

How Are Firms Sold?

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ABSTRACT

As measured by the number of bidders that publicly attempt to acquire a target, the takeover arena in the 1990s appears noncompetitive. However, we provide novel data on the pre-public, private takeover process that indicates that public takeover activity is only the tip of the iceberg of actual takeover competition during the 1990s. We show a highly competitive market where half of the targets are auctioned among multiple bidders, while the remainder negotiate with a single bidder. In event study analysis, we find that the wealth effects for target shareholders are comparable in auctions and negotiations.

THE TRADITIONAL MEASURE OF COMPETITION in a corporate takeover is the number of bidders that publicly attempt to acquire the target. Using this measure, many notable researchers report that the takeover market during the 1990s was not very competitive. For instance, Andrade, Mitchell, and Stafford (2001) describe the prototypical takeover in the 1990s as a friendly transaction with only one bidding firm. Similarly, Schwert (2000) reports that the 1990s witnessed far fewer public takeover auctions than previous time periods, and argues that this was due to the growing use of poison pills and the imposition of state antitakeover laws. More recent research such as Hartzell, Ofek, and Yermack (2004), Moeller (2005), and Wulf (2004) suggests that target managers used their growing bargaining power in the 1990s to negotiate sweet deals for themselves at the expense of their shareholders.

In this paper, we present a new measure of takeover competition that indicates that the takeover market during the 1990s was actually quite competitive. Using data from SEC merger documents, we provide a novel depiction of the method by which firms are sold and we demonstrate the existence of an active takeover market that takes place prior to the public announcement of takeover deals. For a sample of 400 takeovers from the 1990s representing over \$1 trillion

*Boone is from the University of Kansas School of Business Administration and Mulherin is from the University of Georgia Terry College of Business. For comments on prior drafts, we thank Bob Hansen, David Harrington, Zhikun Li, Michelle Lowry, Jon Macey, Mike Maloney, Mark Mitchell, David Robinson, Chip Ryan, Janet Smith, Mike Stegemoller, Fred Weston; session participants at the Duke/UNC Corporate Finance Conference, the meeting of the Financial Management Association, and the meeting of the American Finance Association; seminar participants at Babson College, the College of William and Mary, the University of Bolzano/Bozen, the University of Georgia, the University of Kansas, the University of Nevada Las Vegas, the University of Perugia, the University of Pittsburgh, the University of Siena, and the University of Tuscia; as well as an anonymous referee and the Editor, Rob Stambaugh.

in deal value, we show that half of the targets were auctioned among multiple bidders, while the remainder negotiated with a single bidder.

A natural question that arises from our new estimates of takeover competition is why all firms are not sold in a competitive auction. To address this question, we contrast two hypotheses. The agency cost hypothesis argues that auctions generate greater revenues than do negotiations and concludes that impediments to auctions harm target shareholders. By contrast, the information cost hypothesis notes that the use of auctions is costly and concludes that auctions will not always dominate negotiations.

To distinguish between the hypotheses, we compare the wealth effects for auctions and negotiations. If agency costs are the driving force behind the choice between auctions and negotiations, then the wealth effects for auctions should be significantly greater than the wealth effects for negotiations. By contrast, if the information cost hypothesis is correct, then there will be no difference, on an average, between the wealth effects for auctions and negotiations. Using a variety of specifications and control variables, we consistently find that the wealth effects for target shareholders are comparable in auctions and negotiations. These results support the information cost hypothesis. From a policy perspective, the choice of a negotiation is not *de facto* evidence that target management is engaging in rent seeking at the expense shareholders.

To frame our analysis, Section I contrasts the traditional depiction of public takeover bidding with our novel research on the private takeover process. Section II reports our data on the takeover process and the sample firms. Section III compares the wealth effects of auctions versus negotiations in the $(-1, +1)$ window around the takeover announcement. Section IV reports results for longer event windows and for the subsample in which the method of payment is some or all stock. The final section summarizes our analysis and discusses some implications of our results.

I. What Is a Takeover Auction?

The novel contribution of our research is a detailed empirical analysis of the private takeover process that evolves prior to the public announcement of a takeover bid. To distinguish our analysis, it is useful to consider the timeline in Figure 1. Most of the existing research on takeovers in financial economics focuses on the public takeover process following the announcement of an initial bid. The standard classification of a takeover auction is a takeover with more than one publicly announced bidder. Schwert (1996, 2000) explicitly uses such auction terminology in his analysis. Recent work by Moeller, Schlingemann, and Stulz (2004) similarly classifies the competitiveness of a takeover based on the number of public bidders.

As Figure 1 depicts, however, a complex private takeover process evolves prior to the public announcement of a takeover bid. Herzel and Shepro (1990) present legal background on this process. Wasserstein (2000) provides some examples of takeover auctions during the 1980s and 1990s. Subramanian (2003) discusses aspects of takeover competition during the 1990s.

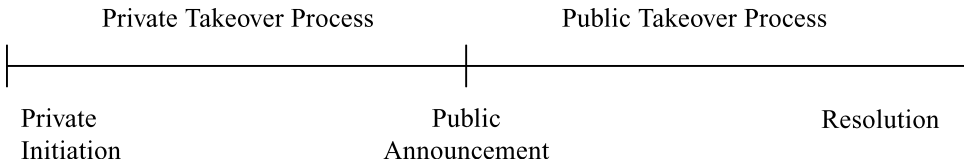


Figure 1. Timeline of the takeover process. This figure provides a timeline of the takeover process. The private takeover process is the period from the private initiation of the takeover to the first public announcement of the takeover. The public takeover process is the period from the first public announcement of the takeover to the resolution of the takeover.

Hansen (2001) provides a model of a private takeover auction. The process begins when a selling firm hires an investment banker and considers the number of potential bidders to contact. The contacted bidders are asked to sign confidentiality/standstill agreements whereby the bidders receive nonpublic information but agree not to make an unsolicited bid. Those signing agreements are asked to submit preliminary indications of interest. A subset of the bidders indicating preliminary interest is asked to submit binding sealed offers from which the winning bidder is determined. In this framework, the depth of the auction is a choice variable for the selling firm. The selling firm may conduct an auction with multiple bidders or instead may opt to negotiate with only a single bidder.

Table I provides examples of the auctions and negotiations used in corporate takeovers. Blount Inc. was an auction. On August 26, 1998, the firm and its investment bank, the Beacon Group, began to consider strategic alternatives. Deciding that a sale of the firm was the best alternative, the Beacon Group contacted 65 potential buyers. Of those, 28 signed confidentiality agreements. Two firms made private written bids for Blount; Lehman Brothers was the successful bidder. A rumor of the takeover was mentioned in the financial press on March 3, 1999. The deal was signed on April 18, 1999, publicly announced on April 20, 1999, and completed on August 19, 1999.

BankBoston provides an example of a negotiation. On April 1, 1998, the CEO of BankBoston met with the CEO of Fleet Financial to discuss a possible merger. During subsequent extended, private discussions, BankBoston did not contact any other potential bidders. The merger agreement was signed on March 14, 1999 and was publicly announced the following day. The merger was completed on October 1, 1999.

The two examples in Table I indicate the importance of studying the private takeover process when classifying a given takeover as an auction or a negotiation. Using the standard classifications based on the public takeover process, neither deal in Table I would be classified as an auction. By contrast, the information from the private takeover process indicates that Blount was competitively auctioned to multiple potential bidders.

The nature of the private takeover process is reported in even greater detail by the example in the Appendix. Sonat Inc. was sold in an auction in which five potential bidders were contacted and each signed confidentiality agreements.

Table I
Examples of the Sales Process

This table provides examples of the auction and negotiation procedures by which firms are sold. *Auction* refers to cases in which the selling firm contacts multiple potential buyers. *Negotiation* refers to a sales process focusing on a single buyer. *Private Date* is the date on which the sales process begins. *Rumor Date* (if any) is the date on which the possibility of a takeover is mentioned in the financial media prior to a formal agreement date. *Agreement Date* is the date on which the seller and bidder sign the takeover agreement. *Merger Announce* is the date on which the financial media report the takeover agreement. *Completion Date* is the date on which the takeover is completed. *Contact* refers to the number of potential bidders contacted by the seller and its investment bank. *Confidentiality* refers to the potential buyers that engage in a confidentiality/standstill agreement. *Private Bidders* refers to the potential buyers that submit a private written offer. *Public Bidders* refers to the potential buyers that announce a formal bid for the seller in the financial media.

