Agency Conflicts, Ownership Concentration

and Legal Shareholder Protection

By

Mike Burkart
and
Fausto Panunzi

DISCUSSION PAPER 378

_____

FINANCIAL MARKETS GROUP
AN ESRC RESEARCH CENTRE
_____

LONDON SCHOOL OF ECONOMICS

Agency Conflicts, Ownership Concentration, and Legal Shareholder Protection [1]

Mike Burkart

SITE and Finance Department,
Stockholm School of Economics
and CEPR

`mike.burkart@hhs.se`

Fausto Panunzi

Istituto di Economia Politica,
Università Bocconi
and CEPR

`fausto.panunzi@uni-bocconi.it`

March 2001

Abstract

This paper analyzes the interaction between legal shareholder protection, managerial incentives, and outside ownership concentration. Legal protection affects both the expropriation of shareholders and the blockholder's incentives to monitor. Because of this latter effect and its repercussion on managerial incentives, outside ownership concentration and legal shareholder protection can be both substitutes or complements. This holds irrespective of whether or not the large shareholder can reap private benefits. Moreover, better legal protection may exacerbate rather than alleviate the conflict of interest between large and small shareholders. In the extended framework with monetary incentives, ownership is fully dispersed when legal shareholder protection is strong. Otherwise, outside block ownership is optimal and is a substitute to legal protection when the law is of intermediate quality, while it is a complement when the law is poor.

1 Introduction

The literature on corporate governance has traditionally concentrated on the conflict of interests between self-interested managers and dispersed small shareholders. Within this paradigm, the lack of monitoring due to free-rider problems is the fundamental problem that a good governance structure must overcome. In contrast to this image of the modern corporation, empirical research demonstrates that firms are generally not widely held (Barca and Becht (1999) La Porta, Lopez-de-Silanes and Shleifer (1999)). Outside the United States and the United Kingdom, most firms, even the largest corporations, tend to have a dominant shareholder, while large share stakes and dominant shareholders are a common phenomenon even in the United States (Holderness and Sheehan ((1988), Zwiebel (1995)).

The presence of a large shareholder changes the nature of the governance problem. Unlike small shareholders, large blockholders have an incentive to monitor managers, thereby mitigating the agency problem between managers and shareholders. In addition, large shareholders can use their influence to pursue their own goals, possibly at the expense of the small shareholders. Hence, the view that ownership concentration necessarily protects minority shareholders is too simplistic. While large shareholders alleviate the traditional corporate agency problem, they are also the source of another agency problem.

The role of ownership concentration as a governance mechanism exemplifies how differences in institutions have implications for the nature of the governance problem. Currently, the relevance of law for corporate governance attracts much attention. Following the pioneering work by La Porta *et al.* (1997), a growing literature argues that cross-country differences in corporate governance, and more broadly in financial systems, are shaped by the quality of legal rules protecting outside investors. One prominent finding of this new Law and Finance literature, which is summarized by La Porta *et al.* (2000b), is the inverse relationship between ownership concentration and quality of legal shareholder protection. [1] The common argument is that investors are willing to take minority positions and finance companies in countries where legal rules are extensive and well enforced. By contrast, where the legal framework fails to provide sufficient protection, investors compensate for this deficiency by taking large positions in firms.

This paper scrutinizes the validity of this common argument for the case of outside ownership concentration. To this end, we analyze the interaction between legal shareholder protection, managerial incentives, and ownership in a setting where the large shareholder can both protect and act against the interests of the small shareholders. Our central proposition is that

---

[1] Empirical studies proxy legal shareholder protection by an index which aggregates shareholder rights and legal provisions that favor minority shareholders in the corporate decision making process, such as e.g., the one-share one-vote rule, the preemptive right to buy new issues of shares, the possibility to mail the proxy vote, the right to challenge the directors' decision in court, and mandatory dividend requirements.

outside ownership concentration and legal shareholder protection can be both substitutes or complements. The alleged, strictly inverse relationship holds within our framework when the law is of intermediate quality or when legal shareholder protection has, by assumption, no direct impact on security benefits and all shareholders have perfectly congruent interests.

