



ELSEVIER

Journal of Financial Economics 60 (2001) 103–141

JOURNAL OF  
Financial  
ECONOMICS

www.elsevier.com/locate/econbase

# Locking out rival bidders: The use of lockup options in corporate mergers<sup>☆</sup>

Timothy R. Burch\*

*Department of Finance, University of Miami, Coral Gables, FL 33124-6552, USA*

Received 7 June 1999; received in revised form 25 April 2000; accepted 17 January 2001

---

## Abstract

Conventional wisdom suggests that lockup options are granted by self-interested target managers to discourage competition and hand-select an acquirer, thus harming target shareholder wealth. Evidence from 2,067 deals announced during 1988–1995 suggests that lockup options inhibit competition, but on average, deals with lockup options have higher target announcement and overall returns and lower bidder announcement returns, even after controlling for shareholder anticipation and other factors. An examination of 100 merger proxies suggests lockup options are no more prevalent in privately negotiated, preemptive deals, and average target returns are higher when such deals include a lockup option. The overall evidence is more consistent with managers using lockup options to enhance bargaining power than with lockup options harming shareholder wealth. © 2001 Published by Elsevier Science S.A.

*JEL classification:* G34; K21

*Keywords:* Lockup option; Merger; Takeover; Bidder discrimination

---

<sup>☆</sup>A previous version of this paper was titled, “The use of lockup options in corporate acquisitions: theory and evidence.” I am especially grateful to David Hirshleifer, Vik Nanda, and Ralph Walkling, the referee, for insightful comments. I also thank Sugato Bhattacharyya, Matt Billett, Michael Bradley, Allan Everhart, Doug Emery, Michael Fishman, Pat Fishe, Larry Goldberg, David Heike, Kathleen Hanley, Andrea Heuson, Phil Howrey, Bill Jennings, David Mauer, M.P. Narayanan, John Persons, Annette Poulsen, Michel Robe, Michael Rosensweig, Mike Ryngaert, Paul Seguin, Tyler Shumway, Doug Skinner, and seminar participants at the University of California-Davis, the University of Illinois, Indiana University at Bloomington, the University of Miami, the University of Michigan, the University of Minnesota, the University of Oregon, Rice University, Tulane University and the University of Wisconsin-Madison.

\* Corresponding author. Tel.: + 1-305-284-4362; fax: + 1-305-284-4800.

*E-mail address:* tburch@miami.edu (T.R. Burch).

## 1. Introduction

One of the presumed benefits of an open and fair market for corporate control is the transfer of corporate assets to their highest valued use. Indeed, a socially optimal transfer of assets is one argument in support of takeover regulation aimed at facilitating auctions in corporate control contests. For example, Section 14(d) of the Williams Act requires that tender offers be left open for 20 trading days, which not only gives shareholders time to consider the offer but also allows other potential bidders time to formulate competing bids. Allowing all potential bidders to compete for a target can also presumably increase target shareholder wealth by allowing the bidder with the highest reservation bid to win. Another benefit of open competition for target firms is the enhancement of the disciplining aspects of the takeover market, in the sense that target management's ability to hand-select an acquirer for personal reasons is limited when auctions are fair. It is therefore not surprising that the appropriateness of techniques and devices that allow managers to influence the identity of their firm's acquirer is the subject of much debate. Such devices can enhance target managers' ability to pursue nonvalue-maximizing acquisitions by bidders favored for personal reasons, thus negating many of the benefits of an open and fair market for corporate control. On the other hand, such devices can also enhance the bargaining power of target managers on behalf of shareholders when faced with a takeover bid. This article investigates the use of lockup options, which allow target managers to simultaneously advocate an acquisition by one party and obstruct attempts by others. A lockup option, granted at the discretion of target management, gives a selected bidder the right to purchase a portion of a target at a discount off the price any competing bidder must pay.<sup>1</sup> Consistent with evidence in this study, industry participants contend that lockup options virtually eliminate competition for a target. Lockup options thus provide a unique opportunity to empirically examine when and why target managers discriminate among bidders and how shareholders are affected.

Because competition for a target is traditionally thought to result in a higher bid premium, shareholder advocates charge that lockup options benefit target managers at the expense of target shareholders. Target managers with a deal in place could use a lockup option to discourage third-party bidders, only to subsequently kill the deal while building general takeover defenses to further entrench themselves. Alternatively, target managers who realize they are unable

---

<sup>1</sup> In this paper the term lockup option does not include breakup fees, which are fixed fees that become payable to a bidder if a deal is terminated for any number of reasons. Preliminary analysis of breakup fees found no significant wealth effects (the focus of this article), and the results for lockup options are robust to controlling for breakup fees. See Coates and Subramanian (2000) for an empirical study that includes breakup fees.

to fulfill their desire to remain independent may use a lockup option to concede an acquisition but only with the bidder of their choice. Fraidin and Hanson (1994) note the conventional wisdom that lockup options allow target managers to favor a particular bidder in return for side payments. For example, target managers might receive a bidder-granted employment contract they would not otherwise receive in return for a lockup option. Irrespective of their benefit for target management, lockup options are commonly thought to circumvent the auction process by either preventing an auction from occurring altogether, or by prematurely ending an auction already underway. Thus, prevailing wisdom implies that lockup options are harmful to target shareholders because (i) the bid premium is not allowed to reach its full potential, and (ii) an enhanced ability to hand-select acquirers insulates managers from the disciplining aspects of the takeover market.

Paramount Communications' lockup option is but one high-profile example of its controversial use. In 1993, Viacom and QVC Network were embroiled in a battle to acquire Paramount Communications. Paramount's management granted Viacom a lockup option that gave Viacom the right to purchase 24 million treasury shares (compared to 120 million shares then outstanding) at the negotiated, per-share acquisition price. The lockup option would have enabled Viacom to sell the treasury shares to QVC if QVC eventually acquired Paramount, thereby increasing QVC's acquisition price relative to Viacom's. The lockup option was perceived to discourage QVC from competing, and Viacom's chairman predicted that nothing short of a "nuclear attack" could break up the deal. QVC challenged the lockup option in court, however, and in 1994 the Delaware Supreme Court invalidated Viacom's lockup option.<sup>2</sup> Noting that Paramount's CEO had been scheduled to become the CEO of the merged firm, *The Wall Street Journal* reported that although it was "too early to assess the long-term effects [of the decision], the death of [lockup options] could be good news for shareholders [because target managers] could have a tougher time arranging transactions that benefit themselves at the expense of shareholders" (Steinmetz, 1994). Lockup options have not disappeared, however, and in 1996 the Third U.S. Circuit Court of Appeals upheld the validity of a lockup option that Conrail granted to CSX. More recently, five of the ten largest 1998 deals listed in Institutional Investor's *Corporate Financing Week* included lockup options ("1998 Mergers and Acquisitions", Institutional Investor's *Corporate Financing Week*, Vol. 25 (4), 12).

---

<sup>2</sup> A lower court had ruled that a duty to auction the firm to the highest bidder (the *Revlon Standard*) had been triggered, and because the lockup option "made Paramount less attractive to other bidders," its use could not be justified. The lower court stated that "both the intent and effect of [the lockup] option was to deter competitive bids," and upon appeal the Delaware Supreme Court upheld the decision. *Paramount Communications Inc. v. QVC Network Inc.*, 637 A.2d (Del. 1994).

Are lockup options granted by self-serving target managers to preclude competition for the firm at the expense of target shareholder wealth? Should their use be prohibited or at least restricted? Numerous papers examine lockup options and similar devices on a theoretical basis (e.g., Berkovitch and Khanna, 1990; Berkovitch et al., 1989) or a legal basis (e.g., Ayres, 1990; Bainbridge, 1990; Coates and Subramanian, 2000; Fraidin and Hanson, 1994; Kahan and Klausner, 1996; Roosevelt III, 2000; Skeel, 1996). Coates and Subramanian (2000) also perform an empirical analysis that primarily focuses on the incidence of lockup options and breakup fees and their effect on deal outcomes. By contrast, the present article performs a detailed empirical analysis of the wealth effects of 2,067 completed and failed merger deals with and without lockup options announced between 1988 and 1995. The results indicate that it is premature to label lockup options as devices that only benefit target managers and favored bidders. Although the evidence is consistent with lockup options discouraging competing bidders, the wealth effects suggest that target shareholders are not systematically harmed by their use. In fact, average and median returns to target shareholders are significantly higher in merger deals with lockup options. This holds even after controlling for merger-specific characteristics such as deal completion, a hostile deal attitude, litigation associated with the merger, institutional ownership, the target's market-to-book, size, free cash flow, profit, shareholder anticipation of a lockup option, and a measure of the likelihood the target would have multiple interested bidders. It is difficult to directly measure the impact of lockup options because it is impossible to observe what might have happened had a deal with a lockup option not had one. The approach taken in this paper is to compare returns in deals with and without lockup options and control for differences in deals to the extent allowed by the data. What can be concluded from this approach is that the return to target shareholders in the average deal with a lockup option is clearly not lower, and by most measures is higher, than in the average deal with no lockup option. This is at odds with what prevailing thought on lockup options would imply.

The results of this paper are related to Comment and Schwert (1995), who examine modern antitakeover measures. Antitakeover devices can presumably entrench target management at the expense of target shareholder wealth. Comment and Schwert find, however, that target shareholders receive higher premiums when antitakeover measures are in place, and that these gains are not offset by the extent to which antitakeover measures might deter potential buyers from making a bid. Additionally, Schwert (2000) examines hostility in takeovers and argues that hostility is more reflective of an aggressive bargaining strategy by target management than it is of an attempt at entrenchment. Taken together, these papers suggest that antitakeover devices and techniques that target management can potentially abuse are more often used to increase bargaining power and maximize target shareholder wealth. Similarly, the results in this paper are consistent with a potentially abusive device being used to benefit target

shareholders. This paper therefore reinforces the notion that takeover policy regarding defensive and discriminatory devices must consider that their ability to increase target management's bargaining power can potentially outweigh costs to target shareholders.

Presumably, an abusive use of a lockup option includes the facilitation of a secretly negotiated deal without allowing other potential bidders to compete or a deal with an employment contract for target management. A sample of 100 merger proxies is examined to identify such "controversial" deals. Although results are only suggestive due to small sample sizes, the analysis suggests that a prohibition of lockup options would not prevent such deals from occurring. Furthermore, those lockup deals in the sample classified as controversial have higher average target returns than both controversial deals without lockup options and noncontroversial deals. It is possible that when target management uses a lockup option to pursue a secretly negotiated deal and/or one with an employment contract, it makes special efforts to negotiate a good deal for shareholders. Presumably, such efforts could help management defend itself against charges it has breached its fiduciary duties.

This study also highlights a tradeoff between toeholds and lockup options, and thus contributes to the literature on the well-known toehold puzzle in which a majority of bidders fail to obtain a pre-offer equity stake in the target, or toehold, in spite of the apparent advantages of doing so. For example, although Betton and Eckbo (1999) and Walkling and Edmister (1985) find that toeholds result in lower average tender offer premiums, and Walkling (1985) finds that toeholds increase the probability of a tender offer's success, Jarrell and Poulsen (1989) find nearly 60% of bidders have no toehold. Toeholds are typically acquired prior to making an initial bid, however, and the toehold acquisition process itself can have costs. Ravid and Spiegel (1999) argue that toeholds increase the pre-offer price of a target, and Schwert (1996) shows that there is little substitution between a target's pre-announcement stock runup and the increase in the post-announcement stock price until deal outcome. Schwert concludes that the pre-announcement runup is an added cost to a bidder. Thus, acquiring a toehold can presumably increase a bidder's final acquisition price in some instances. Other potential costs of toehold acquisition include tipping off competing bidders, signaling intentions to target management, and signaling a high valuation to target shareholders (Chowdhry and Jegadeesh, 1994). A lockup option, however, can serve as an imperfect but cheaper substitute for a toehold. Ravid and Spiegel (1999) suggest that bidders will purchase toeholds for insurance reasons when rival bidders are expected. A lockup option provides similar insurance by giving its owner the right to quickly purchase a toehold precisely when a rival bidder actually interferes. In addition, to the extent that bidders use toeholds to discourage competition, lockup options can also be used. Importantly, because a lockup option is negotiated as part of a final merger deal, it has none of the potential prenegotiation costs associated with

toehold acquisition. The cost of a lockup option for a bidder is the total pecuniary and nonpecuniary benefits conceded to the target in exchange, and this cost may be less than the total cost of acquiring a pre-bid toehold. Given the substitution effect between lockup options and toeholds, it is not surprising that this study finds a strong, negative correlation between the two.