	Auction	Negotiation
Seller	Blount Inc.	BankBoston
Bidder	Lehman Bros	Fleet Financial
Initiation event	Target contacts investment bank	CEOs meet
Private date	8/26/1998	4/1/1998
Contact	65	1
Confidentiality	28	1
Private bidders	2	1
Public bidders	1	1
Rumor date	3/31/1999	n/a
Agreement date	4/18/1999	3/14/1999
Merger announce	4/20/1999	3/15/1999
Completion date	8/19/1999	10/1/1999

The text in the Appendix is extracted directly from the SEC EDGAR filings and provides an illustration of the richness of the information in the merger documents.

II. The Takeover Process Sample

A. Sample Formation

Our sample comprises 400 takeovers of major U.S. corporations that were announced over the 1989 to 1999 period. The bulk of the sample comes from the 381 completed and unsuccessful acquisitions in Mulherin and Boone (2000), which begins with the firms listed on the Value Line Investment Survey as of 1990 and tracks those that were the object of a takeover bid during the 1990s. To this base sample we add 47 takeovers that were resolved in 2000 but we exclude 28 takeovers due to incomplete or absent SEC merger documents on the sales process. A large fraction (18 of 28) of the firms with missing data were in financial distress as indicated by bankruptcy filings and/or stock market delisting prior to or at the time of the initial merger announcement.

The use of the Value Line Investment Survey as the base for the sample follows prior research such as Mitchell and Lehn (1990), Mitchell and Mulherin (1996), and Andrade and Stafford (2004). As described in the SEC 10-K filing by

Value Line Inc. (July 29, 2005), the Investment Survey tracks publicly traded, large-cap corporations, while other Value Line publications track mid-cap and smaller firms. Correspondence with Dr. Keith A. Markey, Associate Research Director for Value Line Inc., indicates that the primary criteria for inclusion in the Value Line Investment Survey are a float of at least 10 million shares outstanding and a share price of at least \$10. Hence, sampling from the Value Line Investment Survey imparts no obvious bias in studying the choice of auctions and negotiations. As we document below, the targets sampled from the Value Line Investment Survey are relatively large corporations. As we also show below, however, a random sample of takeovers from the merger database of the Securities Data Corp (SDC) reports an incidence of auctions and negotiations comparable to that for our sample.

The sample includes 377 completed and 23 withdrawn acquisitions. This rate of completed transactions, 94%, is higher in our sample than in other research on the 1990s (e.g., Coates and Subramanian (2000)). This may be due to the fact that our sample has relatively large takeover targets. As we show below, however, the primary deal characteristics of our sample mirror other research on takeovers during the 1990s.

For each takeover attempt in the sample, we review the filings from the EDGAR system of the U.S. Securities and Exchange Commission (for takeovers in 1993 and later) and LexisNexis and Laser Disclosure (for takeovers in 1993 and earlier). We obtain information on the details of the process for each takeover attempt from the background section of 14A and S-4 filings (for mergers) and 14D filings (for tender offers). To characterize this process, we identify the following four key aspects of the private and public sales process: (1) the number of potential buyers contacted, (2) the number of potential buyers signing confidentiality/standstill agreements, (3) the number of potential buyers making written private bids, and (4) the number of potential buyers making public bids. To classify each takeover as either an auction or a negotiation, we focus on the potential buyers contacted and potential buyers signing confidentiality agreements. In an auction, multiple buyers are contacted and sign confidentiality agreements, while in negotiations, the selling firm deals with a single bidder.

In our initial classifications, we also stratify the auctions into two types, namely, formal and informal. A formal auction is defined as a structured process whereby the rules are laid out in advance and the bidding proceeds in multiple rounds. (See the Blount example in Table I.) In an informal auction, the selling firm contacts multiple potential buyers but the bidding evolves in a less structured setting than that of a formal auction. (See the Sonat example in the Appendix.) Although not reported in the paper, we find that the use of a single auction category does not affect our results.

B. Summary of the Private and Public Sales Process

Table II provides summary statistics of the steps in the private and public sales process for the sample firms. Panel A reports the data for the full sample. The average selling firm in the sample contacts nine potential bidders. Roughly

Table II
Summary of the Sales Process

This table summarizes the sales process for the sample of 400 takeovers. Panel A describes the sales process for the full sample. *Contact* reports the average number of potential buyers contacted by the selling firm and its investment bank. *Confidential* reports the average number of potential buyers that engage in a confidentiality/standstill agreement. *Private Bidders* reports the average number of potential buyers that submit a private written offer. *Public Bidders* reports the average number of potential buyers that announce a formal bid for the firm in the financial media. In Panel B, the aspects of the sales process are reported for auctions and negotiations. *Auction* refers to cases in which the selling firm contacts multiple potential buyers. *Negotiation* refers to a sales process focusing on a single buyer.

Sample	Observations	Contact	Confidential	Private Bidders	Public Bidders
Panel A: The Full Sample					
Full Sample	400	9.49	3.75	1.29	1.13
Panel B: The Sample Categorized by Sales Process					
Auction	202	20.67	6.83	1.57	1.24
Negotiation	198	1.02	1	1	1.02

four of these potential bidders sign confidentiality agreements. On an average, 1.29 firms make a formal written private offer for the selling firm. For the large majority of firms in the sample, only a single bidder makes a public offer for the selling firm. The average of 1.13 public bidders reflects the fact that only 51 of the 400 sample takeovers had more than one public bidder. The tendency toward only a single public bidder in our sample from the 1990s is consistent with evidence reported in Andrade et al. (2001, Table I).

Panel B of Table II indicates that the depth of the bidding process varies between auctions and negotiations. For the 202 takeovers classified as auctions, an average of 21 potential buyers are contacted and, on an average, roughly seven potential buyers sign confidentiality/standstill agreements. On an average, 1.57 bidders make private written offers and 1.24 bidders make public bids.

For the 198 takeovers classified as a negotiation, the selling firm as a rule deals with only a single bidder. The average number contacted is slightly greater than 1 because there are some cases in which preliminary discussions with a second firm do not materialize or in which an unsolicited offer was not considered by the selling firm. For all deals classified as negotiations, the selling firm signs a confidentiality agreement with only a single bidder and receives only a single private written bid. The average number of public bidders for the negotiations is slightly above 1 due to some cases in which a public, unsolicited offer is rebuffed by the selling firm.

Table III reports the incidence of the sample transactions by announcement year. The year with the fewest transactions is 1989 while the year with the most transactions is 1997. In general, the transactions cluster in the second

Table III
The Sample by Year

This table reports the number of takeovers per year for the sample period of 1989 to 1999. Observations are placed in the year of announcement. Data are reported for the full sample and for the two sales procedures, auction and negotiation.

Year	Full Sample	Auction	Negotiation
1989	12	10	2
1990	34	16	18
1991	19	8	11
1992	21	11	10
1993	15	5	10
1994	30	16	14
1995	59	29	30
1996	39	20	19
1997	64	32	32
1998	61	26	35
1999	46	29	17
Total	400	202	198

half of the sample period, with two-thirds of the transactions in the sample announced over the 1995 to 1999 period. Both auctions and negotiations have a similar distribution over time.

C. Sample Statistics

Table IV reports attributes of the sample firms. Panel A presents information on target and bidder size. The mean (median) equity value of the target firms is \$2.69 (\$0.69) billion, a relatively large value. By comparison, in broader samples of takeovers during the 1990s taken from SDC, Bates and Lemmon (2003, Table III) report a mean (median) target equity value on event day -42 of \$596 million (\$90 million) and Officer (2003, Table V) reports a mean (median) target equity value on event day -1 of \$711 million (\$124 million). In terms of total deal value, the \$1 trillion in deal value represented by our 400 targets is of the same order of magnitude as the studies using a greater number of smaller deals.

