Legal Investor Protection and Takeovers*

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Abstract

This paper studies the effects of legal investor protection on the efficiency of the market for corporate control. Stronger legal investor protection limits the ease with which an acquirer, once in control, can extract private benefits at the expense of non-controlling investors. This, in turn, increases the acquirer’s capacity to raise outside funds to finance the takeover. Absent effective bidding competition, this increased outside funding capacity does not make efficient takeovers more likely, however, as the bid price, and thus the acquirer’s need for funds, must increase in lockstep with his pledgeable income. In contrast, under effective bidding competition, the increased outside funding capacity makes it less likely that the outcome of the takeover contest is determined by the bidders’ financing constraints—and thus by their private wealth—and more likely that it is determined by their ability to create value. As a result, stronger legal investor protection can improve the efficiency of the takeover outcome. Our model has implications for the allocation of voting rights, sales of controlling blocks, and the role of legal investor protection in cross-border M&A.

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1 Introduction

Building on the seminal work by La Porta et al. (1997, 1998), empirical studies have shown that countries with stronger legal investor protection allocate resources more efficiently. In particular, Wurgler (2000) shows that countries with stronger legal investor protection increase investment more in growing industries, and decrease investment more in declining industries, relative to countries with weaker legal investor protection. Likewise, McLean, Zhang, and Zhao (2010) show that firms in countries with stronger legal investor protection exhibit a higher sensitivity of investment to growth opportunities ($q$). The authors also show that, as a consequence, firms in these countries exhibit higher total factor productivity growth, higher revenue growth, and higher profitability.

One important resource allocation mechanism is the takeover market. In that market, both assets and managerial talent are (re-)allocated across firms. Indeed, consistent with empirical studies showing that countries with stronger legal investor protection allocate resources more efficiently, Rossi and Volpin (2004) find that these countries also have more active takeover markets.\footnote{Rossi and Volpin (2004) measure takeover activity both in terms of M&A volume (percentage of traded companies targeted in a completed M&A deal) and in terms of incidence of hostile takeovers (number of attempted hostile takeovers in the 1990s as a percentage of the number of domestic traded companies).}

Existing theory offers little guidance as to why the takeover market might be more efficient in countries with stronger legal investor protection. This is for two reasons. First, existing takeover models do not explicitly consider legal investor protection. Second, empirical research suggests that legal investor protection matters primarily because it relaxes financing constraints (e.g., La Porta et al., 1997; McLean, Zhang, and Zhao, 2010).\footnote{La Porta et al. (1997) show that countries with stronger legal investor protection have larger external capital markets and more IPOs. McLean, Zhang, and Zhao (2010) show that firms in countries with stronger legal investor protection exhibit both a lower sensitivity of investment to cash flow—meaning they are less financially constrained—and a higher sensitivity of either equity or debt issuance to $q$—meaning firms with better investment opportunities are more able to raise either equity or debt capital. The authors explicitly tie these results to their result that firms in countries with stronger legal investor protection exhibit a higher $q$-sensitivity of investment: “These findings suggest that investment-sensitivity to $q$ is stronger in countries with greater investor protection in part because in these countries high $q$ firms can more easily obtain external finance to fund their investments” (p. 2, italics added).}

However—and in contrast to the standard corporate finance model of investment (e.g., Tirole, 2006, Chapters 3 and 4)—existing takeover models typically assume that bidders are financially unconstrained...

To address these issues, we incorporate both legal investor protection and financing constraints into a standard takeover model. In that model, no individual target shareholder perceives himself as pivotal for the outcome of the tender offer, leading to free-riding behavior. As a result, target shareholders tender only if the bid price reflects the full post-takeover value of the target’s shares (Grossman and Hart, 1980).⁴ However, if the bidder makes no profit on tendered shares, this implies that efficient—i.e., value-increasing—takeovers may not take place. As Grossman and Hart argue, one way for the bidder to make a profit from the takeover is by diverting firm value as private benefits after gaining control of the target. The higher are the bidder’s private benefits, the lower is the post-takeover value of the target’s shares, and the lower is the bid price which the bidder must offer target shareholders to induce them to tender their shares.

In our model, legal investor protection limits the ease with which the bidder, once in control, can divert firm value as private benefits. This has two main implications. First, it reduces the bidder’s profit from the takeover, making efficient—i.e., value-increasing—takeovers less likely. Second, it increases pledgeable income by increasing the post-takeover value of the target’s shares, thereby increasing the bidder’s outside funding capacity. However, absent (effective) bidding competition, this increased outside funding capacity does not relax the bidder’s budget constraint. As the bid price must increase in lockstep with the post-takeover share value (to induce target shareholders to tender their shares), the bidder’s

³All these models build on Grossman and Hart’s (1980) seminal analysis of the free-rider problem in takeovers. While Chowdhry and Nanda (1993)—in a model that assumes no free-rider problem—and Mueller and Panunzi (2004) examine the strategic role of debt financing in takeovers, neither of these two models assumes that bidders are financially constrained. In particular, this implies that—in contrast to the standard corporate finance model of investment—bidders’ private wealth is immaterial.

⁴Rossi and Volpin (2004) provide empirical support for the Grossman-Hart (1980) free-rider model. Specifically, they show that bid premia in tender offers are higher than in other takeover modes. This is consistent with the free-rider model, which predicts that, in a tender offer, the target shareholders can appropriate the entire value added by the bidder (net of his private benefits) through the bid price. The authors conclude (p. 293): “We interpret the finding on tender offers as evidence of the free-rider hypothesis: that is, the bidder in a tender offer needs to pay a higher premium to induce shareholders to tender their shares.”
need for funds increases one-for-one with his pledgeable income, “neutralizing” any positive effects of legal investor protection on the bidder’s outside funding capacity.

That legal investor protection does not relax the bidder’s budget constraint is disconcerting. After all, empirical research suggests that one of the main implications of legal investor protection is that it eases financing constraints (see above). However, this result follows quite naturally in any setting in which the bid price increases in lockstep with the post-takeover value of the target’s shares, and thereby with the bidder’s pledgeable income. Turning the result on its head, if the bid price did not increase in lockstep with the bidder’s pledgeable income, the positive effect of legal investor protection on the bidder’s outside funding capacity might have real implications for efficiency. A situation in which this arises naturally is bidding competition, where bidders are forced to make offers exceeding the post-takeover share value. As private benefits are not pledgeable, any offer exceeding the post-takeover share value must be (partly) funded out of the bidders’ own wealth. As a result, the takeover outcome not only depends on bidders’ willingness to pay—i.e., their valuations for the target—but it may also depend on their ability to pay.

If bidders are arbitrarily wealthy, the takeover outcome depends solely on the bidders’ willingness to pay. This is the situation analyzed in much of the theory of takeovers. As the most efficient bidder—i.e., the one who can create the most value—has the highest valuation for the target, he can always outbid any less efficient bidder. Thus, absent any financial constraints, the takeover outcome is always efficient.

On the other hand, if bidders are financially constrained, the takeover outcome may be inefficient. As an illustration, suppose there are two bidders, 1 and 2. The target’s value is normalized to zero. If bidder 1 gains control, the target’s value increases to 100, while if bidder 2 gains control, the target’s value increases to 90. Thus, bidder 1 is more efficient. Suppose next that both bidders can, once in control, divert the same fraction of the firm value, say, 30 percent, as private benefits. Hence, if bidder 1 gains control, the post-takeover share value is 70, and his private benefits are 30. Likewise, if bidder 2 gains control, the post-takeover share value is 63, and his private benefits are 27. Thus, bidder 1 is not only more efficient, but he can also raise more outside funds: bidder 1’s outside funding capacity is 70, while bidder 2’s outside funding capacity is 63. (Recall that private benefits are not
pledgeable.) And yet, bidder 2 may win the takeover contest. Specifically, assume bidder 1 has no wealth, while bidder 2 has private wealth of 8. In this case, bidder 1 is able to pay 70 for the target, which is the amount he can raise from outside investors. In contrast, bidder 2 is only able to pay 71: he can raise 63 from outside investors and use 8 of his own wealth. Consequently, bidder 2 can outbid bidder 1 and win the takeover contest.5

In sum, if bidders are financially constrained, the takeover outcome not only depends on bidders’ ability to create value, but it may also depend on their wealth. In particular, if the less efficient bidder—i.e., the one who can create less value—is wealthier, the takeover outcome may be inefficient. In this case, stronger legal investor protection can improve efficiency. To continue with the above example, suppose that legal investor protection is stronger than previously assumed. Precisely, suppose the two bidders can divert only 10 percent of the firm value as private benefits. As a result, bidder 1’s outside funding capacity is now 90, while bidder 2’s outside funding capacity is now 81. If the bidders’ wealth is the same as before, this implies that bidder 1 can now pay 90 for the target, while bidder can only pay 81 + 8 = 89. Hence, if bidders are financially constrained, stronger legal investor protection can promote efficient takeover outcomes. By boosting bidders’ ability to borrow against the value they can create, stronger legal investor protection makes it more likely that the most efficient bidder can outbid any less efficient rival.

