The Information Hypothesis Revisited

A Further Examination of the Performance of Targets of Failed Takeover Attempts

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April 10, 2019

ABSTRACT

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This study centers on the performance of targets of takeover offers after the initial offer is withdrawn. If these firms are not subsequently taken over by another bidder and if they were correctly valued before the initial takeover offer, their stock price should gradually revert to the pre-offer price. However, I find that firms for which relatively high premiums were offered do better than firms for which relatively low premiums were offered. This is surprising, because the initially offered premiums will not be paid out, and the intrinsic standalone value should not change because of the level of the premium. This finding supports the information hypothesis, which poses that some bidders possess superior information or insight that make them able to identify overvalued and undervalued targets. These bidders would be willing to pay higher premiums for undervalued targets, and lower premiums for overvalued targets. This would make targets for which a high premium is offered more likely to be undervalued, and vice versa, which would explain the findings. Targets of high offers continue to outperform targets of low offers even after the date on which the initial offer is withdrawn, which implies the market does not identify the high-premium targets as previously undervalued.

I. INTRODUCTION

A merger or acquisition often results in significant gains in wealth for the shareholders of the target firm, because they usually receive a significant premium over the share price of the target prior to the announcement of the deal. However, not every announced deal closes. This paper analyzes how targets of unsuccessful takeover attempts perform following the initial announcement of the takeover and its later breakdown. In particular, it analyzes the relationship between the level of the initially offered premium and the target's subsequent performance.

II. PREVIOUS WORK

There are two ways in which corporate takeovers can create value for the acquiring firm or person. One is that some form of synergy may exist between target and bidder that allows the bidder to create value despite having to pay a control premium. In academic literature, this explanation for takeover offers is sometimes referred to as the *synergy hypothesis*.[1] The other reason why takeovers may create value for the bidder is that the target may be undervalued by more than the offered control premium. Takeovers could therefore be motivated by (perceived) superior information or insight possessed by the bidder. This explanation for takeovers is sometimes referred to as the *information hypothesis*.[2] These reasons for takeovers are not mutually exclusive: a target can be undervalued on a standalone basis while also offering potential for revenue or cost synergies for a bidder.

Earlier studies have found that, on average, targets of takeover attempts experience increases in their share prices that do not disappear when those takeover attempts turn out

[1] See, for example, Bradley, Desai and Kim (1983), p. 183-184.
[2] Ibid.

unsuccessful.[3] This appears to support the information hypothesis and contradict the synergy hypothesis. Without a takeover there can be no synergy, so an increase in market value that persists after the offer is withdrawn must indicate that the offer has caused the market to make an upward adjustment of the perceived *standalone* value of the target firm, or so it seems. Such an upward correction would only make sense if the market believed the bidder to possess superior information or insight.

Bradley, Desai and Kim (1983) divide a sample of targets of unsuccessful tender offers in one group of firms that are subsequently taken over and another group of firms that are not. They show that the first group experiences a further positive revaluation after the initial takeover announcement, while for the second group the cumulative abnormal returns completely disappear in the months following the announced but ultimately withdrawn takeover bid. This explains why the share price of targets does not immediately drop back to the pre-offer level after the deal fails: initially there is the increased (perceived) probability of another offer, which decreases over time. This way the information and synergy hypotheses are reconciled: offers are generally motivated by synergy potential, but they also indicate that the company is likely to be taken over in the future if the initially announced deal does not close. However, future takeovers are generally also driven by synergy potential, and when they do not materialize, the earlier abnormal returns disappear.

[3] Dodd (1980), Ruback (1988), Bradley (1980).

III. HYPOTHESES

III.1 The level of premiums may be a potential proxy for over- and undervaluation

The main goal of the aforementioned research was to answer the question whether synergy potential or superior information or insight motivates market participants to make a takeover bid. A different question is whether bidders use superior information or insight when determining the appropriate offer price. If bidders take the standalone value of the target as a given, and base the offered premium exclusively on synergy potential, we would expect, on average, no permanent revaluation for targets of withdrawn offers that are not subsequently taken over by another bidder. By permanent revaluation, I mean cumulative positive or negative cumulative abnormal returns over the period from before the initial takeover offer until well after the date on which that offer is withdrawn (hereinafter the "withdrawal date"). For those firms, the share price would ultimately revert to standalone value which the market, on average, correctly estimated before the offer. However, if some bidders would be able to identify undervalued targets and are willing to bid higher for them (and vice versa) based on superior knowledge or insight, we would expect targets of high withdrawn offers that stay independent to experience a positive permanent revaluation relative to targets of low withdrawn offers, because the high premium indicates an increased likelihood that the bidder has (correctly) identified the target as being undervalued. If the offer is withdrawn and the target stays independent, its price will not revert to the pre-offer value, but to the true standalone value, which is higher.

