What Do Returns to Acquiring Firms Tell Us? Evidence from Firms That Make Many Acquisitions

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ABSTRACT

We study shareholder returns for firms that acquired five or more public, private, and/or subsidiary targets within a short time period. Since the same bidder chooses different types of targets and methods of payment, any variation in returns must be due to the characteristics of the target and the bid. Results indicate bidder shareholders gain when buying a private firm or subsidiary but lose when purchasing a public firm. Further, the return is greater the larger the target and if the bidder offers stock. These results are consistent with a liquidity discount, and tax and control effects in this market.

Takeovers are one of the most important events in corporate finance, both for a firm and the economy. Extensive research has shown that shareholders in target firms gain significantly and that wealth is created at the announcement of takeovers (i.e., combined bidder and target returns are positive). However, we know much less about the effects of takeovers on the shareholders of acquiring firms. Evidence suggests that these shareholders earn, on average, a zero abnormal return at the acquisition's announcement, though there is tremendous variation in these returns. Researchers have been unable to successfully explain much of this variation, partially because the announcement of a takeover reveals information about numerous things. For example, Grinblatt and Titman (2002, p. 708) state that the stock return at the time of the bid cannot be completely attributed to the expected effect of the acquisition on profitability, arguing that, "the stock returns of the bidder at the time of the announcement of the bid may tell us more about how the market is reassessing the bidder's business than it does about the

value of the acquisition." Hietala, Kaplan, and Robinson (2001) note that the announcement of a takeover reveals information about the potential synergies in the combination, the stand-alone values of the bidder(s) and target(s), and the bidder overpayment. They argue that it is often impossible to isolate these effects and, thus, know the meaning of the market's reactions to a takeover announcement.

Our research design allows us to control for much of the information about bidder characteristics contained in the returns at the announcement of the takeover. Thus, we are able to more directly examine the impact of target and bid characteristics on the returns of acquirers than previous research. We investigate the returns to shareholders of firms making five or more successful bids within three years between 1990 and 2000. This sample of firms enables us to hold bidder characteristics constant while examining the pattern of announcement returns. Presumably, if the same firms make different types of acquisitions, and if we assume that the acquisition pattern varies randomly among firms, we can attribute most of the variation in the acquirer's returns as due mainly to factors other than new information about the bidder. Our main focus is on examining the returns to acquirers making bids for public, private, and subsidiary targets, using cash and stock, and seeing how the acquirers' returns vary by these characteristics. Our study enables us to provide new evidence on what bidder returns tell us about takeovers.[1]

We choose to examine the 1990 to 2000 period because the level of takeover activity in the United States in the 1990s was very high by historical standards. Additionally, firms making multiple acquisitions initiated a significant portion of takeover activity in this period. The firms in our sample make more than one-third of all the large, nonfinancial, nonutility takeovers in the United States as reported by Securities Data Corporation.[2] Therefore, our sample provides a fruitful testing ground for probing the meaning of returns to acquirers. Further, we include acquisitions of private firms and subsidiaries, which is an important component of the takeover market (81 percent of all acquisitions) but a market that few have studied.

Using a sample of 3,135 takeovers, we find that bidders have significantly negative returns when buying public targets and significantly positive returns when buying private or subsidiary targets. When the bids are partitioned on method of payment (cash, stock, or a combination of the two), we find that acquisitions of public targets result in insignificant bidder returns for cash or combination offers but significantly negative returns to the acquirers when stock is offered. However, for private and subsidiary targets, acquirer returns are significantly positive regardless of method of payment. These ac-

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[1] Note that in our analysis, the terms bidder and acquirer are used interchangeably because all the bids in our sample lead to a completed acquisition.

[2] Acquisitions by multiple bidders were an important source of growth to these firms. The total value of their acquisitions averaged 6.5 times greater than their market value the month before the first acquisition.

quirer returns accompanying bids for private firms and subsidiaries are greater for bids financed with equity than for bids financed with cash. Further, we do not find any evidence that the returns to the acquirer when a subsidiary is purchased depends on whether the seller is diversified.

Additionally, when we partition the returns to acquirers on the relative size of the target compared to the bidder, we find that for public targets, as the relative size of the target increases, the returns become more positive for cash offers, more negative for stock offers, and change little for combination offers. However, for both subsidiary and private targets, there is a positive relationship between the target's relative size and the acquirers' positive abnormal returns. As the relative size of the target increases for a private acquisition, returns to the bidder using stock are greater than if the bidder had used cash.

One explanation for the differing market reactions to the acquisitions of private and subsidiary targets versus public acquisitions is that bidders receive a better price when they buy nonpublic firms. This could be due to a liquidity effect—private firms and subsidiaries cannot be bought and sold as easily as publicly traded firms. This lack of liquidity makes these investments less attractive and thus less valuable than similar, more liquid investments. The acquirer captures this discount in purchasing the privately held firm or the subsidiary. This also is consistent with why the returns to acquirers are more positive the greater the relative size of the target for private targets and subsidiaries and more negative the greater the relative size of the target for public targets.

Two other factors also contribute to the pattern of abnormal returns of offers for private firms. First, by definition, private firms are closely held. Thus, as the relative size of the private target to the bidders increases, so does the likelihood of blockholder formation when stock is used as the method of payment. This creation of a large blockholder then allows for greater monitoring of the bidder's management, increasing bidder value. Therefore, bidders using stock rather than cash to acquire a private target will receive higher returns, and the returns will be higher the greater the target's relative size. Further, when a privately held firm is acquired with cash, the private-firm owners are faced with immediate tax implications. However, when private-firm owners are given stock in exchange for their ownership rights, the tax implications are deferred. If this tax deferral option is valuable to owners, they may accept a discounted price for the firm equal to, at most, the value of the option. This lower price will be reflected in the higher bidder returns for stock offers.

In sum, we suggest that transactions prices in mergers vary with the type of the target. In terms of prices, bidders receive the best prices when they buy private firms and subsidiaries with equity, then private firms and subsidiaries with cash, then public firms with cash, and finally the worst price for public firms purchased with equity. These results are somewhat in the spirit of Shleifer and Vishny (2001, p. 2) who also argue "stock market valuation shapes merger activity."

In addition to our evidence on the impact of liquidity and control on the markets for corporate assets, we also add to the evidence on the method-of-payment choice. For public targets, our results are consistent with Myers and Majluf (1984)—a bid made with stock reveals the bidder views their stock as overvalued. However, for private and subsidiary targets, the same bidders experience positive reactions for both stock and cash offers, even if the private and public bids are made almost simultaneously. This lends support to Hansen's (1987) hypothesis that if the bidder has less information regarding the target's value, the bidder should make a stock offer.

Further, our sample allows us to examine the choice of the bidder's method of payment in a unique way. We construct a sample of firms that acquired two targets within 90 days. In comparisons of these two bids, we hold constant bidder characteristics and concentrate on the relation between the characteristics of targets and bids and acquirer returns. We first show that in clustered bids, bidders often use different methods of payment. This suggests that the choice of a method of payment is often a function of the characteristics of the target rather than just the bidder's attributes. If the targets have different public status, if the bidder and targets were in different industries, and if the difference in the size of the two targets was large, then the acquirers are more likely to choose two different methods of payment.

The paper is organized as follows. In Section I, we review the related literature and discuss our approach. Section II describes the data, while Section III reports the results and our interpretations. Section IV concludes the paper.

I. Previous Research on Returns to Shareholders of Bidding Firms

A. *Empirical Evidence on Bidder Returns: Public Targets*

Mulherin and Boone (2000) study acquisition and divestiture activity from 1990 through 1999 of 1,305 Value Line firms. They find that both acquisitions and divestitures create wealth, which they measure by the combined stock price reaction to the announcement. An average target return of 20.2 percent in the three-day window around the acquisition offsets a slightly negative but insignificant bidder return. Mulherin and Boone find that combined bidder and target returns are significantly related to the relative value of the target (target value/bidder value). They conclude that the wealth effects are directly related to the size of the event for acquisitions (and divestitures) and are consistent with a synergistic explanation for the transactions.

The Mulherin and Boone (2000) results are consistent with a host of studies mostly using data from earlier time periods (see the surveys by Jensen and Ruback (1983), Jarrell, Brickley, and Netter (1988), Andrade, Mitchell, and Stafford (2001), Bruner (2001), and Weston, Siu, and John-

son (2001, Chapter 8)). For example, Bradley, Desai, and Kim (1988) find that excess returns to bidders on the announcement of a takeover fall from about 4 percent in the 1960s to 1.3 percent in the 1970s and then to -3 percent in the 1980s (all statistically significant). However, they also find positive combined gains for bidders plus targets in takeovers for each period. Weston et al.'s review of the evidence on returns to acquirers in takeovers notes several reasons why the returns to bidders may have decreased over time. The Williams Act (adopted in 1968) made the tender offer process more costly and time-consuming for bidders. In the 1980s, takeover defenses adopted by firms, state antitakeover laws, and judicial decisions protecting targets all developed to further shift the bargaining balance from bidders to targets.