To further examine the size characteristics of our target firms, we compare our data to a random sample of takeovers on SDC. We begin with all takeovers on SDC in 1996, the year of the median observation from our sample. Following other research (e.g., Bates and Lemmon (2003), Officer (2003)), we require that the targets be U.S. public companies and that the deal value be at least \$50 million. This screen generates a list of 366 takeovers in 1996. We select every fifth observation, giving a random sample of 73 takeovers. The mean (median) target equity value at day -64 for these firms is \$0.38 billion (\$0.12 billion). By comparison, the mean (median) equity value for the 36 target firms in our sample for 1996 is \$2.27 billion (\$0.92 billion). This further illustrates that our

Table IV
Sample Statistics

This table reports size, deal, and target characteristics for the sample. The sample comprises 400 takeovers that were announced over the 1989 to 1999 period. Data are reported for the full sample and for auctions and negotiations. *p*-Value is the *p*-Value from a simple probit regression of the choice of method (i.e., auction vs. negotiation) on the given variable. Panel A reports firm size. *Target Size* and *Bidder Size* are mean (median) equity values in \$ billion, measured as (stock price*shares outstanding), estimated 64 days prior to initial announcement. There are only 308 available observations for bidders because 92 bidders were non-U.S. corporations or were private companies. *Relative Size* is target equity value divided by bidder equity value and employs the 308 cases with bidder data. Panel B reports deal characteristics. *Cash* reports the fraction of cases in which the payment was entirely in cash. *Tender* reports the fraction of cases in which the acquisition was by tender offer. *Unsolicited* reports the fraction of cases in which the event was initiated by the bidder or a third party. Panel C reports target characteristics. *Regulated* reports the fraction of cases in which the target was in a regulated industry. *Affiliated* reports the fraction of cases in which the bidder has an ownership affiliation with the target. *Return SD* reports the standard deviation of target stock returns between days -317 and -64 prior to the initial announcement date.

Variable	Full Sample (<i>N</i> = 400)		Auction (<i>N</i> = 202)		Negotiation (<i>N</i> = 198)		<i>p</i> -Value
Panel A: Firm Size							
	Mean	Median	Mean	Median	Mean	Median	
Target Size (\$ bil)	2.69	0.69	1.68	0.37	3.72	1.07	0.005
Bidder Size (\$ bil)	10.58	3.41	6.94	3.03	13.81	4.01	0.004
Relative Size	45%	27%	46%	21%	44%	29%	0.837
Panel B: Deal Characteristics							
% Cash	37%		50%		23%		0.000
% Tender	26%		37%		15%		0.000
% Unsolicited	15%		22%		8%		0.000
Panel C: Target Characteristics							
% Regulated	28%		22%		34%		0.005
% Affiliated	7%		4%		11%		0.011
Return <i>SD</i>	0.023		0.024		0.022		0.038

sample from the Value Line Investment Survey is comprised of relatively large target firms.

Although differing in the size of the representative target firm, the random sample also indicates a significant use of takeover auctions. Of the 73 deals, 10 do not have SEC documents from which to discern the takeover procedure. Of the 63 deals with SEC documents, 40 (or 63%) are conducted as an auction, a fraction comparable to that of our sample derived from the Value Line Investment Survey.

As also reported in Panel A of Table IV, bidders in our sample are larger than targets, having a mean (median) equity value of \$10.58 (\$3.41) billion. The mean (median) target has an equity value that is 45% (27%) of the equity value of the bidder. Note that the estimates for bidder and relative size are for the 308 takeovers for which the bidder was a U.S. publicly traded corporation.

Table V
Event Study Analysis: (−1,+1) Window

This table reports event study returns for the full sample of 400 target firms and for the 308 cases in which the bidder is a U.S. publicly traded firm and bidder equity value data are available. The results are net-of-market returns for the (−1,+1) window, where day 0 is the initial announcement date and the market index is the CRSP value-weighted index. The *p*-Values in Panel A and Panel B are for a *t*-test of the null that the mean return equals 0. Panel C presents means tests that test that null that the mean of the two samples are equal (*p*-values are in parentheses).

Sample	Target Return [<i>N</i> = 400]	Target Return [<i>N</i> = 308]
Panel A: Full Sample—Mean Return (<i>p</i> -Value)		
Full Sample	21.6% (0.000)	20.4% (0.000)
Panel B: Analysis by Sales Procedure—Mean Return (<i>p</i> -Value)		
Negotiation	20.5% (0.000)	19.3% (0.000)
Auction	22.7% (0.000)	21.6% (0.000)
Panel C: Means Tests— <i>t</i> -Statistic (<i>p</i> -Value)		
Negotiation V. Auction	1.02 (0.308)	0.90 (0.368)

Table IV also indicates that target size varies between auctions and negotiations. Targets in auctions have a mean equity value of \$1.68 billion, while targets in negotiations have a mean equity value of \$3.72 billion. A simple probit regression of the choice of negotiation or auction on target equity value indicates a significant difference in size (*p*-value = 0.005). Assuming that larger firms are less risky, this difference in target size is consistent with a prediction in French and McCormick (1984) that negotiations are used when the selling firm has lower value dispersion.

As Panel A of Table IV reports, the average size of bidding firms is also larger in negotiations than in auctions. The mean bidder size is \$13.81 billion in negotiations and is \$6.94 billion in auctions, and a probit regression indicates a significant difference in bidder size (*p*-value = 0.004). By contrast, there is no significant difference in the relative size of targets to bidders between auctions and negotiations.

D. Deal Characteristics

Panel B of Table IV reports information on deal characteristics. For the full sample, 37% of the takeovers exclusively use cash while the remaining 63% use some or all stock. Tender offers are employed in 26% of the cases while the remaining takeovers are effected via merger. The relative rate of cash deals and tender offers in our sample is comparable to that in other research of takeovers

during the 1990s (see, e.g., Bates and Lemmon (2003), Officer (2003), and Coates and Subramanian (2000)). The data indicate differences in deal characteristics between auctions and negotiations. Auctions are more likely to pay cash and to employ a tender offer.

Panel B of Table IV also reports information on the fraction of deals that are unsolicited, where we use SEC takeover documents to define “unsolicited” as takeovers that were initiated by the bidder or a third party, either privately or publicly. For the full sample, we find that 15% of the takeovers are unsolicited. This rate of unsolicited deals is higher than the 4% figure reported by Andrade et al. (2001) for the 1990s. This higher rate for our sample stems from the fact that the sample consists of large takeover deals and because our classification includes deals for which the unsolicited initiation was made in private. There is a difference in the unsolicited transactions between auctions and negotiations. Twenty-two percent of the auctions are unsolicited when compared with only 8% of the negotiations. Hence, a common reaction to an unsolicited offer is to conduct an auction to solicit bids from other potential buyers.

E. Industry and Firm Characteristics

Panel C of Table IV reports several other characteristics of the target firms that theory suggests may differ between auctions and negotiations. The asset liquidity model of Shleifer and Vishny (1992) points to industry factors as an important aspect of the choice of sales procedure. In their model, they note that government regulation can constrain some potential bidders in purchasing a selling firm. Hence, selling firms in regulated industries are less likely to rely on auctions. The first variable in Panel C of Table IV characterizes our proxy for regulation. The variable is the fraction of firms from regulated industries, which we define to include the following Value Line industries: Bank, Bank Midwest, Broadcasting/Cable TV, Electric Utility, Environmental, Natural Gas Distribution, Telecommunications, and Thrift. For the full sample, 28% of the target firms come from regulated industries, which is comparable to the rate of 26% reported in Coates and Subramanian (2000). Regulated targets are more likely to use a negotiation rather than an auction, consistent with the model of Shleifer and Vishny (1992).

French and McCormick (1984) suggest other firm-specific variables that are related to the choice of auction versus negotiation. They predict (p. 433) that “an ongoing relationship between the owner and a potential buyer will tend to reduce negotiation costs and increase the probability that the owners will choose a negotiated sale.” They also predict that a seller will be more likely to rely on a negotiation when there is low dispersion in the value of the firm being sold.

The second variable in Panel C of Table IV reports the fraction of target firms that have an ownership affiliation with the bidding firm. We determine ownership affiliation by searching SEC documents. The target and bidder firms with an ownership affiliation include publicly traded subsidiaries of parent firms as well as other corporations with a longstanding ownership relation and

comprise 7% of the sample. For this subsample with an affiliation, the mean (median) ownership interest by the bidder in the target is 54% (58%). The firms acquired via negotiation are more likely to have an ownership affiliation than targets acquired via auction, which is consistent with the prediction of French and McCormick's (1984) model that negotiation will be used when the bidder and target are in an ongoing relation.

The final variable in Panel C of Table IV is the return standard deviation of the target firm, defined as the standard deviation of target stock returns in the period -317 to -64 days prior to the initial announcement of the takeover. The mean value is 0.023. Target firms acquired by auction have a greater return standard deviation than targets acquired via negotiation, consistent with the prediction by French and McCormick (1984) that negotiation will be used when the selling firm has a lower dispersion in value.

III. The Wealth Effects of Auctions and Negotiations: (-1,+1) Window

A. Structuring the Empirical Tests

Our novel analysis of the takeover sales process indicates that competition is prevalent and that more than half of the sample firms are sold via auction. A natural question that arises from these findings is why all firms are not sold in a competitive auction. One possible explanation is based on agency costs and management incentives. According to the agency cost theory, some managers may choose a particular bidder so as to negotiate sweet deals for themselves at the expense of the target shareholders. For example, Bulow and Klemperer (1996) provide a formal model of corporate takeovers in which auctions provide greater revenues than negotiations and conclude that impeding corporate auctions harms target shareholders.

