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Publication Date
1984-06-01
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June 1984
Revised February 1985
Revised April, 1986

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Abstract
This paper presents a model of bidding strategies in takeovers in which initially uninformed bidders must incur costs to learn their valuations of a target. In the case that the bidders’ valuations are independent, the first bidder may make a pre-emptive bid, well above the market price of the shares—he does so to deter the second bidder from investigating. In the case that the bidders’ valuations are common, the first bidder may bid low to conceal favourable information. I also investigate the relation between the price at which the target is taken over and the cost of investigation of the second bidder.

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The Information Conveyed by a Takeover Bid

1 Introduction

Over the last few years, yet another wave of takeover activity, both friendly and hostile, has swept the capital markets. Takeovers are a prominent example of strategic behaviour in which asymmetries of information between the various parties—competing bidders and target—play a vital role. Most research in this area has been empirical in nature, and in a recent survey, Jensen and Ruback (1983) were provoked to remark: “Takeover strategies, both offensive and defensive, have received relatively little attention in the academic literature ... the interaction between the incentives of the competing management teams and the strategies they adopt is an interesting area for future research.”

In earlier work, Grossman and Hart (1979) presented a model in which takeovers served to discipline the management of firms. They showed that the potential for small shareholders of a target to free-ride on the efforts of a bidder to install superior management would dull the incentive for bidders to undertake such activity and proposed that successful bidders be permitted to expropriate minority shareholders to some extent. Baron (1983) developed a model in which the management of a target might be either truly interested in shareholder welfare or actually maximizing their own consumption at the expense of the firm. Bebchuk (1985) presents an analysis in which shareholders of the target have private information about the value of the target if a takeover bid should fail, hence they differ in their decision whether or not to tender.

Giammarino and Heinkel (1985) analyze a model in which there are two (potential) bidders, each of which could realize a synergy by acquisition of the target, and the management of the target acts in the interest of shareholders. The value of this synergy gain is common to both bidders. Only one bidder has information about this value, and that bidder bids first. If the management of the target rejects the
bid, the second bidder is given the opportunity of a final bid. The second bidder cannot learn the true value of the synergy, hence, in equilibrium, the second bidder may bid more than the value of the target.

The objective of this paper is to study competitive bidding between two potential acquirers, each of which can realize some synergy by acquisition of a target. Initially, each potential acquirer is uninformed about his value of the target. The focus will be on the information conveyed in a bid announced by the first bidder. The first bidder understands that his bid will communicate information to the other potential acquirer—he bids in the shadow of competition.

If the value of the target is independent across the bidders, I show that the first bidder may bid high to deter the second bidder from investigation, and the price at which the target is taken over is increasing in the second bidder's cost of investigation for small values of that cost, but decreasing for large values of that cost. If the value of the target is common to both bidders, the first bidder may bid low when he discovers favourable information—thus triggering investigation by the second bidder who is drawn by the prospect of a high (common) value. In a related model of takeovers where the bidders have independent valuations for a target, Fishman (1985) also has identified the potential for the first bidder to bid pre-emptively.

In the following Section, I present the structure of the basic model, and in Section 3, analyze bidding where each bidder may make at most one bid. In Section 4, I analyze the equilibrium where each bidder may revise his bid at zero cost. The paper concludes with several remarks on implications for public policy.

2 Structure of the Model

The focus of this model will be on the situation after a first bidder has investigated and discovered his valuation \( v_1 \) of the target. The issue then is what is the optimal bid, \( b_1 \), for the first bidder, given that he bids in the shadow of po-
tential competition. The management and shareholders of the target are passive: the shareholders sell their shares to the highest bidder above the prevailing market price, \( m \). To exclude trivial cases, assume that \( m \geq \min \{ v_1 \} \). Now \( b_1 \) must satisfy \( b_1 \geq m \), therefore the first bidder will not bid unless he discovers \( v_1 \geq m \). Suppose that the first bidder has discovered \( v_1 \geq m \).

Let there be one potential competing bidder. Initially, the second bidder is uninformed about his valuation, \( v_2 \), of the target. The announcement of the first bidder’s offer alerts the second bidder to the target, and the value of \( b_1 \) conveys information about \( v_2 \).

