When Should Control Be Shared?*

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Abstract

A common pattern of control in firms is for management to retain a broad set of rights, while the remaining stakeholders' contracts provide them with targeted veto rights over specific classes of decisions. We explain this pattern of control sharing as an efficient organizational response that balances the need to encourage management to account for stakeholders' interests against the need to prevent self-interested stakeholders from blocking valuable proposals. Enforceable obligations of good faith and fair dealing play an essential role in facilitating undivided management control of many decisions. With these legal protections (but not without them), shared control is more likely when the parties are more symmetrically informed and hence better able to bargain to efficient decisions.

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1 Introduction

Control rights are among the primary instruments for protecting stakeholder interests in a firm, but those protections come at a cost. Hansmann (1996) argues persuasively that diverse interests in the ownership group promotes bargaining deadlock, but he also claims that these costs play a decisive role in explaining why firms are typically owned by members of a single group of "patrons" (such as investors, customers, employees, or suppliers), rather than being dispersed among several such groups.[1] We offer an alternative account of shared control that takes issue with Hansmann's second finding and also with the analyses of ownership by Grossman and Hart (1986) and Hart and Moore (1990), which conclude that control should never be shared.

Hansmann's analysis of why ownership rights are commonly vested in one single group of patrons is incomplete in at least two ways. First, the logic of his argument, which claims that diverse interests in the controlling group reduce the effectiveness of collective decision making, would seem to apply to all kinds of control rights, yet control of important business decisions is often divided. While there is typically one group that retains a broad set of decision rights (management in widely held corporations), other groups of stakeholders frequently share control through veto rights over important classes of decisions. Examples include loan contracts that restrict the ability of management to sell assets or increase dividends without the explicit approval of the lender, labor contracts that limit management's ability to reassign workers, reduce employment or adopt new technologies without approval, and the right of shareholders to approve any management proposal to merge or sell the firm.[2]

Second, Hansmann's analytical focus on the costs of shared control omits the equally important analysis of its benefits. Shared control can add value by ensuring that interests besides those of management received proper weight in the firm's decisions. Like the costs of shared control, the benefits arise precisely because the interests of management and stakeholders are diverse. The examples cited above highlight the central importance of this source of benefits. In each example, stakeholders have veto rights—and thus share control—over decisions for which interests come sharply into conflict.

This critique of Hansmann's analysis raises several questions. Is control exercised through veto

[1] Hansmann's examples include not only firms owned by shareholder-investors, but also rural supply and marketing cooperatives owned by farmers (as customers or suppliers), professional firms which are often employee-owned, etc. As he emphasizes, even within a group of patrons, ownership is often concentrated in a sub-group: stockholders but not bank lenders in an investor-owned firm, senior lawyers but not junior lawyers or clerks in a law firm, and so on.

[2] Although shareholders are commonly viewed as having special status as a firm's "owners," shareholders in large public corporations have only a limited ability to intervene in most decisions. The current debate over whether shareholders should have greater power to select directors highlights the limited powers of shareholders and the need for the securities laws to balance the benefits of protecting shareholders against the cost of shareholder interference in managerial decision-making. In this context, shareholders can often be properly viewed as another stakeholder with limited veto rights.

rights the same as control through ownership rights? If not, what is the difference? What accounts for the common sharing of some significant decision rights but not of ownership rights?

The existing economics literature frequently analyzes shared ownership as the same as veto rights.[3] When there are just two parties and one decision at issue, the veto conception of shared control is indeed a proper one; the only possible assignments of the single decision right are to one party or the other or jointly, with both possessing a veto. When there are two or more decisions, however, shared ownership without contracting may be a blunt instrument, resulting in bundling decision rights unnecessarily. With multiple stakeholders and multiple decisions, veto rights established by contracts and voting rights on the board can be used in various combinations.[4]

Like Hansmann, we treat the firm as a legal entity—a nexus for contracting, whose owners retain the legal right to make all decisions not explicitly assigned or shared by contract or limited by law. Stated more briefly, owners have *residual rights of control*. Our conception of these rights, however, is subtly different from the conception employed in the well known paper by Grossman and Hart (1986). Their treatment distinguishes contractible rights from residual rights which are not contractible and which must therefore vest in the owner. Their formal model then focuses on how the assignment of these fixed residual rights affects various stakeholders' investment incentives. In contrast, our conception treats all decisions as falling into contractible classes, such as "product pricing," "asset sales," "workforce reductions," and so on. Contracting in our conception is still incomplete, because individual decisions cannot be specified in advance, but there is no distinguished set of decisions that are forced to be residual because they are uncontractible. Our analysis focuses on which classes of decision rights the parties optimally share. Importantly for our analysis, the residual—the decision rights that the owners do not share with other stakeholders—is endogenous and the key mechanism is one of selection (of which rights are residual) rather than one of assignment (of exogenously given residual rights). [5]

This different perspective on residual control enables a combined explanation of Hansmann's observation that ownership typically vests with a single group of patrons and the fact that shared control through contracting is common. In our selection framing, the question of why ownership is vested in a single group is recast as: why is control sharing done predominantly by contracts establishing veto rights, rather than by voting membership on a board of directors? We offer a simple answer: contractual veto rights typically provide *more secure* and *better targeted* protection for stakeholders' interests than do various voting rights alternatives. Compared to simple majority

[3] See, for example, Hart and Moore (1990).

[4] Venture capitalists often share control with founders and others using mixed arrangements of this sort, retaining veto rights over some decisions and also having voting representation on the board of directors. See section 8.

[5] Aghion and Bolton (1992) created the first model with endogenous control rights in their study of financial contracting. Their treatment allows contract provisions to affect who sits at the helm of the firm and exercises control, highlighting the subtle relationship between contracting and residual control.

voting with multiple interests represented, veto rights are more secure because they allow workers to protect their jobs, lenders to protect the security for their loans, and so on, without fear that they will be outvoted by a group including management. In principle, it is possible to establish super-majority voting rules that create effective veto rights for multiple voting groups on a board of directors. Contractual veto rights are superior, however, because optimal contracts target vetoes more narrowly. In decisions for which management's interests are known to be well-aligned with efficiency, super-majority voting among stakeholders can lead to deadlock, but optimal contracting gives veto rights to none of the stakeholders (see section 2).

Our formal model develops ideas borrowed from Williamson (1985, 2002) about how control structures affect the ability of the firm to make effective decisions in response to new circumstances and opportunities. We treat a situation with two interested parties, whom we call "management" and "the stakeholder." Only management observes potential projects, so it alone makes proposals. In addition, management is better informed than the stakeholder about the distributional consequences of its proposals, and this information asymmetry sometimes leads to failures of bargaining and to decisions that fail to maximize value.

The central tension in our model is that, regardless of how control is assigned, disagreements between management and the stakeholder can lead to poor decisions. If the project is a good one that also benefits management and the stakeholder has a veto right, then failure to agree about appropriate compensation for the stakeholder leads to a good proposal being blocked. If, on the other hand, the project is a bad one that nevertheless benefits management and the stakeholder has no veto right, then failure to agree about appropriate compensation for management leads to a bad proposal being implemented. Regardless of whether control is shared or undivided, bargaining inefficiencies from asymmetric information can disrupt optimal decisions.

A difference between the two control arrangements emerges when the environment allows for legal enforcement of "fiduciary duties" or obligations of "good faith and fair dealing." To illustrate the role of these, suppose management approaches its lender and demands a payment in exchange for *not* undertaking a risky project with negative value but which is nevertheless profitable for management. Demands such as this may be very common in economies where legal institutions provide no protections against them. Such extortionate demands are likely to be less common in economies where management has an enforceable legal obligation such as that of good faith and fair dealing that is too transparently violated by large transfers made to management. Management's fiduciary duties to shareholders may have a similar or greater effect in terms of preventing such demands.

