the three alternative industry definition subsamples. Rivals in the full sample include the set of firms on the CRSP file which are assigned the same 4-digit SIC code as the repurchasing firm. The *Value Line* subsample contains the subset of repurchasing firms and rivals in the full sample which are also identified as in the same industry by *The Value Line Investment Survey*. The Dominant Firm subsample contains the subset of repurchasing firms and rivals in the full sample which each have market shares larger than 10%. The Homogeneous Line of Business subsample contains the subset of repurchasing firms and rivals in the full sample which have only one SIC code listed in the Standard and Poor's *Registry of Corporations*. Z = test statistic on the average cumulative abnormal returns; % positive = percent of the sample with positive cumulative abnormal returns, % significant = the percent of the sample with significantly (at the 5% level) nonzero cumulative abnormal returns. Computations in this table are based on 2-trading-day time periods. The 2-trading-day announcement period, which is typically denoted $\{-1, 0\}$ in event studies based on daily returns, is defined as event period 0.

Statistic	Period Relative to the 2-day Announcement Period {0}			
	{-5, -1}	{0}	{1, 5}	{-5, 5}
Panel A. Repurchasing firms (full sample, N = 134)				
ACAR	2.39***	11.87***	0.68	14.94***
(Z)	(4.35)	(41.80)	(1.04)	(16.24)
% positive	58.2**	93.3***	53.7	94.8***
% significant	9.7***	77.6***	2.2	26.1***
Panel B. Rival portfolios (full sample, N = 134)				
ACAR	-0.38	-0.36	-0.43	-1.17**
(Z)	(-1.63)	(-1.37)	(-1.07)	(-2.24)
% positive	41.0**	44.8	44.0	39.6***
% significant	5.2	6.7	6.7	4.8
Panel C. Rival portfolios (<i>Value Line</i> subsample, N = 68)				
ACAR	0.70	-0.44	-1.24	-0.98
(Z)	(1.01)	(-0.97)	(-1.69)	(-0.76)
% positive	50.0	42.6	50.0	44.1
% significant	4.4	4.4	7.4	7.4
Panel D. Rival portfolios (Dominant Firm subsample, N = 66)				
ACAR	0.31	-0.35	-1.01	-1.06
(Z)	(-0.37)	(-0.57)	(-1.28)	(-1.29)
% positive	43.9	47.0	36.4**	40.9
% significant	3.0	3.0	3.0	1.5
Panel E. Rival portfolios (Homogeneous Line of Business subsample, N = 19)				
ACAR	-0.81	-0.18	0.60	-0.37
(Z)	(-0.66)	(-0.54)	0.32	(-0.39)
% positive	52.6	52.6	47.4	42.1
% significant	0	10.5	10.5	10.5

* denotes significance at the 10% level.

** denotes significance at the 5% level.

*** denotes significance at the 1% level.

Panel B shows that rival portfolios in the full sample realize on average an insignificant announcement period abnormal return of -0.36% . Tests of the stock price behavior of rival portfolios over the pre- and post-announcement periods also fail to detect significant abnormal performance. Over the period surrounding and including the announcement period $\{-5, 5\}$ and the period $\{-5, 0\}$ (not reported in the table), rivals experience small but significantly negative abnormal returns. Although this evidence is consistent with the explanation that repurchases are unfavorable for rivals, the pattern of rival stock price performance across the pre-announcement, announcement, and post-announcement periods weakens support for this argument.⁶

Panels C, D, and E of Table II report results for the three alternative industry classification subsamples. Rival portfolios in the three subsamples on average earn insignificant announcement period abnormal returns. Further, there is little evidence of significant rival stock price behavior for any subsample in any of the periods surrounding the repurchase announcements. Collectively, the results reported in this section provide little evidence that repurchase announcements convey information about rival firms. Although there is some evidence of negative rival stock price effects, it appears to be too weak to form a basis for concluding that repurchase announcements affect rivals negatively.

B. Tests for Heterogeneous Rival Stock Price Effects

The existence of significant industry stock price effects can go undetected if repurchase announcements have heterogeneous effects on rival stock prices. For example, a repurchase announcement may affect one group of rivals favorably and another group unfavorably so that the average stock price effect tends towards zero.