The paper is organized as follows. Section 2 reviews the mechanics and effects of lockup options. Section 3 presents the empirical analysis, including data construction (3.1), descriptive statistics (3.2), a logistic analysis (3.3), an examination of wealth effects (3.4), and evidence on abusive lockup options (3.5). Section 4 concludes.

## 2. Lockup option mechanics and possible effects

In the typical negotiated acquisition, the managements of a target and negotiated acquirer (bidder 1) sign a merger agreement that specifies the bid premium and other aspects of the deal, including whether or not a lockup option is included. The merger is not consummated immediately, however. A period of time (typically a few months, but sometimes much longer) passes while potential regulatory and logistical challenges are overcome. During this period, an interfering third party (bidder 2) may choose to make an offer for the target. If this occurs, the typical lockup option allows bidder 1 to purchase a block of treasury shares (or authorized but unissued shares) at the (original) negotiated per-share bid premium. Bidder 1 may then sell these shares to bidder 2 (or back to the target) at bidder 2's offer price, and thus the lockup option's payoff increases as bidder 2 increases its acquisition price. The option gives bidder 1 an advantage over bidder 2 because a portion of the target can be purchased by bidder 1 at a price lower than that available to bidder 2.<sup>3</sup>

There are multiple possible motivations for lockup options. In a theoretical paper, Berkovitch and Khanna (1990) study a general class of what they call discriminatory value-reducing defensive strategies (a lockup option being one example) that reduce the value of the target to some bidders more than others. They discuss how discriminatory value-reducing defensive strategies can compensate an initial bidder with a low target valuation for putting the firm into play. Berkovitch et al. (1989) examine a similar scenario (see Spatt (1989) for a review of the theoretical literature on defensive measures aimed at some, but not all bidders). It is doubtful, however, that this motivation applies to most lockup options because lockup options deter competition. Instead of using a lockup option for this purpose, a breakup fee can be set large enough to

---

<sup>3</sup>While some legal analysis questions the extent to which a lockup option gives its owner a competitive advantage, such analysis may not be realistic in light of evidence that third parties rarely interfere in deals with lockup options.

compensate an initial bidder yet small enough to allow for competition. AT&T's 1999 winning bid for Media One Group, in spite of a \$1.5 million breakup fee payable to Comcast, is but one recent example of a third-party bidder competing in spite of a breakup fee.

Another possible motivation for a lockup option is its potential to affect bidding behavior by giving bidder 1 an equity stake. Daniel and Hirshleifer (1996) explore cases where bidders without toeholds drop out of ascending English auctions long before reaching their valuations, in direct violation of the so-called ratchet solution. This is because a bidder receives little or no benefit from engaging a competitor it perceives to have a higher valuation in a costly but losing battle. Burkart (1995), Bulow et al. (1998) and Singh (1998), however, show that toeholds give bidders an incentive to bid more aggressively by making higher bids. Betton and Eckbo (2000) find empirical evidence consistent with these "multiple-bidder models in which acquiring a toehold provides a competitive advantage". They also find that the greater the initial bidder's toehold, the greater the expected value of the second bid in multiple-bid contests. This finding could be at least partially due to third-party bidders knowing they will have to make a higher bid to beat a competitor with a toehold. In sum, the theoretical and empirical literature suggests that target shareholders can benefit if bidder 1 has an effective equity stake when a bidding contest ensues. This motivation for a lockup option, however, is also doubtful since lockup options seem to so strongly discourage competition and prevent multiple-bidder contests from occurring.

The logical conclusion, then, is that lockup options are granted to deter third-party bidders, consistent with their observed effect and with the contentions of their critics. This motivation is also consistent with the restrictions usually found in merger agreements that include lockup options – target management is forbidden from negotiating with or even providing information to other prospective bidders. By signing such a merger agreement, target management agrees to not facilitate other bidders and simultaneously grants a lockup option to deter them. It is not possible, of course, to empirically investigate exactly why lockup options so seemingly deter competing bidders. Two reasonable conjectures can be made, however. First, it is possible that the size of the typical lockup option gives the initial bidder such a strong incentive to compete that other bidders expect to lose or to win only at a high price. The mean and median sizes of the lockup options studied here are 20% and 18% (based on the percent of total shares owned upon exercise), considerably larger than the average toehold (for bidders who own them) of 10% to 13% found in Bradley et al. (1988) and Jarrell and Poulsen (1989).<sup>4</sup> Thus, any added incentive

---

<sup>4</sup> Lockup options using only treasury shares are generally limited to 19.9%. This is due to exchange rules that require shareholder approval of any action causing a higher percentage of additional shares to be listed. Some of the lockup options in this study are larger, however, because they also include some already-issued shares owned by target management.

to compete caused by the typical lockup option is likely much stronger than that caused by the typical toehold. *Large* toeholds can also have discouraging effects on third-party competition. Consistent with this, Betton and Eckbo (2000) find that the average toehold in single-bid contests is 19%, versus an average of 5% when a rival bidder makes a bid. It seems that rival bidders are well aware of the hurdles they face when the target's first bidder owns a large equity stake. The second discouraging aspect of a lockup option is the cost it imposes on a competing bidder's acquisition at a given price. Bidder 1's purchase of lockup shares at their exercise price and resale at bidder 2's higher acquisition price will decrease bidder 2's expected profit from acquiring the target.

Although lockup options do appear to discourage competition, it is nonetheless possible for them to benefit target shareholders. In simple terms, a lockup option can increase target management's bargaining power when negotiating a deal with bidder 1. More subtly, suppose bidder 1 owns no toehold in the target. If a bidder with a higher valuation appears, bidder 1 may have little incentive to compete (a scenario discussed previously). Because of this possibility, granting an exclusionary lockup option to bidder 1 can increase the joint gains to trade for the target and bidder 1. By eliminating the possibility that bidder 1 will lose the target, the lockup option increases bidder 1's ex ante expected value from signing the merger deal. This value improvement can in theory be split between the target and bidder 1 via the negotiation process (with the target benefiting through improvements in the bid premium or in other, less tangible terms of the deal). Meanwhile, excluding bidder 2 is not extremely costly for the target if bidder 1's lack of incentive to compete would let bidder 2 win with little or no bid improvement (an illustrative model is available from the author). Note that if bidder 1 does already own a toehold, however, then target shareholders would not necessarily benefit from a lockup option due to bidder 1's existing (toehold-induced) incentive to compete. The net benefit of bidder 1's toehold would be unclear. On the one hand, the toehold could benefit the target by facilitating a potential bid by bidder 1. Bidder 1's toehold (and bid if one is made) could also lower bidder 2's search costs by identifying the target, thus increasing the chances of a bidding competition. On the other hand, bidder 1's toehold could harm the target if it is large enough to dissuade bidder 2 from making a bid it otherwise would have made.

Target management can also use a lockup option to take advantage of agency problems in an acquiring firm. Because some managers of bidding firms wish to avoid being perceived as bungling an acquisition attempt, they may pay a premium for a lockup option that substantially reduces the risk of losing the target to a competitor. The use of a lockup option in this manner is particularly feasible when the manager of a bidding firm suffers from hubris (see Roll (1986) for a discussion of hubris-motivated takeovers). Thus, there may be cases where the bargaining power of a target manager is especially enhanced by the ability to grant a lockup option. The empirical results do not support a conclusion that



bidders systematically overpay for lockup options, however. Although bidders in deals with lockup options earn significantly lower announcement returns, in unreported results for completed deals neither longer-run post-announcement bidder stock returns nor returns on assets for bidders in the two or three years following the announcement are significantly lower when a lockup option is included. It should also be noted that the enhanced bargaining power a lockup option may bring can also benefit target management if used to procure an employment contract or other side benefit with the acquirer. A subsequent section provides more detail on the relation between employment contracts and lockup options.

Finally, note that the mere existence of lockup options as a viable tool for target managers can affect bidder participation. If a bidder knows it has a chance to secure a device that can help it win against other bidders, it may be more likely to expend resources on acquisition-related activities. Lockup options, however, can also adversely affect bidder participation from the perspective of target shareholders. The ability to use a lockup option to procure a white knight can discourage hostile bidders from making bids in the first place. It is not possible, of course, to empirically determine the net effect of the existence of lockup options on bidder participation in this context.

The usefulness of a lockup option seemingly depends on at least the potential for competing bidders. An appropriate question, therefore, is whether it is valid to interpret a lockup option as *prima facie* evidence that target management has failed to allow all potential bidders to fairly compete. There are two responses. First, there is no guarantee that holding a fair and open auction will result in a higher ultimate bid premium than simply negotiating with a bidder in place. For example, suppose bidder 1 has a privately known valuation of 150, and that there is a potential competitor (bidder 2) with a privately known valuation of 100. In a traditional ascending auction the maximum price the target receives is an infinitesimal amount over 100 (after bidder 2 drops out). Wishing to avoid an auction with an unknown valuation, however, bidder 1 may be willing to pay an upfront price of 110 (for example) in exchange for a lockup option to preclude bidder 2. Second, some bidders fail to surface even if an auction is fair and public. For example, a potential bidder may be unable to secure the necessary financing to make a credible bid (the discussion sections of merger agreements sometime justify the rejection of a bidder due to questionable financing). Another possibility is that changing business conditions cause a potential bidder to increase its valuation of the target after an auction has already concluded. Discussion sections of several merger proxies do reveal cases where lockup options are awarded even after a vigorous, public auction is held, so the parties must believe the possibility of future competition exists.

Clearly the potential does exist for target managers to abuse lockup options to the detriment of target shareholders, and cases of such abuse undoubtedly

exist. As argued above, however, lockup options can also benefit target shareholders. Ultimately, whether lockup options are systematically abused to the detriment of target shareholders, or instead are more often used as bargaining leverage to assist target managers in merger negotiations, is an empirical question.

### 3. Empirical analysis

#### 3.1. *Data construction and variable descriptions*

A sample of 2,067 completed and failed merger deals announced between January 1, 1988, and December 31, 1995, involving publicly traded U.S. target firms is constructed from the Securities Data Company (SDC) database. Although SDC data also include other forms of acquisition techniques, the sample is limited to mergers because lockup options are by necessity the result of successful negotiations between targets and bidders, and such negotiations typically result in merger agreements.<sup>5</sup> From an initial sample of 5,087 mergers, those deals in which the bidder owns more than 50% of the target prior to the deal's announcement are excluded. Target firms are then matched with data from the Center for Research in Security Prices (CRSP) and Compustat. Targets must have valid returns from CRSP during the deal's announcement month, and valid free cash flow (defined below) and assets from Compustat for the fiscal year ending two months (at the latest) prior to the deal's announcement. These restrictions reduce the sample to 2,067 deals.