We explore a number of implications of our analysis, both normative and positive. We first examine departures from “one share–one vote.” Under a “one share–one vote” rule, all shares have equal voting rights. The leading argument as to why this might be optimal is that it minimizes the likelihood that less efficient bidders with higher private benefits can outbid more efficient bidders with lower private benefits (Grossman and Hart, 1988; Harris and Raviv, 1988). In our model, this argument does not apply, as the most efficient bidder has also the highest private benefits (see above example). Instead, “one share–one vote” is socially optimal in our model because it minimizes the likelihood that less efficient but wealthier bidders can outbid more efficient but less wealthy bidders. Naturally, this argument is absent from the models of Grossman and Hart (1988) and Harris and Raviv (1988), as

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5Bidder 1 is willing to pay up to 100 for the target, while bidder 2 is willing to pay up to 90. Hence, if bidders are financially unconstrained, bidder 1 always wins the takeover contest.
both models assume that bidders are arbitrarily wealthy. Moreover, we show that departures from “one share–one vote” are more likely to lead to an inefficient takeover outcome when legal investor protection is weak.

We next examine sales of controlling blocks. In a sale-of-control transaction, a bidder seeks to acquire a majority of the target’s shares from a controlling shareholder (“incumbent”). Effectively, the incumbent is like a rival bidder who is arbitrarily wealthy: he can always “afford” the controlling block by simply refusing to sell it. As we show, efficient sales of control are more likely to take place when the incumbent’s controlling block is large. In a second step, we endogenize the size of the controlling block. We show that the incumbent retains a larger controlling block when legal investor protection is weak, which is consistent with empirical evidence by La Porta et al (1998, 1999) showing that ownership is more concentrated in countries with weaker legal investor protection.

We finally examine issues related to cross-border M&A. In a typical cross-border M&A transaction, the target adopts the corporate governance structures, accounting standards, and disclosure practices of the country of the acquirer. As we show, if bidders from different countries compete over a target, those from countries with stronger legal investor protection have a competitive advantage. Holding bidders’ wealth and their ability to create value fixed, bidders from countries with stronger legal investor protection can divert less firm value as private benefits, implying a higher post-takeover share value. If bidders are financially constrained, this implies they have a higher outside funding capacity, allowing them to outbid rivals from countries with weaker legal investor protection. Consistent with empirical evidence by Bris and Cabolis (2008), our model predicts that takeover premia in cross-border M&A deals are increasing in the strength of legal investor protection in the country of the acquirer.

The rest of the paper is organized as follows. Section 2 presents the model. Section 3 examines the case of a single bidder. Section 4 analyzes bidding competition. Section 5 considers various extension of our model: departures from “one share–one vote,” sales of controlling blocks, and cross-border M&A transactions. Section 6 concludes. All remaining proofs are in the Appendix.
2 The Model

A firm ("target") faces a potential acquirer ("bidder"). The target has a measure one continuum of shares, which are dispersed among many small shareholders. (Section 5.2 considers the case in which the target has a controlling shareholder.) All shares have equal voting rights. (Section 5.1 considers departures from "one share–one vote.") Shareholders are homogeneous, everybody is risk neutral, and there is no discounting.

The target’s value is normalized to zero. If the bidder gains control, the target’s value increases to $v > 0$. To gain control, the bidder must make a tender offer to the target’s shareholders that attracts at least 50 percent of the target’s shares. (The bidder has no initial stake in the target.) Tender offers are conditional on acquiring at least 50 percent of the target’s shares and unrestricted in the sense that the bidder is willing to acquire all shares above this threshold. If the takeover succeeds, the bidder incurs an execution cost, $c$, that cannot be imposed on the target or its shareholders (unless the target is fully owned by the bidder, in which case the assumption becomes irrelevant).\textsuperscript{6}

Even if a control transfer is efficient ($v > c$), it may not take place. As Grossman and Hart (1980) argue, if no individual shareholder perceives himself as pivotal for the outcome of the tender offer, efficient takeovers will not materialize unless the bidder can extract private benefits ex post. Accordingly, we assume that after gaining control, the bidder can divert a fraction $(1 - \phi)$ of the target’s value as private benefits, where $\phi \in [\bar{\phi}, 1]$. Hence, the bidder’s private benefits are $(1 - \phi)v$, while the security benefits accruing to all shareholders, including the bidder, are $\phi v$. For simplicity, we assume that private benefits cause no deadweight loss. Importantly, private benefits cannot be contracted upon. This implies the bidder cannot commit to a given level of private benefits, nor can he transfer or pledge these benefits to third parties (e.g., investors).\textsuperscript{7} Instead, the legal environment, captured by the parameter $\bar{\phi}$,\textsuperscript{6}

\textsuperscript{6}If there are multiple bidders, it is important that the execution cost is only incurred by the winning bidder. Otherwise—at least if the bidding outcome is deterministic—there would never be any bidding competition, as the losing bidder would not be able to break even.

\textsuperscript{7}Our assumption that private benefits are not pledgeable rules out that the bidder can pledge target assets even if he does not fully own the target, as discussed in Mueller and Panunzi (2004). Such exclusion mechanisms, which rely on second-step mergers between the target and a shell company owned by the bidder (see also Amihud, Kahan, and Sundaram, 2004), are not available in all countries. Even in the United States, the role of second-step mergers as an exclusion device has become second-order following the widespread
effectively limits diversion, with larger values of $\tilde{\phi}$ corresponding to stronger legal investor protection.

Grossman and Hart (1980) provide several examples of how a controlling shareholder can extract private benefits at the expense of other investors. For instance, he can sell the target’s assets or output below their market value to another company he owns. Alternatively, he can pay himself an artificially high salary, or he can consume perks while declaring them as necessary business expenses.\footnote{Johnson et al. (2000) describe how—even in countries like France, Belgium, and Italy—controlling shareholders can extract private benefits by transferring company resources to themselves (“tunneling”). Bertrand, Mehta, and Mullainathan (2002) provide examples of tunneling from India. Mironov (2008) discusses the admittedly extreme case of outright theft by controlling shareholders in Russia. For additional examples, see Shleifer and Vishny (1997, especially Section I.B).}

To study the financing of takeovers, we assume that the bidder has private wealth, $A$. In addition, the bidder can raise outside funds, $F$, from competitive investors. Since private benefits are not pledgeable, the amount of outside funds he can raise is limited by the value of his security benefits. We impose no restriction on the types of financial claims which the bidder can issue against these security benefits, except that we assume that the value of these claims must be non-decreasing in the underlying security benefits.

The sequence of events is as follows.

In stage 1, the bidder decides whether to bid for the target. If he decides to bid, he can raise outside funds, $F$, in addition to his wealth, $A$, and make a take-it-or-leave-it, conditional, unrestricted cash tender offer with bid price $b$.

In stage 2, target shareholders simultaneously and non-cooperatively decide whether to tender their shares. Target shareholders are atomistic in the sense that no individual shareholder perceives himself as pivotal for the outcome of the tender offer. The fraction of tendered shares is denoted by $\beta$. If $\beta < 0.5$, the takeover fails. Conversely, if $\beta \geq 0.5$, the takeover succeeds, and the bidder gains control of the target. Tendering shareholders then receive the bid price, and the bidder incurs the execution cost, $c$.

