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Shareholder wealth effects and bid negotiation in freeze-out deals: Are minority shareholders left out in the cold?☆

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Abstract

This paper examines the shareholder wealth effects of bids by controlling shareholders seeking to acquire the remaining minority equity stake in a firm, deals commonly referred to as minority freeze-outs. Minority claimants in freeze-out offers receive an allocation of deal surplus at the bid announcement that exceeds their pro rata claim on the firm. An analysis of bid outcomes and renegotiation indicates that minority claimants and their agents exercise significant bargaining power during freeze-out proposals. Overall, our results suggest that legal standards and economic incentives are sufficient to deter self-dealing by controllers during freeze-out bids.

JEL classifications: G34; K22

Keywords: Merger; Tender offer; Squeeze-out; Freeze-out; Toehold

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1. Introduction

Few subjects in applied corporate finance generate as much practitioner debate as the valuation of minority equity claims in US corporations. The issue is particularly important when a corporation's controlling shareholder bids for the remaining minority equity stake in the firm, deals commonly referred to as minority freeze-outs. Concerns associated with minority shareholder welfare in freeze-out bids have frequently garnered the attention of the business press and legal community because the pricing of minority shares does not emerge from an arm's-length negotiation between independent parties and can reflect a conflict inherent with disparate ownership interests.[1]

The courts have recognized potential limitations on the objectivity of controlling shareholders and a target firm's directors during freeze-out negotiations. Correspondingly, legal doctrine concerning the fiduciary obligations of controlling shareholders and their directors during freeze-out bids has developed considerably over the last decade. Judicial review of freeze-out transactions has applied a fairness standard that discourages coercive bids while encouraging full information arm's-length negotiation between claimants. Nevertheless, legal protections and economic incentives could be insufficient to fully resolve conflicts of interest between controllers and the agents charged with representing minority shareholders during freeze-out negotiations.[2]

To summarize the dynamics between the legal and economic environment in freeze-out bids, we propose two alternative theories concerning the outcomes for minority shareholders in these bids. The first is a theory of bid capture. This theory suggests that controllers are able to capture a disproportionate share of the gains in freeze-out transactions by structuring bids that minimize vigorous negotiation with minority claimants who lack sufficient board representation or efficient legal recourse or both. The second is a minority bargaining power theory. Under this theory we posit that, despite potentially incomplete legal protections for minority shareholders, the incentives of participants and economic conditions associated with deal structure insulate minority shareholders from self-dealing by controlling shareholders.

To address these hypotheses, we empirically examine bid characteristics and deal outcomes for a sample of freeze-out proposals involving US public corporations between 1988 and 2003. We consider both the indirect evidence pertaining to changes in shareholder wealth during freeze-out bids and direct evidence concerning the prevalence and tenor of explicit bid negotiation during these transactions. Our analysis incorporates two sets of benchmark transactions: bids proffered by bidders holding non-controlling equity toeholds in a target (henceforth referred to as minority toehold bids), and bids involving bidders with no pre-bid equity stake in the target (henceforth referred to as no-toehold bids). While transactions involving the transfer of control provide a revealing benchmark for negotiation, they likely yield systematically different wealth changes and include significant control premiums relative to freeze-out bids, potentially confounding

[1]The acquisition of minority shares is not uncommon. These transactions frequently occur as a second-step or clean-up merger following a tender offer but are rarely challenged given an established fair price. We exclude clean-up transactions from the analysis that follows and focus instead on bids by majority shareholders that have held their stake for a minimum of six months prior to the freeze-out offer.

[2]"The controlling stockholder relationship has the potential to influence, however subtly, the vote of minority stockholders in a manner that is not likely to occur in a transaction with a non-controlling party." See *Kahn v. Lynch Communications Systems, Inc.*, 638 A.2d (Del, 1994).

the interpretation of wealth effects across transaction forms. Thus, to account for these differences and provide evidence regarding the bid capture and minority bargaining hypotheses, we examine the distribution of transaction surplus between majority (bidder) and minority (target) claimants benchmarked to their respective pre-bid pro rata ownership of equity in the target firm; which is a measure free of potential distortions arising from systematic differences in value creation between control and freeze-out transactions.

Controlling for bid, contract, and target firm characteristics, target announcement period cumulative abnormal returns (CARs) in freeze-outs, while positive, are as much as 10–14% lower than the CARs realized by target shareholders in control transactions. One explanation for the lower target CARs is that bidders in freeze-outs already possess operational control over targets, thereby lowering the incremental gains to freeze-out mergers relative to transactions involving a transfer of control. Consistent with this interpretation we find that the overall wealth gains associated with the announcement of completed freeze-out bids average $55.1 million, compared with $88.4 million in minority toehold bids and $118.9 million in no-toehold bids.

Holding total wealth gains constant, the bid capture hypothesis predicts that bidders in freeze-out transactions should capture a disproportionate share of the deal's surplus. This implies that freeze-out bidders should fare better than bidders in arm's-length transactions, after adjusting for the change in the value of the target shares already owned by the bidder. In contrast to this prediction, we find that adjusted announcement period CARs to controlling shareholders during freeze-out bids are comparable to those realized by bidders that possess either no-toehold or a minority toehold. Moreover, minority shareholders receive, on average, an allocation of deal value that is 11% ($6.1 million) greater than their pro rata share of the firm. Overall, the evidence does not support the view that potential conflicts of interest during freeze-out transactions result in disproportionate allocations of deal surplus to controlling shareholders.

To complement our findings on wealth effects, we also consider the prevalence and tenor of explicit bid negotiation in freeze-out transactions by examining: the rate of deal completion, the likelihood of bid hostility, and the incidence and magnitude of bid revisions. Despite lower average bid premiums, the rate of deal completion for freeze-out offers exceeds the rate observed in both the minority toehold and no-toehold subsamples. Given favorable wealth distributions to minority claimants, however, higher completion rates for freeze-out bids do not suggest that controllers are able to circumvent negotiation. Consistent with this view, freeze-out bids are no less likely to receive a hostile reception compared with no-toehold bids and are only 3.0% less likely to be hostile compared with minority toehold bids. Furthermore, within the subsample of freeze-out bids, a hostile reception reduces the probability of deal completion by 42.2%. Finally, revisions to initial bid premiums are 14.5% and 10.3% more common in freeze-out bids relative to no-toehold and minority toehold bids, respectively. In addition, the magnitude of bid revisions in freeze-outs are statistically equivalent to those observed in transactions involving a change in control. Given the evidence, we surmise that active bargaining by target directors and the potential for legal recourse effectively insulate minority shareholders from self-serving bids by controlling shareholders in freeze-out bids.

Finally, controversy concerning freeze-out bids intensified beginning in 2001 following a series of judicial decisions according a different and lower standard of review and oversight to freeze-out bids structured as tender offers rather than mergers. These decisions have led

legal scholars, including Iacono (2003) and Subramanian (2004), to decry the current standards as doing little to protect minority claimants in tender offer freeze-outs. Although not the primary focus of our analysis, our evidence does not indicate that minority shareholders fare worse in bids initiated after the *Siliconix* decision regardless of transaction form. Given these results we infer that the impact of recent judicial decisions on economic outcomes for minority shareholders during freeze-out bids has been negligible.

The remainder of the paper is structured as follows. In Section 2, we provide a review of judicial standards as they apply to freeze-out bids. In Section 3, we outline our hypotheses and summarize the related literature. Section 4 describes our sample selection process and summarizes the data. In Section 5, we examine wealth changes and the distribution of surplus around freeze-out bids, and in Section 6 we empirically model deal completion rates, bid resistance, and the likelihood and magnitude of bid premium revisions for freeze-out and control bids. We provide concluding remarks in Section 7.

2. Legal treatment of freeze-out transactions

Judicial interpretation of freeze-out law in the United States has developed substantially over the last decade.[3] In this section we summarize the relevant case work, with an emphasis on the standards applied in a judicial review of freeze-out bids and the legal recourse available to dissatisfied minority shareholders through judicial appraisal.[4]

2.1. Freeze-out merger and tender offer bids

Given the potential for self-dealing, Delaware courts have maintained that freeze-out transactions are subject to judicial review. The current legal framework distinguishes between the obligations of majority shareholders in freeze-out merger bids and tender offers. Under Delaware law, merger negotiations with controlling shareholders owning less than 89.5% of a target corporation are subject to review under the entire fairness standard.[5] Entire fairness in a freeze-out merger involves two elements. The first element, fair dealing, entails the majority shareholder's obligation of candor in what approximates an arm's length transaction. The second element, fair price, grants an appraisal right to dissenting shareholders. In 1994 fair dealing was explicitly defined as requiring that a merger bid be approved by a "fully empowered independent negotiating committee" and

[3]The legal rules and interpretations associated with freeze-out bids are complex. We refer interested readers to Gilson and Gordon (2003) and Coffee (1996) for a more complete discussion of this subject.

[4]Although we emphasize Delaware law, many deal requirements, particularly those associated with disclosure and coercion, have corollary federal legal standards. For example, full disclosure and coercion are addressed in Securities and Exchange Commission rules 10b-5 and 13e-3. While each state jurisdiction has its own laws and courts, Subramanian (2003) finds that many adopt Delaware standards pertaining to control transactions. Delaware standards might not apply uniformly to freeze-outs, a conjecture we incorporate into our empirical analyses.

