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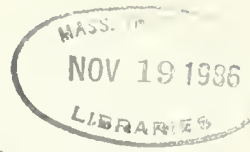
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An Empirical Analysis of the Interfirm  
Equity Investment Process

by

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University of Oregon

Richard S. Ruback  
Massachusetts Institute of Technology  
WP#1675-85

May 1985

**MASSACHUSETTS**  
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## **ABSTRACT**

This paper measures the effects on stock prices of corporate investments in 5% or more of another company's equity securities. Such investments initiate a process that may end with a takeover, targeted repurchase, takeover by a third party, or sale of the shares. The total valuation effect of the investment for acquiring and target firms includes returns at disclosure of the investment position, the outcome announcement, and related intervening events. For example, the positive return for target firms at initial disclosure of the investment more than offsets the negative return at the targeted repurchase.



1. Introduction

A great deal of research has focused on valuation consequences of corporate takeovers for acquiring and target firms. These studies typically examine the stock prices of the participating firms at the time of takeover announcements.<sup>1</sup> However, many of these takeover attempts are preceded by the purchase of 5% or more of the common stock of the target firms. This study expands the investigation of transactions in the market for corporate control by measuring security valuation effects of corporate investments in the equity securities of other firms. Valuation effects are measured from the time a 5% or greater investment position is first disclosed to the outcome of the investment.

Our sample consists of corporate acquisitions of another company's common stock, securities convertible into common stock, and options to buy common stock that were reported in a filing of Schedule 13D with the SEC during the years 1978 through 1980. Common stock returns of both the acquiring and target firms are analyzed around the date of the earliest report that an ownership position of 5% or more of the target firm's equity securities has been or will be taken. In addition, common stock returns are examined at related events subsequent to the initial announcement date and at the outcome of the investment. The abnormal stock returns at the initial announcement, the outcome announcement and the intervening events are used to estimate the total valuation effect of the investment activity on the acquiring and target firm's common stock.

One objective of this study is to determine whether and how the acquiring and target firms' stock prices respond to different types of corporate investments in common stock. The sizes of the initial investments range from a 5% ownership position to a block of shares that transfers voting control. Most of the investments examined in this study initially represent a minority ownership stake in the target firm and are not part of a publicly announced takeover attempt by the acquiring firm. In some cases the acquiring firm discloses that the purchase of shares is solely for investment purposes, while in other cases the acquiring firm indicates that an attempt to acquire control of the target firm is under consideration. However, all of the investments represent a potentially important change in the security ownership structure of the target firm. In general, we find that the share prices of both the acquiring and target firms increase in response to the initial disclosure of the investment position.

A second objective is to measure and compare the total valuation effects of investments with different outcomes. That is, we measure the combined value changes at the initial announcement, the outcome and the intervening events for various categories of outcomes. The possible outcomes of the investment positions include: a completed takeover; a completed takeover by another firm; a repurchase of the investment position by the target firm (targeted repurchase); and a sale of shares in the market or to a third party. In some cases, none of these outcome events follow the initial investment. Several of the outcome events, such as completed takeovers and targeted repurchases, have been examined individually in previous studies. In this study we analyze these events as the outcomes of an investment process that begins with the purchase of 5% or more of the common stock of the target firm. This provides a consistent framework for comparing the total abnormal returns associated with various outcomes and investment strategies.

Our evidence uncovers differences in the average total stock returns of both acquiring and target firms across the different outcomes. When the outcome is a completed takeover, the total abnormal return is zero for acquiring firms and is large and positive for target firms. Of the outcomes we examine, a completed takeover has the smallest total valuation effect for the acquiring firms and the largest total valuation effect for the target firms. When the outcome is a completed takeover attempt by a third party, the total valuation effect is positive for both the acquiring and the target firms. The outcomes with the most favorable total valuation effect for the acquiring firms are a sale of shares in the market or to a third party and a targeted repurchase. Target firms realize a statistically significant, positive total abnormal return for investments that conclude with a sale of shares or a targeted repurchase. We find that the negative price effect of the targeted repurchase announcement is more than offset on average by the positive price effects of preceding events.

The third objective of the study is to investigate whether firms that frequently purchase shares of other companies earn profits on this activity, and how the stockholders of the firms in which they invest fare relative to the stockholders of firms that are targets of other acquiring firms. The subset of frequent acquiring firms, defined to be firms that appear six or more times in our sample of investments, includes firms that are sometimes characterized as 'corporate raiders'. We find that frequent acquiring firms differ from other acquiring firms in that a greater proportion of their investments terminate with a targeted repurchase or in the sale of shares. Also, frequent purchasers of common stock rarely attempt to acquire control of a target firm. Somewhat surprisingly, frequent acquiring firms do not on average experience a larger total return than other acquiring firms. The evidence also indicates that the



target firm's shareholders experience a positive valuation effect when the acquiring firm is a frequent purchaser of other companies' shares.

The next section describes the sample of corporate investments, the characteristics of the sample and our method of estimating abnormal stock returns. Section III presents average abnormal common stock returns of the acquiring and target firms around the initial announcement date, the outcome announcement and intermediate announcements for 13D filings that are not associated with an outstanding takeover proposal. Average returns are also presented for subsamples grouped by the type of investment plans disclosed at the initial announcement and by the outcome of the investment. Investments by frequent acquiring firms and by infrequent acquiring firms are also compared. Section IV examines the abnormal returns for Schedule 13D filings associated with outstanding takeover proposals. Our conclusions are presented in Section V.

## II. Sample and Methodology

### A. Schedule 13D Filings

The sample of corporate acquisitions of equity securities is drawn from filings of Schedule 13D required by the Williams Act, a set of amendments to the Securities and Exchange Act of 1934. According to the provisions of the Williams Act that became effective in July, 1968, an individual, group of individuals, or a corporation is required to report to the SEC the accumulated acquisition of more than 10% of any class of a company's voting equity securities. Effective December, 1970 the Act was amended so that the ownership of more than 5% of a class of securities must be reported. The Act requires that a Schedule 13D must be filed within 10 days of the purchase of shares that



increased holdings beyond the 5% level. An amended Schedule 13D must be filed within 10 days of any subsequent material change in the investment position.

Our sample includes all initial 13D filings for the years 1978 through 1980 filed by corporations listed on either the New York or American Stock Exchange. These filings are reported in the SEC News Digest, which is our primary source for the filing date and the number of shares acquired. These data are supplemented with information on selected 13D filings published in the Insiders' Chronicle. The sample consists of 473 Schedule 13D filings by listed corporations. For 299 of these filings, the target firm is also listed on the New York or American Stock Exchange.

For each Schedule 13D filing, The Wall Street Journal Index was examined to identify any news reports related to the investment in the target firm's common stock. The period covered by our examination begins 12 months before the date of the initial 13D filing and terminates at the end of the third full calendar year that follows the year of the initial 13D filing. Wall Street Journal articles related to the investment were read, and from these articles we recorded the specific actions taken by the acquiring or target firm. The publication dates of selected articles represent the dates we designate as the initial announcement date, the outcome date or an intermediate event date.

The initial announcement date of the investment position is defined as the publication date of a Wall Street Journal report of the initial 13D filing or of a report preceding the filing that reveals plans to acquire shares of the target firm. When no such report is found, the date of the initial 13D filing is defined as the initial announcement date. Subsequent to the initial announcement date, we identified Wall Street Journal reports of the following events: (1) the purchase of additional shares; (2) the sale of shares in the market or to a third party; (3) the initial report of opposition by the target

firm to the filing firm's investment or stated intentions; (4) legal rulings issued in connection with the investment position; (5) the announcement of a takeover offer by the filing firm or by another firm; (6) the announcement of a targeted repurchase or standstill agreement; (7) the cancellation or withdrawal of a takeover offer and (8) stockholder approval or completion of a takeover. An event is classified as having an outcome if subsequent to the initial announcement of the investment position one of the following events occurs: stockholder approval or completion of a takeover with either the filing firm or another firm; failure or withdrawal of a takeover offer by the filing firm; a targeted repurchase; or a sale of a shares by the filing firm. The last occurrence of any of these four events is defined as the outcome and all other preceding events are classified as intermediate events.