The level of offered premiums over market value may therefore be indicative of the fairness of the target's market value, or at least the bidder's beliefs about it. In others words, the information hypothesis may help explain differences in the *level* of premiums in takeover offers.

Weitzel and Kling (2012) find that there is significant correlation between proxies for overvaluation and low premiums. Failed offers for targets that are not subsequently taken over offer an opportunity to test if this hypothesis is true. By looking at the target's abnormal returns over the period starting before the initial offer announcement and ending long after the withdrawal announcement, we can see if the target experiences a permanent revaluation as a result of the offer and its withdrawal (i.e. cumulative positive or negative abnormal returns during this period). If the target was fairly priced before the offer, and the low premium is primarily due to low synergy potential, we would expect targets that are not taken over after the withdrawal of the initial offer to experience *no* permanent revaluation as a result of the offer.

In contrast, if the target would be overvalued prior to the offer, and the offer reflected this (i.e. it would offer a more attractive premium over perceived *fair* value), one would expect a *negative* permanent revaluation: after the deal breaks down and no subsequent takeover materializes, the target's value should drop to *fair* value. This is assuming that the market eventually learns that the target was overvalued prior to the offer, either by inferring this from the fact that the bidder was only willing to offer a relatively low premium, or because adverse information about the target becomes public after the announcement of the offer.

III.2 Low *friendly* offers are the most likely to lead to a negative revaluation if the deal fails

A friendly offer reveals what the target's directors and managers consider a fair price for the company, because they recommend their shareholders to accept it. The recommendation by the board of a premium over the pre-offer share price that is low relative to prevailing market conditions may therefore indicate that the board and management considered the target

overvalued before the offer, because otherwise it would have more likely considered the premium over the standalone value too low.

Obviously, the recommendation by the board of a relatively high offer does not imply that the target was previously undervalued, because it is the board's duty to maximize shareholder return. Therefore, high takeover offers tell much more about the bidders beliefs about the target's value than the board's. However, the market may still permanently revalue a target after it learns that a friendly bidder is willing to pay a relatively high premium for it.

A low *unsolicited or hostile* offer (an "non-friendly" offer) appears to be a less strong indication of potential overvaluation than a friendly one, because it reflects only an outsider's opinion about the target's value. In fact, the refusal by the board to recommend the offer implies that the board considers the offer to be too low, which suggests that the board does not consider the target undervalued, or in any case less so than the bidder. Nevertheless, it is interesting to see whether relatively low and high non-friendly offers correlate with permanent revaluations of the target in the event the offer is withdrawn and the target is not subsequently taken over.

III.3 When a revaluation occurs shows whether the market accepts the information hypothesis

If the market believes that (some) market participants possess superior knowledge or insight about target firms, and this motivates their decision to bid, and how much, one would expect the revaluation of the target to occur immediately after the offer is announced. The post-offer share price of the target would reflect the estimated probability distribution of future outcomes and their respective expected present values, i.e. the probability that the takeover is completed, multiplied by the present value of the expected purchase price (which may be higher than the initial offer), plus the likelihood of deal failure multiplied by the perceived standalone

value of the firm. If the market accepts the information hypothesis, it will adjust its estimate of the standalone value of the target based on the level of the offer price. If this were true, we would expect no difference in (abnormal) returns between targets of relatively high and low initial offers after the date of the announcement of the initial offer, nor after the date of the withdrawal announcement.

Alternatively, it is conceivable that some bidders do possess superior insight or knowledge, but the market does not realize this. In that case, we would expect the permanent revaluation to happen gradually over time after the withdrawal of the offer as the under- or overvaluation identified by the bidder becomes apparent based on new information that becomes public. This would cause targets of relatively high withdrawn offers ("high-premium targets") to outperform targets of relatively low withdrawn offers ("low-premium targets") after the announcement date. However, the relative outperformance by high-premium targets of low-premium targets after the announcement date, if any, is not necessarily related to imperfect valuation prior to the announcement of the initial offer.