In the model described above, legal rules that block demands—even extortionate demands—are actually destructive of value because they introduce an additional barrier to efficient negotiations.

For if the project under consideration both benefits management and destroys value, then efficiency can be achieved only if the parties agree to compensate management for refraining from the project. This argument, however, assumes that the quality of proposals is exogenous. An alternative conception, which we now adopt, is that management can affect the kinds of proposals that are generated. Effective legal rules that make extortion difficult can then induce management to propose more valuable projects.[6] This second effect can be more important than the first, making it useful to limit transfers from management to the stakeholder.

When control is shared, the stakeholder has veto power over proposals, so management has nothing to gain by generating bad proposals that are bad for the stakeholder. Limiting bargaining when control is shared can only be harmful, because bargaining is needed for efficient adaptations when proposals are good. So, in our model, the legal duties are beneficial only when management has undivided control.

Thus, legal rules limiting transfers to management affect the performance of the two control structures differently. They have no effect on the amount of bargaining when control is shared, but they make bargaining less frequent when control is undivided. This asymmetry affects the comparative statics of efficient control. As bargaining becomes less efficient, losses from inefficient decisions increase when there is shared control, but are unaffected when control is undivided. Hence, undivided control is differentially favored as parties become less likely to reach efficient decisions through negotiation. In particular, we show that as stakeholders become more poorly informed relative to management, bargaining is more likely to breakdown, decreasing the relative attractiveness of shared control.

We introduce our model in the next section and analyze the effect of bargaining frictions on different governance structures in section 3. In sections 4 and 5, we show that it may be efficient to limit bargaining among parties in the firm and analyze the manager's incentives to invest in proposals. In section 6, we explore the impact of incentive contracts. We discuss how our model applies to a firm's creditors, employees, and minority shareholders in section 7. Finally, section 8 concludes.

2 The Firm and Its Governance Structure

Consider a firm with two risk-neutral parties: a manager who generates a proposal and a stakeholder with an interest in whether the proposal is implemented. In the baseline model, the manager

[6] One may wonder whether it is always possible for management to find some form of compensation that evades such rules, restoring the previous results. It is easy to imagine, however, policies that make detection of extortionate demands easier. For example, management compensation may be reviewed and fixed on a regular cycle, say annually, while projects arise more frequently. Any major change to management compensation that occurs off-cycle might be viewed with particular suspicion.

always successfully generates a proposal and its quality is independent of the manager's effort. With probability q, the state is "good" (g) and the project increases joint surplus; otherwise, the state is "bad" (b) and the project is unproductive. In state i, the manager's payoff is $m_i = \pi_i + r$ and the stakeholder's payoff is $s_i = \pi_i - r$, where $\pi_g > 0$ and $\pi_b \leq 0$. The proposal redistributes a positive amount r of wealth from the stakeholder to manager. We assume that r has a continuous distribution with support on $[r_l, r_h]$ where $0 \leq r_l < r_h < \infty$.

The fact that the redistribution always favors the manager implies that the manager is biased toward implementing the project, which is the source of the conflict the model. In addition, we assume that the manager is better informed about the redistributive consequences of the project: the manager observes the realized value of r prior to implementing the project, while the stakeholder observes r only with probability z. For simplicity, we assume that both parties are fully informed about the proposal's quality.

During their initial contract negotiation and prior to working together, the manager and stakeholder must agree on how the relevant decisions will be governed. They can either give the manager an unfettered right to implement a proposal or they can give the stakeholder a veto over the manager's decisions. We refer to the former governance structure as "undivided control" and the latter structure as "shared control."[7] We assume that the parties can make arbitrary side payments and that they eventually agree on the control structure that maximizes the total surplus.

Regardless of the governance structure, the parties may bargain *ex post* over the firm's course of action. For simplicity, we assume the following bargaining protocol: the manager makes a take-it-or-leave-it offer to the stakeholder specifying transfers between the parties contingent upon implementation of the proposal. The negotiation of transfers is followed by a decision stage. If control is undivided, the decision stage simply consists of the manager deciding whether to implement the proposal. Under shared control, the project is implemented only if both the manager and stakeholder allow it.

Bargaining inefficiency can happen in this model because the stakeholder may be uninformed. With probability z, the stakeholder observes the redistributive consequences of the proposal and with probability $1 - z$ it does not. Management knows whether the stakeholder is informed. Other things equal, the parameter z determines the efficiency of the bargaining process in the model.

Summarizing the timing of the model: (1) the parties decide on the allocation of control; (2) the manager generates a proposal and observes the payoffs associated with the proposal; (3) with probability z, the stakeholder observes the redistributive consequences of the proposal and the manager learns about this event; (4) the parties negotiate transfers contingent upon implementation of the project; and (5) the firm decides whether to implement the project in accordance with the

[7] We assume that only the manager is sufficiently knowledgeable to propose projects, so the stakeholder cannot have meaningful undivided control.

chosen control structure.

Shared Control

When control is shared, the manager must obtain the approval of the stakeholder to implement a proposal. When the state is bad, there is no scope for negotiation; any proposal that could benefit the manager will be vetoed by the stakeholder. When the state is good and both parties are equally informed about the proposal's distributional consequences, there is a unique subgame perfect equilibrium outcome: in the negotiation stage the manager proposes to the stakeholder a contingent transfer, $y_s = \max(-s_g, 0)$, which the stakeholder accepts, and in the decision stage the manager goes forward with the project and is not vetoed by the stakeholder. Note that $r_l \geq \pi_g$ implies s_g is always negative and thus that the manager extracts the entire surplus.

However, the stakeholder is sometimes uninformed about the distributional consequences of the proposal. In this case, if the manager offers the stakeholder a transfer to accept the proposal, the stakeholder updates her beliefs and decides whether to accept or reject the offer. Subgame perfection requires that the manager implement the project in the absence of a negotiated transfer whenever the stakeholder would accept. Thus, in any pure strategy equilibrium the stakeholder will never both accept a negative transfer and allow the project to proceed. The possible outcomes are therefore unchange if we restrict attention to equilibria in which the manager always makes a non-negative offer. In any pure equilibrium, there is a smallest non-negative transfer t that the stakeholder will accept and subsequently not veto the project. The manager then offers t if and only if $m_g \geq t$.[8] At equilibrium, it must be profitable for the stakeholder to accept the offer and refrain from vetoing, so

$$E[s_g + t \,|\, m_g \geq t] \geq 0 \tag{1}$$

In general, there are many equilibria, but if the parties could agree about which equilibrium to play at the time of the initial negotiation, they would elect the equilibrium with the lowest t. Only that equilibrium maximizes the total value by having the most good proposals offered by the manager and accepted by the stakeholder. We will henceforth focus on that equilibrium. Thus, let t_s be the smallest non-negative transfer that satisfies inequality (1). Since r has a continuous distribution and bounded support, the left-hand side of (1) is continuous and unbounded in t. Hence, either $E[s_g + t_s \,|\, m_g \geq t] = 0$ or $t_s = 0$. Thus, in expectation, the manager extracts the entire surplus provided that $E[s_g] \leq 0$.

