

Competing Bids, Target Management Resistance, and the Structure of Takeover Bids

Robert H. Jennings
Indiana University

Michael A. Mazzeo
Michigan State University

We examine the structure of initial takeover bids and the frequency of observing competing bids and target management resistance. We find the use of cash is not consistently correlated with the frequency of competition or resistance and that the cost of acquiring information about a target is associated with the likelihood of competition and resistance. A high bid premium appears to deter competing offers and is also associated with a lower likelihood of resistance. Finally, target management resistance is associated with an increased likelihood of a competing offer arising and a larger increase in target shareholder wealth between the initial public announcement and outcome dates relative to the not-twisted subsample for both successful and unsuccessful acquisition proposals.

Few topics appear to generate more interest and controversy than the corporate takeover. Academic research in the area is extensive, and customers served by the popular and financial media seem to have nearly insatiable appetites for news regarding corporations'

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acquisition activity. Early academic work in the area focused on documenting the wealth effects associated with corporate control activities [see Jensen and Ruback (1983) for a review]. Discoveries of cross-sectional differences in wealth effects associated with differences in bid structure [e.g., Travlos (1987)] suggested the need to better understand the implications of strategic decisions made by bidder management. A recent stream of theoretical research has modeled the effect of bidder management's strategic decisions on the decisions made by other participants in the market for corporate control. Of particular interest in these models are the relationships between bid structure and the actions of target management and interested third parties (i.e., potential bidders for the same target). Our purpose is to conduct a systematic empirical investigation of the association between the structure of initial takeover bids and the decision of target management to resist and the decision of other bidders to launch a competing bid.¹ We test several predictions made by this growing body of theory as well as document empirical regularities for which there appear to be no extant theoretical predictions. This helps put our empirical knowledge on a more equal footing with the insights gained in recent theory and provides guidance for future work.

One possible objective of management when structuring a bid for control of a firm is discouraging competitors from entering the control contest. Giammarino and Heinkel (1986), Fishman (1988), and Hirshleifer and Png (1989) suggest that offering a large premium over the target's current market value may be an effective way to preempt competition. A similar argument is advanced by Fishman (1989) for the selection of cash as the exchange medium. Fishman further posits that high (fixed) costs of acquiring information about a target may temper the desire of potential competitors to expend the resources required to make a bid, which also is consistent with Hirshleifer and Png (1989).²

The motives and methods of target management resistance have been the subject of considerable theoretical discussion [see, e.g., Baron (1983), Giammarino and Heinkel (1986), Harris and Raviv (1988), Stulz (1988), and Berkovitch and Khanna (1990)]. The effect

¹For our purposes we define an initial offer as an offer to take control of a target firm that has not been a target for at least six months. That is, if the target had been the subject of a prior public takeover attempt, then that prior offer had been canceled or rejected at least six months before the offer included in the sample. Target resistance is defined as *any* indication by target management that they do not favor the bid. We discuss this issue in more detail later.

²Franks, Harris, and Mayer (1988) report the unconditional association between the final medium of exchange and the likelihood of the initial offer being revised and/or a competing bid arising. They do not examine the relationship using initial terms, nor do they examine the association with only competition. They also do not control for other variables subsequent theoretical work has suggested are important.

of this activity on target shareholder wealth also has been studied [see, e.g., Jarrell (1985) and Dann and DeAngelo (1988)]. However, examining the likelihood of target management resistance as a function of the initial bid's structure appears to be little studied in extant work. Walking and Long (1984) posit that resistance in cash *tender offers* is a function of the bid premium, the effect of the acquisition on the wealth of target management, whether the businesses of the target and bidding firms are related, whether the bidder is a domestic or a foreign firm, and the fraction of the target owned by the bidder before making the offer. Since then, Hirshleifer and Titman (1990) and Fishman (1989) have produced theoretical work with empirical predictions relevant to a comprehensive study of this subject. Hirshleifer and Titman (1990) develop a model of tender offers in which shareholders are more likely to accept high bids than low ones. Fishman (1989) argues that target management is less likely to reject a cash offer than an offer involving securities. In addition, Fishman notes that any fixed cost to gathering information about the target also may influence management's decision to resist.

We find that high premia offers are associated with lower likelihoods of competing offers. Furthermore, target management resistance also is significantly less likely as the bid premium increases. Thus, we offer support for the predictions related to bid premium and target resistance in Giammarino and Heinkel (1986) and Fishman (1988).

As a proxy for the cost of acquiring information about the target, we observe the number of analysts following the target firm, whether the target's securities are exchange listed or not, the coefficient of variation in analysts' earnings forecasts for the target firm, and target size. Targets with a large following, exchange-listed targets, targets with low coefficients of variation, and large targets would seem to have more public information available than the other targets. Our evidence is consistent with the hypothesis that information cost is important in the decision to compete or resist. The likelihoods of competition and resistance are significantly greater if (according to our proxies) it is easier to acquire information about the target than if it is more difficult. This is consistent with Fishman (1988) and (1989) and Hirshleifer and Png (1989). We also document that bidders for low-cost-of-information targets use less cash and acquire less of the target's stock prior to making the offer.

We find no evidence consistent with the idea that offering cash preempts competing offers and little evidence that it decreases the likelihood a target resists. In fact, we find that the proportion of cash in the proposed medium of exchange is somewhat positively associated with the likelihood of competition. This is contrary to the

predictions of Fishman (1989). Larger amounts of cash are associated with a lower frequency of target resistance relative to noncash offers, which is supportive of Fishman (1989). However, the medium-of-exchange relationship is not robust with respect to our definition of resistance.

In addition, we document that competition and resistance are positively correlated. Furthermore, we conclude that target management resistance does not seem to harm target shareholders. In fact, we find a positive relationship between target resistance and target shareholder wealth increases over the time between the initial public announcement of the acquisition proposal and its outcome for both successful and unsuccessful proposals.

Our data set contains information on over 600 initial proposals for which we are able to gather information regarding the bid between mid-1979 and the end of 1987. We use the Dow Jones News Retrieval Service to construct a history of the acquisition proposal. The data gathering process is discussed in detail in the following section. Sections 2 through 4 contain the analyses. We address the decision to compete in Section 2 and the resistance decision in Section 3. We use qualitative response regression methodology to assess the statistical association of the strategic decision variables with the compete and resist decisions.

Section 4 considers the competition and resistance decisions simultaneously. All of the results from Sections 2 and 3 are maintained. Finally, Section 5 concludes.

1. Data

We rely on the Dow Jones News Retrieval Service to develop a comprehensive sample of both consummated and nonconsummated acquisition proposals. The Dow Jones News Retrieval Service (DJNRS) is an electronic database containing stories published in the *Wall Street Journal* and *Barron's* and stories appearing on the Broad Tape since June 1979. Once the parties to a proposed acquisition are identified, the database system simplifies locating and retrieving related stories and provides the date and time of day the stories became public information.

Consummated acquisitions are more easily identified. Initially, the Standard and Poor's Compustat Research Status Report of May 20, 1988 is examined to identify firms having an acquisition or merger deletion code with the associated date prior to January 1, 1988. Given this universe of targets, we turn to the DJNRS to identify the bidding firm and gather the data necessary for the study.