[5]See *Weinberger v. UOP Inc.*, 457 A. 2d 701 (Del, 1983). Shareholders controlling at least 90% of a target's stock can utilize a short-form merger under Del. Corp Code 253, which obviates the fairness requirements applied to freeze-out bids but grants appraisal rights to minority shareholders regardless of the consideration granted. *Glassman v. Unocal Exploration Corporation* (No. 390, 2000 Del. Sup. Ct.) indicates that a minority shareholder's only remedy in a short-form merger is appraisal.

be conditioned upon the approval of a majority of the minority shareholders.[6] While this standard highlights the importance of an arm's-length process in freeze-out bids, absent "plain overreaching" or a "serious breach of fiduciary duty by the controlling stock[holder]," directors have only a limited duty to protect the interests of minority shareholders.[7]

A tender offer freeze-out provides an alternative to a negotiated merger. In most cases, tender offer bids by controlling shareholders are two-stage transactions involving a tender offer for a minimum of 90% of the target's shares, followed closely by a short-form merger. Given the voluntary nature of the decision to tender shares, Delaware courts apply a less exacting standard of review to tender offer bids made by controlling shareholders. Specifically, provided a tender offer is not structurally coercive, that it includes full disclosure of a bidder's private information as well as a non waivable majority of the minority tender condition, the transaction is not subject to judicial review under the entire fairness standard. Nevertheless, even in the case of a tender offer, the target board typically appoints a special committee of independent directors to evaluate the transaction and issue a recommendation to target shareholders through a 14D-9 filing. Gilson and Gordon (2003) suggest that by 1995 practitioners generally assumed that freeze-out tender offers would be subject to the alternative standard.[8] This perspective was challenged and substantively upheld in a series of recent Delaware court decisions.[9]

2.2. The expected value of an appraisal right

Dissatisfied shareholders electing not to participate in successful acquisition bids, including freeze-out offers, are generally entitled to a court directed appraisal of their claim's fair value. Thus, the expected appraisal value establishes a lower bound on the price offered in an acquisition bid. An appraisal right is granted to shareholders following cash bids, but only to those claimants who do not vote for a merger proposal and do not tender their shares.[10] Appraisal can also be sought following successful tender offer bids provided a shareholder did not tender shares or submit shares in a second stage clean-up merger bid. While class appraisal rights are available for all shareholders seeking relief following a merger, only individual appraisal rights are available following a tender offer, increasing the expected cost of appraisal around tender offer bids relative to merger bids.

[6]See *Kahn v. Lynch Communications Systems, Inc.*, 638 A. 2d 1110 (Del, 1994).

[7]*Mendel v. Carroll*, 651 A.2s 297 (Del, Chapter 1994).

[8]Gilson and Gordon note that this view is largely predicated on an interpretation of the finding in *Solomon v. Pathe Communications*, 672 A2d 35 (Del, 1995).

[9]See *In re Siliconix Incorporated Shareholders Litigation* (Del, Chapter 2001) and *In re Aquila Inc. Shareholders Litigation*, 805 A. 2d 184 (Del, Chapter 2002).

[10]Bids involving bidder equity do not receive an appraisal right. Conditioning the appraisal right on the form of payment reflects a perception that target shareholders receiving bidder stock are able to proportionally share in the gains from substandard bids. This ignores the fact that bidding shareholders can manipulate the rate of exchange between target and bidder claims. Silverstein and McBride (2002) provide a summary of conditions under which stockholders can seek relief in Delaware freeze-out transactions.

3. Hypotheses and related literature

The efficacy of legal protections and economic incentives in engendering truly competitive bidding behavior is the focus of our analysis. In particular, this paper examines whether majority shareholders receive economic rents from freeze-out bids that are not shared with, or possibly come at the expense of, the corporation's minority equity claimants. In this section we outline our hypotheses concerning the quality of bid negotiation and the allocation of transaction surplus between claimants in freeze-out bids, discuss the testable implications, and summarize the relevant prior research.

3.1. The bid capture hypothesis

Majority shareholders are endowed with a number of advantages when proposing and negotiating freeze-out bids with minority shareholders. Although target firms in freeze-out bids generally appoint a special committee of independent directors to evaluate the bid, the prospect of judicial review might not adequately resolve conflicts of interest that could exist when directors effectively represent both controlling and minority shareholders during a negotiation.[11]

Controlling shareholders could also enjoy a negotiation advantage through their private information about the value of the consolidated claims. Bebchuk and Kahan (2000) argue that freeze-out bids can be motivated by a discrepancy between the market price of minority shares and the present value of investment opportunities known exclusively to the controlling shareholder. Information asymmetry, combined with the potentially limited role of target directors as information agents for the minority, suggests that controlling shareholders can capture a portion of deal surplus that would otherwise accrue to the minority shareholders in a comparable full-information negotiation. Finally, a controlling shareholder's ownership in the target virtually eliminates the potential for third-party bid competition, reducing the incentive to offer a premium that might otherwise be necessary to deter a competing bidder (e.g., Fishman, 1989).

3.2. The minority bargaining hypothesis

Despite a seemingly poor environment for bid negotiation in freeze-out deals, legal recourse could effectively insulate minority shareholders from self-dealing by controlling shareholders. Legal requirements impose a standard of entire fairness on freeze-out merger bids and require that freeze-out tender offers be full information noncoercive bids. Dissenting shareholders are also legally afforded an opportunity to seek the appraisal value for their shares following successful freeze-out cash offers, a condition that imposes a minimum value on freeze-out bids.

Proactive representation by independent directors of special committees can also limit the ability of controllers to negotiate deals that disproportionately allocate deal value to themselves. Director committees might give freeze-out bids only a cursory review or, in the

[11]See *Pure Resources*, 808 A.2d 421, 435: "In colloquial terms, the supreme court saw the controlling stockholder as the 800-pound gorilla whose urgent hunger for the rest of the bananas is likely to frighten less powerful primates like putatively independent directors who might well have been hand picked by the gorilla (and at the very least owed their seats on the board to his support)."

extreme, fail to provide minority shareholders with an opinion regarding the value of a proffered tender offer. Alternatively, external incentives may be sufficient to systematically encourage unaffiliated directors to actively represent the interests of minority claimants during freeze-out proposals. For example, Harford (2003) and Yermack (2004) find a positive relation between the performance of independent directors and their subsequent employment opportunities and compensation. Anecdotal evidence also supports this possibility. For instance, a July 2002 press release by the special committee of McAfee.com's board characterized a revised tender offer by Network Associates for the 25% of McAfee it did not already own as "inadequate and not in the best interests of McAfee.com's shareholders, other than Network Associates and its affiliates." Following months of negotiation, McAfee's special committee recommended a $17.86 per share offer for MacAfee's shares, which was an 81% increase over Network Associates' initial bid of $9.88 per share. Several other recent deals, including Sabre's bid for Travelocity.com, Toronto-Dominion Bank's acquisition of TD Waterhouse Group, and SBC Communications Inc.'s acquisition of Prodigy Communications also involved publicly negotiated bid revisions (Wall Street Journal, 2002).

3.3. Testable implications

The bid capture and minority bargaining hypotheses yield different predictions regarding the distribution of surplus and the quality of negotiation associated with freeze-out bids. Under the bid capture hypothesis, controlling shareholders are able to propose freeze-out bids that forestall arm's-length negotiation and undervalue the minority shareholders' claims. The bid capture hypothesis therefore predicts that bidders capture a disproportionate allocation of deal surplus relative to their pre-bid pro rata ownership in the target. The bid capture hypothesis also implies that controlling shareholders suppress negotiation with minority claimants and their representatives. Thus, bid capture predicts that relative to comparable bids involving a change in control, freeze-out bids are associated with a lower incidence of bid hostility and bid revision and, when observed, relatively small bid revisions.

Under the minority bargaining hypothesis, pro-active bargaining by the representatives of minority shareholders, as well as the legal requirements and judicial oversight imposed on freeze-out bids effectively deter self-dealing by controllers and promote negotiations in freeze-out offers that approach what otherwise would obtain during an arm's-length transaction. The minority bargaining power hypothesis therefore predicts that minority shareholders will capture a share of deal surplus that equals or exceeds their pro rata claim in the target. In addition, the minority bargaining hypothesis predicts that we will observe direct evidence of negotiation during freeze-out bids, such as a hostile response from the target board and bid revisions that are similar in incidence and magnitude to those in control bids.

3.4. Prior research

Several papers examine changes in target shareholder wealth around takeover bids proposed by controlling shareholders. Dodd and Ruback (1977) report an average abnormal announcement return of 17.4% to the target shareholders in a sample of 19 controlling shareholder bids. Dodd and Ruback suggest that the positive returns to

minority shareholders are effectively out-of-court settlements that reflect the potential savings in legal costs that would be incurred if minority shareholders were to legally challenge certain business transactions initiated by controlling shareholders. Holderness and Sheehan (1988) study 38 minority share reorganizations between 1978 and 1984 involving either a merger, going private transaction, or liquidation, and find target abnormal stock returns average 12% at the reorganization announcement and 23% from days −20 to +10 relative to the announcement day. DeAngelo et al. (1984) examine management initiated going-private transactions involving the acquisition of either a minority equity stake or a subset of the firm's assets. For the 45 pure going-private transactions in their sample, they find announcement period abnormal returns between 25% and 54% measured from 40 days prior to the bid proposal. Based on their findings, both Holderness and Sheehan and DeAngelo, DeAngelo, and Rice infer that legal or organizational features associated with freeze-out bids limit the ability of controlling shareholders to propose opportunistic bids at the expense of minority shareholders.

In a contemporary paper, Subramanian (2004) examines freeze-out activity following the *Siliconix* decision of 2001. Given a different standard of judicial review, Subramanian asserts that tender offers should be the dominant freeze-out mechanism for controlling shareholders. Subramanian finds that controlling shareholders pay lower premiums to minority shareholders in freeze-out tender offers than in freeze-out merger bids.[12] However, he also notes that more than two thirds of freeze-out bids following *Siliconix* are structured as mergers. He attributes these seemingly counterintuitive results to an inefficient dissemination of best practice doctrine among legal practitioners.

Our research also complements the broader literature on the relation between bidder toeholds and the quality and competitiveness of acquisition bids. In theoretical work, Singh (1998) shows that toeholds can spur aggressive bids, leading toehold bidders to overpay in equilibrium, while Fishman (1989) concludes that toeholds discourage third-party bids. Empirical evidence in Walkling (1985) and Betton and Eckbo (2000) indicates that toehold bids are significantly less likely to be challenged by target managers or receive competition by third-party bidders. The research relating the wealth effects of target shareholders to bidder toeholds is mixed. Eckbo and Langohr (1989) and Jarrell and Poulsen (1989) find that target announcement period abnormal returns are decreasing in toeholds, while Franks and Harris (1989) show a positive relation. Stulz et al. (1990) do not find a statistically significant relation between toeholds and returns. More recently, Betton and Eckbo (2000) find that toeholds increase (decrease) a bidder's (target's) expected return to a tender offer bid.