These results raise an important question. If bidder returns are not positive, then why do firms make acquisitions? There are several possible explanations. Weston et al. (2001, p. 221) note that zero returns to bidders are consistent with a competitive corporate control market in which firms earn "normal" returns in their operations. By this standard, Bruner (2001, p. 14) concludes "60 to 70 percent of all M&A transactions are associated with financial performance that at least compensates investors for their opportunity cost." Additionally, while bidder returns are on average small, there is a tremendous variation in returns and many bidders are trying to be one of the winning firms.

In addition, there are several difficulties in estimating bidder returns.[3] First, targets may be small relative to the bidder, so even good acquisitions could have little impact on the bidder's stock price. Second, the stock price reaction to an acquisition can only represent the surprise component of the acquisition. If a bidder is known to be engaging in an acquisition strategy, the stock price reaction to any acquisition announcement will only represent how the market perceives that acquisition to be different from the anticipated acquisition. Third, if the target resists the takeover, the takeover process could take a long time. Thus, the uncertain outcome of the event makes it difficult to isolate the market's perception of the bid.

Hietala et al. (2001) raise more fundamental objections to the interpretation of bidder returns. They note that the announcement of a takeover reveals information about several things including the potential synergies in the combination, the stand-alone values of the bidder(s) and target(s), and the split in value among the firms. They suggest that it is generally impossible to disentangle these effects and infer the meaning of the market's reactions to a takeover announcement. Hietala et al. present a model that shows it is possible in several special cases to use bidder and target stock price movements to estimate the market's estimate of synergies and overpayment—including cases where a deal is not completed or where a takeover contest has exactly two bidders. Empirically, they use their methodology to show that the winning bidder for Paramount, Viacom, won by

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[3] See Eckbo, Maksimovic, and Williams (1990) for a more thorough discussion.

being willing to overpay more than its competitor, QVC, in the bidding contest even though QVC had greater synergies with Paramount.[4]

B. *Empirical Evidence on Bidder Returns: Private Targets*

There is little research on method-of-payment choice or wealth effects when the target is a private company and essentially none when the target is a subsidiary of another company. Chang (1998) examines bidder returns to firms acquiring 281 privately held targets from 1981 through 1992 and compares them to bidder returns for 255 public targets from 1981 through 1988. He finds no significant abnormal returns for a two-day window for bidders who acquire private targets with cash. However, bidders who buy private targets with stock have a significant 2.64 percent return. Chang suggests that when making a stock acquisition, a large blockholder or several blockholders may be created from the target shareholders. If the blockholders were better able to monitor the actions of the bidding firm management, the performance of the bidding firm would improve. To test this, Chang separates the bidders by whether or not a new blockholder in the bidder emerges from the private target firm. He finds a 4.96 percent announcement abnormal return if a new blockholder is formed versus a 1.77 percent return if there is no new blockholder; both of these abnormal returns are significant, as is their difference. Though large blockholders can be created for both private and public targets, this effect is more likely with private targets since public targets generally have less concentrated ownership.

This differential may be offset somewhat, however, by the fact that public targets tend to be larger than private targets and therefore receive a larger ownership stake in the bidder. In addition, private target managers may use the takeover as an exit strategy and be uninterested (or incapable) of acting as effective monitors. Thus, blockholder considerations are not conclusive in explaining differences in bidder returns based on the public/private distinction.[5]

Hansen and Lott (1996) also examine the returns to bidders acquiring private and public targets. They examine the returns to bidders acquiring 252 private and public targets from 1985 to 1991. Their results indicate that the bidders experience a 2 percent higher return when purchasing a private firm. In 65 percent of the bids for public targets, the bidder return was negative, while in only 43 percent of the bids for the private targets was the bidder return negative. Hansen and Lott offer an alternative explanation than blockholder formation for why bidders do relatively better in an acqui-

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[4] Bhagat, Hirshleifer, and Noah (2001) use probability scaling and intervention methods of estimation to attempt to better estimate the shareholder value effects of takeovers. They argue their estimation methods correct for the problems induced by choosing incorrect length event windows and bidder-revelation bias (the bid reveals information about the bidder). They find investors perceive large value improvements from tender offers.

[5] Another possible reason for the different reactions is the bias discussed earlier: Private deals will almost certainly be completed, while the public deals may not be completed.

sition of a private target than a public target. They hypothesize that since investors are diversified, the goal of the manager of a firm is not to maximize shareholder value but to maximize the value of the shareholder's portfolio. Thus, when a public bidder acquires a public target, diversified shareholders will be indifferent to how the gains from the acquisition are divided, assuming they own stock in both firms. The negative returns of the bidder are offset by the positive gains of the target. However, when a public bidder acquires a private target, the bidder's shareholders will capture part of the gains of the acquisition, assuming the bid is value increasing.

C. Method of Payment in Mergers and Acquisitions

One area of significant research that focuses on the determinants of bidder returns is the choice between cash and stock as the method of payment. Myers and Majluf (1984) argue that a bidder firm will use stock as the medium of exchange if the board believes that its own shares are overvalued. Since target shareholders know this, they are not inclined to accept a stock offer. Fishman (1989), Berkovitch and Narayanan (1990), and Eckbo, Giammarino, and Heinkel (1990) expand on this idea and show that higher-valued bidders will use cash or a higher proportion of cash to signal their value to the market. However, if the bidder is uncertain about the target's value, the bidder may not want to offer cash, since the target will only accept a cash offer greater than its true value and the bidder will have overpaid.

Hansen (1987) and Eckbo and Thorburn (2000) develop models that address the issue of uncertainty in target valuation. They suggest that bidders make stock offers in these cases since stock offers have a "contingency pricing effect" (Hansen (1987, p. 76)). That is, the target is forced to share part of the risk if the bidder overpays when evaluating a stock offer. Thus, bidders should make cash offers when there is high uncertainty on their own firm's value, and stock offers when there is high uncertainty on the target's value.

Empirical research supports these theoretical hypotheses. For example, Travlos (1987), Fishman (1989), Brown and Ryngaert (1991), and Martin (1996) all find that bidders making cash offers have greater abnormal returns at the bid announcement than do those making stock offers. In addition, Martin finds that stock offers are more likely to be used than cash if there is more uncertainty about the bidder.

D. Evidence on Multiple Bidders

Three papers are directly related to the focus of our study on multiple bidders. Schipper and Thompson (1983) examine bidder returns for 55 firms that engage in acquisition programs from 1952 to 1968. They find positive abnormal returns of 13 percent in the 12 months up to and including the announcement of the acquisition program. However, they find little stock price reaction to subsequent acquisition announcements. Asquith, Bruner, and Mullins (1983) find that most bidding firms make multiple bids: 45 per-

cent of their sample made four or more subsequent bids throughout the 17-year sample period of their study (1963 to 1979). Unlike Schipper and Thompson, Asquith et al. find bidder returns, in their sample of bids from 1969 to 1974, remain positive through the fourth bid and conclude that all of the benefits of a merger program are not capitalized in the announcement of the program. Malatesta and Thompson (1985) use Schipper and Thompson's data to test a model of stock price reaction to partially anticipated events. They find significant bidder returns at the acquisition announcement even by firms that had previously announced an acquisition program.

These earlier studies reveal that it is not uncommon for the same firm to make multiple acquisitions. However, they rely on relatively small samples compared to ours, and focus on much earlier time periods. Further, the Schipper and Thompson (1983) results indicate that it is difficult to identify the market's perception of an individual acquisition when firms make multiple bids as part of an announced acquisition program. Since the impact of the acquisitions is already impounded in the stock price, any finding of significant bidder abnormal returns at an acquisition announcement is noteworthy. The Asquith et al. (1983) study indicates that in a carefully chosen sample it is possible to identify the effects of subsequent merger announcements on bidders' returns.

II. Data

We collect from Securities Data Corporation's (SDC) U.S. Mergers and Acquisitions (M&A) Database a list of successful mergers and tender offers for foreign and domestic targets, with initial bids announced between January 1, 1990 and December 31, 2000.[6] To be included in the sample, the following conditions must be satisfied:

1. The target is a public firm, a private firm, or a subsidiary of a public firm.
2. The target firm has a disclosed dollar value and the bidder is acquiring more than 50 percent of the target firm.
3. The deal value is one million dollars or more. Deal value is defined as the total value of consideration paid by the acquirer, excluding fees and expenses. The dollar value includes the amount paid for all common

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[6] For a random sample of 500 acquisitions in our sample, we verified the announcement dates listed on SDC. For 92.6 percent of the sample, the announcement date provided by SDC was correct, in the other cases it was only off by two days at most. We do not check for confounding events. However, even if we do not have the exact date (which occurs rarely) or if there is a random confounding event, it biases against finding any significant returns for the acquirers in our sample. The problem we do not address, identified by Bhagat et al. (2001), is that bidders can choose to announce the bid along with another positive announcement to make the bid look better. This might be more likely for bids for private targets or subsidiaries than for public targets because there are less regulatory restrictions on the timing of those announcements than bids for public targets.

stock, common stock equivalents, preferred stock, debt, options, assets, warrants, and stake purchases made within six months of the announcement date of the transaction.