It is possible that the failure of a takeover, especially a takeover at a high premium, puts additional pressure on the target's board and management to create shareholder value. This could especially be true for targets of high (withdrawn) hostile takeovers: the board and management will have to justify rejecting the offer by realizing attractive standalone returns. Therefore, if it is found that high-premium targets outperform low-premium targets after the announcement date, it is useful to evaluate whether this is equally true for both friendly and non-friendly offers. If the difference in performance is primarily between targets of non-friendly offers, it is more likely that the disciplining effect of a failed takeover is responsible for it.

IV. DATA SELECTION AND ANALYSIS

IV.1 Sample Selection

I collected data on takeover offers from Securities Data Company's (SDC) Mergers and Acquisitions Database, using the filters set out in Table 1.

Table 1: Sample selection criteria

#	Criterion	Hits after application
1)	Deal type excludes minority stake purchases; spinoffs; recapitalizations; self-tenders; repurchases	-
2)	Deal announced between 1 January 2000 and 31 December 2015	517,060
3)	Target is public	36,140
4)	Target is listed on a US stock exchange	10,812
5)	Offer is withdrawn before 31 December 2015	1,693
6)	Offer price and premium over 1-week and 1-month trading price is reported	1,053
7)	No prior offers for target were pending at time of offer announcement	-
8)	Offer price is not revised	778
9)	CRSP data available	**549**

One of the main questions of this paper is whether (a subset of) bidders possess superior knowledge or insight about target firms, that they use by bidding low for overvalued firms and high for undervalued firms. To evaluate whether bids are high or low, it is necessary to compare them to a recent unaffected market price. The reason to exclude offers that were made when one or more other offers were already pending (criterion 7 in Table 1), is that such offers cannot easily be compared to a recent unaffected share price. Similarly, for offers that were revised (criterion 8 in Table 1), the initial offers was apparently no longer reflective of the bidder's beliefs about the fair value of the target, and the revised price cannot be compared to a recent unaffected share price. Therefore, I also excluded these offers from the sample.

Before applying criteria 5 through 9, I analyzed the larger sample to obtain data on the number of offers (announced, completed, and withdrawn), and the level of premiums in each

year. This data is reported in Table 2. As can be seen, there is significant variance between years in the number of offers, the completion rate, and the level of premiums. 2000 stands out within the sample as a particularly bullish year, with a record number of deals, a high completion rate, and very high premiums.

Table 2: Number of deals announced per year, outcomes and levels of premiums

Year	Number of offers announced	Of which ultimately completed	%	Of which ultimately withdrawn	%	1-week premiums per percentile (all deals) 25th	50th	75th
2000	1,033	731	*71%*	179	*17%*	21%	39%	61%
2001	829	593	*72%*	131	*16%*	13%	35%	61%
2002	660	454	*69%*	105	*16%*	16%	32%	63%
2003	697	509	*73%*	101	*14%*	13%	29%	57%
2004	562	415	*74%*	84	*15%*	10%	22%	39%
2005	653	487	*75%*	86	*13%*	11%	24%	39%
2006	794	544	*69%*	133	*17%*	13%	24%	38%
2007	819	558	*68%*	140	*17%*	12%	25%	40%
2008	685	408	*60%*	147	*21%*	12%	34%	56%
2009	745	472	*63%*	109	*15%*	16%	35%	69%
2010	650	439	*68%*	85	*13%*	19%	36%	60%
2011	568	374	*66%*	78	*14%*	17%	35%	56%
2012	575	382	*66%*	82	*14%*	20%	35%	55%
2013	490	332	*68%*	71	*14%*	14%	28%	47%
2014	494	343	*69%*	74	*15%*	13%	27%	46%
2015	558	374	*67%*	83	*15%*	13%	28%	49%
Total	**10,812**	**7,415**	***69%***	**1,688**	***16%***	**15%**	**31%**	**53%**

Table 3 breaks the larger sample down in friendly and non-friendly deals. I categorize deals as friendly if they are marked as such in SDC, and categorize all other deals as non-friendly. Non-friendly offers are less common, but because their failure rate is much higher than for friendly offers, they are overrepresented among withdrawn offers (i.e. 38% of withdrawn offers are non-friendly, while only 13% of all announced offers are non-friendly).