The first row of Table 1 classifies the initial announcements of the 13D filings by the information contained in The Wall Street Journal articles. When no report of the initial 13D filing was found, the investment is classified as having no Wall Street Journal report. There are two qualitatively different types of initial announcements: 13D filings associated with a previously or simultaneously announced takeover proposal, and 13D filings that are not associated with an outstanding takeover proposal. For the 136 13D filings that are associated with an outstanding takeover proposal (Row A, Column 7 of Table 1), the intended outcome of the investment in the target firm is known at the time of the initial announcement. In contrast, the intended actions of the filing firm are less clear for the remaining 337 13D filings. Since the focus of this paper is on investments that do not begin as a publicly announced takeover attempt, we separate the 13D filings associated with an outstanding takeover proposal from the filings that are not associated with a takeover proposal.<sup>2</sup>

TABLE 1  
 Number of 13D Filings in the Period 1978 Through 1980 Classified by the Type of  
 Information at the Initial Announcement of the Investment and by the Outcome

Outcome	(1) Total Sample	Type of Initial Announcement				(6) No Wall Street Journal Report	(7) Total
		(2) Total <sup>a/</sup>	(3) Considering Takeover	(4) Negotiated Transaction	(5) Investment		
A. Total Sample	473	337	41	50	131	126	136
B. Completed Takeover	157	43	20	14	11	5	114
C. Third Party Takeover	49	45	4	0	18	23	4
D. Unsuccessful Takeover	15	3	1	1	0	1	12
E. Targeted Repurchase	40	39	3	3	28	5	1
F. Shares Sold	52	47	5	8	30	6	5
G. No Outcome Within Three years <sup>b/</sup>	160	160	8	24	44	86	0

<sup>a/</sup> The entries in columns (3), (4), (5) and (6) do not sum to the total in column (2) because 11 filings are included in both the considering takeover and negotiated transaction categories.

<sup>b/</sup> No outcome means that none of the outcome events listed above were reported between the initial announcement and the end of the third full calendar year following the initial investment.

Among the 13D filings that are not associated with a takeover announcement and are reported in The Wall Street Journal, the acquiring firm disclosed that an attempt to acquire control of the target firm is being considered in 41 cases. The transaction resulted from direct negotiation between the acquiring firm and either the target firm or another firm in 50 cases. For the 131 filings classified as investments, The Wall Street Journal disclosed no information about the acquiring firm's investment plans or it was reported that the shares were acquired only for investment purposes. No report of the initial 13D filing appeared in The Wall Street Journal in 126 cases.

Outcome events were reported for 177 of the 337 initial filings that were not associated with an outstanding takeover proposal. The frequency of outcomes is presented in column 2 of Table 1. The investment process concludes with a completed takeover (merger or tender offer) by the filing firm in 43 cases. A completed takeover by another firm is the outcome of the investment process in 45 observations. In 39 cases the investment terminates with a targeted repurchase. The targeted repurchase category also includes three transactions that concluded with a standstill agreement but did not involve a targeted purchase<sup>3</sup>. The acquired shares are sold in the market or to a third party in 47 cases. Three investments conclude with an unsuccessful takeover attempt. Thus, the reported outcomes of the investment process are roughly evenly divided among completed takeovers, third party takeovers, targeted repurchases, and shares sold. The 160 investments classified as having "no outcome" represent an undetermined combination of cases where either no outcome event took place prior to the end of the third full calendar year following the initial investment or The Wall Street Journal did not report an outcome event. Over half of the investments classified as having no outcome were not reported in The Wall Street Journal at the initial announcement.

The size of the initially reported investment in the target firms' shares varies across the different types of initial announcements and outcomes. Table 2 presents the average percent of the target firms' shares held and the average market value of the holdings at the time of the initial 13D filing<sup>4</sup>. The 74 filings that involve securities other than common stock are excluded from Table 2. For the classifications of filings by types of initial announcement (Panel A), the largest average ownership position is 37%, or \$54 million, for filings that are associated with an outstanding takeover proposal. The smallest average percent ownership stake is 9.8% when the initial announcement is classified as an investment. The smallest average dollar position is \$11.9 million for filings not reported in The Wall Street Journal. The classification by outcomes reveals that the largest average ownership position reported in the initial 13D filing is 40.9%, or \$62 million, for completed takeovers in which the initial filing is associated with an outstanding takeover proposal. The average ownership initial level is approximately 30% for other 13D filings that conclude with completed takeovers. The average initial positions are considerably smaller for the other outcome categories.<sup>5</sup>

The sample of 473 events represents Schedule 13D filings by 275 firms. About 87% of the filing firms appear only once or twice in the final sample, but several firms invested frequently in other companies' common stock between 1978 and 1980. To explore possible differences between investments by frequent and other acquiring firms, we examine investments by the subsample of firms that appear six or more times in the sample as an acquiring firm<sup>6</sup>. This subsample represents 95 of the 473 Schedule 13D filings.



**TABLE 2**

**Average Percent of the Target Firm's Shares Held and the Dollar Value of the Investment at the Initial 13D Filing.**

The sample period for 13D filings is 1978 through 1980. The sample excludes filings associated with securities other than common stock.<sup>a/</sup>

Standard deviation and sample size are in parentheses.

	Percent of Target Held	Dollar Value of Investment (Millions)
<b>PANEL A: Classified by the Type of Initial Announcement</b>		
Considering Takeover	21.0% (20.5,38)	\$17.3 (24.5,38)
Negotiated Transaction	21.8 (12.2,36)	20.7 (26.8,36)
Investment	9.8 (13.0,115)	13.0 (28.7,115)
No <u>Wall Street Journal</u> Report	14.8 (17.4,98)	11.9 (41.1,98)
Takeover	37.0 (28.7,120)	54.3 (104.2,120)
<b>PANEL B: Classified by Type of Outcome</b>		
Takeovers (following filings associated with an outstanding takeover proposal)	40.9% (29.1,102)	\$62.0 (111.1,102)
Takeovers (following filings not associated with an outstanding takeover proposal)	30.0 (26.3,37)	34.7 (68.8,37)
Targeted Repurchase	7.6 (3.3,36)	10.2 (19.0,36)
Shares Sold	12.8 (14.5,46)	9.5 ( 9.6,46)
Third Party Takeover	7.0 (4.1,39)	7.0 ( 6.8,39)
Unsuccessful Takeover	14.7 (13.2,11)	11.8 (20.2,11)
No Outcome	13.7 (13.9,126)	11.4 (26.0,126)
Average	20.9% (23.3,397)	\$25.8 (66.0,397)

<sup>a/</sup> 74 of the total sample of 473 13D filings are excluded because the filings involved securities other than common stock. Two additional observations are excluded because of insufficient data.

B. Method of Measuring Abnormal Returns

The event study method pioneered by Fama, Fisher, Jensen, and Roll (1969) is used to measure the price effects of the initial purchase, intermediate and outcome announcements. Since most stocks tend to move up or down with the market, the realized stock returns are adjusted for market-wide movements to isolate the component of the returns due to events related to the investment. This adjustment is accomplished using linear regression to estimate the following market model:<sup>7</sup>

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \epsilon_{jt}. \quad (1)$$

The parameter  $\beta_j$  measures the sensitivity of the  $j$ th firm's return ( $R_{jt}$ ) to movements in the market index ( $R_{mt}$ ). The term  $\beta_j R_{mt}$  in equation (1) is the portion of the return to security  $j$  that is due to market-wide factors. The parameter  $\alpha_j$  measures that part of the average return of the stock which is not due to market movements. Lastly,  $\epsilon_t$  measures that part of the return to the firm which is not due to movements in the market or the firm's average return.

Two sets of coefficients are estimated for each firm to incorporate potential changes in the marketmodel parameters. Coefficients before the initial announcement,  $\alpha^B$  and  $\beta^B$ , are estimated using daily returns beginning 260 trading days before the initial announcement and ending 61 days before the initial announcement. Similarly, coefficients after the outcome announcement are estimated over the period beginning 61 days after the outcome announcement (if returns are available) through 260 days after the outcome. In those cases in which 100 days of data are not available to estimate either the before or after coefficients, returns before the initial announcement and

after the outcome announcement are combined to estimate the coefficients. In all cases, returns for the 60 days preceding the initial announcement through 60 days following the outcome announcement are excluded from the estimation period.

Prediction errors are calculated for each firm for 60 days prior to the initial announcement through 60 days after the outcome announcement according to the following expression:

$$PE_{jt} = \begin{cases} R_{jt} - (\hat{\alpha}_j^B + \hat{\beta}_j^B R_{mt}) & \text{for } t < \text{initial announcement} \\ R_{jt} - (\hat{\alpha}_j^A + \hat{\beta}_j^A R_{mt}) & \text{for } t \geq \text{initial announcement} \end{cases} \quad (2)$$

The prediction errors equal the deviation of the daily returns from their estimated normal relation with the market and represent abnormal returns. The average abnormal return over an interval of days defined relative to an event date for a sample of firms is calculated by summing the prediction errors over the holding period for each firm and then averaging across firms<sup>8</sup>.