Variables used in this study are taken from CRSP, SDC, Spectrum, and Compustat. CRSP data are used to compute returns so wealth effects may be examined. SDC data are used to code several indicator variables, including whether a deal includes a lockup option. Because lockup options serve to advocate a merger with an intended acquirer and discourage competition, it seems unlikely that target management would grant a hostile bidder a lockup option to facilitate its acquisition. In addition, Schwert (2000) finds that hostility as defined by SDC is associated with higher premiums, and argues this is consistent with hostility reflecting an aggressive bargaining strategy on the part of target management. A hostile indicator variable (*hostile* = 1 for hostility, 0 otherwise) is therefore coded to determine hostility's effect on the frequency of

---

<sup>5</sup> Out of 5,087 merger deals in the initial SDC sample, 526 include lockup options. Removing the restriction that only mergers be included would add only 6 additional deals with lockup options. It should be noted that the sample does include deals in which a merger is attempted along with a tender offer (for example, a two-step deal with a tender offer and clean-up merger). Out of 2,067 merger deals in the final sample, 404 have tender offers.

lockup options and to control for its effect on returns. Lockup options are controversial and often the subject of litigation, so SDC data are used to code a litigation variable (litigation = 1 for litigation, 0 otherwise) to test for a positive association between lockup options and deal litigation. A completion indicator variable is also coded. Deals with lockup options may be more likely to be completed because lockup options (i) are only present when target management has consented to the firm's acquisition, and (ii) serve to discriminate against competing bidders who could hamper an acquisition. The deal completion variable (completed = 1 if completed, 0 otherwise) is used to confirm this relation and also control for the effects on shareholder wealth. Finally, SDC data are used to confirm the expected negative relation between lockup options and the bidding firm's toehold. Toehold is the percent of shares already owned by the bidding firm at the time of the deal's announcement.

Spectrum data are used to analyze the amount of institutional ownership of the target's common stock. Managers of targets with lower institutional ownership may be subject to less institutional monitoring and therefore may be more likely to use a lockup option. Instown is defined the percent of the target's shares held by institutions as of the last quarter-end at least two months prior to the deal's announcement.

The remaining variables are derived from Compustat data and are computed at the latest point in time at or before two months prior to the deal's announcement, although results are robust to computing the variables 12 months prior. Previous studies find a negative relation between target asset size and takeover premiums (see, e.g., Comment and Schwert, 1995), so asset size is included as a control variable. Additionally, it is interesting to examine the relation between the target's size and the frequency of lockup options. On the one hand, smaller target firms may be less sophisticated in their approach to a takeover and therefore less likely to use a lockup option. On the other hand, a smaller firm may have more potential acquirers (because there are many larger firms in its industry) and therefore using a lockup option to discourage competition may be more relevant. Assets is defined as asset size in millions, and size is the log of assets. Free cash flow is also computed. Jensen (1986) argues that high free cash flow is associated with agency problems. Under this view, higher free cash flow for deals with lockup options would be consistent with what conventional wisdom predicts. More directly related to the takeover literature is the notion that high free cash flow may make a firm an attractive takeover target. A lockup option meant to preclude competition may be particularly desired by an intended acquirer when the target is likely to have multiple interested parties, so this may also lead to a positive association between lockup options and target free cash flow. Following Lehn and Poulsen (1989) and Lang et al. (1991), free cash flow is defined as operating income before depreciation minus total income taxes (less the change in deferred taxes from the previous to the current year) minus preferred and common stock dividends and interest expense, all divided

by total assets. Profit, defined as operating income before depreciation divided by assets, is also used as a control variable. Finally, a leverage ratio is constructed to see if the frequency of lockup options is related to capital structure. Leverage is calculated as long-term and current liabilities divided by total assets.

### 3.2. Descriptive statistics

Table 1 documents descriptive statistics for the 2,067 deals included in the sample by three classifications: all deals, failed deals (those not completed), and completed deals. Approximately 8% (158 out of 2,067) of all deals include lockup options. For completed deals, however, the percentage increases to 14% (136 out of 978 completed deals include lockup options). This is because deals

Table 1  
Descriptive statistics of 2,067 completed and failed mergers

Accounting multiples from Compustat are those of the target firm and are measured at the latest point in time prior to two months before a deal's announcement. Market-to-book ratio is total assets minus book value of equity plus market value of equity all divided by total assets. Free cash flow is operating income before depreciation minus total income taxes (less the change in deferred taxes from the previous to the current year) minus preferred and common stock dividends, all divided by total assets. Leverage ratio is long-term plus current liabilities, all divided by total assets. Operating profit is operating income before depreciation. Hostile attitude and litigation correspond to hostility and litigation codes reported by Securities Data Company (SDC), as does the toehold category (based on SDCs reported toehold at deal announcement). Institutional ownership is the percent of target shares owned by institutions two months before a deal's announcement, and is derived from Spectrum. *N* is the number with valid data for accounting multiples and % is the percent of deals within the group for hostile attitude, litigation, and acquirer toehold.

	With lockup options ( <i>n</i> = 158)			Without lockup options ( <i>n</i> = 1909)		
	<i>N</i> or %	Mean	Median	<i>N</i> or %	Mean	Median
<i>All deals (n = 2067)</i>						
Assets of target (\$ millions)	158	593	115	1909	803	85
Market-to-book ratio of target	158	1.536	1.237	1877	1.501	1.200
Free cash flow/assets of target	158	0.074	0.075	1909	0.022	0.055
Leverage ratio of target	158	0.259	0.230	1909	0.281	0.259
Operating profit/assets of target	158	0.132	0.128	1909	0.082	0.112
Institutional ownership of target	158	0.359	0.365	1771	0.283	0.244
% with hostile attitude	1%			8%		
% with litigation	22%			13%		
% with bidder toehold of 0%	87%			82%		
% with bidder toehold of 0–5%	7%	2.9%	3.3%	4%	3.0%	3.5%
% with bidder toehold > 5%	6%	13.0%	11.7%	14%	17.6%	12.4%

Table 1 (continued)

	With lockup options ( <i>n</i> = 158)			Without lockup options ( <i>n</i> = 1909)		
	<i>N</i> or %	Mean	Median	<i>N</i> or %	Mean	Median
<i>Failed deals (n = 1089)</i>						
Assets of target (\$millions)	22	.893	169	1,067	1111	95
Market-to-book ratio of target	22	1.379	1.214	1,067	1.470	1.171
Free cash flow/assets of target	22	0.072	0.075	1,067	0.015	0.052
Leverage ratio of target	22	0.251	0.286	1,067	0.297	0.278
Operating profit/assets of target	22	0.131	0.125	1,067	0.076	0.110
Institutional ownership of target	22	0.295	0.266	972	0.288	0.256
% with hostile attitude	0%			10%		
% with litigation	27%			10%		
% with bidder toehold of 0%	86%			78%		
% with bidder toehold of 0–5%	9%	1.7%	1.7%	4%	3.3%	3.6%
% with bidder toehold > 5%	5%	5.9%	5.9%	18%	14.2%	9.9%
<i>Completed deals (n = 978)</i>						
Assets of target (\$millions)	136	544	114	842	412	73
Market-to-book ratio of target	136	1.561	1.242	831	1.541	1.228
Free cash flow/assets of target	136	0.074	0.076	842	0.032	0.060
Leverage ratio of target	136	0.261	0.228	842	0.261	0.226
Operating profit/assets of target	136	0.132	0.129	842	0.090	0.116
Institutional ownership of target	136	0.370	0.374	799	0.277	0.228
% with hostile attitude	1%			5%		
% with litigation	21%			16%		
% with bidder toehold of 0%	87%			85%		
% with bidder toehold of 0–5%	7%	3.1%	4.5%	5%	2.7%	3.4%
% with bidder toehold > 5%	6%	13.9%	12.9%	10%	24.9%	22.4%

with lockup options are much more likely to be successfully completed (136 out of 158, or 86%) than are deals without lockup options (842 out of 1,909, or 44%).

Asset size is highly skewed, as the mean asset size is \$593 million for all deals with lockup options and \$803 million for all deals without lockup options, compared to medians of \$115 million and \$85 million, respectively. The asset sizes for the lockup and no-lockup deals in the all deals classification are not statistically different, nor are the mean or median asset sizes when only failed deals are examined or the mean asset sizes for completed deals. The median asset sizes for lockup and no-lockup deals in the completed deals classification, however, are statistically different at the 99% significance level according to an unreported chi-square test (lockup deals have a median asset size of \$114 million compared to \$73 million for no-lockup deals). This is consistent with Coates and

Subramanian (2000), who report that large deals are more likely to have lockup options and breakup fees. It may be that larger firms take a more sophisticated approach to their takeover negotiations.

For the all deals classification, the mean market-to-book ratios are 1.536 and 1.501 in deals with and without lockup options, respectively, and the medians are 1.237 and 1.200. The differences are not statistically significant. Significant differences in free cash flow and profit, however, do exist. When considering all deals, both the mean and median free cash flow divided by assets are significantly larger in deals with lockup options (at the two-tailed 95% level) according to an unreported *t*-test for differences in means and a chi-square test for differences in medians. Mean free cash flow divided by assets is 0.074 and 0.022 for deals with and without lockup options, respectively, and the medians are 0.075 and 0.055. In the completed and failed deal categories, the difference in mean free cash flow is significant at the 95% level; however, the significance level for differences drops to 90% for the medians. If high free cash flow is associated with agency problems as some argue, then the higher free cash flow for deals with lockup options is consistent with what prevailing wisdom predicts. The alternative, but not mutually exclusive, explanation is that firms with high free cash flow are more attractive targets, so lockup options meant to preclude competition are particularly desired by intended acquirers. Profit and free cash flow are highly positively correlated, so not surprisingly, similar results hold for operating profit – overall, profits are higher in deals with lockup options. Leverage ratios are very similar in the two groups.

Institutional ownership is higher in deals with lockup options for the all-deals and completed deals classifications. For all deals with lockup options, institutional ownership has a mean and median of 35.9% and 36.5%, respectively, while for all deals without lockup options, the mean and median are 28.3% and 24.4%. The differences in both means and medians are significant at the 99% level. Results are similar for completed deals. There are no significant differences, however, for failed deals. Prevailing thought suggests that managers of targets with lower institutional ownership, and therefore less institutional monitoring, may be more likely to use a lockup option. Therefore, higher institutional ownership in lockup deals is in contrast to what conventional wisdom predicts.

Although Schwert (2000) finds considerable inconsistency between how hostility is defined by various data sources, the SDC definition does have explanatory power in this study. There is a statistically significant (at the 99% level) lower incidence of deal hostility in deals with lockup options according to a chi-square test (1% of deals with lockup options are hostile, versus 8% of deals without lockup options). The small percentages of hostile deals are not surprising, because the sample selection criteria exclude any hostile takeover attempt that does not ultimately result in an attempted merger. For example, a failed hostile tender offer would not be included in the sample because such a takeover

attempt would not be coded as a merger. Thus, the sample is biased toward nonhostile deals.

Litigation is more common in deals with lockup options. Twenty-two percent of deals with lockup options have litigation, compared to 13% of deals without lockup options, and this difference is statistically significant (at the 99% level) according to a chi-square test. This might be because lockup options are controversial tools, and deals that include lockup options may be subject to higher levels of scrutiny. Unfortunately, SDC does not report what portion of the litigation is brought by various parties. An examination of 100 merger proxies from completed deals, however, finds that shareholder-filed litigation is less common in deals with lockup options, while bidder-filed litigation is somewhat more common. Toeholds are less common in deals with lockup options. For the all deals classification, 13% of bidders in deals with lockup options have positive reported toeholds, versus 18% for deals without lockup options. This difference is not statistically significant. Only 6% of bidders in deals with lockup options have toeholds greater than 5%, however, versus 14% for deals without lockup options. The difference is statistically significant at the 99% level according to a chi-square test, and this result is consistent with the substitution effect between toeholds and lockup options discussed earlier.