An alternative explanation for the use of both auctions and negotiations is based on information costs. As Coase (1937, p. 392) notes, "the operation of the market costs something." French and McCormick (1984) emphasize that the selling firm ultimately bears the cost of the information gathering that is inherent in the sale of a major corporation. Hansen (2001) notes that a cost to the selling firm is the potential revelation of proprietary information to rivals. Bulow and Klemperer (1996) themselves acknowledge (pp. 190–191) that it may be wealth enhancing to the target shareholders to restrict the number of bidders if an auction process would diminish value by revealing confidential information. Povel and Singh (2005) and Ye (2004) model related costs in the corporate sales process. Based on the costs of the takeover process, the information cost theory predicts that auctions are not inherently superior to negotiations.

To distinguish between the hypotheses, we use conventional event study techniques to compare the wealth effects for the auctions and negotiations in our sample. Our analysis follows the procedure in DeAngelo and Rice's (1983) seminal analysis of antitakeover amendments that has guided a long line of research on corporate governance and control. If agency costs are the driving force behind

the choice between auctions and negotiations, then the wealth effects for auctions should be significantly greater than for negotiations. By contrast, if the information cost hypothesis is correct, then there should be no difference, on an average, between the wealth effects for auctions and negotiations.

In comparing the wealth effects of auctions and negotiations, we perform a comprehensive set of empirical tests. We start with simple comparisons of the mean returns in auctions and negotiations. We then perform multiple regression analysis that includes control variables that prior work shows to be correlated with target returns. Because theory suggests that the choice of sales procedure is an endogenous decision made by target management, we also perform two-stage regression analysis that controls for the endogeneity between the choice of the sales procedure and target returns. Our methods for controlling for endogeneity resemble those used by Hansen (1986) in an analysis of the revenue equivalence of sealed bid versus open auctions and by Smith (1987) in an estimation of the proceeds in competitive versus negotiated securities offerings. Demsetz and Lehn's (1985) analysis of the ownership-performance relation, Comment and Schwert's (1995) analysis of the wealth effects of poison pills, and Officer's (2003) analysis of the wealth effects of termination provisions provide other recent applications of two-stage regression analysis in corporate governance and control.

B. Event Study Analysis

Table V reports estimates of the wealth effects for the target firms in our sample. The estimates are net-of-market returns for the $(-1, +1)$ window, where day 0 is the initial announcement date and the market index is the CRSP value-weighted index. Results are reported for the full sample of 400 targets as well as for the 308 targets for which bidder equity data are available. Panel A of Table V reports the wealth effects for the full sample. The mean target returns for both the sample of 400 and the sample of 308 are roughly 20% and are statistically significant. These results for target returns resemble those in prior research such as Andrade et al. (2001).

Panel B of Table V stratifies the results for auctions and negotiations. In both the sample of 400 targets and the sample of 308 targets, the mean return for both auctions and negotiations is roughly 20%. The means tests in Panel C of Table V indicate no significant difference between the average target returns in auctions and negotiations.

C. Multiple Regression Analysis

While the means tests in Table V offer an initial comparison of the wealth effects of auctions and negotiations, they do not control for other factors found in prior research to affect the returns to targets. These include the following four variables: (1) the relative size of the target (Jarrell and Poulsen (1989)), whether the deal used (2) cash or was a (3) tender offer (Huang and Walkling (1987)), and whether the deal was (4) unsolicited (Schwert (2000)). Since the

summary statistics in Table IV indicate that many of these variables differ between the auctions and the negotiations in our sample, we include them as control variables. Since we include relative size as an explanatory variable, the analysis studies the 308 takeovers with available bidder equity data.

The results of the multiple regression analysis are reported in Table VI. For comparison with the means tests in Table V, the first regression simply employs an intercept and an auction dummy variable. For comparison purposes with prior empirical research, regressions 2 through 5 include the auction dummy and one of the other takeover variables; we sequentially report the variables used in each of these regressions because some of the early work on target returns focuses on only a subset of the explanatory variables used in our full specification. The final regression provides our complete specification with the auction dummy and the four other takeover characteristics.

In the simple regressions in Table VI, the signs of the coefficients of the other takeover characteristics resemble those of prior research. Specifically, Jarrell and Poulsen (1989) find the negative and significant coefficient for relative size and Schwert (2000) reports the positive and significant coefficient for cash and for tender offers. Schwert (2000) also finds that some measures of unsolicited

Table VI
Multiple Regression Analysis: (−1,+1) Window

This table reports regression analysis of target returns on variables for the sales procedure, relative deal size, the payment method, and the acquisition form. *Auction* is a dummy variable equal to 1 when the sales procedure is an auction. *Relative Size* is the natural log of the equity value of the target divided by the equity value of the bidder 64 days prior to the initial announcement date. *Cash* is a dummy variable equal to 1 for acquisitions in which the payment is entirely in cash. *Tender* is a dummy variable equal to 1 when the form of the acquisition is a tender offer. *Unsolicited* is a dummy variable equal to 1 for deals that were initiated by the bidder or a third party. The regressions use the 308 acquisitions with available bidder equity data. The dependent variable in each regression is net-of-market returns for the (−1,+1) window, where day 0 is the initial announcement date and the market index is the CRSP value-weighted index. The *p*-values of the regression coefficients are reported in parentheses.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.193 (0.000)	0.133 (0.000)	0.179 (0.000)	0.184 (0.000)	0.185 (0.000)	0.119 (0.000)
Auction	0.023 (0.360)	0.008 (0.739)	0.003 (0.914)	0.008 (0.746)	0.004 (0.862)	−0.017 (0.487)
Relative size	—	−0.050 (0.000)	—	—	—	−0.047 (0.000)
Cash	—	—	0.089 (0.002)	—	—	0.035 (0.430)
Tender	—	—	—	0.085 (0.009)	—	0.014 (0.778)
Unsolicited	—	—	—	—	0.105 (0.003)	0.091 (0.009)
Adjusted R^2	0.000	0.082	0.026	0.018	0.026	0.108
Model <i>p</i> -Value	0.360	0.000	0.006	0.022	0.007	0.000

offers are positively related to target returns. In the final regression in column 6 of Table VI, the coefficients of some of the other takeover characteristics lose their statistical significance, which is consistent with analysis of target returns by Huang and Walkling (1987).

Regardless of the specification for target returns, the coefficient for the auction dummy is not statistically significant. The results indicate that after controlling for other takeover characteristics, there continues to be no difference in the wealth effects for targets in auctions and negotiations.

D. Two-Stage Regression Analysis

The empirical analysis in this section thus far is somewhat naïve as it treats the choice of an auction or a negotiation as an independent variable explaining returns. However, the choice of the sales procedure in a given takeover is a function of the expected returns. Hence, as Hansen (1986) and Smith (1987) note, in such a setting the ordinary least squares regressions do not provide consistent estimates. In this section, we present a more complete specification that accounts for the endogeneity between the choice of sales procedure and the wealth effects of the takeover for the target.

Our analysis follows a standard two-stage estimation process (Pindyck and Rubinfeld (1981, Chapter 7)). In the first stage, we regress the two dependent variables, target returns and sales procedure (i.e., auction or negotiation), on a set of exogenous variables. In the second-stage regressions, we use the fitted variable for a given dependent variable as an explanatory variable for the other dependent variable. In particular, we use a first-stage regression to estimate *Procedure**, the fitted value for the choice of sales procedure. We then analyze whether *Procedure** is significantly related to target returns in the second-stage regression. Since the regression for the sales procedure is a probit model, care must be taken in estimating the standard errors (Maddala (1983, pp. 244–245)). Our analysis uses STATA to provide the proper estimates (Keshk (2003)).

As exogenous variables in the model, we use both the deal characteristics that prior research finds to affect target returns around takeovers and the target characteristics that theory (e.g., French and McCormick (1984)) predicts will affect the auction versus negotiation choice in a takeover. The variables from prior research, presented in Table VI, are: the natural log of relative size, a cash dummy variable, a tender offer dummy variable, and an unsolicited deal dummy variable. As additional variables, we include the natural log of target size, which proxies for the prediction by French and McCormick (1984) that the choice of sales procedure will be a function of the value dispersion of a selling firm, and we include the three other target characteristics reported in Panel C of Table IV: a dummy variable for targets in regulated industries, a dummy variable for targets having an ownership affiliation with the bidder, and the return standard deviation of the target.

