BUST-UP TAKEOVER BIDS AND ASYMMETRIC INFORMATION

by

David A. Butz

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Department of Economics
University of California, Los Angeles
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David A. Butz
Department of Economics
University of California, Los Angeles
405 Hilgard Avenue
Los Angeles, California 90024
(213) 825-6838

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Abstract: This paper models bust-up control contests as a two-stage process with asymmetric information: bidders incur costs (which only they know) when making a tender offer, and they bear additional costs if they then proceed with a takeover. Here bidders may make tender offers to signal that they have low takeover costs. If management responds with a credible restructuring plan the bidder withdraws — and yet considers the outcome a complete success. The outcome depends on many factors, including the probability that the bidder has low takeover costs, the timing of takeover costs (pre-offer versus post-offer), managerial risk aversion, and cost differences across bidder types. Among the conclusions is that where initial tender offers are relatively inexpensive, even highly risk averse incumbent managers may have little reason to preempt bidders.

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This paper analyzes bust-up takeovers and takeover defenses in the context of asymmetric information. In a bust-up takeover the acquiring firm takes control, cancels unprofitable operations and sells assets. Asymmetric information about takeover costs or asset values must play a crucial role — without it such takeovers are difficult to explain because incumbent management could (and would) preempt the takeover by initiating its own measures. Even if incumbent management is grossly incompetent it can still hire a good investment banker to undertake precisely the same actions an acquirer would take. And management can avert a hostile takeover with fewer changes than the acquirer would make. By selling assets, incumbent management gives up a portion of the firm in order to retain control over the remainder. Considerable anecdotal evidence confirms that where potential bust-up targets anticipate hostile tender offers they initiate restructurings on their own.

Here takeover costs are incurred in two stages and the bidder has private information about first-stage costs. A bidder incurs costs when making a tender offer and in the period leading up to (and including) the change in control. If the bidder makes an offer but subsequently withdraws, it avoids the costs of completing the takeover even though the initial costs are sunk.

Coupled with asymmetric information, these costs yield three possible scenarios. First, management may correctly identify the bidders' costs from the outset and restructure. It thereby preempts both a tender offer and a subsequent takeover. Second, management may consider it unlikely that it faces a bidder with low costs. It may not be particularly risk averse and as such decides simply to wait. If a bid comes, it immediately sells (or commits to sell) assets and the bidder withdraws. Yet even though the bidder withdraws, it considers the contest successful because to retain control management must respond by doing precisely what the bidder wants. Third,

management may incorrectly believe it faces a high-cost bidder and not take action at the outset. When the low-cost bidder makes a tender offer, incumbent management has too little time to restructure. The bidder takes control and liquidates the firm's assets.

All three scenarios are well known. Consider one account by Shleifer and Vishny (1988) which touches upon each possibility:

> Almost 10 percent of the 1980 Fortune 500 have since been acquired in a transaction that started out hostile (and ended either as a hostile acquisition, an escape to a friendly white knight, or a management buyout). Managers of many other companies were probably scared enough to restrain their deviations from value maximization. In fact, some have beaten potential acquirers to the punch by taking on more debt and selling off divisions to escape a hostile bid or to deter one. [Shleifer and Vishny, 1988, p.13]

Nonetheless, the circumstances giving rise to these three scenarios have not been analyzed formally and there has been little discussion of the likelihood of one scenario versus another. Under what conditions would incumbent management wait for a tender offer before restructuring and yet succeed in retaining control? What does this imply about managers' risk preferences, their priors about bidders, and their ability to restructure? What does this imply about bidders' takeover costs and the nature of information asymmetries? This paper addresses these questions.

The discussion here focuses almost exclusively on the second scenario. Among firms that own assets which can be busted up and sold off, this paper argues that this scenario is very likely despite far greater attention given to the other two. This scenario is likely when two conditions hold: only a small fraction of all potential bidders have low first-stage takeover costs; and management can quickly respond to a hostile bid by offering a credible restructuring package of its own. Because the low-cost bidder incurs most

of its expenses after making a tender offer, management must make almost as many asset sales to preempt a potential low-cost bidder's offer from the outset as it does by waiting to see if a low-cost bidder emerges. In other words, the changes it must make in response to a tender offer are almost as great as the changes which would preempt that offer. If the chances of confronting a low-cost bidder are slim and if management can respond quickly, then there is little risk in waiting.