To select among multiple equilibria, we apply the Pareto-dominance criterion, which selects the outcome with the highest payoff for the target shareholders (e.g., Grossman and adoption of (anti-) business combination laws. Since the mid 1980s, more than 30 U.S. states, including Delaware, have adopted such laws. See Bertrand and Mullainathan (2003) for a discussion.
Hart, 1980; Burkart, Gromb, and Panunzi, 1998; Mueller and Panunzi, 2004). Among other things, this implies our focus on value-increasing takeovers is without loss of generality. This is because any equilibrium of the tendering game in which a value-decreasing takeover succeeds is dominated by an equilibrium in which the takeover fails, where the latter equilibrium always exists.\(^9\) In other words, target shareholders are better off, both individually and collectively, if a bid below the status quo value fails. Thus, Pareto dominance rules out what is, by all means, an implausible scenario, namely, that target shareholders would tender to a bidder for a price below the status quo value.\(^{10}\)

In stage 3, if the bidder gains control, he diverts a fraction \((1 - \phi)\) of the target’s value as private benefits, subject to the constraint \(\phi \geq \tilde{\phi}\) imposed by the law.

The model is solved by backward induction. We first consider the bidder’s diversion decision, followed by the target shareholders’ tendering decision and the bidder’s offer and financing decisions. Generally, a successful bid must win the target shareholders’ approval and match any competing offers. We examine both the case in which shareholder approval is the binding constraint (“single-bidder case”) and the case in which outbidding of rivals is the binding constraint (“bidding competition”). We begin with the single-bidder case. Bidding competition is examined in Sections 4 and 5.

## 3 Single-Bidder Case

The single-bidder assumption does not literally rule out that there are other bidders interested in controlling the target. It merely presumes that none is able to create nearly as much value as the bidder under consideration. By implication, shareholder approval is the binding constraint for a successful takeover.

\(^9\)There always exists a Nash equilibrium—in fact, a continuum of Nash equilibria—in which the takeover fails. If it is anticipated that a majority of the target shareholders does not tender, any individual shareholder is indifferent between tendering and not tendering, implying that failure can always be supported as an equilibrium outcome. Note that while unconditional offers may avoid problems of multiple equilibria, they suffer from problems of nonexistence of equilibrium (e.g., Bagnoli and Lipman, 1988).

\(^{10}\)Grossman and Hart (1980, p. 47) also argue that bids below the status quo value are implausible, for the same reason, namely, because they fail whenever they are expected to fail. Naturally, a value-decreasing takeover \((v < 0)\) might succeed if the bidder makes an offer above the status quo value, \(b \geq 0\). However, making such an offer would clearly violate the bidder’s participation constraint.
Consider first stage 3, where the bidder must decide how much value to divert as private benefits. If the bidder gains control, he chooses $\phi$ to maximize

$$\beta \phi v - F + (1 - \phi) v,$$

where $\beta \phi v$ are the security benefits associated with the bidder’s equity stake, $\beta$, $F$ is the value of the claims issued against these security benefits as part of the takeover’s financing, and $(1 - \phi) v$ are the bidder’s private benefits. Since, by assumption, $F$ is non-decreasing in the underlying security benefits, the bidder’s objective function is decreasing in $\phi$, implying that maximum diversion is optimal: $\phi = \tilde{\phi}$.\(^{11}\) Thus, legal investor protection constitutes a binding constraint on the bidder’s diversion, and the value of the security benefits, $\beta \tilde{\phi} v$, increases with the strength of legal investor protection, $\tilde{\phi}$.

Consider next stage 2, where the target shareholders must decide whether to tender their shares. Being atomistic, target shareholders tender only if the bid price equals or exceeds the post-takeover value of the security benefits (Bradley, 1980; Grossman and Hart, 1980). Consequently, a successful tender offer must satisfy the “free-rider condition”

$$b \geq \tilde{\phi} v.$$\(^{(2)}\)

If this condition holds with equality, target shareholders are indifferent between tendering and not tendering. Without any loss of generality, we break the indifference in favor of tendering.\(^{12,13}\) Thus, if the takeover succeeds, it succeeds with $\beta = 1$.

Consider finally stage 1, where the bidder must choose the offer price $b$ and secure financing for the takeover. A successful offer must satisfy the free-rider condition (2) as well as two further conditions. First, the offer must be profitable for the bidder, i.e., it must satisfy

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\(^{11}\)Taking the derivative of expression (1) with respect to $\phi$ yields $\beta v - F'(\beta \phi v) \beta v - v$. Given that $F'$ is non-negative, $\phi = \tilde{\phi}$ is a global maximum. This maximum is unique if $F' > 0$ at $\phi = \tilde{\phi}$.

\(^{12}\)See Grossman and Hart (1980, pp. 45-47). A common motivation for this assumption is that the bidder could always break the indifference by raising the bid price infinitesimally.

\(^{13}\)A small (technical) caveat: we break the indifference in favor of tendering only if the outcome is such that the takeover succeeds. This means that failure can still be supported as an equilibrium outcome.
his participation constraint. For $\beta = 1$, this constraint can be written as

$$v - b - c \geq 0. \quad (3)$$

Note that the claims issued to outside investors and the funds provided by them do not appear in the bidder’s participation constraint. They cancel out as investors are competitive.

Second, the bidder must be able to finance the offer, i.e., it must satisfy his budget constraint. For $\beta = 1$, this constraint can be written as

$$A + \phi v \geq b + c. \quad (4)$$

The LHS is the bidder’s total budget. Indeed, the bidder can pledge to outside investors no more than the value of the security benefits associated with his (future) stake, $\beta = 1$, implying his outside funding capacity is limited to $\phi v$. The RHS represents the bidder’s need for funds, which includes the bid price as well as the execution cost, $c$.

Minimizing the bid price relaxes both the bidder’s budget constraint and his participation constraint. Therefore, the optimal bid price will be such that the free-rider condition holds with equality:

$$b = \phi v. \quad (5)$$

Given (5), the budget and participation constraint become

$$A \geq c \quad (6)$$

and

$$(1 - \phi)v \geq c, \quad (7)$$

respectively.

Note that the budget constraint (6) does not depend on the strength of legal investor protection, $\phi$. In the original budget constraint (4)—i.e., before inserting the free-rider condition—the bidder’s outside funding capacity increases with $\phi$. Indeed, stronger legal investor protection limits the ease with which the bidder, once in control, can extract pri-
vate benefits at the expense of other investors. This increases pledgeable income, thereby increasing the bidder’s outside funding capacity. However, once the free-rider condition is accounted for, this increased outside funding capacity does not relax the bidder’s budget constraint, as the bid price—and thus the bidder’s need for funds—must increase in lockstep: $b = \phi v$. Ultimately, the bidder’s budget constraint is thus independent of $\phi$.\(^\text{14}\) Furthermore, with all pledgeable value being captured by the target shareholders through the bid price, none of this value can be used to raise funds to cover the execution cost, $c$. Accordingly, the execution cost must be funded entirely from the bidder’s own wealth, $A$.

The more familiar participation constraint (7) reflects the fact that free-riding by target shareholders limits the bidder’s profit from the takeover to his private benefits net of any execution cost, $c$ (Grossman and Hart, 1980). Stronger legal investor protection reduces the bidder’s private benefits, thus tightening his participation constraint.

Combining (6) and (7), we have the following result.

**Lemma 1.** The bidder takes over the target if and only if

$$\min\{ (1 - \phi) v, A \} \geq c. \quad (8)$$

In sum, legal investor protection affects the takeover process in two ways. On the one hand, stronger legal investor protection reduces the bidder’s profit, making the takeover less likely. On the other hand, stronger legal investor protection increases pledgeable income, thereby increasing the bidder’s outside funding capacity. This latter effect is immaterial, however, as the bid price, and thus the bidder’s need for funds, must increase in lockstep with his pledgeable income.

We conclude with a statement about the effect of legal investor protection on the takeover likelihood. In condition (8), the LHS (weakly) decreases with $\phi$. Therefore, as legal investor protection improves, it becomes less likely that the bidder takes over the target.\(^\text{15}\)

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\(^{14}\)If the budget constraint (6) is slack, the amount of external funds raised is indeterminate. This is because the bidder is indifferent between financing the bid partly with his remaining wealth, $A - c$, and financing it with external funds.

\(^{15}\)Here, and elsewhere, we say that an event is more likely if it occurs for a larger set of parameter values.
Proposition 1. Absent effective bidding competition, efficient takeovers are less likely to succeed when legal investor protection is strong.