Our starting point is the observation that several parties in a firm, such as managers and active large investors, contribute to the creation of shareholder value. The distribution of corporate surplus affects the parties' incentives to make firm-specific investments and thus determines the size of the surplus (Grossman and Hart (1986)). When contracts are incomplete, empowering one party may discourage investments by others. Consequently, the allocation of power among the different constituencies in a firm is an important determinant of shareholder value.[2]

As the Law and Finance literature emphasizes, legal shareholder protection affects the ease with which the manager, possibly in collusion with the large shareholders, can divert corporate resources. We argue that there is another effect which this literature has overlooked: the quality of legal rules also shapes the large shareholders' incentives to monitor. That is, the law affects the mapping from ownership concentration to monitoring. This is of importance for the relationship between legal protection and ownership concentration, because shareholder control through monitoring weakens the manager's incentives to undertake valuable investments. Due to this effect, ownership concentration and legal shareholder protection can be both substitutes or complements. For the same reason, better legal protection may exacerbate rather than alleviate the conflict of interest between large and small shareholders.

More specifically, we consider a firm with a large shareholder and otherwise dispersed ownership. The firm has the prospect of a valuable project which realizes with some probability only if the manager exerts effort. Given that the project is undertaken, the resulting proceeds can either be paid out to all shareholders on a pro-rata basis or transformed into private benefits at a dead-weight loss. This decision is taken by the manager, if the large shareholder remains uninformed. By contrast, when monitoring is successful, the large shareholder decides whether to pay out the proceeds or whether to divert resources and share the private benefits with the manager. Within this framework, ownership concentration has benefits as well as costs (Burkart *et al.* (1997)). When the large shareholder monitors more due to a larger stake, he is more likely to control the resource allocation. This in turn reduces the manager's incentive to exert effort because he is less likely to extract (large) private benefits. Since managerial initiative is valuable, maximizing net shareholder return may require to constrain monitoring

---

[2]Tirole (2001) distinguishes between two main approaches to corporate governance; the shareholder value perspective and the stakeholder society perspective. We do not argue here in favor of either perspective. Instead, we simply point out that several parties contribute to the creation of share value, even when one subscribes to the shareholder value perspective.

by limiting ownership concentration.

Our model obviously assumes that the large shareholder and the manager are distinct parties, irrespective of the block size. In our view, this definition of insider and outsider is not refuted by the observation that many controlling owners are Board Members and participate in management.[3] Being a Board Member or even its Chairman is quite different from being the CEO of the firm, and their interests are likely to differ.[4] This does, however, not preclude

effort by the manager. Accordingly, weaker shareholder protection goes together with a decrease (increase) in ownership concentration when its effect on monitoring incentives dominates (is dominated by) its effect on managerial incentives.

This central proposition proves robust to both monetary incentives and collusion between manager and large shareholder. The introduction of monetary incentives makes it also possible to characterize the relationship between legal shareholder protection and ownership concentration: they are substitutes when legal shareholder protection is of intermediate quality, whereas they are complements when legal protection is poor. When legal protection is good, ownership is fully dispersed and the manager receives a wage which increases with the quality of the law. We want to point out that these predictions are equilibrium outcomes and do not imply any causality.

When manager and large shareholder collude, legal rules also shape the nature of monitoring; they determine how much importance the large shareholder attaches to enhancing security benefits relative to extracting private benefits. We find that better legal protection may exacerbate rather than alleviate the conflict of interest between large and small shareholders. When legal protection and outside ownership concentration are substitutes, better legal protection entails a lower ownership concentration. Owning a smaller stake, the large shareholder may choose to divert more corporate resources, even though extraction leads to a larger dead-weight loss.