4. Acquiring firms are U.S. firms publicly traded on the AMEX, Nasdaq, or NYSE and have five days of return data around the takeover announcement listed on the Center for Research in Security Prices (CRSP) file.

5. Neither the acquirer nor the target is a utility or a financial institution.

6. The acquirer completes bids for five or more targets in any three-year window during the sample period.

We exclude from the main analysis clustered takeovers where the bidder acquires two or more firms within five days, since we cannot isolate the bidder's return for a particular target. To avoid bid–ask bias in the announcement-period abnormal returns, we exclude bids where the bidder stock price is below two dollars. Our final sample includes 539 unique acquirers making 3,135 bids.

Similar to Martin (1996), we group the method of payment into three categories. (1) Cash financing includes combinations of cash, debt, and liabilities. (2) Financing with common stock includes payments with common stock or a combination of common stock and options or warrants. (3) Combination financing comprises combinations of common stock, cash, debt, preferred stock, convertible securities, and methods classified as "other" by SDC.

Table I reports the summary statistics for the firms making multiple acquisitions and their targets. Panels A, B, C, and D report the yearly mean and median bidder and target size for all bids, only public bids, only private bids, and only subsidiary bids, respectively. The mean and median size for each bidder and each target is reported in the year the bid was announced. The acquirer's market capitalization equals the price per share one month prior to the bid announcement times the number of common shares outstanding. For public targets the market capitalization equals the price per share one month prior to the bid announcement times the number of common shares outstanding, but for private and subsidiary targets, the market capitalization is assumed to be the value of the deal when announced. The final row of each panel provides the mean and median size for each unique bidder and target, counted only once. Thus, for the sample in Panel A, the mean (median) size of the bidder is 5.24 billion dollars (534 million dollars) for 539 unique bidders. Table I also shows a general trend in M&A activity— during the 1990s there was an increase in the number and size of acquisitions for private, public, and subsidiary targets.[7]

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[7] Holmstrom and Kaplan (2001) argue that while both the 1980s and 1990s were periods of significant M&A activity, the type of M&A activity was different in the two periods. Significant LBO and hostile activity characterized the 1980s while the 1990s bids were friendly and financed much more with equity. They suggest that by the 1990s, corporations had adopted the beneficial features introduced in the 1980s by LBOs.

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Table I

Mean and Median Size of Acquirers and Targets

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Sample of bidders and targets where the bidder successfully acquired five or more targets within a three-year period from 1990 to 2000. Targets are comprised of public, private, and subsidiary firms. For each of the following panels, a particular bidder is represented only once per year, but may be represented multiple times over the 11-year period. The total row for the number of bidder firms represents the number of unique acquirers throughout the sample period. All acquirers are publicly traded firms listed on the NYSE, Nasdaq, or AMEX. Targets include both foreign and domestic firms. Panel A contains 539 unique bidders acquiring 3,135 targets. Targets in Panel A are public, private, and subsidiary. Panels B, C, and D represent public, private, and subsidiary deals, respectively. Panel B represents 261 unique bidders acquiring 456 public targets. Panel C contains 511 unique bidders acquiring 2,060 private targets. Panel D contains 324 unique bidders acquiring 619 subsidiary targets. Numbers are reported in millions.

	Bidder			Target		
	Mean	Median	*N*	Mean	Median	*N*
Panel A: All						
1990	2,470	308	18	199	21	26
1991	2,063	508	40	98	25	60
1992	1,991	319	65	65	17	107
1993	2,329	316	101	260	22	167
1994	2,083	325	138	107	15	270
1995	2,382	316	188	158	20	352
1996	2,850	425	240	125	27	489
1997	4,310	506	277	165	25	583
1998	6,811	714	253	344	31	523
1999	11,518	948	173	614	42	355
2000	16,639	2,756	88	637	71	204
Total	5,240	534	539	265	27	3,135
Panel B: Public						
1990	2,119	2,119	1	459	459	1
1991	2,501	1,814	5	260	135	5
1992	1,097	778	10	215	150	11
1993	5,384	704	19	1,505	289	22
1994	4,182	1,322	31	428	157	38
1995	5,516	1,149	42	843	243	47
1996	5,121	1,530	58	505	148	72
1997	9,141	1,092	65	630	301	74
1998	7,932	1,384	77	1,566	197	94
1999	28,923	3,947	47	2,594	429	65
2000	21,523	6,320	24	3,254	465	27
Total	10,203	1,695	261	1,271	233	456

Panels B, C, and D differentiate transactions on the basis of whether the target is public (Panel B), private (Panel C), or a subsidiary of a public firm (Panel D). Note that a firm that bids for public, private, and/or subsidiary

Table I—*Continued*

	Bidder			Target		
	Mean	Median	*N*	Mean	Median	*N*
Panel C: Private						
1990	594	149	13	194	11	19
1991	2,379	426	26	82	13	35
1992	1,254	277	50	41	12	75
1993	1,067	227	69	37	15	101
1994	1,792	191	106	43	10	178
1995	954	272	137	37	15	232
1996	2,127	268	190	49	18	325
1997	3,383	423	208	46	18	387
1998	3,534	546	188	56	20	339
1999	7,942	775	136	121	24	224
2000	17,509	2,137	74	225	53	145
Total	3,905	440	511	69	18	2,060
Panel D: Subsidiary						
1990	7,037	1,337	5	172	127	6
1991	1,766	1,141	16	84	27	20
1992	3,977	308	19	74	25	21
1993	2,803	485	35	150	34	43
1994	4,597	749	43	93	29	54
1995	2,983	379	64	102	27	73
1996	3,506	471	72	97	40	92
1997	5,490	562	95	259	33	122
1998	10,163	857	73	154	52	90
1999	26,052	1,673	54	338	65	66
2000	23,372	2,848	27	300	63	32
Total	8,298	733	324	177	38	619

targets will be included in the bidder data in several panels. For 456 unique public targets, Panel B reports that the mean (median) size is 1.271 billion dollars (233 million dollars). Panel C reports that the private target mean (median) size is much smaller than for public targets (69 million dollars (18 million dollars) for 2,060 unique private targets). Panel D shows that the 619 unique subsidiary targets are also smaller than public targets (mean (median) size of 177 million dollars (38 million dollars)).

Table II presents takeover activity by industry using classifications from Fama and French (1997). We report by industry the number of firms making multiple bids, the percent of all multiple bids made by firms in that industry, the number of firms that are targets of a multiple bidders, and the percent of all firms in that industry that are targets of multiple bidders. The last two columns of Table II report data on the number and percent of bids originating in the bidders' own industry. For some industries, the percent of

Table II

Takeover Activity by Industry

This table reports, by industry, the fraction of sample firms that were acquired and firms that were acquiring five or more firms within three years from 1990 to 2000. Targets are comprised of public, private, and subsidiary firms. Industry data are organized using Fama and French (1997) industry classifications. Columns 2 through 5 report the number and percentage of acquirers and targets, respectively, in a particular industry. Columns 6 and 7 report the number and percentage of bidders acquiring targets in their own industry.