Table 2 reports longitudinal characteristics of deals from 1988 through 1995 with and without lockup options. Panel A shows that for all deals, lockup options are most frequent in 1988 (11%), with somewhat decreased usage in the following years, except for 1993, in which 10% of all deals had lockup options. There is no clear pattern over the years, as the percentage of lockup options reaches its low (6%) in 1989, 1994, and 1995. When only completed deals are considered, the use of lockup options declines from an overall high of 19% in 1988 to a low of 8% in 1995, although the percentages over the years are quite variable. The decreased use of lockup options in 1994 and 1995 is consistent with the decline reported in these years by Coates and Subramanian (2000), and is likely due to the chilling effect of the Paramount Communications decision discussed earlier.

Panel B examines completed deals only, and shows that deals with lockup options take less time to complete (a median of 87 days) than deals without them (which take a median of 121 days). This may be because other bidders do not interfere as often in deals with lockup options. Panel C examines the extent to which targets of failed deals (deals not completed with the intended acquirer specified) are bid for and acquired by third parties at a later date. Twenty-two out of 158 (14%) lockup deals are not completed, compared to 1,067 out of 1,909 (56%) of no-lockup deals. Eleven (50%) of the 22 targets in failed deals with lockup options have announcements within two years of an eventually successful acquisition by another party. In some of these cases a court of law removes the lockup option and in others the intended acquirer backs out of the deal before the other bidder competes. For the 1,067 failed deals without lockup

Table 2  
Longitudinal characteristics of 2,067 completed and failed mergers

Panel A reports the frequency with which lockup options were used for the sample deals from 1988 through 1995. Panel B reports the number of calendar days between a deal's announcement and target-firm delisting for successful deals. Panel C reports the ultimate completion status (with other parties) of unsuccessful deals. Information is calculated from data provided by Securities Data Company (SDC) and by CRSP (for delisting dates).

*Panel A: The use of lockup options from 1988 through 1995*

Year of announcement	All deals (completed and failed)				Completed deals only			
	With lockups		Without lockups		With lockups		Without lockups	
	N	Percent	N	Percent	N	Percent	N	Percent
1988	48	11%	379	89%	36	19%	149	81%
1989	25	6%	392	94%	22	16%	116	84%
1990	14	7%	198	93%	14	17%	69	83%
1991	13	8%	141	92%	13	19%	57	81%
1992	6	6%	92	94%	5	10%	47	90%
1993	15	10%	141	90%	15	18%	68	82%
1994	16	6%	255	94%	15	9%	148	91%
1995	21	6%	311	94%	16	8%	188	92%
All years	158	8%	1909	92%	136	14%	842	86%

*Panel B: Calendar days between announcement and target-firm delisting date for 978 completed deals*

	Deals with lockup options (n = 136)	Deals without lockups (n = 842)
Mean	120	191
Median	187	121

*Panel C: Ultimate status of 1089 failed deals*

	Deals with lockups (n = 22)	Deals without lockups (n = 1,067)
Announcement of a completed deal with another party within two years	11 (50%)	236 (22%)
Announcement of a completed deal with another party after two years	2 (9%)	49 (5%)
No deal completed with any party	9 (41%)	782 (73%)

options, 236 (22%) have announced acquirers within two years. The percentages are significantly different at the 99% level according to a chi-square test. Two (9%) of the 22 failed lockup deals and 49 (5%) of the 1,067 failed no-lockup deals have targets acquired by another party after two years. The higher acquisition



rates for failed lockup deals are perhaps not surprising, because the existence of a lockup option means it is more likely there were other parties interested in the target. The more important point, however, is that only 11 (7.0%) of the 158 total deals with lockup options (completed and failed) have targets acquired by other parties announced within two years. This compares to 236 (12.4%) of the 1,909 no-lockup deals, and the difference between the percentages is significant at the 95% level. Considering that the existence of a lockup option likely implies the target may have multiple interested parties, lockup options do seem effective in discouraging competition. Further investigation, in fact, reveals there are special circumstances surrounding some of the failed lockup deals with subsequent third-party acquirers. A Lexis–Nexis search for articles finds the following details on the 13 targets in lockup deals who are eventually acquired by third parties. In one case, the intended acquirer negotiated a licensing agreement with the third party. In another case, a court negated the lockup option. In four cases, changing conditions caused the originally intended acquirer to back out – two of these result in third-party acquisitions announced after two years. In five cases, a third party acquired the target in spite of the lockup option. Information could not be located for the remaining two deals.

### 3.3. *Logistic analysis*

To examine the association between lockup options and various deal characteristics in a multiple regression framework, a logistic analysis is performed. One important association to confirm is the negative relation between lockup options and toeholds. Other associations of particular interest are those involving free cash flow and institutional ownership. Although these relations are reported in Table 1, it is important to control for correlations with other variables by using the multiple regression framework discussed below.

Other variables are also considered. These include free cash flow, instown, completed, hostile, litigation, market-to-book, size, leverage and profit. Correlation coefficients between these variables are calculated and all but three are less than 0.25 in absolute value. One exception is the correlation coefficient between litigation and hostile, which is 0.292. Because the relation between the target firm and the acquirer is adversarial in a hostile deal, it is not surprising that litigation is more common in hostile deals. Another exception is the correlation coefficient between profit and free cash flow, which is 0.883. This high correlation is not surprising given the definitions of the two variables, and this is discussed in more detail below. Finally, instown is positively correlated with size (correlation coefficient = 0.584). There are several other variable pairs with smaller but statistically significant correlations, further suggesting the need for a multiple regression approach.

The logit regressions are reported in Table 3. In these regressions, the dependent variable is an indicator variable equal to one if a lockup option exists

Table 3  
Logit regressions of lockup option dummy on deal characteristics

Below are logit regressions of a dummy variable equal to 1 if a lockup option is present and 0 otherwise on various deal characteristics. The top number for each variable is the parameter estimate, and the two-tailed *p*-values are in parentheses. Toehold is the percent toehold held by the target at deal announcement. Completed equals 1 if the deal was completed and 0 otherwise. Hostile equals 1 if the deal was hostile and 0 otherwise. Litigation equals 1 if the deal has associated litigation and 0 otherwise. Free cash flow equals the target's operating income before depreciation minus total income taxes (less the change in deferred taxes from the previous to the current year) minus preferred and common stock dividends, all divided by total assets. Instown is the percent of target shares owned by institutions two months prior to deal announcement. Fcf\_litigation is free cash flow times litigation. Market-to-book equals the target's total assets minus book value of equity plus market value of equity, all divided by total assets. Size equals the log of target assets (in millions). Leverage equals the target's long-term and current liabilities divided by total assets. Profit equals the target's operating income before depreciation divided by total assets.

Model	1	2	3	4	5	6
Observations	2067	1929	1929	1029	1929	1929
Intercept	− 2.566 (0.000)	− 2.905 (0.000)	− 4.299 (0.000)	− 4.382 (0.000)	− 4.279 (0.000)	− 4.279 (0.000)
Toehold	− 0.056 (0.010)	− 0.056 (0.014)	− 0.041 (0.032)	− 0.041 (0.032)	− 0.040 (0.033)	− 0.039 (0.037)
Free cash flow	3.127 (0.000)	2.372 (0.006)	1.841 (0.022)	1.906 (0.022)	2.238 (0.201)	1.508 (0.076)
Instown		1.386 (0.001)	1.626 (0.000)	1.461 (0.005)	1.633 (0.000)	1.628 (0.000)
Completed			1.919 (0.000)	1.945 (0.000)	1.918 (0.000)	1.920 (0.000)
Hostile			− 2.211 (0.003)	− 2.228 (0.003)	− 2.215 (0.003)	− 2.221 (0.003)
Litigation			0.609 (0.007)	0.577 (0.012)	0.612 (0.007)	0.428 (0.152)
Fcf_litigation						2.258 (0.330)
Market-to-book				− 0.031 (0.749)		
Size				0.041 (0.545)		
Leverage				− 0.096 (0.810)		
Profit					− 0.387 (0.798)	
Chi-square	30.40 (0.000)	38.51 (0.000)	159.39 (0.000)	159.73 (0.000)	159.47 (0.000)	160.40 (0.000)

and zero otherwise. Model 1 shows that lockup options are negatively related to toehold ( $p$ -value = 0.010), consistent with the substitution effect discussed earlier. This model also shows that lockup options and free cash flow are positively related ( $p$ -value < 0.001). This is consistent with either the notion that lockup options are more prevalent when agency problems are present, or that lockup options are more common in high free-cash-flow firms because such firms are likely to attract multiple bidders. Model 2 adds instown, and consistent with Table 1 this variable is significantly positive. Model 3 shows that lockup options are positively and significantly related to completed and litigation, and negatively related to hostile. Although deal completion is obviously not known when a lockup option is negotiated, completed is included to confirm earlier results that lockup options increase the likelihood of deal completion. An alternative interpretation of the inclusion of an ex-post deal completion variable will be discussed in a subsequent section. Like the deal completion variable, litigation may not necessarily predict the use of a lockup option either. The causality may be reversed in many cases – lockup options themselves may encourage litigation. The direction of the causality is only a conjecture, however, because SDC does not provide enough information to determine whether the litigation exists prior to deal announcement.<sup>6</sup>

Model 4 adds market-to-book, size, and leverage, all insignificant. Model 5 adds profit, which has a strong positive correlation with free cash flow. Profit is not significant, and the  $p$ -value on free cash flow increases from less than 0.03 to 0.20. The relative significances of the variables suggest that free cash flow has more explanatory power than does profit. The near-multicollinearity between free cash flow and profit makes comparing their relative explanatory power tenuous, however, so the possibility that free cash flow merely proxies for profit cannot be ruled out. Model 6 adds an interaction variable between litigation and free cash flow (fcf\_litigation), but this variable is not significant. In all models, significant relations remain between the lockup option indicator variable and toeholds, free cash flow, and instown, thus confirming Table 1 results.

Overall, the evidence strongly supports the notion that lockup options and toeholds serve as substitutes. What cannot be known, however, is how many bidders anticipate their ability to obtain a lockup option when considering whether to procure a toehold (or increase a toehold if one is already owned). The evidence also shows that deals with lockup options are associated with higher completion rates, less hostility, higher target free cash flow, higher institutional ownership, and more litigation.

---

<sup>6</sup> Collecting such detailed information by hand from newspaper articles would be extremely costly and not necessarily accurate.

### 3.4. *Wealth effects*

Critics of lockup options may be emboldened by the result that lockup options are more prevalent when free cash flow, arguably correlated with agency problems, is high. The puzzle remains, however, as to why lockup options are more common with targets with higher institutional ownership and presumably higher institutional monitoring. Furthermore, the important question is not whether firms with agency problems make greater use of lockup options. Ultimately, target shareholder advocates should be interested in how lockup options affect shareholder wealth. If the incremental impact of lockup options on target shareholder wealth in merger deals is negative, critics could argue that lockup options are preventing auctions from coming to their natural value-maximizing conclusion. Defenders of lockup options, however, may argue that a deal with a lower premium is better than no deal at all. If lockup options and similar devices were prohibited so entrenched target managers had no ability to discriminate among bidders, more target managers might choose to thwart *all* takeover attempts to the fullest extent possible. The other possibility, of course, is that the incremental impact of lockup options is positive. Such a conclusion would suggest that those advocating restrictions on lockup options should exercise caution.

Ideally, one would like to directly measure the impact of a lockup option by comparing the target returns from a deal with a lockup option to the returns that particular deal would have without the lockup option. It is not possible, however, to observe what might have been. This section compares target returns from lockup deals to those from no-lockup deals, assuming the deals are otherwise similar and/or controlling for differences in deal characteristics. It is also interesting to examine how lockup options impact bidder returns. Generally accepted belief would predict that bidders in lockup deals pay lower premiums and thus have higher returns, since lockup options are thought to circumvent auctions. By contrast, another possibility is that returns to bidders are actually lower in deals with lockup options. This could be due to target managers using lockup options for leverage in negotiations and bidding managers paying a premium to eliminate competition. The analysis now turns to an examination of wealth effects.