To examine this possibility, tests for a heterogeneous rival stock price effect are performed in the seemingly unrelated regression framework discussed in Thompson (1985). These tests fail to uncover any evidence that the zero average portfolio returns are due to offsetting positive and negative stock price effects. Nonparametric tests based on *squared* announcement period abnormal returns of individual rivals yield similar results.⁷

⁶ Panel A of Table II shows that approximately 80% of the average total period $\{-5, 5\}$ return to the repurchasing firm occurs in the announcement period and approximately 16% occurs in the pre-announcement period. If investors reassess the rivals' and the repurchasing firm's prospects simultaneously, we should expect a similar pattern for the rival firms. However, the total period return for rivals appears to be evenly spread across the pre-announcement, announcement, and post-announcement periods.

⁷ The nonparametric tests are based on the following nondirectional measure of stock price performance:

$$X_{jt} = (\text{AR}_{jt})^2 / \text{var}(\text{AR}_j)$$

where AR_{jt} is the abnormal return to security j over the 2-day time period t , and $\text{var}(\text{AR}_j)$ is the variance of firm j 's market-adjusted returns in the estimation period. Kolmogorov-Smirnov tests, which compare the distribution of the announcement period value of X_{jt} to the values of X_{jt} for the 10 surrounding 2-day periods, find no evidence of significant announcement period rival stock price behavior in any of the samples.

C. Tests Based on the Repurchasing Firm's Stock Price Reaction and Market Share

A potential problem with the cross-sectional results in Table II is that the sample includes announcements which convey little or no information about the repurchasing firm. Exclusion of such announcements increases the power of the tests to detect industry information effects.

To evaluate this possibility, the full sample is divided into quartiles according to the magnitude of the announcement period abnormal return of the repurchasing firm. Average announcement period abnormal returns are then calculated for the repurchasing firms and rival portfolios in each quartile. The results are consistent with the findings for the entire sample. For the quartile of announcements with the largest effect on the repurchasing firm's stock price (average abnormal return = 24.1%), rival portfolios average an insignificant abnormal return of -0.4% ($Z = -0.77$). Similar results are obtained for the three alternative industry definition subsamples. Thus, the insignificant rival stock price effects reported in Table II are not explained by the inclusion of announcements that have little impact on the stock price of the repurchasing firm.⁸

The group of announcements which had the largest impact on the repurchasing firm's stock price is further classified by the repurchasing firm's market share. Announcements by firms with relatively small market shares are less likely to be important for rivals for at least two reasons. First, firms with smaller market shares typically serve narrower markets which may not be representative of the markets served by other firms in the industry. Second, announcements by small market share firms are unlikely to convey important information about the competitive balance within the industry. For example, news that a firm with a 1% market share has increased its market share by 20% is likely to have a trivial impact on the market's assessment of the competitive balance within the industry even though such news may be quite favorable for the repurchasing firm.

Repurchase announcements were ranked according to the announcement period abnormal return of the repurchasing firm. Announcements which ranked in the top half were designated as high own-price impact announcements and those in the bottom half were classified as low impact. Announcements were also ranked according to the market share of the repurchasing firm and similarly divided into high and low market share groups.

The bottom row of Table III reports insignificant average abnormal returns for industry portfolios in the high and low market share groups. The last column reports insignificant returns for industry portfolios in the high and low own-price impact groups. However, for the group of high own-price

⁸Two additional sets of tests provide consistent results. First, Spearman rank tests find no significant correlation between the returns of the repurchasing firms and the returns of rival portfolios for any of the samples. Second, cross-sectional regressions of the abnormal returns to rival portfolios on the abnormal returns to repurchasing firms are insignificant for the full sample of repurchase announcements and each subsample.

Table III
Abnormal Returns of Rival Firms Grouped by the
Repurchasing Firm's Market Share and the Repurchasing
Firm's Stock Price Reaction (1970-1984)

This table presents average announcement period abnormal returns to equally weighted portfolios of rival firms grouped according to the impact of the repurchase announcement on the repurchasing firm's stock price and the repurchasing firm's share of the market. *t*-statistics are in parentheses. The market share of the repurchasing firm is defined as total sales of the repurchasing firm over the 3-year period prior to the repurchase announcement divided by total industry sales over the same period. Repurchase announcements were ranked according to the market share of the repurchasing firm. Announcements which ranked in the top half were designated as high market share announcements, and those which ranked in the bottom half were classified as low market share announcements. Repurchase announcements were also ranked according to the abnormal return of the repurchasing firm. Announcements which ranked in the top half were designated as high own-price impact announcements, and those which ranked in the bottom half were classified as low own-price impact announcements. *P* is percentage of abnormal returns which are positive, and *N* is the sample size.