In this case ($E[s_g] \leq 0$) we can use the fact that $s_g = 2\pi_g - m_g$ to rewrite equation (1) so as to

[8] If $m_g < t$, then the manager either makes no offer or makes one that results in the stakeholder vetoing the project.

express the manager's payoff from acceptable proposals as:

$$E[m_g - t_s \,|\, m_g - t_s \geq 0] = 2\pi_g \tag{2}$$

This equation (2) is an alternative expression of the fact that, in expectation, the manager extracts the entire surplus from accepted proposals.

Summarizing the analysis, the parties never implement a bad proposal. When the proposal is productive and stakeholder is informed, the parties bargain efficiently and implement the proposal, generating a surplus of $2\pi_g$. However, with probability $1 - z$ the stakeholder is uninformed. In this case, the proposal is implemented only if $m_g \geq t_s$. The joint expected surplus under shared control is therefore:

$$S \equiv q\big[z + (1 - z)\Pr[m_g \geq t_s]\big]2\pi_g \tag{3}$$

Although we have assumed a particular bargaining protocol and equilibrium for the asymmetric equilibrium case, the essential economics of equation (3) remain the same regardless for any asymmetric equilibrium approach to this problem. So long as bargaining is efficient with symmetric information and inefficient with asymmetric information, we can modify the equation for alternative models by simply replacing the term $\Pr[m_g \geq t_s]$ by another term to represent the bargaining inefficiency. Much of the subsequent analysis would be similar for such a model.

Recall that r_l is the minimum value of the support of r and let $\bar{r}$ denote the mean of r. We have the following proposition:

Proposition 1 *Suppose control is shared. Then, the manager never obtains approval for a bad proposal. The manager always obtains approval for a good proposal if and only if the parameters satisfy* $\bar{r} - r_l \leq 2\pi_g$.

Proof. We have already seen that bad proposals are never implemented at equilibrium. Suppose the proposal is good and that $\bar{r} - r_l \leq 2\pi_g$. If the manager were to offer the stakeholder a transfer $t = \pi_g + r_l$, the stakeholder's expected payoff would be $2\pi_g + r_l - \bar{r} \geq 0$. It follows that the equilibrium offer, t_s, is less than or equal to $\pi_g + r_l$, and the stakeholder accepts this offer for all realizations of r. Next, let $2\pi_g < \bar{r} - r_l$. In this case, the stakeholder would reject the offer $t = \pi_g + r_l$ and it must the case that $t_s > \pi_g + r_l$. Therefore, for realizations of r such that $r_l \leq r < t_s - \pi_g$, the proposal is not implemented. ■

The term $r - r_l$ is the uncertain component of the redistribution. Good projects remain unimplemented with positive probability when the expected value of this component, $\bar{r} - r_l$, is large relative to the total surplus created by a good proposal, $2\pi_g$. An implication of Proposition 1 is that when the distributional consequences of proposals are sufficiently predictable or when the the

value of good projects is sufficiently high, shared control leads to efficient decisions.

Undivided Control

When control is undivided, the manager can opt to proceed with a proposal unchecked by the stakeholder. Suppose the proposal is productive and the stakeholder is informed. The manager will never offer a positive amount to the stakeholder as the manager can implement the project without her approval. Moreover, the stakeholder will never agree to a negative transfer since she knows the manager will implement the project even without a negotiated transfer. Therefore, in contrast to the situation under shared control, good projects are always implemented and without transfers.

The source of inefficiency when control is undivided is that the manager sometimes implements bad proposals. If a proposal is bad, value would be increased if the stakeholder paid the manager not to undertake the project. With our specified bargaining protocol, if both parties are equally informed, the manager can demand a transfer $y_u = -s_b$ when $m_b \geq 0$ and the stakeholder agrees to pay. When $m_b < 0$, however, the manager is unable to commit to implementing the project should the stakeholder reject his demand and thus he is unable to extract any surplus from the stakeholder. In both cases the project is never implemented and thus the outcome is efficient. If, however, the stakeholder is uninformed, then there may be disagreement over the appropriate payment to the manager. By an analysis similar to that when control is shared, the equilibrium transfer is t_u, where t_u is the largest transfer t that the stakeholder is willing to pay: $E[-s_b I_{\{m_b \geq 0\}} - t \,|\, t \geq m_b] \geq 0$. The equilibrium transfer t_u is the largest one satisfying this inequality and, since the distribution of r is bounded and continuous, t_u satisfies it with equality. Using $s_b + m_b = 2\pi_b$ and rearranging, t_u is the largest transfer satisfying:

$$E[t - m_b I_{\{m_b \geq 0\}} \,|\, t - m_b \geq 0] = -2\pi_b \Pr(m_b \geq 0 | t - m_b \geq 0) \tag{4}$$

To understand equation (4), note that when the manager demands a transfer t to refrain from a bad proposal, the potential net increase in his payoff is $t - m_b$. The manager is only willing to accept such a transfer if $t - m_b \geq 0$. In equilibrium, as we have seen, the stakeholder gains zero from the renegotiation, so when the renegotiation succeeds, the manager receives all the surplus that is saved by refraining from the project. When $t_u - m_b < 0$, the stakeholder will reject any demand the manager finds acceptable. Additionally, as t_u is non-negative, $t_u - m_b < 0$ implies the project is profitable for the manager so the bad project is simply implemented in this case.

Thus, with undivided control, the parties always implement good proposals, generating a surplus of $2\pi_g$, and implement bad proposals only when the stakeholder is both uninformed and bargaining breaks down, generating a negative surplus of $|2\pi_b|$. The probability of this event is $(1 - q)(1 -$

$z)\Pr[m_b \geq t_u]$. The joint expected surplus when control is undivided is therefore:

$$U \equiv q2\pi_g + (1-q)(1-z)\Pr[m_b > t_u]2\pi_b \tag{5}$$

The following result is the analogue of Proposition 1 (the proof is along exactly the same lines and is omitted).

Proposition 2 *Suppose control is undivided. Then, the manager always implements a good proposal. The manager never implements a bad proposal if and only if the parameters satisfy* $r_h - E[r|r > -\pi_b] \leq -(1+\Pr(m_b \geq 0))\pi_b$.

When the condition of the proposition is not satisfied, that is, when $r_h - E[r|r > -\pi_b] > -(1+\Pr(m_b \geq 0))\pi_b$, the manager sometimes implements bad proposals. When $r_h - E[r|r > -\pi_b]$ is large, the realized value of the redistribution is sometimes much greater than the mean value, leading to unavoidable disagreements over the appropriate compensation.

Comparing the two propositions, we find that bargaining breaks down under shared control when projects are good and redistributions to management are small and under undivided control when projects are bad and redistributions are large. Together, the propositions highlight the idea that it is the variability of any redistributions, rather than their average value, that leads to inefficiency. We explore this comparative static and others in the next section.

Advantages of Targeted Veto Rights

As a simple variation on the preceding model, suppose that, in addition to management, there are *two* other stakeholders whose interests are affected by management's proposal. In this section, we focus on the special case in which the redistribution $r > 0$ accrues to one stakeholder at the expense of other without affecting management's payoff. Examples with roughly this structure include decisions about which employee will be selected to fill a job, which customer will be served first, or which supplier's technology will be adopted. For simplicity, we take the manager's payoff to be π and the payoffs of the two stakeholders to be r and $-r$. In these examples, management is likely to understand which stakeholder benefits most from its choice, but there may be private information about the magnitude of r; we assume that resides with one or both of the two stakeholders.

Even without writing down the bargaining problem between the two stakeholders, it is obvious that, in this situation, management's interest is perfectly aligned with value maximization, so undivided control without bargaining leads it to make value maximizing decisions. If the two stakeholders both held veto rights, then incomplete information bargaining would sometimes lead to deadlock, blocking management's value maximizing decisions. Undivided control (without bargaining) is therefore preferred to allowing both stakeholders to have veto rights for such decisions.