To test the statistical significance of the abnormal returns, we compute the following t-statistic:

$$t = \frac{1}{\sqrt{J}} \sum_{j=1}^J \left[ \frac{\sum_{\tau=\tau_1}^{\tau_2} PE_{j\tau}}{\sqrt{\sum_{\tau=\tau_1}^{\tau_2} \text{Var}(PE_{j\tau})}} \right], \quad (3)$$

where  $\tau_1$  and  $\tau_2$  are the first and last days of the interval; J is the number of observations and  $\text{Var}(PE_{jt})$  is the variance of the prediction error of firm j on day t. The variance of the prediction errors is:

$$\text{Var}(PE_{jt}) = S_j^2 \left[ 1 + \frac{1}{N} + \frac{(R_{mt} - \bar{R}_{mj})^2}{(N-1)\text{Var}(R_m)} \right]. \quad (4)$$

In (4),  $S_j^2$  is the residual variance from the market model regression,  $\bar{R}_{mj}$  is the average market return over the estimation interval, and N is the number of days used to estimate the market model.<sup>9</sup> The t-statistic



adjusts for heteroskedasticity in the prediction errors by standardizing the cumulative prediction error for each firm by its standard deviation. This standardization gives less weight to the prediction errors with more volatility, which are measured less precisely.<sup>10</sup>

### III. Common Stock Returns for Filing Not Associated With Outstanding Takeover Proposals

#### A. Returns of Acquiring and Target Firms Around the Initial Announcement Date

Table 3 presents the average prediction errors for acquiring and target firms at the initial announcement date and over selected holding periods prior to the initial announcement date for the 13D filings that are not associated with an outstanding takeover proposal. The announcement of these filings appear to increase the stock price of both acquiring and target firms. The average prediction error for the day before and day of the initial announcement is 1.17% for acquiring firms. This is statistically significant with a t-statistic of 7.15. The average two-day period prediction error for targets is 2.88% with a t-statistic of 16.56. Furthermore, 61% of the two-day prediction errors are positive for acquiring firms and 66% of the two-day prediction errors are positive for target firms.

Table 3 also presents abnormal returns for selected holding periods prior to the initial announcement of 13D filings. For acquiring firms, the only statistically significant abnormal return is -1.37% (t-statistic=-2.23) in the period AD-40 through AD-21. In contrast, there are statistically significant positive abnormal returns for target firms in each holding period prior to the initial announcement.

TABLE 3

**Average Prediction Errors Before and at the Initial 13D Announcement.**  
 The sample period for 13D filings is 1978-80. The sample excludes 13D filings associated with outstanding takeover proposals. t-statistic, percent positive, sample size are in parentheses.

Interval of Trading Days <sup>a/</sup>	Acquiring Firms	Target Firms
Two-Day Announcement Period AD-1 to AD	1.17% (7.15,61,337)	2.88% (16.56,66,230)
AD-60 to AD-41	0.46% (0.94,48,337)	2.48% (4.07,57,229)
AD-40 to AD-21	-1.37 (-2.23,43,337)	3.39 (5.00,59,229)
AD-20 to BD-1	0.32 (0.85,46,337)	3.45 (6.25,60,230)
BD to AD-2 <sup>b/</sup>	-0.12 (0.60,45,251)	3.40 (6.15,57,175)
AD-1	0.60 (4.63,54,335)	2.64 (17.37,67,222)
AD	0.58 (5.34,54,337)	0.34 (6.45,49,230)

<sup>a/</sup> AD is the initial announcement date, which is the date of a Wall Street Journal report or the date of a Schedule 13D filing with the SEC. BD is the buy date, which is the date a five percent position in the target firm was attained. When the exact buy date cannot be determined, BD is defined to be 10 days prior to the date of the 13D filing.

<sup>b/</sup> The sample size is smaller in this interval because in several cases The Wall Street Journal reported plans to purchase shares more than eight days before the filing date of Schedule 13D. Thus, the interval BD to AD-2 contains zero days for these observations.

The pre-announcement abnormal returns may reflect the leakage of information about a sizable investment in the target firm's shares. This leakage is likely because a 13D filing can occur up to ten days following the attainment of the five percent stake and the acquiring firm can add to its holdings during this period. To measure the abnormal returns associated with this lag in reporting, the abnormal returns are cumulated from the date on which the five percent position was attained, which is defined as the 'buy date' (BD), to two days prior to the initial announcement (AD-2). The abnormal return over this interval for the target firms is 3.40% with a t-statistic of 6.15.<sup>11</sup> The average prediction error of -0.12% for the acquiring firms in the interval BD to AD-2 suggests that the market learns the identity of the target firm in advance of the announcement date but not the identity of the acquiring firm. This is consistent with the interpretation that the market reacts to increased trading activity in the target firm's shares prior to the disclosure of the filing firm's identity in the 13D filing.

The significant positive abnormal returns for target firms that precede the buy date may also reflect leakage of information. The acquiring firm may have spread its purchases over several weeks prior to obtaining a 5% position. Additionally, corporate purchases of common stock may tend to follow a period of positive abnormal returns for target firms.

Table 4 reports the two-day average prediction errors at the initial announcement date for subsamples of 13D filings grouped by the type of information disclosed in the initial report and by the type of acquiring firm. The abnormal returns for each subsample are discussed below.

**Considering Acquisition:** Acquiring firms that disclosed they are considering additional investments in the target firm's shares and acquiring

TABLE 4

Average Two-Day Initial Announcement Prediction Errors  
for 13D Filings in the Period 1978-80 Classified by Type of Announcement  
and by Type of Acquiring Firm<sup>a/</sup> The sample excludes 13D filings associated  
with outstanding takeover proposals. t-statistic, percent positive,  
sample size are in parentheses.

Category	Acquiring Firms	Target Firms
<u>Panel A: Types of Initial Announcements</u>		
Considering Acquisition	2.46% (4.06,71,41)	7.74% (12.80,81,26)
Negotiated Transaction	1.28 (2.93,56,50)	5.91 (11.40,60,30)
Investment	1.27 (4.77,59,131)	3.24 (12.26,77,106)
No <u>Wall Street Journal</u> Report	0.64 (3.04,60,126)	-0.40 (0.45,45,76)
<u>Panel B: Types of Purchasers</u> <sup>b/</sup>		
Frequent Purchasers <sup>c/</sup>	1.54% (4.18,59,90)	3.81% (13.40,77,75)
Infrequent Purchasers	1.04 (5.84,61,247)	2.44 (10.85,60,155)
<u>Panel C: Investment Category by Types of Purchasers</u>		
Frequent Purchasers <sup>c/</sup>	1.75% (4.06,56,63)	3.49% (9.27,82,56)
Infrequent Purchasers	0.83 (2.72,62,68)	2.96 (8.04,72,50)
<u>Panel D: Filings Not Reported in <u>The Wall Street Journal</u> by Types of Purchasers</u>		
Frequent Purchasers <sup>c/</sup>	0.91% (0.93,67,21)	0.17% (0.56,53,15)
Infrequent Purchasers	0.58 (2.91,59,105)	-0.54 (0.23,43,61)

<sup>a/</sup> The average two-day initial announcement prediction errors are the average of the sum of the prediction errors for each observation on the day before and day of the initial announcement.

<sup>b/</sup> The total number of observations reported in Panel B is less than the total number of observations in Panel A because 11 filings are included in both the considering takeover and negotiated transaction categories.

<sup>c/</sup> Frequent purchasers are defined as acquiring firms that appear in our sample six or more times.

control realize a positive average abnormal return of 2.46% (t-statistic = 4.06) and 71% of the prediction errors are positive. The average abnormal return for target firms in this subsample is 7.74% with a t-statistic of 12.80. The abnormal returns for both acquiring and target firms are higher for this type of initial announcement than for the other three categories in Panel A of Table 4.

**Negotiated Transactions:** We classify common stock purchases as negotiated transactions when The Wall Street Journal reports that the acquiring firm and seller(s) transacted directly. The seller may be either the target firm or a third party. The average two-day announcement period prediction error for the 50 acquiring firms in this subsample is 1.28% with a t-statistic of 2.93. The corresponding abnormal return for 30 target firms is 5.91% with a t-statistic of 11.40.

One reason for the similar average stock price reactions to the "considering acquisition" announcements and the "negotiated transaction" announcements is that 11 filings are common to these two samples. Another possible reason for the similar announcement period prediction errors is that negotiated transactions which involve a substantial ownership stake may convey that the acquiring firm is considering acquiring control of the target firm.

**Investments:** This sample represents 131 filings reported in The Wall Street Journal where the report disclosed that the purchase is only for investment purposes or the report contained no information about the acquiring firm's intentions. The two-day event period abnormal return for both target and acquiring firms is positive and statistically significant for 13D filings in the investment category. The average abnormal return is 1.27% (t-statistic = 4.77) for acquiring firms and 3.24% (t-statistic = 12.26) for target firms.



Thus, even for the announcements that do not indicate the possibility of a takeover by the acquiring firm and that represent on average an ownership stake of 9.8%, the stock prices of both acquiring and target firms respond favorably.