4. Data collection and summary statistics

Our sample of freeze-out bids is drawn from a pool of 8,871 merger and acquisition bids announced between 1988 and 2003 compiled using the Securities Data Corporation (SDC) domestic mergers and acquisitions database. Observations in the pool include only acquisition attempts for public targets incorporated in the United States; transactions for which the value of the proposed deal was publicly disclosed; bids defined by SDC as either

[12]Subramanian's conclusions regarding shareholder wealth in freeze-out transactions are difficult to interpret. As we show in this paper, systematic variation in transaction surplus makes it difficult to reliably draw inferences regarding the allocation of value across transactions using only premium data.

a "merger" or "acquisition of remaining interest"; and bids whose status is designated as either "completed" or "withdrawn". We restrict our analysis to transactions in which the bidder is seeking to acquire all of the remaining shares of the target and both the bidder and target have returns data available from the Center for Research in Security Prices (CRSP) at the bid announcement, leaving 4,581 bids. Finally, we eliminate American depository receipts, companies incorporated outside the U.S., closed-end funds, primes and scores, and real estate investment trusts, yielding a final sample of 4,079 merger and acquisition bids from 1988 through 2003. We eliminate those transactions in which the first digit of the bidder or target share code from CRSP is 3 or where the second digit is 2–8. To minimize the possibility that our freeze-out bids are clean-up mergers, we identify toeholds six months before the bid announcement. In our sample, 148 observations are freeze-out bids by controlling shareholders holding less than an 89.5% stake in the target corporation, and 13 observations are short-form bids with bidders holding in excess of 89.5% of target equity. Given differences in the legal treatment of freeze-out and short-form bids, we distinguish between them in our analyses.

In this study, we benchmark the characteristics of freeze-out bids to those of subsamples of bids including: bids proffered by bidders holding noncontrolling equity toeholds in a target (i.e., minority toehold bids) and bids involving bidders with no pre-bid equity stake in the target (i.e., no-toehold bids). From the 4,079 takeover bids described above, we identify 3,732 bids with no bidder toehold and 186 bids with a minority bidder toehold.

Fig. 1 summarizes the incidence of freeze-out bids relative to all merger and acquisition activity between 1988 and 2002. For this comparison, we do not restrict transactions to those that meet the criteria discussed above. Given that deals announced near the end of our sample period are less likely to be resolved, we confine our illustration to one year prior to the end of our sample. Over this time period, freeze-out bids constitute approximately 4.7% of the observed takeover activity. Freeze-out bid activity peaked in 2000 with more than 40 deals concluding that year. As a proportion of all merger and acquisition activity, freeze-out activity has risen in each sample year since 1999. Despite the data restrictions we impose, 4.0% of the transactions in our sample are freeze-out bids, which is roughly the same proportion of freeze-out bids in the unrestricted sample of SDC transactions.

4.1. Bidder toeholds and other deal characteristics

Table 1 reports summary statistics for bidder toeholds, bid outcomes, bid characteristics, and bid premiums across the toehold categories. Asterisks highlight the statistically significant sample mean (median) differences between the no-toehold subsample and the minority toehold, freeze-out and short-form transaction subsamples, respectively. The mean (median) preannouncement toehold for bidders with minority toeholds is 15.7% (9.9%) and is 71.5% (73.8%) for freeze-out bidders. In short-form bids, mean (median) toeholds are 92.4% (91.1%) of the target's equity six months before announcement. Toeholds increase slightly from six months prior to the announcement date for the minority toehold subsample but remain unchanged for the freeze-out and short-form bid subsamples.

Transaction value incorporates all consideration offered to target shareholders including cash, common stock and equivalents, preferred stock, debt, options, and warrants. The relative value of the target is the market value of the target's equity not owned by the

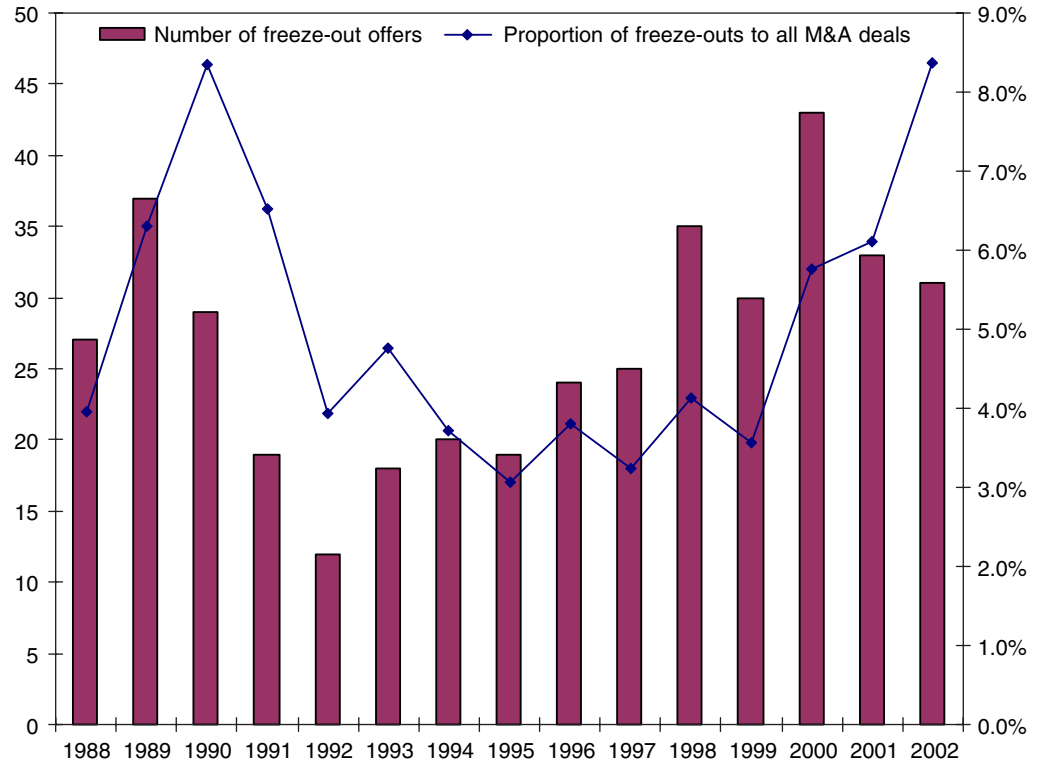

Fig. 1. Freeze-out transactions as a proportion of all public merger and acquisition (M&A) activity, 1988-2002. The observations are compiled from Securities Data Corporation and cover 8,502 transactions involving US targets. Observations include bids defined as merger, acquisition, or acquisition of remaining interest. Freeze-out bids are identified using the bidder's toehold position six months prior to the transaction bid announcement.

bidder, divided by the market value of the bidder's equity plus the market value of the target's equity not owned by the bidder, and is calculated two days prior to a bid announcement. Given the increasing share of the target held by bidders, both transaction value and the relative value of the target are monotonically decreasing across the toehold categories. Minority toehold and freeze-out bids are more likely to be structured as tender offers than are no-toehold bids, but they are less likely to include bidder equity. Minority toehold and freeze-out bids are also less likely to include provisions for bidder termination fees or target equity lockups.

We measure the bid premium as the share price offered to target shareholders reported by SDC deflated by the target's share price 42 trading days prior to the announcement of the first bid for the target in an auction sequence (as defined below), less one. The bid premium is set to missing if the share price offered or the pre-bid market price is unavailable from SDC and CRSP, respectively (resulting in 3,750 observations with non-missing premiums). We compute premiums using the price offered on a per share basis to avoid issues that arise in comparing bid premiums across different toehold categories. Compared with no-toehold bids, average premiums are lower in minority toehold and freeze-out transactions. We examine the wealth effects associated with the acquisition announcements in more detail in Section 5.

Table 1
Summary of deal characteristics in merger and tender offer bids

The sample consists of 4,079 merger and acquisition bids announced and either completed or withdrawn between 1988 and 2003 in which both the bidder and target were publicly traded. Toehold is the fraction of target shares held by the bidder. Bidder termination fee is an indicator variable equal to one if the bid includes a target payable termination fee. Relative value of target is the market value of the target's equity, less the bidder toehold, divided by the market value of the bidder's equity plus the market value of the target's equity, less the bidder toehold. Acquirer lockup is an indicator variable equal to one if the bidder is granted an option to purchase shares in the target. Bid premium is the share price offered to target shareholders reported by the Securities Data Corporation (SDC) deflated by the target's share price 42 trading days prior to the announcement of the first bid for the target in an auction sequence, less one. Bids receive a hostile classification from SDC if target managers rebuff the bidder's offer. The bid revision indicator is equal to one if a bidder's final bid is different from the initial bid. Bid revision is the difference between a bidder's initial and final bid premium. An auction is composed of all bids for a target, including the first observed bid and any successive bids made within 365 calendar days of the most recent bid announcement. Bid numbers in auction sequences are defined relative to the first observed bid. The symbols *,**, *** indicate that subsample means (medians) are significantly different from that of the no-toehold subsample at the 10%, 5%, and 1% levels, respectively.