| Industry (1) | Acquirers | | Targets | | Number of Own Industry Acquisitions (6) | % of Bids in Own Industry (7) |
	N (2)	% (3)	N (4)	% (5)		
Agriculture	3	0.6	14	0.4	11	64.7
Aircraft	7	1.3	23	0.7	10	25.0
Apparel	1	0.2	5	0.2	0	0.0
Automobiles	6	1.1	25	0.8	18	62.1
Banking	0	0.0	6	0.2	0	0.0
Business services	128	23.7	849	27.1	446	61.2
Business supplies	1	0.2	14	0.4	1	20.0
Candy and soda	2	0.4	13	0.4	11	100.0
Chemicals	6	1.1	15	0.5	1	3.7
Computers	30	5.6	135	4.3	84	47.7
Construction	8	1.5	47	1.5	18	50.0
Construction materials	11	2.0	49	1.6	11	18.6
Consumer goods	4	0.7	26	0.8	7	38.9
Defense	1	0.2	3	0.1	0	0.0
Electrical equipment	7	1.3	33	1.1	8	21.1
Electronic equipment	36	6.7	193	6.2	100	41.7
Entertainment	16	3.0	55	1.8	30	38.0
Fabricated products	2	0.4	19	0.6	3	25.0
Food products	5	0.9	14	0.4	9	37.5
Healthcare	36	6.7	193	6.2	91	43.5
Insurance	0	0.0	17	0.5	0	0.0
Machinery	22	4.1	96	3.1	35	23.8
Measuring and control Equipment	5	0.9	40	1.3	12	35.3
Medical equipment	12	2.2	74	2.4	48	67.6
Miscellaneous	1	0.2	9	0.3	1	25.0
Nonmetallic mining	1	0.2	2	0.1	0	0.0
Personal service	5	0.9	28	0.9	7	22.6
Petroleum and natural gas	24	4.5	119	3.8	91	72.8
Pharmaceutical	7	1.3	39	1.2	20	52.6
Printing and publishing	4	0.7	25	0.8	9	50.0
Real estate	0	0.0	18	0.6	0	0.0
Recreational products	1	0.2	15	0.5	4	80.0
Restaurants, motels, hotels	11	2.0	90	2.9	78	83.9
Retail	13	2.4	96	3.1	43	54.4
Rubber and plastics	1	0.2	21	0.7	6	85.7
Shipbuilding, railroad	1	0.2	3	0.1	2	25.0
Shipping containers	2	0.4	12	0.4	7	63.6
Steel works	8	1.5	44	1.4	16	32.0
Telecommunications	64	11.9	330	10.5	248	67.2
Textiles	2	0.4	12	0.4	5	50.0
Trading	0	0.0	21	0.7	0	0.0
Transportation	10	1.9	56	1.8	40	61.5
Trash and waste	6	1.1	45	1.4	28	71.8
Wholesale	29	5.4	192	6.1	67	40.6

own-industry bids is very high (e.g., Candy and Soda: 100 percent, Petroleum and Natural Gas: 72.8 percent, Telecommunications: 67.2 percent), while in other industries it is much lower (e.g., Aircraft: 25 percent, Machinery: 23.8 percent).

We follow Brown and Warner's (1985) standard event study methodology to calculate CARs for the five-day period $(-2, 2)$ around the announcement date supplied by SDC. We estimate the abnormal returns using a modified market model:

$$AR_i = r_i - r_m \tag{1}$$

where r_i is the return on firm i and r_m is the value-weighted market index return. We do not estimate market parameters based on a time period before each bid, since for frequent acquirers, there is a high probability that previous takeover attempts would be included in the estimation period, thus making beta estimations less meaningful. Additionally, it has been shown that for short-window event studies, weighting the market return by the firm's beta does not significantly improve estimation.[8]

III. Results

A. Abnormal Returns by Target Type and Method of Payment

Tables III, IV, V, and VI report the five-day cumulative abnormal returns (CARs) to multiple bidders classified by type of target and method of payment. In Table III, Panel A, we report the CARs for the full sample of bidders. For all bids, the CAR is a statistically significant positive 1.77 percent. However, when we differentiate the returns on the basis of whether the target was public or nonpublic, we find that the CAR is a significantly negative -1.00 percent for public targets, significantly positive 2.08 percent for private targets, and significantly positive 2.75 percent for subsidiaries.[9] If the target is public, bidder returns are insignificant if the bid is made with cash or a combination but a negative and significant -1.86 percent if the bid is made with stock. The CARs are positive and significant for the private target sample regardless of the method of payment used: cash (1.62 percent), common stock (2.43 percent), or combination (2.48 percent). The market also views acquisitions of subsidiaries as good regardless of the method of pay-

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[8] See Brown and Warner (1980) for comparison of the market model with the market-and-risk-adjusted model.

[9] We do not examine the public targets to see how long they have been public and whether that makes a difference in the bidder returns. However, Field and Mulherin (1999) show that acquisition terms and target returns are similar across samples of recently public firms and more established firms. Our work complements theirs, because our private targets choose to be acquired without going public first.

Cumulative Abnormal Returns of Frequent Acquirers

Cumulative abnormal returns for bidders that acquired five or more public, private, or subsidiary targets during a three-year period between 1990 and 2000. Cumulative abnormal returns are calculated for the five days $(-2, 2)$ around the announcement (day 0) of a takeover. Abnormal returns are estimated using a modified market model:

$$AR_i = r_i - r_m$$

where r_i is the return on firm i and r_m is the value-weighted market index return. The usual estimation period is eliminated due to the high probability of confounding events for bidders acquiring five or more targets within three years. All acquirers are publicly traded firms listed on the NYSE, Nasdaq, or AMEX with a stock price of two dollars or greater in the month of the takeover announcement. Results in Panel A are all bids for public, private, and subsidiary targets. Panels B and C are subsamples of Panel A; they contain first bids and fifth and higher bids, respectively. The results for each panel are divided further by the method of payment. Cash offers include cash only and mixtures of cash and debt. Stock offers include common stock only or a combination of common stock and options, warrants, or rights. Combination deals are comprised of some proportion of cash and stock. The median is in brackets and the number of bids is reported below the median.

	All	Cash	Stock	Combo
Panel A: All Bids				
All multiple acquirers	1.77%[a]	1.78%[a]	1.25%[a]	2.20%[a]
	[1.07%]	[1.12%]	[0.77%]	[1.24%]
	3,135	1,530	763	842
Public targets	−1.00%[b]	0.34%	−1.86%[b]	−1.10%
	[−0.71%]	[0.53%]	[−1.28%]	[−1.63%]
	456	146	218	92
Private targets	2.08%[a]	1.62%[a]	2.43%[a]	2.48%[a]
	[1.29%]	[0.90%]	[1.54%]	[1.81%]
	2,060	920	506	634
Subsidiary targets	2.75%[a]	2.56%[a]	3.23%	3.33%[a]
	[1.72%]	[1.62%]	[4.27%]	[2.26%]
	619	464	39	116
Panel B: 1st Bids—Within 3-Year Constraint				
All multiple acquirers	2.74%[a]	2.20%[a]	2.15%[c]	4.24%[a]
	[1.54%]	[1.28%]	[0.95%]	[2.88%]
	471	222	120	129
Public targets	−0.88%	−0.69%	−1.74%	0.23%
	[−0.44%]	[−0.74%]	[−0.35%]	[0.01%]
	65	27	24	14
Private targets	3.22%[a]	1.95%[a]	3.05%[b]	4.93%[a]
	[1.74%]	[1.32%]	[1.36%]	[3.42%]
	309	122	87	100
Subsidiary targets	3.64%[a]	3.68%[a]	3.78%	3.36%[b]
	[2.42%]	[1.85%]	[1.30%]	[2.91%]
	97	73	9	15

Table III—*Continued*

	All	Cash	Stock	Combo
	Panel C: 5th and Higher Bids			
All multiple acquirers	0.52%[c]	0.87%[a]	−0.25%	0.53%
	[0.24%]	[0.57%]	[−0.11%]	[−0.38%]
	1,299	659	313	327
Public targets	−1.73%[b]	−0.38%	−2.62%[c]	−1.51%
	[−1.52%]	[0.31%]	[−1.79%]	[−2.29%]
	194	56	95	43
Private targets	0.72%[b]	0.54%	0.89%	0.87%
	[0.24%]	[0.20%]	[0.65%]	[0.10%]
	856	411	206	239
Subsidiary targets	1.57%[a]	1.94%[a]	−1.02%	0.68%
	[1.43%]	[1.64%]	[1.23%]	[−0.11%]
	249	192	12	45

[a] Denotes significance at 1% level.
[b] Denotes significance at 5% level.
[c] Denotes significance at 10% level.

ment: a positive and significant CAR of 2.56 percent, 3.23 percent, and 3.33 percent for cash, stock, and combination offers, respectively. Interestingly, subsidiary targets offer acquiring firms the largest abnormal returns.[10]

In Panels B and C of Table III we report the CARs for the first bid and the fifth and higher bids. We assume that the bidder returns on the fifth and higher bids will contain relatively less information about the bidder than the first bid, since the market has learned about the bidder, and correspondingly contain relatively more information about the synergies and division of gains in the deal than earlier bids. The results suggest that the market reaction to the fifth and higher bid is different than the reaction to the first bid. There is no significant stock price reaction to the first bid for public targets, no matter the method of payment, although the sample sizes are so small it is difficult to read much into these results. The CAR for the fifth and higher bids for public targets is negative and significant (−1.73 percent). Public targets acquired with stock (−2.62 percent) drive this negative return. This greater negative return for later offers made with stock is possibly due to the dilution of ownership from offers made for large public firms. Another reason, discussed below for bids for private firms, is that after making many quick acquisitions, bidders negotiate less efficiently and create less synergy in later deals.

[10] Note that approximately half the acquisitions are made with cash. Thus, especially when one includes private targets and subsidiaries, the comment of Andrade et al. (2001, p. 107) that "the pictures of mergers in the 1990s that emerges is one where merging parties, often in closely related industries, negotiate a friendly stock swap," is not consistent with our data.