Table 3: All deals split by deal attitude

	All deals	Friendly deals	*% of all deals with same outcome*	Non-friendly	*% of all deals with same outcome*
Deals announced	10,812	9,404	*87%*	1,408	*13%*
Deals completed	7,415	7,192	*97%*	223	*3%*
% of deals announced with same attitude	*69%*	*76%*		16%	
Deals withdrawn	1,688	1,045	*62%*	643	*38%*
% of deals announced with same attitude	*16%*	*11%*		*46%*	

The levels of premiums are different for friendly and non-friendly offers. Table 4 shows, for various percentiles, the average difference between premiums in the period 2000-2015, expressed as non-friendly premiums minus friendly premiums. As can be seen, non-friendly premiums below the median typically exceed friendly premiums below the median. This reverses for premiums above the median.

Table 4: Differences between non-friendly and friendly premiums for various percentiles

Percentile of premiums	Non-friendly premium in percentile minus friendly premium in percentile
10th	5.0%
20th	3.2%
25th	2.4%
30th	1.5%
40th	0.0%
50th	0.6%
60th	-0.6%
70th	-2.4%
75th	-3.7%
80th	-4.3%
90th	-16.1%

To correct for this, when evaluating whether offers were relatively high or low, I compared friendly offers to other friendly offers in the same year, and non-friendly offers to other non-friendly offers in the same year.

Criteria 1-9 in Table 1 together yielded a sample of 549 hits. Table 5 shows the composition of this sample. As can be seen, targets with offers below the median are overrepresented in the sample of withdrawn offers, with statistical significance at the 1% level. This makes sense, because one would expect an offer with a lower premium to have a lower chance of success.

Table 5: Composition of sample to be analyzed

Attitude	1-week premiums	Number of firms	% of deals with same attitude	Subsequently taken over within 36 months	Subsequent takeover rate	Average number of months until subsequent takeover
All	Above median	233	42.4%	56	24.0%	12.2
	Below median	316	57.6%	72	22.8%	9.5
	Total	549		128	23.3%	
Friendly	Above median	149	41.9%	39	26.2%	10.2
	Below median	207	58.1%	47	22.7%	8.5
	Total	356		86	24.2%	
Non-friendly	Above median	83	43.0%	17	20.5%	15.9
	Below median	110	57.0%	25	22.7%	11.3
	Total	193		42	21.8%	

For each offer in the sample, I collected various data points on each offer, including, among others, the announcement and withdrawal date, the offer price, the attitude of the bidder (e.g. friendly or hostile). For each target, I collected monthly return data from the Center for Research in Security Prices (CRSP), including where applicable delisting information and delisting returns, from January 2000 up to and including December 2018.

If a takeover offer is rumored before it is announced, the price of the target will increase before the announcement date. This could cause the offered premium relative the target's share price one week prior to the announcement of the offer to be low, which could distort the analysis. I therefore verified, for each offer in the sample, whether the premium relative to the target's share price one week before the offer announcement was in the same quartile as the premium relative to the target's share price one month before the offer announcement. This was the case for all except 8 of the 549 firms in the sample.

IV.2 Methodology

I assigned high-premium targets to one portfolio, and low-premium targets to another, and compared the (abnormal) returns of both portfolios using a three-factor calendar-time portfolio regression approach as discussed by Fama (1998) and Mitchell and Stafford (2000). For each month from January 2000 until December 2018, I calculated the return of each portfolio in excess of the risk-free rate by averaging the returns of the firms in that portfolio during that month, and then subtracting that month's risk-free rate. A firm was included in the return calculations for a month if that month was between that firm's inclusion date and exclusion date, which were calculated based on the time window that was being analyzed. For example, if the window of analysis was from the start of the third month before the month of the announcement of the initial offer up to and including the month of the withdrawal announcement, a firm would be included in its portfolio's returns for a certain month if that month fell between the third month before the announcement date and the end of the month of the withdrawal announcement of that firm.

I collected data on the risk-free rate, market returns, and market premiums for small relative to large firms (Small Minus Big, or SMB) and high relative to low book-to-market ratio firms (High Minus Low, or HML) from Kenneth French's website.[4] I then ran a regression using the following model:

$$R_{p,t} = \propto_p + \beta_1 \left(R_{m,t} - R_{f,t}\right) + \beta_2(HML_t) + \beta_3(SMB_t) + \varepsilon_t$$

Where R_p is the return on a portfolio p in excess of the risk-free rate, where the betas measure the correlated relative volatility vis-à-vis the market and the two additional risk-factors, $\propto_p$ measures the portfolio's (monthly) abnormal returns, and ε is the residual. If no firms were included in a portfolio beyond a certain month, I based my regressions on the months before the month when the last firm exited that portfolio.