**No Wall Street Journal Report:** When there is no report of the 13D filing in The Wall Street Journal, the average two-day return at the filing date for acquiring firms is 0.64% with a t-statistic of 3.04. But the average two-day prediction error for the target firms is -0.40%, which is not significant at the .10 level. One possible explanation for the smaller stock price effects is that The Wall Street Journal selectively reports events that tend to have greater valuation consequences. For example, 54 of the unreported filings are by investment companies, investment banking firms and insurance companies, which in many cases represent investments that are part of the companies' normal business activity.

Another potential explanation for the smaller average abnormal return for filings that are not reported in The Wall Street Journal is that information about these filings takes longer to be disseminated. But this explanation is not supported by two pieces of evidence. First, the average abnormal return from the buy date through two days prior to the announcement, which should be unaffected by whether the filing is reported later, is larger for the filings that are reported. For target firms, the abnormal return over this interval is 4.65% (t-statistic = 6.98) for filings in the investment category and -0.42% (t-statistic = 0.11) for filings that are not reported in The Wall Street Journal. Second, the average abnormal return is not significant for target firms on the days that immediately follow filings not reported in The Wall Street Journal: the abnormal return in the 10 days following the filing is 1.10% with a t-statistic of 1.22.

Panel B of Table 4 contains the two-day average prediction errors for filings by frequent and infrequent firms. These data seem to suggest that the purchases by the two types of acquiring firms to have similar valuation effects for both themselves and for the target firms. However, this comparison is potentially misleading since the purchases by the two types of acquiring firms are not evenly divided among the four types of initial announcements. Of the 90 purchases by frequent acquiring firms that are not associated with outstanding takeover attempts, 63 are in the investment category and 21 are in the no Wall Street Journal report category. Panel C presents the abnormal returns for 13D filings by frequent and infrequent acquiring firms that are classified as an investment. The abnormal returns for the acquiring and target firms are similar for investments by frequent and infrequent acquiring firms. Furthermore, Panel D shows that the abnormal returns for investments that are not reported in the Wall Street Journal are also similar for frequent and infrequent acquiring firms and for the targets of frequent and infrequent acquiring firms.

The abnormal returns for acquiring firms and their targets appear to depend on the type of initial announcement and not the type of purchasing firm. To test this hypothesis, we regress the two-day adjusted prediction errors on four binary variables:

$$PE_j = \alpha_0 + \alpha_1 D_{1j} + \alpha_2 D_{2j} + \alpha_3 D_{3j} + \alpha_4 D_{4j} + \epsilon_j$$

where  $D_{1j}$  equals 1.0 if the acquiring firm is a frequent purchaser and zero otherwise;  $D_{2j}$  equals 1.0 if the initial announcement is in the considering acquisition category and zero otherwise;  $D_{3j}$  equals 1.0 if the initial announcement is in the negotiated transaction category and zero otherwise; and  $D_{4j}$  equals 1.0 if the filing is in the no Wall Street Journal report category

TABLE 5

Relation Between the Percentage Prediction Errors at the Initial 13D Announcement and the Type of Purchaser and the Type of Announcement<sup>a/</sup>  
 The sample period for 13D filing is 1978-80; t-statistics are in parentheses.

$$PE_j = \alpha_0 + \alpha_1 D_{1j} + \alpha_2 D_{2j} + \alpha_3 D_{3j} + \alpha_4 D_{4j} + \epsilon_j$$

(t-statistics in Parentheses)

	$\alpha_0$	$\alpha_1$	$\alpha_2$	$\alpha_3$	$\alpha_4$	$R^2$
Target Firms (N = 230)	2.86 (2.96)	1.63 ( 1.46)	3.96 (2.15)	5.59 (3.12)	-2.71 (-2.30)	0.11
Acquiring Firms (N = 337)	1.06 (3.02)	0.19 (0.42)	0.13 (0.22)	-0.41 (-0.81)	-0.56 (-1.39)	-0.01

<sup>a/</sup>  $PE_j$  is the two-day prediction error in percent.  $D_1$  is a binary variable which equals 1.0 if the acquiring firm is a frequent purchaser and 0.0 if the acquiring firm is an infrequent purchaser;  $D_2$  equals 1.0 if the initial announcement is in the considering acquisition category and zero otherwise;  $D_3$  equals 1.0 if the initial announcement is in the negotiated transaction category and zero otherwise; and  $D_4$  equals 1.0 if the filing is in the no Wall Street Journal report category and zero otherwise. The regressions are estimated using weighted least squares where the weights equal the inverse of the standard deviation of the two-day prediction errors. The  $R^2$  is computed using the unweighted data and the coefficients from the weighted regressions.



and zero otherwise. Table 5 presents the estimated regression equations. For both target and acquiring firms, the coefficient on  $D_{1j}$  is insignificantly different from zero. The coefficients for the three binary variables that represent the type of initial announcement are statistically significant for target firms, but are statistically insignificant for acquiring firms. These regressions indicate that there are statistically significant differences between the abnormal returns for target firms in different initial announcement categories. There is no statistically significant difference between the abnormal returns of frequent and infrequent acquiring firms or their targets.

**Summary:** The equity values of acquiring and target firms increase in response to The Wall Street Journal report of 13D filings that are not associated with an outstanding takeover proposal. The valuation effects appear to depend on the type of information disclosed in the initial report. The two-day initial announcement abnormal returns for both acquiring and target firms are largest for filings in which the acquiring firm indicates it is considering a takeover of the target firm, next largest for negotiated transactions, and smallest for filings in the investment category. The average valuation effect for target firms is not significantly different from zero when the 13D filing is not reported in The Wall Street Journal. After controlling for the type of initial announcement, there is no statistically significant difference between the abnormal returns for frequent and infrequent acquiring firms or for their respective targets.

#### B. Returns at Selected Intermediate Announcements

Table 6 presents two-day average adjusted prediction errors at the disclosure of selected intermediate announcements that occur between the

TABLE 6

**Average Two-Day Prediction Errors at the Announcement of Selected Events that Occur Between the Initial Announcement and the Outcome.**

The sample period for 13D filings is 1978-80. The sample excludes filings associated with outstanding takeover proposals. t-statistic, percent positive and sample size are in parentheses.

Intermediate Event	Acquiring Firms	Target Firms
Acquiring Firm Announces a Takeover Proposal	-0.45% (-1.82,45,44)	10.38% (19.84,81,26)
Third Party Announces a Takeover Proposal	0.55 (1.50,52,44)	10.30 (21.46,76,29)
Acquiring Firm Purchases More Shares	0.30 (1.42,47,136)	1.07 (6.26,61,126)
Target Firm Discloses Opposition to Investment	0.32 (0.66,55,29)	-1.36 (-2.33,39,23)

a/ The average two-day prediction errors are the average of the sum of the prediction errors for each observation on the day before and day of the announcement.

initial announcement date and the outcome date. The average abnormal return for target firms is about 10% when a takeover offer by either the initial filing firm or another firm is disclosed. Target firms on average also realize a significant return of 1.07% when the acquiring firm purchases additional shares of the target firm. The announcement that the management of the target firm objected to the investment is associated with a significant negative average return for target firms of -1.36% with a t-statistic of -2.33. These announcements range from active opposition, such as filing a legal action, to statements that the target management is not interested in being acquired. In contrast, no significant abnormal returns are associated with any of these intermediate announcements for acquiring firms.

C. Returns of Acquiring and Target Firms at the Announcement of the Outcome and Total Returns.

Table 7 presents the two-day abnormal returns associated with the initial announcement, intermediate announcements, and outcome announcement grouped by outcome categories for acquiring (Panel A) and target (Panel B) firms. The outcome date is the date of The Wall Street Journal report of the last occurrence of an event in one of the outcome categories. The intermediate announcements include events that occur between the initial announcement and the outcome announcement that are related to the investment position and are reported in The Wall Street Journal. These events include the announcements examined in Section III.B (acquiring firm takeover announcements, third party takeover announcements, purchases of additional shares, and the disclosure of opposition to the investment by the target firm's management) as well as other intermediate announcements.<sup>12</sup>

Table 7 also contains our measure of the total abnormal return from the initial announcement through the outcome. One possible estimate of the total

valuation effect of the investment is the abnormal holding period return over the interval that encompasses the initial disclosure of the investment activity through the outcome. An important difficulty with such a measure, however, is that the time interval from initial announcement through outcome is sufficiently long that the power of tests of significance is low; the average number of trading days between the initial and outcome announcements is 308. Instead, we aggregate the two-day prediction errors for the initial announcement, intermediate announcements and the outcome announcement to calculate a total abnormal return. The advantage of this method is that we exclude extraneous events and their effects on stock price. This approach increases the power of our tests by substantially reducing the variance of the total abnormal returns.