To identify the simultaneous system, we must exclude one exogenous variable from each of the two equations. For the target returns equation, we must have a variable that explains stock returns but does not explain the choice of sales procedure. The variable that we use is the relative size of the target to the

bidder. Prior research, as well as results in Table VI, indicates that relative size is significantly related to target returns. Evidence in Panel A of Table IV indicates that relative size is not related to the choice of sales procedure. For the sales procedure equation, we must have a variable that is related to the choice of an auction or a negotiation but not related to target returns. For this variable we use the size of the target firm. Panel A of Table IV indicates that target size is significantly related to the choice of sales procedure. Prior research by Schwert (2000) indicates an inconsistent relation between target size and target returns. As reported below, in our empirical analysis target size is related to the choice of an auction or a negotiation but not related to target returns.

The results of our two-stage regressions are reported in Table VII. We report the first- and second-stage regressions for both target returns and the choice of sales procedure. In the model of the choice of sales procedure, we find that in the first-stage regression, target size is negatively and significantly related to the choice of an auction, while relative size has an insignificant coefficient. The signs of the coefficients of the other variables are similar to that suggested by the univariate analysis reported in Table IV, that is, the dummy variables for cash and for unsolicited deals have significant coefficients. In the second-stage regression, target size, the cash dummy, and the unsolicited dummy variable maintain their statistical significance.

In the first-stage regression for target returns, relative size has a negative and significant coefficient, consistent with the single-equation analysis in Table VI. The coefficient for target size is not significantly different from 0. The unsolicited dummy has a positive and significant coefficient and the regulated dummy has a negative and significant coefficient. The coefficients of the other variables are not significantly different from 0.

Our main interest in the analysis of target returns is the coefficient of *Procedure**, the fitted value of the choice of sales procedure, in the second-stage regression. As reported in Table VII, the coefficient of *Procedure** is not statistically different from zero. Hence, after accounting for the endogeneity between the wealth effects for target firms and the choice of the sales procedure, the results indicate that there is no significant difference in the returns to targets in negotiations versus auctions.

E. Robustness Analysis of the Basic Specification

In this section we report additional tests of target returns estimated for the $(-1,+1)$ period. We describe the additional tests and report the effects on our main variable of interest, the fitted value of the choice of sales procedure. A more complete presentation of this robustness analysis is available from the authors upon request.

E.1. Alternative Measures of Abnormal Returns

Our analysis uses net-of-market returns as the estimate of abnormal returns around the takeover announcement. We replicate our analysis using alternative measures of abnormal returns including market model returns and

Table VII
Two-Stage Regression Analysis: (−1,+1) Window

This table reports simultaneous equations analysis for target returns and for the choice of sales procedure. Returns are measured using net-of-market returns for the (−1,+1) window, where day 0 is the announcement date and the market index is the CRSP value-weighted index. *Procedure** is the predicted value of the choice of sales procedure. *Returns** is the predicted value of returns. *Target Size* is the equity value of the target and *Relative Size* is the natural log of the equity value of the target divided by the equity value of the bidder, both 64 days prior to the announcement date. *Cash* is a dummy variable equal to 1 when the payment is entirely in cash. *Tender* is a dummy variable equal to 1 when acquisition is a tender offer. *Unsolicited* is a dummy variable equal to 1 for deals that were initiated by the bidder or a third party. *Regulated* is a dummy variable equal to 1 for targets in regulated industries. *Affiliated* is a dummy variable equal to 1 for targets having an ownership affiliation with the bidder. *Return SD* is the standard deviation of target stock returns between days −317 and −64 prior to the initial announcement date. The analysis uses the 308 takeovers with available bidder equity data (*p*-values are in parentheses).

Variable	Target Returns		Sales Procedure	
	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage
Intercept	0.090 (0.512)	0.129 (0.002)	2.386 (0.009)	2.439 (0.012)
Procedure*		−0.016 (0.732)		
Returns*				−0.583 (0.726)
Relative Size	−0.040 (0.000)	−0.039 (0.000)	0.023 (0.727)	
Target Size	0.003 (0.733)		−0.184 (0.001)	−0.182 (0.001)
Cash	0.039 (0.380)	0.047 (0.370)	0.508 (0.077)	0.530 (0.082)
Tender	−0.013 (0.794)	−0.013 (0.788)	−0.024 (0.943)	−0.032 (0.925)
Unsolicited	0.084 (0.013)	0.095 (0.048)	0.676 (0.003)	0.725 (0.006)
Regulated	−0.073 (0.009)	−0.074 (0.009)	−0.084 (0.635)	−0.127 (0.670)
Affiliated	−0.042 (0.417)	−0.049 (0.390)	−0.464 (0.185)	−0.488 (0.170)
Return <i>SD</i>	0.990 (0.452)	0.918 (0.460)	−4.454 (0.602)	−3.876 (0.661)
Adjusted <i>R</i> ²	0.126	0.126	0.112	0.112
Model <i>p</i> -Value	0.000	0.000	0.000	0.000

buy-and-hold returns. The results are similar to the results for the net-of-market returns reported in the tables. For the two-stage regression analysis using market model returns, the coefficient of the fitted value of the choice of sales procedure is −0.012 (*p*-value = 0.791). For the same analysis using buy-and-hold returns, the coefficient of *Procedure** is −0.024 (*p*-value = 0.636). Hence, using alternative measures of abnormal returns, the choice of sales procedure continues to have an insignificant effect on target returns.

E.2. Subsample in Which Initial Announcement Date Is the Agreement Date

As another robustness check, we account for the fact that some initial takeover announcements are rumors that precede an actual merger agreement or tender offer. We study the subsample of 215 firms for which the initial announcement date is the same as the takeover agreement date. For this subsample, the mean (median) abnormal return in the $(-1, +1)$ window is 20.8% (18.1%). We then rerun our two-stage analysis for this subsample. Our results are not affected. The coefficient for the fitted value of the choice of takeover procedure in the two-stage regression analysis is not significantly different from 0. The coefficient in this regression is 0.024 (p -value = 0.751).

E.3. Alternative Measures of Takeover Competition

The measure of takeover competition that we use in our analysis above is a dichotomous auction dummy variable. As an additional test, we employ a continuous measure of competition based on the number of potential bidders signing confidentiality/standstill agreements; see Table II. This measure is a cogent proxy for takeover competition, as the firms signing confidentiality agreements have access to the nonpublic information about the takeover target and thereby can make a more accurate estimate of the target's value. Using this alternative measure of competition does not affect our findings. In the two-stage regression analysis, the coefficient for the fitted value of the number of firms signing confidentiality agreements is not significantly different from 0. The coefficient is -0.029 (p -value = 0.732). In related analysis, we use the number of firms contacted by each target and obtain similar results.

E.4. Alternative Measures of Value Dispersion

In our analysis above, we use the standard deviation of target stock returns in the $(-317, -64)$ pre-event period as an estimate of the value dispersion of the target. As a robustness check, we consider other proxies for the value dispersion of the target including the ratio of plant, property, and equipment to assets (PPE/Assets). We find that the ratio of PPE/Assets is negatively and significantly related to our takeover procedure variable. Consistent with French and McCormick (1984), firms with more tangible assets are more likely to choose a negotiation rather than an auction. We also find that the ratio of PPE/Assets is not significantly related to takeover announcement returns. Adding PPE/Assets to the two-stage regression does not alter our findings on the effect of the choice of sales procedure. In the two-stage regression, the coefficient of the fitted value of the sales procedure equals -0.0004 and has an insignificant p -value of 0.992. Consideration of other proxies for value dispersion such as R&D/Sales and the ratio of intangibles to assets also do not alter our findings.

E.5. The Legal Environment and Bargaining Power

Another factor that may affect the takeover process that we study is the underlying legal environment. For example, Comment and Schwert (1995) suggest that modern antitakeover measures may affect the bargaining power of target managers. In our setting, such bargaining power may affect the choice between an auction and a negotiation. To capture cross-sectional differences in the legal setting for our sample, we borrow from Bebchuk and Ferrell's (2002) classifications of the incidence of five major antitakeover statutes for each of the 50 states. As a proxy for a strong antitakeover environment, we identify the states shown by Bebchuk and Ferrell (2002) to have all five of the antitakeover statutes: Idaho, Indiana, Maryland, Nevada, Ohio, Pennsylvania, South Dakota, Tennessee, and Wisconsin.