Table IV

Cumulative Abnormal Returns of Frequent Acquirers of Subsidiaries

This table describes the cumulative abnormal returns of a bidder acquiring a subsidiary from a parent that is diversified, represented on the left portion of the table, or nondiversified, represented on the right side of the table. A diversified parent is defined as a parent whose three-digit SIC code is different from that of the subsidiary company. CARs are calculated for the five days (−2, 2) around the announcement (day 0) of a takeover. Abnormal returns are estimated using a modified market model:

$$AR_i = r_i - r_m,$$

where r_i is the return on firm i and r_m is the value-weighted market index return. The usual estimation period is eliminated due to the high probability of confounding events for bidders acquiring five or more targets within three years. All acquirers are publicly traded firms listed on the NYSE, Nasdaq, or AMEX with a stock price of two dollars or greater in the month of the takeover announcement. The results for each panel are divided further by the method of payment. Cash offers include cash only and mixtures of cash and debt. Stock offers include common stock only or a combination of common stock and options, warrants, or rights. Combination deals are comprised of some proportion of cash and stock. The median is in brackets and the number of bids is reported below the median.

	Diversified Parent				Nondiversified Parent			
	All	Cash	Stock	Combo	All	Cash	Stock	Combo
All bids	2.93%[a]	2.90%[a]	3.48%	2.86%[a]	2.37%[a]	1.84%[a]	2.79%	4.24%[b]
	[1.67%]	[1.62%]	[2.85%]	[2.11%]	[1.79%]	[1.43%]	[6.94%]	[2.88%]
	419	317	25	77	200	147	14	39
1st bids	3.64%[a]	3.42%[a]	4.39%	4.36%[b]	3.65%[b]	4.29%[c]	3.02%	1.34%
	[1.22%]	[1.11%]	[−2.11%]	[4.30%]	[3.09%]	[3.39%]	[4.00%]	[1.65%]
	66	51	5	10	31	22	4	5
5th and higher bids	1.95%[a]	2.45%[a,*]	1.93%	−0.46%	0.83%	0.92%	−9.86%	2.23%
	[1.56%]	[1.92%]	[4.26%]	[−0.25%]	[1.16%]	[1.16%]	[−4.29%]	[1.80%]
	163	128	9	26	86	64	3	19

* The diversified sample is significantly different from the nondiversified sample (10%).
[a] Denotes significance at 1% level.
[b] Denotes significance at 5% level.
[c] Denotes significance at 10% level.

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Table V

**Cumulative Abnormal Returns of Frequent Acquirers
by Status of Targets**

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Cumulative abnormal returns are calculated for the five days $(-2, 2)$ around the announcement
(day 0) of a takeover. Abnormal returns are estimated using a modified market model:

$$AR_i = r_i - r_m,$$

where r_i is the return on firm i and r_m is the value-weighted market index return. The usual
estimation period is eliminated due to the high probability of confounding events for bidders
acquiring five or more targets within three years. All acquirers are publicly traded firms listed
on the NYSE, Nasdaq, or AMEX with a stock price of two dollars or greater in the month of the
takeover announcement. Results in Panel A are all bids from bidders that acquired both public
and private targets. Panels B and C contain bidders acquiring only private firms and bidders
acquiring only public firms, respectively. The results for each panel are divided further by the
method of payment. Cash offers include cash only and mixtures of cash and debt. Stock offers
include common stock only or a combination of common stock and options, warrants, or rights.
Combination deals are comprised of some proportion of cash and stock. The median is in brack-
ets and the number of bids is reported below the median.

	All	Cash	Stock	Combo
Panel A: Firms Acquiring Both Private and Public Targets				
Bids for all targets	1.79%[a]	1.79%[a]	1.17%[a]	2.36%[a]
	[1.12%]	[1.23%]	[0.72%]	[1.56%]
	2,820	1,401	684	735
Public targets	−1.07%[b]	0.38%	−1.92%[b]	−1.16%
	[−0.79%]	[0.54%]	[−1.48%]	[−1.79%]
	426	129	212	85
Private targets	2.11%[a]	1.53%[a]	2.47%[a]	2.72%[a]
	[1.29%]	[0.88%]	[1.54%]	[1.89%]
	1,822	845	436	541
Subsidiary targets	2.90%[a]	2.74%[a]	3.63%	3.28%[a]
	[1.97%]	[1.84%]	[5.19%]	[2.11%]
	572	427	36	109
Panel B: Firms Acquiring Only Private Targets				
Bids for private targets	1.90%[b]	2.63%[b]	2.23%[c]	1.05%
	[1.35%]	[2.58%]	[1.68%]	[0.79%]
	238	75	70	93
Panel C: Firms Acquiring Only Public Targets				
Bids for public targets	0.57%	0.38%	−0.27%	1.81%
	[0.24%]	[0.09%]	[0.24%]	[0.30%]
	77	54	9	14

[a] Denotes significance at 1% level.
[b] Denotes significance at 5% level.
[c] Denotes significance at 10% level.

For first bids for private firms and subsidiaries, regardless of method of
payment, CARs are positive and significant. The fifth and higher bids are
also accompanied by a positive and significant stock price reaction for the

Table VI

Cumulative Abnormal Returns of Frequent Bidders by the Relative Size of the Target

Cumulative abnormal returns are calculated for the five days $(-2, 2)$ around the announcement (day 0) of a takeover. Abnormal returns are estimated using a modified market model:

$$AR_i = r_i - r_m,$$

where r_i is the return on firm i and r_m is the value-weighted market index return. The estimation period is eliminated due to the probability of confounding events for bidders acquiring five or more targets within three years. The relative size of the target is target value divided by acquirer market value. Acquirer market value is calculated as of the month before the announcement date and is the product of the monthly price and common shares outstanding on CRSP. Cash offers include cash only and mixtures of cash and debt. Stock offers include common stock only or a combination of common stock and options, warrants, or rights. Combination deals are comprised of some proportion of cash and stock. Panel A represents all bids while Panels B to D represent public, private, and subsidiary, respectively. The median is in brackets and the number of bids is below the median.

	All	Cash	Stock	Combo
		Panel A: All		
<5%	1.04%[a]	0.84%[a]	1.31%[a]	1.26%[b]
	[0.55%]	[0.39%]	[1.06%]	[0.71%]
	1,573	875	384	314
5%–9.99%	2.02%[a]	1.86%[a]	1.94%[b]	2.37%[a]
	[1.61%]	[1.35%]	[1.59%]	[1.96%]
	528	249	129	150
10%–19.99%	2.12%[a]	2.71%[a]	1.68%	1.64%[b]
	[1.40%]	[1.96%]	[−0.52%]	[0.70%]
	463	206	102	155
≥20%	3.23%[a]	4.86%[a]	0.17%	3.81%[a]
	[2.14%]	[4.18%]	[−0.97%]	[2.47%]
	571	200	148	223
		Panel B: Public		
<5%	0.62%	−0.15%	1.93%[b]	−0.03%
	[−0.05%]	[−0.38%]	[0.69%]	[−0.94%]
	138	75	50	13
5%–9.99%	0.13%	−1.21%	2.11%	−2.25%
	[1.93%]	[1.87%]	[2.18%]	[−1.49%]
	56	23	25	8
10%–19.99%	−0.97%	3.28%[a]	−2.81%[c]	−1.59%
	[−1.31%]	[1.83%]	[−4.56%]	[−2.87%]
	76	21	45	10
≥20%	−2.56%[a]	0.74%	−4.37%[a]	−1.10%
	[−2.03%]	[1.14%]	[−2.64%]	[−2.18%]
	186	27	98	61

Table VI—*Continued*

	All	Cash	Stock	Combo
Panel C: Private				
<5%	1.03%[a]	0.76%[b]	1.26%[b]	1.32%[b]
	[0.49%]	[0.25%]	[1.14%]	[0.79%]
	1,120	541	319	260
5%–9.99%	2.08%[a]	1.88%[a]	1.50%	2.79%[a]
	[1.16%]	[0.47%]	[0.95%]	[1.99%]
	371	150	98	123
10%-19.99%	2.69%[a]	3.07%[a]	4.34%[a]	1.70%[c]
	[1.68%]	[2.23%]	[2.44%]	[1.15%]
	297	121	49	127
≥20%	5.75%[a]	3.96%[a]	11.72%[a]	5.39%[a]
	[4.35%]	[3.50%]	[7.89%]	[4.04%]
	272	108	40	124
Panel D: Subsidiary				
<5%	1.26%[a]	1.31%[a]	0.35%	1.28%
	[0.88%]	[0.87%]	[1.30%]	[1.07%]
	315	259	15	41
5%–9.99%	2.87%[a]	2.74%[a]	8.44%[c]	1.63%
	[2.00%]	[1.77%]	[5.73%]	[4.53%]
	101	76	6	19
10%–19.99%	2.84%[a]	1.83%[b]	10.67%[b]	2.97%
	[2.51%]	[1.90%]	[10.35%]	[1.26%]
	90	64	8	18
≥20%	6.71%[a]	8.07%[a]	−1.52%	6.55%[a]
	[5.81%]	[5.71%]	[0.65%]	[6.13%]
	113	65	10	38

[a] Denotes significance at 1% level.
[b] Denotes significance at 5% level.
[c] Denotes significance at 10% level.

full samples of private targets and subsidiary targets. However, the magnitude of the positive reaction is less for the later bids and is insignificant when the private target sample is separated by method of payment.