To compute the total valuation effect of the series of events associated with a particular investment, we do not simply sum the series of two-day prediction errors. Instead, we first compute the two-day abnormal price changes at the initial announcement, the intermediate events and the outcome event and then sum these abnormal price changes. That is, we compute  $\Delta P_j$  for all events associated with investment  $j$  as:

$$\Delta P_j = \sum_{k=1}^K P_{jt_k-2}(PE_{jt_k-1}) + P_{jt_k-1}(PE_{jt_k}) \quad , \quad (5)$$

where  $t_k$  is the announcement date for event  $k$ ,  $P_{jt}$  is share price on day  $t$  and  $PE_{jt}$  is the prediction error for day  $t$ . The sum  $\Delta P_j$  represents the total dollar effect per share of the initial, intermediate and outcome announcements. The total abnormal price change ( $\Delta P_j$ ) is divided by the

firm's share price two days before the initial announcement date to obtain a measure in return form. Unlike the sum of prediction errors, our measure of total abnormal return or total adjusted prediction error, represents the cumulative dollar effect of a series of events measured relative to the value of shares at the initial announcement. Each column of Table 7 presents average adjusted prediction errors for a subsample of investments grouped by type of outcome.<sup>13,14</sup>

Our measure of total abnormal returns only includes event days. It therefore possibly misses important relevant changes in stock prices following generally positive average abnormal returns at the initial announcement. For example, non-event days may be associated with negative abnormal returns as the market reduces its assessment of the probability of a favorable outcome. To check this source of bias, we compute the average holding period return for targets with outcomes by summing the adjusted prediction errors for each observation from the day before the initial announcement through the outcome announcement and averaging these holding period returns cross-sectionally. The average holding period return for 126 targets with an outcome is 12.10% with a t-statistic of 3.67. To determine the stock price behavior on non-event days, we compute average holding period returns for event days only (two-day initial, intermediate and outcome announcements) and the average holding period return for non-event days. The average holding period return for event days is 10.45% with a t-statistic of 17.89 and the average holding period return for non-event days is 1.65% with a t-statistic of 0.36%. Therefore, virtually all of the positive average holding period return for targets is due to event days and there is no indication of significant abnormal returns on non-event days.



TABLE 7

Average Total and Two-day Adjusted Prediction Errors Associated with Initial, Intermediate and Outcome Announcements Grouped by Type of Outcome.<sup>a/</sup> The sample period for 13D filings is 1978-80. The sample excludes 13D filings associated with outstanding takeover proposals. t-statistic, percent positive, sample size are in parentheses.

Announcement	Completed Takeover	Targeted Repurchase	Shares Sold	Third Party Takeover
<b>Panel A: Acquiring Firms</b>				
Initial	2.04% (4,45,70,43)	1.50% (2,82,51,39)	1.48% (2,98,60,47)	0.87% (1,97,60,45)
Intermediate	-2.10 (-2,12,43,37)	3.66 (2,66,57,21)	3.61 (2,84,52,25)	1.46 (2,21,62,34)
Outcome	0.83 (0,45,47,43)	2.13 (3,45,68,38)	1.62 (2,16,52,46)	0.07 (0,34,53,40)
Total <sup>a/</sup>	1.07% (0,96,53,43)	5.69% (4,99,68,38)	5.10% (3,76,59,46)	2.25% (2,59,65,40)
<b>Panel B: Target Firms</b>				
Initial	6.34% (12,32,72,25)	4.64% (9,46,80,30)	3.65% (9,01,76,38)	2.46% (5,58,60,30)
Intermediate	16.36 (14,60,76,21)	-1.40 (-0,51,56,18)	3.11 (3,78,65,23)	13.87 (13,89,70,23)
Outcome	3.97 (3,22,68,19)	-2.29 (-4,86,39,31)	0.83 (-0,54,43,37)	1.47 (0,77,42,19)
Total	21.10% (10,09,79,19)	1.69% (3,08,57,30)	6.32% (5,70,70,37)	15.98% (10,99,58,19)

<sup>a/</sup> Prediction errors are adjusted for changes in the price of the firm's common stock and equal the abnormal change in stock price divided by the stock price on the day before the initial announcement. The two-day average adjusted prediction errors are the average of the sum of the adjusted prediction errors for each observation on the day before and day of the announcement. The total average adjusted prediction error is the average of the sum of the two-day adjusted prediction errors at the initial, intermediate and outcome announcements for each observations. Observations without initial or outcome announcement returns are excluded from these calculations.

Completed Takeover: Both acquiring and target firms realize a positive two-day abnormal return at the initial announcement of investment positions that are not initially disclosed as part of a takeover attempt but later result in a completed takeover by the acquiring firm. However, the average sum of the valuation effects of the intermediate events, which includes the initial takeover announcement, is negative for acquiring firms and positive for target firms. At the announcement of the outcome of a completed takeover, which is the earlier of a report of stockholder approval or consummation of a merger or the report of a successful tender offer, the average return is statistically insignificant for acquiring firms and positive for target firms.

The average total abnormal return is 1.07% for the acquiring firms that successfully acquired the target firm, which is not statistically significant at the .10 level. The corresponding average total prediction error for target firms is 21.10% with a t-statistic of 10.09. The insignificant average total prediction error for acquiring firms is consistent with the findings of previous corporate takeover studies, and with the notion that the average net present value of takeovers is zero. A new finding uncovered by this study is that the positive average prediction error for acquiring firms at the initial announcement for a 5% or greater investment position is offset by a negative average price effect during the subsequent period in which a takeover attempt materializes. The average abnormal return for target firms of about 20% is also generally consistent with the findings of other studies of takeovers. But we show that an important part of the total valuation effect occurs at the initial announcement of the 13D filing, which precedes the earliest report of a takeover offer.

Targeted Repurchases: At the announcement that the target firm has or will repurchase the shares held by the acquiring firm, the acquiring firms experience a significant average abnormal returns of 2.13%. Target firms on average incur a significant loss of -2.29% in the two-day announcement period of a targeted repurchase. These findings are similar to the stock price effects around the announcements of targeted repurchases that are reported by Bradley and Wakeman (1983) and Dann and DeAngelo (1983).

The two-day outcome abnormal returns are not a measure of the total effect of the investment for either target or acquiring firms since it excludes the abnormal returns associated with the initial and intermediate announcements. For acquiring firms, the average abnormal returns at the initial announcement and at the intermediate events are both positive and statistically significant. Thus, the average prediction error is positive at all three stages of the investment process. The average total abnormal return for acquiring firms is 5.69% with a t-statistic of 4.99.

For target firms the initial announcement average abnormal return for transactions that conclude with a targeted repurchase is 4.64% with a t-statistic of 9.46. This positive average initial return at the announcement more than offsets the negative two-day abnormal return at the announcement of the targeted repurchase. The average total abnormal return for target firms is 1.69% which is significant at the .01 level. Our measures indicate that on average stockholders of target firms benefit from investments that result in a targeted repurchase. Additionally, Mikkelsen and Ruback (1984) report similar results for a much larger sample of transactions that conclude with a targeted repurchase.

One interpretation of the returns for target firms is that the stock price of target firms rises at the time of the initial announcement of the



investment position in anticipation of a favorable outcome, such as a takeover. Therefore, the negative average return at the announcement of the targeted repurchase is due, at least in part, to the reversal of expectations formed at the initial announcement date. In addition, a portion of the negative price effect of a targeted repurchase reflects any premium paid to the selling stockholder. Since the total abnormal return is positive and statistically significant, the increase in stock price associated with expectations formed at the initial announcement of the investment more than offsets the stock price effects of the targeted repurchase. Based on our measure of total abnormal return, we conclude that investments that end in a targeted repurchase on average do not harm the target firm's stockholders. Of course, the total average returns reported in Table 7 indicate that the target firm's stockholders prefer a completed takeover to a targeted repurchase. But we cannot determine whether the targeted repurchase thwarted a potential takeover bid or whether the targeted repurchase was the best course of action for the remaining stockholders of these firms.

**Shares Sold:** The average abnormal return for acquiring firms is 1.62% (t-statistic = 2.16) at the announcement that the acquiring firm sold shares of the target firm in the market or to a third party. The corresponding target firms on average realize an insignificant abnormal return of 0.83%. Between the initial announcement of the investment position and the announcement that shares were sold, the average valuation effect of related events is positive and significant for both the acquiring and target firms. Thus, when the investment concludes with the sale of shares in the market or directly to a third party, the positive valuation effect of the initial disclosure of the investment positive is reinforced, rather than reversed, by

the valuation effects of subsequent events. The average total return for acquiring firms that sell shares is 5.10% with a t-statistic of 3.76, which is comparable to the gains associated with investments that conclude with a targeted repurchase. The average total return for the target firms is statistically significant and equals 6.32%.

**Third Party Takeover:** When the outcome is a takeover of the target by a firm other than the firm filing schedule 13D, the average total return for the filing firms is 2.25% with a t-statistic of 2.59. Part of this return may be explained by the gains from selling shares of the target firm at a premium to the bidding firm. In addition, based on the returns of filing firms when the outcome is a completed takeover (column 1, Table 7), the positive average total return may reflect a favorable response to news that another firm, and not the filing firm, acquired control of the target firm. For target firms, the average two-day outcome return of 1.47% and the average total return of 15.98% are comparable to the returns for target firms when the outcome is a completed takeover by the firm filing Schedule 13D.

