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Clearly Heard on the Street: The Effect of Takeover Rumors on Stock Prices*

This article examines the effects of takeover rumors on stock prices using a sample of rumors published in the *Wall Street Journal*'s "Heard on the Street" column. We find that the market reacts efficiently to rumors; simple trading strategies based on buying or selling rumored targets' stocks yield zero excess returns. We document a significant price run-up for rumored targets in the month before publication of the takeover rumor. We find that widespread takeover rumors accurately predict imminent takeover bids less than half the time. Finally, we find that most takeover rumors are preceded by unusual price and volume activity in the stock of the rumored target, which may stimulate speculation that a large block position is being accumulated.

I. Introduction

Very few takeover bids for publicly held corporations are true surprises. Rather, in the weeks before a bid is announced rumors circulate among Wall Street professionals and in the business press, allowing the market to predict that the firm in question may be a takeover target. The content of these rumors typically lies in a gray area between purely public (i.e., formally disclosed) information and private information that is the property of particular market participants, notably arbitrageurs.

Pretakeover rumors can significantly influence the stock price trends of target firms before an actual takeover bid is announced. Jarrell and Poulsen (1989) show that, since 1980, the stock price of the average takeover target moved to incorporate about one-third of the ultimate takeover premium before any formal public news of the bid. The effect is larger (about 40% on average), and the flow of causality more tangled, when there is explicit speculation about a takeover in the financial press.

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The size of this effect and the ambiguity surrounding the source and proprietary nature of the information raise difficult questions for federal tender offer policy. If takeover rumors and prebid run-ups in prices reflect misuse of private information, we face a significant legal problem. If these phenomena reflect the public actions of professional investors and speculators (such as so-called shark watchers), then their legal implications are less troubling, although their economic effects on bidder and target incentives remain unresolved.

This article presents new empirical evidence on how takeover rumors affect the operation of the market for corporate control. Earlier analyses have proceeded by drawing samples of firms that ultimately became takeover targets and then looking backward from the takeover date to isolate prebid rumors. We follow a different approach, beginning our analysis with public takeover rumors from the "Heard on the Street" column that appears daily in the *Wall Street Journal*. This approach enables us to assess the causes and consequences of all rumors, both those that correctly anticipate takeover bids and those that ultimately prove to be false. We gauge the effect of these rumors on firms' stock prices before, during, and after the period in which the rumor surfaces in the financial press. We also assess the predictive content of the rumors (how many ultimately lead to takeover bids?) and present some evidence on the factors that appear to prompt the rumors themselves. Our major conclusions are as follows.

1. The market is efficient at responding to published takeover rumors. In our sample, no excess returns could be realized on average through an investment strategy of buying (or selling) rumored takeover targets at the time the rumor appeared in the national financial press. This conclusion holds true over relatively long investment horizons. In other words, the market processes this incomplete information as well as it does more complete and specific information, such as the value of an actual takeover bid or earnings reports.

2. Investing in rumored takeover targets is very risky. The variance of 1-year excess returns after publication of a takeover rumor is exceptionally high. Many firms in the sample experienced positive or negative excess returns of 50%–75% during this period.

3. No significant excess returns occur on the day that the *Wall Street Journal* publishes takeover rumors in the "Heard on the Street" column. The publication of the rumor does not by itself convey systematic positive or negative news to the market. However, the variance of excess returns on the rumor publication day is high. This indicates that the publication of the rumor (or other news emerging on the publication date) had a significant effect on many firms in the sample, but the direction of the effect varied across firms.

4. In the 20 trading days (or approximately 1 calendar month) before its appearance in the "Heard on the Street" column, the average target

displays statistically significant positive cumulative excess returns of approximately 7%. Thus, a sizable and consistent price run-up occurs just before publication of the takeover rumor, indicating a change in market expectations about the rumored target firms. (No doubt the run-up helps stimulate the column as well.)

5. Of the 42 firms in our sample of rumored targets, 18 received a takeover bid within 1 year after publication of the "Heard on the Street" column. Only two firms received bids within 50 days of publication. Thus, although these published rumors have a fairly high predictive content, it seems unlikely that many of them originated in leaks of inside information about *imminent* deals.

6. Two major types of events are mentioned most often in the "Heard on the Street" column as the impetus for takeover rumors. The first is the recent unusual price and volume behavior of the target's stock, which itself leads analysts to guess that some control-oriented activity is occurring or about to occur. The second is actions or rumored actions by a major investor in the company. In particular, rumors of substantial new purchases by a large block holder often lead analysts to expect a takeover attempt. This observation is consistent with the hypothesis that takeover rumors emerge from the activities of market professionals, such as arbitrageurs and shark watchers, who look closely for evidence of unusual activity in stocks that could precede takeover attempts. This type of information flow, rather than inside leaks, could be responsible for the relative accuracy of the rumors in our sample on an expected-value basis.