Possible explanations for these results for the later bids for private firms and subsidiaries are that bidders do not receive as favorable a price when they acquire multiple private firms and subsidiaries in a short period of time or bidders making multiple acquisitions in a concentrated period of time are making acquisitions that create relatively small amount of synergies.

We test these ideas by examining a sample of clustered private bids (two or more bids for private firms made on the same day).[11] The five-day CARs for all bids (292 bids) for clustered private targets is a significant 2.77 percent, an insignificant 0.40 percent for 122 cash bids, a significant 3.85 percent for 89 stock bids, and a significant 5.15 percent for 81 combination bids. Since these targets are of similar size to those in the our original sample and there are two or more targets acquired on the same day, these CARs are smaller in magnitude on a per bid basis than if only one private firm were acquired on that day. This is supportive of the theory that bidders do not do as well, per acquisition, either because they pay too much or create less synergy when they buy multiple private firms in a short period of time.

Another factor that may be related to the returns for later bids is the rise of Internet firms in the later part of our sample. Since many bids during the later 1990s involved Internet firms and more of the fifth and higher bids would be during the later 1990s, these results may be driven by Internet deals. We examine acquirer returns for all bids made in 1998 and 1999 and for all bids made in 1998 and 1999 not involving Internet firms (either the bidder or target is an Internet firm). We choose 1998 and 1999 because they are at the end of the sample and thus contain more of the fifth and higher bids, they are years with a major increase in the number and size of deals, and they are the years with the influx of Internet deals. We do not report these results, but the pattern of returns is similar to that for all bids reported in Table III. In fact, for non-Internet deals the CARs are slightly less, though not significantly, than for all deals in 1998 and 1999.

As shown in Table III, the market views acquisitions of private firms and subsidiaries differently from acquisitions of public firms. We continue to explore the causes and the implications of this difference.

B. Further Evidence on Subsidiary Acquisitions

In Table IV we examine the subsidiary deals in greater detail. One reason suggested for why a firm sells a subsidiary is the gain from increased focus. This implies that diversified firms might accept a relatively lower price for an asset sale than a nondiversified firm—a diversification discount. Table IV divides our sample of subsidiary targets based on whether their selling parent was diversified or not. We find that the returns to acquirers buying subsidiaries from diversified or nondiversified parents are relatively similar for all bids and first bids. However, for fifth bids and higher, only acquisitions made using cash for a diversified parent's subsidiary provide the bidder with significantly positive abnormal returns, 2.45 percent. Thus, there is weak evidence that diversified parents will sell subsidiaries at a discount relative to nondiversified parents.

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[11] Note that these bids are not in our main sample. However, the average size of these bids (and the target's relative size compared to the bidder) is essentially the same as in the full sample.

C. Bidders Acquiring Both Public and Private Targets

Our results indicate that the market views bids for private firms and subsidiaries differently from those for public firms. We suggest that this is due to either a difference in the synergies between takeovers of public, private, and subsidiary targets or in the division of gains from the bid. Another possibility is that these results are due to differences in the characteristics of bidders for public and private targets. Thus, we examine the returns to acquirers separated by whether they made bids for only public targets, only private targets, or for both nonpublic and public targets. Table V, Panel A, reports the returns to bidders that purchased public, private, and subsidiary targets. These results are essentially the same as for the sample in Table III. As before, the average CARs for bidders are zero or significantly negative if the target is a public firm but significantly positive if the target is a private firm or a subsidiary. This suggests that it is the characteristics of the target firm and its potential relationship with the bidding firm rather than the bidding firm itself that determine these results.

To further confirm this result, we examine acquirers that made five or more bids for only public or only private firms. These results are reported in Panels B and C of Table V. The CARs to a bidder that only acquired private firms (Panel B) are positive and significant regardless of the offer type. These CARs are similar to the CARs that a bidder receives if it acquires a private target even if it also acquires a public target at some other point (Panel A). However, the returns to acquirers purchasing only public firms (Panel C) are insignificant for all offer types, even for stock bids (although there are only nine). Note that there are 24 bidders that made bids for only public targets and 76 bidders that made bids for only private targets, but 439 acquirers that made bids for private, public, and subsidiary targets. Thus, most acquirers in our sample purchase both public and nonpublic targets.

In sum, the evidence in Table V shows that one of our major results—the market reaction to the acquisition of nonpublic targets, with both stock and cash as methods of payment, is positive, while the market reaction to the acquisition of public targets is at most zero—occurs among multiple bidders who bid for public targets only, private targets only, or both public and nonpublic targets. Thus, the market will give positive and negative reactions to the same bidder, depending on the type of target even after controlling for the method of payment.

D. Impact of Relative Size on Acquirer Returns

In Table VI we control for target size. Since private targets are, on average, much smaller than public targets, we expect the impact on the bidder of a private acquisition to be smaller than a public acquisition. Thus, to better compare public and private takeovers, we control for the effect of target size on bidder returns by partitioning bidder returns by the relative size of the target. The relative size of the target is measured as the target market (deal) value divided by bidder market value.

We identify several patterns in the CARs. First, for public targets (Panel B), the larger the target relative to the bidder, the more negative the acquirer's CAR. Once again, this negative return is driven by stock offers to public targets. In contrast, for private targets and subsidiaries (Panels C and D), the CARs become more positive as the target size increases. Interestingly, the empirical finding of greater abnormal returns for larger private targets is similar to what Asquith et al. (1983) found for bids for public targets in the 1970s. However, unlike public targets, as the relative size increases, bidders that acquire private targets with stock have larger CARs than bidders acquiring private targets with cash. This pattern of higher returns for stock offers than cash offers does not hold for subsidiary targets.

E. Causes for the Patterns of Acquirer Returns

There are several possible explanations for the negative CARs for large public firms. The larger the target is relative to the bidder, the stronger the target's negotiating position and ability to extract more of the gain from the transaction. Alternatively, bidding firms may find it more difficult to integrate larger public targets into their business. However, neither of these explanations clarifies the different relationship between the returns to bidders and the relative size of the target for bids for private targets and bids for public targets. A third explanation is that there are fundamental differences in the division of gains and/or synergies between takeovers involving public and private targets, and these differences are magnified the greater the relative size of the merger. We believe this is partially a liquidity effect.

Private firms and subsidiaries cannot be bought and sold as easily as publicly traded firms. The lack of liquidity makes these investments less attractive and thus less valuable than similar, more liquid investments. Sales of public targets are typically auction-like in nature, with full disclosure required by the SEC. Professional arbitrageurs take positions in both target and bidder stocks, thus, providing more market feedback in the prices of both securities. In contrast, the sales process can vary substantially for private targets. At best, if the targets have a financial advisor, they can promote an auction-like atmosphere, with participation by a large number of qualified bidders. More realistic scenarios include limited auctions or a small number of interested bidders in a negotiated sale. The bidders are likely to have a bargaining advantage, at least relative to their position in bids for public targets. In practice, this liquidity discount is readily observable. An excerpt from an Allen & Company valuation of a private firm (Impac Hotel) being acquired by a public firm (Servico Inc.) states, "In calculating the private market valuation above, Allen & Company utilized a 20% private market (liquidity) discount." (Servico Inc., (1998, p. 46.))

Regulation also favors public targets more in the bidding process than a private target. For example, the disclosure and delay requirements of the Williams Act only apply to public targets, not private or subsidiary targets. State antitakeover laws (and firm takeover defenses) only come into play

when the management of the target wants to resist a takeover, which, by definition, will not happen for a private firm that is for sale. Although a private target has the perfect defense against a bid (do not sell), personal pressure is also often higher for managers of private firms than for managers of public firms. Private target management might be the firm founders who, due to competitive conditions or their desire to cash out, want to sell. Therefore, private managers may not have an effective bargaining position.

Due to the nature of the acquisition process and regulation, the acquirer captures this discount in purchasing the privately held firm or the subsidiary. The liquidity effect is consistent with a positive relationship between relative size and returns to acquirers of private and subsidiary targets, and negative relationship between relative size and returns to acquirers of public targets. In support of this evidence, Koeplin, Sarin, and Shapiro (2000) find that private companies sell for a statistically and economically significant discount compared to public companies using multiples of financial ratios to value the firm. However, liquidity alone cannot explain why as the relative size of the merger increases, so does the disparity in returns between cash and stock bids for private targets.

