Takeovers under Asymmetric Information: Block Trades and Tender Offers in Equilibrium

Sergey Stepanov*

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VERY PRELIMINARY

Abstract

I study transfers of control in a firm having atomistic shareholders and one dominant minority blockholder (incumbent). A potential acquirer can try to negotiate a block trade with the incumbent. If the negotiations are successful, the control changes hands via a block trade. If the negotiations fail, the acquirer can launch a public tender offer. According to empirical evidence, both types of transactions occur in the market. However, the existing models that allow for both types of control transfer ultimately obtain that the incumbent and the acquirer always negotiate a block trade in equilibrium. By introducing asymmetry of information about the acquirer’s ability to generate value, I bring imperfections into the bargaining between the acquirer and the incumbent, which allows me to generate either a block trade or a tender offer as the game outcome. In equilibrium, high ability acquirers take over the firm by means of a tender offer, intermediate ability acquirers negotiate a block trade, and low ability acquirers do not attempt any transaction. This result provides an immediate explanation for a generally higher target’s stock price reaction to tender offers as compared to block trade announcements. The model also explains why takeover premiums are generally higher in countries with stronger legal protection of shareholders and predicts that better shareholder protection should result in a higher stock price reaction to block trade announcements as well. Finally, the model predicts how, for a given incumbent’s share, the choice between a tender offer and a block trade is affected by the legal shareholder protection.

JEL classification: D82, G34

Keywords: takeovers, block trades, tender offers, shareholder protection.

1 Introduction

While the literature on transfers of corporate control is huge, insufficient attention has been devoted to the issue of the choice of the control transfer mode. This paper considers a firm with a dominant minority blockholder (incumbent) and otherwise dispersed shareholders and examines the choice of an acquirer between taking the firm over by means of a public tender offer and negotiating a block trade with the incumbent blockholder. It is well known by now that large minority block trades are corporate control transactions: block purchasers pay substantial “control premiums” (Dyck and Zingales, 2004) and frequently initiate changes in the management and board of directors compositions (e.g., Barclay and Holderness, 1991). While

*New Economic School and CEFIR, Moscow. Email: sstepanov@cefir.ru
a block trade is sometimes the ultimate control transaction in a firm with a large minority blockholder, public tender offers occur in such firms as well. In Barclay and Holderness (1991) sample of 106 negotiated block trades in the U.S., in 65 cases firms were not acquired for at least a year after the block trade, while in 41 cases a block trade was followed by an acquisition of the remaining shares. In this latter subsample, tender offers to other shareholders were made simultaneously with block trades in 14 cases. Holmén and Nivorozhkin (2007), studying a sample of 1706 Swedish companies find that both block trades (309 deals) and non-partial takeovers (300 deals) occur in companies with large minority blockholders.

While a target’s characteristics may also affect the choice of the control transfer mode, I argue in this paper that the acquirer’s ability to generate value (or, at least, her perception about her ability) may explain when a block trade or a tender offer occurs. The paper has several contributions. First, it rationalizes the coexistence of tender offers and block trades in equilibrium in firms with a dominant minority blockholder. In particular, I argue that such coexistence cannot be explained in a model with symmetric information, essentially because the acquirer and the incumbent collectively would always prefer to exclude other shareholders from the deal and negotiate a block trade. For example, Zingales (1995) and Burkart et al (2000) allow for the choice between a block trade and a tender offer, but in equilibrium the acquirer and the incumbent always trade the block. Asymmetry of information about the acquirer’s ability introduces imperfections into the bargaining between the acquirer and the incumbent, which ultimately induces high ability acquirers to acquire the firm through a tender offer.

Second, the paper provides explanations for two empirical observations: (1) why the stock price reaction to tender offers is generally higher than that to block trade announcements, and (2) why takeover premiums are generally higher in countries with stronger shareholder protection (Rossi and Volpin, 2004).

Third, the model predicts that a target’s stock price reaction to a block trade announcement should also be higher in regimes with stronger shareholder protection.

Finally, the model yields predictions about the incidence of tender offers and block trades depending on the quality of shareholder protection in a country.

It is necessary to say that I assume that the acquisition of the incumbent’s block does not trigger a mandatory tender offer. Thus, the application of my analysis is limited either to countries that do not have such a regulation (like the U.S.) or to firms in which a dominant minority blockholder holds a stake smaller than the threshold that triggers a mandatory bid (often 30%). At the same time, in reality, even in countries with a mandatory bid rule, many block trades do not indeed trigger mandatory bids, because the buyer does not cross the threshold.

Before providing intuition for the results of the paper, it is worthwhile outlining the argument why symmetric information models fail to generate tender offers in firms with dispersed shareholders and a dominant minority blockholder in equilibrium. In a tender offer, due to the classical free-rider problem (Grossman and Hart, 1980), dispersed shareholders do not agree to sell to the acquirer at a price below the security benefits the acquirer would generate. In addition, when the acquirer’s security benefits are lower than those generated by the incumbent, it is often assumed that dispersed shareholders would not agree to sell for a price below the incumbent’s security benefits. This latter constraint rules out so called ‘panic equilibria’, in which it becomes individually rational to sell at a price below the value generated by the
current management just because everybody else is selling.