Our paper is closely related to Burkart *et al.* (1997) who show that ownership dispersion is a commitment device to delegate some effective control to the manager. In their model, the optimal ownership concentration solves a trade-off between initiative and control. The present paper applies this basic trade-off to examine the relationship between legal shareholder protection and optimal outside ownership concentration, allowing for both congruent and conflicting shareholder interests. Boot and Macey (1999) argue that effective supervision of managers is best performed if the monitor, say a large shareholder, is both well informed and objective. However, while proximity improves the quality of information, it implies a loss of objectivity, as the monitor becomes an insider. The trade-off between proximity and objectivity has a bang-bang solution. Our analysis shows that proximity and objectivity are not necessarily conflicting objectives. When the large shareholder owns a larger stake, he monitors more and his interests are more likely to coincide with those of the small shareholders.

The relationship between ownership structures and levels of private benefits has been addressed among others by Grossman and Hart (1988), Zingales (1995), Zwiebel (1995). Some of this theoretical literature explicitly examines the role of legal shareholder protection. Bebchuk (1999) proposes a rent protection theory of corporate ownership. In his model, large private benefits which typically accompany poor legal shareholder protection make a dispersed

ownership structure instable, despite its inherent inertia caused by the free-rider behavior of small shareholders. Anticipating the instability, the initial owners choose to retain control by maintaining a large block. Himmelberg *et al.* (2001) derive the inverse relationship between ownership concentration and quality of the law based on the classical trade-off between incentives and risk. When legal protection is weak, insiders retain a higher fraction of shares to credibly commit to divert fewer corporate resources. To limit their risk exposure, they invest more in the risk-free asset, thereby reducing the scale of their own firm. La Porta *et al.* (1999) show how better legal protection enables a wealth-constrained entrepreneur to raise more outside finance, and Shleifer and Wolfenzon (2000) examine the impact of legal shareholder protection in a market equilibrium model. Wolfenzon (1999) and Bebchuk *et al.* (1999) argue that pyramids, cross shareholding structures, and dual class shares are conducive to the extraction of private benefits and more common in environments with poor investor protection. In all these papers, ownership concentration is beneficial irrespective of the quality of the law because it aligns the insiders' interests with those of the investors. Outside finance arises either because the entrepreneur is wealth-constrained or wants to sell (part of) the firm due to e.g., diversification benefits. In our model, the hired manager and the large shareholder are two different parties and outside ownership concentration comes with benefits but also with costs.

The paper is organized as follows. Section 2 outlines the model. Section 3 examines the relationship between legal shareholder protection, managerial incentives, monitoring, and ownership concentration when shareholders have congruent interests. Section 4 introduces monetary incentives and discusses the empirical predictions of our theory. Section 5 extends the analysis to the case of conflicting interests among shareholders. Section 6 concludes. Mathematical proofs are provided in the appendix.

2   Model

Consider a firm run by a risk-neutral manager (M) who, for simplicity, owns no shares. A fraction α of shares is held by a single investor, the large shareholder (L

verifiable monitoring effort $E \in [0, 1]$ at a cost $E^2/2$. Due to the free-riding by small share-holders (say due to a small opportunity cost), only the large shareholder has an incentive to monitor. If the manager finds the new project, the large shareholder also identifies it with probability E, but remains uninformed with probability $(1 - E)$. If the manager fails to find

of private benefits increases with the quality of legal protection.[8] Formally, we impose the following conditions on the dead-weight loss function.

Assumption 2 *The function $\rho(\phi, \lambda)$ satisfies $\rho_\lambda(\phi, \lambda) > 0$ and $\rho_{\phi\lambda}(\phi, \lambda) > 0$.*

Weak legal protection may be either due to poor quality of the law or to ineffective enforcement (Pistor *et al.* 2000). We abstract from such differences and let λ represent the actual level of legal protection, with higher values of λ corresponding to better protection.