The paper therefore explains how some raiders have profited even though they rarely win control of the corporations they stalk. T. Boone Pickens, for example, has never gained control of a major corporation despite numerous bids, yet he and his backers earn high returns. Pickens raises money for his takeover forays by borrowing. This debt is cheap, both because it is collateralized by the target firm's assets and because it is not actually employed unless Pickens takes control. Pickens puts up little of his own funds except for the initial foothold, and they are recouped along with a sizable profit once the contest ends. Pickens makes a tender offer to show that he has low takeover costs and stands willing and able to assume control. Management had considered the prospect of a Pickens-led tender offfer unlikely, but now updates its beliefs and agrees to sell assets (and perhaps the entire firm) to others who can manage them more profitably. Where assets cannot be sold quickly, management bonds its promises to sell these assets by adopting a restructuring plan similar to the one outlined in Pickens' offer. Pickens then sells his foothold stake at a profit and withdraws. As such, he does not need to take control, tie up his capital, bear the firm-specific risk that comes with majority ownership, or administer the restructurings personally. Both the popular press and the academic literature too

often conclude from aborted tender offers that raiders have lost when they may instead be completely successful.[1] Using similar logic, a large shareholder may consider the outcome of a proxy fight a complete success even if control ultimately remains with incumbent management.

Sections I and II outline an example and formal model. Section III offers extensions, Section IV provides a discussion, and a conclusion follows.

I. AN EXAMPLE

A firm owns three divisions. Under incumbent management each is worth $20 million. Under different management each would be worth $25 million. Any one division can be sold without affecting the value of the other two. Table 1 lists four scenarios. If management retains all three divisions, the firm's value equals $60 million. With a takeover and liquidation, its value rises to $75 million. Intermediate outcomes result from the sale of one or two divisions. Management prefers to keep all three divisions.

Table 1 About Here

Suppose one shareholder (hereafter L) owns 20% of the firm; all others are atomistic. By gaining control, L can liquidate the firm and raise its value by $15 million. Small shareholders will not sell their shares for less than their post-takeover value (Grossman and Hart, 1980), so L can reap only 20% of this capital gain. L incurs a variety of expenses, including legal and investment banking fees.[2] These costs total $2.5 million and are borne in two stages: $1.25 million leading up to the initial offer and another $1.25 million if the takeover is completed.

Since L earns $3 million from a takeover, a tender offer seems warranted. Yet with full information, management perceives an imminent takeover and takes preemptive measures. By selling one division it increases the

firm's value to $65 million. A takeover would then raise the firm's value by $10 million more, but L would reap only 20%. Since costs equal $2.5 million, L makes no offer and settles for $13 million.

To explain hostile tender offers some sort of asymmetric information is therefore needed. Suppose management initially believes that L can take control only at a cost of $4 million: $2.75 million initially and $1.25 million to complete the takeover. Hence, it sells no assets. To raise the firm's value, L must launch a takeover. Once L commits resources in a tender offer, management recognizes its error. But since L has sunk $1.25 million a modest selloff no longer suffices. Management must sell two divisions and increase the firm's value to $70 million. At this point L reconsiders. Completing the takeover costs $1.25 million and L's incremental gain is only $1 million. Hence, L withdraws with $12.75 million.

This example also raises several related questions. Are there other potential information asymmetries? What impact do they have? Can a potential bidder signal its costs without an expensive tender offer? Can management respond quickly to an offer or will the bidder take control before it can act? What impact does the timing of the bidder's takeover costs (pre-offer versus post-offer) have on the bidder's actions? The next section outlines a formal model and Section III addresses these questions in greater detail.

II. THE MODEL

Consider a firm in which management lacks the ability to maximize the firm's value. Let V represent the market value of the firm's assets, and let V^* be the firm's potential value. Management can set V at any level up to V^* by selling assets. Let $V_0 \leq V^*$ be the firm's initial value, where management chooses V_0 in a manner described below. Management maxi-

mizes utility, $U(V)$, which is strictly decreasing over the range of values discussed here. If management loses control, utility equals $U_\ell < U(V^*)$, so it would prefer to make all improvements rather than face a takeover.

Atomistic shareholders own a fraction $(1-\alpha)$ of the firm's equity, and a single large shareholder, L, owns a fraction α. L maximizes wealth and can take control of the firm by purchasing a critical fraction of the firm's shares (assume 50%). A takeover involves transactions costs. Assume that L incurs transactions costs C_0 leading up to the initial tender offer and additional costs C_1 from the time of the initial offer through a change in control. The total costs of taking control are $C = C_0 + C_1$.