The total value generated by the party in control consists of the security benefits (or profits) accruing to all shareholders and private benefits accruing to the controlling party only. Suppose the abilities of both the incumbent and the acquirer to generate both types of benefits are common knowledge. Assume that for a given controlling party both security and private benefits are fixed and do not depend on the party’s equity stake. Assume also for the moment that the incumbent cannot counterbid if the acquirer launches a tender offer. If the acquirer purchases the incumbent’s block, other shareholders’ payoff is $X_R$, as this is security benefits generated by the acquirer. If, in contrast, she makes a tender offer to all shareholders, she would have to pay $\max\{X_R, X_I\}$ in order to acquire control (if $X_R > X_I$ the free-rider problem requires to bid $X_R$, while for $X_R < X_I$ the ‘no-panic-equilibria’ assumption requires to bid $X_I$). Hence, the small shareholders weakly gain from a tender offer as compared with a block trade. But this implies that the incumbent and the acquirer weakly lose from a tender offer relative to a block trade. If one adds a cost of administering a tender offer (and it is reasonable to assume that the cost of conducting block trade negotiations in the absence of information asymmetries should be lower than the tender offer cost) the preference for a block trade becomes strict. Thus, if one assumes efficient bargaining between the two, they will always successfully negotiate to trade the block. Allowing the incumbent to counterbid makes a tender offer game even less attractive for the incumbent-acquirer coalition, as it can only raise the equilibrium bid.

A model with endogenous private and security benefits a la Burkart et al (2000) would also result in a block trade in equilibrium. In Burkart et al (2000), the controlling party optimally chooses to generate more security benefits and extract less private benefits when his or her share is higher. A tender offer contest in their model is won by the acquirer and leads to an increase in the controlling party’s share, which implies more security benefits and less private benefits. However, the whole increase in the security benefits accrues to dispersed shareholders, because, due to the free-rider problem, the acquirer has to bid at least the amount of security benefits she will generate. As a result, due to a decrease in the private benefits, the acquirer and the incumbent collectively lose from a tender offer contest relative to a block trade. Hence, a block trade always takes place in equilibrium.

In this paper, asymmetry of information about the acquirer ability to generate security benefits leads to a negotiations failure in equilibrium. Similarly to Zingales (1995), we assume that the acquirer and the incumbent first try to negotiate a block trade, and if the negotiations fail, the acquirer can launch a tender offer to all shareholders (for simplicity we do not allow the incumbent to counterbid). We also assume that in negotiating a block trade the acquirer has full bargaining power (makes a take-it-or-leave-it offer to the incumbent). It turns out that, in equilibrium, the best acquirers launch a tender offer, intermediate quality acquirers do a block trade, and worst acquirers do not acquire control at all. The equilibrium bid $b^*$ is the same for all types or acquirers who make a tender offer and, what is crucial, is lower than the price $p^*$ at which intermediate quality acquirers buy the block (this price is also the same for all intermediate quality acquirers in equilibrium). Given that she acquires control, the acquirer is essentially faced with the following trade-off: buying all shares in a tender offer for a lower price or buying just the incumbent’s stake $\alpha$ for a higher price. That, is she compares $X_R - b^*$ with $\alpha(X_R - p^*)$, where $b^* < p^*$. High type acquirers either gain or do not lose too much from
purchasing as many shares as possible at \( b^* \), while intermediate type acquirers suffer a too large loss from buying the whole company at \( b^* \). At the same time, the loss (or gain) from purchasing the incumbent’s block is less sensitive with respect to the acquirer’s type \( X_R \). As a result, there is a threshold level of the acquirer’s ability such that all acquirers above that level go for a tender offer, while acquirers below the threshold prefer a block trade (a too low type acquirers abstain from any transaction).

Given that \( b^* < p^* \), why cannot an acquirer convince the incumbent to sell the block for a price lower than \( p^* \) by threatening to make a tender offer, in which case the incumbent would get an even lower price? The reason is that even if the acquirer is of a high type and knows that she is indeed going to make a tender offer following the incumbent’s rejection, she cannot communicate her type to the incumbent. Facing a private offer to sell the block for a price below \( p^* \), the incumbent believes that his refusal will trigger a tender offer only with some probability, while with the complementary probability the acquirer will simply draw back, and the incumbent will continue enjoying control.

The immediate implication of the described equilibrium structure is that the stock price reaction to tender offers is higher than to block trades announcements. The result is simply due to the fact that it is higher quality acquirers that acquire the company through a tender offer. This finding is consistent with the empirical evidence. For example, Barclay and Holderness (1991) report a substantial difference in cumulative abnormal returns between control transactions that eventually involved a tender offer and those in which a block trade was the ultimate control transaction. Other empirical studies do not allow us making a direct comparison as they usually do not compare block trades and tender offers. However, examining papers on block trades and papers on tender offers separately, we can make an indirect comparison. Martynova and Renneboog (2008) provide a convenient summary on the targets’ stock returns around tender offer announcements found in numerous empirical studies. At the same time, Barclay and Holderness (1991), Kang and Kim (2008), Allen and Phillips (2000), and other papers provide evidence on the target stock price reaction to block trades. The numbers, provided by Martynova and Renneboog are almost always higher than those found in the block trades studies.

The model also obtains that takeover premiums are higher in countries with better shareholder protection, which is consistent with the empirical findings of Rossi and Volpin (2004). This is essentially due to the fact that, for a given ownership structure, tender offers are made on average by higher quality acquirers when shareholder protection is stronger. Moreover, I obtain that the stock price reaction to block trades should also be higher in better legal regimes. Again, this occurs because block acquirers are on average of a better quality under stronger legal protection of shareholders. In general, I obtain that in better legal environments takeovers (including block trades) are made by higher quality acquirers on average.