Conditional on the takeover succeeding, target shareholders benefit from stronger legal investor protection, as it raises the bid price. However, from an efficiency standpoint, this is immaterial, as it merely constitutes a wealth transfer from the bidder to the target shareholders. In contrast, the adverse effect of legal investor protection on the bidder’s participation constraint has implications for efficiency, as it makes it more likely that efficient takeovers may not succeed in the first place.

Turning the above result on its head, if the bid price did not increase in lockstep with the bidder’s pledgeable income, the positive effect of stronger legal investor protection on the bidder’s outside funding capacity might have real implications for efficiency. A situation in which this arises naturally is bidding competition, where bidders are forced to make offers exceeding the value of their pledgeable security benefits.

4 Bidding Competition

As we remarked earlier, the single-bidder case does not literally rule out that there are multiple bidders competing over the target. It merely implies that such competition is ineffective, in the sense that the binding constraint is shareholder approval—given by the free-rider condition (5)—and not outbidding of rivals. More generally, a successful bid must win the approval of target shareholders and match any competing offers. Effective bidding competition, by definition, implies that the requirement to outbid any rival, rather than winning shareholder approval, determines the winning bid price.

We consider two potential bidders, 1 and 2, competing to gain control of the target. Bidder \(i = 1, 2\) has wealth \(A_i\). If bidder \(i\) gains control, the target’s value increases to \(v_i > 0\), where \(v_1 > v_2\) without loss of generality. Regardless of which bidder gains control, his ability to extract private benefits is limited by the same legal environment, \(\varphi\). (Section 5.3 considers the case in which bidders come from different legal environments.) The takeover process is the same as in the single-bidder case, except that both bidders make their offers, \(b_1\) and \(b_2\), simultaneously.
In stage 3, as before, the controlling bidder finds it optimal to divert a fraction \((1 - \bar{\phi})\) of the target’s value as private benefits. In stage 2, the target shareholders can be faced with up to two offers. The case of a single offer is as before.

**Lemma 2.** In a Pareto-dominant equilibrium, the winning bid is the highest bid among those satisfying \(b_i \geq \bar{\phi}v_i\), if any.

In stage 1, the bidders must decide whether to bid for the target. If so, they make their offers simultaneously. Denote by \(\hat{b}_i\) the highest offer which bidder \(i\) is willing and able to make. That is, \(\hat{b}_i\) is the highest value of \(b_i\) satisfying the bidder’s participation constraint,

\[
v_i - b_i - c \geq 0,
\]

and his budget constraint,

\[
A_i + \bar{\phi}v_i \geq b_i + c.
\]

Given (9) and (10), the highest offer which bidder \(i\) is willing and able to make is

\[
\hat{b}_i = \bar{\phi}v_i + \min \{(1 - \bar{\phi})v_i, A_i\} - c.
\]

This expression is intuitive. The first term on the RHS represents the security benefits if bidder \(i\) gains control of the target. The bidder is both willing and able to pay for these benefits as he can pledge their value to outside investors. The third term is the execution cost, \(c\). All else equal, it reduces the bidder’s willingness to pay for the target. The second term is the minimum of the bidder’s private benefits and his wealth, which increase his willingness and ability, respectively, to pay for the target.

**Lemma 3.** Bidder 1 takes over the target if and only if

\[
\min \{(1 - \bar{\phi})v_1, A_1\} \geq c
\]

and

\[
A_1 \geq \min \{(1 - \bar{\phi})v_2, A_2\} - \bar{\phi}(v_1 - v_2).
\]
The result lays out two conditions for bidder 1 to win the takeover contest. Condition (12) is as in the single-bidder case, i.e., bidder 1 must be willing to incur and able to fund the execution cost, $c$. Observe that this condition is independent of bidder 2’s presence or his characteristics. If condition (12) does not hold, there is either no bidding competition or no bidding at all.\footnote{If $\min\{(1 - \overline{\phi})v_1, A_1\} = (1 - \overline{\phi})v_1 < c$, then both bidders’ participation constraints are violated as $\min\{(1 - \overline{\phi})v_2, A_2\} \leq (1 - \overline{\phi})v_2 < (1 - \overline{\phi})v_1$. In that case, there is no bidding at all.} To allow for bidding competition, we shall henceforth assume that $c$ is small enough so that this condition holds.

**Assumption 1.** $\min\{(1 - \overline{\phi})v_1, A_1\} \geq c$.

Condition (13) arises solely due to bidding competition. It determines under what conditions bidder 1’s maximum offer, $\widehat{b}_1$, exceeds bidder 2’s maximum offer, $\widehat{b}_2$. As is shown, bidder 1’s own wealth, $A_1$, must exceed some minimum threshold. Accordingly, the RHS in condition (13) captures the extent to which bidding competition tightens bidder 1’s budget constraint. Importantly, the RHS decreases with $\overline{\phi}$. Hence, as legal investor protection improves, bidding competition has less of a tightening effect on bidder 1’s budget constraint, making it more likely that he can outbid his less efficient rival, bidder 2.

**Proposition 2.** Under effective bidding competition, efficient takeovers are more likely to succeed when legal investor protection is strong.

To gain some intuition, we must distinguish between two cases. Suppose first that the more efficient bidder is also wealthier ($A_1 \geq A_2$). In that case, condition (13) always holds, implying that bidder 1 always wins the takeover contest, irrespective of the strength of legal investor protection, $\overline{\phi}$. Indeed, bidder 1 not only has a higher valuation for the target, but he also has a larger budget: he has both more internal funds ($A_1 \geq A_2$) and more outside funding capacity ($\overline{\phi}v_1 > \overline{\phi}v_2$). Thus, while bidder 2’s presence may force bidder 1 to raise his bid, it will never exhaust his budget constraint. By implication, legal investor protection is irrelevant for the efficiency of the takeover outcome.

Suppose next that the less efficient bidder is wealthier ($A_1 < A_2$). When legal investor protection is weak, the outcome is now more likely to be inefficient. As an illustration,
consider the extreme case in which investors enjoy no legal protection ($\bar{\phi} = 0$). In that case, the two bidders have no outside funding capacity, meaning they must rely entirely on their own funds, $A_i$, to finance their bids. While bidder 1 has a higher valuation for the target, his budget is tighter than bidder 2’s budget, possibly so tight as to prevent him from making an offer exceeding bidder 2’s offer. In that case, bidder 2 wins, and the outcome is inefficient. As legal investor protection improves, both bidders can pledge a larger fraction of the firm value, which relaxes both their budget constraints. However, because bidder 1 can create more value, his budget increases more than bidder 2’s budget, making it more likely that he can outbid his less efficient rival, bidder 2.\footnote{In the budget constraint (10), the LHS increases with $\bar{\phi}$ at a rate of $v_i$. Since $v_1 > v_2$, a given increase in $\bar{\phi}$ therefore increases bidder 1’s budget more than it increases bidder 2’s budget.}

More formally, it follows from condition (13) that if $A_1 \geq \min\{v_2, A_2\}$, the takeover outcome is efficient for any value of $\bar{\phi}$, i.e., irrespective of the legal environment. Conversely, if $A_1 < \min\{v_2, A_2\}$, there exists a critical value, $\bar{\phi}$, such that the takeover outcome is efficient if and only if $\bar{\phi} \geq \bar{\phi}$.

To summarize, if bidders are financially constrained, legal investor protection can influence the efficiency of the takeover outcome. By boosting bidders’ ability to borrow against the value they can create, stronger legal investor protection makes it more likely that the most efficient bidder can outbid any less efficient rival.

We conclude by examining whether—conditional on the takeover succeeding—target shareholders benefit from stronger legal investor protection. To win the takeover contest, a bidder must not only outbid any rival, but his offer must also satisfy the free-rider condition. Accordingly, the winning bid is given by $b^*_i = \max_{j \neq i} \left\{ \hat{b}_j, \bar{\phi}v_i \right\}$. As the losing bidder’s maximum offer, $\hat{b}_j$, (at least weakly) increases with $\bar{\phi}$, this implies that the winning bid, $b^*_i$, also increases with $\bar{\phi}$. Thus, conditional on the takeover succeeding, target shareholders benefit from stronger legal investor protection, as it raises the winning bid price.