Constructing the sample of acquisitions that are proposed but ulti-

mately not consummated is more difficult. Prior studies, such as Dodd (1980) and Asquith (1983)) scan the *Wall Street Journal* for articles reporting the failure of a proposed acquisition. We employ the text search procedure of the DJNRS. This procedure allows an investigator to specify key words or phrases relating to the topic of interest. After retrieving an article from the database containing the indicated key words, the investigator can determine if the article indeed reports an event of interest. We specify key word phrases that we feel might indicate the article reports the failure of a proposed acquisition.' Upon reading the retrieved stories, we identify those actually reporting failed acquisition attempts and the parties involved. While we know the unsuccessful acquisition sample is unlikely to be as comprehensive as the successful sample, we are encouraged by the fact that unsuccessful proposals constitute a similar proportion of our overall sample as compared to Asquith (1983). As with the consummated sample, the DJNRS is employed to gather the data needed to conduct our study.

To be included in the sample, the proposal must be an initial offer to obtain a majority interest in a clearly identified target firm by an identifiable business entity that does not currently hold a majority interest in the target. The apparent first, public announcement of the acquisition must reside in the DJNRS prior to January 1, 1988.⁴ Furthermore, this initial announcement must identify the terms of the proposal clearly enough to determine the medium of exchange and the premium of the stated bid price relative to the pre-offer price of the target's shares.⁵ Imposing these data requirements produced a sample of 647 proposed acquisitions."

Table 1 provides some descriptive statistics of the sample proposals having a complete set of the data necessary to run the statistical tests. No substantive time clustering of sample events is evident. As with

³Our key phrases consisted of all combinations of the nouns *merger*, *acquisition*, *bid*, *offer*, *takeover*, *agreement*, and *negotiation* and the verb roots *reject*, *cancel*, *terminate*, *conclude*, *retract*, *off end*, *drop*, *collapse*, *withdraw*, and *discontinue*.

⁴For those situations in which a formal offer did occur, we used the earliest date at which a public statement indicated that such an offer was being considered. For example, if firm A formally offered to buy firm B on 3/26/83 but had announced on 3/24/83 that it intended to do so, then we used 3/26/83 as our announcement date. This occurs in less than 2 percent of our sample events. For our reported results, we take firms at their word when they indicate in a 13-D (5 percent ownership) filing that the shares are for "investment purposes." Sensitivity analysis demonstrates that our results are not driven by those offers that may be more easily anticipated.

⁵Share price data were obtained from Standard & Poor's *Dairy Stock Price Record*.

⁶As in other studies of this type, we are somewhat dependent on news editors for the composition of our sample. While Compustat notes all delisted firms and the DJNRS itself is unedited in the latter part of our sample period, editors of the *Wall Street Journal* and *Barron's* still control what is printed in their publications. This may produce a bias against smaller, less-well-followed firms. Likewise, we do not observe the takeover offers made privately to target management that are rejected and not pursued.

Table 1
Descriptive (percentage) statistics summarizing a sample of 647 proposed acquisitions between June 1, 1979 and December 31, 1987 collected via the Dow Jones News Retrieval Service

Calendar year of proposal		Outcomes		Medium of exchange	
1979	7%	Consummated	68%	Cash	61%
1980	11%	Canceled	32%	Debt	1%
1981	11%	by bidder	7%	Stock	20%
1982	11%	by target	9%	Cash and debt	4%
1983	8%	mutually	15%	Debt and stock	0.5%
1984	12%	unknown	1%	Cash and stock	14%
1985	13%				
1986	20%				
1987	7%				
Type of acquisition					
		Merger	59%		
		Tender offer	69%		
Frequency of offers made by a given bidder during the sample period					
Frequency of competing proposal		Frequency of offers		Number of firms	
No competition	86%	1		399 (79%)	
Competition	14%	2		79 (16%)	
		3		19 (4%)	
		4		2 (.4%)	
		5		5 (1%)	
				504	
Frequency distribution of bid premium (BP)			Location of trading of target's common stock		
			Exchange	73%	
			Over the counter	27%	
BP ≤ .10	31%				
.10 < BP ≤ .20	15%				
.20 < BP ≤ .30	14%				
.30 < BP ≤ .40	14%				
.40 < BP ≤ .50	8%				
.50 < BP ≤ .60	5%				
.60 < BP ≤ .70	6%				
.70 < BP ≤ .80	2%				
.80 < BP ≤ 1.0	3%				
BP > 1.0	2%				
(Median BP = .23)			Frequency of target management resistance		
			Resisted	31%	
			Not resisted	69%	

similar extant studies, we identify more consummated acquisition proposals than canceled and more mergers than tender offers. Cash is the most frequently used medium of exchange followed by stock and combinations of cash and stock. Of the 647 proposals, 89 or 14 percent are characterized by the existence of a competing bid. There were 504 firms making the 647 acquisition proposals that compose our sample. Most (79 percent) of the acquisitions identified for this study are made by firms bidding on only one target during the sample

Table 2
Frequencies of competition and resistance for a sample of 647 proposed acquisitions conditioned on offer type, exchange medium, exchange-listing status, and bid premium

Sample	Sample size	No competition	Competition	No resistance	Resistance
All firms	647				
Cash	392	332 (85%)	60 (15%)	276 (70%)	116 (30%)
Securities	142	132 (93%)	10 (7%)	100 (70%)	42 (30%)
Mix	113	94 (83%)	19 (17%)	70 (62%)	43 (38%)
Merger	384				
Cash	187	165 (88%)	22 (12%)	135 (72%)	52 (28%)
Securities	132	125 (95%)	7 (5%)	94 (71%)	38 (29%)
Mix	65	60 (92%)	5 (8%)	40 (62%)	25 (38%)
Tender offer	263				
Cash	205	167 (81%)	38 (19%)	141 (69%)	64 (31%)
Securities	10	7 (70%)	3 (30%)	6 (60%)	4 (40%)
Mix	48	34 (71%)	14 (29%)	30 (63%)	18 (37%)
Exchange status					
Listed	472	394 (83%)	78 (17%)	307 (65%)	165 (35%)
Not listed	175	164 (94%)	11 (6%)	139 (79%)	36 (21%)
Bid premium					
>23%	322	287 (89%)	35 (11%)	236 (73%)	86 (27%)
≤23%	325	271 (83%)	54 (17%)	210 (65%)	115 (35%)
Prior ownership					
Yes	101	85 (84%)	16 (16%)	47 (47%)	54 (53%)
No	546	473 (87%)	73 (13%)	399 (73%)	147 (27%)

period. About 73 percent of the 647 offers were for exchange-listed target firms. The median stated bid premium was 23 percent above the target's prebid market share price.⁷ Target management indicated displeasure with (i.e., resisted) the offer (either verbally or by some action) in about 31 percent of the observations. Although not reported in Table 1, we also have an interest in the fraction of the target firm acquired by the bidder prior to making the acquisition proposal. The mean prior ownership position was about 3 percent. This distribution is heavily skewed, however, with 546 of the 647 observations disclosing no reported ownership position in the target prior to the offer. Recall that we excluded any proposal made by a bidder with a greater than 50 percent prior ownership position.