Finally, the model predicts that, for a given incumbent blockholder’s share, takeovers are more likely in general and tender offers are more likely relative to block trades in countries with worse shareholder protection. These last predictions may seem at odds with the evidence that takeovers, and hostile takeovers in particular, are more frequent in better legal environments. However, my result is formulated for a given incumbent blockholder’s share. In weak legal environments, large blockholders (or coalitions of blockholders) often have either controlling or
close to controlling stakes, which renders a hostile tender offer virtually impossible.

2 The model

There is a firm run by a manager (incumbent), who is also the largest shareholder of the firm. His share is $\alpha$ while the rest of equity is dispersed. The firm has a one-share-one-vote structure. The incumbent is in control over the firm and generates security benefits $X_I$, available to all shareholders, and private benefits $B$. However, I assume that $\alpha < 1/2$, which implies that someone else could potentially gather a controlling stake bypassing the incumbent.

There is a potential acquirer (raider) in the market. If the acquirer obtains control over the firm, she generates security benefits $X_R$ and private benefits $B$. Thus, it is assumed that the acquirer and the incumbent differ only in the ability to generate security benefits.

While $X_R$ is known to the acquirer, both the incumbent and the dispersed shareholders only know that $X_R$ is distributed uniformly on $[X, \bar{X}]$. The distribution is common knowledge.

Assumption 1. $X_I = (\bar{X} + X)/2$. This assumption is made to simplify the analysis and does not qualitatively affect the results of the model. It simply says that the incumbent is neither worse nor better than the average acquirer, thereby introducing certain symmetry between the incumbent and a potential acquirer. This is going to rule out situations in which the expected $X_R$ an acquirer who launches a tender offer is lower than $X_I$. This will imply that the equilibrium tender offer bid will be determined only by the expected $X_R$ of an acquirer who makes a tender offer.

Assumption 2. $B \geq \alpha (\bar{X} - X_I)$. This assumption is technical and does not have a qualitative effect on the results. It is made in order to simplify the analysis by ruling out equilibria in which only block trades may occur.

There is no discounting in the model. The sequence of the events is as follows.

$t = 1$. The acquirer makes a take-it-or-leave it offer to the incumbent for the entire incumbent’s share. She suggests price $p$ per unit share. While the fact of negotiations is known to everybody, the specific offer $p$ is known only to the acquirer and the incumbent. If the offer is accepted, the block trade occurs, and the acquirer becomes the new controlling party, and the game proceeds to $t = 3$. If the offer is rejected, the game proceeds to $t = 2$.

$t = 2$. Following a rejection of the block trade offer, the acquirer may make a tender offer to all shareholders at price $b$. I assume that a tender offer must be unconditional and unrestricted. If a tender offer is made, each shareholder, including the incumbent blockholder, decides non-cooperatively whether to tender his shares or not. I assume that, when indifferent, a shareholder...

\footnote{I could provide the acquirer with the option to make a tender offer straight away, without prior negotiations. Such a setup would lead to an observationally equivalent equilibrium structure.}

\footnote{I also believe that if $p$ is observed by everybody, my qualitative results would not change.}

\footnote{In this model, restricted tender offers could actually be preferred by acquirers who overpay for the target’s shares. However, arguably, introducing the possibility to make a restricted tender offer on $x\%$ of the shares, where $x \geq 50$, would not change the qualitative results of the paper. First, there are still going to be equilibria in which all tender offers are for 100% of the shares (and from the empirical point of view such offers seem more relevant than restricted ones). Second, what is needed for the results of the model is that a tender offer leads to a greater ultimate acquirer’s share in the firm compared with a block trade, which will still be the case with tender offers restricted to 50%.}
decides to tender his shares. Following Grossman and Hart (1980), I also assume that each atomistic shareholder treats his own decision as having no effect on the outcome of the tender offer (i.e., considers himself pivotal with probability zero). Furthermore, I assume that the incumbent blockholder cannot counterbid (e.g., because he has no resources). If, as a result of the tender offer, the acquirer ends up with more shares than the incumbent, she gains permanent control over the company. Otherwise, the incumbent keeps control. If the acquirer decides not to make a tender offer, the incumbent keeps control.

\[ t = 3. \] The party in control generates security benefits \( X_j \) and private benefits \( B \), where \( j \) is either \( I \) or \( R \) depending on who is in control.

### 3 Symmetric information benchmark

As a benchmark, let us first solve the model as if \( X_R \) were common knowledge. We will see that, in this case, the acquirer never prefers a tender offer to occur in equilibrium and, if a tender offer involves even a very small cost, the preference for a block trade becomes strict. In order to solve the game, let us make an assumption of ‘no-panic-equilibria’. That is, let us assume that, when \( X_R < X_I \), shareholders would never tender for a price below \( X_I \). In principle, tendering for a price \( b \in (X_R, X_I) \) is an equilibrium behavior when everybody else tenders (then, if you do not tender, your payoff is \( X_R < b \), because the takeover occurs regardless of your decision).

This equilibrium is sometimes called a ‘panic equilibrium’. The ‘no-panic-equilibria’ assumption can be justified on the grounds of Pareto-dominance (from the shareholders’ perspective, the ‘trust equilibrium’, i.e., when nobody tenders, Pareto-dominates the ‘panic equilibrium’) or by arbitrage considerations (a friendly arbitrageur, who would leave control to the incumbent, could overbid the acquirer by \( b + \varepsilon \) and make a profit).