In 51 of our sample takeovers, the target is incorporated in a strong antitakeover state. We find that targets in such states are more likely to choose a negotiation. However, the announcement returns to targets in the strong antitakeover states are not significantly different from the remainder of the sample. Including a dummy variable for states with strong antitakeover laws does not alter our findings on the effect of the choice of sales procedure. In the two-stage regression, the coefficient of the fitted value of the sales procedure equals -0.016 and has an insignificant p -value of 0.749 . Related analysis that uses a dummy variable for Delaware incorporation also does not alter our findings.

In related analysis, we exclude the 17 of the 308 takeovers for which the bidder has an ownership affiliation with the target firm, as the affiliated deals arguably have different legal standards from the remainder of the sample (see, e.g., Gilson and Gordon (2003)). However, the exclusion of the affiliated transactions does not alter our findings. In the two-stage regression analysis, the coefficient of the fitted value of the sales procedure variable equals -0.002 and has an insignificant p -value of 0.963 .

E.6. Modeling the Incentives of Target Management

As a final extension of our basic specification, we estimate whether the choice of sales procedure is associated with the likelihood that the target CEO maintains a position in the combined firm and whether this comes at the expense of target shareholders. To track the target CEO in the combined firm, we follow Harford (2003) and review the first proxy statement of the combined firm following the takeover. For unsuccessful deals, we use the first proxy statement of the target following the withdrawal of the deal.

In 178 of the 308 deals in which the bidder is a U.S. publicly traded firm, the target CEO maintains some position (e.g., director, officer, or employee) in the combined firm. We also find that the likelihood that the target CEO maintains a position in the combined firm is significantly associated with the use of a negotiation. However, the likelihood that the target CEO maintains a position is not significantly related to target announcement returns. Adding a dummy variable for target CEO status in the combined firm to the two-stage

regression analysis does not affect our results. The coefficient of the choice of sales procedure is -0.012 and has an insignificant p -value of 0.786 .

IV. Further Analysis of the Wealth Effects of Auctions and Negotiations

A. Longer Event Windows

The relatively narrow $(-1,+1)$ event window employed in Section III has the advantage of offering precision in the estimation of the market reaction to the initial announcement of a takeover (Fama (1991)). However, the narrow window may not capture all of the information that is revealed over the course of a takeover. Hence, we also compare target returns between auctions and negotiations for the $(-20,+20)$ window as well as the $(-63,+126)$ window studied by Schwert (2000). For these longer event windows, our analysis follows the same sequence and procedure as in Section III: We report (i) means tests, (ii) multiple regressions, and (iii) two-stage least squares. The estimates are net-of-market returns, where day 0 is the initial announcement date and the market index is the CRSP value-weighted index.

Table VIII reports the event studies for the longer windows. In Panel A, the mean target return in the $(-20,+20)$ window is 25.4% for the sample of 400 takeovers and is 23.3% for the sample of 308 takeovers with available bidder equity data. The returns for the $(-63,+126)$ window also average roughly 25% . These estimates are a few percentage points higher than for the $(-1,+1)$ window reported in Table V. Panel B reports that target returns for auctions appear to be higher than for negotiations; the p -values in the means tests in Panel C suggest a statistically significant difference.

Table IX uses multiple regression analysis to determine whether the difference in returns between auctions and negotiations remains after controlling for size and deal characteristics. For target returns estimated over the $(-20,+20)$ window, the coefficient for the auction dummy is negative but statistically insignificant. For the $(-63,+126)$ window, the coefficient is positive and insignificant. Hence, controlling for relative size and deal characteristics that have been shown in prior research to affect target returns, there is no observed difference in target returns between auctions and negotiations.

Table X reports two-stage regression analysis that controls for the endogeneity between expected returns and the choice of auction versus negotiation. Since the analysis resembles that previously reported in Table VII, we only report the results for the target returns regressions. Our main variable of interest is *Procedure**, the fitted variable for the choice of an auction versus negotiation in the second-stage regression. For target returns from both the $(-20,+20)$ and $(-63,+126)$ event windows, the coefficient of this variable is negative and not statistically significant. Hence, after controlling for the factors that affect the choice between an auction and a negotiation, there is no measurable difference in target returns between the two sales procedures. These results resemble findings by Hansen (1986) and Smith (1987) in related analyses of auction choice.

Table VIII
Event Study Analysis: Longer Windows

This table reports event study returns for the full sample of 400 target firms and for the 308 cases in which bidder data are available. The results are net-of-market returns for the $(-20,+20)$ and $(-63,+126)$ windows, where day 0 is the initial announcement date and the market index is the CRSP value-weighted index. The p -Values in Panel A and Panel B are for a t -test of the null that the mean return equals zero. Panel C presents means tests that test that null that the mean of the two samples are equal (p -Values are in parentheses).

Sample	Target Return $(-20,+20)$		Target Return $(-63,+126)$	
	$[N = 400]$	$[N = 308]$	$[N = 400]$	$[N = 308]$
Panel A: Full Sample—Mean Return (p -Value)				
Full Sample	25.4% (0.000)	23.3% (0.000)	26.2% (0.000)	25.1% (0.000)
Panel B: Analysis by Sales Procedure—Mean Return (p -Value)				
Negotiation	22.6% (0.000)	21.2% (0.000)	21.8% (0.000)	20.9% (0.000)
Auction	28.2% (0.000)	25.7% (0.000)	30.6% (0.000)	29.9% (0.000)
Panel C: Means Tests— t -Statistic (p -Value)				
Negotiation V. Auction	2.26 (0.024)	1.68 (0.093)	2.81 (0.005)	2.67 (0.008)

B. Takeover Premiums

Our measure of the wealth effects to target shareholders focuses on abnormal returns in different windows around the announcement of the takeover. As an alternative measure, we use the takeover premium reported by SDC. The variable that we use is the premium in the deal relative to the price of the target 4 weeks prior to the announcement of the takeover. For the 308 takeovers in our sample where the bidder is a U.S. publicly traded firm, SDC reports premium data for 226 deals. The mean (median) premium for this sample is 40.1% (34.9%). We replicate our two-stage regression analysis using the takeover premium rather than abnormal returns as a dependent variable. Using this alternative variable does not affect our results. The coefficient of the fitted value of the choice of takeover procedure in the two-stage regression equals 5.68 and is not significantly different from 0 (p -value = 0.420).

C. The Subsample of Stock Transactions

As another robustness check, we rerun our analysis on the 228 sample takeovers that entail some or all stock as the method of payment. Coates and Subramanian (2000) argue that stock transactions have fewer legal constraints than do cash deals. Hence, the analysis of the subsample that excludes 100%

Table IX
Multiple Regression Analysis: Longer Windows

This table reports regression analysis of target returns on variables for the sales procedure, relative deal size, the payment method, and the acquisition form. *Auction* is a dummy variable equal to 1 when the sales procedure is an auction. *Relative size* is the natural log of the equity value of the target divided by the equity value of the bidder 64 days prior to the initial announcement date. *Cash* is a dummy variable equal to 1 for acquisitions in which the payment is entirely in cash. *Tender* is a dummy variable equal to 1 when the form of the acquisition is a tender offer. *Unsolicited* is a dummy variable equal to 1 for deals that were initiated by the bidder or a third party. The regressions use the 308 acquisitions with available bidder equity data. The dependent variable in each regression is net-of-market returns for the $(-20,+20)$ and $(-63,+126)$ windows, where day 0 is the initial announcement date and the market index is the CRSP value-weighted index. The p -values of the regression coefficients are reported in parentheses.

Variable	$(-20,+20)$	$(-63,+126)$
Intercept	0.117 (0.000)	0.111 (0.000)
Auction	-0.004 (0.876)	0.030 (0.368)
Relative size	-0.061 (0.000)	-0.061 (0.000)
Cash	0.022 (0.638)	-0.013 (0.825)
Tender	0.037 (0.479)	0.050 (0.447)
Unsolicited	0.115 (0.002)	0.209 (0.000)
Adjusted R^2	0.160	0.152
Model p -Value	0.000	0.000

cash deals indicates whether our analysis is robust to the constraints of corporate law underpinning the takeover process.

Of course, restricting the analysis to the subsample of deals using some or all stock affects the characteristics of the takeovers under study. The average size of the 228 targets in the stock subsample is 38% larger: \$3.71 billion, compared to \$2.69 billion for the full sample. Because most tender offers are in cash, the stock subsample has virtually no deals done via tender. The stock subsample also has a smaller fraction of unsolicited deals than the full sample (10% vs. 15%) and has a greater fraction of targets from regulated industries (40% vs. 28%).