II. Sample

Because of its wide readership and its authoritative standing among corporate and other readers, the *Wall Street Journal*'s "Heard on the Street" column appears to represent the best source for gathering a sample of widely followed takeover rumors. This column's reputation as a source of takeover rumors has been magnified by the charge that one of its authors, R. Foster Winans, and his associates traded on rumors before publication dates.[1]

To identify takeover rumors, we examined this column on a daily basis from January 1, 1983, through December 31, 1985. For a takeover rumor from the column to be included in our sample, we required that the following criteria be met.

1. Winans's documented prepublication trading patterns, and his coterie of informants and observers on Wall Street, might seem to explain why no significant price response greeted the publication of his takeover rumors. However, our finding also holds for takeover rumor columns written by other "Heard on the Street" authors. This implies that Winans's prepublication trading did not significantly change the price paths of the target firms in which he speculated.

1. The rumor had to be the headline item for the day's "Heard on the Street."

2. The column had to be almost exclusively devoted to a discussion of the firm's takeover prospects. Parenthetic mention of other issues and firms was allowed, but the column could not cover several firms equally, for example, or discuss industry trends, mentioning a specific firm as an example.

3. The column had to report a consensus among analysts about the possibility of a takeover bid. One analyst's opinion was not sufficient, even if it appeared to have inspired the column's entire analysis, nor was a column reporting that some analysts expected a takeover bid but that an equal or larger number were dubious.

4. The firm had to be listed on the CRSP daily returns tape compiled by the Center for Research in Securities Prices at the University of Chicago, which includes all firms listed on the New York and American stock exchanges. Applying these criteria, we isolated 42 takeover rumor events from the sampling period.

Our sampling exercise gave us some perspective on how recently the national financial press has begun widespread tracking of potential takeover targets. When we tried to extend our sampling criteria back to the 1979–80 period, we had little success. During calendar 1979, only three articles in "Heard on the Street" met our criteria. Since the number of bids in 1983–85 was not significantly greater than it was in 1979–80, the comparison is particularly telling. This increase in attention to takeover rumors is probably attributable in part to the increase in the average size of target firms in the early 1980s.

III. The Efficiency of the Market's Reaction to Rumors

To determine whether the market reacts efficiently to takeover rumors, we examine whether excess returns (or above-market performance) could be realized by buying and holding the rumored targets in our sample. Abnormal performance from such an investment strategy would indicate that the market under- or overreacted to these rumors when they became public, with an ensuing, predictable correction over the subsequent months. The widespread perception is that the market underreacts to these rumors, so that buying and holding these targets should lead to positive market-adjusted performance.

To test this hypothesis, we followed a trading rule of buying at the closing price on the date that the "Heard on the Street" column identified the firm as a takeover candidate and then selling in the open market at the closing price either on the date of the first formal bid, or after 1 calendar year, whichever comes first.[2] This rule is designed to

2. An alternate trading rule, which mandated holding for 6 months or until the first formal announcement of a bid, was also tried to test the robustness of the results obtained with the 1-year rule. The 6-month strategy yielded virtually identical results.

capture the gains that accrue when formal bids materialize for rumored targets, while imposing a time limit on the holding period.[3] Firms in the sample thus have uneven holding periods, reflecting this particular speculative strategy.

We chose a relatively long holding period for our trading rule because it seemed possible that considerable time might elapse between takeover rumors and realized bids. Those who view rumors as leakage immediately before a planned bid would dispute the need for a long horizon. But the use of a longer horizon makes the tests more robust with respect to alternative hypotheses. Investment professionals have long maintained that their strategies are not predicated on trying to "outthink" the market over the 30–40-day period typically employed in the event study literature but rather on a longer-term approach. This has been particularly true of those who attempt to identify undervalued firms and, thus, might also be true for identifying undervalued firms that are potentially good takeover targets.

Over our holding period, we measure the performance of our sample companies using cumulative excess returns from the empirical market model. We first estimate the empirical market model for each firm, using daily observations of returns for the 150 trading days spanning the period (-170) through (-20), where day 0 is the day of publication of the takeover rumor. (We do not estimate from $[-150]$ through $[-1]$ because of the possibility of prepublication leakage, a possibility that we investigate formally in Sec. IV below.) The regression takes the form

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}, \tag{1}$$

where R_{it} is the return for firm i in period t, and R_{mt} is the return for the equally weighted CRSP index for the same period. We then use the fitted coefficient values to forecast daily R_{it} for each firm during the measurement period and use this to derive

$$\hat{\epsilon}_{it} = R_{it} - \hat{\beta}_i R_{mt} - \hat{\alpha}_i, \tag{2}$$

where $\hat{\epsilon}_{it}$ is estimated daily excess returns for each firm. We then accumulate daily excess returns for each firm over the relevant measurement period, which runs from the day of takeover rumor publication to either the day of an announced takeover bid or the end of 1 calendar year, whichever occurs sooner.