Intuitively, stronger legal investor protection affects the winning bid price through two channels. First, it increases the value of the security benefits regardless of the winning bidder’s identity ($\bar{\phi}v_i$ increases with $\bar{\phi}$), thus forcing each bidder to raise his bid. Second, stronger legal investor protection increases both bidders’ outside funding capacity, allowing
them to compete more fiercely for the target’s shares ($\hat{b}_i$ is weakly increasing in $\phi$). For both reasons, stronger legal investor protection increases the winning bid price. Consistent with our result, Rossi and Volpin (2004) find that takeover premia are higher in countries with stronger legal investor protection.

5 Implications

In this section, we explore a number of implications of our analysis. For simplicity, we assume throughout that $c = 0$.

5.1 “One Share–One Vote”

In our main analysis, we assumed that all of the target’s shares have equal voting rights. We now study the effect of departures from “one share–one vote” on the efficiency of the takeover outcome. Suppose the target has a dual-class share system: a fraction $\alpha \in (0, 1]$ of the shares have (equal) voting rights, while the remaining shares are non-voting. A “one share–one vote” structure corresponds to $\alpha = 1$.

In stage 3, as before, the controlling bidder finds it optimal to divert a fraction $(1 - \phi)$ of the target’s value as private benefits. In stage 2, target shareholders of different voting classes may face different bids, which they each must accept or reject. That is, we explicitly allow bidders to make different bids for voting and non-voting shares. As it turns out, this problem can be simplified.

**Lemma 4.** Without any loss of generality, we can assume that bidders make a bid only for voting shares.

From the bidder’s perspective, it is immaterial whether or not he acquires non-voting shares: they do not help him gaining control. Thus, the maximum he is willing to pay for non-voting shares is their “fundamental” value, as given by their security benefits, $\phi v_i$.\(^\text{18}\) (In

\(^{18}\)As is customary in the literature, we express bids in terms of a measure one of shares. Given that a fraction $(1 - \alpha)$ of the target’s shares are non-voting, this means that the bidder is willing to pay up to $(1 - \alpha)\overline{\phi} v_i$ for the block of non-voting shares.
contrast, as shown in the previous section, bidders may offer a higher price for voting shares to gain control of the target.) On the other side, due to free-riding, non-voting shareholders will tender only if the bid price is at least $\bar{\phi}v_i$. Consequently, the only price at which a transaction may occur is $\bar{\phi}v_i$. At this, price, however, both parties (bidder and non-voting shareholders) are indifferent between trading and not trading. Thus, without any loss of generality, we can assume that bidders do not make a bid for non-voting shares.

The shareholders’ tendering decision is the same as in Section 4. Hence, Lemma 2 applies, and voting shareholders tender to the highest bidder such that $b_i \geq \bar{\phi}v_i$, if any. In stage 1, the bidders must decide whether to bid for the target. Hence, we must again characterize $\hat{b}_i(\alpha)$, the highest offer which bidder $i$ is willing and able to make, i.e., the highest value of $b_i$ satisfying his participation constraint,

$$\alpha \bar{\phi}v_i + (1 - \bar{\phi})v_i - \alpha b_i \geq 0,$$  \hspace{1cm} (14)

and his budget constraint,

$$A_i + \alpha \bar{\phi}v_i \geq \alpha b_i.$$  \hspace{1cm} (15)

In the participation constraint (14), $\alpha \bar{\phi}v_i$ are the security benefits associated with voting shares, $(1 - \bar{\phi})v_i$ are the bidder’s private benefits, and $\alpha b_i$ is the total payout to the voting shareholders. In the budget constraint (15), the LHS is the bidder’s total budget, consisting of his own wealth, $A_i$, and his outside funding capacity, $\alpha \bar{\phi}v_i$, while the RHS reflects the bidder’s need for funds.

Given (14) and (15), the highest offer which bidder $i$ is willing and able to make is

$$\hat{b}_i = \bar{\phi}v_i + \frac{1}{\alpha} \cdot \min \{(1 - \bar{\phi})v_i, A_i\}.$$  \hspace{1cm} (16)

(As always, we express bids in terms of a measure one of shares; see footnote 18.) Expression (16) resembles (11), except that $c = 0$, and except that the second term on the RHS is normalized by the fraction of voting shares, $\alpha$. Indeed, when not all shares carry a vote, the bidder’s willingness and ability to pay, respectively, is spread across fewer shares, which increases the maximum offer he is willing and able to make (for the voting shares). In
particular, the bidder’s willingness to pay is higher, because he can now obtain the same private benefits, \((1 - \bar{\phi})v_i\), by acquiring fewer shares. Likewise, his ability to pay is higher, because he can now use his given wealth, \(A_i\), for the acquisition of fewer shares.

**Lemma 5.** *Bidder 1 takes over the target if and only if*

\[
A_1 \geq \min \{(1 - \bar{\phi})v_2, A_2\} - \alpha \bar{\phi}(v_1 - v_2).
\]

By inspection, the RHS decreases with \(\alpha\). Thus, the likelihood that bidder 1 wins the takeover contest is highest under a “one share–one vote” structure.

**Proposition 3.** *“One share–one vote” is socially optimal.*

To gain some intuition, we must distinguish between two cases. Suppose first that the more efficient bidder is also wealthier \((A_1 \geq A_2)\). In that case, condition (17) holds for any value of \(\alpha\). That is, the takeover outcome is always efficient, irrespective of the fraction of voting shares. The intuition is the same as previously: not only does bidder 1 have a higher valuation for the target, but he also has a larger budget. Hence, bidder 1 can always outbid his less efficient rival, bidder 2.

Suppose next that the less efficient bidder is wealthier \((A_1 < A_2)\). If \(A_1\) is sufficiently large, the takeover outcome is again efficient, irrespective of the fraction of voting shares. This situation—i.e., when both bidders are financially unconstrained—is the situation analyzed in much of the theory of takeovers (see Introduction). On the other hand, if \(A_1\) is relatively small, the takeover outcome may be inefficient. Indeed, while bidder 1 has a higher *willingness to pay* for the target, bidder 2’s *ability to pay* may be higher due to his larger wealth. As an illustration, consider expression (16), which defines the maximum offer which bidder \(i\) is willing and able to make. If \(A_i \leq (1 - \bar{\phi})v_i\), this expression becomes

\[
\tilde{b}_i = \bar{\phi}v_i + \frac{A_i}{\alpha}.
\]

Clearly, even though bidder 1 can create more security benefits \((\bar{\phi}v_1 > \bar{\phi}v_2)\), his maximum offer may be lower than bidder 2’s if \(A_2\) is larger than \(A_1\). Intuitively, the effect of bidder
wealth on the maximum offer is larger when $\alpha$ is smaller, because a given amount of wealth can then be spread across fewer shares. In expression (18), the term $\frac{1}{\alpha}$ thus acts like a “wealth multiplier.” By implication, the likelihood that bidder 2—who is less efficient than bidder 1 but has more wealth—wins the takeover contest is thus larger the smaller is $\alpha$.

More formally, it follows from condition (17) that if $A_1 \geq \min \{(1-\phi)v_2, A_2\}$, the takeover outcome is efficient for any value of $\alpha$, i.e., irrespective of the fraction of voting shares. Likewise, if $A_1 < \min \{(1-\phi)v_2, A_2\} - \phi(v_1 - v_2)$, the takeover outcome is inefficient irrespective of $\alpha$. In all intermediate cases, there exists a critical value, $\hat{\alpha}$, given by

$$\hat{\alpha} = \frac{\min \{(1-\phi)v_2, A_2\} - A_1}{\phi(v_1 - v_2)},$$

(19)

such that the takeover outcome is efficient if and only if $\alpha \geq \hat{\alpha}$. By inspection, $\hat{\alpha} = \hat{\alpha}(\bar{\phi})$ is decreasing in the strength of legal investor protection, $\bar{\phi}$. Hence, departures from “one share–one vote” are more likely to lead to an inefficient takeover outcome when legal investor protection is weak. (Conversely, weak legal investor protection is more likely to lead to an inefficient takeover outcome the lower is the fraction of voting shares, $\alpha$.)

**Corollary 1.** Deviations from “one share–one vote” are more likely to lead to an inefficient takeover outcome when legal investor protection is weak.