[4] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

V. RESULTS

V.1 The level of premiums and permanent revaluation

Table 6 reports the average monthly abnormal returns for high- and low-premium targets from the start of the third month before the month of the initial offer announcement until the end of the 36th month after the month of the withdrawal announcement.

Table 6: average monthly abnormal returns for targets of withdrawn takeovers from before the announcement of the initial offer until three years after the announcement of its withdrawal

Firms are included in a portfolio at the start of the third month before the month in which the initial offers is announced. They are excluded from the portfolio at the end of the 36th month after the month of the announcement that the initial offer is withdrawn. Statistical significance at the 1%, 5%, and 10% level are denoted with ***, **, and *, respectively.

Event window: Offer announcement -3 months, withdrawal announcement +36 months				
Panel 1: all targets of withdrawn offers				
	All initial premiums	**High initial premium**	**Low initial premium**	**High minus low**
All firms	0.38%*	0.92%***	0.02%	0.94%***
p-score	(6.69%)	(0.22%)	(91.44%)	(0.23%)
N	549	233	316	
Friendly	0.37%	0.94%**	-0.04%	0.98%**
p-score	(16.67%)	(2.33%)	(89.72%)	(1.81%)
N	356	149	207	
Non-friendly	0.43%	0.74%*	0.14%	0.60%
p-score	(11.34%)	(5.15%)	(68.93%)	(20.11%)
N	193	83	110	

Panel 2: only targets of withdrawn offers that are taken over by another bidder within 36 months after the withdrawal announcement

	All initial premiums	High initial premium	Low initial premium	High minus low
Subsequently taken over	2.70%***	3.41%***	2.30%***	1.27%
p-score	(0.00%)	(0.00%)	(0.01%)	(12.55%)
N	128	56	72	
Friendly	3.10%***	4.14%***	2.44%***	1.70%
	(0.00%)	(0.00%)	(0.03%)	(12.66%)
N	86	39	47	
Non-friendly	2.76%***	3.46%***	2.06%**	1.39%
	(0.02%)	(0.17%)	(1.46%)	(30.13%)
N	42	17	25	

Panel 3: only targets of withdrawn offers that are not taken over by another bidder within 36 months after the withdrawal announcement

	All initial premiums	High initial premium	Low initial premium	High minus low
Not taken over	0.03%	0.52%*	-0.27%	0.79%***
	(89.95%)	(8.55%)	(24.02%)	(0.91%)
N	420	176	244	
Friendly	-0.04%	0.27%	-0.33%	0.60%
	(88.31%)	(49.68%)	(25.90%)	(15.25%)
N	269	110	159	
Non-friendly	0.07%	0.40%	-0.20%	0.60%
	(81.04%)	(31.22%)	(56.19%)	(22.93%)
N	151	66	85	

Consistent with earlier research, I find that on average, firms that receive a takeover offer experience a permanent revaluation, even if the initial offer is withdrawn. However, all the results come from the targets that received an offer price that represented a premium above the median premium for that year.

Similar to Bradley, Desai and Kim (1983), I divide the sample into targets that are subsequently taken over by another bidder (panel 2) and those that are not (panel 3). Firms that are subsequently taken over experience significant abnormal returns. There is a large difference between the abnormal returns for high- and low-premiums, but this difference is not statistically relevant due to large standard error. Based on this, it appears that firms that receive a high initial offer that is withdrawn have a higher chance of subsequently being taken over by another bidder at a high premium, but anything can happen.

Among the targets that are not subsequently taken over (panel 3), the high-premium firms outperform the low-premium firms, with statistical significance at the 1% level. High-premium firms experience a statistically significant positive revaluation (albeit at the 10% level), while low-premium targets experience a negative but statistically insignificant revaluation. These results are inconsistent with the synergy hypothesis, which predicts that firms that will not be taken over should experience no permanent revaluation. Low friendly offers do not appear to be more likely to result in a significantly more negative revaluation than low non-friendly offers, which suggests that firm insiders may not have a strong informational advantage over firm outsiders.