We examine the excess returns for each of these firms singly and for

3. Alternative rules could be envisioned that did not mandate selling on the announcement of the first formal takeover offer. However, such rules would typically be more difficult to implement and involve the assumption of more risk. Moreover, existing evidence has shown that there are zero excess returns, on average, following first bid announcements. Thus, our strategy accurately captures the gains from materialized bids, on average, while imposing no further assumptions about the information available to the investor or his expertise at assessing prospects after the first bid materializes.

the sample as a whole. The use of uneven event windows across firms is likely to induce some nonnormality in the cross-sectional distribution of excess returns across the sample. For this reason, we present three complementary measures of aggregate performance across the full sample of 42 firms. First, we take the cross-sectional average of firm-specific excess returns and, using a cross-sectional standard error, perform a t-test to determine whether this average is significantly different from zero. Second, we examine the median return in the sample. And, third, we examine the relative proportion of positive versus negative excess returns across the 42 firms in the sample, using a z-test to determine whether this proportion differs significantly from 50-50. Because of the sample size and the distribution of excess returns, the latter two approaches are likely to be more powerful.

Table 1 presents the results of these tests. It shows, for each rumored target, the buy and sell dates, as defined by the trading rule; the length of the holding period, measured in days; and the cumulative excess returns for the firm's stock over the holding period. These data confirm the hypothesis that, on average, the market reacts efficiently to takeover rumors. Across the 42 firms in the sample, no excess profits could be realized by following the trading rule described above after publication of the takeover rumor. For the 1-year strategy, the average cumulative excess return across the sample is 1.77%, with a t-statistic of .38. These results do not suggest even marginal profitability or significance for these trading strategies. The median return is similarly small, and the frequency of positive and negative returns in the sample is almost exactly 50-50. On average, thus, the market values of these firms at the time of the published takeover rumor were a remarkably good predictor of their future value and, hence, of the expected value of materialized bids across the sample.[4]

High firm-specific risk is associated with our trading strategy. Over the specified holding period, the standard deviation of returns across the 42 firms is 32%, while the average absolute return is 25%. These statistics document a high level of volatility in the wake of published takeover rumors.[5] Some (but not all) of the large positive excess returns are associated with materialized takeover bids. These are offset by cases in which takeover rumors proved false and firms' stock prices slumped sharply.

4. We also posed additional tests to examine whether excess returns could have been realized if investors attempted to distinguish optimistic and pessimistic rumors rather than simply buying each rumored target. We had three individuals familiar with financial markets read the "Heard on the Street" columns and pick those firms for which the rumor, in their view, was most likely to lead to a takeover bid. We then replicated the tests on these three additional subsamples. The results were not economically or statistically different from those reported in table 1 for any of the three subsamples.

5. Although this risk is diversifiable in theory, in practice, given the concentrated holdings of arbitrageurs, it does not seem likely that it is fully spread across the market.

TABLE 1 Excess Returns over Holding Period

Company	Article Date	Sale Date	Holding Period (days)	Excess Return, Holding Period (%)
Frank B. Hall	1/7/83	1/9/84	367	−77.22
Kaiser Steel	1/14/87	5/10/83	116	−.49
Sybron	3/29/83	5/27/83	59	9.62
Tidewater	8/16/83	8/15/84	365	−2.82
Manhattan Natl.	10/12/83	10/11/84	365	28.40
Todd Shipyards	10/28/83	10/29/84	367	−14.70
RCA	11/1/83	10/31/84	365	18.02
Western Union	11/9/83	11/8/84	365	−75.36
Getty Oil	11/14/83	12/28/83	44	32.34
American Express	12/29/83	12/28/84	365	35.84
Walt Disney	1/4/84	6/8/84	156	18.79
St. Regis	2/9/84	7/18/84	160	27.30
Milton-Bradley	2/15/84	5/8/84	83	65.59
Beatrice	2/17/84	2/19/85	368	−30.93
Colgate	2/24/84	2/25/85	367	−12.75
Sun Co.	3/22/84	3/22/85	365	−12.86
Church's	3/30/84	4/1/85	367	34.86
Holly Sugar	5/2/84	5/2/85	365	−15.86
Revlon	5/22/84	5/22/85	365	−11.62
Owens-Illinois	6/29/84	7/1/85	367	7.38
ITT	7/12/84	7/12/85	365	11.89
Avco	8/17/84	12/3/84	108	38.76
Bowater	10/2/84	10/3/85	366	−10.14
Scott & Fetzer	10/11/84	10/10/85	364	−16.25
Kellogg	11/16/84	11/19/85	368	39.82
M. Lowenstein	12/17/84	10/8/85	295	16.39
ABC	1/29/85	3/19/85	49	56.22
CBS	2/8/85	4/19/85	70	35.59
Unocal	2/14/85	4/8/85	53	8.87
Sperry	3/5/85	6/14/85	101	12.07
Amerada Hess	3/20/85	3/21/86	366	−64.50
Tenneco	3/26/85	3/27/86	366	−30.93
RCA	4/17/85	12/12/85	239	30.95
Arkla	5/15/85	5/16/86	366	−47.08
Richardson-Vicks	7/11/85	9/10/85	61	31.08
General Instrument	8/8/85	8/11/86	368	1.32
Healthcare USA	9/23/85	6/24/86	274	−52.15
Rorer Group	9/24/85	9/25/86	366	−15.47
Warner Comm.	10/2/85	10/2/86	365	3.46
Orion Pictures	10/8/85	10/8/86	365	1.20
Viacom	10/11/85	5/16/86	217	−10.56
Western Air	10/21/85	9/10/86	324	16.08
John Blair	11/6/85	4/18/86	163	−3.96
Summary statistics:				
Average			272.56	1.77
t-statistic			...	.38
Standard deviation			124.41	32.26
Average absolute value			...	25.29
Median return				3.46
Percent positive				53.5
z-statistic				.7