Table 2 reports the frequency of competition and resistance for subsamples differentiated by the type of offer (merger or tender), the exchange medium, the listing status of the target's stock, and whether the bid premium was large or small relative to the median bid premium. Overall, about 15 percent of the 392 all-cash offers experience a competing offer, while in only 7 percent of offers that include only

²The bid premium is computed using the target's closing share price 10 trading days prior to the offer relative to the stated value of the offer. Specifically, bid premium is the percent by which the stated offer price exceeds the market price. In only a very few cases was there anything in the published stories noting that Wall Street strongly disagreed with the bidder's valuation of the offer. Using the target's share price 5 or 20 trading days prior to the offer makes no difference in our conclusions.

all securities in the exchange medium does a competing offer arise. A statistical test of the difference in the proportion of all-cash initial offers that attract a competing bid (60 of 392) and the analogous proportion for all-securities offers (10 of 142), concludes that the two proportions are different at beyond the .05 level. Thus, cash seems to be positively associated with competition frequency unconditionally.

Examining target resistance, we find that 30 percent of the all-cash offers, 38 percent of the cash/security mixes, and 30 percent of the all-securities offers are resisted by target management. The difference in resistance likelihood between all-cash and all-securities offers is not significant at traditional levels. However, the difference between the proportion resisting in all-cash and mixed offers (30 versus 38 percent) is significant at the .05 level. Although we identify relatively more offers as resisted (31 percent of our sample versus 13 percent) than Huang and Walkling (1987), our findings are consistent in that (unconditionally) the most frequently resisted offers involve mixes of cash and securities.

Table 2 also illustrates the relationship between medium of exchange and competition/resistance after controlling for offer type. We find that both relationships discussed above; that is, the competition/medium and resistance/medium relationships are maintained when examining only the merger subsample.

Exchange-listed targets are more than twice as likely to be the object of a competing bid and more likely to resist than OTC targets. Both differences in proportions are significant at the .05 level. The level of the bid premium also is associated with the decision to compete or resist. Both competition and resistance are more likely to occur with a low bid premium than with a premium above the median. Target resistance is twice as likely if the bidder has an ownership position in the target.

2. Competing Bids

Theoretical work on takeovers suggests that the decision by a party to make a competing bid for a target is influenced by the premium and the medium of exchange offered in the initial bid and the cost of learning about the target. Before discussing our empirical results, we briefly review the most relevant theoretical work.

2.1 Motivation for the hypotheses

We anticipate that the initial offer's bid premium is inversely related to the likelihood of observing a competing offer. If everything else is held constant, then increasing the initial offer price increases the

cost a competing bidder faces when deciding whether to initiate a control contest. Furthermore, it is possible that a high bid premium indicates that the initial bidder has a high valuation of the target and may aggressively fight a competing bid. Giammarino and Heinkel (1986), Fishman (1988), and Hirshleifer and Png (1989) develop formal models with these implications.

Fishman (1989) develops a model linking the exchange-medium decision and competition. In his model, initial bidders with a high valuation for the target firm make a preemptive cash offer. For low-valuing bidders, an offer of securities is made. Potential competitors are successfully deterred by the cash offer but may choose to compete against securities offers.⁸

Finally, it seems possible that the decision of a potential competitor to become an actual competitor would depend on the costs of becoming informed about the target. If there is a fixed cost associated with learning the target's value, then a potential bidder must assess the potential gains in light of this up-front cost. The higher this cost, the less likely we are to observe a competing offer. This argument is made formal in Fishman (1988, 1989) and Hirshleifer and Png (1989).

In summary, theory suggests that competition frequency should be related to the existence of cash in the exchange medium, the size of the bid premium, and the (fixed) cost of information acquisition. Initially, we examine these relationships in a single-equation, logit model with competition as the dependent variable and medium of exchange, (a proxy for) cost of information, and bid premium as the explanatory variables. It is possible that the medium and premium decisions arise endogenously after the bidder assesses the competitive environment. Thus, we also examine the decision to compete in a system of simultaneous equations including the medium and premium choices as well as the competition decision.

2.2 Empirical tests

We estimate the following qualitative response regression⁹ using a logit transformation¹⁰ of the original data for the 647 initial takeover

⁸The medium-of-exchange consideration is also included in the analysis of competition by Berkovitch and Narayanan (1990). They demonstrate that the amount of cash needed to separate the high-valuing bidder from the low-valuing bidder increases (both as a dollar amount and as a fraction of the offer) as potential competition increases. However, because all of the parties understand the game, no competing offers are observed in equilibrium. In their model, actual competition arises only as a stochastic, exogenous event and they analyze its effect on final, not initial, offers. Thus, they make no direct predictions regarding a relationship between observed competition and initial offers. In another article, Hansen (1987) also models the medium-of-exchange choice where his focus is on the bidder's choice between cash and stock in an attempt to alleviate the trade-attenuating effects of adverse selection under asymmetric information. He makes no direct predictions regarding a relationship between observed competition, resistance, and the structure of the initial offer.

⁹See Amemiya (1981) for a more complete description of qualitative response models.

¹⁰A probit transformation provides identical conclusions.

proposals:

$$\text{COMP} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) + \epsilon_1. \quad (1)$$

In Equation (1),

COMP = binary variable taking a value of 1 if a competing bid arises”
PCASH = fraction of the stated value of the offer that is denominated in cash¹²

NUMA = number of analysts providing Zacks Investment Research, Inc. (ZACKS) with a current-year earnings forecast for the target firm in the month prior to the takeover proposal¹³

BPREM = percent premium by which the stated offer price exceeds the target firm's pre-offer market price¹⁴

NUMA is a proxy for the ease with which potential bidders may obtain information about the target. With many analysts following the target, potential competing bidders might find it less costly to learn about the firm from existing research than if they had to produce their own research. Or, stated a different way, the potential bidder may be able to negotiate a better price for M&A advice if many investment firms follow the target. Although we initially define NUMA as the number of analysts following the target, we examine other proxies for information cost.

Given the extant literature, we anticipate that, in Equation (1), the estimate of the coefficient associated with the proportion of cash in the offer, α_1 , and the estimate of the coefficient on the bid premium,

¹¹In some ways an initial offer that is revised in the target's favor might be considered similar to the emergence of a competing bid; in other words, the initial offer's structure was such that a more favorable offer was forthcoming. To test this idea, we redefined the COMP variable to be equal to unity if a competing bid emerged or if the initial bid was revised in the target's favor. The results are nearly identical to those reported in Table 3; the estimated coefficient on the medium of exchange is positive, the estimated coefficient on analyst following is significantly positive, and that on bid premium is significantly negative.

¹²That is, PCASH equals the maximum amount of cash that the bidder is willing to expend in acquiring the firm divided by the total stated value of the offer. Conclusions are identical if we use a binary variable that is unity if the offer is all cash and zero otherwise, or use two binary variables to distinguish between all-cash offers, mixed offers, and all-security offers.

¹³NUMA ranges from 1 to 27, with 265 of the 647 observations being missing. For the results reported, we treat a firm that is not covered on WCKS as having NUMA = 0. The results do not change substantially if we delete those firms with missing data from our sample. Furthermore, our results are insensitive to redefining NUMA as a binary variable indicating an above/below average (6.7) number of analysts per target in our sample.

¹⁴This approach to measuring the bid premium is consistent with Walkling (1985) and Walkling and Long (1984). However, several sensitivity analyses were conducted. The bid premium was adjusted for the fraction of the firm sought by the bidder if it was seeking less than 100 percent. The percent bid premium was measured relative to the median bid premium for the type (cash or securities) of offer. We also measured the bid premium as the cumulative, market-model prediction error for the period from 10 days before the offer through the day of the offer. Finally, all events in which there were any public rumors of an offer (including 13-D filings) before the formal offer were eliminated from the sample. None of these alterations affect the qualitative results reported in the text.