There are two polar cases of the relation between the two bidders’ valuations of the target, \( v_1 \) and \( v_2 \). The first is where \( v_1 \) and \( v_2 \) are independent (independent values), for instance, the value of the distribution network of an oil company to two potential bidders with established networks of their own. The second is where the valuations of the two bidders are common, \( v_1 \equiv v_2 \) (common value), for example, the value of oil reserves of the target to the two potential bidders.

Now the gains from takeover are synergistic in nature and can be realized only if the bidder studies the target to identify the sources of synergy. Since such investigation cannot be avoided, it is not unreasonable to assume that it must be performed before a bid is made. Hence the second bidder may not bid for the target without investigation. The second bidder will decide whether to investigate on the basis of his up-dated beliefs about \( v_2 \). If he investigates, he will determine \( v_2 \) with certainty. Let the cost of investigation for the second bidder be \( c_2 \).

The prior distributions of \( v_1 \) and \( v_2 \), and the value of \( c_2 \) are common knowledge. All parties are risk-neutral. The method of solution will be to first consider the second bidder’s decision whether to investigate, and then to solve for the bid of the first bidder.
3 No Revised Bids

In this Section, it will be assumed that if a competing bidder should enter a bid, the first bidder will not be able to make a revised bid.\(^1\) Since the first bidder may bid only once, the second bidder can acquire the target by matching \(b_1\). Assume that the second bidder will do so only if \(v_2 > b_1\). Thus, for the second bidder, the expected return from investigation of a bid \(b_1\) announced by the first bidder is

\[
ERI_2 = \mathcal{E}[\max\{v_2 - b_1, 0\} : b_1] - c_2, \tag{1}
\]

where \(\mathcal{E}(.)\) denotes the expectation with respect to the conditional distribution of \(v_2\).

In general, the return to the first bidder from a bid \(b_1\) depends on two factors: first, the probability with which the second bidder will be led to investigate, and secondly, if the the second bidder should investigate, whether he will match the first bidder and take the target.

3.1 Independent Values

Since \(v_1\) and \(v_2\) are independent, the bid \(b_1\) conveys no information to the second bidder about \(v_2\), hence \(ERI_2 = \mathcal{E}[\max\{v_2 - b_1, 0\}] - c_2\). In this case, the optimal value of \(b_1\) for the first bidder will be either the value of \(b_1\) that is optimal in the class of bids that lead the second bidder to investigate, or the value that is optimal within the class of bids that deter the second bidder from investigation.

If the second bidder does investigate, the return of the first bidder depends on whether the second bidder will find \(v_2 > b_1\). If the second bidder does not, the first bidder will acquire the target and realize \(v_1 - b_1\). Hence, the expected return to the first bidder if the \(b_1\) leads the second to investigate is

\[
(v_1 - b_1). \Pr(v_2 \leq b_1 : v_1) = (v_1 - b_1). \Pr(v_2 \leq b_1),
\]

\(^{1}\)This assumption will be relaxed in the following Section.
since $v_1$ and $v_2$ are independent. Therefore, the optimal value of $b_1$ in the class that leads the second bidder to investigate is

$$b'_1 \overset{\text{def}}{=} \arg \max\{(v_1 - b_1) \cdot \Pr(v_2 \leq b_1) : \mathbb{E}[\max\{v_2 - b_1, 0\}] - c_2 \geq 0, b_1 \geq m\}.$$  \hspace{1cm} (2)

The expected return to the first bidder from this bid is $(v_1 - b'_1) \cdot \Pr(v_2 \leq b'_1)$. Note that if $c_2$ is very large, there may be no $b_1 \geq m$ that will lead the second bidder to investigate, i.e., even a bid $b_1 = m$ will deter the second bidder from investigation.