Table XI reports multiple regression analysis of the factors affecting target returns for the subsample of 228 takeovers employing some or all stock as the method of payment. By the nature of the subsample, there is no dummy variable for cash deals. Instead, we report a dummy variable, *All Stock*, that takes a value of 1 for the takeovers in the subsample where the method of payment is 100% in stock. As reported in Table XI, the coefficient for the auction dummy variable is positive but statistically insignificant for all three event windows. These results resemble those reported for the full sample of 308 takeovers.

Table X
Two-Stage Regression Analysis: Longer Windows

This table reports simultaneous equations analysis for target returns and for the choice of sales procedure. Returns are measured using net-of-market returns for the $(-20,+20)$ and $(-63,+126)$ windows, where day 0 is the announcement date and the market index is the CRSP value-weighted index. *Procedure** is the predicted value of the choice of sales procedure. *Returns** is the predicted value of returns. *Target Size* is the equity value of the target and *Relative Size* is the natural log of the equity value of the target divided by the equity value of the bidder, both 64 days prior to the initial announcement date. *Cash* is a dummy variable equal to 1 when the payment is entirely in cash. *Tender* is a dummy variable equal to 1 when the form of the acquisition is a tender offer. *Unsolicited* is a dummy variable equal to 1 for deals that were initiated by the bidder or a third party. *Regulated* is a dummy variable equal to 1 for targets in regulated industries. *Affiliated* is a dummy variable equal to 1 for targets having an ownership affiliation with the bidder. *Return SD* is the standard deviation of target stock returns between days -317 and -64 prior to the initial announcement date. The analysis uses the 308 takeovers with available bidder equity data (*p*-values are in parentheses).

Variable	Target Returns $(-20,+20)$		Target Returns $(-63,+126)$	
	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage
Intercept	0.044 (0.764)	0.094 (0.032)	0.047 (0.802)	0.054 (0.326)
Procedure*		-0.021 (0.675)		-0.003 (0.959)
Relative size	-0.052 (0.000)	-0.052 (0.000)	-0.051 (0.000)	-0.051 (0.000)
Target size	0.004 (0.675)		0.001 (0.959)	
Cash	0.029 (0.533)	0.039 (0.474)	-0.001 (0.989)	0.001 (0.990)
Tender	0.015 (0.778)	0.014 (0.786)	0.039 (0.559)	0.039 (0.560)
Unsolicited	0.113 (0.002)	0.127 (0.013)	0.218 (0.000)	0.220 (0.001)
Regulated	-0.057 (0.050)	-0.059 (0.049)	-0.013 (0.730)	-0.013 (0.731)
Affiliated	-0.072 (0.182)	-0.082 (0.176)	-0.052 (0.451)	-0.053 (0.488)
Return <i>SD</i>	2.580 (0.064)	2.487 (0.059)	3.986 (0.024)	3.973 (0.018)
Adjusted R^2	0.183	0.183	0.166	0.166
Model <i>p</i> -Value	0.000	0.000	0.000	0.000

The coefficient of the *All Stock* dummy variable is positive but statistically insignificant for all three event windows. The signs and statistical significance of the other explanatory variables are similar to those reported for the full sample of 308 takeovers.

Table XII reports the returns regressions in the two-stage analysis for the subsample of takeovers using some or all stock as the method of payment. For each of the three event windows, the coefficient of the fitted value of the takeover

Table XI

Multiple Regression Analysis: Some or All Stock as Payment Method

This table reports regression analysis of target returns for the subsample of deals using some or all stock as the method of payment. *Auction* is a dummy variable equal to 1 when the sales procedure is an auction. *Relative Size* is the natural log of the equity value of the target divided by the equity value of the bidder 64 days prior to the initial announcement date. *All Stock* is a dummy variable equal to 1 when the payment is 100% in stock. *Tender* is a dummy variable equal to 1 when the form of the acquisition is a tender offer. *Unsolicited* is a dummy variable equal to 1 for deals that were initiated by the bidder or a third party. The regressions use the 228 acquisitions with available bidder equity data. The dependent variable in each regression is net-of-market returns for the each window, where day 0 is the initial announcement date and the market index is the CRSP value-weighted index. The *p*-Values of the regression coefficients are reported in parentheses.

Variable	(-1,+1)	(-20,+20)	(-63,+126)
Intercept	0.085 (0.013)	0.078 (0.029)	0.071 (0.145)
Auction	0.036 (0.194)	0.037 (0.200)	0.061 (0.130)
Relative size	-0.056 (0.000)	-0.072 (0.000)	-0.076 (0.000)
All stock	0.010 (0.738)	0.017 (0.593)	0.016 (0.709)
Tender	-0.059 (0.762)	-0.120 (0.557)	-0.422 (0.132)
Unsolicited	0.030 (0.504)	0.092 (0.047)	0.200 (0.002)
Adjusted R^2	0.096	0.160	0.152
Model <i>p</i> -Value	0.000	0.000	0.000

procedure, *Procedure**, is positive but statistically insignificant from 0. The coefficients of the *All Stock* dummy variable are positive but insignificant for all three event windows. The signs and significance for the other explanatory variables are similar to those reported for the full sample. In summary, the analysis of the subsample of 228 takeovers employing some or all stock as a method of payment produces results comparable to those for the full sample of 308 takeovers.

V. Summary and Implications

Our analysis provides a unique look at the auctions and negotiations used in the private takeover process. Our research contrasts with the extant analysis that focuses on the public aspects of takeovers that follow the initial announcement of a bid. Our analysis indicates that public takeover activity is only the tip of the iceberg of actual takeover competition during the 1990s. In a study of 400 takeovers during the 1990s, we find that half of the target firms are sold in an auction with multiple potential bidders, a dramatically higher rate of competition than that suggested in prior research. We also show that, consistent

Table XII
Two-Stage Regression Analysis: Some or All Stock as
Payment Method

This table reports simultaneous equations analysis for target returns for the subsample of deals using some or all stock as payment. Returns are measured using net-of-market returns, where day 0 is the announcement date and the market index is the CRSP value-weighted index. *Procedure** is the predicted value of the choice of sales procedure. *Target Size* is the equity value of the target and *Relative Size* is the natural log of the equity value of the target divided by the equity value of the bidder, both 64 days prior to the initial announcement date. *All Stock* is a dummy variable equal to 1 when the payment is 100% in stock. *Tender* is a dummy variable equal to 1 when the acquisition is a tender offer. *Unsolicited* is a dummy variable equal to 1 for deals initiated by the bidder or a third party. *Regulated* is a dummy variable equal to 1 for targets in regulated industries. *Affiliated* is a dummy variable equal to 1 for targets having an ownership affiliation with the bidder. *Return SD* is the standard deviation of target stock returns between days -317 and -64 prior to the announcement date. The analysis uses the 228 takeovers with available bidder equity data (*p*-values are in parentheses).

Variable	Returns (-1,+1)		Returns (-20,+20)		Returns (-63,+126)	
	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage
Intercept	0.199 (0.178)	0.105 (0.047)	0.141 (0.360)	0.079 (0.127)	0.124 0.563	0.017 (0.811)
Procedure*		0.066 (0.479)		0.043 (0.642)		0.075 (0.568)
Relative size	-0.046 (0.000)	-0.045 (0.001)	-0.063 (0.000)	-0.062 (0.000)	-0.067 (0.000)	-0.066 (0.001)
Target size	-0.007 (0.444)		-0.005 (0.633)		-0.008 (0.553)	
All stock	0.020 (0.517)	0.051 (0.379)	0.025 (0.433)	0.045 (0.432)	0.017 (0.692)	0.052 (0.515)
Unsolicited	0.044 (0.302)	-0.033 (0.785)	0.113 (0.011)	0.063 (0.601)	0.241 (0.000)	0.154 (0.367)
Regulated	-0.067 (0.016)	-0.064 (0.038)	-0.054 (0.061)	-0.052 (0.087)	0.007 (0.854)	0.011 (0.796)
Affiliated	-0.049 (0.384)	-0.012 (0.884)	-0.114 (0.054)	-0.090 (0.273)	-0.096 (0.247)	-0.054 (0.643)
Return <i>SD</i>	1.434 (0.310)	1.312 (0.411)	2.097 (0.154)	2.018 (0.202)	3.999 (0.052)	3.862 (0.084)
Adjusted <i>R</i> ²	0.129	0.129	0.193	0.193	0.155	0.155
Model <i>p</i> -Value	0.000	0.000	0.000	0.000	0.000	0.000

with models such as French and McCormick (1984), the choice of an auction or a negotiation in a particular takeover is related to characteristics such as target size and industry as well as the affiliation with the bidding firm. Our systematic analysis of the manner in which major corporations are sold should provide guidance in the development of more detailed models of the takeover process along the lines sketched by Hansen (2001), Povel and Singh (2005), and Ye (2004).