Our results must be contrasted with those of Grossman and Hart (1988, GH) and Harris and Raviv (1988, HR) who, like us, find that “one share–one vote” is socially optimal. The economics of the results, however, are fundamentally different. In their models, departures from “one share–one vote” may allow bidders with low security benefits but high private benefits to win over bidders with high security benefits but low private benefits, even if the former are less efficient (i.e., they generate lower total (= security + private) benefits). In our model, this is not possible, as security and private benefits are positively aligned. That is, our model assumes that bidders can divert more value in absolute (i.e., dollar) terms from larger firms. In contrast, in GH and HR, bidders may divert more value in absolute terms from smaller firms.

The converse is also true: the main inefficiency in our model—which is minimized under
“one share–one vote”—cannot arise in GH and HR. In our model, the inefficiency is not that less efficient bidders may have a higher *willingness* to pay—as in GH and HR, where such bidders may enjoy larger private benefits—but rather that they may have a higher *ability* to pay. Hence, in our model, the sole reason why efficient takeovers may not materialize is because bidders are financially constrained. In contrast, in GH and HR, bidders are arbitrarily wealthy, so financing constraints play no role.

### 5.2 Sales of Control

In our main analysis, we assumed that ownership of the target is widely dispersed among many small shareholders. We now extend our analysis to the case in which the target has a controlling shareholder (“incumbent”). The incumbent holds a controlling fraction $\beta \geq 0.5$ of the target’s shares and generates firm value $v_0 \geq 0$, which is divided into security benefits $\phi v_0$ and private benefits $(1 - \phi) v_0$. As before, the target faces a potential acquirer (“bidder”). If the bidder gains control, the target’s value increases to $v_1 > v_0$.

A transfer of control must be agreeable to both parties, since the incumbent can always block or authorize the transfer at will. Accordingly, a transfer of control may occur only if the bidder is willing and able to compensate the incumbent for the sale of his controlling block. Consistent with the law in the United States, we assume that the target’s minority shareholders enjoy no rights in this sale-of-control transaction. That is, the bidder is under no obligation to extend his offer to the target’s minority shareholders. In fact, he is under no obligation to make them any offer at all.$^{19}$

In stage 3, as before, the bidder finds it optimal to divert a fraction $(1 - \phi)$ of the target’s value as private benefits. In stage 2, the incumbent and the target’s minority shareholders enjoy no rights in this transaction.

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$^{19}$This rule, which is the prevailing rule in the United States, is known as “market rule” (MR, see Elhauge, 1992; Bebchuk, 1994). Schuster (2010, p. 13) defines “the MR as a legal framework that:

(i) allows the incumbent controller to sell his shares together with the effective control over the company at any price he is able to achieve, without having to share the proceeds with his fellow shareholders (and/or the company);

(ii) does not require the acquirer of the shares to offer to the remaining shareholders to buy the residual shares; and

(iii) allows the acquirer to *voluntarily* make an offer for the residual shares, at any price he thinks fit, without any reference to the price he paid to the (former) blockholder [italics in original].”

Given that the MR imposes no obligations on the acquirer, “the MR is probably best described as the absence of a rule, rather than a rule” (Schuster, 2010, p. 8).
may face different bids, which they each must accept or reject. Notice the analogy to our analysis in Section 5.1. There, we assumed without loss of generality that bidders do not make a bid for non-voting shares. Likewise, here, the bidder has nothing to gain from acquiring minority shares: they do not help him gaining control, and the only price at which a transaction may occur is at their “fundamental” value, $\bar{v}_1$, making everybody indifferent between trading and not trading. In the spirit of Lemma 4, we can thus assume, without any loss of generality, that the bidder does not make a bid for minority shares.

We must again characterize $\hat{b}_1(\beta)$, the highest offer which the bidder is willing and able to make, i.e., the highest value of $b_1$ satisfying his participation constraint,

$$\beta\bar{v}_1 + (1 - \bar{\phi})v_1 - \beta b_1 \geq 0,$$

and his budget constraint,

$$A_1 + \beta\bar{v}_1 \geq \beta b_1.$$  

Conditions (20) and (21) are similar to (14) and (15), except that $\alpha$ is replaced with $\beta$ (and except that the subscript $i$ is replaced with 1). Accordingly, the highest offer which the bidder is willing and able to make is

$$\hat{b}_1 = \bar{v}_1 + \frac{1}{\beta} \cdot \min \{(1 - \bar{\phi})v_1, A_1\}.$$  

On the other hand, the incumbent’s valuation for the controlling block is

$$\beta b_0 = \beta\bar{v}_0 + (1 - \bar{\phi})v_0.$$  

For a sale-of-control transaction to occur, the highest offer which the bidder is willing and able to make for the controlling block, $\beta\hat{b}_1$, must equal or exceed the incumbent’s valuation for the controlling block, $\beta b_0$. Otherwise, there are no gains from trade.\(^{20}\)

\(^{20}\)The sale will occur at a price $p \in [\beta b_0, \beta\hat{b}_1]$ depending on the incumbent’s and the bidder’s relative bargaining powers. For our purposes, the value of $p$ is not important, as it does not affect efficiency.
Lemma 6. The bidder takes over the target if and only if

\[ A_1 \geq (1 - \phi)v_0 - \beta\phi(v_1 - v_0). \] (24)

Notice the similarity between condition (24) and condition (17). The latter is derived from the requirement that bidder 1’s maximum offer for the block of voting shares, \(\alpha b_1\), must exceed bidder 2’s maximum offer, \(\alpha b_2\). Likewise, condition (24) is derived from the requirement that the bidder’s maximum offer for the controlling block, \(\beta b_1\), must exceed the incumbent’s valuation, \(\beta b_0\). The only major difference is that the incumbent’s wealth does not enter into condition (24). As the incumbent already owns the controlling block, his ability to pay for it is irrelevant.

By inspection, the RHS of (24) decreases with \(\beta\). Thus, the likelihood that the bidder gains control increases with the size of the incumbent’s controlling block.

Proposition 4. Efficient sales of control are more likely to succeed when the incumbent’s controlling block is large (as a fraction of total shares).

To gain some intuition, recall that the incumbent’s wealth plays no role. The incumbent can always “afford” the controlling block by simply refusing to sell. Accordingly, whether or not the sale of control takes place depends solely on the bidder’s wealth, \(A_1\). If \(A_1\) is sufficiently large, the sale of control always takes place, irrespective of the size of the controlling block, \(\beta\). Thus, once again, absent any financial constraints, the takeover outcome is always efficient. However, if the bidder is financially constrained, the sale of control may not take place. The intuition is analogous to that in our previous analysis. In a sense, the incumbent is like a rival bidder who is arbitrarily wealthy. Like in Section 5.1, where a smaller voting block, \(\alpha\), amplified the relative advantage of the wealthier (but less efficient) bidder, here, a smaller controlling block, \(\beta\), amplifies the relative advantage of the wealthier (but less efficient) incumbent.

More formally, it follows from condition (24) that if \(A_1 \geq (1 - \phi)v_0 - \frac{1}{2}\phi(v_1 - v_0)\), the sale of control always takes place, irrespective of the size of the controlling block, \(\beta\). Likewise, if \(A_1 < (1 - \phi)v_0 - \phi(v_1 - v_0)\), the sale of control never takes place. In all intermediate cases,
there exists a critical value, $\tilde{\beta} \geq 0.5$, given by

$$\tilde{\beta} = \frac{(1 - \overline{\phi})v_0 - A_1}{\overline{\phi}(v_1 - v_0)},$$

(25)

such that the sale of control takes place if and only if $\beta \geq \tilde{\beta}$. By inspection, $\tilde{\beta} = \tilde{\beta}(\overline{\phi})$ is decreasing in the strength of legal investor protection, $\overline{\phi}$.

**Corollary 2.** Efficient sales of control are more likely to succeed when legal investor protection is strong.

Our results must be contrasted with those of Bebchuk (1994) who, like us, finds that efficient sales of control may not succeed. (Bebchuk also considers the case in which the bidder is less efficient than the incumbent and shows that inefficient sales of control may occur.) Like in Section 5.1—where we contrasted our results with GH and HR—the economics of the results are fundamentally different, however. In Bebchuk’s model—like in GH and HR—bidders with low security benefits but high private benefits may win over bidders with high security benefits but low private benefits, even if the former are less efficient. Thus, inefficiencies may arise because bidders may divert more value in absolute terms from smaller firms. In our model, this is not possible, as security and private benefits are positively aligned. Conversely, the main inefficiency in our model cannot arise in Bebchuk’s model. In our model, efficient sales of control may not take place because bidders are financially constrained. In contrast, in Bebchuk’s model—like in GH and HR—bidders are arbitrarily wealthy, so financing constraints play no role.