NOTE.—These are excess returns from buying and holding the stocks of rumored takeover targets after publication of takeover rumors in the "Heard on the Street" column of the *Wall Street Journal*. Firms are those that were the subjects of 42 rumors published during the period 1983–85. The trading rule is to buy at closing price on day of rumor publication and sell either on the day that a formal acquisition bid is announced for the firm or after 1 year, whichever comes sooner. Cumulative excess returns are calculated using the empirical market model.

To test the robustness of the results reported in table 1, we replicated our tests on a subsample of firms for which no news occurred in the 60 days before rumor publication that could be construed by the market as control oriented. Specifically, we screened out firms for which a large investor had filed a 13-d report, indicating 5% or greater ownership, during this 2-month period. The purpose of this additional test was to examine the performance of those firms for which the takeover rumor is most likely to have constituted net new news to the market about the firm's takeover prospects. The results for this restricted sample, which comprised 36 firms, are virtually identical to those reported in table 1. The average return for the sample is 2.27%, with a standard error of 2.28%. The median return is 1.3%, and 19 out of 36 observations (53%) are positive.

These results are suggestive evidence in favor of the semistrong form of the efficient markets hypothesis. It is easy to imagine that the market might not be efficient with respect to takeover rumors, which are speculative, incomplete, and hard to quantify. More important, the underlying takeover phenomenon might be unstable over time. Changes in laws or broad market conditions might make the environment more or less favorable for making takeover bids. Had such a change occurred during the period of our study, the level of actual takeover activity obtaining might have been systematically different from the level expected at the time when rumors began to surface. Our evidence thus shows that the market correctly valued imperfect predictions of possible future activity, even though the ultimate value of that activity was difficult to forecast and subject to change.

IV. Takeover Rumors' Immediate Effects on Stock Prices

To determine how stock prices are affected by takeover rumors when they are initially circulating, we pose two tests. The first examines the effect of rumors on the day they are published in the *Wall Street Journal*. This represents a narrow test of whether publication of a rumor is itself news. The second test looks for unusual activity in rumored targets' stocks before the date on which the rumor is published. We examine the behavior of each rumored target's price in the 20 trading days before publication of the rumor. Significant price movements during this period might reflect the dispersion of takeover rumors across the market, leading up to the eventual publication of the rumor in the *Journal*. If rumors begin life either as the opinions of a few informed market analysts or as leaks from parties with proprietary information about upcoming takeover bids, they may disperse gradually. It seems likely that most rumors begin in one of these gray areas between fully disclosed public information and private information. In either case, stock prices would accordingly exhibit a pattern of gradual run-up before the *Journal* news story.

To examine whether rumors affect firms' stock prices on the day they are published, we employ the empirical market model described by equations (1) and (2) above. We take the fitted coefficient from estimation over the period (−170) to (−21) and use this model to forecast the expected return for each firm on the date of publication of the takeover rumor (day 0). To examine prepublication price behavior, we employ the same market model, estimated over days (−170) to (−21). We use the model to forecast expected returns for day (−20) through (−1) and then accumulate the excess returns for each firm in the sample.

To examine the average performance of the stocks in our sample over these 2 periods, we once again perform the three parametric and nonparametric tests described in Section III. First, we take the cross-sectional average of firm-specific excess returns and, using a cross-sectional standard error, perform a *t*-test to determine whether this average is significantly different from zero. Second, we present the median return in the sample. And third, we examine the proportion of positive versus negative excess returns across the 42 firms in the sample and use a *z*-test to determine whether this proportion differs significantly from 50-50.