To analyze to what extent the permanent revaluation moves together with the level of the premiums, I divide firms that are not subsequently taken into four groups based on the quartile in which their premium falls compared to other offers in the same year. Table 7 reports the abnormal returns for each quartile.

Table 7: Average monthly abnormal returns for targets of withdrawn offers that are not subsequently taken over.

Firms are included in a portfolio at the start of the third month before the month in which the initial offers is announced. They are excluded from the portfolio at the end of the 36th month after the month of the announcement that the initial offer is withdrawn. Statistical significance at the 1%, 5%, and 10% level are denoted with ***, **, and *, respectively.

Quartile	Percentiles	N	Monthly abnormal return	(p-score)	Difference with preceding quartile	(p-score)
1	1st-25th	112	0.10%	(82.48%)		
2	26th-50th	131	-0.28%	(40.97%)	-0.44%	(44.53%)
3	51th-75th	97	0.31%	(44.32%)	0.45%	(54.01%)
4	76th-99th	80	0.44%	(35.70%)	0.14%	(79.34%)

Although none of the findings are statistically significant due to high standard error, it appears abnormal returns are not linearly related to the level of premiums. The difference in abnormal returns between the third and the second quartile in much bigger than the difference between the fourth and the third quartile, and the second quartile has much lower (even negative) abnormal returns than the first quartile. Possibly, it is less common that bidders consider the target under- or overvalued by a large margin, so that the quartiles straddling the median are more likely to contain offers where the bidder considered the target under- or overvalued.

V.2 It is unclear when the permanent revaluation of high-premium targets occurs

Table 8 shows that after the announcement of the initial offer, there is no longer a difference in the long-term abnormal returns between high- and low-premium targets. This is what one would expect, because the higher the offered premium, the more the share price of the target increases after the announcement. This higher price increase of the high-premium targets causes the differences in abnormal returns between high- and low-premium firms to disappear.

Table 8: average monthly abnormal returns for targets of withdrawn takeovers from after the announcement of the initial offer until three years after the announcement of its withdrawal

Firms are included in a portfolio at the start of the first month after the month in which the initial offers is announced. They are excluded from the portfolio at the end of the 36th month after the month of the announcement that the initial offer is withdrawn. Statistical significance at the 1%, 5%, and 10% level are denoted with ***, **, and *, respectively.

Event window: Offer announcement +1 month, withdrawal announcement +36 months				
	All initial premiums	**High initial premium**	**Low initial premium**	**High minus low**
All firms	-0.22%	-0.03%	-0.31%	0.28%
p-score	(39.43%)	(94.03%)	(17.80%)	(41.53%)
N	549	233	316	
Subsequently taken over	1.82%***	2.29%***	1.54%***	0.99%
p-score	(0.07%)	(0.18%)	(0.67%)	(22.90%)
N	128	56	72	
Not taken over	-0.51%*	-0.50%	-0.52%**	-0.02%
p-score	(5.59%)	(25.07%)	(2.78%)	(96.32%)
N	420	176	244	

After it is announced that the initial offer is withdrawn, the prices of high-premium targets drop by more than the prices of low-premium targets, because the initially offered higher premium will not be paid out. Table 9 reports average monthly abnormal returns during the window *after* the withdrawal announcement. As can be seen, high-premium targets experience statistically significant abnormal returns during this window, both independently and relative to low-premium targets. Apparently, the market reacts too strongly to the withdrawal announcement, and underestimates the better prospects of high-premium targets after the withdrawal date.

Table 9: average monthly abnormal returns for targets of withdrawn takeovers from after the withdrawal of the initial offer until three years after the announcement of its withdrawal

Firms are included in a portfolio at the start of the first month after the month in which the initial offers is withdrawn. They are excluded from the portfolio at the end of the 36th month after the month of the announcement that the initial offer is withdrawn. Statistical significance at the 1%, 5%, and 10% level are denoted with ***, **, and *, respectively.