Variable	No toehold ($N = 3,732$)	Toehold deals $0 < \text{toehold} < 50\%$ ($N = 186$)	Freeze-out deals $50\% \leqslant \text{toehold} < 89.5\%$ ($N = 148$)	Short-form deals $89.5\% \leqslant \text{toehold} < 100\%$ ($N = 13$)
Toehold six months before bid		15.7%	71.5%	92.4%
(median)		(9.9%)	(73.8%)	(91.1%)
Toehold at bid announcement	0.0%	17.2%	71.5%	92.4%
(median)	(0.0%)	(11.5%)	(73.8%)	(91.1%)
Transaction value (millions of dollars)	1,236.9	931.0	336.3*	68.1
(median)	(153.9)	(140.5)	(92.8)***	(43.4)***
Relative value of target	19.0%	22.2%**	8.0%***	3.2%***
(median)	(13.3%)	(14.0%)	(4.3%)***	(2.1%)***
Tender offer	14.6%	34.4%***	35.8%***	0.0%
Offer includes bidder equity	67.0%	40.3%***	45.9%***	38.5%**
Target termination fees	46.6%	22.6%***	2.0%***	0.0%***
Acquirer Lockup	21.7%	8.6%***	0.7%***	0.0%*
Bid premium	50.1%	39.9%**	28.3%***	10.1%**
(median)	(41.6%)	(34.2%)**	(26.0%)***	(16.1%)***
Deal status (1 = completed)	81.5%	65.6%***	84.5%	100.0%*
Deal attitude (1 = hostile)	6.5%	29.6%***	14.9%***	0.0%
Bid revision indicator	8.2%	22.6%***	25.0%***	15.4%
Bid revision	6.5%	13.2%	16.5%	22.0%
(median)	(4.8%)	(13.4%)***	(12.8%)***	(22.0%)*
Bid number in auction sequence				
1	3,412	166	141	12
2	272	17	7	1
3	36	2	0	0
4+	12	1	0	0

Table 1 also includes several proxies for bid negotiation. Just under 85% of freeze-out bids are completed, which is significantly higher than the 65.6% completion rate for bids involving minority toeholds (statistic not reported in table), but not statistically different from the 81.5% completion rate for no-toehold bids. Short-form bids are completed in every instance. Freeze-out bids receive a hostile reception in 14.9% of the cases, roughly

half the hostility rate observed for minority toehold bids but more than double the 6.5% rate observed in the no-toehold sample. Schwert (2000) suggests that deals described as hostile and friendly in the press are not economically distinguishable other than the fact that hostile transactions tend to use publicity as part of the bargaining process. Approximately 25.0% of freeze-out bids are revised, with a mean (median) revision that is 16.5% (12.8%) above the initial bid. Bid revisions are recorded as part of an individual bid observation on SDC and are independent of our auction sequence measure that is defined using the times series of individual bid observations for a particular target. Revision rates are 22.6% and 8.2% in minority toehold and no-toehold bids, respectively, with a mean (median) bid revision for minority toehold and no-toehold bids of 13.2% (13.4%) and 6.5% (4.8%) of initial bid value, respectively. The observed frequency and magnitude of hostility and bid revisions in the freeze-out subsample does not suggest that minority investors or their boards remain passive during freeze-out negotiations. The results, however, are also consistent with the notion that controlling shareholders have a propensity to propose substandard initial bids. We consider these issues more completely in Section 6.

To discriminate between the economic effects of initial and follow-on bids, we define an auction sequence following Bates and Lemmon (2003). An auction sequence is defined using individual bid observations for the same target. A bid is considered an initial bid if no prior bid for the target is identified for 365 calendar days before the bid announcement. Bids are considered part of an auction if announced within 365 calendar days of the last observed bid, but not necessarily the initial bid, for a target. Just over 10% of minority toehold bids are not initial bids in an auction sequence, slightly higher than the rate for the no-toehold sample. Less than 5% of bids in the freeze-out sample are not initial bids. We summarize auction sequence characteristics for the different toehold categories in Table 1.

5. Shareholder wealth effects in minority freeze-out bids

In this section we examine changes in shareholder wealth and the allocation of surplus between controlling and minority shareholders during freeze-out bids. Our analysis of announcement period abnormal returns to target shareholders allows us to compare our results with prior studies of buyouts by controlling shareholders summarized in Section 3.4 of this paper. We analyze bidder abnormal returns and the distribution of total wealth gains between bidders and targets to provide tests of the bid capture and minority bargaining hypotheses.

5.1. Announcement period abnormal returns

Table 2 summarizes the results from ordinary least squares regressions of announcement period CARs to target and bidding shareholders over a three day {-1, +1} period centered on the bid announcement date. Announcement period abnormal returns are computed as a firm's equity return minus the contemporaneous return to the CRSP value-weighted market index and summed over the three-day announcement period. We analyze target shareholder announcement CARs for the full sample of acquisition bids in Models 1 and 2 and to freeze-out bids alone in Model 3. Models 4 and 5 examine announcement period CARs to bidding shareholders for the full and freeze-out bid samples, respectively.

Table 2
Ordinary Least Squares (OLS) regressions on target and bidder announcement period abnormal returns

The table summarizes OLS regressions of target and bidder abnormal returns on bidder toeholds and other deal characteristics. Announcement period cumulative abnormal returns (CARs) are computed as the stock return of the sample firm minus the return on the Center for Research on Security Prices (CRSP) value-weighted market index summed over the three-day period $\{-1, +1\}$ relative to the bid announcement. In Models 1–3, the dependent variable is the target CAR, and in Models 4 and 5, the dependent variable is the bidder's CAR adjusted for the bidder toehold. The stock offer and tender offer indicator variables equal one if the acquisition proposal includes bidder equity and is structured as a tender offer, respectively. Prior bidding is an indicator variable equal to one if the bid follows a prior bid within 365 days and zero if it is an initial bid. Bids receive a hostile classification from the Securities Data Corporation (SDC) if target managers rebuff the bidder's offer. Relative value of target is the market value of the target's equity less the bidder toehold, divided by the market value of the bidder's equity plus the market value of the target's equity less the bidder toehold. Bidder toehold is defined as the bidder's fractional equity ownership in the target six months prior to the bid. Toehold indicator variables are equal to one if the bidder's toehold falls within the specified interval and zero otherwise. The Delaware incorporation indicator variable is equal to one if the target firm is incorporated in the state of Delaware and zero if it is not. Target market-to-book ratio is measured as total assets minus book equity plus market equity divided by total assets. Total debt includes short- and long-term debt issues. Free cash flow is computed as operating income before depreciation minus total taxes minus change in deferred taxes minus gross interest expense minus any preferred and common dividends paid. Pre-bid run-up CARs are estimated as daily abnormal returns summed over a daily interval from 42 days to two days before a bid announcement. Year dummies equal one for each announcement year 1989 through 2003 (1988 is the excluded year) while the *Siliconix* indicator variable is equal to one for transactions initiated after June 19, 2002. The top number provided for each explanatory variable is the parameter estimate with *p*-values based on robust standard errors provided in parentheses.

Variable	Model 1 Target CAR, all bids ($N = 4,079$)	Model 2 Target CAR, all bids ($N = 2,809$)	Model 3 Target CAR, freeze-outs ($N = 148$)	Model 4 Adj bidder CAR, all bids ($N = 4,079$)	Model 5 Adj bidder CAR, freeze-outs ($N = 148$)
Intercept	0.229	0.256	0.194	0.004	0.216
	(<0.001)	(<0.001)	(0.084)	(0.825)	(0.450)
Offer includes bidder equity	−0.035	−0.047	−0.127	−0.033	−0.006
	(0.001)	(<0.001)	(0.001)	(<0.001)	(0.896)
Tender offer	0.108	0.075	−0.001	0.000	0.026
	(<0.001)	(<0.001)	(0.969)	(0.933)	(0.678)
Deal status (1 = completed)	0.033	0.056	0.059	0.012	0.011
	(0.003)	(<0.001)	(0.137)	(0.054)	(0.872)
Deal attitude (1 = hostile)	0.009	0.063	0.061	−0.020	−0.041
	(0.667)	(<0.001)	(0.061)	(0.044)	(0.206)
Prior bidding indicator	−0.062	−0.035	0.023	−0.006	0.018
	(<0.001)	(0.006)	(0.668)	(0.336)	(0.770)
Relative value of target	−0.270	−0.323	−0.274	0.064	−0.286
	(<0.001)	(<0.001)	(0.166)	(0.004)	(0.658)
Toehold			−0.001		−0.003
			(0.519)		(0.367)
Delaware incorporation indicator			0.031		−0.048
			(0.308)		(0.395)
Post-*Siliconix* dummy			0.082		−0.036
			(0.399)		(0.431)
Post-*Siliconix* * tender offer dummy			0.044		−0.016
			(0.687)		(0.769)
Toehold indicator variables					
Toe1: 0 < toehold < 50%	−0.012	−0.022		0.018	
	(0.438)	(0.185)		(0.367)	
Toe2: 50% ⩽ toehold < 89.5%	−0.104	−0.144		−0.020	
	(<0.001)	(<0.001)		(0.511)	

Table 2 (*continued*)

Variable	Model 1 Target CAR, all bids ($N = 4,079$)	Model 2 Target CAR, all bids ($N = 2,809$)	Model 3 Target CAR, freeze-outs ($N = 148$)	Model 4 Adj bidder CAR, all bids ($N = 4,079$)	Model 5 Adj bidder CAR, freeze-outs ($N = 148$)
Toe3: 89.5% ⩽ toehold < 100%	−0.137 (<0.001)	−0.172 (<0.001)		−0.145 (0.193)	
Target market-to-book ratio		−0.002 (0.288)			
Total debt/total assets		−0.045 (0.019)			
Free cash flow/total assets		0.056 (0.026)			
Target run-up CAR		−0.061 (<0.001)	−0.125 (0.003)		
Year dummies	Yes	Yes	No	Yes	No
Difference: Toe1 – Toe2 (*p-value*)	(<0.001)	(<0.001)		(0.265)	
Model *F*-statistic	19.99	17.64	3.83	5.34	0.19
(*p*-value)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(0.997)
Adjusted R^2	0.101	0.142	0.175	0.025	−0.058

The regressions in Table 2 incorporate toehold category indicator variables equal to one if a bidder's equity stake in the target six months prior to the bid announcement falls within either the minority toehold (0.0% < toehold < 50.0%), freeze-out (50.0% ⩽ toehold < 89.5%), or short-form (toehold ⩾ 89.5%) definition, and zero otherwise. Controls include indicator variables associated with bidder equity compensation, tender offers, bid hostility, prior bidding, and the relative market value of the target to that of the combined firm. As a proxy for investors' expectations regarding bid success, each model includes an indicator variable equal to one if the proposed bid is ultimately completed. The regressions also include year fixed effects for 1989–2003 to capture any unmodeled macroeconomic effects (1988 is the excluded year).