Suppose L has private information about first-stage takeover costs. Let C_0^θ denote the cost to a type-θ large shareholder (L_θ) of making a hostile tender offer, where $\theta = A,B$ and $C_0^A < C_0^B$. Similarly, $C^\theta = C_0^\theta + C_1$. Costs may differ for many reasons. L_A may have access to low-cost capital or a better takeover technology. L_A may also be willing to violate disclosure laws or other SEC regulations to lower costs, or L_B may be unwilling to take the same post-takeover measures (e.g., layoffs and plant closings) as L_A.

Only L knows θ. All other information is public.[3] Initially management perceives probabilities ρ that $\theta = A$ and $(1-\rho)$ that $\theta = B$.[4] The game has four periods. In period one, management chooses $V_0 \leq V^*$. In period two, L has the option to make a cash tender offer. In period three, management can respond to a tender offer by selling assets. Let V_1 represent the firm's value at the end of this period. In the last period, L decides either to withdraw the initial offer or to take control.

If L makes no tender offer in period two, the game ends. Managerial utility equals $U(V_0)$ and L's wealth is given by

(1) $W = \alpha V_0$ (no tender offer)

If L makes an offer and subsequently withdraws, managerial utility equals $U(V_1)$ and L receives

(2) $W = \alpha V_1 - C_0^{\theta}$ (initial offer withdrawn)

If dissatisfied with the choice of V_1, L takes control. Managerial utility equals U_{ℓ} and L's final wealth is

(3) $W = \alpha V^* - C^{\theta}$ (takeover)

A comparison of (1), (2) and (3) reveals L's tradeoffs. An initial offer involves costs but forces management to sell assets. Taking control results in additional costs and asset sales. Suppose L has made a tender offer and management has chosen V_1. Comparing (2) and (3), L takes control if and only if $V_1 < V_1^*$, where

(4) $V_1^* = V^* - (\frac{1}{\alpha})C_1$

In period three, therefore, management knows it must set $V_1 \geq V_1^*$ to avert a takeover. Since it would rather raise the firm's value than lose control, it sells just enough assets to preempt a takeover. Consequently, $V_1 = V_1^*$.

When deciding whether to make a second-period tender offer, L can infer management's third-period response and proceeds with an offer if and only if $\alpha V_1^* - C_0^{\theta} > \alpha V_0$. Solving for V_0 gives two critical initial values:

(5) $V_0^{\theta} = V^* - (\frac{1}{\alpha})C^{\theta}$ $\theta = A,B$

If $V_0 < V_0^{\theta}$, L_{θ} makes a tender offer. Otherwise the game ends.

Management has two options at the outset. If it sets $V_0 = V_0^A$, it preempts all offers. If it sets $V_0 = V_0^B$, L_A makes a tender offer but L_B

does not. Management never chooses any other initial value because it could lower V_0 without affecting the probability of an offer. In period one, management sets V_0 as follows to maximize expected utility:

$$(6) \qquad V_0 = \begin{cases} V_0^A & \text{if } \rho U(V_1^*) + (1-\rho)U(V_0^B) < U(V_0^A) \\ V_0^B < V_0^A & \text{otherwise} \end{cases}$$

This model gives rise to hostile tender offers as signalling devices. With approporiate parameter specifications, management may set $V_0 = V_0^B$. If $\theta = A$, L then makes a tender offer. Management realizes its error and immediately restructures. Because L_A has already borne some costs, management must sell more assets than would have been necessary at the outset (i.e., it must set $V = V_1^A > V_0^A$). With the selloffs complete, L_A aborts its bid — not because management has successfully defended but because it has gotten the changes it demands. Section III discusses this scenario in greater detail.

III. HOSTILE TENDER OFFER – MANAGEMENT RESTRUCTURING – BIDDER WITHDRAWAL

In their work on free rider problems, Grossman and Hart (1980) discuss management's incentives to preempt hostile tender offers.[5] Media reports describe numerous examples. In short, the first scenario described here is not news. The third scenario — takeover and bust-up — is also well-known and previously analyzed (e.g., Scherer 1988; Bhagat, Shleifer, and Vishny 1990). This paper's primary contribution comes through an assessment of another scenario: a tender offer followed by a managerial restructuring and the bidder's withdrawal. This section outlines the circumstances under which this scenario could arise.