If the second bidder does not investigate, the first bidder will with certainty acquire the target at $b_1$ and realize a return of

$$v_1 - b_1.$$ 

Hence the optimal value of $b_1$ in the class that deters the second bidder from investigation is

$$b_1^d \overset{\text{def}}{=} \arg \max\{v_1 - b_1 : \mathbb{E}[\max\{v_2 - b_1, 0\}] - c_2 \leq 0, b_1 \geq m\} = \min\{b_1 : \mathbb{E}[\max\{v_2 - b_1, 0\}] - c_2 \leq 0, b_1 \geq m\},$$  \hspace{1cm} (3)

which is the minimum value of $b_1$ sufficient to deter the second bidder from investigation and which is no less than the market price. The expected return to the first bidder from this bid is $v_1 - b_1^d$.

The first bidder determines the price that the second bidder must match to acquire the target. If he bids sufficiently high ($b_1^d$), he can be assured of acquiring the target, but a high bid reduces the profit from the acquisition. The alternative is to bid low ($b'_1$) in the knowledge that the second bidder will investigate on the chance that the second bidder will find a low $v_2$. The first bidder will choose to bid high if $v_1 - b_1^d > (v_1 - b'_1) \cdot \Pr(v_2 \leq b'_1)$, i.e., if

$$v_1 \cdot \Pr(v_2 > b'_1) > b_1^d - b'_1 \cdot \Pr(v_2 \leq b'_1),$$

that is, if $v_1$ is sufficiently large.

$$b_1(v_1) = \begin{cases} b'_1 & \text{if } v_1 \cdot \Pr(v_2 > b'_1) \leq b_1^d - b'_1 \cdot \Pr(v_2 \leq b'_1) \\ b_1^d & \text{otherwise} \end{cases} \hspace{1cm} \text{ (4)}$$
The issue of interest to shareholders of the target is the price at which the target is sold, and the relationship of the takeover price to the second bidder’s cost of investigation. The takeover price is the bid of the first bidder—whether the target is acquired by the first or second bidder. If the second bidder’s cost of investigation is very small, the first bidder will prefer to bid low.

From (2), $b_1^t$ is independent of $c_2$ except when the constraint $\mathcal{E}[\max\{v_2 - b_1, 0\}] \geq c_2$ binds, i.e., when $c_2$ is so large that the second bidder is indifferent between investigating and not doing so. Suppose that this value of $b_1$ leads the second bidder to investigate with positive probability. The first bidder could bid slightly more—this would increase the price slightly but ensure that the second bidder will not investigate. Hence, $b_1$ such that $\mathcal{E}[\max\{v_2 - b_1, 0\}] = c_2$ will be bid in equilibrium only if that leads the second bidder not to investigate.

Thus, essentially, $b_1^t$ is independent of $c_2$. The price at which the target will be sold is $b_1^t$ until the point where

$$v_1 - b_1^t(c_2) = (v_1 - b_1^t) \cdot \Pr(v_2 < b_1^t).$$

Thereafter, the benefit of deterrence exceeds the cost, and the first bidder would rather bid high. From (3), $b_1^t$ is decreasing in $c_2$, hence the price is decreasing in $c_2$. (See Figure 1.) This shows that the price at which the target is sold is maximized at some interior value of the second bidder’s cost of investigation.

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Figure 1 here

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The following example illustrates the main intuition of the analysis. Suppose that $v_1 \in \{1, 2\}$, $\Pr(v_1 = 1) = \frac{1}{2}$, $v_2 \in \{1, 2\}$, $\Pr(v_2 = 1) = \frac{1}{2}$, $m = 1$, and $c_2 < \frac{1}{2}$. Since $m = 1$, the bid of the first bidder must satisfy $b_1 \geq 1$. If $v_1 = 1$, the only possible bid is $b_1 = 1$. For $b_1 \geq 1$,

$$\text{ERI}_2 = \mathcal{E}[\max\{v_2 - b_1, 0\}] - c_2 = (2 - b_1) \cdot \frac{1}{2} + 0 - c_2 = \frac{1}{2}(2 - b_1) - c_2.$$
If \( v_1 = 2 \), the first bidder will bid either \( b'_1 \) or \( b''_1 \). The value of \( b'_1 \) is the solution to the problem

\[
\max \ (2 - b_1) \cdot \Pr(v_2 \leq b_1) \text{ subject to } \frac{1}{2} (2 - b_1) - c_2 \geq 0, b_1 \geq 1.
\]

Now for \( b_1 \in [1, 2), (2-b_1). \Pr(v_2 \leq b_1) = \frac{1}{2} (2-b_1) \), while for \( b_1 = 2, (2-b_1). \Pr(v_2 \leq b_1) = 0 \), hence the solution is \( b'_1 = 1 \); this bid gives the first bidder an expected return of \( \frac{1}{2} (2 - 1) = \frac{1}{2} \).