**Lemma 1** Assume the bargaining has failed and consider the tender offer stage. Then, the equilibrium of this subgame under symmetric information is as follows:

- When \( X_R < X_I - B \), the acquirer does not make a tender offer
- When \( X_R \in [X_I - B, X_I) \), the acquirer bids \( b = X_I \), all shareholders (including the incumbent blockholder) tender their shares, the acquirer’s payoff is \( X_R - X_I + B \)
- When \( X_R \in [X_I, X_I + B/\alpha) \), the acquirer bids \( b = X_R \), all shareholders (including the incumbent blockholder) tender their shares, the acquirer’s payoff is \( B \)
- When \( X_R \geq X_I + B/\alpha \), the acquirer bids \( b = X_I + B/\alpha \), the incumbent blockholder tenders his shares, while other shareholders do not, the acquirer’s payoff is \( X_R - X_I - B/\alpha + B \)

**Proof.** Detailed proof to be provided.

The intuition for this lemma is as follows. When \( X_R < X_I \), in order to gain control, the acquirer has to offer at least \( X_I \) due to our assumption about the impossibility of ‘panic equilibria’. The acquirer’s payoff is then \( X_R - X_I + B \). Obviously, when it is negative, the acquirer prefers not to make an offer.

When \( X_R \geq X_I \), because of the free-riding among the dispersed shareholders, they will not agree to sell for less than \( X_R \). Suppose \( b < X_R \). Then the incumbent blockholder is pivotal
for the takeover outcome. Therefore, he will tender his share if and only if \( b \geq X_I + B/\alpha \). Hence, when \( X_R \geq X_I + B/\alpha \), the acquirer finds it optimal to bid just \( X_I + B/\alpha \). When \( X_R < X_I + B/\alpha \), neither dispersed shareholders nor the incumbent blockholder agree to a bid below \( X_R \). Bid \( b = X_R \) makes the dispersed shareholders tender. Knowing that, the incumbent blockholder tenders too, because he cannot prevent the takeover.

**Lemma 2** The equilibrium in the full game under symmetric information is as follows:

- When \( X_R < X_I - B \), there is no transfer of control
- When \( X_R \in [X_I - B, X_I) \), there is a negotiated block trade at price \( p = X_I \), the acquirer’s payoff is \( \alpha (X_R - X_I) + B \)
- When \( X_R \in [X_I, X_I + B/\alpha) \), either a block trade at price \( p = X_R \) occurs or a tender offer with bid \( b = X_R \), the acquirer is indifferent between the two scenarios and obtains the payoff of \( B \) in either case.
- When \( X_R > X_I + B/\alpha \), either a block trade at price \( p = X_I + B/\alpha \) occurs or a tender offer with bid \( b = X_I + B/\alpha \), the acquirer is indifferent between the two scenarios and obtains the payoff of \( X_R - X_I - B/\alpha + B \)

**Proof.** Detailed proof to be provided. •

When \( X_R < X_I - B \), there is no tender offer following the negotiations failure. At the same time, there are no gains from a block trade for the trading parties, because the incumbent is more efficient. Hence, nothing happens in this case.

When \( X_R \in [X_I - B, X_I) \), the acquirer can take the firm over by making a tender offer at price \( b = X_I \). If this happens, the acquirer will obtain \( X_R - X_I + B > 0 \), as we know from Lemma 1, and the incumbent will obtain \( \alpha X_I \) from selling his stake. Moreover, the dispersed shareholders obtain \( X_I \). By striking a private deal and bypassing dispersed shareholders, the acquirer and the incumbent would leave them with payoff \( X_R < X_I \). Thus, they do a block trade in equilibrium. The acquirer proposes \( p = X_I \) to the incumbent, and the incumbent agrees (since this is his outside option). The acquirer obtains \( \alpha (X_R - X_I) + B > X_R - X_I + B \).

When \( X_R \in [X_I, X_I + B/\alpha) \), the acquirer can take the firm over by making a tender offer at price \( p = X_R \), in which case the dispersed shareholders obtain \( X_R \). If the block trade occurs, the dispersed shareholders obtain the same \( X_R \). Hence, there are neither gains nor losses for the acquirer-incumbent coalition from doing a block trade. Thus, the acquirer is indifferent between the two scenarios and obtains the payoff of \( B \) in either case.

When \( X_R > X_I + B/\alpha \), there is no actual difference between a block trade and a tender offer. In either case, the dispersed shareholders do not sell their shares, only the incumbent blockholder does.

To summarize the solution under symmetric information, tender offers are weakly dominated by block trades. If we introduce a small cost of launching a tender offer (and it is reasonable to assume that a tender offer cost should be larger than any cost of block trade negotiations under symmetric information), tender offers will be strictly dominated by block trades, meaning that we should never observe tender offers. The possibility of a tender offer contest between
the acquirer and the incumbent would make the case for block trades even stronger, because it would only drive up the bid price.

I will show now that under asymmetric information about the acquirer’s ability to generate security benefits, some types of acquirers will strictly prefer to make a tender offer in equilibrium, while other types will opt for a block trade. Hence, I will rationalize the simultaneous existence of both types of control transactions.

4 Asymmetric information case

The analysis of the asymmetric information case has similarities to the analysis of tender offers with bidder’s private information by At et al (2010) but, in contrast to that paper, I have negotiations between the acquirer and the incumbent in the first stage of the game.

It will turn out that the equilibrium has the following structure. There are two thresholds, \( X' \) and \( X'' \), such that: acquirers with \( X_R < X' \) never take the company over, acquirers with \( X_R \in (X', X'') \) purchase the incumbent’s block, and acquirers with \( X_R > X'' \) acquire the company through a tender offer. In general, depending on the parameters, there can also be two degenerate cases. In one of them tender offers occur for any \( X_R \). In the other one \( X'' \) disappears but \( X' \) remains, i.e., for all \( X_R < X' \) nothing happens, whereas for any \( X_R > X' \) a block trade occurs. The latter case is ruled out by the restriction on the parameters set by Assumption 2.