Table 3

Results of a cross-sectional analysis of the likelihood of competing bid using the denomination of the offer medium, the number of analysts following the target (exchange-listing status of the target's stock), and the bid premium as explanatory variables from a sample of 647 Initial bids between June 1979 and December 1987¹

Sample group	Sample size	α_0	α_1 ²	α_2	α_3
A: Estimation of Equation (1)					
All bids	647	3.9847	.0019 (.1398)	.0276*** (.0004)	-.6572** (.0086)
Mergers	384	3.7231	.0035* (.0742)	.0280** (.0196)	-.7149* (.0814)
B: Estimation of Equation (2)					
All bids	647	3.7844	.0012 (.3692)	.4615*** (.0068)	-.5943** (.0180)
Mergers	384	3.5238	.0024 (.2028)	.4728* (.0604)	-.6583 (.1032)
C: "Large" targets only					
All bids	288	4.1474	.0010 (.2856)	.0215** (.0124)	-.6466** (.0292)

¹The equation estimated is

$$\text{COMP} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA or EXCHG}) + \alpha_3(\text{BPREM}) + \epsilon$$

where COMP = binary variable taking a value of 1 if a competing offer arises

CASH = fraction of the offer in cash

EXCHG = binary variable taking a value of 1 if the firm's target stock is exchange listed, used in panel B

NUMA = number of analysts supplying earnings forecasts, used in panels A and C

BPREM = percentage bid premium

²The P-levels of the estimated coefficients from a two-tailed test of significance are in parentheses.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

α_3 , will both be negative and the estimate of the coefficient on the cost-of-information proxy, α_2 , will be positive. The results of estimating Equation (1) are presented in panel A of Table 3. It seems clear that some of the extant models focus on merger transactions, whereas others appear to have tender offers in mind. Therefore, we present the results using the subsample of mergers as well as the results from using the entire sample.¹⁵ Our findings for the overall sample indicate that offers for widely followed targets and those observations with lower bid premiums are significantly more likely to be associated with competing offers. The sign and statistical insignificance of the coefficient estimate for PCASH suggest no clear relation between medium of exchange δ and the decision to compete. Thus, we cannot offer support for Fishman's hypothesis that cash preempts competing bids.

¹⁵The tender offer subsample has too few noncash offers to obtain reliable maximum likelihood estimates of the coefficients.

To the extent that widely followed firms are less expensive to become informed about, the estimated coefficient on the variable NUMA is consistent with the idea that the cost of acquiring information about the target may affect the decision-making processes of potential competing bidders as suggested in Fishman's work. Specifically, we find that an offer for a "low-cost-of-information" target (NUMA "large") is associated with competing offers more frequently than a "high-cost-of-information" target (NUMA "small"). This is consistent with the notion that the information gathering cost associated with firms that analysts do not follow widely may provide a barrier to potential bidders.

The bid premium and cost of information results are less strong for the merger subsample than for the sample as a whole, whereas the (positive) association between cash and competition is stronger in the merger subsample. Although all three explanatory variables maintain the same sign when focusing on the merger subsample, only the cost of information variable is significant at the traditional .05 level. In each case, the (absolute) magnitudes of the coefficient estimates are larger in the merger subsample than for the overall sample, but the standard errors also are greater.

2.3 Robustness issues

The number of analysts following the target firm is only one possible approach to proxy the cost of acquiring information about the firm. Another is the exchange-listing status of the target firm's common shares. The argument is that exchange-listed firms are less costly for potential second bidders to become informed about because there is more public information available than for non-exchange-listed firms. Theoretical work by Barry and Brown (1985) is consistent with this claim, and, assuming firm size and exchange listing are positively correlated, empirical findings from Atiase (1985) also offer support. Replacing the NUMA variable in Equation (1) with a binary variable denoting the firm's listing status provides the test equation

$$\text{COMP} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{EXCHG}) + \alpha_3(\text{BPREM}) + \epsilon_2, \quad (2)$$

where EXCHG is a binary variable taking a value of 1 if the target firm's common stock is exchange listed. Our results, reported in panel B of Table 3, are consistent with those obtained in the prior specifications of the test equation: a low bid premium and a low cost of information significantly increase the likelihood of a competing offer.¹⁶

¹⁶We experimented with two other cost-of-information proxies. The first was the coefficient of variation of the analysts' current year earnings forecasts for the target—the cross-analyst standard deviation divided by the mean forecast. If information is easily acquired for a given firm, then this number would be expected to be lower than if information is difficult to obtain. The other proxy was the

Fishman's (1989) medium-of-exchange prediction is predicated on the assumption that the "true" value of the target firm's assets in the combined firm will have a significant impact on the value of the securities target owners receive as compensation for their shares and motivate an efficient accept/reject decision on their part. If the target is extremely small relative to the bidder, then the target's assets are nearly immaterial to the combined value. In these cases, the medium-of-exchange decision may be motivated primarily by other reasons, such as taxes. To allow for this, we reestimated Equation (1), using only those targets that were large. From the S&P Compustat tape, we obtained size-related information on the 488 targets for which the required Compustat data were available. Size was alternatively measured as (1) book value of assets, (2) market value of equity, and (3) market value equity plus book value of debt for the calendar year-end prior to the acquisition proposal. Equation (1) was reestimated by using only the 288 observations in which the target's market value of equity exceeded \$50,000,000. This implies that the target is not "very small." These results are present in panel C of Table 3. Conclusions are identical to the overall results." Thus, even for a group of relatively large target firms, we do not support the medium-of-exchange/competition frequency prediction of Fishman (1989), but we do find a cost-of-information and bid-premium effect.

It is possible that combining the premium-related predictions and the exchange-medium predictions of Fishman (1988, 1989) obscures the medium-of-exchange effect. Therefore, we also estimated the following equations separately:

$$\text{COMP} = \alpha_0 + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) + \epsilon_3, \quad (3)$$

$$\text{COMP} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \epsilon_4. \quad (4)$$

Consistent with the combined estimation, the coefficient estimate on PCASH was positive, the coefficient estimate on BPREM was significantly negative, and the coefficient estimate associated with NUMA was significantly positive in Equations (3) and (4). Also consistent with the combined results, the NUMA and BPREM relationship is less strong with the merger subsample.

log of target firm size (alternatively measured by market value of equity, market value equity plus book value debt and book value assets). For this, we expect the cost of information to be inversely related to size. Both proxies yield results that are qualitatively the same as those illustrated in Table 3 (for competition) and Table 5 (for resistance). The mean absolute correlation coefficient between the four proxies for cost of information is just over .3, implying that these variables measure information costs differently from each other.

¹⁷The conclusions are not sensitive to the dollar amount used to define a large firm. Likewise, we can measure a target's size relative to the bidder's size without altering the qualitative results (although the sample size is smaller because we also require the bidder to have Compustat data available). Similar conclusions are obtained if we define exchange-listed targets as relatively large and reestimate Equation (1) with just that subsample.