The recent empirical Law and Finance research documents that the quality of legal protection affects patterns of corporate ownership and finance. We capture this notion in a pronounced manner and assume that the law is mandatory and puts effective constraints on the resource allocation decision. Thus, private parties cannot opt out of the legal provisions and the law effectively prescribes the expropriation technology $\rho(\phi, \lambda)$ available to the manager and the large shareholder. This can be motivated by the argument that the law completes private contracts, i.e., fills their gaps: A private contract cannot possible specify all contingencies such as to exclude or limit the uncountable ways in which managers (and large shareholders) may extract private benefits. The law through its general principles (e.g., fiduciary duty, business judgement rule) provides guidelines applicable to a wide range of contingencies, thereby limiting shareholder expropriation (much more) effectively. Such principles cannot be private but must be common (legal) norms to which contracting parties adhere.[9]

Thus, the present model assumes that managerial effort, monitoring, and project proceeds are observable but not verifiable. Legal shareholder protection makes the expropriation technology less efficient which is tantamount to making part of the project proceeds verifiable. Successful monitoring plays a similar role. It gives the large shareholder the discretion to make the entire project proceeds verifiable (though he chooses not to do so when colluding with the manager).

---

[8] Alternatively, one may model legal shareholder protection as limiting the extent to which corporate resources can be diverted. Our results also hold when legal protection imposes an upper bound $\bar{\phi}$ on the choice of ϕ, with lower levels of $\bar{\phi}$ corresponding to better shareholder protection. An example of legal measures aiming at directly restricting the ability to expropriate minority shareholders are mandatory dividend rules, common in French-civil-law countries (La Porta *et al.* (1988)). Accounting standards and disclosure rules are examples of legal protection measures that directly affect the expropriation technology. In our view, there is no obvious ranking between the two ways of modelling legal shareholder protection, despite these fitting examples. Moreover, many rules cannot be clearly classified as either imposing an upper bound on ϕ or affecting the inefficiency of private benefit extraction. For instance, the shareholders' right to challenge the directors' decision in court may be either viewed as the former or the latter, depending upon the kind of decision that one has in mind.

[9] Other explanations for the existence of the law rely on transaction-cost benefits of standard form contracts (Franks and Sussman (1999)) or on costly signaling in the presence of information asymmetries (Aghion and Hermalin (1990)).

3 Monitoring, Initiative, and Legal Protection

This section demonstrates the impact of legal shareholder protection on monitoring incentives and its repercussions on managerial incentives. These two effects imply that a decline (or an improvement) in the quality of legal protection may go together with an increase or a decrease in ownership concentration. Since we want to focus attention on the relationship between legal protection, managerial incentives, monitoring, and ownership, we analyze in this section the plain case with non-transferable private benefits and without monetary incentives.

Solving the game by backward induction, we first derive the resource allocation decision. Given that the firm undertakes the new project, the manager and the large shareholder decide at date 3 how to allocate the proceeds Π between private benefits and security benefits. If the large shareholder is informed (with probability E), he and the manager bargain over the resource allocation. As the large shareholder, by assumption, cannot reap any private benefits, he imposes a zero level of extraction. More specifically, he either proposes $\phi = 0$ or rejects any offer $\phi > 0$ by the manager. Hence, when monitoring is successful, shareholders receive all the proceeds Π and the manager obtains zero.

If monitoring fails, the manager unilaterally decides what fraction of resources to divert as private benefits. The manager chooses the allocation ϕ, maximizing his payoff $[\phi - \rho(\phi, \lambda)]\Pi$. Denote by ϕ^0 the allocation satisfying the manager's first-order condition $\rho_\phi(\phi, \lambda) = 1$. Assumption 1 ($\rho_\phi(1, \lambda) \geq 1$) implies $\phi^0 \leq 1$. Moreover, better legal shareholder protection reduces the expropriation of shareholders by the manager ($d\phi^0/d\lambda = -1/\rho_{\phi\phi} < 0$).[10] Thus, when the large shareholder remains uninformed, the manager extracts private benefits $[\phi^0 - \rho(\phi^0)]\Pi$, whereas the shareholders realize a payoff $(1 - \phi^0)\Pi$. The discrepancy between the manager's choice of ϕ and that of the large shareholder also illustrates the difference between control rights and effective control (Aghion and Tirole (1997)). Exercising control rights requires successful monitoring, otherwise the manager retains effective control.