**Summary:** The average total adjusted prediction errors indicate that the shareholders of the filing firms and target firms generally benefit from the 5% or greater investment positions that result in one of the four outcomes represented in Table 7<sup>15</sup>. Only the average total return for filing firms that acquire control of the target firm is not significantly greater than zero.

All of the investments represented in Table 7 began with a filing of Schedule 13D and were not disclosed as part of an attempt to acquire control of the target firm. The average two-day prediction error at the initial announcement of the investment position is generally positive across the

categories of outcomes. The similar average prediction errors at the initial announcement across the four types of outcomes indicate that market participants do not accurately predict the type of outcome.

Following the initial announcement of the investment position, the valuation effects of subsequent events depend on the outcome of the investment. When the outcome is a targeted repurchase, a sale of shares or a completed takeover of the target by another firm, the average valuation effect of the subsequent events is positive for the firms filing Schedule 13D. However, when the outcome is a completed takeover by the filing firm, the average valuation effect of the subsequent events is negative for the acquiring firm. On the other hand, the target firms experience a positive valuation effect following the initial investment when the outcome is a completed takeover by the filing firm or another firm. The valuation effect of the subsequent events is also positive for target firms when the outcome is the sale of shares. But when the outcome is a targeted repurchase, the average return following the initial announcement is negative.

The pattern of average prediction errors associated with the four outcomes illustrates that the valuation effects of intermediate and outcome announcements reflect the resolution of uncertainty about the outcome. Therefore, the average total prediction errors represent the most complete measures of the valuation effects of the investments. Based on the total abnormal returns, the ordering of the profitability of the outcomes (lowest to highest) for acquiring firms is: completed takeover, third party takeover, shares sold, and targeted repurchase. For target firms, the ordering is: targeted repurchase, shares sold, third party takeover, and completed takeover.

D. Comparison of Total Returns For Investment by Frequent and Infrequent Acquiring Firms

Frequent and infrequent acquiring firms appear to have different relative frequencies of investment outcomes. As shown in Table 8, only 4, or 7%, of investments by frequent acquiring firms with outcomes end as a completed takeover, which is the least favorable outcome for acquiring firms and the most favorable outcome for target firms. In contrast, the outcome of 35% of investments by infrequent acquiring firms is a completed takeover. The smaller proportion of takeovers by frequent acquiring firms means that these firms have a higher proportion of investments that conclude with the more favorable outcomes for the acquiring firms, such as targeted repurchases, shares sold, or third party takeovers. For example, 35% of the investments with an outcome by frequent acquiring firms conclude with a targeted repurchase, whereas 17% of the outcomes for investments by infrequent acquiring firms are in this category.<sup>16</sup>

Despite the differences in relative frequencies of types of outcomes, the last row of Table 8 reports that the average total abnormal returns for all investments with an outcome are virtually equal for frequent and infrequent acquiring firms: 3.67% for frequent acquiring firms and 3.44% for infrequent acquiring firms. Furthermore, as the t-statistics presented in Table 8 indicate, the differences between the total abnormal returns for acquiring firms are insignificant in each outcome classification.<sup>17</sup>

The average total abnormal return across all outcomes for targets of frequent acquiring firms is 6.84% and is 11.21% for targets of infrequent acquiring firms. The t-statistic for the difference between these total abnormal returns is -2.00. However, the t-statistics indicate that the difference between the total abnormal returns are insignificant for each outcome category except third party takeovers. The difference between the



TABLE 8

Average Total Adjusted Prediction Errors for Frequent and Infrequent Acquiring Firms and the Associated Target Firms Classified by Outcome.<sup>a/</sup> The sample period for 13D filings is 1978-1980. The sample excludes filings associated with outstanding takeover proposals. t-statistic, percent positive, sample size are, in parentheses

Outcome	Infrequent Acquiring Firms	Frequent Acquiring Firms	t-Statistic for the Difference <sup>c/</sup>	Targets of Infrequent Acquiring Firms	Targets of Frequent Acquiring Firms	t-Statistic for the Difference <sup>c/</sup>
Completed Takeover	1.53% (1,39,54,39)	-3.42% (-1,19,50,4)	-1.08	22.57% (10,19,81,16)	13.22% (1,86,67,3)	-0.26
Targeted Repurchase	7.58 (4,10,68,19)	3.80 (2,95,68,19)	-0.68	-0.14 (1,56,46,13)	3.08 (2,73,65,17)	-0.32
Shares Sold	5.26 (2,22,58,26)	4.89 (3,17,60,20)	0.84	4.71 (3,10,68,19)	8.02 (4,99,72,18)	0.71
Third Party Takeover	1.60 (1,71,64,28)	3.77 (2,13,67,12)	0.94	17.58 (11,35,64,14)	11.51 (2,44,40,5)	-2.03
All Outcomes	3.44% (4,43,60,112)	3.67% (4,32,64,55)	1.19	11.21% (13,00,66,62)	6.84% (6,26,65,43)	-2.00

a/ Prediction errors are adjusted for changes in the price of the firms' common stock and equal the abnormal change in stock price divided by the stock price on the day before the initial announcement. The total average adjusted prediction error is the average of the sum of the two-day adjusted prediction errors at the initial, intermediate, and outcome announcements for each observation. Observations without initial or outcome announcements are excluded from these calculations.

b/ Frequent acquiring firms are defined as acquiring firms that appear in our sample six or more times.

c/ The t-statistic for the difference between the total abnormal returns for investments involving frequent and infrequent acquiring firms is calculated by estimating the following regressions on the appropriate subsample:

$$PE_j = C_0 + C_1 D_{1j} + \epsilon_j$$

where  $PE_j$  is the total abnormal return and  $D_{1j}$  is a binary variable that equals 1.0 if the transaction involves a frequent acquiring firm and zero otherwise. The regressions are estimated using weighted least squares where the weights equal the inverse of the standard deviation of the total abnormal returns. The t-statistic on the coefficient  $C_1$  is reported in the Table.

total abnormal returns across all outcomes for the targets of the two types of purchasing firms, therefore, appears to reflect the lower relative frequency completed takeovers by frequent acquiring firms.

The significant positive total abnormal returns indicate that the stockholders of frequent and infrequent acquiring firms and the stockholders of the targets of these two types of acquiring firms generally benefit from the investment activity. Our findings do not support the view that frequent investors systematically benefit at the expense of the target firm's shareholders. In fact, when the outcome is a targeted repurchase from a frequent acquiring firm, the average total prediction error for the target firms is positive. Holderness and Sheehan (1984) reach a similar conclusion in their study of six investors who have been portrayed as corporate raiders.

#### E. Returns of Target Firms for Investments Without An Outcome

No outcome event was reported in The Wall Street Journal prior to the end of the third complete calendar year that follows the initial announcement for 160 of the 337 filings that were not associated with an outstanding takeover attempt. Since there is no outcome date, the total abnormal return for these investments cannot be measured by aggregating the abnormal returns at the initial, intermediate, and outcome announcements. Instead, we measure the average total abnormal return for investments without an outcome by computing the average cumulative prediction errors from the day before the initial announcement through the last trading day in the third calendar year following the initial announcement. For comparison, we also compute the average cumulative prediction error for observations with an outcome from the day before the initial announcement through the outcome date.