A. Who Has the Advantage at the Post-Offer Stage, Bidder or Management?

When confronted with a hostile tender offer, management must be able to act quickly in order to retain control. It can avoid a takeover if corporate assets are liquid, if the firm can quickly discontinue unprofitable projects, or if management can commit to take future actions to raise value. Yet as Jensen (1986,1988) points out, credibility poses serious problems. Since tender offers remain open only for relatively short periods, management may in many cases have the opportunity to renege once the bidder withdraws. Thus, simple promises to take future actions will not suffice. And even if management can act immediately to sell assets, what prevents it from using the proceeds to purchase other assets later? What deters it from restarting projects once the bidder withdraws?

The answer, says Jensen, is that management bonds its promises to act using debt. By borrowing heavily and distributing the proceeds to shareholders, management commits itself to sell assets and cancel unprofitable projects. Since it has no discretion not to service the debt, management has little opportunity to renege. It must follow through to avoid default. In short, debt provides the commitment vehicle that permits management to retain control.

Perhaps more important, debt often also provides the vehicle by which the bidder attempts to take control. To bond its own promises to raise the firm's value, the bidder also uses debt, and often little distinguishes its financing from that proposed by incumbent management in its own defense. If the bidder plans to sell assets or cancel projects once it takes control, and if it borrows heavily to bond its promises to do so, then management can do likewise. Even if the bidder catches management completely by surprise, even if management has not contemplated what it might do to defend against a

bid, management could retain control simply by modeling a debt package after the one outlined by the bidder. The bidder may even encourage management to do so, because it can then take its profits and withdraw without having to oversee the subsequent asset sales and plant closures.

In short, as long as management can quickly devise a plan to borrow and use the proceeds to pay an extraordinary dividend or repurchase shares, it is at no disadvantage to the bidder even if the tender offer comes as a complete surprise. In fact, management can dissuade the bidder from taking control with fewer asset sales then the bidder would make, it may have inside information unavailable to the bidder, and it can pursue the restructuring without the delay imposed by a change in control. Even at the post-offer stage, therefore, management has clear advantages over the bidder and we should not be surprise to see incumbent management prevail.

B. Other Types of Information Asymmetry

In both the example and the model, the information asymmetry takes a very particular form and is resolved completely once the large shareholder makes an offer. For bust-up takeover targets this may not be an unrealistic assumption. Outsiders can often estimate the company's asset values reasonably accurately even if they observe only the income generated by these assets under the status quo. In such cases there is often far greater uncertainty regarding whether or not a bidder will emerge than what this bidder will pay for the company.

In practice, though, there are sources of information asymmetries other than the one discussed here. For example, the bidder may have private information regarding post-offer takeover costs (C_1) and the firm's post-takeover value (V^*). Management could have private information, as well. Hence, both separating and pooling equilibria are possible.

Nonetheless, strict disclosure laws force any bidder to reveal much relevant information and there are sanctions for violating these laws or misrepresenting the information. Tender offers clearly have significant information content even if they do not always result in fully separating equilibria. Even in settings with other sources of information asymmetry, other means to signal, and other types of equilibria, we could therefore observe outcomes similar to the one modeled here. The outcome, in other words, should be robust to a variety of informational modifications.

C. **Ownership Concentrations and the Timing of Takeover Costs**

If management sets $V_0 = V_0^B$, it preempts a bid from L_B but not L_A. The cost of mistakenly setting a low initial value when the bidder has low takeover costs is given by

$$V_1^* - V_0^A = (\tfrac{1}{\alpha})C_0^A \tag{7}$$

The left-hand-side of (7) equals the difference between the value management must ultimately choose, V_1^*, and the value it could have chosen if it had correctly assessed L's takeover costs from the outset.

On the other hand, if management sets $V_0 = V_0^A$ and it turns out that the bidder had high takeover costs, then management has set the firm's initial value higher than necessary. The cost of this mistake equals

$$V_0^A - V_0^B = (\tfrac{1}{\alpha})\left[C_0^B - C_0^A\right] \tag{8}$$

From (7) it follows immediately that if it costs the low-cost bidder relatively little (nothing) to make a hostile offer, then there is little (no) reason to preempt it. Intuitively, management must make almost as many changes to preempt a low-cost bid as it would have to make in response to one. And if the gap between low-cost and high-cost tender offers is high,

then equation (8) implies that there is a strong incentive to risk a low-cost offer by setting the firm's value relatively low at the outset.