5.1.1. Abnormal returns to targets

The results of Model 1 indicate that, while positive, the average target announcement CAR in a freeze-out bid is approximately 10.4% below the average announcement CAR realized by target shareholders in no-toehold bids (*p*-value < 0.001) and 9.2% below the average target announcement CAR for minority toehold bids (*p*-value for difference < 0.001).[13] While freeze-out bids yield lower announcement period gains for target shareholders relative to comparable control transactions, this difference could be

[13]Although not reported in a table, the average announcement period CARs to target shareholders are 19.1%, 19.6%, and 14.9% across the no-toehold, minority toehold, and freeze-out subsamples, respectively. We also examined target CARs around the withdrawal date for the 20 withdrawn freeze-out bids in our sample. The market reaction around the withdrawal date is negative. Over the entire period from the announcement date through the withdrawal date the wealth gains to target shareholders are not significantly different from zero. In contrast, completed freeze-out bids result in positive and significant wealth gains to target shareholders computed over the interval from announcement through deal completion.

attributable to a higher ex ante expectation about the likelihood of an offer in freeze-out bids. To control for this possibility, Model 2 includes the pre-bid stock price run-up for the target calculated from days −42 to −2 relative to bid announcement, as well as additional controls for the target's market-to-book ratio, total debt, and free cash flow ratios estimated in the fiscal year prior to the bid. As expected, the run-up coefficient is negative and significant in our target CAR regressions. The coefficient associated with the freeze-out bid indicator in Model 2 remains negative, significant, and statistically different from the coefficient on the minority toehold bid indicator, suggesting that lower announcement period CARs to target shareholders in freeze-out transactions are not attributable to bid anticipation. Instead, the lower target CARs to freeze-out bids likely reflect the fact that bidders already exercise operating control over the target prior to the transaction thereby lowering the incremental gains to freeze-out mergers relative to transactions involving a transfer of control. Nevertheless, the fact that target CARs in freeze-out bids are positive on average indicates that at least some portion of the total wealth gains in freeze-outs are shared with minority shareholders, a result generally consistent with the findings from previous studies of acquisitions of minority shares by controlling shareholders.

Model 3 of Table 2 estimates the determinants of target announcement CARs for freeze-out bids. Freeze-out target CARs are lower when bids include bidder equity but are higher when they are met with a hostile reception from target management. Target CARs are invariant with respect to final bid status and prior bidding. Model 3 includes a continuous measure of the size of the bidder toehold, an indicator variable equal to one if the target is incorporated in Delaware, and an indicator variable equal to one for transactions initiated following the *Siliconix* decision. Target CARs do not vary with toeholds or Delaware incorporation. Target shareholders also do not realize lower CARs in freeze-out transactions initiated following the *Siliconix* decision, regardless of bid form. This latter finding is at odds with the contention that *Siliconix* had an adverse affect on deal outcomes for minority shareholders.

5.1.2. *Abnormal returns to bidders*

Holding total wealth gains constant, the bid capture hypothesis predicts that bidders in freeze-out transactions structure bids that result in a favorable allocation of the surplus created in these transactions. To provide some initial evidence on this conjecture, we isolate the component of the bidder's abnormal return attributable solely to the change in value of the bidder's own underlying assets. Specifically, we measure adjusted bidder CARs as the bidder announcement CAR minus the return component directly attributable to any change in the value of the target claim. Following Malatesta (1983), we estimate the abnormal change in market value by multiplying the pre-bid market value (MV) of the bidder and target firms (as of day −2 relative to the announcement day) by the announcement CAR. Target and bidder abnormal market value (AMV) changes are measured as

$$\text{Bidder AMV change} = \text{bidder pre-bid MV} * \text{bidder CAR and,} \tag{1}$$

$$\text{Target AMV change} = \text{target pre-bid MV} * \text{target CAR.} \tag{2}$$

When the bidder owns a toehold of α in the target's equity, a portion of the bidder's abnormal market value change is the result of changes in the value of the target shares

owned by the bidder (e.g., Bradley et al., 1988). We estimate the adjusted bidder CAR as

$$\text{Adjusted bidder CAR} = \frac{\textit{bidder AMV change} - \alpha * \textit{target AMV change}}{\textit{bidder pre-bid MV} - \alpha * \textit{target pre-bid MV}}. \quad (3)$$

Model 4 of Table 2 summarizes the results of a regression of adjusted bidder announcement CARs on our toehold indicators and other control variables. The coefficient associated with the freeze-out indicator variable is not statistically significant, indicating that bidder returns not attributable to target shares owned are statistically equivalent to comparable returns for no-toehold bidders. In addition, no statistically significant difference exists between adjusted bidder CARs for freeze-out and minority toehold bidders (p-value for difference = 0.265). Model 5 evaluates the determinants of adjusted bidder announcement CARs for freeze-out bids only. None of the explanatory variables, including indicator variables associated with Delaware target incorporation and the post-*Siliconix* period, is significantly related to bidder CARs in the freeze-out bid subsample. Overall, the finding that adjusted abnormal returns to bidders in freeze-outs are similar to adjusted bidder returns in deals involving minority or no-toehold positions in the target is inconsistent with the view that freeze-out bids result in disproportionate wealth gains to controlling shareholders.

5.2. The distribution of transaction surplus

To provide additional evidence regarding the bid capture and minority bargaining hypotheses, we estimate the dollar value of the wealth gains that obtain in freeze-out transactions and analyze the distribution of these gains between bidder and target shareholders. We focus on the wealth gains to deal participants benchmarked against their pro rata share of the target firm's equity held immediately preceding the bid announcement. Following our estimate of the change in market value for bidding and target (minority) shareholders in Eqs. (1) and (2), we calculate the total abnormal market value (AMV) change as

$$\text{Total AMV change} = \text{bidder AMV change} + (1 - \alpha) * \text{target AMV change}, \quad (4)$$

where α is the toehold of the bidding firm. We calculate gains or losses to target (minority) shareholders relative to their proportional share of the firm owned prior to the bid. We evaluate this distribution in two ways:

$$\text{Fractional surplus to target} = [(1 - \alpha) * \text{target AMV change}]/\text{total AMV change} \quad (5)$$

$$\text{Relative surplus to target} = \text{fractional surplus to target}/(1 - \alpha). \quad (6)$$

Eq. (5) measures the proportion of the total wealth gains allocated to minority claimants in the target firm, while Eq. (6) measures the proportional share of gains to target minority shareholders relative to their pre-bid share of the firm. For example, if target shareholders owned 25% of the firm pre-bid and received 25% of the transaction gains, then the target shareholders received 100% of their pro rata share of the gains. Our use of the pro rata share of target ownership as a benchmark is motivated by the existing empirical evidence that target shareholders in standard control transactions capture substantially all of the wealth gains (e.g., Andrade et al., 2001). An alternative benchmark proposed by Brudney and Chirelstein (1974) for evaluating the fairness of acquisition bids made by controlling

shareholders is a sharing rule in which target shareholders receive an allocation of surplus in proportion to their share of the pre-merger value of the combined firm. The sharing rule proposed by Brudney and Chirlestein would allocate a smaller share of surplus to minority shareholders relative to the pro rata benchmark that we employ.

Table 3 summarizes overall wealth creation and the allocation of surplus between target and bidding shareholders in our sample. To avoid measurement issues arising from follow-on bids, the table reflects the change in value for the first bids in an auction sequence and for completed bids only.[14] We analyze wealth effects for the subsamples of no-toehold, minority toehold, and freeze-out bids over a three-day announcement period widow. As seen in Panel A, the average total wealth gain around the announcement of freeze-out bids is \$55.1 million, compared with average gains of \$88.4 million for minority toehold bids and \$118.9 million for no-toehold bids. Although freeze-out bids are associated with lower overall value creation compared with no-toehold and minority toehold bids, they do generate substantial gains, on average, for deal participants.

Panels B and C of Table 3 report statistics on the distribution of wealth gains across bidders and targets. In Panel B, wealth distributions are calculated as the aggregate wealth change to either bidder or target shareholders across all transactions in each toehold category, divided by the aggregate total wealth change in that category. This approach reduces the impact of extreme values for individual transactions while providing a portfolio perspective on outcomes. Alternatively, Panel C reports the division of the wealth change between bidder and target for the median deal in the sample. We report the median because large outliers render the mean unrepresentative of the typical transaction in the different subsamples.

In freeze-out bids, 38.2% of announcement period surplus accrues to minority shareholders while bidding shareholders receive 61.8% of the total wealth gains. Comparable target and bidder splits for no-toehold and minority toehold bids are 84.7%/15.3% and 100.9%/−0.9%, respectively. Controlling for the bidder's toehold in target shares, the average minority shareholder in the freeze-out bid subsample receives an allocation of bid surplus that exceeds their pro rata share by 11.0% (38.2%−27.2%) or \$6.1 million. This is smaller than the comparable mean excess distribution of surplus of 21.5% (\$19.0 million) observed in minority toehold bids but exceeds the −15.3% (\$−18.2 million) relative allocation in no-toehold bids. Results in Panel C indicate that in the median freeze-out distribution minority shareholders receive 23.5% of the bid surplus, an allocation that exceeds their pro rata share of the target firm by 1.6%. This compares with median allocations to target shareholders relative to their pro rata claim of −9.1% for minority toehold bids and −44.8% for bids involving no pre-bid toehold by the bidding firm. The results in Table 3 indicate that, on average, targets in freeze-out bids receive at least their pro rata share of bid announcement surplus. It is worth noting, however, the ownership position of controllers in freeze-outs appears to provide these bidders with a circumstance whereby they obtain a larger proportion of announcement period gains relative to bidders in arm's-length change in control contests.