Table 4
Results of a simultaneous-equations, cross-sectional analysis of the likelihood of a competing bid, the denomination of the offer medium, and the bid premium using the number of security analysts following the target as the exogenous variable from a sample of 647 initial bids between June 1979 and December 1987¹

	α_1	α_2	α_3	β_1	β_2
Coefficients	.069**	.274**	-.080***	-.078**	-.005
(<i>P</i> -levels) ²	(.028)	(.022)	(.001)	(.026)	(.831)

¹The estimated equations are

$$\begin{aligned} \text{COMP} &= \alpha_1 (\text{PCASH}) + \alpha_2 (\text{NUMA}) + \alpha_3 (\text{BPREM}) \\ \text{PCASH} &= \beta_1 (\text{NUMA}) \\ \text{BPREM} &= \beta_2 (\text{NUMA}) \end{aligned}$$

where COMP = binary variable taking a value of 1 if a competing offer arises
PCASH = fraction of the offer in cash
NUMA = number of analysts supplying earnings forecasts
BPREM = percentage bid premium

²The *P*-levels of the estimated coefficients from a two-tailed test of significance are in parentheses.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

Finally, it is possible that the “true” relationships between the variables in Equation (1) are established simultaneously and should be estimated as a system of simultaneous equations. Specifically, we hypothesize a relationship between the information environment (NUMA) and the medium-of-exchange (PCASH) and bid-premium (BPREM) decisions in addition to the relationships between the competition decision and the three independent variables as specified in Equation (1). That is, we specify the following system:

$$\text{COMP} = \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) + \epsilon_{5a}, \tag{5a}$$

$$\text{PCASH} = \beta_1(\text{NUMA}) + \epsilon_{5b}, \tag{5b}$$

$$\text{BPREM} = \beta_2(\text{NUMA}) + \epsilon_{5c}. \tag{5c}$$

Using LISCOMP [see Muthen (1988)], we estimate the relationships between NUMA and the PCASH and BPREM variables β_1 and β_2 simultaneously with relationships α_1 , α_2 , and α_3 . The results are reported in Table 4.

Once again, we find the NUMA coefficient significantly positive and the BPREM coefficient significantly negative. Using the simultaneous-equation estimating technique, we find a positive, statistically significant relationship between PCASH and the likelihood of a competing offer. This clearly is inconsistent with the predictions in Fishman (1989). Thus, our conclusions appear to be unaffected by an examination of the Equation (1) relationships in a simultaneous-

equation system.¹⁸ Endogenizing the PCASH and BPREM variables reveals a statistically significant association between our proxy for information cost (NUMA) and PCASH. Specifically, in environments with more easily available information (NUMA large), the bidder tends to offer less cash.

2.4 Alternative explanations

The inverse relationship between the size of the bid premium associated with an initial offer and the frequency of a competing offer might be due to something other than strategic decisions by bidder management. For example, Roll (1986) suggests that the highest premia offers may simply represent those bidders making the largest valuation errors. If that is the case, then competition also is less likely to emerge for the large premia offers.

In the “strategic behavior” arguments of Fishman, the high premium is associated with a high valuation of the target. Unless the high valuation is given to the target, this suggests a positive correlation between bid premium and announcement-day bidder returns. Hubris on the part of bidder management would seem to induce a negative association between bid premia and the market’s opinion of the acquisition proposal. Although an extensive analysis of takeover-related returns is beyond the scope of this paper, we did examine the relationship between the bid premium and the bidder’s announcement-day market model prediction error. For acquisitions offering a bid premium less than the median of 23 percent, the mean bidder prediction error was -0.04 percent. If the bid premium was greater than 23 percent, then the mean prediction error was -1.06 percent. The difference is significant at the .05 level. Overall, the simple correlation coefficient between bid premium and bidder prediction error is -.128. While not strong, this evidence suggests that at least part of the explanation for the negative bid-premium/competition frequency relationship documented in this article may be due to something other than the strategic decisions of bidder management.

2.5 Summary

We find competition frequency negatively related to (our proxies for) the cost of becoming informed about the target’s value [consistent with Fishman (1988) and Hirshleifer and Png (1989)] and negatively associated with the bid premium [consistent with Giammarino and Heinkel (1986), Fishman (1988), and Hirshleifer and Png (1989)].

¹⁸We can also specify a relationship between PCASH and BPREM to be estimated simultaneously without affecting our conclusions.

The latter result may be related to hubris or agency explanations rather than strategic decision-making explanations advanced by, for example, Fishman (1988). We are unable to document evidence consistent with the prediction of Fishman (1989) that competition likelihood is decreasing as the offer is weighted more heavily toward cash. This suggests room for additional theoretical work related to the medium-of-exchange decision.

3. Target Management Resistance

Walkling and Long (1984) examine the relationship between target management resistance of cash tender offers and several potential explanatory variables. They find that the bid premium, target management wealth changes, and the bidder's prior ownership position in the target are statistically significantly associated with the decision to resist. Hirshleifer and Titman (1990) provide theoretical justification that the size of the bid premium is inversely related to the likelihood of resistance; consistent with empirical evidence in Walkling and Long. Finally, Fishman's (1989) analysis suggests that the medium of exchange and the cost of acquiring information about the target also are important in the decision to resist. These latter two hypothesized relationships remain untested.

In order to assess the relationship between the decision by target management to resist an offer and the structure of that offer, we estimate the following logit regression equation:

$$\text{REST} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) + \alpha_4(\text{XPRIOR}) + \alpha_5(\text{XPRIOR} \cdot \text{PRIOR}) + \epsilon_6, \quad (6)$$

where

XPRIOR = binary variable taking a value of 1 if bidder acquired prior ownership in the target

PRIOR = fraction of the target firm owned by bidder before making the offer

REST = binary variable taking a value of 1 if the target resists

The other variables were defined previously.¹⁹ We model both an intercept (α_4) and slope (α_5) effect for prior ownership because of the heavy concentration of the distribution of PRIOR at zero (Table

¹⁹For those firms in the sample with *Value Line* data available, we also computed the dollar bid premium accruing to insiders as a measure of the takeover's wealth effects for those likely to have significant input for the resistance decision. Adding this explanatory variable to Equation (6) makes our analysis more comparable to Walkling and Long (1984) but reduces sample size from 647 to 281. None of the qualitative results displayed in Table 5 are altered. In particular, NUMA is still significantly positive beyond the .01 level. As in Walkling and Long, we find that management is less likely to resist as the increment to insiders' wealth increases. However, the wealth effect is not significant at traditional levels.

2). For our initial tests, we define target resistance as any act by target management potentially indicating dissatisfaction with the offer. This would include verbal statements indicating the offer is unwelcome or inadequate, definitive actions such as legal maneuvering or restructuring, and initiating or actively participating in the cancellation of a proposed acquisition. Thus the variable REST is set equal to 1 if any of the following statements is true:

1. Target management makes statements that they do not support the proposed acquisition. (This occurs in 58 of the 647 observations.)
2. Target management takes any of the following actions:²⁰
 - a. Initiates legal actions, 55 cases
 - b. Seeks a white knight or white squire, 18 cases
 - c. Revises or amends the charter of incorporation, 17 cases
 - d. Undertakes a financial restructuring (issues or redeems financial claims), 25 cases
 - e. Undertakes a real restructuring (buys or sells real assets), 10 cases
 - f. Changes management compensation agreements, 6 cases
3. Target management initiates or actively participates in the cancellation of the acquisition proposal. This includes
 - a. Proposals canceled by the target's insistence, 60 cases
 - b. Mutually canceled proposals, 96 cases

Of the 647 sample proposals, 201 were resisted by target management given this definition.²¹ We examine the robustness of our conclusions to the definition of resistance later in the article.