The higher abnormal returns for stock offers relative to cash offers for private firms may be explained by the creation of a blockholder and favorable tax implications for private-firm owners. By definition, private firms are closely held. Poulsen and Stegemoller (2002) find that the average director and officer holdings for private firms undergoing a buyout by a public company are over 58 percent. In addition, more than 35 percent of private firms in a buyout have a single shareholder with greater than 50 percent ownership. Thus, as the size of the private target increases, so does the likelihood of blockholder formation when stock is the method of payment. Our findings are consistent with blockholders becoming monitors of the bidder's management. This monitoring role increases the correlation between the manager and owner interests, thus increasing value. The shareholders, including the private target's owners, will garner this increase in value. Therefore, bidders using stock rather than cash to acquire private targets will receive higher returns. This also explains why subsidiary targets, which are also not publicly traded, do not garner significantly higher bidder returns when the offer is stock rather than cash. Since subsidiaries are owned by public companies, which have a more diverse ownership, there will be a decreased probability of blockholder creation when a subsidiary is acquired with stock.

Further, when a privately held firm is acquired with cash, the private-firm owners are faced with immediate tax implications. However, when private-firm owners are given stock in exchange for their ownership rights, the tax implications are deferred indefinitely. This tax deferral option is valuable to owners; thus they are willing to accept a discounted price for the firm equal to, at most, the value of the option. In support of this reasoning, Poulsen and Stegemoller (2002) observe that 36 percent of private target owners list favorable tax consequences as a reason for selling out to a public company.

F. Regression Analysis

The previous results analyze returns to acquirers using univariate comparisons. In this section, we perform multivariate tests on the determinants of acquirer's returns. In Table VII, we present the results of regressing the bidder's CARs on factors that may impact CARs. As with all regressions that explain returns to acquiring firms, because of the low explanatory power of the regression, the results must be viewed with skepticism, although the *F*-statistic for the equation is positive and significant. Since our results suggest that there are fundamental differences between private, public, and subsidiary targets, we run regressions for these three groups separately. Note, however, that there is overlap between the bidders in the three regressions, since bidders made all three types of acquisitions.

We estimate bidder returns as a function of several bid characteristics, including whether the target is acquired with stock, with a combination of stock and cash, and interaction variables between the method of payment and the relative size of the target. Other variables include the log of relative size of the target, the log of the target's size, and dummy variables to indicate if the target and the bidder are in the same industry, if the bid is the first bid, if the bid is a fifth or higher bid, if the target is foreign, if the deal involves an Internet firm, and if the subsidiary is from a diversified parent.

Each of the explanatory variables has been suggested by theory as a determinant of the market's perception of an acquisition. The relative size of the target proxies for several effects. At a basic level, the larger the target relative to the bidder, the greater the effect of the acquisition on the bidder, and the more likely a greater market reaction. We interact the method of payment with the relative size variable to capture the interaction between the relative importance of the acquisition and any information conveyed by the bidder's method-of-payment choice. Dummy variables are included for whether the bid was a first bid or a fifth and higher bid to capture the results of the univariate tests that show fifth and higher bids may contain less information about the bidder than the first bids. The foreign dummy accounts for the potential that bids for foreign targets are different than bids for U.S. targets. The dummy variable for whether the bidder or the target was an Internet firm is included though the theory is unclear on how the presence of an Internet firm in a deal would affect the bidder return. Finally, we account for industry effects by including dummy variables for eight Census Bureau's grouping of SIC codes.

In general, the results are similar to what we have found with the univariate analysis. For private firms, the coefficients on common stock deal, the interaction between stock and relative size, and relative size variables are positive and significant. This suggests the CARs associated with stock deals are more positive than those associated with cash deals in acquisitions of private firms, and that the market views larger deals even more favorably. The coefficient on the dummy variable for the fifth and higher bid is negative and significant. This suggests that as the number of bids increases,

Ordinary Least Squares Regression Analyses of Cumulative Abnormal Returns of Frequent Bidders

Ordinary least squares regression of the bidder's five-day cumulative abnormal return on the following variables. The first two dummy variables are defined as whether the target is acquired with stock and whether the target is acquired with a combination of stock and cash. Cash offers include cash only and mixtures of cash and debt. Stock offers include common stock only or a combination of common stock and options, warrants, or rights. Combination deals are comprised of some proportion of cash and stock. The remainder of the dummy variables are defined as whether the bid is the fist bid, whether the bid is the fifth or higher bid, whether the target is foreign, whether the bidder or target is a technology firm, whether the bidder and target are in the same industry, and whether the subsidiary is from a diversified firm. A subsidiary is classified as being sold by a diversified firm if the subsidiary's parent firm is in a different three-digit SIC code from that of the subsidiary. The log of the relative size of the target and the log of the target's size are also included in the regression. The relative size of the target is the natural log of target deal value, as reported by SDC, divided by acquirer market value as of the month before the announcement date. Finally, interaction variables of the relative size with stock or combination are included. Technology firm classifications are taken from SDC. An industry measure is taken from the Census Bureau's grouping of SIC codes yielding eight industry classifications. Seven of these are used as dummies in the regression but are not reported in the results. *P*-values are reported in brackets next to the parameter estimates.

Dependent Variables	Public	Private	Subsidiary
Intercept	0.038 [0.182]	0.042 [0.001]	0.085 [0.000]
Dummy = 1 if target is acquired with common stock	−0.061 [0.005]	0.043 [0.007]	−0.041 [0.180]
Dummy = 1 if target is acquired with combo	−0.019 [0.397]	0.009 [0.460]	−0.005 [0.766]
Dummy = 1 if first bid	−0.007 [0.627]	−0.003 [0.685]	−0.005 [0.629]
Dummy = 1 if fifth or higher bid	−0.013 [0.181]	−0.019 [0.000]	−0.020 [0.008]
Dummy = 1 if target is foreign	0.016 [0.255]	−0.012 [0.062]	0.007 [0.450]
Dummy = 1 if bidder or target is a tech firm	0.009 [0.451]	−0.004 [0.431]	0.003 [0.732]
Dummy = 1 if target and bidder are in same industry	−0.000 [0.967]	0.004 [0.358]	−0.004 [0.610]
Dummy = 1 if subsidiary is from a diversified firm			0.004 [0.595]
Log of relative size	0.005 [0.401]	0.007 [0.010]	0.017 [0.000]
Log of target size	−0.004 [0.162]	0.001 [0.442]	−0.001 [0.692]
Interaction variable = relative size ∗ stock	−0.023 [0.002]	0.011 [0.012]	−0.014 [0.169]
Interaction variable = relative size ∗ combo	−0.005 [0.563]	0.003 [0.513]	0.001 [0.908]
F-statistic	2.21 [0.003]	5.14 [0.000]	3.60 [0.000]
N	456	2,060	619
Adjusted R^2	4.6%	3.5%	7.4%

the acquirer will have lower CARs. Further, bids for foreign private firms have a negative and significant impact on CARs. The coefficients of the service, retail, and natural resources industry dummies are positive and sig-

nificant. Finally, the coefficient on the Internet deal dummy, the first bid dummy, and same industry dummy are all insignificant.

There are fewer variables that have significant coefficients in the sample of acquisitions of public firms or subsidiaries. For public firms, the only explanatory variables with significant coefficients are the dummy for whether the acquisition is with stock and for the interaction variable for relative size and stock. Similar to the univariate results, the larger the relative size of the target for the public firms, the greater the negative abnormal returns to the bidder who makes a stock offer. All other variables are insignificant. For subsidiaries, the only significant variables are the relative size of the target and the dummy for the fifth and higher bid.

G. Method of Payment Analysis for Firms Making Several Acquisition within Three Months

Much of the method-of-payment literature hypothesizes that a bidder will offer its stock in payment when its stock is overvalued and cash when its stock is undervalued or correctly valued. This leads to the empirical prediction that bidders making stock offers will have negative price reactions to merger announcements and those making cash offers will have positive or zero price reactions. Results reported in Tables III, V, and VI support this prediction for public firms. However, we find that for private and subsidiary targets, acquirers have significant and positive abnormal returns even when using their own stock for the acquisition. An additional consideration, noted by Hansen (1987), suggests that if there is uncertainty about the target's value, the bidder may choose to use stock even if its own stock is correctly valued. In a stock offer, the target shareholders share in any future gains or losses from the transaction. Since it is more difficult to value private firms and subsidiaries, bidders may be more likely to offer stock resulting in more positive abnormal returns than if they had used cash. Our results are consistent with this prediction.

Our sample of acquirers making five or more bids within a three-year period allows an alternative examination of the method-of-payment choice. While we do not directly test why a certain method of payment is used, we can test if a bidder uses the same method of payment in separate bids that are made relatively close in time to each other. This enables us to concentrate on target and bid characteristics that influence the method-of-payment choice. To the extent information asymmetry regarding the value of the acquirer is important in bids, we would expect to see patterns in the bids made close together in time, since the information asymmetry that exists at one point in time and its impact on bidders presumably would impact nearby bids in similar ways.