Table 2 presents both firm-specific and averaged excess returns for the day on which the takeover rumor was published in the "Heard on the Street" column. On average across the sample, the publication of takeover rumors has no significant effect—indeed virtually no effect—on the rumored targets' stock prices. The *Journal* story itself, in other words, does not constitute consistently good or bad news about the prospect of a takeover bid.[6] Table 3 presents excess returns over the 20 trading days before publication of the rumor. During that period, the firms in the sample experienced economically and statistically significant excess returns, averaging 7% (or about 20% of the magnitude of the average takeover premium). This result is consistent with the hypothesis that in the period leading up to rumor publication, the market assesses an increasing likelihood that the firm will receive a takeover bid as takeover rumors diffuse through the community of informed investors.[7]

Underlying these average results, tables 2 and 3 show a great deal of volatility of returns across the firms in the sample. On the day when rumors are published in the *Journal,* firms experience excess returns ranging from −13.2% to +9.5%. Many of these are well above the

6. Combined with the results in table 1, table 2 also shows that there is no average gain from buying at close on the day before publication of the rumor and holding either for 1 year or until a takeover bid materializes, whichever occurs sooner.

7. It is also consistent with the hypothesis that the writer of the "Heard on the Street" column traded on the information before the publication date, which might tip off well-placed market participants. But as will be seen in the next section, the nature of the news contained in most columns is inconsistent with so large a prepublication price effect based solely on this type of trading behavior.

TABLE 2 Excess Returns on Rumor Publication Dates

Company	Article Date	Excess Return on Article Date (%)
Frank B. Hall	1/7/83	−2.97
Kaiser Steel	1/14/83	1.71
Sybron	3/29/83	4.92
Tidewater	8/16/83	−2.13
Manhattan Natl.	10/12/83	−13.23
Todd Shipyards	10/28/83	4.04
RCA	11/1/83	4.05
Western Union	11/9/83	−3.95
Getty Oil	11/14/83	−1.65
American Express	12/29/83	.15
Walt Disney	1/4/84	−.42
St. Regis	2/9/84	4.35
Milton-Bradley	2/15/84	−.18
Beatrice	2/17/84	6.86
Colgate	2/24/84	−3.15
Sun Co.	3/22/84	7.56
Church's	3/30/84	1.88
Holly Sugar	5/2/84	1.05
Revlon	5/22/84	.02
Owens-Illinois	6/29/84	2.25
ITT	7/12/84	9.46
Avco	8/17/84	−1.16
Bowater	10/2/84	−3.23
Scott & Fetzer	10/11/84	−.43
Kellogg	11/16/84	.87
M. Lowenstein	12/17/84	.53
ABC	1/29/85	−1.03
CBS	2/8/85	1.25
Unocal	2/14/85	.19
Sperry	3/5/85	1.64
Amerada Hess	3/20/85	7.49
Tenneco	3/26/85	2.14
RCA	4/17/85	1.11
Arkla	5/15/85	−3.15
Richardson-Vicks	7/11/85	−3.50
General Instrument	8/8/85	.69
Healthcare USA	9/23/85	−3.52
Rorer Group	9/24/85	−4.50
Warner Comm.	10/2/85	1.28
Orion Pictures	10/8/85	−3.06
Viacom	10/11/85	1.91
Western Air	10/21/85	−9.76
John Blair	11/6/85	−3.16
Summary statistics:		
Average excess return		.07
Standard deviation		4.19
t-statistic		.12
Average absolute excess return		3.06
Median return		.19
Percent positive		55.8
z-statistic		.8

NOTE.—These are excess returns on the date of publication of takeover rumors for firms that were the subject of 42 takeover rumors published in the "Heard on the Street" column of the *Wall Street Journal* during 1983–85. Excess returns are estimated using the empirical market model.

TABLE 3 Excess Returns in Month before Rumor Publication

Company	Article Date	20-Day Run-up Excess Returns (%)
Frank B. Hall	1/7/83	12.36
Kaiser Steel	1/14/83	30.13
Sybron	3/29/83	6.07
Tidewater	8/16/83	7.11
Manhattan Natl.	10/12/83	−4.54
Todd Shipyards	10/28/83	2.07
RCA	11/1/83	6.10
Western Union	11/9/83	25.19
Getty Oil	11/14/83	11.34
American Express	12/29/83	−.54
Walt Disney	1/4/84	2.88
St. Regis	2/9/84	18.73
Milton-Bradley	2/15/84	17.85
Beatrice	2/17/84	9.48
Colgate	2/24/84	17.40
Sun Co.	3/22/84	−10.85
Church's	3/30/84	7.22
Holly Sugar	5/2/84	22.87
Revlon	5/22/84	13.74
Owens-Illinois	6/29/84	4.48
ITT	7/12/84	−42.20
Avco	8/17/84	3.40
Bowater	10/2/84	10.91
Scott & Fetzer	10/11/84	4.45
Kellogg	11/16/84	1.26
M. Lowenstein	12/17/84	−.60
ABC	1/29/85	−8.31
CBS	2/8/85	−6.60
Unocal	2/14/85	24.01
Sperry	3/5/85	2.80
Amerada Hess	3/20/85	10.77
Tenneco	3/26/85	10.36
RCA	4/17/85	2.71
Arkla	5/15/85	11.56
Richardson-Vicks	7/11/85	8.86
General Instrument	8/8/85	5.49
Healthcare USA	9/23/85	25.14
Rorer Group	9/24/85	17.65
Warner Comm.	10/2/85	13.22
Orion Pictures	10/8/85	1.65
Viacom	10/11/85	16.20
Western Air	10/21/85	30.66
John Blair	11/6/85	−7.80
Summary statistics:		
Average return		7.78
t-statistic		4.00
Standard deviation		12.60
Average absolute return		11.58
Median return		7.23
Percent positive		81.4
z-statistic		4.1