#### 3.4.1. *Abnormal returns*

Table 4 reports cumulative abnormal returns (CARs) to target firms around the announcement date of the deal. To avoid some of the problems that can arise when accumulating daily returns over long time horizons, monthly data is used to calculate a pre-announcement CAR (–12 to –1 months) and a post-announcement CAR (0 to +9 months). Announcement period returns are calculated and reported for two windows: the announcement month CAR (using monthly data), and a four-day CAR (–1 to +2 days using daily data) surrounding the announcement day. Although not reported, announcement

Table 4  
Cumulative abnormal returns to target firms around deal announcement<sup>a</sup>

Pre-announcement, announcement month, and post-announcement returns are calculated using monthly returns. Days surrounding announcement returns use daily returns. Cumulative abnormal returns (CARs) calculate and sum monthly (or daily) abnormal returns, defined as the firm return minus the return on the value weighted NYSE/AMEX/Nasdaq index. The firm must have valid returns from the start of the window to be included, and returns of zero are plugged for the firm and market for those months in the window exceeding the firm's delisting date. The *p*-value for difference column reports two-tailed *p*-values for differences based on a *t*-test for means and a Wilcoxon rank sums test for medians.

Lockup option status:	All deals ( <i>n</i> = 2,067)			Completed deals only ( <i>n</i> = 978)		
	Yes	No	<i>p</i> -value for difference	Yes	No	<i>p</i> -value for difference
<i>Pre-announcement (–12 to –1 months)</i>						
Mean (%)	12.0 <sup>c</sup>	–0.2	(0.001)	12.2 <sup>c</sup>	3.0 <sup>a</sup>	(0.030)
Standard error (%)	3.5	1.2		3.8	1.8	
Median (%)	10.1	0.6	(0.005)	11.0	1.5	(0.034)
Number	158	1846		136	807	
Percent positive (%)	58 <sup>e</sup>	50	(0.047)	59 <sup>e</sup>	51	(0.093)
<i>Announcement month</i>						
Mean (%)	32.3 <sup>c</sup>	19.1 <sup>c</sup>	(0.000)	31.1 <sup>c</sup>	26.6 <sup>c</sup>	(0.093)
Standard error (%)	2.5	0.8		2.4	1.2	
Median (%)	28.1	13.8	(0.000)	28.6	20.4	(0.010)
Number	158	1909		136	842	
Percent positive (%)	89 <sup>f</sup>	77 <sup>f</sup>	(0.000)	88 <sup>f</sup>	83 <sup>f</sup>	(0.126)
<i>Days surrounding announcement (–1 to +2)</i>						
Mean (%)	25.6 <sup>c</sup>	16.3	(0.000)	26.1 <sup>c</sup>	22.2 <sup>c</sup>	(0.087)
Standard error (%)	1.9	0.6		2.1	1.0	
Median (%)	21.3	10.6	(0.000)	22.3	16.5	(0.007)
Number	158	1909		136	842	
Percent positive (%)	89 <sup>f</sup>	81 <sup>f</sup>	(0.010)	89 <sup>f</sup>	84 <sup>f</sup>	(0.133)
<i>Announcement month through +9 months</i>						
Mean (%)	33.6 <sup>c</sup>	10.9 <sup>c</sup>	(0.000)	34.4 <sup>c</sup>	28.9 <sup>c</sup>	(0.122)
Standard error (%)	3.3	1.3		3.2	1.6	
Median (%)	27.8	10.2	(0.000)	30.5	24.8	(0.042)
Number	131	1814		109	766	
Percent positive (%)	82 <sup>f</sup>	62 <sup>f</sup>	(0.000)	86 <sup>f</sup>	80 <sup>f</sup>	(0.138)

<sup>a</sup>Note: a, b, and c denote significance at the two-tailed 90%, 95%, and 99% level, respectively, for the mean returns. e, d, and f denote significance at the two-tailed 90%, 95%, and 99% level that the percentage is not equal to 50%.

results are also robust to using a two-day or five-day window. Cumulative abnormal returns are calculated by summing abnormal returns, defined as the firm return minus the return on the value-weighted NYSE/AMEX/Nasdaq

index. Results are also robust to using excess holding period returns (the difference between the holding period returns of the firm and index) – these results are not reported. To be included in a given window, the firm must have valid returns from the start of the window. Abnormal returns of zero are plugged for those months in the post-announcement window exceeding the firm's delisting date. Results for "all deals" will be discussed first, followed by a discussion of the results for completed deals.

Runups in returns before a deal's announcement may be caused by merger rumors, information leaks, and/or toehold accumulation activities. Pre-announcement returns (from  $-12$  to  $-1$  months) are therefore examined to reflect the argument that an analysis of merger wealth effects should consider runups. As reported in Table 4, pre-announcement returns in the all deals classification are more positive in deals with lockup options, and the differences are statistically significant. Mean and median CARs for the lockup group range from 10.1% to 12.0%, versus CARs ranging from  $-0.2\%$  to 0.6% for the no-lockup group. Differences in means and medians are significant at the 99.5% level (or greater).

Announcement returns for lockup deals are also higher in the all deals classification. During the announcement month, target shareholders in lockup deals have an average CAR of 32.3%, versus an average CAR of 19.1% in no-lockup deals. These announcement returns are of the same order of magnitude that other studies on takeover returns report (e.g. Bradley et al., 1988). The difference in mean returns between the two groups (13.2%) is statistically significant ( $p < 0.001$ ). Median CARs (28.1% for the lockup group, 13.8% for the no-lockup group) also have a significant difference according to a Wilcoxon rank sums test ( $p < 0.001$ ). Although the differences are slightly smaller in magnitude, returns for lockup deals are also higher when CARs are measured from  $-1$  to  $+2$  days around the announcement date ( $p < 0.001$  for differences in both means and medians).

At the time of a merger deal's announcement, uncertainty regarding the final terms of the deal can remain, as well as uncertainty regarding the ultimate completion status. Part of a deal's actual value accrues to shareholders as such uncertainty is resolved. Therefore, returns from announcement through  $+9$  months are also reported (over 90% of completed deals are completed within nine months of announcement). Once again, returns are significantly higher in deals with lockup options. The percent of returns that are positive for all returns windows are reported for completeness, although differences in these statistics are of less importance.<sup>7</sup> Overall, the evidence for all deals is consistent with the notion that target shareholders in deals with lockup options have greater returns.

---

<sup>7</sup> As an extreme example, suppose the return for every firm in the lockup group was 30% and the return for every firm in the no lockup group was 10%. The percent positive for both groups would be 100% and the difference in the percent positive would be zero, even though a clear difference in returns exists.

As discussed previously, deals with lockup options are much more likely to be completed. This leads to biased returns for lockup deals. Announcement returns will reflect higher expectations that the deals will be completed, and returns through + 9 months will reflect realized higher completion rates. Univariate returns for completed deals only are therefore reported. Pre-announcement returns and announcement returns remain significantly higher in deals with lockup options, although significance levels for differences are not as high as they are for the all deals classification. It is the returns from announcement through + 9 months that are of particular interest, however, since these returns are largely unaffected by a completion bias. Mean returns through + 9 months are 34.4% for the lockup group and 28.9% for the no-lockup group, but the difference is insignificant ( $p = 0.122$ ). For median returns, however, the difference is just as large (30.5% for lockup deals versus 24.8% for no-lockup deals) and is significant ( $p = 0.042$ ). This suggests that negotiated bid premiums are higher in the median lockup deal. Overall, Table 4 shows that returns for deals with lockup options are higher than those without lockup options, although clearly this conclusion is to some extent caused by the higher deal completion rates in lockup deals. The effect of deal completion will be discussed further in a subsequent section.

Table 5 reports CARs for bidders. While there is generally no statistically significant difference between mean pre-announcement CARs for the all deals classification, mean CARs for the announcement month are lower in the lockup group ( $-3.6\%$  for lockup deals versus  $-0.4\%$  for no-lockup deals). The difference is statistically significant ( $p = 0.007$ ). Mean announcement returns are also higher for lockup deals for the  $-1$  to  $+2$  window ( $p = 0.033$ ). Differences in median returns are not significant at traditional levels for either announcement window. The mean returns, however, suggest that on average the market penalizes bidders who announce merger deals that include lockup options. This could be due to the market assigning a higher probability that bidders with lockup options will make a successful but value-reducing acquisition. It is also possible that the lower announcement returns in lockup deals reflect particularly unfavorable information about the bidder (as in Bhagat et al., 1999), such as a penchant for making acquisitions at all costs. The lower returns for all lockup deals are reversed, however, when returns through + 9 months are considered. Using these returns, bidders in deals with lockup options have less negative mean returns (mean =  $-2.0\%$ ) than bidders in deals without them (mean =  $-4.1\%$ ), although the difference is not statistically significant.

Results are similar when only completed deals are examined. Regardless of the window chosen, announcement returns are lower (more negative) in deals with lockup options, and the differences are statistically significant. When returns through + 9 months are examined, returns are higher for both lockup and no-lockup deals (and there is no significant difference between the two). Note that these post-announcement returns are less negative than those for the

Table 5

Cumulative abnormal returns to acquirer firms around deal announcement<sup>a</sup>

Pre-announcement, announcement month, and post-announcement returns are calculated using monthly returns. Days surrounding announcement returns use daily returns. Cumulative abnormal returns (CARs) calculate and sum monthly (or daily) abnormal returns, defined as the firm return minus the return on the value weighted NYSE/AMEX/Nasdaq index. The firm must have valid returns from the start of the window to be included, and returns of zero are plugged for the firm and market for those months in the window exceeding the firm's delisting date. The *p*-value for difference column reports two-tailed *p*-values based on a *t*-test for means and a Wilcoxon rank sums test for medians. The number of valid observations are lower than the number of deals due to nonpublic acquirers.

Lockup option status:	All deals ( <i>n</i> = 781)			Completed deals only ( <i>n</i> = 518)		
	Yes	No	<i>p</i> -value for difference	Yes	No	<i>p</i> -value for difference
<i>Pre-announcement (– 12 to – 1 months)</i>						
Mean (%)	8.3 <sup>b</sup>	12.0 <sup>c</sup>	(0.335)	10.9 <sup>c</sup>	12.4 <sup>c</sup>	(0.709)
Standard error (%)	3.4	1.7		3.7	1.8	
Median (%)	5.4	8.1	(0.488)	6.2	8.9	(0.722)
Number	88	654		76	419	
Percent positive (%)	60 <sup>d</sup>	61 <sup>f</sup>	(0.888)	63	63	(0.980)
<i>Announcement month</i>						
Mean (%)	– 3.6 <sup>c</sup>	– 0.4 <sup>c</sup>	(0.007)	– 4.2 <sup>c</sup>	0.3	(0.001)
Standard error (%)	1.1	0.5		1.1	0.6	
Median (%)	– 2.8	– 1.1	(0.068)	– 3.3	– 0.9	(0.015)
Number	92	689		80	438	
Percent positive (%)	40 <sup>d</sup>	44 <sup>f</sup>	(0.495)	35 <sup>d</sup>	46 <sup>d</sup>	(0.071)
<i>Days surrounding announcement (– 1 to + 2)</i>						
Mean (%)	– 2.0 <sup>c</sup>	– 0.4	(0.033)	– 2.5 <sup>c</sup>	– 0.2	(0.007)
Standard error (%)	0.7	0.3		0.7	0.4	
Median (%)	– 0.1	– 0.1	(0.257)	– 0.1	– 0.8	(0.095)
Number	92	689		80	438	
Percent positive (%)	42	46 <sup>c</sup>	(0.513)	41	46 <sup>d</sup>	(0.443)
<i>Announcement month through + 9 months</i>						
Mean (%)	– 2.0	– 4.1 <sup>b</sup>	(0.519)	– 0.6	0.1	(0.839)
Standard error (%)	2.9	1.6		3.3	1.7	
Median (%)	– 3.5	– 2.5	(0.887)	– 1.8	0.5	(0.748)
Number	92	689		80	438	
Percent positive (%)	46	42 <sup>d</sup>	(0.513)	48	50	(0.627)

<sup>a</sup>Note: a, b, and c denote significance at the two-tailed 90%, 95%, and 99% level, respectively, for the mean returns. e, d, and f denote significance at the two-tailed 90%, 95%, and 99% level that the percentage is not equal to 50%.



all deals classification. Failed deals are included in the all deals classification, and the market penalizes bidders who fail to acquire their targets. Once these deals are removed, returns are not as negative. Overall, the results suggest that announcement returns are lower for bidders in deals with lockup options, but that no significant differences exist once post-announcement returns are included.