This analysis highlights an important advantage of using contractually targeted veto rights rather than ownership rights to share control. Ownership rights that provide vetoes to diverse groups of patrons, or even to individuals with heterogeneous interests within a single group of patrons, make value -destroying bargaining deadlocks more likely. In contrast, optimal contractually targeted veto rights avoid this cost, because no veto rights are provided for stakeholders in this case. Veto rights are optimally used only to enable stakeholders to block decisions where management may sometimes make inefficient decisions and never to block management decisions merely because of distributional squabbling among other stakeholders.

There are many more elements to a complete account of bargaining and control sharing with multiple parties. With undivided control, if there are no legal or other safeguards that prevent management from bargaining with just one of the stakeholders, then extortion or inefficient decisions may result when control is undivided. Here, we simply assume that such bargaining is impossible, but we return to discuss the source and effectiveness of legal restrictions in section 4. Even if management can be prevented from making any demands and stakeholders have no veto rights, the stakeholders still have powerful reasons to influence management's decision and these can give rise to *influence costs*, which are costly efforts to distort management's decisions. Mitigating those can create a motivation for management to exclude some otherwise valuable sources of information and to pursue equity as well as value in its decisions.[9] These additional elements are omitted from our formal analysis.

3 Comparative Statics of Bargaining and Optimal Control

Let us now focus again on a situation with just two interested parties: management and a single stakeholder. We have shown for this case that when control is undivided, the manager sometimes implements bad proposals and when control is shared, the stakeholder sometimes blocks good proposals. To identify the optimal control structure, we must compare the magnitudes of the resulting inefficiencies.

Let $P_s \equiv \Pr[m_g \geq t_s]$ and $P_u \equiv \Pr[m_b \geq t_u]$. P_s is the probability a good project is approved when control is shared, and P_u is the probability that a bad project is implemented when control is undivided. From equations (3) and (5), we have that

$$U - S = 2(1-z)\big[q(1-P_s)\pi_g + (1-q)P_u\pi_b\big] \tag{6}$$

Note that $\pi_b < 0$, implying that the sign of $U - S$ is ambiguous. Undivided control yields greater benefits when the bargaining frictions under shared control exceed that under undivided control.

[9] Milgrom (1988) and Milgrom and Roberts (1988) introduce "influence cost" models and derived these results.

Recall that z is the likelihood that the stakeholder is informed. A direct implication of equations (3), (5), and (6) is the following proposition:

Proposition 3 *As the stakeholder becomes better informed (z increases), there is an increase in the value of both shared control and undivided control. Fixing other parameters, changing the magnitude of z has no impact on the sign of $U - S$ and thus on the optimal governance structure.*

As suggested in the previous section, it is the variability in redistribution r rather than its mean level that leads to conflict and inefficiency. To formalize that claim, let us parameterize r by writing $r = \bar{r} + \sigma\epsilon$, where $\bar{r}$ is the mean of r and ϵ is a shock distributed on $[-1, 1]$ with mean zero.[10] The parameters of our model are now π_g, π_b, $\bar{r}$, σ, z and q.

Proposition 4 *Fix z and q. If control is shared, then for $\sigma/\pi_g > 2$, the probability that good proposals are blocked increases with σ/π_g but is independent of $\bar{r}$ and π_b.*

Proof. The domain restrictions for σ ensure that the conditions of Propositions 1 and 2 do not apply, so that the respective probabilities that bad projects are adopted and good projects are rejected are not zero.

Let $\bar{\gamma}$ be the smallest solution of $\gamma = E[\epsilon \,|\, \epsilon \geq \gamma] - 2\pi_g/\sigma$. Since t_s is the smallest solution of 2, we have that $m_g - t_s = \sigma(\epsilon - \bar{\gamma})$, and the probability that a good proposal is blocked is $Pr[m_g - t_s < 0] = Pr[\epsilon < \bar{\gamma}]$. By a comparative statics theorem for smallest fixed points due to Milgrom and Roberts (1994), $\bar{\gamma}$ is a decreasing function of the parameter π_g/σ (an increasing function of σ/π_g) and, by inspection, it is independent of the other parameters of the model. ■

The following result is a direct implication of Proposition 4:

Corollary 1 *As σ increases, the expected surplus associated with shared control declines.*

In the case of undivided control, the comparative statics are more sensitive to the distribution of the shock ϵ. In general, expected surplus can depend on all of the parameters π_b, $\bar{r}$, σ, z, and q, and is only independent of π_g. However, with an additional restriction we do have an analogous result to Corollary 1:

Proposition 5 *As σ increases, the expected surplus associated with undivided control declines provided that $-\pi_b < \bar{r}$.*

Proof. Let $\bar{\gamma}$ be the largest solution to $-\gamma + E[\epsilon\, I_{\{m_b \geq 0\}} |\, \epsilon \leq \gamma] + \frac{1}{\sigma}(-(1 + \Pr[\epsilon \leq \gamma])\pi_b - (1 - \Pr[\epsilon \leq \gamma])\bar{r}) \geq 0$. For $-\pi_b < \bar{r}$ the left hand side of this inequality is decreasing in σ at any γ for which the

[10] The requirement that $r_l \geq 0$ implies that $\sigma \leq \bar{r}$.

left hand side is equal to zero. It follows that $\bar{\gamma}$ is decreasing in σ. Since t_u is the largest solution of 4 we have that $t_u - \pi_b = \bar{r} + \sigma\gamma$ and so t_u and therefore expected surplus are both decreasing in σ as well. ■

When control is undivided, increasing σ does not unambiguously decrease surplus as in the case of shared control because of an offsetting effect. When $-\pi_b > \bar{r}$, increasing σ increases $\Pr(m_b \geq 0)$ thus allowing the manager to demand a greater transfer to forego implementation of the bad project when control is undivided. The increased transfer results in more frequent agreement, which has a positive effect on surplus. Which of the two effects is greater depends on the distribution of the shock.

In applications below, we sometimes think of σ as capturing the residual uncertainty about redistribution after any measurement. With that interpretation, as redistribution becomes more difficult to measure, the expected surplus falls for both shared and undivided control.

As the surplus π_g associated with good proposals increases, the relative value of shared control is affected in two ways. On one hand, according to Proposition 4, good proposals become less likely to be blocked but, on the other hand, each instance of blocking also becomes more costly. Similarly, for undivided control, when the absolute loss $|\pi_b|$ from bad proposals increases, fewer bad proposals may be implemented but each one results in a larger loss. Thus, although certain extreme cases are clear, general changes in the parameters π_g and π_b have an ambiguous effect on the optimal control structure.

Finally, we have an easy comparative statics result for q.

Proposition 6 *Fix all parameters except q. Then, $U - S$ is increasing in q.*

The proof is obvious. Since the costs of rejecting good proposals or accepting bad proposals are proportional to the frequencies of the two kinds of proposals, shifting probability from bad proposals to good ones favors undivided control.

A principal finding of this section is that an increase in the variability of the redistribution can adversely impact both shared and undivided control, with indeterminate consequences for optimal governance. This conclusion is a natural consequence of the observation that the allocation of control does not eliminate the need for bargaining, but simply alters the direction of transfers between the parties. However, in the following section, we argue that there are important reasons why parties may seek to rule out certain kinds of extortionate negotiations. In that case, bargaining costs impact shared and undivided control asymmetrically.