We will now, step by step, construct the equilibrium structure and equilibrium prices offered for the block and in a tender offer. First of all, let us notice that all types of acquirers who do a block trade, do it at the same price in equilibrium. Otherwise a type who buys the block at a price higher than another type would clearly deviate and offer the lower price. Let us denote the equilibrium block trade price (per unit share) by \( p \). Second, the equilibrium bid must also be the same for all types who make a tender offer in equilibrium for the same reason. Let us denote this bid by \( b \).

Let us now establish the following lemma:

**Lemma 3** In equilibrium, if an acquirer with some \( \tilde{X}_R \) acquires control by means of a tender offer, then all types with \( X_R > \tilde{X}_R \) also acquire control by means of a tender offer.

**Proof.** Acquisition via a tender offer at price \( b^* \) is preferred to a block trade at price \( p^* \) whenever \( X_R - b^* > \alpha (X_R - p^*) \), or \( X_R > (b^* - \alpha p^*)/(1 - \alpha) \). Acquisition via a tender offer is preferred to doing nothing whenever \( X_R > b^* - B \). Hence, if an acquirer with \( \tilde{X}_R \) makes a tender offer takeover in equilibrium, so do all acquirers with \( X > \tilde{X}_R \).

Thus, the set of acquirers who do a tender offer acquisition in equilibrium is segment \([X'', X']\), where \( X'' \geq \tilde{X}_R \). Due to the free-rider problem, it must be that \( b^* \geq E(X_R \mid X_R \in [X'', X']) \), that is, \( b^* \geq \frac{X'' + \tilde{X}}{2} \). There potentially can be many equilibria, satisfying this condition, with different out-of-equilibrium beliefs about those acquirers who offer a bid different from \( b^* \). However, we follow Shleifer and Vishny (1986) and At et al (2010) in selecting the minimum bid equilibrium, which is the unique equilibrium satisfying the credible beliefs criterion of Grossman and Perry (1986). In such equilibrium \( b^* = \frac{X'' + \tilde{X}}{2} \), that is the shareholders tender at the
price that is just equal to the expected post-takeover security benefits, and any price below this value is rejected.

Now let us turn to block trades. A block trade at price $p^*$ is preferred to doing nothing whenever $\alpha(X_R - p^*) + B > 0$, or $X_R > p^* - B/\alpha$. Hence, we can state the following lemma.

**Lemma 4** In equilibrium, if an acquirer with some $\tilde{X}_R$ prefers a block trade at price $p^*$ to doing nothing, then any acquirer with $X_R > \tilde{X}_R$ also prefer a block trade at price $p^*$ to doing nothing.

Hence, it follows from Lemma 3 and Lemma 4 that an equilibrium in our game in general must have the following structure: there exist two thresholds, $X'$ and $X''$, such that acquirers with $X_R < X'$ abstain from any transaction, acquirers with $X_R \in [X', X'')$ negotiate a block trade, and acquirers with $X_R \geq X''$ take over the firm by means of a tender offer. Either of the thresholds, or both, may become degenerate (i.e., equal either $X$ or $\overline{X}$). It might also turn out that $X' = X''$. The following proposition establishes the equilibrium structure depending on the parameters.

**Proposition 1** The equilibrium outcome is as follows:

- When $B \leq \frac{X - X_I}{2}$, there exist $X' \in (X, \overline{X})$, $X'' \in (X', \overline{X})$ and $\tilde{X} \in (X', X'')$ such that:
  
  - acquirers with $X_R < X'$ do not attempt any transaction,
  
  - acquirers with $X_R \in [X', X'')$ do a negotiated block trade at price $p^* = \frac{(1 - 2\alpha)B + \alpha(1 - 2\alpha)X_I + \alpha^2\overline{X}}{\alpha(1 - \alpha)}$,
  
  - acquirers with $X_R \geq X''$ suggest price $p < b^*$ to the incumbent, the incumbent rejects, and then a tender offer at price $b^* = \frac{X - \alpha X_I - B}{1 - \alpha}$ follows, all shareholders (including the incumbent) tender their shares,
  
  - Out of equilibrium, if the incumbent rejects to sell the block at $p^*$, acquirers with $X_R \geq \tilde{X}$ will do a tender offer at price $p^*$, while acquirers with $X_R < \tilde{X}$ will abstain.
  
  - $p^* > b^*$

- When $B \geq \frac{X - X}{2}$, a tender offer occurs for any $X_R$, the bid is $b^* = \frac{X + \overline{X}}{2}$, all shareholders (including the incumbent) tender their shares

- $X' = \frac{\alpha \overline{X} + (1 - 2\alpha)X_I - B}{1 - \alpha}$, $X'' = \frac{(1 + \alpha)\overline{X} - 2\alpha X_I - 2B}{1 - \alpha}$, $\tilde{X} = \frac{\overline{X} - \alpha X_I - (2 - \alpha)B}{1 - \alpha}$

**Proof.** Detailed proof is to be provided. Below, I describe the intuition for the result. ⊡

Thus, in equilibrium, in the most general case, the best acquirers launch a tender offer, intermediate quality acquirers do a block trade, and worst acquirers do not acquire control at all. As $B$ grows the last two zones (block trade and doing nothing) shrink, and after $B$ reaches $\frac{X - X}{2}$ only tender offers remain. In order for all three zones to exist, five conditions must be satisfied. These five conditions determine the thresholds $X'$, $X''$, $\tilde{X}$ and prices $p^*$ and $b^*$.
The first condition states that at $X_R = X''$ the acquirer must be indifferent between bidding $b^*$ for the whole firm and purchasing the block for $p^*$ per unit share: $X'' - b^* + B = \alpha (X'' - p^*) + B$. Moreover, she must prefer a takeover to doing nothing. Hence, the first condition is

$$X'' - b^* = \alpha (X'' - p^*) > -B$$ (1)

All acquirers with $X_R > X''$ prefer the tender offer to the block trade, while all those with $X_R < X''$ prefer the block trade.