Up to now, we have taken the incumbent’s controlling block, $\beta$, as exogenously given. In what follows, we discuss how it can be endogenized. Suppose the incumbent is initially the firm’s sole owner. In the spirit of Zingales (1995), the incumbent can retain a controlling block, $\beta \geq 0.5$, and sell the remaining shares, $1 - \beta$, to dispersed investors. As in Zingales’ analysis, everybody has rational expectations about the (future) control transfer. For simplicity, we assume the bidder has full bargaining power when negotiating with the incumbent. Also, we assume that $A_1 \geq (1 - \overline{\phi})v_0 - \overline{\phi}(v_1 - v_0)$. Otherwise, the transfer of control will never take place (see above).
From our previous analysis, we know that the sale of control succeeds if and only if condition (24) holds. In that case, given the bidder’s full bargaining power, he acquires the controlling block at a price equal to the incumbent’s valuation,

$$\beta \tilde{v}_0 + (1 - \beta) v_0.$$  \hspace{1cm} (26)

(If the bidder did not have full bargaining power, the price would be higher, and expression (26) would need to be adjusted accordingly.)

When the incumbent sells shares to dispersed investors, they rationally anticipate the control transfer, implying they are willing to pay $(1 - \beta) \tilde{v}_1$ for the block of minority shares. Overall, and as long as condition (24) holds, the incumbent’s total payoff is therefore

$$\beta \tilde{v}_0 + (1 - \beta) v_0 + (1 - \beta) \tilde{v}_1.$$ \hspace{1cm} (27)

Given that $v_1 > v_0$, the incumbent’s total payoff decreases with $\beta$. On the other hand, condition (24) becomes tighter as $\beta$ decreases. Consequently, the incumbent chooses the smallest value of $\beta \geq 0.5$ that is compatible with condition (24).

**Proposition 5.** The incumbent’s optimal controlling stake is

$$\beta^* = \max \left\{ \frac{(1 - \bar{\phi}) v_0 - A_1}{\bar{\phi}(v_1 - v_0)}, 0.5 \right\}. \hspace{1cm} (28)$$

Zingales (1995) also models the incumbent’s choice of a controlling block in anticipation of a future control transfer. Moreover, he also assumes that the (future) bidder is more efficient than the incumbent. However, Zingales assumes that the bidder is arbitrarily wealthy. In our model, if the bidder is sufficiently wealthy, the incumbent’s optimal controlling stake is always $\beta^* = 0.5$. In contrast, if the bidder is financially constrained—precisely, if $A_1 < (1 - \bar{\phi}) v_0 - \frac{1}{2} \bar{\phi}(v_1 - v_0)$—the incumbent’s problem has a non-trivial solution $\beta^* > 0.5$. By inspection, $\beta^*$ decreases with the strength of legal investor protection, $\bar{\phi}$.

**Corollary 3.** The incumbent’s optimal controlling stake is larger when legal investor protection is weak.
Our result is consistent with empirical evidence by La Porta et al. (1998, 1999), who find that ownership is more concentrated in countries with weaker legal investor protection.

### 5.3 Cross-Border M&A

In our main analysis, we assumed both bidders are from the same legal environment, $\phi$. We now extend our analysis to the case in which bidders come from different legal environments. Without loss of generality, we assume that $\phi_1 > \phi_2$, i.e., bidder 1 comes from an environment with stronger legal investor protection. To isolate the effects of legal investor protection on the takeover outcome, we assume both bidders have the same wealth, $A$, and can create the same value, $v$. This way, if a bidder wins the takeover contest, it will be exclusively due to differences in legal investor protection, and not because he is wealthier or can create more value. In other words, we study the effects of legal investor protection on the takeover outcome holding constant bidders’ wealth and their ability to create value.

In a typical cross-border M&A transaction, the target adopts the corporate governance structures, accounting standards, and disclosure practices of the country of the acquirer (Rossi and Volpin, 2004; Bris and Cabolis, 2008; Chari, Ouimet, and Tesar, 2009).\(^{21}\) Hence, if bidder $i$ wins the takeover contest, his private benefits are $(1 - \bar{\phi}_i)v$, while the security benefits are $\bar{\phi}_i v$. Note that—in contrast to our previous analysis—private and security benefits are no longer positively aligned: while bidder 1 generates higher security benefits, his private benefits are lower than bidder 2’s. On the other hand—and also in contrast to our previous analysis—both bidders now generate the same total (= security + private) benefits. From an efficiency standpoint, it is thus immaterial who wins the takeover contest. Hence, the question here is not whether efficient takeovers succeed, but rather if, and under what conditions, bidders from environments with stronger legal investor protection can outbid rivals from environments with weaker legal investor protection.

A brief comment is in order. In principle, the target’s minority shareholder protection could become worse if the acquirer comes from an environment with weaker legal investor protection.

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\(^{21}\)As Rossi and Volpin (2004) note, cross-border M&A is an important channel for effective worldwide convergence in corporate governance standards, i.e., “functional convergence” (Coffee, 1999; Gilson, 2001) without any formal changes in the law.
Empirically, this case seems less relevant, however. First, in the majority of cross-border M&A deals, the acquirer comes from a country with stronger, not weaker, legal investor protection (Rossi and Volpin, 2004; Bris and Cabolis, 2008; Chari, Ouimet, and Tesar, 2009), implying that, “[o]n average, shareholder protection increases in the target company via the cross-border deal” (Rossi and Volpin, 2004, p. 291). Second, as Bris and Cabolis (2008) note, “the legal system of the acquiror is just the legal minimum, above which the merging parties can contract upon” (p. 606), implying that “[f]irms may overcome the reduction in investor protection induced by these deals by means of private contracts” (p. 609). To avoid these issues altogether, we may assume that legal investor protection in the country of the target, $\overline{\phi}_0$, is less than or equal to $\overline{\phi}_2$.

In the special case where $\overline{\phi}_0 = \overline{\phi}_2$, our model analyzes competition between a domestic bidder and a foreign bidder coming from a country with stronger legal investor protection.

The analysis is analogous to that in Section 4, except that $\overline{\phi}_i$ is bidder-specific, while both $A$ and $v$ are identical across bidders. Accordingly, the highest offer which bidder $i$ is willing and able to make is

$$\hat{b}_i = \overline{\phi}_i v + \min \left\{ (1 - \overline{\phi}_i)v, A \right\} . \tag{29}$$

**Proposition 6.** If $A \geq (1 - \overline{\phi}_2)v$, the takeover outcome is indeterminate. Otherwise, the bidder from the country with stronger legal investor protection wins the takeover contest.

To gain some intuition, we must distinguish between three cases. The first case is $A \geq (1 - \overline{\phi}_2)v$. In this case, neither of the two bidders is financially constrained. As a result, both bidders can make a bid up to the full value of their combined private and security benefits, $\hat{b}_i = \overline{\phi}_i v + (1 - \overline{\phi}_i)v = v$, which implies the takeover outcome is indeterminate. Also, note that the winning bidder makes zero profit, just like in the single-bidder case, where the free-rider condition binds.

The second case is $(1 - \overline{\phi}_2)v > A \geq (1 - \overline{\phi}_1)$. This case illustrates perhaps best the strategic advantage of strong legal investor protection in takeover contests. While bidder 1 generates

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22 "The target almost always adopts the governance standards of the acquirers, whether good or bad" (Rossi and Volpin, 2004, p. 300, italics added). Likewise, “the new law can be less protective than before, a type of legal reform that is unheard of in the literature” (Bris and Cabolis, 2008, p. 606).
higher security benefits than bidder 2, this imposes no constraint on his budget. As security benefits are pledgeable, their funding can always be secured from outside investors. Private benefits, on the other hand, are not pledgeable. Thus, their funding must come entirely from the bidders’ own wealth. As bidder 2 generates higher private benefits, this imposes a bigger constraint on his budget. Precisely, even though both bidders have the same wealth, bidder 1 can fund his entire private benefits out of his own wealth, \( A > (1 - \overline{\phi}_1) \), while bidder 2 can only partly do so, \( A < (1 - \overline{\phi}_2) \). As a result, bidder 1 can make a bid up to the full value of his combined private and security benefits, \( \widehat{b}_1 = v \), while bidder 2 can only make a lower bid, \( \widehat{b}_2 = \overline{\phi}_2 v + A < v \).