Our evidence on the takeover process in the 1990s sheds new light on the effect of changing corporate governance on takeover bidding strategy. Prior

research such as Schwert (2000, footnote 1) suggests that the growing incidence of poison pills and state antitakeover laws has lessened the reported hostility in takeover bidding. Our evidence indicates that although governance innovations may have lessened the publicly observed competition in takeovers, apparent impediments such as poison pills and antitakeover laws have not led to a noncompetitive takeover environment.

Our analysis of target returns indicates that the wealth effects to targets are comparable in both auctions and negotiations. The results hold for both the multivariate specification in our single-equation analysis as well as two-stage regressions that control for the endogeneity between takeover returns and the choice of sales procedure. The results are consistent with the models of French and McCormick (1984), Hansen (2001), Povel and Singh (2006), and Ye (2004), which argue that the auction versus negotiation choice in a particular takeover reflects a trade-off between competition and information costs. The results are inconsistent with an agency cost explanation for why some target managers choose a negotiation rather than an auction in a takeover.

Of course, the results do not imply that agency costs are absent in the corporate takeover setting. Target managers may attempt to use the takeover as a means of adding to their own pockets. However, our results indicate that the constraints posed by corporate takeover law and the potential competition when a deal is made public aid in keeping corporate managers honest. Indeed, the private takeover process that we document reveals why potential competition is relevant even for targets opting to negotiate with a single bidder: Given the well-developed process, the target and its investment bank can readily solicit competing bids should a negotiation founder.

Our results have important implications for debates in corporate law. Analysis by legal scholars such as Easterbrook and Fischel (1982) and Bebchuk (1982) proposes policies ranging from an outright ban on corporate auctions to a mandatory prescription for auctions in corporate takeovers. Much of this debate focuses on the public takeover arena. Our analysis indicates that the debate on corporate takeover policy must also consider the takeover competition that occurs prior to the public announcement of a deal. Furthermore, our findings of similar returns for auctions and negotiations are most in line with Macey's (1990) argument that there should not be a legal mandate for auctions in all corporate takeovers.

Our analysis of target returns is also pertinent to the related legal discussion of the use of termination fees and lock-up options in corporate takeovers. Legal scholars such as Coates and Subramanian (2000) express concern that such lock-up arrangements may inhibit auctions in corporate takeovers and thereby harm the shareholders of target companies. Similarly, based on the prediction of greater returns from auctions in their model, Bulow and Klemperer (1996, p. 181) argue against lock-up agreements. Our results of comparable returns to targets from auctions and negotiations temper such concerns about the use of lock-up arrangements in corporate takeovers. Indeed, in related research on the private takeover process, Boone and Mulherin (2007) find that termination provisions do not inhibit takeover competition.

Our analysis of auctions and negotiations is also quite relevant to issues in areas of corporate finance outside of the corporate takeover setting. In the area of bankruptcy, there has been an ongoing debate as to whether auctions should be mandatory for corporate reorganizations (see, e.g., Baird (1993) and Jackson (1993)). Similarly, Sherman (2005) asks why auctions are not more prevalent in initial public offerings. Our findings indicate that auctions do not always dominate in a corporate takeover setting and suggest that the design of contracts and procedures across the many dimensions of corporate finance are shaped by information and transaction costs.

Finally, our analysis has relevance for the sale of government-owned assets. Our findings in the corporate takeover setting are consistent with Klemperer's (2002) observation that one size does not fit all in the auction of rights to the spectrum. Similarly, the sequential nature of the private takeover process that we document resembles the multistage qualifying auction that Boone and Goeree (2005) propose for asset privatization. Our detailed presentation of the corporate takeover process should enable further refinements in the methods of asset privatization.

Appendix: Detailed Example of the Sales Process—Sonat Inc.

This Appendix provides a detailed example of the sales process for Sonat Inc. The text is taken directly from SEC filings.

Sonat Inc (1999).

DEFS14A Filing by Sonat, May 5, 1999.

At a meeting of the Sonat board in December 1998, Sonat reviewed with Merrill Lynch, Sonat's financial advisor, a variety of strategic alternatives. The Sonat board identified three alternatives that, in its view, were potentially attractive to Sonat and its stockholders: (1) remaining as a stand-alone company in its existing businesses, (2) a spin-off of Sonat's pipeline and marketing businesses with a subsequent merger of its remaining exploration and production business with a publicly-held company, and (3) a sale or merger of Sonat as a whole. Of these three alternatives, the Sonat board believed that the sale or merger of the company as a whole would generate the highest value to its stockholders. In connection with a possible sale or merger, the Sonat board concluded that, from a negotiating standpoint, it would be preferable for parties interested in entering into a business combination with Sonat to initiate discussions with Sonat, rather than vice versa. As a result, Sonat did not initiate a dialogue with potential merger candidates at that time.

On January 29, 1999, William A. Wise, Chairman of the Board, President and Chief Executive Officer of El Paso, telephoned Ronald L. Kuehn, Jr., Chairman of the Board, President and Chief Executive Officer of Sonat, to propose a meeting.

In late January 1999, in addition to El Paso, another company had independently contacted Sonat with an interest in a possible merger. With these expressions of interest, Sonat made a decision to explore a possible business combination. For disclosure and other business reasons, Sonat decided not to

pursue an open public auction. Instead, it initially decided to work with El Paso and the other company.

In February 1999, three other companies contacted Sonat as to their respective interests in a business combination with Sonat. Certain other companies with lesser business fits also expressed interest, but it was decided that discussions with these parties should be postponed until after the positions were known of the five companies that had better business fits and had already shown an interest in a combination with Sonat.

During February, following the execution of confidentiality agreements with each of the five interested companies, including El Paso, financial forecasts were exchanged and due diligence meetings were held with each of the companies.

On February 26, 1999, El Paso submitted to Sonat a written proposal for a transaction with a 0.95 exchange ratio and Messrs. Kuehn, Wise, Gordon and Eads met in Houston. . . . Mr. Kuehn stated that an exchange ratio of less than one-to-one was not acceptable to Sonat. Mr. Wise indicated that El Paso would consider increasing its proposed exchange ratio to one-to-one. Mr. Kuehn stated that other parties had expressed interest in a business combination with Sonat, and that the Sonat board would meet on March 11, 1999 to consider proposals submitted by all of the parties and review its strategic options. Mr. Wise requested that Sonat afford El Paso access to more detailed due diligence information and proposed that El Paso would submit a draft merger agreement to Sonat. After this discussion, Messrs. Kuehn and Wise agreed to conduct mutual due diligence during the week of March 1, 1999 in Houston.

On March 5, 1999, the other four parties submitted proposals to Sonat, one of which was immediately dismissed on the basis of an unacceptably low value.

On March 6, 1999, Mr. Wise telephoned Mr. Kuehn. Mr. Kuehn indicated that Sonat had received a number of proposals, and that three of the proposals, including El Paso's proposal, were comparable in many respects.

On March 11 and 12, 1999, the Sonat Board met to discuss, among other things, the proposed merger with El Paso, as well as the status of the other proposals received by Sonat with respect to a potential business combination or similar transaction. . . . The Sonat board concluded that a business combination with El Paso would have benefits . . . including providing Sonat's stockholders with the highest notional and normalized value per share.

On March 12, 1999, the El Paso board met in Houston to review the proposed merger. Following presentations by El Paso's management, Donaldson, Lufkin & Jenrette and Fried Frank, the El Paso board unanimously voted to approve the merger agreement . . .

On March 13, 1999, the Sonat board met telephonically to consider the proposed merger with El Paso. Merrill Lynch, as Sonat's financial advisor, rendered an oral opinion, which was subsequently confirmed in writing, that, as of the date of that meeting and based upon and subject to the matters stated in the written fairness opinion, the consideration to be received by Sonat stockholders in the merger was fair to the stockholders from a financial point of view. After considering the various factors relating to the four proposals that had been discussed at the March 12 board meeting, the Sonat board concluded that

a merger with El Paso was preferable to any of the other proposals or either of the two other alternatives identified and discussed at the December 1998 Sonat board meeting . . . After further discussion and consideration, the Sonat board approved the merger agreement, the merger and all of the related transactions.

. . . the merger agreement, the stock option agreements and the voting agreements were executed on March 13, 1999. The execution of the merger agreement and the related agreements was publicly announced by the parties on March 15, 1999.

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