Next, \( b''_1 \) is the solution to the problem

\[
\min b_1 \text{ subject to } \frac{1}{2} (2 - b_1) - c_2 \leq 0, b_1 \geq 1.
\]

The solution is \( b''_1 = 2(1-c_2) \); this bid gives the first bidder a return of \( 2 - 2(1-c_2) = 2c_2 \).

Hence, the first bid and the price at which the target will be sold is

\[
b_1(1) = 1,
\]

\[
b_1(2) = \begin{cases} 
1 & \text{if } c_2 \leq 1/4 \\
2 - 2c_2 & \text{otherwise.}
\end{cases}
\]

Notice that the first bid if \( v_1 = 2 \) is independent of \( c_2 \) until the point where \( c_2 = \frac{1}{4} \), and for higher values of \( c_2 \), the bid is decreasing in \( c_2 \).

### 3.2 Common Value

In this case, \( v_1 \equiv v_2 \), hence \( \text{ERI}_2 = \mathcal{E} | \max \{v_1 - b_1, 0\} : b_1 \} - c_2 \). Giammarino and Heinkel (1985) present a detailed analysis of bidding for a target of common value with the assumption that the second bidder cannot learn the true value of the target before bidding. It suffices here to present an example to illustrate the basic intuition where the second bidder must investigate at a cost to learn the true value of the target before bidding.

Suppose that \( v_1 \equiv v_2 \in \{1, 2\}, \Pr(v_1 = 1) = \frac{1}{2}, \text{ and } m = 1 \). The character of the equilibrium depends on the magnitude of the second bidder's cost of investigation,
\(c_2\). Consider the bid of the first bidder. Since \(m = 1\), it must be that \(b \geq 1\). Notice that if \(b_1 > 1\), the second bidder will infer that \(v_1 = 2\), hence \(\text{ERI}_2 = 2 - b_1 - c_2\). Thus, if \(b_1 > 2 - c_2\), \(\text{ERI}_2 < 0\), i.e., with certainty, the second bidder will not investigate. If \(b_1 \in (1, 2 - c_2)\), \(\text{ERI}_2 > 0\), i.e., with certainty, the second bidder will investigate and match \(b_1\).

In equilibrium, if \(b_1 = 2 - c_2\) which implies that \(\text{ERI}_2 = 0\), it must be that the second bidder will not investigate; for if \(b_1 = 2 - c_2\) led the second bidder to investigate with positive probability, the first bidder would prefer to bid slightly higher. Thus, if \(v_1 = 1\), the first bidder will bid 1, and if \(v_1 = 2\), the first bidder will bid either 1 or \(2 - c_2\).

In equilibrium, the bidders play mixed strategies: the first bidder’s strategy is to bid 1 if \(v_1 = 1\), and to bid 1 with probability \(c_2/(1 - c_2)\) and \(2 - c_2\) with probability \((1 - 2c_2)/(1 - c_2)\) if \(v_1 = 2\); and the second bidder’s strategy is to investigate with probability \(1 - c_2\) if the first bid is 1, and not investigate if the first bid is \(2 - c_2\).

If the second bidder’s cost of investigation is zero, \(c_2 = 0\), the first bidder will bid \(b_1(1) = 1, b_1(2) = 2\), hence the price at which the target will be sold is exactly equal to its value to the bidders. For \(c_2 \in \left(0, \frac{1}{2}\right)\), the probability that the first bidder will bid \(2 - c_2\) in the event that \(v_1 = 2\) and the bid \(2 - c_2\) itself are both decreasing in \(c_2\), i.e., the takeover price is decreasing in \(c_2\) in the sense of first-order stochastic dominance. If \(c_2 \geq \frac{1}{2}\), the first bidder will bid \(b_1(v_1) = 1 = m\), for all \(v_1\), and the second bidder will not investigate. In this example, it is clear that the expected takeover price of the target is decreasing in \(c_2\) for all values of \(c_2\).