Announcement period abnormal return of the repurchasing firm	Market share of the repurchasing firm		All
	High: market share of repurchasing firm greater than 10.14%	Low: market share of repurchasing firm less than 10.14%	
High: Abnormal return of repurchasing firm greater than 10.2%	-1.17* (-1.68) <i>P</i> = 38.3 <i>N</i> = 31	-0.20 (-0.34) <i>P</i> = 50.0 <i>N</i> = 36	-0.65 (-1.39) <i>P</i> = 44.8 <i>N</i> = 67
Low: Abnormal return of repurchasing firm less than 10.2%	0.20 (0.24) <i>P</i> = 52.8 <i>N</i> = 36	-0.40 (-1.07) <i>P</i> = 35.4 <i>N</i> = 31	-0.80 (-0.54) <i>P</i> = 44.8 <i>N</i> = 67
All	-0.43 (-0.96) <i>P</i> = 46.3 <i>N</i> = 67	-0.29 (-0.98) <i>P</i> = 43.3 <i>N</i> = 67	-0.36 (-1.37) <i>P</i> = 44.8 <i>N</i> = 134

* denotes significance at the 10% level.

impact and high market share announcements, the average industry portfolio abnormal return is -1.17% which is significant at the 10% level.⁹ Although the results for this subsample are consistent with the explanation

⁹ The following regression relation provides consistent results:

$$AR(PORT) = -0.00 + 0.05 AR(REPO) + 0.03 SHARE - 0.46 INT, \quad R^2 = 0.138$$

(-1.55) (1.69)
(1.25)
(-2.17)

where *AR*(*REPO*) and *AR*(*PORT*) are abnormal returns to the repurchasing firm and the industry portfolio respectively, *SHARE* is the market share of the repurchasing firm and *INT* is an interaction term defined as the product of *AR*(*REPO*) and *SHARE*. The *t*-statistics, which are in parentheses, are calculated using heteroscedasticity-consistent standard errors (see White (1980)). The negative and significant coefficient on the interaction term is consistent with the finding reported in Table III that high own-price effect/high market share announcements have a negative effect on rival stock prices.

that repurchases are unfavorable for rivals, the t -value is too small to draw strong conclusions in favor of this hypothesis.¹⁰

III. Conclusion

This study investigates the stock price behavior of rival firms in the same industry as firms announcing repurchase tender offers. For a sample of 134 repurchase announcements, tests based on cross-sectional averages of market-adjusted returns and tests for heterogeneous stock price effects find no evidence of abnormal announcement period stock price behavior for rival firms. Negative rival stock price effects are detected for longer intervals surrounding the announcement period and for a subset of announcements which *ex ante* were identified as most likely to affect rivals. This evidence, however, is statistically weak and does little to alter the overall conclusion that the information in repurchase announcements is primarily firm-specific.

The finding that rival stock prices are largely unaffected by repurchase announcements stands in sharp contrast with previous studies which have found significant rival stock price effects around a variety of other announcements. For example, rival stock price effects have been documented around the announcement of a dividend omission (Boim (1977)), earnings announcements (Foster (1981)), the accident at Three Mile Island (Bowen, Castanias, and Daley (1983)), merger proposals (Eckbo (1983)), product recalls (Jarrell and Peltzman (1985)), and management forecasts of earnings (Baginski (1987)). These studies all find a positive association between the stock price changes of announcing and nonannouncing rival firms. In contrast, although this study uncovers some weak evidence of negative rival stock price effects, I find no evidence that the stock price increases for repurchasing firms are accompanied by stock price increases for rivals.

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¹⁰ At the referee's suggestion, I also partition the sample according to the announced intention behind the repurchase as stated in the *Wall Street Journal*. Of the 113 articles I could identify, 65 provided no stated reason, 20 stated that the stock was undervalued and/or a good investment, 5 stated that shares were to be used for future acquisitions, and 23 stated miscellaneous reasons such as "best use of cash", "to increase managerial shareholdings", etc. Partitioning the sample in this manner, I find no evidence of significant rival stock price behavior.

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