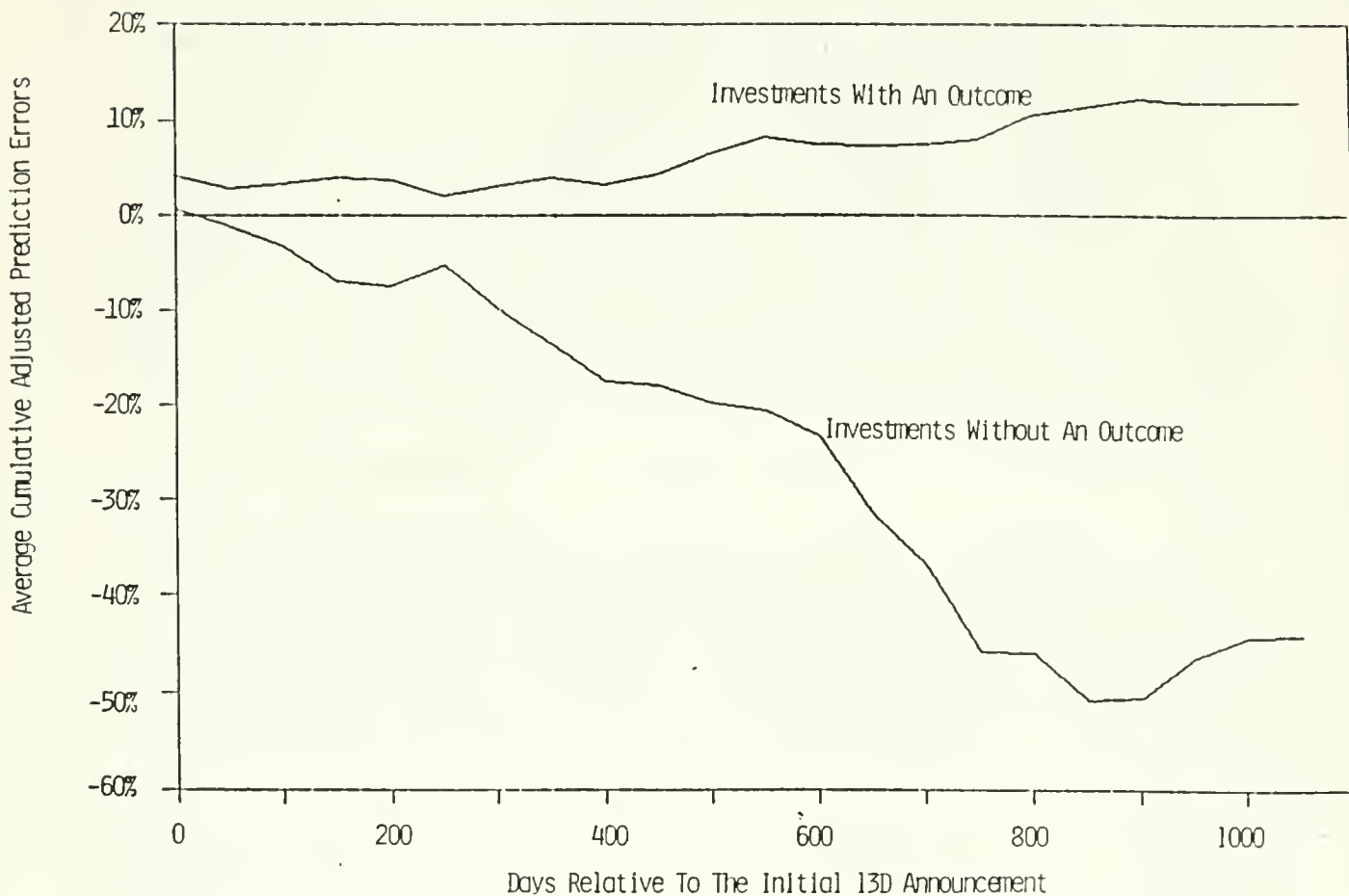
Figure 1 plots the average cumulative prediction errors of target firms for investments with and without an outcome on days following the initial announcement. The average cumulative prediction errors are positive for investments with outcomes and negative for investments without outcomes over the entire period following the initial announcement. The average cumulative prediction error from the day before the initial announcement through the last trading day of the third calendar year following the initial announcement is -44.14% (t-statistic = -4.22) for the 105 targets without an outcome. In contrast, the average cumulative prediction error for the 126 targets with an outcome is 12.10% (t-statistic = 3.67) over the entire holding period from the day before the initial announcement through the outcome. This evidence, combined with the results in Table 7, suggests that the least favorable outcome of the investment process for the stockholders of target firms is no outcome.<sup>16</sup>

The long cumulation period makes it difficult to apply the average cumulative prediction error technique to acquiring firms. Many acquiring firms appear in the sample more than once and these observations will overlap. Additionally, some of the overlapping observations will have outcomes and others will have no outcomes. Therefore, we limit our analysis of investments without outcomes to target firms. The valuation effects for the target firms without outcomes, however, provide some insight into the profitability of these investments for the acquiring firms. In the absence of an outcome, the return to the acquiring firm depends on the stock price performance of the target firms. Thus, the evidence of negative average cumulative prediction errors for target firms suggest that these investments also have negative valuation effects for the acquiring firms.

Figure 1

**Average Cumulative Prediction Errors For Target Firms.<sup>a/</sup>**

The sample period for 13D filings is 1978-80. The sample excludes filings associated with outstanding takeover proposals.



<sup>a/</sup> Prediction errors are adjusted for changes in the price of the firm's common stock and equal the abnormal change in stock price divided by the stock price on the day before the initial announcement. Adjusted prediction errors for each observation are summed from the day before the initial announcement through the outcome date for observations with outcomes and through the last trading day of the third calendar year following the initial announcement for observations without outcomes. The first average cumulative adjusted predictions shown on the figure are for the initial announcement date, day 0.



IV. Common Stock Returns for 13D filings Associated with Outstanding Takeovers

A substantial portion of 13D filings took place concurrently or after the announcement of a takeover proposal by the filing firm. These 13D filings are qualitatively different from the filings examined in section III in that a takeover attempt was announced at the time of or before a 5% ownership position was acquired.

Table 9 presents average prediction errors at the initial announcement, intermediate events and outcome of 13D filings where the initial announcement disclosed a takeover proposal. Acquiring firms realize a statistically significant negative return of -0.59% in the two-day initial announcement period (AD-1 and AD) and 64% of the two-day prediction errors are negative. The average abnormal return for target firms is 14.90% in the two-day announcement period and 87% of the two-day prediction errors are positive.

Compared to the average two-day returns at the initial announcement of the 13D filings not associated with a takeover (Table 4), the average initial announcement return of a 13D filing associated with a takeover attempt is greater for the target firms and is smaller for acquiring firms. This ordering of initial announcement returns is consistent with two other findings of this study. First, the average total returns reported in Table 7 are lowest for acquiring firms and highest for target firms when the outcomes is a completed takeover by the filing firm. Second, the ordering is consistent with the relative frequencies of completed takeovers for different types of initial announcements. Table 1 shows that the relative frequency of a completed takeover is highest (114 of 136 13D filings) when the initial announcement discloses a takeover attempt. Thus, the average two-day initial announcement returns reported in Table 9 reflects the relatively high

TABLE 9

Average Total and Two-Day Adjusted Errors for Acquiring and Target Firms for  
 13D Filings Associated With Outstanding Takeover Proposals.<sup>a/</sup>  
 The sample period for 13D filings is 1978-80. t-statistics, percent positive, sample size are in parentheses.

	<u>All Filings</u>		<u>Completed Takeovers Attempts</u>		<u>Failed Takeover Attempts</u>	
	Acquiring Firms	Target Firms	Acquiring Firms	Target Firms	Acquiring Firms	Target Firms
Initial	-0.59% (-2.34, 36, 136)	14.90% (41.59, 87, 69)	-0.62% (-2.36, 38, 114)	15.55% (40.84, 92, 60)	-0.45% (-0.45, 27, 22)	10.56% (9.72, 56, 9)
Intermediate	-0.24 (-1.04, 39, 54)	2.95 (2.40, 52, 29)	-1.04 (-1.92, 33, 42)	1.25 (0.25, 46, 24)	2.54 (1.42, 58, 12)	11.11 (5.25, 80, 5)
Outcome	0.38 (1.92, 58, 136)	-1.21 (-3.14, 57, 51)	0.29 (1.16, 57, 114)	0.23 (0.74, 60, 43)	0.89 (2.15, 64, 22)	-8.96 (-9.64, 38, 8)
Total	-0.30% (-1.50, 41, 136)	16.35% (22.58, 88, 51)	-0.72% (-2.16, 37, 114)	17.69% (22.94, 95, 43)	1.83% (1.18, 64, 22)	9.16% (3.85, 50, 8)

<sup>a/</sup> Prediction errors are adjusted for changes in the price of the firm's common stock and equal the abnormal change in stock price divided by the stock price on the day before the initial announcement. The two-day average adjusted prediction errors are the average of the sum of the adjusted prediction errors for each observation on the day before and day of the announcement. The total average adjusted prediction error is the average of the sum of the two-day adjusted prediction errors at the initial, intermediate and outcome announcements for each observations. Observations without initial or outcome announcement returns are excluded from these calculations.

likelihood of a completed takeover by the filing firm, which is the least favorable outcome for a filing firm and the most favorable outcome for the target firm.

The last row of Table 9 reports the total abnormal returns for 13D filings associated with outstanding takeovers. For completed takeover attempts, the average total return for the acquiring firms is -0.72% with a t-statistic of -2.16. In contrast, the average total return is 1.07% with a t-statistic of 0.96 (Table 7) for the 43 completed takeovers that are not initially disclosed as part of a takeover attempt. The t-statistic for the difference between the total abnormal returns is 1.10. When the takeover attempt does not succeed, the average total return is 1.83%, which is not significant at the .10 level.