Table 4 provides some final evidence on the distribution of gains between target and bidding shareholders from regressions of target gains as a proportion of their pro rata

[14]In Table 3 we exclude transactions in which the total wealth loss exceeds \$2 billion (e.g., Moeller et al., 2005). This eliminates two minority toehold bids but does not eliminate any freeze-out bids. We deal with the issue of outliers more scientifically in the multivariate analyses in Table 4.

Table 3
Wealth effects and the distribution of transaction gains between bidding and target shareholders

The table summarizes the wealth gains to mergers and tender offer bids and the distribution of these gains between target and bidding shareholders. The table incorporates wealth effects for first bids in an auction sequence and for completed bids only. Market values (and changes) are in millions of dollars. Panel A reports the wealth gains to bidder and target shareholders. The bidder's abnormal change in market value is the bidder's beginning market value increased or decreased by the net-of-market stock return realized over the three-day period $\{-1, +1\}$ relative to the bid announcement day. The target's abnormal market value change is the target's beginning market value multiplied by one minus the bidder's toehold and increased or decreased by the net-of-market stock return realized over the three-day period $\{-1, +1\}$ relative to the bid announcement. The reported gain (loss) as percent of pre-bid market value is the aggregate gain or loss (for all target or bidding shareholders or all transactions) divided by the aggregate pre-bid market value of equity. Panel B reports the percent of gains to targets (bidders) based on the aggregate gain to all targets (bidders) divided by the aggregate total market value change for all bidders and targets. Panel C reports the median distribution to bidding and target shareholders for each toehold category.

Variable	No toehold ($N = 2,783$)	Toehold deals $0 < \text{toehold} < 50\%$ ($N = 107$)	Freeze-out deals $50\% \leqslant \text{toehold} < 89.5\%$ ($N = 120$)
Panel A. Wealth gains to bidder and target shareholders			
Target			
Mean abnormal market value change	100.7	89.2	21.0
Mean pre-bid market value	626.9	397.2	181.1
Mean gain (loss) as percent of pre-bid market value	16.1	22.5	11.6
Bidder			
Mean abnormal market value change	18.2	−0.8	34.1
Mean pre-bid market value	7,194.8	6,975.3	6,364.4
Mean gain (loss) as percent of pre-bid market value	0.3	0.0	0.5
Total mean abnormal market value change	118.9	88.4	55.1
Panel B. Wealth distribution to bidder and target shareholders (aggregate)			
Percent of gains to targets	84.7	100.9	38.2
Percent of gains to bidders	15.3	−0.9	61.8
Target's pro rata share of firm (percent)	100.0	79.4	27.2
Target's share of gains minus pro rata share (percent)	−15.3	21.5	11.0
Mean excess gains (losses) to targets (millions of dollars)	(18.2)	19.0	6.1
Panel C. Wealth distribution to bidder and target shareholders (median)			
Percent of gains to target	55.2	54.4	23.5
Percent of gains to bidder	44.8	45.6	76.5
Target's pro rata share of firm (percent)	100.0	63.5	21.9
Target's share of gains minus pro rata share (percent)	−44.8	−9.1	1.6

claim in the target firm on the bidder toehold indicators and control variables. Individual transactions can yield either positive or negative changes in total wealth. To obtain a consistent measure of the proportional gain to targets we condition our estimation of this value on the sign of the total wealth change. If the total wealth change is positive, the distribution is estimated following Eq. (6). Alternatively, if the total wealth change is

Table 4
Multivariate analysis of target's proportional share of transaction gains

The table summarizes percentile rank regressions of the target shareholders allocation of transaction's gains, as a proportion of their pro rata stake in the target firm, on our bidder toehold categories and other deal characteristics. The table covers observations for first bids and for completed bids only. The target's share of the transaction's gains represents the change in market value for all the target's shareholders, excluding the bidder, divided by the transaction's total gains. We report the value change using a three-day announcement period cumulative abnormal return (CAR) {−1, +1} or a longer window from one day prior to the bid announcement through the completion of the bid {−1, bid completion}. The stock offer and tender offer indicator variables equal one if the acquisition proposal includes bidder equity and is structured as a tender offer, respectively. Bids receive a hostile classification from the Securities Data Corporation (SDC) if target managers rebuff the bidder's offer. Relative value of target is the market value of the target's equity, less the bidder toehold, divided by the market value of the bidder's equity plus the market value of the target's equity, less the bidder toehold. Bidder toehold is defined as the bidder's fractional equity ownership in the target six months prior to the bid. Toehold indicator variables are equal to one if the bidder's toehold falls within the specified interval, and zero otherwise. The Delaware incorporation indicator variable is equal to one if the target firm is incorporated in the state of Delaware and zero if it is not. Year dummies equal one for each announcement year 1989–2003 (1988 is the excluded year). The top number provided for each explanatory variable is the parameter estimate with *p*-values based on robust standard errors provided in parenthesis.

Variable	Model 1 Completed bids, {−1, +1} ($N = 3,085$)	Model 2 Completed bids, {−1, bid completion} ($N = 3,085$)	Model 3 Freeze-outs, {−1, +1} ($N = 120$)	Model 4 Freeze-outs, {−1, bid completion} ($N = 120$)
Intercept	0.610	0.542	0.354	0.618
	(<0.001)	(<0.001)	(0.122)	(0.018)
Offer includes bidder equity	0.120	0.047	−0.085	0.010
	(<0.001)	(0.010)	(0.200)	(0.897)
Tender offer	0.040	0.006	0.152	−0.076
	(0.065)	(0.792)	(0.071)	(0.355)
Deal attitude (1 = hostile)	0.101	0.011	0.035	−0.075
	(0.035)	(0.850)	(0.750)	(0.511)
Relative value of target	−0.023	0.150	0.520	−0.193
	(0.579)	(<0.001)	(0.194)	(0.717)
Toehold at bid announcement			0.003	0.000
			(0.358)	(0.960)
Delaware incorporation indicator			−0.023	0.096
			(0.775)	(0.252)
Post-*Siliconix* dummy			0.085	−0.192
			(0.372)	(0.138)
Post-*Siliconix* * tender offer dummy			0.060	0.384
			(0.643)	(0.017)
Toehold indicator variables				
Toe1: 0 < toehold < 50%	−0.017	−0.002		
	(0.659)	(0.960)		
Toe2: 50% ⩽ toehold < 89.5%	0.090	0.057		
	(0.025)	(0.173)		
Toe3: 89.5% ⩽ toehold < 100%	0.087	0.087		
	(0.484)	(0.454)		
Year dummies	Yes	Yes	No	No
Difference: Toe1 – Toe2 (*p-value)*	(0.047)	(0.298)		
Model *F*-statistic	3.35	1.79	2.73	1.09
(*p*-value)	(0.022)	(0.013)	(0.009)	(0.3786)
Adjusted R^2	0.022	0.012	0.112	0.051

negative, a target shareholder's gain as a proportion of their pro rata stake is estimated as

$$\text{Relative surplus to target} = 1 - [((1-\alpha)*\text{target AMV change}/\text{total AMV change})/(1-\alpha)]. \quad (7)$$

Transactions yielding small wealth gains can lead to extreme values in our measure of the surplus allocation. To address this issue, we report results from percentile rank regressions in the table. We also estimated median regressions (not reported), which yield results that are qualitatively identical to those of the rank regressions reported here.

Model 1 of Table 4 performs a percentile rank regression for the full sample of completed transactions with wealth effects estimated over the daily interval $\{-1, +1\}$ relative to the bid announcement. The coefficient for the freeze-out indicator variable is positive and statistically significant (p-value = 0.025), indicating that the target's share of the gains to acquisition bids (relative to their pro rata share in the firm) is higher for freeze-out bids relative to no-toehold bids. Freeze-out bids also lead to larger proportional gains to target shareholders in comparison to minority toehold bids (p-value for difference = 0.047). Coefficients on our control variables suggest that the proportional share of total wealth gains allocated to target shareholders around acquisition announcements are statistically higher in stock offers, in tender offers, and in bids met with a hostile response.

Model 2 replicates the specification in Model 1 with abnormal returns cumulated over an interval beginning one day prior to the bid and ending on the deal completion date {−1, bid completion}. Estimates of wealth effects over this longer window account for any unanticipated bid revisions that could occur after the announcement but also incorporate noise associated with any corporate events unrelated to the merger. Utilizing these longer event window CARs the coefficient on the freeze-out dummy remains positive but is no longer significant in this specification. In addition, no statistical difference in the target's proportional allocation of bid surplus is observed between the freeze-out and toehold subsamples (p-value for difference = 0.298).

Model 3 of Table 4 examines the target's proportional share of bid surplus for the freeze-out subsample only. The target's share of the gains to freeze-outs is larger for tender offers (p-value = 0.071). None of the other variables in the freeze-out sample regression is significant, including the post-*Siliconix* indicator variable and its interaction term. These results are inconsistent with the contention that post-*Siliconix* freeze-out tender offers enabled bidders to extract excess rents from minority shareholders. Model 4, which examines the allocation of surplus using wealth effects computed over the entire interval from bid announcement to completion for the freeze-out subsample, yields similar inferences.

The results in Table 4 reinforce conclusions drawn from Table 3. After controlling for bid characteristics, the proportional allocation of bid surplus to minority shareholders in freeze-out transactions is at least as large as comparable allocations to target shareholders in minority toehold and no-toehold acquisition bids. Overall, the evidence on wealth effects and the distribution of transaction surplus is inconsistent with the bid capture hypothesis and suggests a substantial degree of exercised or implied bargaining power on behalf minority shareholders in freeze-out transactions.

6. Negotiation during minority freeze-out bids

In this section we complement our analysis of wealth effects by providing evidence on the prevalence and effectiveness of explicit bid negotiation during freeze-out offers.