Based on the results in Walkling and Long (1984) and the hypotheses in Hirshleifer and Titman (1990) and Fishman (1988, 1989), we anticipate that the estimates of the coefficients associated with the percent cash, bid premium, and the proportional prior ownership variables α_1 , α_3 , and α_5 , will be negative and that of the cost-of-information proxy α_2 will be positive. Table 5 reports the results of the estimation of Equation (6) in panel A. As in Table 3, we also examine the relationship using an alternative proxy for the cost of acquiring information about the target by estimating

$$\text{REST} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{EXCHG}) + \alpha_3(\text{BPREM}) + \alpha_4(\text{XPRIOR}) + \alpha_5(\text{XPRIOR} \cdot \text{PRIOR}) + \epsilon_7. \quad (7)$$

The results are in panel B.

²⁰We include in these categories actions that were initiated by preexisting "antitakeover" amendments to the charter. For example, triggering a poison pill would be classified as a financial restructuring.

²¹The sum of the actions is greater than 201 because most target managements that resist take more than one action.

Table 5

Results of a cross-sectional analysis of the likelihood of target management resistance using the denomination of the offer medium, the number of analysts following the target (exchange-listing status of the target's stock), the bid premium, and the prior ownership position of the bidder as explanatory variables from a sample of 647 initial acquisition proposals between June 1979 and December 1978

Sample group	Sample size	α_0	α_1^2	α_2	α_3	α_4	α_5
A: Estimation of Equation (6)							
All bids	647	4.5713	-.0016* (.0890)	.0320*** (<.0001)	-.4250** (.0136)	.9550*** (<.0001)	-.0189** (.0278)
Mergers	384	4.5642	-.0015 (.2222)	.0291*** (.0032)	-.3783* (.0648)	1.2783*** (<.0001)	-.0389*** (.0074)
B: Estimation of Equation (7)							
All bids	647	4.5405	-.0022** (.0226)	.2684** (.0150)	-.3908** (.0240)	.9817** (<.0001)	-.0228*** (.0074)
Mergers	384	4.5115	-.0024* (.0564)	.2761** (.0436)	-.3405* (.0899)	1.3079*** (<.0001)	-.0429*** (.0032)
C: "Large" targets only							
All bids	288	4.5307	-.0014 (.1713)	.0349*** (.0001)	-.6574*** (.0093)	1.4628*** (<.0001)	-.0433*** (.0056)

¹The equation estimated is

$$\text{REST} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA or EXCHG}) + \alpha_3(\text{BPREM}) \\ + \alpha_4(\text{XPRIOR}) + \alpha_5(\text{XPRIOR} \cdot \text{PRIOR}) + \epsilon,$$

where REST = binary variable taking a value of 1 if target management resisted

PCASH = fraction of the offer in cash

EXCHG = binary variable taking a value of 1 if the firm's target stock is exchange listed, used in panel B

NUMA = number of analysts supplying earnings forecasts, used in panels A and C

BPREM = percentage bid premium

XPRIOR = binary variable taking a value of 1 if the bidder had a prior ownership position in the target

PRIOR = fraction of target owned by the bidder before the offer

²The *P*-levels of the estimated coefficients from a two-tailed test of significance are in parentheses.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

Offers with more cash are somewhat less likely to face target resistance. The association is weak in the merger subsample and/or when NUMA is used as the cost-of-information proxy. As predicted, targets offered a low bid premium, and targets classified as being easier to become informed about are more likely to resist than those receiving higher premium offers and/or those with less public information. This is true regardless of the subsample examined or the regression specification used. The existence of a prior ownership position is positively associated with the frequency of observing target management resistance. However, as the size of the prior ownership position increases, the likelihood of resistance declines. The latter result is consistent with the findings of Walkling and Long (1984) and Cotter

and Zenner (1992). Together the estimates of the two coefficients measuring prior ownership effects are consistent with the idea that small (“foothold”) prior ownership positions are associated with hostile bids, but significant ownership makes offers difficult to resist.²² The results using only targets that are not small relative to the bidder, displayed in panel C, are nearly identical to the results in panels A and B.²³

We wish to assess the robustness of our results with respect to the definition of REST. Recall that the results reported thus far set REST = 1 if any of the following are true.

1. The target initiates the cancellation of the acquisition proposal.
2. The target undertakes a specific action to resist. Our classification includes legal actions, charter changes, executive compensation modification, financial restructuring, real restructuring, and searching for a white knight/squire.
3. The target’s management only verbally indicates dissatisfaction with the proposed takeover.
4. The target participates in the cancellation of the takeover proposal (i.e., the proposal is canceled by mutual agreement).

In Table 6 we report the results of estimating Equation (6) using the total sample of 647 initial bids four times. The first line includes all four types of resistance (a repeat of the panel A results of Table 5). The second line classifies only items 1, 2, and 3 as resistance. In the third line, only items 2 and 3 (those occurring prior to the outcome) are classified as resistance. The fourth line classifies only the first two items as resistance.²⁴ The results in Table 6 indicate that our conclusions regarding the cost-of-information, bid-premium, and prior ownership effects are robust with respect to the definition of resistance. Offers for high information cost targets, those with a low bid premium

²² As with the tests involving the competition decision, we estimated the medium-of-exchange effect and bid-premium effects separately; that is, Equation (6) was alternatively respecified as

$$\begin{aligned} \text{REST} &= \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \alpha_3(\text{XPRIOR}) + \alpha_4(\text{XPRIOR} \cdot \text{PRIOR}) + \epsilon, \\ \text{REST} &= \alpha_0 + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) + \alpha_4(\text{XPRIOR}) + \alpha_5(\text{XPRIOR} \cdot \text{PROIR}) + \epsilon. \end{aligned}$$

Neither respecification affected our conclusions regarding the associations of the variables with the decision to resist.

²³ As before, a “large” target is defined as one with an equity market value greater than \$50,000,000.

²⁴ We also repeated the analysis designed to test the robustness of our results with respect to our definition of resistance in a different manner. Specifically, we dropped those observations reclassified as not being resisted rather than including them as not resisted. That is, when moving from the scenario with all four “actions” being defined as resistance to the case when only one, two, and three are defined thus, we exclude the mutually canceled group from the analysis. Our conclusions are identical to those reported in the text. We also repeated the analysis with the merger subsample. The results of this analysis are similar to those reported in Table 6.