The third case is \( A < (1 - \overline{\phi}_1) \). This case is similar to the second case, except that bidder 1 can no longer fund his entire private benefits out of his own wealth. As a result, both bidders can bid up to \( \widehat{b}_i = \overline{\phi}_i v + A \). However, as bidder 1 generates higher security benefits, this implies, once again, that he can outbid his rival, bidder 2.

In sum, when bidders are financially constrained, what matters is not only the total value they can create, but also how this value is divided between security and private benefits. As private benefits are not pledgeable, bidders with higher private benefits but lower security benefits may face tighter budget constraints and, therefore, lose out to bidders with lower private benefits but higher security benefits.

We can again ask if target shareholders benefit from stronger legal investor protection. In the first and second case above, the winning bid is \( \widehat{b}_i = v \), which is independent of \( \overline{\phi}_i \). In contrast, in the third case, the winning bid is \( \widehat{b}_1 = \overline{\phi}_1 v + A \), which increases with \( \overline{\phi}_1 \).

Thus, overall, the winning bid (weakly) increases with the strength of (the acquirer’s) legal investor protection. Consistent with our result, Bris and Cabolis (2008) find that, in cross-border M&A deals, takeover premia are higher the stronger is the legal investor protection in the acquirer’s country relative to the target’s country. Likewise, Rossi and Volpin (2004) find that takeover premia are higher in cross-border M&A deals (compared to domestic M&A deals), while the acquirer in a cross-border M&A deal is typically from a country with stronger legal investor protection.

\[23\] However, as the third case is defined by \( A < (1 - \overline{\phi}_1) \), this case becomes less likely as \( \overline{\phi}_1 \) increases.
6 Conclusion

This paper studies the effects of legal investor protection on the efficiency of the takeover market. Stronger legal investor protection limits the ease with which a bidder, once in control, can divert firm value as private benefits. This has two main implications. First, it reduces the bidder’s profit from the takeover, making efficient—i.e., value-increasing—takeovers less likely. Second, it increases pledgeable income by increasing the post-takeover value of the target’s shares, thereby increasing the bidder’s outside funding capacity. However, absent effective bidding competition, this increased outside funding capacity does not relax the bidder’s budget constraint. As the bid price must increase in lockstep with the post-takeover share value—to satisfy the free-rider condition—the bidder’s need for funds increases one-for-one with his pledgeable income.

In contrast, under effective bidding competition, stronger legal investor protection—and the resulting increase in bidders’ outside funding capacity—may improve the efficiency of the takeover outcome. In particular, if bidders are financially constrained, less efficient but wealthier bidders may be able to outbid more efficient but less wealthy bidders. By boosting bidders’ ability to borrow against the value they can create, stronger legal investor protection makes it less likely that the takeover outcome is determined by bidders’ financing constraints—and thus ultimately by their private wealth—and more likely that it is determined by their ability to create value.

We explore a number of implications of our analysis, both normative and positive. For instance, we show that departures from “one share–one vote” amplify the advantage of less efficient but wealthy bidders over more efficient but less wealthy ones. Thus, “one share–one vote” is socially optimal in our model because it maximizes the likelihood that the takeover outcome is determined by bidders’ ability to create value rather than by their own wealth. We next examine sales of controlling blocks. In particular, we show that efficient sales of controlling blocks are more likely to succeed when the controlling block is large and legal investor protection is strong. We finally examine issues related to cross-border M&A, showing that if bidders from different countries compete over a target, those from countries with stronger legal investor protection have a competitive advantage.
7 Appendix

Proof of Lemma 2. For a bid to succeed, it must satisfy the free-rider condition, \( b_i \geq \overline{\phi}v_i \). Conversely, suppose a bid satisfies \( b_i \geq \overline{\phi}v_i \). If a target shareholder anticipates the bid to succeed, tendering his shares is (at least) a weakly dominant strategy. Hence, an equilibrium exists in which a bid \( b_i \) succeeds if and only if \( b_i \geq \overline{\phi}v_i \). Among all those equilibria, the target shareholders’ payoff is highest in those in which the highest bid satisfying the free-rider condition succeeds. Q.E.D.

Proof of Lemma 3. As in the single-bidder case, the winning bid must satisfy the free-rider condition, \( b_i \geq \overline{\phi}v_i \). By expression (11), this is true if and only if condition (12) holds. Moreover, in a Pareto-dominant equilibrium, bidder 1 wins the takeover contest only if \( \widehat{b}_1 \geq \widehat{b}_2 \). Using expression (11), this condition can be be rewritten as

\[
\overline{\phi}v_1 + \min \{(1 - \overline{\phi})v_1, A_1\} - c \geq \overline{\phi}v_2 + \min \{(1 - \overline{\phi})v_2, A_2\} - c
\]

or

\[
\min \{(1 - \overline{\phi})v_1, A_1\} \geq \min \{(1 - \overline{\phi})v_2, A_2\} - \overline{\phi}(v_1 - v_2).
\]

If \( \min \{(1 - \overline{\phi})v_1, A_1\} = (1 - \overline{\phi})v_1 \), this condition always holds, because

\[
(1 - \overline{\phi})v_1 = (1 - \overline{\phi})v_2 - \overline{\phi}(v_1 - v_2) \geq \min \{(1 - \overline{\phi})v_2, A_2\} - \overline{\phi}(v_1 - v_2).
\]

Hence, condition (31) can be written as condition (13). Q.E.D.

Proof of Lemma 4. Suppose bidder \( i \) makes a bid \( b_i \) for voting shares and \( b^0_i \) for non-voting shares. Who wins the takeover contest is determined solely by the bids for voting shares. Hence, in a Pareto-dominant equilibrium (for the voting shareholders), the winning bid is the highest bid among those satisfying \( b_i \geq \overline{\phi}v_i \), if any. If bidder \( j \) does not gain control, his bid for non-voting shares is irrelevant. (Bids for non-voting shares are conditional upon acquiring a majority of the voting shares.) Conversely, if bidder \( j \) gains control, non-voting
shareholders tender their shares only if \( b_j^0 \geq \bar{\phi}v_j \). In this case, the winning bidder’s payoff is

\[
\alpha (b_j - \bar{\phi}v_j) + (1 - \alpha) (b_j^0 - \bar{\phi}v_j) + (1 - \bar{\phi}) v_j.
\]  

Expression (33) is maximized at \( b_j^0 = \bar{\phi}v_j \), in which case it becomes

\[
\alpha (b_j - \bar{\phi}v_j) + (1 - \bar{\phi}) v_j,
\]  

which is the same as if bidder \( j \) did not bid for non-voting shares. Consequently, bidder \( j \) is indifferent between bidding and not bidding for non-voting shares: he makes zero profit on these shares, and they do not help him gaining control. Q.E.D.

**Proof of Lemma 5.** The proof is analogous to that of Lemma 3, with expression (11) replaced by (16). Q.E.D.

**Proof of Lemma 6.** The proof is analogous to that of Lemma 3, with expression (11) replaced by (22) (for the bidder) and

\[
\hat{b}_0 = \bar{\phi}v_0 + \frac{1}{\beta} \cdot (1 - \bar{\phi})v_0
\]  

(for the incumbent, from expression (23)), respectively. Q.E.D.

**Proof of Proposition 5.** The incumbent chooses \( \beta \) to maximize his total payoff, (27), subject to condition (24) and the constraint \( \beta \geq 0.5 \). Since \( v_1 > v_0 \), the incumbent’s total payoff decreases with \( \beta \). On the other hand, condition (24) becomes tighter as \( \beta \) decreases. Consequently, if condition (24) binds for some \( \beta \geq 0.5 \), the solution is

\[
\beta^* = \frac{(1 - \bar{\phi})v_0 - A_1}{\bar{\phi}(v_1 - v_0)}.
\]  

Otherwise, the solution is \( \beta^* = 0.5 \). Q.E.D.
References