6.1. Likelihood of bid completion

Models 1 and 2 in Table 5 estimate the probability of deal completion as a function of our toehold categories using logit regressions. Of the 4,079 bids in our sample, 3,302 are ultimately completed and 777 are withdrawn. Model 1 of Table 5 estimates the probability of deal completion for the full sample of takeover bids as a function of our categorical toehold indicator variables. The regression incorporates control variables for target payable termination fee provisions, target share lockups, bid form, method of payment, prior bidding, deal hostility, and litigation. Standardized coefficients in brackets represent the change in the probability of deal completion for a change in the explanatory variable from zero to one, or a one standard deviation change in a continuous variable, holding all other variables constant at their means. Observations associated with short-form bids are excluded from the sample given that all of these transactions are completed.

Holding contract, bid, and negotiation characteristics constant, coefficients in Model 1 of Table 5 indicate that completion rates are approximately 5.7% higher in freeze-out bids compared with no-toehold bids and 4.6% higher than the rate for minority toehold bids (p-value = 0.096). The positive coefficient on the freeze-out bid indicator indicates that, despite lower average bid premiums, freeze-outs are more likely to be completed relative to comparable toehold and no-toehold transactions. Consistent with Bates and Lemmon (2003) and Burch (2001), we find that target termination fees and equity lockups significantly increase the likelihood of deal completion. Deal completion rates are also higher for tender offers and bids including bidder equity, but they are lower for follow-on bids. Bids that receive a hostile reception are 55.1% less likely to be completed. Deal associated litigation does not statistically affect the likelihood of completion.

Model 2 of Table 5 summarizes the determinants of bid completion for the freeze-out bid subsample. Completion rates for freeze-out bids are 22.4% higher for tender offers. One interpretation of this result is that these bids avoid contentious negotiations with a special committee and effectively co-opt target shareholders. Alternatively, the premiums offered in tender offer bids could be sufficiently large to incent shareholders to tender into the offer. Consistent with the latter interpretation, the results in Table 4 indicate that the proportional allocation of bid surplus in freeze-out tender offers is at least as great as that which obtains around freeze-out merger bids. Deal hostility reduces the likelihood of completion by 42.2%, slightly less than the incremental effect observed in the full sample. This finding indicates that bid resistance, when observed, effectively deters acquisition bids by majority shareholders. Given this result, we infer that agents charged with representing the interests of minority shareholders can and do exert leverage in negotiating with controllers during freeze-out bids.

6.2. Bid hostility

Model 3 of Table 5 estimates the likelihood of a hostile bid reception for the full sample of takeover bids as a function of our three categorical toehold indicator variables and

various contract, target, and deal characteristics. Model 4 examines bid hostility for freeze-out bids alone. Because the initial offer price likely plays a role in determining bid response, we include the log of one plus the bid premium in our hostility models. Premium data are available only for 3,750 of our initial sample of 4,079 acquisition bids.

Table 5
Logistic regressions modeling bid completion and hostility in mergers and tender offer bids

Models 1 and 2 estimate the probability that a proposed bid in the sample is completed in which the dependent variable equals one if the proposed merger is ultimately consummated and zero if it is not. Models 3 and 4 estimate the probability of hostility in which the dependent variable equals one if the proposed merger receives a hostile reception from target management and zero otherwise. The toehold, freeze-out, and short-form bid variables are indicator variables equal to one if the bidder's equity toehold falls within the following ranges: $0\% < \text{toehold} < 50\%$; $50\% \leqslant \text{toehold} < 89.5\%$; and toehold $\geqslant 89.5\%$, respectively; otherwise the respective toehold indicator variable is zero. The models also include an indicator variable equal to one if the bid includes a target fee provision and zero if it does not; an indicator variable equal to one if the bid includes a lockup agreement involving target equity and zero if it does not; and indicator variables equal to one if the bid includes equity-based compensation; if the form of the bid is a tender offer; and if the bid follows a prior bid offered within the preceding 365 calendar days. Relative value of target is the market value of the target's equity, less the bidder toehold, divided by the market value of the bidder's equity plus the market value of the target's equity, less the bidder toehold. Model 2 incorporates indicator variables equal to one if the bid has associated litigation as defined by the Securities Data Corporation (SDC) or if the bid is defined as "hostile". The bid premium is the percentage difference in the share price offered to target shareholders as reported by SDC relative to the target's share price 42 trading days prior to the first bid announcement. The columns summarize the coefficients from logistic regressions with *p*-values, based on robust standard errors, in parentheses. Standardized coefficients, reported in brackets, relate the change in the probability given a shift in an indicator variable from zero to one or a one standard deviation change in a continuous variable, holding all other variables constant at their means.

Variable	Model 1 Completion, all bids ($N = 4,079$)	Model 2 Completion, freeze-outs ($N = 148$)	Model 3 Hostility, all bids ($N = 3,750$)	Model 4 Hostility, freeze-outs ($N = 140$)
Intercept	1.239	1.931	−2.525	−2.513
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Toe1: 0 < toehold < 50%	0.101		0.930	
	(0.652)		(<0.001)	
	[0.011]		[0.034]	
Toe2: 50% ⩽ toehold < 89.5%	0.654		0.165	
	(0.015)		(0.551)	
	[0.057]		[0.004]	
Target termination fees	1.383		−2.258	
	(<0.001)		(<0.001)	
	[0.146]		[−0.056]	
Acquirer lockup	0.943		−3.057	
	(<0.001)		(<0.001)	
	[0.085]		[−0.042]	
Tender offer	1.754	3.961	1.071	1.492
	(<0.001)	(0.002)	(<0.001)	(0.006)
	[0.128]	[0.224]	[0.037]	[0.185]
Offer includes bidder equity	0.606	0.025	−0.686	0.057
	(<0.001)	(0.965)	(<0.001)	(0.917)
	[0.071]	[0.002]	[−0.018]	[0.006]
Prior bidding indicator	−0.580	−0.815	0.912	0.366
	(<0.001)	(0.258)	(<0.001)	(0.662)
	[−0.076]	[−0.068]	[0.032]	[0.042]

Table 5 (*continued*)

Variable	Model 1 Completion, all bids ($N = 4,079$)	Model 2 Completion, freeze-outs ($N = 148$)	Model 3 Hostility, all bids ($N = 3,750$)	Model 4 Hostility, freeze-outs ($N = 140$)
Relative value of target	−2.759 (<0.001) [−0.066]	−2.833 (0.333) [−0.017]	3.076 (<0.001) [0.018]	1.632 (0.590) [0.015]
Deal attitude (1 = hostile)	−2.800 (<0.001) [−0.551]	−2.930 (<0.001) [−0.422]		
Litigation indicator	−0.165 (0.383) [−0.019]	0.055 (0.941) [0.003]		
Log(1 + bid premium)			0.024 (0.882) [0.000]	−1.107 (0.137) [−0.030]
Difference: Toe1 − Toe2 (*p-value*)	(0.096)		(0.018)	
Model Chi-square (*p*-value) Pseudo R^2	138.41 (<0.001) 0.242	15.22 (<0.001) 0.203	197.33 (<0.001) 0.146	17.13 (<0.001) 0.066

The results of Model 3 indicate relatively small differences in the likelihood of observing a hostile response across our bid subsamples. The likelihood of observing a hostile bid reception is not significantly different between freeze-out bids and no-toehold bids. Minority toehold bids are 3.4% more likely to elicit a hostile response compared with no-toehold bids, and hostility is 3.0% more likely compared with freeze-outs (*p-value* = 0.018). These results are consistent with Walkling and Long (1984) and Jennings and Mazzeo (1993), who find that resistance is higher for toehold bids but declining in toehold size. While statistically significant, the economic magnitude of the effect of toeholds on hostility is small. Hostility is also less likely to be observed in deals involving target payable termination fee and lockup provisions. Tender offers and follow-on bids are more likely to receive a hostile reception, while stock offers are 1.8% less likely to be hostile. The relation between the bid premium and the likelihood of a hostile reception is not statistically significant. The relation between bid response and observed premium is likely determined endogenously. In prior work, Schwert (2000) shows only a marginal relation between measures of hostility and bid premiums, while Walkling and Long (1984) find no statistically reliable relation between bid premiums and managerial bid resistance.

Model 4 examines deal hostility for the freeze-out bid subsample. As in the full sample, the likelihood of hostility is higher when freeze-out bids are structured as tender offers, not mergers. The incremental effect of proposing a tender offer is an 18.5% increase in hostility for freeze-out bids, about five times the magnitude of the increase in Model 3. The relationship between tender offers and hostility for freeze-out bids is inconsistent with the premise that controllers reliably avoid conflict with shareholders or their representatives by proposing freeze-out tender offers. With the exception of the tender offer indicator, none of the other deal factors are significantly related to bid hostility for freeze-out transactions.

For brevity we exclude the post-*Siliconix* indicator variable from the analyses in Table 5. The coefficient on this variable in specifications otherwise identical to Models 2 and 4 is not significantly different from zero nor is a coefficient on an interaction term between the post-*Siliconix* and the tender offer indicator variables.

6.3. Bid premium revisions

In Table 6 we analyze bid revisions for our full sample and for the subsample of freeze-out bids. We define a premium revision as the percent difference between the initial and final bid premium for a single bid as recorded by SDC. We observe bid premium revisions for 387 of our 3,750 sample bids with available premium data, 37 of which occur during freeze-out negotiations. SDC observations include only publicly announced bid revisions; therefore, any bid revisions that are negotiated before the bid is announced are not observed in our data. Under the minority bargaining power hypothesis, low bid premiums could incent target managers to wrangle for bid revisions during a merger negotiation, or reduce the likelihood that minority shareholders tender their shares. Model 1 of Table 6 estimates a logit regression of the incidence of bid revision as a function of the three toehold indicator variables, as well as controls for deal contract characteristics, bid form, relative size, bid hostility, litigation, and the initial premium offered.