The univariate returns reported in Tables 4 and 5 fail to support conventional wisdom. Returns to target shareholders are clearly not lower in deals with lockup options, and returns to bidders are not higher. In fact, the univariate evidence suggests that the shareholders of target firms may sometimes benefit from the use of lockup options, as average and median target returns are higher for lockup deals. Also, while no significant differences exist for bidder returns when measured through + 9 months, average announcement returns are significantly lower for bidders in lockup deals. The analysis presented above, however, fails to control for possible differences in deal characteristics between the lockup and no-lockup groups. Regression analysis is performed below to address this concern.

#### 3.4.2. *Regression analysis*

A valid concern is whether or not the differences in observed returns are due to fundamental differences between deals with and without lockup options. Table 6 reports various regressions of CARs on a lockup option indicator variable, lockup (0/1), and other deal characteristics, estimated in an attempt to control for such differences. Models 1 and 2 have target announcement returns (– 1 to + 2 days surrounding announcement) as the dependent variable. These regressions show that even after controlling for toeholds and deal completion (Model 1) and deal hostility, free cash flow, institutional ownership, litigation, market-to-book ratio, size, and leverage (Model 2), lockup options are associated with higher announcement returns to target firms on the order of 5%. The coefficient on lockup (0/1) is significant ( $p$ -values equal 0.013 and 0.017). Note that the benefits of a lockup option continue to hold even after variables that can be construed to control for agency problems (free cash flow and instown) are included in Model 2.

It is worth discussing the appropriate interpretation of the completion indicator variable (completed) in the regressions on announcement returns. Clearly, whether or not a deal is eventually completed (an ex-post variable) cannot predict an announcement return. Announcement returns should, however, reflect expectations about deal completion. Under the assumption that market participants are equally proficient at predicting completion in lockup and no-lockup deals, completed can be thought of as a noisy proxy for the market's expectations about deal completion. Thus, Models 1 and 2 show the relation between announcement returns and lockup options after controlling for expectations about deal completion. Completed has a similar interpretation in other regressions.

Table 6  
Ordinary least squares regressions on target and bidder returns

Below are OLS regressions where the dependent variable is the target announcement return, the target overall return, the bidder announcement return, or the bidder overall return for either all deals or completed deals only. Announcement returns are cumulative abnormal returns (CARs) from  $-1$  to  $+2$  days around announcement, whereas overall returns are CARs from  $-12$  to  $+9$  months around announcement. CARs accumulate abnormal returns, which are calculated by subtracting the value-weighted return on the NYSE/AMEX/Nasdaq index from the firm return. Lockup (0/1) equals 1 if a lockup option is present and 0 otherwise, while lockup size is the size as a percent of shares upon exercise. Toehold is the percent toehold held by the bidder at deal announcement. Completed equals 1 if the deal was completed and 0 otherwise. Hostile equals 1 if the deal was hostile and 0 otherwise. Free cash flow equals the target's operating income before depreciation minus total income taxes (less the change in deferred taxes from the previous to the current year) minus preferred and common stock dividends, all divided by total assets. Instown is the percent of target shares owned by institutions two months before a deal's announcement. Litigation equals 1 if the deal has associated litigation and 0 otherwise. Market-to-book equals the target's total assets minus book value of equity plus market value of equity, all divided by total assets. Size equals the log of target assets (in millions). Leverage equals the target's long-term and current liabilities divided by total assets. The top number of each variable is the parameter estimate, and two-tailed White's heteroscedasticity-consistent  $p$ -values are in parentheses.

Model	1	2	3	4	5	6	7	8	9	10	11
Sample	All deals	All deals	All deals	All deals	All deals	All deals	All deals	All deals	Comp. only	Comp. only	Comp. only
Dependent variable	Target ann. ret.	Target ann. ret.	Target overall ret.	Target overall ret.	Bidder ann. ret.	Bidder ann. ret.	Bidder overall ret.	Bidder overall ret.	Target overall ret.	Target overall ret.	Bidder overall ret.
Observations	2067	1913	1884	1769	781	744	742	698	807	801	475
Intercept	0.117 (0.000)	0.163 (0.000)	-0.047 (0.059)	-0.051 (0.380)	-0.006 (0.222)	0.023 (0.057)	-0.006 (0.885)	0.104 (0.228)	0.412 (0.000)	0.399 (0.000)	0.352 (0.000)
Lockup (0/1)	0.051 (0.013)	0.049 (0.017)	0.164 (0.002)	0.136 (0.009)	-0.016 (0.038)	-0.012 (0.093)	-0.029 (0.575)	-0.054 (0.290)	0.082 (0.115)		-0.012 (0.826)
Lockup size										0.703 (0.008)	
Toehold	0.000 (0.470)	0.000 (0.922)	0.002 (0.154)	0.001 (0.477)	0.001 (0.017)	0.001 (0.039)	0.007 (0.240)	0.008 (0.155)	-0.001 (0.610)	-0.001 (0.630)	0.002 (0.758)

Completed	0.102 (0.000)	0.110 (0.000)	0.347 (0.000)	0.351 (0.000)	0.002 (0.779)	0.000 (0.945)	0.125 (0.006)	0.111 (0.016)	0.191 (0.015)	0.166 (0.029)	–0.049 (0.591)
Hostile		0.086 (0.000)		0.305 (0.000)		0.001 (0.880)		–0.116 (0.111)			
Free cash flow		0.050 (0.238)		0.716 (0.000)		–0.002 (0.910)		0.324 (0.026)	0.741 (0.001)	0.728 (0.001)	0.155 (0.389)
Instown		0.058 (0.070)		0.207 (0.035)		–0.023 (0.106)		0.081 (0.514)	0.101 (0.359)	0.066 (0.535)	0.213 (0.170)
Litigation		0.015 (0.342)		0.040 (0.329)		–0.006 (0.427)		0.049 (0.404)	–0.021 (0.673)	–0.009 (0.850)	0.038 (0.612)
Market-to-book		–0.022 (0.003)		–0.015 (0.420)		–0.007 (0.002)		–0.003 (0.901)	–0.001 (0.908)	0.000 (0.973)	–0.008 (0.772)
Size		–0.013 (0.001)		–0.020 (0.079)		–0.002 (0.289)		–0.026 (0.099)	–0.041 (0.008)	–0.037 (0.014)	–0.065 (0.005)
Leverage		0.069 (0.117)		0.045 (0.601)		0.003 (0.833)		–0.034 (0.728)	0.126 (0.164)	0.1207 (0.181)	0.0425 (0.680)
Adj. R-squared	0.044	0.080	0.065	0.114	0.005	0.018	0.012	0.022	0.034	0.037	0.005

Announcement returns only measure reaction to those aspects of a deal that are not anticipated, and merger deals are often associated with significant runups (as Schwert, 1996, and the target pre-announcement returns in Table 4 document). These runups may reflect some of the wealth effects of the merger deal. Because a lockup option can facilitate a secretly negotiated deal, it is possible that the results on announcement returns and lockup options in Models 1 and 2 are due to less information being leaked before to lockup deal announcements. Models 3 and 4 address this concern by using overall returns to targets (measured from  $-12$  to  $+9$  months around deal announcement) as the dependent variable. Returns through  $+9$  months are used in case part of the wealth effect associated with the merger deal does not accrue to shareholders until after the deal's announcement. Without examining returns well past announcement, it is not possible to ascertain whether higher announcement returns are simply due to higher deal completion expectations. Models 3 and 4 show that lockup options are associated with an increase in overall target wealth of 14% to 16%, and lockup (0/1) is highly significant ( $p < 0.01$ ). Hence, returns that include information leakage and wealth accruals to shareholders after deal announcement also show that target shareholders earn higher returns in deals with lockup options. To further confirm that leakage does not explain the higher announcement returns in lockup deals, Models 1 and 2 are reestimated with an explanatory variable of returns from  $-250$  to  $-2$  days (and, separately,  $-12$  to  $-1$  months). The lockup indicator variable remains positive and significant ( $p = 0.017$  when  $-250$  to  $-2$  day returns are included, and  $p = 0.002$  when  $-12$  to  $-1$  month returns are included).

Many of the control variables are also significant in the regressions on target returns. First, completed deals are associated with higher returns ( $p < 0.001$ ). Hostile deals also have higher target returns ( $p < 0.001$ ), perhaps because bidders must submit higher bid premiums to overcome target management's resistance. It is interesting to note that targets with higher free cash flow also enjoy higher returns, significantly so in Model 4, where overall returns are used. If, as some argue, free cash flow proxies for existing agency problems, then acquisitions of targets with high free cash flow may tend to be disciplinary in nature as opposed to synergistic, and one possible conclusion is that disciplinary takeovers create more wealth on average than do synergistic takeovers. The other variable that may help control for agency problems is *instown*, in the sense that institutions are better equipped to engage in monitoring activities. Models 2 and 4 show that target firms with higher institutional ownership, and presumably higher institutional monitoring, enjoy higher returns ( $p = 0.070$  and  $0.035$ ). Market-to-book is significantly negative ( $p = 0.003$ ) in Model 2, but is insignificant in Model 4. Size is also negatively related to target returns ( $p = 0.001$  in Model 2 and  $p = 0.079$  in Model 4).

Models 5 through 8 report similar regressions using bidder returns as the dependent variable. These regressions show that when a lockup option is

included, announcement returns to bidders are lower on the order of 1% to 2%, consistent with the results reported in Table 5. A possible explanation is that target managers use lockup options for considerable negotiating leverage. An alternative explanation is that lockup options are more often granted to bidders with low synergies with the target, and this is why bidders with lockup options have lower returns. Under this argument, however, targets should also receive lower returns in deals with lockup options because they are receiving a portion of a smaller synergy. This is not the case. Finally, as noted previously, a third possibility is that the signing of a deal with a lockup option reveals particularly negative information about the acquiring firm. Consistent with the univariate results, however, bidder returns are not affected by a lockup option in a statistically significant way when overall returns are used.

It is interesting to note that bidder announcement returns and bidder toeholds have a positive association. This may be a result of a toehold giving a bidder a stronger bargaining position with target management. As one would expect given the univariate results, Models 7 and 8 also confirm that overall bidder returns are higher when deals are completed. Most of the other control variables are not consistently significant, although the target's free cash flow is positively related to overall bidder returns and the target's market-to-book ratio is negatively related to bidder announcement returns.