4 The Value of Limiting Bargaining

When control is undivided and the manager generates a bad proposal, efficiency requires that the stakeholder must pay the manager not to implement the project. Although paying off a party to refrain from taking a value-decreasing action is efficient *ex post*, such payoffs create a perverse incentive for parties to invest in value-decreasing projects. In our model, the incentive is compounded by our assumptions about the bargaining protocol: while the manager's payoff from bad proposals remains positive, for each extra unit of loss the manager can threaten to impose on the stakeholder, the manager can successfully demand an extra unit of transfer. Although this is extreme, standard bargaining models would all imply that the manager would capture some portion of the extra unit of the stakeholder's loss at any bargaining solution.

We capture the possibility of value-decreasing investments in a stark manner by assuming that instead of working on a potentially productive proposal, the manager can choose to engage in pure rent-seeking and develop a proposal that imposes a high cost of H on the stakeholder while yielding no direct benefit or cost to the manager. We further simplify by assuming that when the manager develops such a proposal, the stakeholder is always aware of it. Then, with undivided control, the manager can always guarantee that it receives a transfer of H. The conclusion is obvious:

Proposition 7 *If control is undivided and H is sufficiently large, the manager never proposes a good project.*

In circumstances like this one, undivided control is never optimal. To create value, one needs to discourage the manager from engaging in this form of unproductive rent-seeking. It is too much to expect the legal system to detect and punish all such destructive behaviors, but one may be able to write a contract that discourages the action by blocking extortionate transfers.

There are various legal norms and rules that help to bar extortion, as when an agent has a legally enforceable duty of loyalty to a principal or when rules about good faith and fair dealing apply. We discuss these in Section 7 and the extent to which courts disallow parties from threatening to take otherwise legal actions as a way of obtaining concessions. To explore the consequences of such rules, our model assumes the parties can contractually choose to disallow transfers in any subsequent bargaining over the firm's course of action. The parties choose whether to impose this additional protection at the same time they choose the firm's governance structure.

We have the following corollary to Proposition 7:

Corollary 2 *If H is sufficiently large, undivided control can be optimal only if transfers from the stakeholders are disallowed.*

For the rest of the paper, we make the standing assumption that H is large enough for the conclusion of Corollary 2.

When control is undivided and the manager cannot demand transfers, it is in the manager's interest to generate proposals that are productive. Moreover, the manager chooses to implement a proposal whenever $m_i \geq 0$. The cost of restrictions on transfers is that the manager implements unproductive proposals whenever they redistribute sufficient wealth. Let $\tilde{U}$ denote the joint expected surplus when control is undivided. The joint surplus is $2\pi_g$ if the state is good, $2\pi_b$ if the state is bad and $m_b \geq 0$, and zero otherwise. So,

$$\tilde{U} = 2[q\pi_g + (1-q)\Pr[m_b \geq 0]\pi_b] \tag{7}$$

If control is shared, veto power over the manager's proposals protects the stakeholder from unproductive rent-seeking. There is consequently no need to disallow transfers as such transfers improve *ex post* decision-making. *Participation in control is therefore a substitute for the protection afforded by restrictions on transfers.*

With limits on transfers, there is no *ex post* bargaining when control is undivided. This alters our comparative statics conclusions, because changes in bargaining costs now impact shared control and undivided control asymmetrically.

Proposition 8 *Suppose undivided control is associated with limits on transfers. As the stakeholder becomes better informed (z increases), there is a corresponding increase in the benefit of shared control and no change in the benefit of undivided control.*

Under shared control, the stakeholder has input into the decision-making process and can use his information to improve the quality of decisions by blocking bad projects. In contrast, when control is undivided, the stakeholder has no influence on the manager's decision-making regardless of how informed she is. Thus, in contrast to the situation without legal restrictions on transfers, the degree to which the stakeholder is informed now becomes an important determinant of the optimal control structure.

Similarly, it is no longer the case that an increase in either the variability of the redistribution, σ, or in the mean level of redistribution $\bar{r}$ impacts shared and undivided control in similar ways. Recall from Corollary 1 that the value of shared control control is decreasing in σ. In contrast, the value of undivided control can actually increase with σ. In addition, undivided control decreases in the average level of redistribution:

Lemma 1 *If control is undivided and there are limits on transfers, then as σ increases, the manager adopts fewer bad proposals, which raises the total surplus from adopted projects if and only if $\bar{m}_b = \pi_b + \bar{r} \geq 0$. In addition, $\tilde{U}$ is decreasing in the mean level of redistribution $\bar{r}$.*

Proof. The impact of σ^2 on the value of undivided control depends on whether the likelihood the manager pursues a bad proposal, $\Pr[\bar{m}_b + \sigma\epsilon \geq 0] = \Pr[\bar{m}_b/\sigma + \epsilon \geq 0]$ increases or decreases. The manager is less likely to pursue a bad proposal as σ^2 increases if and only if $\bar{m}_b \geq 0$. ■

Lemma 1 implies that if the redistributive consequences of proposals are large ($\bar{r} \geq |\pi_b|$), undivided control becomes more favorable relative to shared control as the redistribution becomes more variable. Intuitively, when the manager has a bias toward implementing the project, increasing the mass in the positive tail of the distribution r has no impact on his decision-making; however, increasing the realizations in the negative tail causes the manager to shift towards maintaining the status quo in some states. As already discussed, simply shifting the mean level of redistribution has no impact on shared control (nor undivided control when there is bargaining). However, when there are limits on transfers, an increase in $\bar{r}$ increases the likelihood that the manager pursues a bad proposal when control is undivided. The following result is a direct implication of Corollary 1 and Lemma 1:

Proposition 9 *If H is sufficiently large and $\bar{r} \geq |\pi_b|$, then $\tilde{U} - S$ is increasing in σ. Moreover, $\tilde{U} - S$ is decreasing in $\bar{r}$.*

The comparative statics from shifts in q (the likelihood that a project is good) and from shifts in total value parameters π_g and π_b remain unchanged when there are limits on transfers. Namely, an increase in q favors shared control and changes in the surplus associated with good and bad projects have an ambiguous effect on $\tilde{U} - S$. When control is undivided and there are limits on transfers, an increase the value destroyed by a bad proposal makes it less likely that the manager will implement one, but more costly when he does so.

5 Control and Proposal Generation

In this section, we extend our model to allow project quality and the level of redistribution to depend on management's choices. We assume that after the control arrangements are agreed and any initial transfers are made, the manager chooses efforts and incurs a cost $C(q, \bar{r})$, where q is the probability of a good proposal and $\bar{r}$ is the mean level of redistribution.[11] We assume that $C(q, \bar{r})$ is increasing in both q and $\bar{r}$.

In our model with shared control, when the manager's effort levels $(q, \bar{r})$ are observable but not contractible, the manager's bargaining advantage allows her to capture the full surplus from any projects provided that $r_l \geq \pi_g$ so that s_g is always negative. However, neither surplus nor the set of projects implemented is affected by redistributive efforts of the manager. Hence, the

[11] As before, the manager can engage in extortion instead of generating productive proposals.

manager has no incentive to increase $\bar{r}$. In contrast, with undivided control, the manager keeps any additional amounts she can redistribute to herself, creating an incentive to exert redistributive effort. Hence, if the marginal cost of redistributive effort is low, the manager engages in a positive level of redistributive effort. To summarize:

Proposition 10 *Suppose the manager's effort choices $(q, \bar{r})$ are observed. With shared control, the manager sets r to its minimum value when $r_l \geq \pi_g$, but the manager may exert positive redistributive effort when control is undivided.*

The comparative incentives for setting q are less clear. With shared control, some good projects get blocked so the manager gets only part of the potential gain from discovering additional good projects, which mutes the manager's incentive to raise q. With undivided control, good projects are always implemented, but additional good projects cause the manager to lose the rents it could otherwise earn from implementing bad projects, which again mutes the manager's incentive to raise q. Some extreme cases, however, are clear: shared control leads to nearly efficient decisions for z close to one or σ close to zero provided that $r_l \geq \pi_g$.