Next we analyze the large shareholder's monitoring incentives and the manager's effort decision. To simplify the exposition, we concentrate on the interesting parameter configuration where the large shareholder never becomes informed with probability 1 ($E < 1$), and where the manager is willing to exert effort $e = 1$ in the absence of monitoring. (The latter restriction becomes redundant when monetary incentives are introduced in section 4.)

Assumption 3 $1 > p\Pi \geq \dfrac{c}{[\phi^0 - \rho(\phi^0, \lambda)]}$

At date 2, the large shareholder decides to monitor after having observed the manager's

---

[10]Rather than assuming $\rho(1, \lambda) \geq 1$, we could postulate that the manager holds a small fraction ω of shares. In the absence of shareholder interference, the manager would set $\phi = \phi^\omega < 1$, where ϕ^ω satisfies $\rho_\phi(\phi, \lambda) = 1 - \omega$. Better legal shareholder protection would still mitigate the agency problem as $d\phi^\omega/d\lambda < 0$.

effort choice. If the manager does not exert effort, the project is never undertaken and monitoring is of no value. If the manager exerts effort $e = 1$, the large shareholder maximizes his total return

$$\alpha \left[E + (1 - E)(1 - \phi^0) \right] p\Pi - \frac{E^2}{2}.$$

He receives a fraction α of the expected security benefits which are equal to $p\Pi$ when he is informed and equal to $(1 - \phi^0)p\Pi$ when is not informed. By Assumption 3, the FOC gives

$$E = \alpha \phi^0 p\Pi \qquad\qquad (IC_L^{NC})$$

with $\partial E/\partial \alpha = \phi^0 p\Pi > 0$ and $\partial E/\partial \lambda = \alpha p\Pi (d\phi^0/d\lambda) < 0$. Given $e = 1$, a larger stake and a lower quality of legal protection induce the large shareholder to monitor more. In the former case, the large shareholder reaps a larger part of the improvement in security benefits, and in the latter case, monitoring becomes more valuable because it prevents larger expropriation by the manager. The large shareholder's behavior is, however, not directly affected by the extent of the dead-weight loss $\rho(\phi, \lambda)p\Pi$. Being excluded from the consumption of private benefits, his only concern is what fraction ϕ the manager can divert if monitoring fails.

Given E and the choices of ϕ, the manager chooses $e = 1$ only if

$$(1 - E)[\phi^0 - \rho(\phi^0, \lambda)]p\Pi - c \geq 0 \qquad\qquad (IC_M^{NC})$$

or equivalently if

$$E \leq E^{NC} \equiv 1 - \frac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}.$$

The manager's effort choice depends on the likelihood of having effective control. Obviously, successful monitoring with probability 1 annihilates all prospects of extracting private benefits, thereby frustrating managerial initiative. Thus, the maximum level of monitoring preserving managerial initiative (E^{NC}) is smaller than 1. Similarly, if private benefits are relatively small, say due to a strict legal shareholder protection, the manager cannot be induce to exert effort even in the absence of monitoring ($E = 0$). Assumption 3 excludes this possibility, and managerial initiative ($e = 1$) depends on how likely it is that the manager has effective control, i.e., that monitoring fails.[11] The maximum level of monitoring that preserves managerial incentives decreases with the quality of legal shareholder protection ($dE^{NC}/d\lambda < 0$). Better legal protection reduces the amount of private benefits that the manager can extract. As a result of the reduced rents, the manager is willing to exert effort only if he is more likely to have effective control over the resource allocation.