Models 9 through 11 regress target and bidder overall returns on deal characteristics, but for completed deals only. In this way, a lockup option's effect on bid premiums only in deals that are eventually completed can be ascertained. Model 9 shows that the effect of a lockup option on target returns is positive, but of an insignificant and smaller magnitude than that shown in Model 4 for all deals. Model 10 uses the actual sizes of the lockup options, lockup size, instead of the indicator variable, and in this regression the lockup variable is positive and highly significant ( $p = 0.008$ ). Thus, the larger the lockup option, the more target shareholders benefit even in completed deals using overall returns. Model 9 suggests that the major benefit of a lockup option as manifested in Models 1 through 4 is the ability to positively affect deal completion. Model 10, however, suggests that target shareholders receive an additional benefit (a higher return) when lockup options are larger. Model 11 shows that lockup options have an insignificantly negative impact on overall bidder returns. All models in Table 6 are reestimated using the continuous version of a lockup option, lockup size. Results are very similar to the estimations with lockup (0/1) – only the continuous version of Model 9 (which is reported as Model 10) differs. SDC data on the size of lockup options is incomplete, so the regressions using lockup (0/1) are reported to maximize the number of lockup deals in the regressions.

#### 3.4.3. *Robustness issues*

One concern is that the returns for lockup deals are biased upward because these targets are more desirable and more likely to have multiple bidders

interested in acquiring them. To address this issue, a proxy is constructed to control for the degree to which the target might attract interest from multiple parties. In the spirit of Billett (1996), Palepu (1985), and Song and Walkling (1993), a logistic model is constructed to predict the probability that a firm becomes a takeover target. Presumably, the “takeover likelihood” of a firm should proxy for the attractiveness of the target to multiple bidders. The universe of firms with sufficient data on CRSP and Compustat during individual years in the sample period is used to estimate the model. The SDC data (including announcements of nonmerger, tender offers) are used to code a 0/1 variable for being a target (whether acquired or not). The indicator variable is regressed (via a logistic regression) on free cash flow, leverage, and size as defined previously and measured in the year preceding the coding of the indicator variable. Following previous literature, other regressors (also measured in the previous year) include an indicator variable of takeover activity in the firm’s four-digit SIC-code industry, a one-year measure of sales growth, liquidity (cash plus marketable securities divided by assets), excess two-year holding period returns from  $-3$  years to  $-1$  years, and Palepu’s growth-resource mismatch dummy (equals one for low sales growth, high liquidity, low leverage combinations and also for high sales growth, low liquidity, high leverage combinations). The holding period return ends one year before announcement because some of the Table 6 models use returns from  $-12$  to  $+9$  months surrounding the deal announcement as the dependent variable. The logit model has 34,529 total firm-year observations (2,340 coded as being a target) and is significant with a  $p$ -value of 0.0001.

The estimated model is used to calculate the probability of being a target for the target firms in the lockup/no-lockup sample. When added to the models using target returns in Table 6, the probability control variable is positive and significant ( $p < 0.01$ ) except in Models 9 and 10, where it is positive and insignificant. In Models 1 through 4 the lockup (0/1) variable remains positive and its significance actually increases very slightly. In Model 9, lockup (0/1) remains insignificant, and in Model 10 lockup size remains highly significant ( $p = 0.003$ ). In the regressions on bidder returns (Models 5–8 and 11), the probability variable is insignificant, as is lockup (0/1). To the extent that the probability measure controls for any bias due to targets in lockup deals having more interest from other bidders, the results in Table 6 are robust. Finally, a breakup fee dummy variable is also added to the models in Table 6. Once again, results are robust.

Ideally, one would like to measure the announcement reaction to the lockup option itself. Because lockup options are not announced in isolation, however, such a direct approach is not possible. Furthermore, even if announcement reactions to lockup options were not confounded by reactions to the bid premium and other aspects of the deal, it is possible that shareholders anticipate the use of lockup options. For example, under conventional wisdom, if target

shareholders knew that there were serious agency problems with target management, then the use of a lockup option would come as little surprise and therefore have little incremental impact on an announcement return. Table 7 makes a modest attempt to address this issue by using a two-step procedure. First, a logit regression is estimated to calculate the probability of a lockup option using all information in the data known before a deal's announcement (Panel A). Specifically, using a logistic specification, a lockup option indicator variable is regressed on toehold, the target's pre-announcement return, hostile, free cash flow, instown, market-to-book, size, leverage, and profit. A new variable "surprise" is created, which subtracts the probability of the lockup option (the "z-score" from the logit regression) from the observed lockup option indicator variable's value (1 for lockup, 0 for no-lockup). Thus, surprise may be thought of as the unanticipated portion of the lockup option decision. Prevailing thought would predict that target announcement returns should be negatively correlated with this variable. For example, if expectations are that management is very likely to use a lockup option, and one is in fact used, then surprise would be small and positive. Meanwhile, the lockup option's impact on the target announcement return would be small and negative in response to the confirmation that a lockup option was indeed used as expected. If a lockup option was used when not expected, however, then surprise would be large and positive, and under conventional wisdom the target announcement return would be large and negative. By analogous reasoning, surprise should be positively correlated with bidder announcement returns under the prevailing wisdom.

Models 1 through 6 in Table 7 (Panel B) show that surprise is in fact positively related to target announcement returns and negatively related to bidder announcement returns.<sup>8</sup> These results stand in strong contrast to what prevailing thought predicts. The most straightforward interpretation of Models 1 through 3 is that target shareholders respond favorably to a lockup option, especially when one is not anticipated. This interpretation is not necessarily at odds with studies like Malatesta and Walkling (1988) and Ryngaert (1988) that find negative announcement reactions to poison pills, which are also argued by target management to enhance their bargaining power. A key difference between lockup options and poison pills (and many other defensive devices) exists: a poison pill can be used in an attempt to block all takeovers, whereas a lockup option by definition advocates an acquisition by some party. Another interpretation is that target investors react positively (negatively) when a lockup

---

<sup>8</sup> Alternative methods are also used. In one set of regressions (for all six models), surprise is removed and instead both the lockup option indicator variable and the probability of a lockup option are included. The other approach uses a two-stage procedure proposed by Heckman (1979), which uses the hazard function and appropriately adjusts the standard errors. Results are similar – the one discussed above is selected for ease of interpretation.

Table 7  
Ordinary least squares regressions of announcement returns on unexpected lockup

Panel B presents ordinary least squares regressions of target- or acquirer-announcement returns (–1 to +2 days surrounding announcement) on unexpected lockup option (surprise), completed (equals 1 if the deal is successful and 0 otherwise) and litigation (equals 1 if the deal has associated litigation). The top number for each variable is the parameter estimate, and the two-tailed, White's heteroskedasticity-consistent  $p$ -values are in parentheses. Surprise is the observed lockup dummy variable minus the probability of a lockup, which is estimated in a separate logit regression (Panel A) of a lockup option dummy (equal to 1 if a lockup option is present and 0 otherwise) on the following variables: toehold (the percent toehold held by the target at deal announcement),  $t$ -pre-ann-ret (the target's cumulative abnormal return from CRSP for –12 to –1 months before deal announcement, where CARs accumulate monthly abnormal returns, which are calculated by subtracting the value-weighted return on the NYSE/AMEX/Nasdaq index from the firm return), hostile (equals 1 if the deal was hostile and 0 otherwise), free cash flow (the target's operating income before depreciation minus total income taxes (less the change in deferred taxes from the previous to the current year) minus preferred and common stock dividends, all divided by total assets), instown (the percent of target shares owned by institutions two months prior to deal announcement, market-to-book (the target's total assets minus book value of equity plus market value of equity, all divided by total assets), size (log of target assets (in millions)), leverage (the target's long-term and current liabilities divided by total assets), and profit (the target's operating income before depreciation divided by total assets). The coefficients and two-tailed  $p$ -values are listed below.

Panel A: Logistic regression predicting lockup option

Variable	Coefficient	$p$ -value
Intercept	– 2.704	(0.000)
Toehold	– 0.043	(0.039)
$T$ -pre-ann-ret	0.416	(0.021)
Hostile	– 2.079	(0.004)
Free cash flow	2.718	(0.194)
Instown	1.801	(0.000)
Market-to-book	– 0.003	(0.976)
Size	– 0.044	(0.481)
Leverage	– 0.019	(0.963)
Profit	– 0.619	(0.738)

1886 observations. Chi-square = 60.54 ( $p$ -value 0.000).



*Panel B: OLS regressions of returns on Surprise = Lockup - Prob (Lockup)*

Model	1	2	3	4	5	6
Dependent variable	Target announcement return	Target announcement return	Target announcement return	Acquirer announcement return	Acquirer announcement return	Acquirer announcement return
Observations	1886	1886	1886	732	732	732
Intercept	0.173 (0.000)	0.122 (0.000)	0.119 (0.000)	-0.006 (0.049)	-0.005 (0.276)	-0.004 (0.458)
Surprise	0.101 (0.000)	0.060 (0.003)	0.058 (0.005)	-0.012 (0.092)	-0.012 (0.095)	-0.011 (0.120)
Completed		0.104 (0.000)	0.103 (0.000)		0.000 (0.987)	0.000 (0.974)
Litigation			0.033 (0.023)			-0.009 (0.175)
Adjusted R-squared	0.013	0.057	0.059	0.002	0.000	0.001

option is unexpectedly used (not used) because the inclusion of a lockup option portends a high probability of deal success. Under this explanation, however, one would expect surprise to become insignificant in Model 2 once the completion indicator variable (a noisy proxy for completion expectations) is included, and this is not the case. Perhaps the most plausible interpretation of the results is that target shareholders are not reacting to the lockup option decision itself, but are reacting to the overall deal announcement and the bid premium. After all, some initial merger announcements do not even mention whether a lockup option has been negotiated. It may be that when lockup options are unexpectedly used, target managers are able to extract unusually large bid premiums, which in turn causes a strong positive market reaction. Simply put, surprise is likely positively correlated with the extent to which the bid premium is unexpectedly large. To see if bid premiums are unexpectedly large in deals in lockup options, a similar two-stage procedure is performed. First, all variables known prior to announcement are used in a regression to predict target announcement returns. Unexpected announcement returns are then computed and used as the dependent variable in various regressions on a lockup dummy and other variable not used in the first step. In all regressions, the lockup indicator is positive and highly significant ( $p < 0.01$ ). This result is not surprising given the results in Table 7. Whether the findings are due to shareholders reacting positively to an unexpected lockup option, or due to bid premiums being unexpectedly large when a lockup option is used, the results are inconsistent with conventional wisdom.

### 3.5. *Evidence on potentially abusive uses of lockup options*

Clearly lockup options have the potential to be abused, and this section attempts to document such cases. One abusive use of a lockup option would be the target using a lockup option to discourage other parties and then killing the deal-in-place while it builds defenses against future takeovers. It is therefore interesting to examine the circumstances surrounding the nine failed lockup deals in which the target firms were not subsequently acquired. Articles were located in Lexis–Nexis for five of these deals. In two cases there were regulatory problems and in another the acquirer backed out – details do not suggest the target took steps to thwart these acquisitions. Two other cases were more interesting – in one the CEO went against board wishes and agreed to sell his personal shares to a blockholder who was offering to purchase additional shares to increase ownership to 49% (enough to effectively block most any takeover attempt). In the other, the intended acquirer backed out, charging that the target had not met certain conditions in the merger agreement. These last two cases could potentially be classified as cases where target management (or the CEO specifically in the first case) employed a particularly abusive use of a lockup option. Considering that 158 deals have lockup options, finding two that were

potentially abusive in this severe manner suggests that this type of abuse is not common.

To examine other types of lockup abuses, merger proxies for 100 completed deals (30 have lockup options, 70 do not) are examined and two variables, “secret” and “employment”, are coded.<sup>9</sup> Merger proxies include a “background” section that details the events leading to the proposed merger. Because appearances of unfairness can lead to litigation and costly delays, management uses this section to justify its actions. It is reasonable to assume that management will disclose any information that supports an argument that it sought the highest possible bid. Such information may include that the investment banker was instructed to locate interested parties and/or that other bids were received and fairly considered. A deal is classified as “secret” if there is no disclosure of any contact with other possible bidders, or that target management at least attempted to locate other interested bidders. By contrast, if there is evidence of discussions with other bidders or an attempt to locate them, the deal is classified as “nonsecret”. It is required that merger proxies also disclose any conflicts of interest management may have in its support of a merger, and this includes employment contracts it may have signed with the negotiated acquirer. A deal is classified as “employment” if target management has signed an employment contract.