For acquiring firms, it is tempting to conclude that the positive average total abnormal returns for completed takeovers that begin with a toehold position is greater than the average return for completed takeovers that do not begin with a toehold position, even though the difference is not statistically significant. Since a purchasing firm intent on acquiring the target presumably announces its intention at the time of the initial 13D filing, the appropriate comparison is between filings in the considering acquisition category of initial announcements and the completed takeovers in Table 9. For the 20 observations in which the initial announcement is in the considering acquisition category and the outcome is a completed takeover, the average total abnormal return is only 0.08%, which is not significant at the 10% level. This evidence therefore does not imply that a more desirable takeover strategy for acquiring firms is to purchase a toehold position before announcing a takeover.

The total abnormal return for target firms in completed takeovers is 17.69%. This is similar to the total abnormal return of 20% reported in Table 7 for target firms that are acquired by a company that does not initially disclose a takeover attempt at the time of a 13D filing.

## V. Conclusion

This investigation of investments in equity securities that are reported in a filing of Schedule 13D reveals that an attempt to acquire control of another firm represents only a minority of interfirm investments. Among the 473 filings of Schedule 13D in the sample, 337 are not associated with outstanding takeover proposals. We also document the events that occur in the three calendar years that follow the initial 13D filings and classify investments according to one of four outcomes when an outcome event takes place. The investments that do not begin as a takeover attempt and are classified as having an outcome are roughly evenly divided among four outcomes: completed takeover, targeted repurchase, third party takeover and the sale of the purchased shares.

At the initial announcement of 13D filings that are not part of a takeover attempt, the average price response is positive and statistically significant for both the filing and target firms. These positive average stock price changes imply that investments representing 5% or more of a company's shares are expected to benefit both the acquiring and target firm's shareholders.

We also measure the total valuation effect of each investment by combining the two-day abnormal stock returns at the initial announcement of the 13D filing, at the outcome and at any intervening related events. This procedure provides a set of comparable measures of the total stock price effect of investments that result in different outcomes. We find that the average total return of acquiring and target firms depends on whether a takeover is the outcome of the investment. On average, completed takeovers appear to be zero net present value investments for acquiring firms, regardless of whether the takeover attempt is preceded by a 5% or greater investment in the target firm's shares. In contrast, the average total return is positive and

statistically significant for the acquiring firms for investments that end with a targeted repurchase, a sale of shares or a third party takeover.

The target firm's shareholders benefit the most from a completed takeover by either the filing firm or another firm. However, the average total valuation effect for investments that terminate in the sale of shares or a targeted repurchase is also positive and statistically significant for target firms. The stock price of the repurchasing firm falls when a targeted repurchase is announced, but the average total valuation effect of these investments on target firms is positive. Therefore, regardless of the investment outcome, including a targeted repurchase, we find that the investments typically increase stockholder wealth for the target firm. The average total valuation effect appears to be negative when no outcome occurs in the three years following the initial announcement.

The total valuation effect of investments also is examined for a subsample of acquiring firms that made six or more 13D filings during our sample period. Investments by the frequent investing firms are represented by a relatively high proportion of targeted repurchase outcomes and a relatively low proportion of completed takeover outcomes. In addition, this sample is of interest because it includes investors who are claimed by some to take actions that benefit the acquiring firm at the expense of the other shareholders of the target firm. We find, however, that the average total valuation effect for both acquiring and target firms does not depend on whether the acquiring firm is classified as a frequent investor. In addition, shareholders of target firms experience positive average total returns for all types of outcomes, including targeted repurchases, when the acquiring firm is a frequent investor.



NOTES

1. See Jensen and Ruback (1983) for a summary of this evidence.
2. Of the 337 investments not associated with a takeover proposal at the initial announcement, 279 investments involved the purchase of only common stock. We have rerun our computations of average prediction errors that are presented in this paper excluding the subsample of 58 investments that involved convertible securities, warrants or options. None of the principal findings change when only the subsample of pure common stock investments is examined. In addition, the distribution across types of announcement and outcomes for this subsample of 279 investments is virtually identical to those for the full sample.
3. We include the three transactions that conclude with pure standstill agreements in the targeted repurchase category because Dann and DeAngelo (1983) show that these two outcomes have similar stock price effects.
4. In most cases the SEC News Digest reports the ownership stake, i.e., percent of the target firms' shares held. For the selected filings reported in the Insiders' Chronicle, the percent stake held as well as the dollar amount paid for the stake is reported. In some cases, this information is reported in The Wall Street Journal report of the filing. When no report of the percent stake held or dollar amount paid could be found, we computed the percent stake as the number of shares held divided by the number of shares outstanding at the time of filing and the dollar amount as the number of shares held multiplied by the closing stock price at the end of the filing month.
5. We did not collect data on the number of shares held or percent ownership stake attained for dates following the initial filing of Schedule 13D.
6. This subsample includes five corporations (DWG, NVF, Pennsylvania Engineering, Sharon Steel and Southeastern Public Service) that are ostensibly controlled by Victor Posner and seven other firms (American General, Baldwin United, Gulf and Western, Merrill Lynch, Reliance Group, Teledyne and Walco National.)
7. Fama (1976) describes the market model in detail.
8. When there are missing stock returns within a holding period, the normal return is cumulated over the days in which there are missing stock returns. This cumulative normal return is subtracted from the next observed stock return to calculate the abnormal return.
9. The formula for the variance of  $PE_{jt}$  assumes that prediction errors are independent across firms. We calculate the variance of the cumulative prediction errors over event time as the sum of the individual variances. This is only an approximation since it ignores the covariances between prediction errors.



10. The average abnormal return and the t-statistic can differ in sign because the former assigns uniform weights to each observation whereas the latter assigns non-uniform weights (equal to the inverse of the standard deviation) to each observation. A difference in sign is most likely to occur when the average abnormal returns are close to zero.
11. In many cases we identified the filing date of Schedule 13D, but not the date the 5% ownership position was attained. Since regulations require a filing of Schedule 13D within ten days after reaching the 5% level, we chose to define the buy date as ten days before the filing date. In a few cases there is no buy date in advance of the earliest public disclosure, because The Wall Street Journal reported plans to purchase shares prior to acquisition of a 5% position or more than ten days in advance of a filing with the Securities and Exchange Commission.
12. The other intermediate events include: 3 standstill agreements, 2 targeted repurchases, 4 sale of shares, 1 successful tender offer, 6 unsuccessful takeover attempts, 1 successful takeover by a third party, 7 unsuccessful takeover attempts by a third party, and 10 miscellaneous announcements.
13. For ease of computation, we do not use the actual stock prices of the firm. Instead, we define a price index which equals one two days before the initial announcement date and on each succeeding day equals the compound value of \$1 that was invested in the stock two days before the initial announcement date. That is,

$$P_{\tau-1} = \prod_{t=-1}^{\tau-1} (1+R_{jt})$$

where  $P_{\tau-1}$  is the price index on day  $\tau$  and  $R_{jt}$  is the stock return of firm  $j$  on day  $t$ .

14. The t-statistics for these adjusted abnormal returns are calculated by substituting the adjusted prediction errors and their variance in equation (3). The adjusted prediction errors are  $P_{jt-1}(PE_{jt-1})$ , where  $P_{jt-1}$  is the price index defined in footnote 11. The variance associated with the adjusted prediction error equals  $(P_{jt})^2 \text{Var}(PE_{jt})$ .
15. Table 7 excludes the three investments that conclude as an unsuccessful takeover. The total abnormal return for the three acquiring firms is 22.70% with a t-statistic of 0.96. For the two listed targets involved in these transactions, the total abnormal return is 13.69% with a t-statistic of 2.60.
16. Among the frequent investors, there is a concentration of firms with investments that end in a targeted repurchase. The 19 targeted repurchases from frequent investors include 6 from Gulf & Western, 5 from firms controlled by Victor Posner and 4 from Walco National.

17. Two caveats about a comparison of the average prediction errors for frequent and infrequent acquiring firms should be noted. First, we have not controlled for a possible difference between the sizes of frequent and infrequent acquiring firms. Second, investments by frequent acquiring firms are probably anticipated to a greater degree and thus the price effects of announcements of investments by frequent acquiring firms reflect a smaller degree of surprise. Shipper and Thompson (1983) discuss this issue with respect to the price reactions for mergers that involve bidder firms that previously announced a program of acquiring control of other firms.
18. A t-statistic for the difference between the average cumulative prediction errors for investments with and without outcomes is calculated by estimating the following regression equation:

$$CPE_j = C_0 + C_1 D_j + \epsilon_j,$$

where  $CPE_j$  is the cumulative prediction error over the entire holding period for observations  $j$ ;  $D_j$  is a binary variable which equals 1.0 if the observations has an outcome and zero otherwise. The t-statistic on the coefficient  $C_1$  is the test statistic for the difference in average cumulative prediction errors. When the regression is estimated using ordinary least squares, the t-statistic for the coefficient  $C_1$  is 2.98. When the regression is estimated using weighted least squares (where the weights equal the inverse of the standard deviation of the cumulative prediction errors), the t-statistic for the coefficient  $C_1$  is 1.98.

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