4 Costlessly Revised Bids

In the preceding section, it was assumed that each bidder could make at most one bid. The other polar case is the situation at auctions, where each bidder, once he incurs the cost of investigation, can revise his bid costlessly. The reality
of takeovers is in between—the cost of revised bids is neither negligible nor is it prohibitive. The objective of the analysis of the two cases is to provide some intuition about the intermediate situation.

Consider the second bidder’s decision to investigate. Suppose that he does investigate. If he discovers \( v_2 \leq b_1 \), he will not bid, and the first bidder will acquire the target for \( b_1 \). If the second bidder discovers \( v_2 > b_1 \), he will bid and the price of the target will be bid up by the two competing bidders until it reaches \( \min\{v_1, v_2\} \), at which point the bidder with the lower valuation drops out. Thus, the second bidder’s expected return from investigation is

\[
ERI_2 = 0 \cdot \Pr(v_2 \leq b_1) + \mathbb{E}[\max\{v_2 - v_1, 0\} : v_2 > b_1] - c_2.
\]

Now \( b_1 \leq v_1 \), hence \( v_2 > v_1 \) implies that \( v_2 > b_1 \), thus

\[
\mathbb{E}[\max\{v_2 - v_1, 0\} : v_2 > b_1] = \mathbb{E}[\max\{v_2 - v_1, 0\} : b_1],
\]

and

\[
ERI_2 = \mathbb{E}[\max\{v_2 - v_1, 0\} : b_1] - c_2. \tag{5}
\]

### 4.1 Independent Values

In this case, \( v_1 \) and \( v_2 \) are independent, hence

\[
ERI_2 = \mathbb{E}[\max\{v_2 - v_1, 0\} : b_1] - c_2.
\]

To find the optimal \( b_1 \), consider the optimal \( b_1 \) within the classes of bids that lead the second bidder to investigate and that deter the second bidder from investigation.

If the second bidder does investigate, the return to the first bidder is \( v_1 - b_1 \) if the second bidder finds \( v_2 \leq b_1 \). Otherwise, the price of the target will be bid up to \( \min\{v_1, v_2\} \) and the first bidder’s return will be

\[
\mathbb{E}[\max\{v_1 - v_2, 0\} : v_2 > b_1].
\]

Therefore, the optimal bid in the class that will lead the second bidder to investigate is

\[
b_1^* = \arg\max \left\{ (v_1 - b_1), \Pr(v_2 \leq b_1) + \mathbb{E}[\max\{v_1 - v_2, 0\} : v_2 > b_1], \Pr(v_2 > b_1) : \mathbb{E}[\max\{v_2 - v_1, 0\} : b_1] - c_2 \geq 0, b_1 \geq m. \right\} \tag{6}
\]
The expected return to the first bidder from this bid is \( (v_1 - b_1^d) \cdot \Pr(v_2 \leq b_1^d) + \mathcal{E}[\max\{v_1 - v_2, 0\} : v_2 > b_1^d] \cdot \Pr(v_2 > b_1^d) \).

If the second bidder does not investigate, the first bidder’s receives \( v_1 - b_1 \). Hence, the optimal bid in the class that deters the second bidder from investigation is the minimum such bid,

\[
b_1^d = \min\{b_1 : \mathcal{E}[\max\{v_2 - v_1, 0\} : b_1] - c_2 < 0, b_1 \geq m\}
\]  

(7)

The expected return to the first bidder from this bid is \( v_1 - b_1^d \).

The first bidder can deter the second bidder from investigation by bidding \( b_1^d \). Such a bid deters the second bidder by providing a credible signal that the first bidder’s valuation of the target is high. The cost of the high bid is the reduction in the profit gained from the acquisition. The alternative is to bid low, and enter a bidding contest with the second bidder.