Relative to no-toehold bids, the coefficients from Model 1 suggest that the likelihood of a bid revision increases across our toehold categories. Minority toehold bids are 4.2% more likely to be revised, and freeze-out bids are 14.5% more likely to be revised. The difference between revision rates across the minority toehold and freeze-out subsamples is statistically different from zero (p-value = 0.028). Thus, despite lower final bid premiums, our results are consistent with the presence of a degree of bid tension in freeze-out offers that exceeds what is observed during an arm's-length negotiation. Several other control measures affect the likelihood of premium revisions, the most economically significant being a hostile initial reception, which increases the probability of a bid revision by 40.1%. As might be expected, bid revisions are also more likely in tender offers, equity-based transactions, and deals involving litigation, although the economic significance of these independent effects are small relative to the impact of deal hostility. The relation between the bid premium and the likelihood of observing a bid revision is not significantly different from zero.

Model 2 of Table 6 summarizes the determinants of observing bid revisions for the freeze-out bid subsample. In freeze-out bids, hostility is associated with a 32.3% increase in the likelihood of a bid revision, while tender offers increase revision probability by 24.7%. A positive and significant coefficient on bid hostility is consistent with the notion that explicit bargaining improves the allocation of surplus for minority shareholders in freeze-out bids. Similarly, the positive relation between bid revision and tender offers suggests a significant degree of post-bid renegotiation between controllers and minority shareholders, their agents, or both during freeze-out tender offers. Consistent with this conclusion, the negative coefficient on bid premium indicates that higher initial offers by controllers are less likely to be challenged and ultimately revised.

Model 3 of Table 6 examines the magnitude of bid revisions for the 387 revised acquisition bids in our full sample of merger and acquisition bids using OLS regressions. The size of bid revisions associated with toehold bids is insignificantly different from the magnitude of bid revisions observed in the no-toehold and minority toehold bid subsamples. In conjunction with our data on the likelihood of bid revisions, this evidence

does not suggest that renegotiation is any less vigorous in freeze-out transactions relative to bids involving a change in control. Bid revisions are higher in hostile deals, lower when the initial premium is higher, and decreasing in the relative size of the target. None of the other explanatory variables in Model 3 are statistically significant. Model 4 examines bid revisions for freeze-out bids only. Bid revisions are smaller when the relative size of the target is larger but do not appear to vary systematically with other deal or contract characteristics, although the sample size is small.

Table 6
Estimates of the likelihood and magnitude of bid revisions in merger and tender offer bids

Models 1 and 2 summarize the likelihood of a bid revision in which the dependent variable is an indicator equal to one if a bid revision occurs for a proposed bid and zero if no revision is observed. We define a premium revision as the percent difference between the initial and final bid premium for a single bid as recorded by the Securities Data Corporation (SDC). Models 3 and 4 provide summaries of Ordinary least squares (OLS) regressions of bid revision size. The toehold, freeze-out, and short-form bids variables are indicator variables equal to one if the bidder's equity toehold is any of the following: $0\% < \text{toehold} < 50\%$, $50\% \leqslant \text{toehold} < 89.5\%$, and $\text{toehold} \geqslant 89.5\%$ respectively; otherwise the respective toehold indicator variable is zero. The models also include an indicator variable equal to one if the bid includes a target fee provision and zero if it does not; an indicator variable equal to one if the bid includes a lockup agreement involving target equity and zero if it does not; and indicator variables equal to one for tender offers and bids that include bidder equity. The models also incorporate indicator variables equal to one if the bid has associated litigation as defined by SDC or if the bid is defined as hostile. Relative value of target is the market value of the target's equity, less the bidder toehold, divided by the market value of the bidder's equity plus the market value of the target's equity, less the bidder toehold. The bid premium is the percentage difference in the share price offered to target shareholders as reported by SDC relative to the target's share price 42 trading days prior to the initial bid announcement. Models 1 and 2 summarize the coefficients from logistic regressions, while Models 3 and 4 coefficients are estimated using OLS. Coefficient *p*-values, based on robust standard errors, are in parentheses. Standardized coefficients, reported in brackets for the logistic regressions, relate the change in the probability of a revision given a shift in an indicator variable from zero to one or a one standard deviation change in a continuous variable, holding all other variables constant at their means.

Variable	Model 1 Bid revision, all bids ($N = 3,750$)	Model 2 Bid revision, Freeze-outs ($N = 140$)	Model 3 Revision size, all bids ($N = 387$)	Model 4 Revision size, Freeze-outs ($N = 37$)
Intercept	−3.125	−1.412	21.287	33.636
	(<0.001)	(0.001	(0.062)	(0.035)
Toe1: $0 < \text{toehold} < 50\%$	0.448		0.652	
	(0.052)		(0.865)	
	[0.042]			
Toe2: $50\% \leqslant \text{toehold} < 89.5\%$	1.176		−1.303	
	(<0.001)		(0.899)	
	[0.145]			
Toe3: $89.5\% \leqslant \text{toehold} < 100\%$	1.096		8.372	
	(0.174)		(0.370)	
	[0.135]			
Target termination fees	0.386			
	(0.004)			
	[0.032]			
Acquirer lockup	−0.135			
	(0.412)			
	[−0.010]			

Table 6 (*continued*)

Variable	Model 1 Bid revision, all bids ($N = 3,750$)	Model 2 Bid revision, Freeze-outs ($N = 140$)	Model 3 Revision size, all bids ($N = 387$)	Model 4 Revision size, Freeze-outs ($N = 37$)
Tender offer	0.547 (0.001) [0.051]	1.158 (0.013) [0.247]	−2.509 (0.502)	−11.975 (0.367)
Post-*Siliconix* dummy				−12.239 (0.546)
Post-*Siliconix* * tender offer dummy				−3.426 (0.884)
Offer includes bidder equity	0.529 (<0.001) [0.040]	0.069 (0.729) [0.014]	−2.014 (0.487)	−1.282 (0.902)
Deal attitude (1 = hostile)	2.430 (<0.001) [0.401]	1.399 (0.007) [0.323]	15.373 (<0.001)	5.240 (0.581)
Litigation indicator	0.666 (<0.001) [0.068]	−0.368 (0.527) [−0.071]	6.057 (0.261)	45.394 (0.257)
Relative value of target	−0.500 (0.132) [−0.007]	−1.375 (0.758) [−0.023]	−22.647 (0.068)	−135.186 (0.085)
Log(1 + bid premium)	−0.327 (0.077) [−0.025]	−1.439 (0.055) [−0.236]	−42.246 (0.078)	−23.631 (0.402)
Difference: Toe1 – Toe2 (*p-value*)	(0.028)		(0.829)	
Model Chi-square/*F*-value	341.93	19.44	7.14	1.81
(*p*-value)	(<0.001)	(0.003)	(<0.001)	(0.117)
Pseudo R^2	0.089	0.152	0.125	0.153

7. Conclusion

This paper examines the changes in shareholder wealth and explicit bargaining activity observed during acquisition bids proposed by controlling shareholders, deals commonly referred to as minority freeze-outs. Practitioners and legal scholars have been engaged in an ongoing debate regarding the inherent conflicts of interest that arise in these transactions and the impact of these conflicts on outcomes for minority shareholders. Our analysis discriminates between two competing theories regarding these bids. The first is a theory of bid capture under which minority shareholders lack sufficient board representation or efficient legal recourse or both allowing controllers to capture a disproportionate share of the gains to freeze-out acquisitions. Alternatively, we consider a minority bargaining power theory, which posits that active board representation and implicit legal recourse effectively insulate minority shareholders from self-dealing by controllers.

All else equal, we find that abnormal returns to controlling shareholders, excluding any gains associated with appreciation in toehold shares, are statistically similar to the returns to bidding shareholders in minority toehold and no-toehold bids. Moreover, we find that, on average, minority claimants in freeze-out bids receive approximately 11% more than their pro rata share of deal surplus generated at the bid announcement, an excess distribution of roughly $6.1 million. These results are inconsistent with the notion that controlling shareholders systematically undertake freeze-out transactions at the expense of the minority claimants of the target firm.

In keeping with our findings concerning wealth effects, our evidence is also consistent with a degree of active negotiation on behalf of minority shareholders during freeze-out bids. The incidence of bid hostility in freeze-out transactions is similar to the rate observed in arm's-length transactions, and a hostile deal reception reduces the probability of deal completion by over 40% in freeze-out bids. In addition, freeze-out bids are more likely to be associated with price revisions and, when observed, these revisions are roughly equivalent in magnitude to those that obtain during control transactions.

Several broad conclusions can be derived from our results. First, our findings support the contention that, on average, economic incentives and legal protections adequately insulate minority shareholders from expropriation during freeze-out bidding. The disproportionate allocation of deal surplus to minority claimants in freeze-out bids seems inconsistent with the provision of a minimum premium intended to forestall shareholder dissension and appraisal, and suggests that substantial premiums, on average, are necessary to compensate targets, even in bids that do not involve a change in control. In addition, our evidence suggests that bid negotiation by minority shareholders and their agents is common and is used to improve the allocation of deal surplus to minority claimants. The fact that minority shareholders receive more than their pro rata share of the deal surplus is consistent with bidders seeking to avoid any transactions costs associated with the expected direct and indirect expense of a legal challenge.

Finally, our analysis does not indicate that minority claimants involved in freeze-out proposals have fared worse following the *Siliconix* decision in 2001, regardless of bid form. In fact, our evidence suggests that wealth effects and negotiation associated with freeze-out bids are statistically equivalent in pre- and post-*Siliconix* subperiods. This evidence contrasts with the conventional wisdom that tender offers present an optimal transaction for controlling shareholders seeking to consummate a freeze-out following the *Siliconix* decision. We infer instead that freeze-out tender offers (like tender offers generally) provide a relatively poor method for extracting deal value from atomistic target shareholders, as they require the distribution of premium to all minority shareholders sufficient to meet the reservation price of the marginal informed shareholder. Given these results, we question the economic basis underlying recent calls for a strengthening of the current review standards applied to freeze-out transactions by the Delaware judiciary.

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