The second condition is that the equilibrium bid equals the expected post-takeover security benefits generated by the acquirer:

$$b^* = \frac{X'' + \overline{X}}{2}$$ (2)

We have already discussed this condition right after Lemma 3. Acquirers with $X_R \in [X'', b^*)$ suffer a loss $b^* - X_R$ from purchasing shares, but get enough private benefits to compensate for this loss. The immediate thing to notice from (2) is that $X'' - b^*$ must be negative (unless $X'' = \overline{X}$, but this can be shown to be ruled out by Assumption 2). Then, from (1) it follows that $p^*$ must be greater than $b^*$; this is crucial to separate block purchasers from tender-offer acquirers. Indeed, if $p^*$ were lower than $b^*$, an acquirer with $X_R \in [X'', b^*)$ would deviate to the block trade as then she would suffer a smaller loss (or maybe even gain) by buying fewer shares at a lower price. Given that $p^* > b^*$, the acquirer is essentially faced with the following trade-off: buying all shares in a tender offer for a lower price or buying just the incumbent’s stake $\alpha$ for a higher price. High type acquirers either gain or do not lose too much from purchasing as many shares as possible at $b^*$, while low type acquirers suffer a too large loss from buying the whole company at $b^*$. At the same time, the loss (or gain) from purchasing the incumbent’s block is less sensitive with respect to the acquirer’s type $X_R$. As a result, high type acquirers ($X_R \geq X''$) prefer the tender offer, while low type acquirers ($X_R < X''$) prefer the block trade.

The third condition is that at $X'$ the acquirer is indifferent between buying the block and doing nothing:

$$\alpha (X' - p^*) + B = 0$$ (3)

All acquirers with $X_R$ below $X'$ prefer to abstain from any transaction.

The fourth and the fifth conditions deal with the out-of-equilibrium actions. It must be that the incumbent prefers to accept $p^*$. He must have beliefs about what would happen if he rejects $p^*$. These beliefs are defined by $\hat{X} \in (X', X'')$ such that, following the rejection, all acquirers above $\hat{X}$ make a tender offer, while all acquirers below $\hat{X}$ abstain from any transaction. Notice, that since the block trade offer price is unobserved by the market, whenever the market observes a tender offer, it believes that the acquirer’s type is $X_R \geq X''$. Thus, the tender offer must be $b^* = \frac{X'' + \overline{X}}{2}$. Hence, the acceptance condition for the incumbent is

$$\frac{\hat{X} - X' (\alpha X_I + B)}{X'' - X'} + \frac{X'' - \hat{X}}{X'' - X'} \alpha b^* \leq \alpha p^*$$ (4)

In principle, for given other variables, a continuum of $p^*$ satisfy this condition. I assume that this condition holds as equality; i.e., I impose the equilibrium which is best for the acquirer (she does not “overpay” for the block). Arguably, it is the most plausible equilibrium. (If we
allowed for equilibria in which (4) holds as a strict inequality, the equilibrium structure would not change anyway).

It must be the case in equilibrium that an acquirer with $\hat{X}$ is indifferent between abstaining and making a tender offer at $b^*$ (then, consistently with the beliefs, all those with $X_R$ below $\hat{X}$ will abstain, and those with $X_R$ above $\hat{X}$ will launch a tender offer). This is the fifth condition:

$$\hat{X} - b^* + B = 0$$

(5)

Conditions (1) to (5) are five equations with five unknowns. Solving them determines the equilibrium values of $X', X'', \hat{X}, p^*$ and $b^*$, stated in Proposition 1.

There must be one more important condition: any offer below $p^*$ is rejected by the incumbent. Notice that from (2) and Assumption 2 it follows that $\alpha X_I + B > \alpha \bar{X} > \alpha b^*$, i.e., the incumbent prefers keeping control to a tender offer. Hence, any offer below $b^*$ is definitely rejected by the incumbent, since the worst he can get following the refusal is $b^*$. Rejection of offers between $b^*$ and $p^*$ is ensured by assuming that the incumbent believes that such an offer is made by a “weak” enough acquirer in expectation (for example, the belief that the acquirer making such an offer has $X_R$ uniformly distributed on $[X', X'']$ would suit) so that this acquirer will be likely enough to abstain following a rejection. Thus, despite the fact that $b^* < p^*$, the acquirer cannot convince the incumbent to sell the block for a price lower than $p^*$ by threatening to make a tender offer. The reason is that even if the acquirer is of a high type and knows that she is indeed going to make a tender offer following the incumbent’s rejection, she cannot communicate her type to the incumbent. Facing a private offer to sell the block for a price between $b^*$ and $p^*$, the incumbent believes that his refusal will trigger a tender offer only with some probability, while with large enough probability the acquirer will simply draw back, and the incumbent will continue enjoying control.