NOTE.—These are cumulative excess returns over the 20 trading days before publication of takeover rumors for firms that were the subject of 42 takeover rumors published in the "Heard on the Street" column of the *Wall Street Journal* during 1983–85. Excess returns are estimated using the empirical market model.

typical magnitude of 1-day returns for large nationally listed firms. Similarly, in the 20 trading days leading up to the publication date, firm-specific excess returns range from −42.2% to +30.7%, with many in the 10%–20% range in absolute value. The average absolute magnitude of these returns, shown at the bottom of tables 2 and 3, is large enough to suggest that significant news (or changes in expectations) affected most firms in the sample both on the rumor publication date and in the period leading up to rumor publication. On the date of rumor publication the news was bad for some firms and good for others, with an average net effect of zero, but for most firms in the sample some significant change in expectations, either upward or downward, did occur.

V. Insider Leaks or Public Speculation?

Two competing hypotheses about the underlying cause of takeover rumors have generated considerable controversy in recent years. One is that rumors derive from research and predictions by outside analysts and expert observers in the investment community. For example, an oil industry analyst might observe performance figures for a certain oil-producing firm and conclude that current management is not fully exploiting the asset base and predict that a bidder for the firm will emerge. Or the staff of an arbitrage firm or a professional shark watcher might see unusual trading activity in a certain stock and infer that a potential bidder is accumulating a position. Rumors that begin through this type of research by expert observers may deter some takeover bids because they make it more difficult for the bidder to keep his intentions secret, thereby threatening his profits. However, they represent legal research activities consistent with the role of market professionals.

A competing hypothesis is that rumors are caused primarily by leaks from intermediaries involved in negotiating takeover transactions. Rumors originating in this way have more negative implications for the operation of the market for corporate control. They would be likely to deter bidders by making it more difficult to plan and execute either a negotiated or a nonnegotiated acquisition offer without inefficiently early disclosure to the market. In addition, such rumors often represent a pure fiduciary breach of contract because intermediaries must generally operate under explicit confidentiality agreements. Further, to the extent that the precise source of these fiduciary breaches is difficult for market participants to identify, leaks create an external cost for honest intermediaries, who cannot credibly distinguish themselves from those who are dishonest, thus creating an adverse selection problem. Clearly, insider trading and leaks account for some takeover rumors (witness the spate of insider-trading prosecutions over the past

TABLE 4 Accuracy of Rumors

	Frequency
Number of firms receiving bid within 1 year of rumor	18
% of all rumors resulting in bid within 1 calendar year	43
Average days between rumor publication and bid for 18 firms receiving bid within 1 year after rumor	162
Standard deviation of days between rumor publication and bid for 18 firms receiving bid within 1 year of rumor	88.74
Distribution of days between rumor and bid for 18 firms receiving bid within 1 year of rumor:	
Less than 50 days	2
50–100 days	5
101–150 days	3
151–200 days	3
201–300 days	4
301–365 days	1

NOTE.—These are frequencies of actual acquisition offers and distribution of time between rumor and offer for a sample of firms that were the subjects of 42 takeover rumors published in the *Wall Street Journal's* "Heard on the Street" column in the period 1983–85. Offers must have occurred within 1 calendar year after the publication of the rumor to be counted in the total.

2 years, beginning with the Boesky revelations). But what proportion of prebid price run-ups in target firms is due to insider breaches?

Our sample can shed some light on this question for firms with widely circulating public rumors. If rumors typically result from leaks from intermediaries who are actually preparing an acquisition attempt, then rumors that are correct—and thus should be followed by acquisition offers—should prove to be so in a relatively short span of time. In contrast, if rumors are predictions by outside analysts based on publicly available information, relatively fewer of them should be followed immediately by takeover bids. A number of studies have documented that it is very difficult to predict takeover targets on the basis of public information (e.g., Palepu 1986). If rumors are not based on leaks, there is no reason to expect bids to occur immediately after rumors become public. An actual bid might come months or years after experts had identified a particular firm as marginally more likely than others to become a takeover candidate.

Table 4 presents summary statistics on frequency of bids, and the period between rumor publication and bid, for the rumored targets in our sample. Of the 42 firms, 18 received bids within 1 year after publication of the rumor, while 24 received no formal acquisition offers. For the 18 receiving offers, the mean period between rumor publication and offer was 162 calendar days, or nearly a half year. Only two firms received bids within 50 calendar days of the rumor publication date. These data seem to suggest that relatively few of the rumors in our sample were caused by leaks of information about actual impending deals. The most impressive statistic is the long average delay between

rumor and ultimate bid. This evidence appears to be more compatible with the hypothesis that rumors materialize because of speculation by outside experts such as analysts.