If uncertainty revolves primarily around whether or not a low-cost bidder will emerge, and if the low-cost bidder's costs are truly low relative to other potential bidders, then a wait-and-see strategy should represent the rule rather than the exception. Incumbent management may adopt a contingency plan for preempting a hostile takeover. It may decide which assets to sell and which operations to shut down, and it may even meet with its investment bankers to discuss a provisional plan. Yet it takes no action initially. It waits instead to see if action is necessary. In the interim it continues to operate as if it faces no threat, comfortable in the knowledge that if a threat appears it can be addressed.

This strategy is even more likely if ownership concentrations are diffuse. Potential high-cost bidders are often longstanding large shareholders. In contrast, potential low-cost bidders of the sort this paper has in mind are those who secretly acquire foothold stakes prior to their bids. The ownership stakes of these two bidder types may be very different. Rewriting equation (8) to reflect these possible differences gives

$$(9) \qquad V_0^A - V_0^B = \left[\frac{1}{\alpha_A} - \frac{1}{\alpha_B}\right] C_1 - \frac{1}{\alpha_B} C_0^B + \frac{1}{\alpha_A} C_0^A ,$$

where α_θ represents the ownership stake of a type-θ large shareholder. Now $V_0^A - V_0^B$ is a decreasing function of α_B. Simply put, the high-cost bidder's cost disadvantage can be offset if it has a large stake in the corporation. Furthermore, whereas post-offer takeover costs do not enter equation (8), they may become very important once ownership stakes differ.

To illustrate, consider three hypothetical cases. In the first, ownership concentrations are high: the firm has a longstanding shareholder with a

25% stake. It would cost this shareholder $75 million to launch a tender offer and $100 million more to follow through with a takeover. A low-cost (outside) bidder can secretly acquire up to a 15% foothold, launch a tender offer for $25 million, and take control at a cost of $100 million more. Suppose the firm has a potential value of $3 billion. Then V_0^B = $2.3 billion and V_0^A = $2.17 billion. In this case, L_B's higher ownership stake more than offsets its higher takeover costs, and preemption here is actually designed to prevent a high-cost bid.

The second hypothetical differs from the first only in that ownership concentration is now more diffuse: the longstanding (high-cost) bidder has a stake of 10% rather than 25%. If no other parameters change, then V_0^B = $1.25 billion. Management can preempt a bid from L_B for over $1 billion less than it would take to preempt a bid from L_A. And since $V_1^* - V_0^A$ = $160 million, management faces little risk in setting $V_0 = V_0^B$ = $1.25 billion.

The third hypothetical differs from the second only in that more costs are borne before rather than after the takeover. In particular, C_0^B = $100 million (vs. $75 million before), C_0^A = $50 million (vs. $25 million), and C_1 = $75 million (vs. $100 million). Hence, total costs remain unchanged, but $25 million more is incurred during the first stage. V_0^A and V_0^B remain the same, but V_1^* rises by $167 million. Consequently, management is more likely to choose $V_0 = V_0^A$. In short, preemption is more likely when takeover costs are borne in the first stage rather than the second.

E. Summary

Under what conditions will incumbent management not act at the outset to preempt a tender offer and yet still retain control after receiving one? Once a tender offer arrives, isn't it too late to make changes? Given the relatively short time between offer and takeover, what can management do to

convince the bidder to withdraw? It would seem, at least at first, that the offer-restructuring-withdrawal scenario is an unlikely one.

Yet this paper argues that it is quite likely. Because management can quickly employ debt, share repurchases, and extraordinary dividends to commit itself to take action, the short time between offer and takeover need not be an important consideration. And since the bidder often uses the same tactics to bond its promises to take action, it has no edge over incumbent management even at the post-offer stage. Indeed, management may have important advantages even at this late stage and even if it has been caught off guard by the bid. The paper models only one type of information asymmetry among many possible, but other formulalations could yield similar outcomes.

So consider the following type of corporate raider. He identifies a poorly managed company with diffuse ownership and a high bust-up value. He secretly buys up shares and meets with his backers to devise a leveraged bid. The deal would be collateralized by the target's assets and the offer will be cancelled and all shares returned to their owners if the bid fails. Hence, these backers face little risk and agree to finance the deal on favorable terms. The raider's costs thus far include only the cost of the initial foothold and the fees charged by his investment bankers. The shares will be sold at the end of the contest at a substantial profit and the consulting fees, at least relative to the size of the transaction, are small.