Table 6

Sensitivity of the cross-sectional relationship between the likelihood of target resistance and the structure of the initial bid with respect to the definition of target resistance¹

Definition of resistance ²	Sample size	α_0 ³	α_1	α_2	α_3	α_4	α_5
1, 2, 3, and 4	647	4.5713	-.0016* (.0890)	.0320*** ($< .0001$)	-.4250** (.0136)	.9550*** ($< .0001$)	-.0189** (.0278)
1, 2, and 3	647	4.1880	-.0004 (.7108)	.3640*** (.0062)	-.6191*** (.0028)	1.1224*** ($< .0001$)	-.0261*** (.0024)
2 and 3	647	4.0433	-.0005 (.6470)	.4325*** (.0028)	-.5428** (.0110)	1.1517*** ($< .0001$)	-.0248*** (.0050)
1 and 2	647	3.9185	.0006 (.7004)	.4602*** (.0040)	-.7473*** (.0018)	.9868*** ($< .0001$)	-.0320*** (.0026)

¹The equation estimated is

$$\text{REST} = \alpha_0 + \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) + \alpha_4(\text{XPRIOR}) + \alpha_5(\text{XPRIOR} \cdot \text{PRIOR}) + \epsilon,$$

where REST = binary variable taking a value of 1 if target management resisted

PCASH = fraction of the offer in cash

NUMA = number of analysts supplying earnings forecasts

BPREM = percentage bid premium

XPRIOR = binary variable taking a value of 1 if the bidder had a prior ownership position in the target

PRIOR = prior ownership position in the target by the bidder

²1. Target management initiates the cancellation of the offer.

2. Target management takes an overt action to resist the offer.

3. Target management verbally notes displeasure with the offer.

4. Target management participates in the cancellation of the offer (i.e., it is mutually canceled).

³The *P*-levels of the estimated coefficients from a two-tailed test of significance are in parentheses.

* Significantly different from zero at the .10 level, two-tailed test.

** Significantly different from zero at the .05 level, two-tailed test.

*** Significantly different from zero at the .01 level, two-tailed test.

and those with small prior ownership positions are more likely to be resisted. The exchange-medium effect appears to be most strongly associated with the mutually canceled group of offers. When that "action" is not defined as resistance, the significance of the medium of exchange is eliminated in the resistance decision.

As with competition, we can look at the resistance decision as a system of simultaneously determined relationships with NUMA and XPRIOR as exogenously determined variables. That is, we specify the following system:

$$\begin{aligned} \text{REST} = & \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) \\ & + \alpha_4(\text{XPRIOR}) + \alpha_5(\text{PRIOR}) + \epsilon_{8a}, \end{aligned} \quad (8a)$$

$$\text{PCASH} = \beta_1(\text{NUMA}) + \epsilon_{8b}, \quad (8b)$$

$$\text{BPREM} = \beta_2(\text{NUMA}) + \epsilon_{8c}, \quad (8c)$$

$$\text{PROIR} = \beta_3(\text{NUMA}) + \epsilon_{8d}. \quad (8d)$$

Table 7

Results of a simultaneous equations, cross-sectional analysis of the likelihood of target management resistance, the denomination of the offer, the bid premium, and the size of the bidder's prior ownership in the target using the number of security analysts following the target and the existence of a prior ownership position as exogenous variables from a sample of 647 initial bids between June 1979 and December 1987¹

Coefficient Estimates (<i>P</i> -levels) ²							
α_1	α_2	α_3	α_4	α_5	β_1	β_2	β_3
-.037 (.142)	.039** (.016)	-.047*** (.008)	.706*** (.002)	-.007*** (.005)	-.007** (.013)	-.001 (.612)	-.001*** (.003)

¹The equations estimated are

$$\text{REST} = \alpha_1(\text{PCASH}) + \alpha_2(\text{NUMA}) + \alpha_3(\text{BPREM}) + \alpha_4(\text{XPRIOR}) + \alpha_5(\text{PRIOR})$$

$$\text{PCASH} = \beta_1(\text{NUMA})$$

$$\text{BPREM} = \beta_2(\text{NUMA})$$

$$\text{PRIOR} = \beta_3(\text{NUMA})$$

where REST = binary variable taking a value of 1 if target management resisted

PCASH = fraction of the offer in cash

NUMA = number of analysts supplying earnings forecasts

BPREM = percentage bid premium

XPRIOR = binary variable taking a value of 1 if the bidder had a prior ownership position in the target

PRIOR = fraction of target owned by the bidder before the offer

²The *P*-levels of the estimated coefficients from a two-tailed test of significance are in parentheses.

* Significantly different from zero at the .10 level, two-tailed test.

** Significantly different from zero at the .05 level, two-tailed test.

*** Significantly different from zero at the .01 level, two-tailed test.

The results of analyzing this system using LISCOMP are reported in Table 7. Consistent with the single-equation results, the likelihood of resistance is directly related to the number of analysts following the target and the existence of a prior ownership position and inversely related to the bid premium and the size of the bidder's prior ownership position. The relationship between PCASH and REST is negative but not statistically significant at traditional levels. Thus, our conclusions are unchanged when examining the resistance decision in a simultaneous-equations framework. Furthermore, we find that the PCASH and PRIOR variables have a statistically significant negative relation to NUMA. For targets having a low cost of information, bidders tend to use less cash and acquire lower ownership positions prior to making the formal offer to acquire than in situations where potential bidders face higher costs.

4. Simultaneous Determination of the Resistance and Competition Decisions

Although Fishman models the competition and resistance decisions separately, others [e.g., Baron (1983), Giammarino and Heinkel (1986),

Table 8

The results of a simultaneous equations, cross-sectional analysis of the likelihood of 1 competing bid, the likelihood of target management resistance, the denomination of the offer medium, the bid premium, and the share of the bidder's prior ownership position using the number of security analysts following the firm and the existence of a prior ownership position as exogenous variables from a sample of 647 initial bids between June 1979 and December 1987¹

	α_1^c	α_2^c	α_3^c	α_4^c
Coefficient estimates (<i>P</i> -levels) ²	.079*** (.006)	.013* (.092)	-.058** (.013)	.449*** (.0004)
	α_1^h	α_2^h	α_3^h	α_4^h
Coefficient estimates (<i>P</i> -levels) ²	-.030*** (.002)	.039** (.036)	-.055*** (.001)	.634*** ($< .001$)
	β_1	β_2	β_3	
Coefficient estimates (<i>P</i> -levels) ²	-.007** (.012)	0.001 (.600)	-.001*** (.002)	

¹The equations estimated are

$$\text{COMP} = \alpha_1^c(\text{PCASH}) + \alpha_2^c(\text{NUMA}) + \alpha_3^c(\text{BPREM}) + \alpha_4^c(\text{REST})$$

$$\text{REST} = \alpha_1^h(\text{PCASH}) + \alpha_2^h(\text{NUMA}) + \alpha_3^h(\text{BPREM}) + \alpha_4^h(\text{XPRIOR}) + \alpha_5^h(\text{PRIOR})$$

$$\text{PCASH} = \beta_1(\text{NUMA})$$

$$\text{BPREM} = \beta_2(\text{NUMA})$$

$$\text{PRIOR} = \beta_3(\text{NUMA})$$

where COMP = binary variable taking a value of 1 if a competing offer arises

REST = binary variable taking a value of 1 if target management resisted

PCASH = fraction of the offer in cash

NUMA = number of analysts supplying earnings forecasts, used in panels B and C

BPREM = percentage bid premium

XPRIOR = binary variable taking a value of 1 if the bidder had a prior ownership position in the target

PRIOR = fraction of target owned by the bidder before the offer

²The *P*-levels of the estimated coefficients from a two-tailed test of significance are in parentheses.