The first bidder will bid high if

\[
v_1 - b_1^d > (v_1 - b_1^d) \cdot \Pr(v_2 \leq b_1^d) + \mathcal{E}[\max\{v_1 - v_2, 0\} : v_2 > b_1^d] \cdot \Pr(v_2 > b_1^d)
\]

or,

\[
v_1 \cdot \Pr(v_2 > b_1^d) - \mathcal{E}[\max\{v_1 - v_2, 0\} : v_2 > b_1^d] \cdot \Pr(v_2 > b_1^d) > b_1^d - b_1 \cdot \Pr(v_2 \leq b_1^d).
\]

Since \( v_1 \) is not stochastic, the left-hand side of this condition may be written

\[
\mathcal{E}[v_1 : v_2 > b_1^d] \cdot \Pr(v_2 > b_1^d) - \mathcal{E}[\max\{v_1 - v_2, 0\} : v_2 > b_1^d] \cdot \Pr(v_2 > b_1^d)
\]

\[
= \mathcal{E}[\min\{v_1, v_2\} : v_2 > b_1^d] \cdot \Pr(v_2 > b_1^d),
\]

where the expectations are with respect to the distribution of \( v_2 \).

The quantity \( \mathcal{E}[\min\{v_1, v_2\} : v_2 > b_1^d] \) is increasing in \( v_1 \) hence it may be concluded that the first bidder will bid high if \( v_1 \) is sufficiently large:

\[
b_1(v_1) = \begin{cases} 
  b_1^d & \text{if } \mathcal{E}[\min\{v_1, v_2\} : v_2 > b_1^d] \cdot \Pr(v_2 > b_1^d) > b_1^d - b_1 \cdot \Pr(v_2 \leq b_1) \\
  b_1^d & \text{otherwise.}
\end{cases}
\]

(8)

\(^2\)For large values of \( c_2 \), there may not exist \( b_1 \) that will lead the second bidder to investigate.
Compared with the situation where he is permitted only one bid, a low bid is now more attractive to the first bidder because if the second bidder should investigate and enter, he can raise his bid.

If the second bidder's cost of investigation is small, the first bidder will prefer to bid low initially and the second bidder will investigate, hence the expected price at which the target will be sold is

$$b_1'. \Pr(v_2 \leq b_1') + \mathcal{E}[\min\{v_1, v_2\} : v_2 > b_1']. \Pr(v_2 > b_1').$$

(9)

By an argument similar to that made in the preceding Section, it may be shown that the first bidder's bid, hence the expected price, is independent of $c_2$ up till the point where

$$\mathcal{E}[\min\{v_1, v_2\} : v_2 > b_1'] \Pr(v_2 > b_1') = b_1^d(c_2) - b_1'. \Pr(v_2 \leq b_1').$$

(10)

For that value of $c_2$, the first bidder will prefer to bid high initially so that the second bidder will not investigate, hence the takeover price of the target will be simply $b_1^d(c_2)$.

For the value of $c_2$ given by (10),

$$b_1'. \Pr(v_2 \leq b_1') + \mathcal{E}[\min\{v_1, v_2\} : v_2 > b_1'] \Pr(v_2 > b_1') = b_1^d(c_2),$$

i.e., the expected takeover price of the target when the first bidder bids low initially is equal to the price when the first bidder bids the largest investigation-deterring bid. Therefore, when each bidder may revise his bid costlessly, the shareholders of the target will be indifferent between the values of $c_2$ that lead the first bidder to bid $b_1'$ or bid $b_1^d(c_2)$ where $c_2$ is given by (10).

4.2 Common Value

In this case, $v_1 \equiv v_2$, hence

$$\text{ERI}_2 = -c_2.$$  

(11)
which implies that the second bidder will not investigate, regardless of the size of $b_1$. The reason is that once incurred, the cost of investigation is a sunk cost, hence the two bidders will bid up the price of the target until all gains from an acquisition are exhausted. Therefore, the optimal bid for the first bidder is

$$b_1(v_1) = m, \quad \text{for all } v_1,$$

and the price at which the target will be sold is $m$.