Of course, most takeover targets do not become the subjects of rumors that circulate so widely that they are published in the *Journal*.[8] Substantial insider trading may be a common phenomenon for less publicized targets. Indeed it is possible that these latter firms are the subject of rumors that never get published precisely because bids follow quickly after the rumor begins to circulate. But our data do provide some suggestive evidence that most widely circulated rumors, at least, are not generally caused by misuse of insider information. Rather, 40 of the 42 rumors in our sample turned out to be highly speculative, in the sense that an actual takeover bid did not materialize in the following 7 weeks.

VI. The Content of Takeover Rumors

Can one generalize about the substantive content that underlies takeover rumors? One possibility is that a well-specified, observable event, such as the filing of a 13-d ownership report by a large investor, typically sparks takeover speculation and hence the prepublication run-up documented in Section IV. This would imply that takeover rumors are the direct result of specific corporate news, which suggests to analysts that takeover activity is likely. A second possibility is that a general pattern of trading activity, rather than specific news, generates the run-up or the rumor. Such rumors might occur because well-informed observers attempt to predict takeovers by looking for unusual trading activity (this is the stated purpose of professional shark watchers) or because of inside leaks and trading (this interpretation is less likely given the evidence discussed in Section V). A third possibility is that the rumor arises from speculation or predictions by credible market participants, independent of either unusual trading activity or specific corporate news. Such speculation would qualify neither as hard news about the company nor as an utter lack of news. Rather, the rumor and market reaction would amount to a vote of confidence in the expertise and predictive power of particular analysts.[9]

Table 5 presents an abbreviated summary of the important recent events mentioned prominently in the "Heard on the Street" column for each of the 42 takeover rumors in the sample. We include in this table only hard news about events recently occurring in the firm or the

8. During the period covered by our sample, over 100 public firms were the targets of tender offers for control, compared with the 18 materialized bids in our sample. (Tender offer data are from the Office of the Chief Economist, U.S. Securities and Exchange Commission.)

9. Or their access to inside information.

TABLE 5 News Content of Rumor Columns

Company	Major News Reported in *Wall Street Journal* Column
Frank B. Hall	Price/volume surge; rumor specific company will bid
Kaiser Steel	Jacobs acquires 9.9%; offer likely
Sybron	Price/volume surge; rumored large buyer
Tidewater	Price/volume surge; arbitrageurs buying; leveraged buy out rumored
Manhattan Natl.	Price/volume surge; plan to buy out policyholders
Todd Shipyards	Price/volume surge
RCA	Analysts predict bid based on characteristics
Western Union	Price/volume surge; possible bidder
Getty Oil	Price/volume surge; agreement with large holder makes company vulnerable
American Express	Price/volume surge; reports of two large buyers
Walt Disney	Price/volume surge; analysts say asset play
St. Regis	Report of large buyer; large block sells at premium
Milton-Bradley	Price/volume surge; bad earnings performance; Hanson Trust rumored
Beatrice	Price/volume surge; Nestle rumored readying bid
Colgate	Price/volume surge; bidders rumored
Sun Co.	Price/volume surge; reports that controlling family is willing to sell
Church's	Price/volume surge; rumors of specific bidders
Holly Sugar	Price/volume surge; rumor of large acquirer
Revlon	Sudden golden parachute adoption; analysts say asset play
Owens-Illinois	Price/volume surge; analysts say asset play
ITT	Dividend cut signals bad management and undervaluation
Avco	Price/volume surge; multiple bidders rumored
Bowater	Price/volume surge; rumored Goldsmith offer
Scott & Fetzer	Price/volume surge; rumor of employee stock ownership (ESOP) buy out
Kellogg	Block repurchase from largest shareholder signals weakness
M. Lowenstein	Price/volume surge; management buy out rumored
ABC	Price/volume surge; large investor rumored to be accumulating
CBS	Helms's group more serious than thought, will seek control
Unocal	Price/volume surge; large investor rumored
Sperry	Rumored to be searching for acquirer
Amerada Hess	Owner (Hess) rumored willing to sell
Tenneco	Investor group accumulating shares; may force restructuring
RCA	Jacobs takes substantial position
Arkla	Price/volume surge in stock and options; Sonat rumored bidder
Richardson-Vicks	Price/volume surge; rumored bidders; company is recalcitrant
General Instrument	Analysts say asset play
Healthcare USA	Price/volume surge; rumored acquirers; company says discussing asset sales
Rorer Group	Price/volume surge; rumored negotiations
Warner Comm.	Price/volume surge; Hollywood magnate may take 30% stake
Orion Pictures	Largest shareholder trying to find buyer for company
Viacom	Price/volume surge; specific rumored bidders include Coniston
Western Air	Price/volume surge; earnings turnaround; analysts say good candidate
John Blair	Price/volume surge; bidders rumored but analysts say unlikely target