* Significantly different from zero at the .10 level, two-tailed test,

** Significantly different from zero at the .05 level, two-tailed test.

*** Significantly different from zero at the .01 level, two-tailed test.

Berkovitch and Khanna (1990), and Hirshleifer and Png (1989)] examine the resistance and competition decisions simultaneously. In general, this literature argues that target management may resist an initial offer in order to obtain alternative bids. The LISCOMP simultaneous equation technology allows us to determine if our data are supportive of such a conclusion. The equation system estimated is a combination of the two previous analyses with a connecting link between the REST and COMP variables. This implies that the following equations are estimated simultaneously:

$$\text{COMP} = \alpha_1^c(\text{PCASH}) + \alpha_2^c(\text{NUMA}) + \alpha_3^c(\text{BPREM})$$

$$\begin{aligned}
 &+ \alpha_4^C(\text{REST}) + \epsilon_{9a}, \\
 \text{REST} &= \alpha_1^R(\text{PCASH}) + \alpha_2^R(\text{NUMA}) + \alpha_3^R(\text{BPREM}) \\
 &+ \alpha_4^R(\text{XPRIOR}) + \alpha_5^R(\text{PRIOR}) + \epsilon_{9b}, \\
 \text{PCASH} &= \beta_1(\text{NUMA}) + \epsilon_{9c}, \\
 \text{BPREM} &= \beta_2(\text{NUMA}) + \epsilon_{9d}, \\
 \text{PRIOR} &= \beta_3(\text{NUMA}) + \epsilon_{9e}.
 \end{aligned}$$

The results of the estimation are presented in Table 8.

All of the previously noted relationships are maintained, with the negative relationship between REST and PCASH now exhibiting statistical significance at traditional levels and the positive relationship between NUMA and COMP becoming significant at the .10 level. Of most direct interest is the relationship between COMP and REST. We find that the likelihood of a competing offer is significantly increased with the existence of target management resistance. Thus, the data are consistent with the conjecture that target management resistance acts to raise the probability of seeing a competing bid arise. Unconditionally, we find the likelihood of a competing bid in the subsample (436 offers) without target resistance is 6 percent. If the initial bid is resisted, then the frequency of a competing bid increases to over 30 percent; a statistically significant increase in the proportion at traditional significance levels.

Despite the fact that target resistance and the likelihood of a competing offer are positively related, we cannot conclude that resistance is innocuous to target shareholders. Resistance is a risky strategy. It almost certainly decreases the likelihood that the initial offer will be successful, and the generation of a second offer is far from certain. The competing offer, if it does arise, may not be successful. In other words, it is not clear whether the increased frequency of competing offers associated with resistance is or is not beneficial to target shareholders. Furthermore, we cannot eliminate consideration that the resistance may be an attempt by incumbent management to entrench themselves.

Our data permit an examination of the relationship between resistance activity and change in control. Not surprisingly, the resisted initial offers are much less likely to be successful (22 percent) than the noncontested subsample (88 percent). Furthermore, over two-thirds of the resisted offers draw no competing bids. Fully 70 percent of this resisted-without-a-competing-offer group remain independent six months after the outcome date of the initial offer documented in our sample. This compares to a 9 percent rate of independence in the not-resisted subsample and 21 percent in the sample of offers that

Table 9

Average compounded raw ret- to target firms from the announcement date through the outcome date for a sample of initial bids between June 1979 and December 1987¹

	Not resisted	Resisted
Successful	.2051	.3680
Not successful	.0347	.0761

¹The number reported in the table is

$$\frac{1}{N_i} \sum_{j=1}^{N_i} \left\{ \left[\sum_{t=1}^{T_j} (1 + r_{i,j,t}) \right] - 1 \right\}$$

where N_i = number of firms in group i , $i = 1, 2, 3, 4$

T_j = number of trading days from announcement date through outcome date of proposal j

$r_{i,j,t}$ = return on target j on day t relative to announcement date

were resisted but obtained a competing offer. Thus, we conclude that resisting is indeed a risky strategy.

However, resistance does not seem to indicate a desire to remain independent per se by incumbent management. Examining the unsuccessful-initial-offer subsample of initial proposals, we find that targets resisting takeover proposals are less likely to remain independent six months after the outcome date (70 percent) than those targets not resisting a takeover proposal (75 percent). Further, the most strenuously resisted offers seem to be those that most likely to generate competing bids. About two-thirds of the sample with competing bids demonstrate active resistance, whereas only 28% of the no-competing-offer sample does. Thus, the frequency data do not offer a clear picture of whether management resistance is beneficial to shareholders. To address this more directly, we turn to stock return data.

A simple analysis of raw returns offers support for the conjecture that target management resistance is not harmful to the interests of the target shareholders. We divide the sample into four groups based on whether the offer was or was not successful and whether it was or was not resisted. In each case, we compute an equally weighted average of the compounded returns for the target firms in our sample with complete daily CRSP data between the first announcement date and the outcome date. The results are reported in Table 9. As expected, the successful acquisitions have much higher compounded returns, on average, than do the unsuccessful ones. What is relevant for our interests is that the returns on the resisted offers, both successful and unsuccessful, are considerably greater than the returns associated with the nonresisted subsamples. This is consistent with the notion that target management resistance, in and of itself, does not hurt target shareholders.

5. Summary

This article examines the association between decisions made by initial bidders in the structure of their offer and (1) the decisions of other bidders to compete and (2) the decision of the targets to resist. Recent work by Walkling and Long (1984), Giammarino and Heinkel (1986), Fishman (1988, 1989), and Hirshleifer and Titman (1990), and Hirshleifer and Png (1989) suggests that the decisions by potential bidders to compete and targets to resist are influenced by the size of the initial premium offered, the cost of acquiring information about the target, the initial medium of exchange, and the bidder's prior ownership position in the target.

Our findings are consistent with a bid-premium effect and a cost-of-information effect. High premia offers are less likely to face competition and/or resistance. Proxies for information cost suggest that situations in which information about the target appears to be plentiful are associated with greater likelihoods of resistance and competition. We are unable to document the anticipated medium-of-exchange effect, however. Competition appears to be positively associated with the percent of the offer price to be paid in cash. Resistance, while generally negative associated with the percent of cash, is not reliably related.²⁵

We assume that potential bidders and target management who wish to compete and resist do so unless deterred by the terms of the offer. It is possible that other factors exogenous to our model intervene. For example, a merger agreement may be negotiated between the target and a particular bidder that makes it acceptable when the same terms offered by a different bidder would be resisted. This circumstance may also affect the decision of a potential bidder to not compete. Conversely, it is possible that certain bidders (possibly those with reputations as "raiders") are resisted without regard to the terms of the offer. It is also possible that many acquisition negotiations never become public. For example, firms that are manager controlled may be approached in private because the bidder must win the support of management to ensure the takeover's success. The initial offer may be made privately, and resistance and competition may evolve without any publicity. All that we observe is a final offer that we treat

²⁵We assessed the robustness of our results to several institutional/regulatory issues. Prior to 1982, when shelf registration was introduced, cash may have been used in situations in which time was critical. We reestimated Equations (1) and (6) using only the 1982-1987 observations. Similarly, front-end-loaded offers may result from (or result in) somewhat "special" situations. We also reestimated Equations (1) and (6) after eliminating all mixed (cash and securities) and two-tiered offers. Finally, because changes in the price of the bidder's stock between the offer date and the effective day make the value of stock offers difficult to assess, we eliminated any offer with a share-denominated (as opposed to dollar-denominated) stock component. None of these changes affected our conclusions.

as an initial offer accepted without resistance or competition. Either of these problems are capable of adding noise, making the null hypotheses more difficult to reject.

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