For the case of unobserved efforts, if control is undivided, the manager solves:

$$max_{q,\bar{r}}\, q(\pi_g + \bar{r}) + (1-q)E[max(0, \pi_b + \bar{r} + \sigma\epsilon)] - C(q, \bar{r}) \tag{8}$$

Taking the derivative with respect to $\bar{r}$ yields $q + (1-q)\Pr[\pi_b + \bar{r} + \sigma\epsilon > 0] - \partial C/\partial \bar{r}$.

If control is instead shared and the equilibrium levels of $\bar{r}$ and t_s are $\tilde{r}$ and $\tilde{t}_s$, then the manager's effort choices solves:

$$max_{q,\bar{r}}\, qz(2\pi_g - \max(0, s_g)) + q(1-z)E[max(0, \pi_g + \bar{r} + \sigma\epsilon - \tilde{t}_s)] - C(q, \bar{r}) \tag{9}$$

For this objective, the derivative with respect to $\bar{r}$ is $qz\Pr[s_g > 0] + q(1-z)\Pr[\pi_g + \bar{r} + \sigma\epsilon > \tilde{t}_s] - \partial C/\partial \bar{r}$.

For both patterns of control, with unobserved efforts, the marginal benefit of increasing $\bar{r}$ is the probability that a project is adopted, and the marginal cost $\partial C/\partial \bar{r}$ is subtracted from that. All good projects and some bad projects are implemented when control is undivided, while only some good projects are implemented when control is shared. So, holding q fixed, the marginal returns are higher when control is undivided so the choice of $\bar{r}$ is also higher. Depending on C, the choice of q could be nearly fixed, but in general the manager's choice of q differs for undivided and shared control making the formal comparison ambiguous.

Other economics papers have also studied how participation in decisions affects effort choices. Milgrom (1988) argues that allowing employees to influence decisions leads them to devote more

effort to generating relevant information, but that information may be reported selectively and attempts to influence the distribution of benefits may lead to excessive effort, which is better devoted to other, more productive uses.[12] Aghion and Tirole (1997) apply a similar idea to the delegation of control to an agent, arguing that delegation leads the agent to exert greater effort in generating decision-relevant information. In our analysis, increasing managerial control leads unambiguously to greater unproductive rent-seeking when effort is observed and suggests that the same result will often hold when effort is unobserved. However, if the stakeholder is sufficiently informed or distributional consequences of decisions are easy to assess in advance (z is large or σ is small), shared control leads to nearly efficient effort choices.

6 Incentives and Control

In this section, we allow the parties to contract on the division of surplus generated within the firm, $2\pi_i$. We also return to baseline case in which q and $\bar{r}$ are exogenous. Specifically, the parties can allocate a share of $\alpha \in [0,1]$ of the surplus to the manager, so that the payoffs of the manager and stakeholder are $m_i(\alpha) = \alpha 2\pi_i + r$ and $s_i(\alpha) = (1-\alpha)2\pi_i - r$. When there are limits on transfers and control is undivided, it is clear from equation (7) that an increase in α induces the manager to implement fewer bad proposals. If there are no other constraints on the choice of α, it is optimal to set $\alpha = 1$ and make the manager the full residual claimant. Externalities remain as a consequence of the non-contractible redistribution r.

In contrast, changes in α have no impact on the surplus associated with shared control:

Proposition 11 *The expected surplus associated with shared control is independent of the manager's share of the realized surplus α. If there are limits on transfers, the value of undivided control, $\tilde{U}$, is increasing in α.*

Proof. Fix α_0 and suppose that in equilibrium the manager must pay the stakeholder a transfer t_0 to obtain approval for a good proposal, i.e., t_0 solves equation (2). The probability that a good proposal is blocked is $\Pr[m_g(\alpha_0) < t_0]$. Consider an ownership share $\alpha_1 \neq \alpha_0$, and let $t_1 = t_0 + 2\pi_g(\alpha_1 - \alpha_0)$. t_1 solves equation (2) and $\Pr[m_g(\alpha_1) < t_1] = \Pr[m_g(\alpha_0) < t_0]$. ■

As in many models, ownership of returns is complementary with control. In our analysis, however, this result arises only when there are limits on transfers. If there are no such limits, changes in α have no impact when control is shared and have an ambiguous effect when control is undivided. As in the comparative statics for σ discussed in Section 3, this ambiguity arises because

[12] This point is further elaborated by Milgrom and Roberts (1992), who emphasize these influence costs play in explaining the very different decision processes that firms use, for example, to set pay for individual workers or prices for individual products.

increases in the manager's share of the realized surplus can decrease t_u and thereby have a negative effect on expected surplus.

7 "Good Faith" and "Fair Dealing"

In Section 4, we assume that the manager and stakeholder can commit not to engage in *ex post* bargaining when control in undivided. When the manager has a fiduciary responsibility to the stakeholder (for example when the stakeholder is a shareholder), then it is clear that demanding a transfer as payment for not taking a value-destroying action would violate the manager's obligations. However, courts (in the U.S.) also disallow certain types of agreements in non-fiduciary relationships, such as that between management and creditors. In particular, Hetherington (1972) states that "[i]n the name of good faith, fair dealing, and similar concepts, the courts have imposed limits on the bargaining process and on the exercise of contract and property rights in non-fiduciary business dealings" (p. 926). The law requires that in any contractual relationship the parties act in good faith. One prominent formulation of the duty of good faith is by the New York Court of Appeals, which stated that in "every contract there is an implied covenant that neither party shall do anything which will have the effect of destroying or injuring the right of the other party to receive the fruits of the contract" (see Bab, 1991, p. 861).

Summers (1968) outlines various acts that constitute "bad faith" and thus violate this implied covenant, including abuse of bargaining power, failure to fulfill the spirit of a contract, lack of diligence, exploiting another party's weakness to obtain a favorable readjustment to a contract, and abuse of power to specify any contract terms (that the parties left unspecified at the outset). In addition, threats of harm through an otherwise legal action may also violate the covenant of good faith. Although implicit threats are a common bargaining tactic, there is boundary beyond which this kind of behavior is unacceptable. In particular, the courts have disallowed parties from obtaining concessions by threatening to take an action, where the *sole* purpose of the action is to impose harm. Hetherington provides examples of in which the "illegality of the conduct in each case appears to lie in the effort of one party to influence future conduct by threatening deliberate injury to an existing contractual or property right or business interest of the other party" (p. 932). In one such example, a buyer of a house in a residential community sought to obtain a refund from the builder by threatening to in turn resell the property to an "undesirable" purchaser.

In the context of our model, we argue that the legal limits on bargaining tactics rule out threats by the manager to take value-destroying actions in order to obtain rents from the stakeholder (we provide an efficiency-based explanation for why such limits are indeed optimal). However, we argue that such limits do not stop the manager from actually proceeding with a value-destroying proposal

when in his interest. The premise of our analysis is that whether a proposal is value-destroying or not is difficult, if not impossible, to verify by the courts (otherwise the parties would agree in advance to implement only value-creating proposals). However, if the manager demands concessions in exchange for not implementing a proposal, the manager is effectively acknowledging that the proposal is harmful. There are only a limited set of circumstances in which management can legitimately extract concessions by threatening to pursue a certain course of action. For example, firms in financial distress can threaten to declare bankruptcy to induce creditors and unions to renegotiate their contracts (see Bab for a discussion of whether this kind of pressure in the case of bondholders violates the duty of good faith).