Management is unaware of these events. Any existing large shareholder would find it expensive to launch a bid and holds a stake too small to justify the effort. Management is not oblivious to the prospect of an outside raider's tender offer, but it considers the chances low. It reasons that it would have to make almost as many asset sales to preempt a raid as it would in response to one. It devises a contingency plan to deal with such a bid,

but takes no immediate action. So the raider launches an offer to buy shares with money he will borrow from others. Management responds with a nearly identical plan. Once management commits, the bidder withdraws by selling his stake at a substantial profit.

Management is then forced to follow through. It struggles for a time to avoid default. It terminates projects, sells assets and emerges much smaller and far more profitable. It may even have to sell the company itself. Yet the raider has not had to bear the additional costs of seizing control; he has not tied up his capital or that of his backers; he has borne little of the firm-specific risk that would come from majority ownership; and he has not had to administer the restructurings personally. By this time he has moved on to force other firms to restructure.

IV. DISCUSSION

Despite considerable anecdotal evidence to the contrary, the media and some of the academic literature often give the impression that control contests typically have all-or-nothing outcomes. The success or failure of the bidder's efforts revolve solely around whether or not he gains control. Consider the highly cited literature review of Jensen and Ruback (1983). Table after table reports results in terms of "Successful" versus "Unsuccessful" bids. Yet even if we know that the authors of these various studies really mean "Control Changes Hands" versus "Control Does Not Change Hands," the empirical record still has two problems. First, it acknowledges only two possible outcomes, when in fact any number of intermediate realizations are not only possible but probable. Second, it focuses on the final distribution of control, when this may provide little insight into the contest's outcome. Even if management retains a majority of board seats, it may preside over a

much smaller firm and its discretion may be strictly limited by the commitments it has made to sell assets and terminate projects.

The same basic framework can be applied to proxy fights to yield nearly identical results. Suppose there are two types of large shareholders, those who can launch a proxy battle at low cost and those who cannot. Not knowing which type of large shareholder it faces but believing that the likelihood of a proxy contest is low, management decides to take no preemptive measures. If one or more shareholders turn out to have low costs, they launch a proxy fight in order to force management to make changes. Management then responds with improvements (or promised improvements) and thereby convinces shareholders not to vote for a change in control. From the perspective of those who launched the fight, they may prefer to take control, but they inferred the final vote from the outset and consider the outcome a complete success.

Interpretations of post-contest events suffer from similar problems. If incumbent management retains control, what should be made of subsequent asset sales, or even the sale of the company itself? Do these actions reflect commitments incumbent management made during the prior control contest to raise the firm's value, or do they perhaps reflect a realization that management must make changes to preempt another control contest down the road? If the target's share price remains high after the contest ends, is it because of commitments to raise the firm's value, anticipation of a subsequent bid, anticipation of managerial actions to preempt a subsequent bid, or other information released in the wake of the contest? Post-contest actions and share returns by themselves cannot distinguish between these possibilities.

Then how do we test the hypothesis that Pickens-type bidders initiate tender offers to force management to make changes, and that they do not really seek control? One necessary condition is that bust-up targets earn

positive and permanent abnormal returns as measured from the date of the initial bid. In other words, though the price of the targets' shares may drop upon the announcement that the bidder has aborted its takeover attempt (the model does not deny that the firm's value would be higher with a takeover than without), it should remain permanently above the pre-offer level. Since this phenomenon is also consistent with other hypotheses, it is not a sufficient condition. Another necessary but not sufficient condition is that the management sells assets (and perhaps the firm itself) or terminates projects. These steps may take place before or after the seller withdraws, but if they occur afterward they should be accompanied by high levels of debt. We should therefore initially observe a dramatic rise in debts, and a repayment of these debts which is financed by asset sales.

In at least one respect, the consistent profitability of T. Boone Pickens and raiders like him corroborate this hypothesis. How else could we explain their string of profitable but "unsuccessful" takeover bids? Even if much of their success derives from adeptly manipulating the tax code and coercing greenmail from incumbent management,[6] this only reinforces the modeling framework adopted here — tax breaks and greenmail lower the bidder's first-stage takeover costs and increase the prospects of a bid designed to force management to restructure. Furthermore, when incumbent management pays greenmail, it must believe that the raider has a credible takeover threat.