Notice that, under Assumption 2, the (non-zero measure) segment of $X_R$ for which a tender offer occurs always exists in equilibrium. If Assumption 2 were violated there could exist equilibria without tender offers or with a tender offer made only by type $\bar{X}$. I have decided to rule out such possibility because it adds nothing qualitatively new to the analysis, but complicates it. [to be elaborated on]

The value of Proposition 1 is, first of all, that it rationalizes the simultaneous existence of tender offers and block trades in firms with a dominant minority blockholder. Secondly, several interesting empirical implications can be derived from it.

5 Empirical implications

Our model yields empirical implications about the effects of the legal protection of shareholders, for a given incumbent blockholder’s stake, on:

- the likelihood of a control transfer in general,
- the likelihood of a negotiated block trade relative to an acquisition via a tender offer,
- the stock price reactions to the announcements of block trades and tender offers
- the size of the takeover premium in tender offers (since all tender offers are successful, the takeover premium is equal to the stock price reaction to the tender offer)

- the block premium

For my comparative statics exercises I mostly concentrate on the effect of the quality of legal shareholder protection. Changes in shareholder protection are modelled in the following way. We assume that greater shareholder protection decreases $B$ and increases $X$ for both the incumbent and the acquirer. The idea is that less resources can be stolen and, thus, more resources can be channelled to generating security benefits. More specifically, any decrease in $B$ by $\varepsilon$ is accompanied by an increase in $X$ by $\varepsilon$ for any $X$ both for the incumbent and the acquirer.

Before moving to the effects of shareholder protection let us formulate one result that follows immediately from the analysis.

5.1 Announcement stock price reaction: block trades versus tender offers

**Proposition 2** For a given incumbent blockholder’s share, the stock price reaction to a tender offer is higher than to an announcement of a block trade.

This result follows immediately from the equilibrium structure: tender offers are simply made by better acquirers. Once a block trade is announced, the stock price becomes $\frac{X' + X''}{2}$, while a tender offer raises the stock price to $\frac{X'' + X}{2}$. This result explains the empirical evidence on stock price reactions; indeed targets’ stock prices react to tender offers more positively than to block trade announcements. For example, Barclay and Holderness (1991) report a substantial difference in cumulative abnormal returns between control transactions that eventually involved a tender offer and those in which a block trade was the ultimate control transaction. Other empirical studies do not allow making a direct comparison as they usually do not compare block trades and tender offers. However, examining papers on block trades and papers on tender offers separately, an indirect comparison can be made. Martynova and Renneboog (2008) provide a convenient summary on the targets’ stock returns around tender offer announcements found in numerous empirical studies. At the same time, Barclay and Holderness (1991), Kang and Kim (2008), Allen and Phillips (2000), and some other papers provide evidence on targets’ stock price reaction to block trades. The numbers, provided by Martynova and Renneboog are almost always higher than those found in the block trades studies.

5.2 Incidence of negotiated block transfers and tender offers

Let us start from the case of low shareholder protection, so that $B > \frac{X - X}{2}$ and then decrease $B$ and increase $X_I$ and $X_R$ uniformly by $\varepsilon$. When $B > \frac{X - X}{2}$, according to Proposition 1, the firm is always taken over and the mode of control transfer is a tender offer with certainty. As legal protection improves and $B$ becomes lower than $\frac{X - X}{2}$, there appears a positive probability that no transfer of control occurs; moreover, both tender offers and block trades occur depending on the parameters.
Improvement in shareholder protection

Figure 1: Effect of an improvement in shareholder protection

As can easily be seen, both $X'$ and $X''$ increase with $\varepsilon$, but $X''$ increases faster: $\frac{dX''}{d\varepsilon} = \frac{3-\alpha}{1-\alpha}$, while $\frac{dX'}{d\varepsilon} = \frac{2-\alpha}{1-\alpha}$. Of course, $X$ and $\overline{X}$ increase as well, but their derivatives with respect to $\varepsilon$ equal $0 < \frac{dX}{d\varepsilon} < \frac{d\overline{X}}{d\varepsilon}$. Thus, the length of segment $[X', X]$ relative to $[X, \overline{X}]$ shrinks, while segment $[X'', \overline{X}]$ shrinks even faster (see Figure 1 for a graphical illustration). Hence, we obtain the following proposition.

**Proposition 3** For a given incumbent blockholder’s share, when shareholder protection is stronger, a transfer of control to an acquirer is less likely to occur. Moreover, as shareholder protection improves, takeovers via a tender offer become less likely relative to negotiated block transfers.

Since, with an increase in shareholder protection, private benefits diminish relative to security benefits, only good enough acquirers find it profitable to make a takeover when the law protects small shareholders well. Thus, as legal protection improves, the quality of acquirers that actually acquire control increases, and their mass shrinks. Proposition 3 may sound at odds with the common observations that takeovers via tender offers are more widespread in the U.S. than in other countries. However, it is important to keep in mind that the proposition is formulated for given $\alpha$, while countries with weaker shareholder protection normally have more concentrated ownership structures. In such countries, incumbent blockholders (or coalitions of blockholders) often have controlling (more than 50% of the votes) or nearly controlling stakes, making a takeover without the consent of the incumbent blockholder virtually impossible. Once we take this into account, Proposition 3 does not contradict the evidence, but rather provides a testable hypothesis.