NOTE.—These are major news items mentioned in "Heard on the Street" columns of the *Wall Street Journal* reporting 42 takeover rumors during the period 1983–85.

market for its stock. Some broad thematic similarities can be seen in the column's news content. The most prominent news mentioned in the column lead (present in 29 of the 42 cases) is that unusually heavy volume activity and an upward price surge have occurred in the market for the rumored target's stock. Typically, this movement has occurred within the past 2–5 trading days. Many of the columns in the sample are indeed written as news reports on these events and posit a takeover attempt as the strongest possible explanation. In a number of cases, takeover speculation appears to have been prompted by the price and volume surge occurring in the market for the rumored target's stock itself.

Where further news is present, by far the most common story is that one or several specific large investors are rumored to be accumulating blocks of the target's stock. A third common news item is that specific, named bidders are readying bids. Such stories prove less reliable, however; indeed, in two cases, the column includes a quotation from the rumored bidders denying that they had any intent to make a bid. Moreover, for five firms in the sample, the column discusses the fact that the firm has been the subject of repeated (although typically unpublished) takeover rumors over a relatively long period (usually more than a year).

While most columns mention other facts—including such issues as management's current business strategy, the value of underlying assets, analysts' opinions about future prospects, and general industry trends—they include little other direct news about recent events. Seldom does a 13-d filing or other specific event trigger takeover speculation.

Overall, the news content of the columns appears to be broadly consistent with the hypothesis that rumors derive from market professionals' interpretations of unusual firm-specific trading activity. In many cases, it appears that an accumulation by a large investor lies behind the price and volume surge; but it is not clear that this accumulation will ultimately result in control activity directed against the target. Rumors appear most often to emanate from arbitrageurs, shark watchers, and others who watch closely for unusual patterns in individual firms' stocks. Seldom does the rumor, or a specific event that implies takeover activity, precede the unusual price and volume activity. Usually rumors follow this activity as market observers seek to explain its cause.

The market's sensitivity to possible accumulation by large holders lends further credence to Shleifer and Vishny's (1986) hypotheses about the effects of large investors on the market for individual firms' stocks. Their model suggests that large holders will increase value by leading the market to expect a possible takeover bid. Their model also implies that large holders will find it difficult to expand their holdings,

as the market will interpret such a move as a signal that a takeover is more likely. Evidence in favor of these hypotheses is already provided by the market reaction to formal disclosures of a large accumulation, such as 13-d filings (Mikkelson and Ruback 1985; Holderness and Sheehan 1985). The results in this article extend this evidence, showing the market to be highly sensitive to undisclosed share accumulation patterns and (inferentially) to resource expenditures by market observers to identify changes in large shareholders' actions and intentions.

VII. Conclusion

This article presents new evidence on the effects of takeover rumors on rumored targets' stock prices. Our findings complement previous evidence documenting large run-ups of takeover targets' stock prices before the materialization of takeover bids. While previous studies have examined prebid run-up by sampling actual takeover targets and working backward to look for rumors, we worked with takeover rumors isolated ex ante. This approach allows us to examine all rumors rather than the subset that ultimately result in takeover bids.

Our first important finding is that the market reacts to published takeover rumors efficiently, correctly assessing the average probability that the rumor will be followed ultimately by a takeover bid. As a result, there are no excess profits to be made on average from either buying or shorting the stocks of firms that are the subjects of widely circulating takeover rumors. Some market participants who are very close to the market may profit from rumors as they begin to diffuse through the investment community. But our evidence refutes the hypothesis that it is possible to earn high returns simply by speculating in the stock of those firms mentioned prominently as potential takeover targets in the national financial press.

Our second finding is that before the publication of rumors in the national press, there has typically been a significant run-up in the price of the rumored target's stock. The run-up in our sample averages approximately 7% over the 20 trading days before rumor publication. There is no reaction to the rumor on the date of its publication. This suggests that rumors follow a diffusion process and are fully reflected in market prices by the time they become widely known. Once again, this evidence is consistent with the hypothesis that those close to the market, such as arbitrageurs, may make short-term profits trading on rumors as they unfold.

Our third finding is that rumors seldom predict imminent takeover bids. Of the 42 firms in our rumor sample, 18 received takeover bids in the year following publication of the takeover rumor in the *Wall Street Journal*. But only two firms received bids within 50 days of publication. If takeover rumors originated in leaks from parties involved in

planning or executing specific deals, one would expect offers to follow more closely on the heels of rumors.

Finally, we find that the primary news at the time of rumor publication is unusual price and volume activity in the stock of the rumored target. The second most common news is that someone appears to be accumulating a large holding of the stock. This suggests that rumors are the product of close observation of the market by shark watchers, arbitrageurs, and others who look for unusual activity in firms' stocks as evidence of impending takeover activity. Rumors do not typically derive from new, specific news or disclosures about the company.

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