From our original sample, we identify 1,115 paired acquisitions where the bidder acquired two targets within a three-month period. We expect acquirers to use the same method of payment for these transactions if the target and bid characteristics are similar. That is, if both targets are private firms, the bidder would use stock for both targets, all else held constant. Further,

if the bidder and the targets are in different industries, the bidder would again use stock. These predictions result from the expectation that if the target is private or if the target is in a different industry from the bidder, the bidder is less likely to know the value of the targets.

Table VIII provides summary statistics for the paired transactions differentiated by whether both targets are in the same two-digit SIC code, whether both targets are in the same industry as the bidder, whether both targets have the same public status, whether the same method of payment is used for both targets, and by the average difference in the relative size of the targets. We find substantial variation in the method of payment where theories driven by information asymmetry would predict less variation. When both targets are in the same industry, the bidder uses different methods of payment for the two transactions 37.7 percent of the time. When the targets and the bidder are all in the same industry, the bidder uses a different method of payment for the two transactions 36.3 percent of the time. Further, when the targets are both private firms or both subsidiaries, the bidder uses different methods of payment 36.2 percent of the time. Hansen's (1987) work suggests that if there is greater uncertainty about target valuation, the bidder should use stock for the acquisition. However, we find that even when target characteristics are similar, there is substantial variation in the choice of method of payment.

Other characteristics of the bid could influence the choice of payment offered, perhaps, most importantly, the relative size of the targets. To more fully examine the method-of-payment choice, we estimate a logistic regression of the choice of whether the two targets were acquired using the same or different method of payment. Our independent variables include a dummy variable with a value of 1 if the targets have differing public status (public, private, or subsidiary), or 0 otherwise; a dummy variable with a value of 1 if the two targets are in different industries from each other, or 0 otherwise; a dummy variable with a value of 1 if one or both targets are foreign, or 0 otherwise; a dummy variable with a value of 1 if the bidder and the targets are in different industries, or 0 otherwise; and the log of the absolute difference in the relative size of the targets. We also include dummy variables indicating whether the targets and/or the bidder are in high-tech industries, as classified by SDC. For example, if the bidder and only one of the targets are in a high-tech industry, the dummy variable *HLH* is assigned a value of 1; otherwise the observation is 0. We use the high-tech industry classification as a crude proxy for uncertainty since we cannot calculate the often-used proxy, market-to-book ratio.

As reported in Table IX, we find that if the two targets have different public status, or if the bidder and targets are in different industries, it is more likely the bidder will choose different methods of payment. We also find that the larger the difference in the relative size of the two targets, the more likely the bidder is to choose different methods of payment. In addition, whether the bidder or targets were in high-tech industries did not impact the bidder decision to use the same or different methods of payment.

Table VIII

Descriptive Statistics for Paired Acquisitions Where the Frequent Bidder Acquires Two Targets within 90 Days

Columns 2 and 3 represent aggregate numbers on paired transactions. Columns 4 and 5 represent pairs acquired by the same bidder within 90 days where the bidder used different methods of payment. The last eight data columns represent pairs acquired using the same payment method. Method of payment is classified as follows. Cash offers include cash only and mixtures of cash and debt. Stock offers include common stock only or a combination of common stock and options, warrants, or rights. Combination deals are comprised of some proportion of cash and stock. Industry is measured using three-digit SIC codes.

	All Paired Transactions (N = 1,115)		Different (N = 450)		Method of Payment							
					Same (N = 665)							
					Stock (N = 141)		Cash (N = 377)		Combo (N = 137)		All (N = 665)	
	#	%	#	%	#	%	#	%	#	%	#	%
Targets in the same industry	536	48.1	202	37.7	70	13.1	196	36.6	68	12.7	334	62.3
Pairs in the same industry as bidder	430	38.6	156	36.3	56	13.0	167	38.8	51	11.9	274	63.7
Pairs with the same public status	682	61.2	250	36.7	102	15.0	219	32.1	111	16.3	432	63.3
Public	32	2.9	8	25.0	13	40.6	9	28.1	2	6.2	24	75.0
Private	591	53.0	227	38.4	88	15.0	168	28.4	108	18.3	364	61.6
Subsidiary	59	5.3	15	25.4	1	1.7	42	71.2	1	1.7	44	74.6
Average [median] difference in size of targets (in millions of dollars)	$300 [$23]	—	$437 [$27]	—	$449 [$44]	—	$139 [$21]	—	$36 [$17]	—	$208 [$22]	—
	(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

Note: column labels (1)–(13) appear at the bottom.

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Table IX

**Logistic Regression Analysis of Factors Affecting
Method of Payment**

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This sample consists of 655 observations in which a bidder acquired two firms within a 90-day period. Each observation consists of two consecutive bids. If the bidder acquired three firms within 90 days, the middle bid is used twice; it is paired with the first and third bids. The dependent variable is a dummy variable taking the value 0 if the bidder acquired the two firms using the same method of payment and 1 if the bidder used different methods of payment. There are 518 paired transactions using the same method of payment; 137 paired transactions using a different method of payment in each takeover. In this analysis, we consider only those paired takeovers where either cash or stock was used. Combination deals are entirely excluded. Cash offers include cash only and mixtures of cash and debt. Stock offers include common stock only or a combination of common stock and options, warrants, or rights. *STATUS* is a dummy variable with a value of 1 if the targets have differing public status (public, private or subsidiary), or 0 otherwise. *TARGET INDUSTRY* is a dummy variable with a value of 1 if the targets are in different industries, or 0 otherwise. Industry data are organized using Fama and French (1997) industry classifications. *TARGET COUNTRY* is a dummy variable with a value of 1 if the targets are in different countries, or 0 otherwise. *BIDDER/TARGET INDUSTRY* is a dummy variable with a value of 1 if the targets and the bidder are in different industries, or 0 otherwise. *TARGET SIZE DIFFERENCE* is the log of the absolute difference in the relative size of the targets. The relative size of the target is the natural log of deal value divided by acquirer market value as of the month before the announcement date. *HHH* is a dummy variable with a value of 1 if the targets and the bidder are all in high-tech industries, as classified by SDC, or 0 otherwise. HLH is a dummy variable with a value of 1 if the bidder and only one of the targets are in high-tech industries, or 0 otherwise. *LHH* is a dummy variable with a value of 1 if the bidder is in a low-tech industry and both of the targets are in high-tech industries, or 0 otherwise. *LHL* is a dummy variable with a value of 1 if the bidder and only one of the targets are in low-tech industries, or 0 otherwise. *LLL* is a dummy variable with a value of 1 if neither of the targets nor the bidder is in high-tech industries, or 0 otherwise. *P*-values are reported in brackets next to the parameter estimates.

Variable	Estimate
Intercept	−1.737 [0.001]
STATUS	0.650 [0.002]
TARGET INDUSTRY	−0.324 [0.322]
TARGET COUNTRY	0.246 [0.282]
BIDDER/TARGET INDUSTRY	0.915 [0.006]
TARGET SIZE DIFFERENCE	0.133 [0.020]
HHH	0.420 [0.100]
HLH	0.261 [0.431]
LHH	0.478 [0.451]
LHL	0.009 [0.986]
LLL	−0.408 [0.204]

Overall, we find that the choice of the method of payment in a transaction is complex. Most of the previous work in the method-of-payment literature has focused on bidder characteristics, largely ignoring the nature of the target. While there are certainly additional unidentified influences, our analysis provides insights into the importance of the characteristics of the target and the deal in determining the method of payment chosen by a bidder.

IV. Conclusion

We study shareholder returns in public firms that acquired five or more public, private, or subsidiary targets. Since the announcement of a takeover reveals information about the potential synergies of the combination, the stand-alone values of the bidder and target, and potential bidder overpayment, it is difficult to interpret the announcement returns for acquiring firms. However, our sample controls for one confounding factor, acquirer characteristics. Since we control for acquirer characteristics in that the same bidder will often choose to acquire targets with varying ownership status, and with different payment methods, we can examine the variation in acquirer returns as a function of these bid characteristics. Our results indicate that bidder shareholders gain when the bidding firm buys a private firm or a subsidiary of a public firm and lose when the bidder buys a public firm. In addition, the gain or loss is greater in absolute value when the target is larger and when the bidder uses stock.

We suggest that when bidders acquire private firms or subsidiaries, they are purchasing assets in a relatively illiquid market. Thus, the valuation of those assets reflects a liquidity discount, resulting in a higher return to bidder shareholders. Further, the even larger returns received by bidders when making stock offers for a private target may result from tax considerations and monitoring benefits. If target owners receive stock in compensation for their ownership stake, the owners delay their tax liability until the position in the bidder is liquidated and thus they may be willing to accept a lower price for the assets. In addition, if the stock transfer results in a large blockholder in the acquiring firm, the acquiring firm shareholders may benefit from ability of that owner to monitor the activities of the firm.

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