### 5.3 Stock price reaction and takeover premium

Proposition 2 has already established one implication for stock price reactions to block trades and tender offers. In order to derive implications for the effect of shareholder protection, it is necessary to make assumptions about the pre-announcement market expectations. I will present the results for the two polar cases: one in which the deal (either a block trade or a tender offer) is totally unanticipated by the market and one in which the market is fully aware that the acquirer with $X$ distributed uniformly on $[\underline{X}, \overline{X}]$ is already “around”. It may seem that the former case requires irrationality on the part of investors. However, “fully unexpected deal” can be rationalized by assuming that an acquirer with available funds appears only with some probability, and, when it appears, its $X_R$ is uniformly distributed on $[\underline{X}, \overline{X}]$. If the
probability of appearance is close to zero, the deal will be almost unexpected. It turns out that the qualitative results do not depend on whether the deal is fully unexpected or not.

**Proposition 4** For a given incumbent blockholder’s share:

- the target’s stock price reaction to a tender offer and the takeover premium are higher in countries with stronger shareholder protection
- the target’s stock price reaction to a block trade announcement is higher in countries with stronger shareholder protection

**Proof.** Let us first consider the case when the deal is totally unexpected. In the case the pre-takeover target’s stock price is \( X_I = \frac{X+X}{2} \). Following a tender offer, the price jumps to the post-takeover value of the security benefits: \( X''+\frac{X}{2} \). The stock price reaction is thus \( \frac{X''-X}{X} \).

From the analysis of the incidence of takeovers we know that \( \frac{dX''}{d\varepsilon} = \frac{3-\varepsilon}{3} > 1 \), that is, \( X'' \) grows with \( \varepsilon \) faster than \( X \). Hence, the jump is the stock price is higher when shareholder protection is stronger. The logic for the stock price reaction to a block trade announcement is similar. The price jumps from \( \frac{X+X}{2} \) to \( \frac{X'+X''}{2} \). As both \( X' \) and \( X'' \) grow with \( \varepsilon \) faster than both \( X \) and \( \bar{X} \) (see the analysis of the incidence of takeovers), the price jump will grow with an improvement in shareholder protection.

Now let us consider the case when the shareholders are aware of the presence of an acquirer and rationally assign positive probabilities to both a block trade and a tender offer. The pre-announcement target’s stock price (let us denote it by \( s \)) is a weighted sum of the incumbent’s security benefits, the expected block purchaser’s security benefits, and the tender offer bid:

\[
\frac{X'-X}{X-\bar{X}} \frac{\bar{X}}{2} + \frac{X''-X'}{X-\bar{X}} \frac{X'}{2} + \frac{\bar{X}-X''}{X-\bar{X}} \frac{X''}{2}.
\]

This can be rewritten as \( \frac{X'-X}{X} \frac{\bar{X}}{2} + \frac{X''-X'}{X-\bar{X}} \frac{X'}{2} + \frac{\bar{X}-X''}{X-\bar{X}} \frac{X''}{2} \equiv \mu \frac{X+X}{2} + (1-\mu) \frac{X'+X''}{2} \equiv s \).

The post-announcement stock price is \( \frac{X''+\bar{X}}{2} \) in the case of a tender offer and \( \frac{X'+X''}{2} \) in the case of a block trade. Let us for the moment imagine that \( \mu \) is fixed and see what happens when we increase \( \varepsilon \). Because \( X'' \) grows with \( \varepsilon \) faster than both \( X' \) and \( X'' \), the post-announcement stock price grows faster than the pre-announcement stock price both in the case of a tender offer and in the case of a block trade. This statement remains true when we take into account that \( \mu \) also changes with \( \varepsilon \). Since \( X' \) increases faster than \( X \), and \( \bar{X} \) does not change with \( \varepsilon \), \( X' + \frac{\bar{X}}{2} \) increases with \( \varepsilon \). But since \( \frac{X'+X'}{2} > \frac{X+X}{2} \), an increase in \( \mu \) reduces \( s \) with respect to the case of fixed \( \mu \). In other words, the fact that \( \mu \) is not fixed slows down the increase in the pre-announcement stock price.

Thus, even when an acquirer is around and the market forms rational expectations about a potential future takeover, the announcement stock price reaction still increases with an improvement in shareholder protection. ■

In our model there is no difference between the takeover premium and the stock price reaction to a tender offer, because the acquirer pays the expected post-takeover security benefits and all tender offers succeed with certainty in equilibrium. Rossi and Volpin (2004) have found that takeover premiums are higher in the countries with better legal protection of shareholders. Proposition 4 provides an explanation for this finding. The basic intuition behind Proposition 4 stems from Proposition 3. As shareholder protection strengthens, the average quality of both tender-offer acquirers and block purchasers goes up. Hence, the stock price reaction on both
tender offers and block trade announcements grows. Thus, dispersed shareholders benefit more from both block trade transactions and tender offers when shareholder protection is better.3

6 Conclusion

I have developed a model that rationalizes the existence of both block trades and tender offers in equilibrium in firms with a dominant minority blockholders. Thus, in contrast to the previous literature, the model explains why we empirically observe both types of control transfers in such companies. The model suggests that choice between a block trade and a tender offer is affected by the acquirer’s ability to generate value in the target firm. The paper provides explanations for some empirical regularities and suggest new empirical predictions. So far, only the effects of legal protection has been analyzed. One possible extension is to examine the effects of the incumbent blockholder’s share on the equilibrium outcome. I think, however, that the model should be modified for this purpose. In particular, the model should take into account that a higher stake normally gives more control, meaning greater private benefits. This is a direction for future research.

References


3It can be shown in our model that, despite a decrease in the likelihood of a takeover, the dispersed shareholder benefit from an improvement in shareholder protection from the ex-ante perspective too.