This model also shows how several takeover defenses can be misconstrued. Suppose incumbent management preempts a takeover by taking on debt or selling the firm's core business ("crown jewels"). According to the media, such actions make the firm less valuable to potential bidders. This paper indicates precisely the opposite: these actions represent concessions to potential bidders who find the firm very valuable takeover candidates. Furthermore, a po-

tential bidder may not object when the firm itself is sold to another bidder (or to management through a leveraged buyout) as long as this other bidder pays full value for the assets. Here the bidder profits through capital gains on its foothold stake and these gains accrue whether it takes control and liquidates the firm or others do it for him.

Indeed, here the corporate raider makes a tender offer, but both anticipates and welcomes management's efforts to preempt a takeover, especially if management, by virtue of its incumbency advantages, is in the best position to undertake the restructuring. Somewhat ironically, tender offers might occur more often if management is allowed to defend against them.

V. CONCLUSIONS

This paper incorporates two-stage takeover costs and asymmetric information to model bust-up takeover bids. It acknowledges raiders' abilities to launch low-cost tender offers using credit lines collateralized by the target's assets, as well as management's ability to respond quickly and in kind. Together these conditions give rise to a scenario under which a low-cost bidder makes a tender offer, target management immediately responds with a (credible) restructuring plan of its own, and the bidder withdraws.

This scenario is well-known. The media and academic literature recognize that management can often respond to a tender offer with a credible plan of its own, and there is much anecdotal evidence to confirm that this happens routinely. Furthermore, those who have looked at share returns, debt levels, and asset sales among firms that have escaped hostile bids, find that the post-contest chain of events is often consistent with the story told here (e.g., Bhagat, Shleifer, and Vishny 1990).

What has heretofore not been known is the formal process by which this scenario might arise. Three results are perhaps most striking. First, where tender offers are inexpensive and where management can quickly respond with its own plan, there is little incentive for management to preempt a bid by making improvements at the outset — even if it perceives a reasonable chance that a low-cost bidder will emerge. Second, under these circumstances there is little reason for the bidder to follow through with a takeover. Hostile tender offers should be common, but under the conditions modeled here bust-up takeovers should be the exception rather than the rule. Third, the outcome of this scenario may not indicate any failure on the bidder's part. Although the bidder prefers to take control, it may often infer the outcome of the contest from the outset and consider its efforts successful even though it ultimately withdraws its tender offer without taking control.

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TABLE 1

Outcome	Division #1	Division #2	Division #3	Total Value
Status Quo	Retained. Worth $20 million	Retained. Worth $20 million	Retained. Worth $20 million	$60 million
Limited Restructuring	Sold for $25 million	Retained. Worth $20 million	Retained. Worth $20 million	$65 million
Major Restructuring	Sold for $25 million	Sold for $25 million	Retained. Worth $20 million	$70 million
Takeover and Liquidation	Sold for $25 million	Sold for $25 million	Sold for $25 million	$75 million

ENDNOTES

[1]Jensen and Ruback's (1983) literature survey, for example, repeatedly refers to offers as "successful" or "unsuccessful" without any middle ground and without directly conceding the possibility that success or failure may not be determined by the final distribution of control.

[2]These takeover expenses also incorporate implicit costs, including the opportunity cost of the bidder's time and effort and the expected costs to the bidder's reputation from a failed bid. It could even include the cost of having to reveal the bidder's strategy for raising capital and contesting control, which could make it more difficult to launch takeovers of other companies in the future.

[3]This assumption is made purely for tractability. The model could also accommodate asymmetric information about V^* or other relevant variables.

[4]In cases where the large shareholder represents a longstanding family interest, ρ could be interpreted as the probability that this family will sell their holdings to a corporate raider such as Pickens.

[5]Grossman and Hart's focus is on the returns an acquirer can make through post-takeover dilution rather than the capital gains an acquirer/shareholder earns in this and most other models, but the basic insight is nonetheless well-known.

[6]The frequency and size of greenmail payments is open to much debate. Simply subtracting the price of one round lot sold on the NYSE from the share price the company pays for the raiders' stake is not appropriate. The latter price includes a control premium whereas the former does not. Pickens may be fully justified in seeking a premium for his stake even though the same offer is not made to small shareholders. A more appropriate comparison would be between what the company pays for Pickens' stake and what Pickens could get by selling to a third party. Since this is unobservable, it may be very difficult to resolve this debate.