A concern that we have deemphasized in our analysis and discussion is that a stakeholder with veto power over a decision can use that power to extort concessions from management. Stakeholders also have obligations to act in good faith. Stakeholders, such as creditors, that use their position to extract "excessive" concessions face possible legal liability for acting in bad faith. In our model, this problem never arises as management has all the bargaining power and can extract all the rents from the relationship. Even if a stakeholder has greater bargaining power, management typically has more options for action and therefore more ways to protect itself than does a stakeholder with no veto right. For this reason, there is much lower risk of exploitation and little benefit to placing limits on bargaining (see footnote 14 for additional discussion of this point when applied to creditors). As is clear from several of the acts of bad faith cited above, the courts recognize the critical role of power imbalances in giving rise to abuses. In the following subsections, we discuss how our model applies to specific relationships in firms.

8 Applications

Debt Contracts

Three critical aspects of any debt contract are the interest rate(s), the maturity of the debt, and any covenants associated with the debt. Lender can increase their effective control over a firm by shortening debt maturities (forcing firms to refinance and renegotiate their agreements more frequently) and using covenants. Covenants place limits on a potentially broad range of activities and decisions. For example, covenants may limit the payment of dividends to shareholders, limit a firm's leverage, limit both the sale and acquisition of assets, and require firms to maintain a certain line of business. Covenants may even limit decision rights often considered a defining aspect of ownership, including the right to make changes to the management team and the board.

Covenants give lenders an effective veto right over any decision that results in the violation of a covenant; to proceed with a course of action constrained by a covenant, management must

either obtain a waiver from lenders or must refinance the debt. In our model, the stakeholder receives veto rights over a decision only if such rights lead to greater firm value. If undivided control maximizes firm value, but causes harm to the stakeholder in the form of redistribution, the manager must compensate the stakeholder through transfers.[13] In the context of debt contracting, lenders thus trade off stronger control rights with higher promised rates of return (Roberts and Bradley (2004) provide empirical evidence supporting the negative relationship between yields and the restrictiveness of covenants).

It is common for covenants to trigger renegotiation between lenders and firms and for lenders to demand concessions in exchange for waiving covenants. Beneish and Press (1993) empirically analyze the cost to firms of violating an accounting-based covenant. The majority of firms in their sample obtain waivers in exchange for substantial increases in interest rates and other fees. Lenders also frequently obtain greater control in the form of additional covenants. The authors also show that firms unable to obtain waivers suffer greater costs. Such firms typically either refinance their debt at significantly higher interest rates or must divest assets to pay down their debt.

While firms often seek waivers of onerous covenants, it much more difficult to identify cases in which firms demand concessions from lenders in exchange for refraining from taking an action *not* constrained by any covenant. As discussed above, although managers do not have a fiduciary duty to lenders, managers are still required to act in good faith with respect to their contractual obligations to lenders. Demanding concessions in exchange for not taking a value-destroying investment would arguably be deemed as coercive, violating the duty of good faith. If such an investment benefits shareholders (at the expense of debtholders), managers are more likely simply to proceed with the investment rather than to negotiate with debtholders.

There are certain circumstances in which borrowers can extract concession from lenders. For example, Bab and Coffee and Klein (1991) discuss how firms seeking to repurchase their debt can use various techniques to pressure bondholders to tender their bonds (at a premium to the current market value, but below the face value). As mentioned above, one technique is for firms to threaten to declare bankruptcy. Bab argues, however, that the extent to which firms can extract rents from bondholders through this type of pressure is very limited.

Given the asymmetry in the need for renegotiation that results from legal rules, our model predicts that covenants will be used more often in situations where renegotiation leads to relatively efficient outcomes. In particular, if bargaining is costless and efficient, then it is always optimal to impose restrictive covenants and negotiate waivers *ex post*.[14] In our theory, the probability (z)

[13] It is not essential that these payments be made *ex ante*; they could be in principle be made at any date. Since we allow arbitrary transfers, an implicit assumption is that the parties have sufficient wealth (or expected wealth) to make any promised payments. In the context of debt contracting, we are thus assuming that management has sufficient collateral to support any promised future transfers.

[14] A recent paper by Zwiebel and Garleanu (2006) seeks to explain why debt contracts often have tight covenants

that the stakeholder is informed is a critical determinant of bargaining costs, because there is a lower likelihood of bargaining breakdowns as the stakeholder becomes better informed. If banks are better informed and can engage in bargaining at lower cost than holders of publicly traded bonds, our theory predicts that bank debt should contain more more restrictive covenants than public debt. Supporting both the premise and the conclusion of this statement is a detailed study of privately placed debt by Carey et. al. (1993), who argue that private lenders both engage in greater due diligence and information acquisition than public bondholders and impose tighter covenants. Similarly, Gilson and Warner (1998) and Roberts and Bradley also provide evidence that bank debt has more restrictive covenants than public debt.

Another implication of our model is that undivided control is favored as the probability that the manager proposes value-creating projects (q) increases. Nash, Netter and Poulsen (2003) show that the debt contracts of firms with potentially high future growth opportunities are less likely to contain provisions that limit the ability of these firms to raise additional finance in the future.[15] The authors also show that firms with a high likelihood of financial distress are more likely to borrow with restrictive covenants. As a firm's value declines and its leverage increases, management has greater incentives to take on risky projects, regardless of whether such projects have a negative or positive net present value. In our model, such a situation is consistent with a lower probability that proposals are value-creating (low q) and a higher average level of redistribution (high $\bar{r}$), implying greater sharing of control.

Closed Corporations

It is frequently argued that minority shareholders in closely held corporations are particularly vulnerable to exploitation (see, for example, O'Neal and Thompson, 1985, and Hetherington and Dooley, 1977). Unlike most large publicly traded corporations in the U.S., closely held corporations frequently have a single shareholder or a strong coalition of a few individuals that control a majority of the shares. Moreover, both majority and minority shareholders are commonly employees of the corporation, making the parties particularly dependent on the firm and creating additional conflicts of interests. One risk is that the controlling group may fail to pay dividends and instead pay inflated

that are renegotiated (rather than having renegotiation in the absence of a covenant). In their analysis, which introduces a model similar to ours, firms signal project quality by granting creditors control, leading to a situation in which covenants are tight. The paper rejects the notion that renegotiation in the absence of a covenant is any different (or any more "unseemly") than renegotiation in the presence of a binding covenant. However, as we argue, if there were no prohibitions on renegotiation, then management would have almost unlimited possibilities of extracting rents from creditors by manufacturing bad projects. Certainly, creditors can also abuse their power, but their powers are limited to withholding approval of a management proposal (limiting renegotiation would thus have high costs with only limited benefits). Our reading of the legal literature on this subject suggests that the law indeed recognizes that protections are critical precisely when there is a large imbalance of power.

[15] Roberts and Bradley note that while such firms retain flexibility to obtain future financing, they are more likely to have restrictive covenants in other respects.

salaries to controlling parties or sell assets to related parties at less than fair market value, making it difficult for the minority to realize any tangible value from its ownership stake.

These risks are mitigated if minority shareholders have veto rights over those decisions for which the potential for abuse is most severe. As O'Neal and Thompson and Easterbrook and Fischel (1986) discuss, veto rights also create the potential for bargaining deadlock and minority shareholder with veto rights may be able to extort concessions from the majority. However, consistent with our own analysis, Hetherington and Dooley argue that the minority's power to withhold approval creates "exploitative opportunities... [which are] much more limited than those of the majority"(p. 4).