Event window: Withdrawal announcement +1 month, withdrawal announcement +36 months

Panel 1: all targets of withdrawn offers

	All initial premiums	High initial premium	Low initial premium	High minus low
All firms	0.27%	0.62%*	-0.01%	0.61%*
p-score	(28.53%)	(5.20%)	(98.30%)	(8.67%)
N	549	233	316	
Friendly	0.35%	0.60%	0.12%	0.47%
p-score	(24.13%)	(14.88%)	(69.04%)	(31.63%)
N	356	149	207	
Non-friendly	0.10%	0.43%	-0.12%	0.55%
p-score	(38.25%)	(22.33%)	(71.88%)	(21.53%)
N	193	83	110	

Panel 2: only targets of withdrawn offers that are taken over by another bidder within 36 months after the withdrawal announcement

	All initial premiums	High initial premium	Low initial premium	High minus low
Subsequently taken over	2.06%***	2.51%***	1.56%***	1.22%
p-score	(0.01%)	(0.04%)	(0.50%)	(13.27%)
N	128	56	72	
Friendly	1.99%***	2.28%***	1.30%**	0.98%
p-score	(0.00%)	(0.02%)	(4.23%)	(25.85%)
N	86	39	47	
Non-friendly	1.84%***	2.46%**	1.61%**	1.08%
p-score	(0.96%)	(1.57%)	(3.55%)	(37.51%)
N	42	17	25	

Panel 3: only targets of withdrawn offers that are not taken over by another bidder within 36 months after the withdrawal announcement

	All initial premiums	High initial premium	Low initial premium	High minus low
Not taken over	0.03%	0.35%	-0.15%	0.50%
p-score	(91.33%)	(33.85%)	(53.99%)	(20.29%)
N	420	176	244	
Friendly	0.14%	0.29%	0.01%	0.28%
p-score	(68.63%)	(55.51%)	(98.15%)	(59.18%)
N	269	110	159	
Non-friendly	-0.16%	0.18%	-0.42%	0.59%
p-score	(54.69%)	(62.93%)	(22.09%)	(20.46%)
N	151	66	85	

Both high-premium targets that are subsequently taken over and high-premium targets that stay independent do better than low-premium targets, although the difference is not statistically significant. Because of this, it is difficult to say whether the undervaluation of high-premium targets after the withdrawal of the initial offer can be attributed to an undervaluation of the standalone value of those targets, or the likelihood and level of subsequent offers, or both.

As can be seen in Table 5, roughly 23% of targets of offers that are withdrawn are subsequently taken over by another bidder. This means that the performance of targets that are subsequently taken over have relatively less weight than targets that stay independent in the calculation of the performance of targets of withdrawn offers as a whole. This makes it less likely that the statistically significant difference in average monthly abnormal returns between high- and low-premium firms after the withdrawal announcement (i.e. 0.61%, as reported in Table 9 panel 1) is purely attributable to the difference in returns between high- and low-premium firms that are subsequently taken over (i.e. 1.22%, as reported in Table 9 panel 2). In fact, if the number 1.22% were correct, that would still only explain ~0.28% (i.e. the subsequent

takeover rate, 23%, multiplied by 1.22%) of the 0.61% difference in abnormal returns. This makes it likely that the market does not (fully) adjust its estimate of the standalone value of the target based on the level of the premium offered by the initial bidder, even though targets of high offers experience a positive revaluation relative to targets of low offers that persists even if the offer is withdrawn and the target is not taken over by another bidder.

VI. CONCLUSION

If public stock markets efficiently price targets of withdrawn takeover offers that are not subsequently taken over, those firms should, on average, not experience abnormal returns in the period starting before the initial offer and ending well after its withdrawal, because the abnormal returns caused by the offer should disappear after the offer is withdrawn and it becomes clear that no other bidder will take over the target. However, I find that targets for which a relatively high initial premium was offered experience substantial and statistically significant abnormal returns during this period, relative to firms who received a relatively low offer. This finding supports the information hypothesis, which poses that at least some market participants base their investment decisions on knowledge or insight that is superior to that of the market. Superior knowledge or insight may be used not only to determine whether or not to bid for a company, but also to determine the appropriate level of the bid. The outperformance by high-premium targets of low-premium targets that stay independent suggests that at least some market participants are indeed able to correctly identify under- and overvalued companies, and therefore are willing to pay relatively higher or lower premiums for them.

High-premium targets continue to outperform low-premium targets after the initial offer is withdrawn. It is unclear whether this is because the market is unable to adequately assess the likelihood and level of subsequent offers, the correct standalone value of the firm, or both.

An alternative explanation is that targets of failed high-premium offers do better because they have a disciplining effect on management. This effect would likely be stronger for non-friendly offers. However, there is no difference in the permanent valuation experienced by targets of high friendly versus non-friendly offers that stay independent.

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