It is not clear that the use of a lockup option to negotiate a secret deal, or one with a management employment contract, is necessarily harmful to target shareholders. First, if management is entrenched, a secretly negotiated deal or one in which management has an employment contract may be the only type of acquisition to which shareholders can look forward. Second, if management can convince the prospective bidder that other bidders are likely to offer strong competition once an opening bid is on the table, then the prospective bidder may be willing to pay a large premium in a preemptive deal in return for a lockup option to deter competitors. Finally, management’s continued involvement with the merged firm can be beneficial if the new management team will benefit from the previous management’s firm-specific expertise. Nonetheless, secretly negotiated lockup merger deals or those that contain employment contracts are certainly suspicious and thus it is interesting to examine their

---

<sup>9</sup>The deals selected were completed in 1988 and 1989 to increase the chance of finding abusive lockup options – legal scrutiny of lockup options increased in later years. Only 100 were selected due to the time involved in adequately examining the proxies. Of the 100 deals, 51 are excluded from the broader sample in this study because they are announced before 1988 or otherwise fail a data screen (such as having sufficient Compustat data). The deals seem fairly representative but differences do exist. Of the 100 deals, 30% have lockup options (versus 18% for the completed deals in 1988 and 1989 in the broader sample). Also, overall target returns (– 12 to + 9 months) for the 100 deals lower. Mean and median overall returns for the 100 deals are 30.0% and 33.6%, compared to 40.2% and 41.6% for completed, broader sample deals announced in 1988 and 1989.

frequency and target returns. Because the announcement returns have a completion bias as discussed previously, overall target returns (–12 months to +9 months) are reported below. For all lockup versus no-lockup comparisons, however, the conclusions are robust to using announcement returns or returns from announcement through +9 months.

Secret deals are not significantly more prevalent in the 30 lockup deals, as ten out of 30 (33%) lockup deals are classified as secret compared to 20 out of 70 (29%) for no-lockup deals. The ten secret-lockup deals have mean and median returns of 36.6% and 56.6%, compared to returns of 21.0% and 20.2% for the 20 secret-no-lockup deals (*p*-values for differences are 0.012 and 0.020). Thus, for secret deals, those with lockup options are found to have higher target shareholder returns. For the 70 nonsecret deals, those with lockup options also have higher returns, though the differences are not significant. Strikingly, the nonsecret-no-lockup deals that would be considered the least controversial only have mean and median returns of 23.0% and 30.9% – secret-lockup deals have higher returns. Although the sample size means the results are only suggestive, the conclusion is that for this sample at least, target shareholders do not suffer particularly low returns in secret deals with lockup options.

Deals with lockup options are more likely to have employment contracts. Seventeen out of 30 (57%) lockup deals have employment contracts, compared to 29 out of 70 (41%) no-lockup deals. The 17 employment-lockup deals have mean and median returns of 44.5% and 55.2%, compared to returns of 32.2% and 30.7% for the 29 employment, no-lockup deals (differences are not significant, however). Lockup options are also accompanied by higher returns in the 54 nonemployment deals, and differences are significant. Similar to the results for secret/nonsecret deals, the nonemployment-no-lockup deals that would be considered the least controversial only have returns of 15.5% and 21.6%, so employment-lockup deals have higher returns. These suggestive results indicate that target shareholders do not suffer particularly low returns when target managers may have traded a lockup option for an employment contract. Of course, the most controversial deal would be a deal classified as both secret and as having an employment contract. There are 21 such deals, nine with lockup options and 12 without. Clearly, the prohibition of lockup options would not prevent all such deals from occurring. The nine lockup deals have quite large mean and median returns of 62.2% and 56.7%, versus returns of 28.9% and 31.9% for the 12 no-lockup deals (*p*-values are 0.053 and 0.076, surprisingly small given the sample sizes).

Caution must be taken to interpret the results of the preceding analysis as only suggestive in nature due to the small sample sizes. The caveat that it is impossible to observe what would have occurred for the lockup deals had no lockup existed is also appropriate. If the preceding results held in large sample, however, they would imply that (1) the prohibition of lockup options would not prevent “controversial” deals from occurring, and (2) given that such deals

occur, it is possible that lockup options may still benefit target shareholders even if they also facilitate benefits for target management. For example, if target management is particularly entrenched, a secretly negotiated deal in which target management hand-selects an acquirer and/or procures an employment contract may be far superior to no deal at all. It should not be concluded, of course, that target managers never abuse lockup options to the detriment of target shareholders. Severe abuse where shareholders receive low returns, however, does not appear to be widespread if the preceding analysis offers any insight. It is possible that when target managers use lockup options for their personal benefit they also make superior efforts to obtain a good deal for target shareholders. As already discussed, litigation is common in lockup deals and such efforts would surely help target management defend itself against charges it has breached its fiduciary duties.

#### **4. Conclusion**

This study examines 2,067 completed and failed merger deals announced during 1988–1995 to examine the impact of lockup options. The empirical results stand in contrast to the prevailing belief that target managers systematically abuse lockup options and that they are necessarily detrimental for target shareholder wealth and beneficial for bidders. Although lockup options do discourage competition for a target, in deals with lockup options mean and median returns to target shareholders are higher than in deals without lockup options. In addition, mean and median bidder announcement returns are lower in lockup deals, while no significant difference exists for longer window returns. Lockup options can be and perhaps sometimes are abused, but the evidence suggests they can also be used by target managers to enhance their bargaining position and garner a better deal for shareholders. At the least, it seems premature to label lockup options as devices that are systematically abused by target managers to the detriment of shareholder wealth. Even if a lockup option is used to negotiate a preemptive deal or one with an employment contract for target management, small sample evidence suggests shareholders can benefit.

The past ten years have seen increasing numbers of landmark judicial decisions that have served to form public policy toward managerial actions when responding to a takeover attempt. Some decisions have served to grant managers wide latitude in forming their firm's takeover policy, while others have restricted managerial actions in some manner. In recent years, lockup options and similar devices have played a prominent role in these judicial proceedings, and the circumstances under which these devices should be valid have become a source of debate. This paper suggests that shareholder advocates calling for the prohibition of lockup options and similar devices should exercise caution. While lockup options do have the potential to be abused, the evidence suggests

that target shareholders can also benefit from management's ability to use these devices.

## References

- Ayres, I., 1990. Analyzing stock lock-ups. *Columbia Law Review* 90, 682–718.
- Bainbridge, S., 1990. Exclusive merger agreements and lock-ups in negotiated corporate acquisitions. *Minnesota Law Review* 235, 239–334.
- Berkovitch, E., Bradley, M., Khanna, N., 1989. Tender offer auctions, resistance strategies and social welfare. *Journal of Law, Economics and Organization* 6, 395–412.
- Berkovitch, E., Khanna, N., 1990. How target shareholders benefit from value-reducing defensive strategies in takeovers. *Journal of Finance* 45, 137–156.
- Betton, S., Eckbo, B.E., 2000. Toeholds, bid-jumps and expected payoffs in takeovers. *Review of Financial Studies* 13, 841–882.
- Bhagat, S., Hirshleifer, D., Noah, R., 1999. The effect of takeovers on shareholder value. Working paper, University of Colorado.
- Billett, M., 1996. Targeting capital structure: The relationship between risky debt and the firm's likelihood of being acquired. *Journal of Business* 69, 173–192.
- Bradley, M., Desai, A., Kim, E.H., 1988. Synergistic gains from corporate acquisitions and their division between the stockholders of targets and acquiring firms. *Journal of Financial Economics* 21, 3–40.
- Bulow, J., Huang, M., Klemperer, P., 1998. Toeholds and takeover. *Journal of Political Economy* 107, 427–454.
- Burkart, M., 1995. Initial shareholdings and ownership in takeover contests. *Journal of Finance* 50, 1491–1515.
- Chowdhry, B., Jegadeesh, N., 1994. "Pre-tender offer share acquisition strategy in takeovers. *Journal of Financial and Quantitative Analysis* 29, 117–129.
- Coates IV, J., Subramanian, G., 2000. A buy-side model of lockups: Theory and evidence. *Stanford Law Review* 53, 307–396.
- Comment, R., Schwert, G.W., 1995. Poison or placebo? Evidence on the deterrence and wealth effects of modern antitakeover measures. *Journal of Financial Economics* 39, 3–43.
- Daniel, K., Hirshleifer, D., 1996. A theory of costly sequential bidding. Working paper, Kellogg Graduate School of Management, Northwestern University.
- Fraidin, S., Hanson, J., 1994. Toward unlocking lockups. *The Yale Law Journal* 103, 1739–1834.
- Heckman, J., 1979. Sample selection bias as a specification error. *Econometrica* 47, 153–161.
- Jarrell, G., Poulsen, A., 1989. Stock trading before the announcement of tender offers: Insider trading or market anticipation? *Journal of Law, Economics and Organizations* 5, 225–249.
- Jensen, M., 1986. Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review* 76, 323–339.
- Kahan, M., Klausner, M., 1996. Lockups and the market for corporate control. *Stanford Law Review* 48, 1539–1571.
- Lang, L., Stultz, R., Walking, R., 1991. A test of the free cash flow hypothesis: The case of bidder returns. *Journal of Financial Economics* 29, 315–335.
- Lehn, K., Poulsen, A., 1989. Free cash flow and stockholder gains in going private transactions. *Journal of Finance* 44, 771–789.
- Malatesta, P., Walkling, R., 1988. Poison pill securities: Stockholder wealth, profitability, and ownership structure. *Journal of Financial Economics* 20, 347–376.
- Palepu, K., 1985. Predicting takeover targets: A methodological and empirical analysis. *Journal of Accounting and Economics* 8, 3–35.

- Ravid, A., Spiegel, M., 1999. Toehold strategies, takeover laws and rival bidders. *Journal of Banking and Finance* 23, 1219–1242.
- Roll, R., 1986. The hubris hypothesis of corporate takeovers. *Journal of Business* 59, 197–216.
- Roosevelt III, K., 2000. Understanding lockups: Effects in bankruptcy and the market for corporate control. *Yale Journal on Regulation* 17, 93–135.
- Ryngaert, M., 1988. The effect of poison pill securities on shareholder wealth. *Journal of Financial Economics* 20, 377–418.
- Schwert, G.W., 1996. Mark-up pricing in mergers and acquisitions. *Journal of Financial Economics* 41, 153–192.
- Schwert, G.W., 2000. Hostility in takeovers: In the eyes of the beholder? *Journal of Finance* 55, 2599–2640.
- Singh, R., 1998. Takeover bidding with toeholds: The case of the owner's curse. *Review of Financial Studies* 11, 679–704.
- Skeel Jr., D., 1996. A reliance damages approach to corporate lockups. *Northwestern University Law Review* 90, 564–605.
- Song, M., Walkling, R., 1993. The impact of managerial ownership on acquisition attempts and target shareholder wealth. *Journal of Financial and Quantitative Analysis* 28, 439–457.
- Spatt, C., 1989. Strategic analysis of takeover bids. In: Bhattacharya, S., Constantinides, G. (Eds.), *Financial Markets and Incomplete Information*. Rowman and Littlefield, Totowa, NJ, pp. 106–121.
- Steinmetz, G., 1994. Stock-option lockups are absent from takeover deals. *The Wall Street Journal*, 24 May, p. C1.
- Walkling, R., 1985. Predicting tender offer success: A logistic analysis. *Journal of Financial and Quantitative Analysis* 20, 461–478.
- Walkling, R., Edmister, R., 1985. Determinants of tender offer premiums. *Financial Analysts Journal* 41, 30–37.