5 Concluding Remarks

In this paper, it has been shown that the information content of a takeover bid depends crucially on the nature of the gains from acquisition. If the gains are independent across bidders, a high bid can serve to signal to potential competing bidders that the first bidder’s valuation of the target has been found to be high and therefore, that potential competitors need not investigate. Pre-emptive bidding—where the first bidder bids well above the prevailing market price—deters investigation by potential competitors by providing a credible signal that the first bidder’s valuation is high and also by posting a price that competitors must match. A low bid reveals that the first bidder’s valuation is low.

If the gains from acquisition, however, are common to all bidders, if the first bidder discovers favourable information, he may bid low to conceal that information. Hence, a low bid will attract potential competitors to investigate—they are drawn by the prospect that the first bidder has discovered a target of high value. Whether the second bidder will investigate will depend on the cost of revised bids: if this cost is very low, the second bidder will not investigate because the ensuing bidding will push the price of the target up to the point that the gains from acquisition will be zero.\(^3\)

\(^3\)In the model of Giammarino and Heinkel (1985), the second bidder could bid without incurring any sunk cost, and the first bidder was not allowed to revise his bid.
The model in which the value of the target is independent across bidders provides a clarification of a recent debate in the Harvard and Stanford Law Reviews on the degree to which competing bids for takeover targets should be facilitated.\footnote{Bebchuk (1982a and 1982b), Easterbrook and Fischel (1981 and 1982), and Gilson (1981).} There are two related aspects to the second bidder’s cost of investigation: first, the time available to the second bidder to investigate and formulate an offer, and secondly, the opportunity cost of collecting and assimilating the required information. (The two are related since when time is short, the second bidder must resort to more expensive methods of information collection and processing.) The first factor is regulated under Federal Law by the Williams Act and subsequent amendments. This specifies a minimum period that a tender offer must remain open, and if a competing bid should be entered, a minimum period that shareholders who tendered to the first bidder must be given to withdraw their shares to tender to the second bidder.\footnote{Prior to the passage of the Williams Act in 1968, there were no such limitations. See Jarrell and Bradley (1980) for evidence that observed premia in tender offers were larger after the enactment of the legislation.} The management of the target may fine-tune the second factor, by being more or less helpful to the second bidder. One extreme is the ‘white knight’ policy, while the opposite is for it not to assist at all.

Drawing on the Grossman and Hart (1979) model, Easterbrook and Fischel argued that the law should protect first bidders from competing bidders. In a critical response, Bebchuk advocated instead a rule of auctioneering to reduce the monopsony power that the Easterbrook-Fischel rule would provide the first bidder. This paper has shown that even where the bidders’ valuations of the target are independent (the case most favourable to Bebchuk), provided that the cost of revised bids is non-zero, the shareholders of the target will not desire that competing bidders be facilitated to the maximum because this may undermine the incentive for the first bidder to make a high initial offer.

In the model, the variable \( c_2 \) was interpreted as the second bidder’s cost of investigation. In fact, it might be any cost that the second bidder must incur to
enter bidding that is sunk once the second bidder announces his bid. Also, it should be mentioned that the model applies equally to hostile and friendly takeovers: a merger offer that is ‘too low’ may spark a competing tender offer just as a tender offer that is ‘too low’ does.⁶

One direction for further work is to incorporate into the model the first bidder’s decision to investigate. This is important as the wealth of shareholders of targets of takeovers depends on both the frequency of investigation and the price of acquisition. Another direction is to study bids that are contingent on the acquirer’s valuation. In the context of takeovers, these might be bids that offer the bidder’s stock or bonds rather than cash as payment.⁷ Hansen (1985) shows that in an English auction where bidders have private independent valuations for the object, the seller may seek contingent payments to extract some of the surplus of the winning bidder.

⁶In October 1978, the board of MBPXL, Inc. signed an agreement with ConAgra, Inc. that it would propose to the shareholders of MBPXL that they accept an offer to merge with ConAgra. Before the scheduled shareholders’ meeting, on December 7, Cargill, Inc., launched a tender offer for MBPXL. See ConAgra, Inc. v. Cargill, Inc., 382 N.W. 2d 576 (1986).

⁷Austin and Jackson (1984) recorded that in 1983, seven of seventy-seven tender offers involved securities as part of the payment for shares tendered.
Figure 1: Takeover Price as Function of Second Bidder’s Cost of Investigation
References