Venture capitalists provide a good illustration of how sophisticated investors structure their investments in closed corporations. Beyond direct board representation, VC contracts contain provisions that give VC's the right to approve major corporate actions, including sale of stock and payment of dividends. Kaplan and Stromberg (1999) show that venture capitalists typically have voting rights that exceed their cash-flow rights, including not only direct representation on the board but also the right to approve a certain number of outside directors.[16] Interestingly, Stevenson (2001) discusses how VC contracts reduce the potential costs of deadlock by incorporating tie-breaking provision in their contracts (such as compulsory arbitration).

Kaplan and Stromberg (1999) also document that the control rights of VC's are contingent on performance, so that a VC's ability to control decisions decreases if a firm performs well. One potential explanation for this evolution of control rights is given by Aghion and Bolton (1992). In their model, the optimal contract has investors take greater control in bad states of the world. Our model does not provide a dynamic theory of control, but a natural extension would allow investors to update their beliefs about the average quality of an entrepreneur's proposals (q). In such an extension, strong performance would cause VC's to increase their assessment of proposal quality and grant entrepreneurs greater control.

The VC approach to conflicts in closed corporations may work less well for other classes of shareholders, calling for protections besides shared control. To increase the protection of minority shareholders, some states have imposed an "enhanced" fiduciary duty on the majority and are more likely to intervene in cases in which otherwise legitimate transactions harm the minority. This reduces the need to grant the minority veto power and so reduces bargaining deadlock, but it relies on the ability of the courts to identify exploitative behavior.

Employee Control

Hansmann (1996) emphasizes that a barrier to employee control of firms is the heterogeneity

[16] In the model of this paper, only management makes proposals and only shared control based on vetoes is analyzed. In reality, among the important powers of the board is to replace management, which raises profound potential for conflict between founders and the VC, so the procedure for appointing board members can be critical.

of interests among employees. For example, the decision to close a particular plant or to cut a certain product line and reinvest resources elsewhere hurts some workers while potentially benefiting others. Serious conflicts among employees can also arise over whether to distribute earnings in the form of higher wages or dividends; employees with more shares benefit relatively more from dividends. Hansmann observes that even when employees hold a significant share of a firm's equity through employee stock ownership plans, firms typically structure the plans to *minimize* the role of employees in corporate governance. He provides examples of firms in which employees own 100% of the stock, but which are effectively "operated as nonprofit institutions in which [self-perpetuating] directors... are charged with managing the firm as fiduciaries for the benefit of employees" (p. 107).

In the context of our model, we interpret such an arrangement as undivided control by management. Specifically, suppose the "manager" represents a self-interested board that has the mandate to maximize the total welfare of employees, but also derives private benefits of control. In addition, suppose the "stakeholder" represents a particular group of employees with significant equity in the firm. Our theory suggests that undivided control is optimal if the distributional consequences of decisions are highly variable (high σ^2), there is asymmetric information about the extent of redistribution (low z), and if conflicts of interest are not too severe (i.e., if q is not too low and $\bar{r}$ is not too high). It is important to emphasize that heterogeneity in interests as measured by $\bar{r}$ favors *shared* control. It is when the differential impact of decisions on stakeholders is highly variable and hard to measure (and hence unobserved) that undivided control is desirable.

For the reasons discussed above, investment decisions can have large distributional consequences for employees, and these may be extremely difficult to assess; moreover, parties frequently have disparate information regarding these consequences. For example, a source of conflict between management and workers often involves the implementation of a new technology in the workplace, which has the potential to displace certain groups of workers. In this example, management may have better information on the long-term consequences of the technology (in other circumstances, workers may in fact have better information about their priorities and thus the costs associated with a particular policy). Consistent with Hansmann's observations about limited employee decision-making, our theory suggests that granting employing veto rights over these types of decisions results in lower firm value. In particular, the inefficiencies in decision-making associated with an unconstrained board is lower than the costs of inefficient decision-making due to bargaining failures when control is shared.

9 Conclusion

In the normal course of business, firms often serve the interests of a diverse group of stakeholders or patrons, including investors, workers, lenders, suppliers and customers. The firm's important decisions can affect these groups—and even individuals within the groups—in different ways. In a world of zero transaction costs, bargaining among the various parties could guide them to agree on decisions that take all interests into account and maximize total value. If there is asymmetric information or other impediments to perfect bargaining, however, then the outcome will sometimes fail to maximize total value. The form this failure takes can differ according to whether control is shared. If the stakeholders besides management share control rights and if the bargainers fail to agree on compensating transfers, then the stakeholders may veto even value-enhancing decisions. If control is undivided and bargainers fail to reach agreement, then the firm's decision calculus may neglect the interests of some stakeholders, leading the firm sometimes to pursue projects that destroy value.

In this paper, we compare the losses from shared control with those from undivided control to determine when—meaning for which classes of decisions—control should be shared. Our comparison differs both from Hansmann (1996), who emphasizes only how the costs of shared control are affected by diversity of interests, and from Grossman and Hart (1986) and Hart and Moore (1990), who emphasize the hold-up problem and find that shared control is never optimal. Unlike these earlier analyses, the effectiveness of legal rules, particularly fiduciary duties and obligations of good faith and fair dealing, play an important role in our analysis, because they impose a discipline on management that reduces the losses from undivided control. Without some such discipline, we argue, control would need to be shared for a much wider set of decisions so that stakeholders can be better protected against managerial opportunism.

Legal rules also affect the comparative statics of control in an interesting way, because they distinguish undivided control as the structure in which *ex post* bargaining occurs least frequently. In our model, legal rules eliminate bargaining when control is undivided. Consequently, changes in the environment that make bargaining outcomes more efficient (increases in z in our model) favor shared control over undivided control. As an illustration, when applied to loan agreements, the theory predicts more restrictive covenants in bank lending than in bond issues, because it is easier to renegotiate a contract with a single lender than with a widely dispersed group of small bondholders.

While the preceding analysis gives a nuanced answer to the question of when control is shared, more is needed to explain why ownership rights, unlike other control rights, tend to be concentrated among a relatively homogeneous group of stakeholders. Our answer is based on a selection argument—identifying which rights remain after some are assigned by contract—rather than by an

assignment argument, which emphasizes why the remaining rights are assigned to some particular group.

The first step in our explanation is a simple one: ownership rights are by definition rights which are not assigned by contract; they are *residual* control rights. So, explaining the observation amounts to answering the question: why does shared control among heterogeneous stakeholders almost always take the form of contractual veto rights over particular classes of decisions, rather than some non-contractual form?

We offered a simple answer to that question in the introduction, by specifying that the alternative non-contractual means of sharing control is some sort of voting scheme. Compared to veto rights, voting rights on a board of directors offers weaker and/or less well targeted protection for stakeholders with narrow interests. It also creates more opportunities for value-destroying influence activities and rent seeking. Finally, it creates costs by engaging stakeholders in decisions for which they may have little information, expertise or interest.

Thus, our analysis proposes an answer to the puzzle of undivided control for residual rights. Stakeholders who need protection against exploitative decisions generally find that such protection is secured most reliably and at least cost in the form of veto rights over the relevant classes of decisions. If interests can be adequately secured in that way, what remains are costs, but not benefits, to joint participation on a board of directors. Thus, for patrons with conflicting interests, control rights are commonly shared by contract provisions but not by joint participation on a board of directors that exercises residual control.

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