The optimal ownership concentration maximizes total shareholder return net of monitoring cost. If the manger chooses $e = 0$, the project is never undertaken and shareholder return is 0

---

[11] We impose as a tie-breaking rule that the manager chooses $e = 1$ when he is indifferent between effort and no effort , i.e., when $E = E^{NC}$.

for any ownership structure. If the manager exerts effort $e = 1$, net shareholder return is equal to

$$V^{NC} = \left[E + (1 - E)(1 - \phi^0) \right] p\Pi - \frac{E^2}{2}.$$

Differentiating V^{NC} with respect to α and substituting the large shareholder's best response $(E = \alpha\phi^0 p\Pi)$ yields $dV^{NC}/d\alpha = (dE/d\alpha)(1 - \alpha)\phi^0 p\Pi > 0$. Net shareholder return increases in ownership concentration, provided that $E \leq E^{NC}$ holds. Thus, the equilibrium ownership structure is as concentrated as possible subject to the manager's incentive constraint.

Lemma 1 *i) For* $\phi^0 p\Pi[\phi^0 - \rho(\phi^0, \lambda)]p\Pi > [\phi^0 - \rho(\phi^0, \lambda)]p\Pi - c$,
$\alpha^* = \dfrac{1}{p\Pi\phi^0} \left[1 - \dfrac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi} \right] < 1.$
ii) For $\phi^0 p\Pi[\phi^0 - \rho(\phi^0, \lambda)]p\Pi \leq [\phi^0 - \rho(\phi^0, \lambda)]p\Pi - c$, $\alpha^* = 1$.

Sizeable private benefits $[\phi^0 - \rho(\phi^0, \lambda)]p\Pi > c$ (Assumption 3) are only a necessary condition for managerial initiative, because monitoring gives rise to two opposing effects. On the one hand, more monitoring reduces the risk of expropriation by the manager. This control effect is beneficial. On the other hand, more shareholder control deprives the manager of his private benefits, thereby reducing managerial initiative. This initiative effect constitutes the cost of ownership concentration (Burkart *et al.* (1997)). Since managerial initiative generates shareholder return, it can be advantageous to restrict monitoring by partly dispersing share ownership. Full ownership concentration ($\alpha^* = 1$) is optimal only if monitoring that receives 100% of the gains does not deter managerial effort. Otherwise, net shareholder return is maximized by limiting ownership concentration because it leaves sufficient control and hence private benefits to induce managerial initiative.[12]

Having derived the optimal ownership concentration, we can now analyze the relationship between ownership concentration and legal shareholder protection. We restrict our attention to the case where there is an interior solution for α.

Proposition 1 *When private benefits are non-transferable, weaker legal shareholder protection (a decrease in λ) may imply a lower or a higher optimal outside ownership concentration α^*.*

A reduction in the quality of legal protection has two conflicting effects. On the one hand, it entails large private benefits and hence an increase in the maximum level of monitoring that is compatible with managerial initiative (E^{NC}). Ceteris paribus, the increase in E^{NC} translates into a higher optimal ownership concentration. On the other hand, it also increases the

---

[12]Once the manager has exerted effort $e = 1$, increasing monitoring reduces the risk of expropriation by the manager, and net shareholder return increases in the block size. This gain does, however, not materialize when trading is not anonymous. When investors are fully informed, the large shareholder cannot make a profit on traded shares and has no incentive to alter his stake. Thus, the optimal ownership structure is robust if markets are fully transparent (Pagano and Röell (1998)).

returns from monitoring for a given stake α. As closer monitoring stifles managerial initiative, the increased monitoring incentives have to be countered with a reduction in ownership concentration.

The intuition for the ambiguous net effect is perhaps best understood by examining the condition for the optimal ownership concentration. The optimal block size satisfies the condition $E = \alpha \phi^0(\lambda) p \Pi = E^{NC}(\phi^0(\lambda))$. An reduction in λ increases both sides of the condition. If the response of the initiative effect $(\frac{dE^{NC}}{d\lambda})$ exceeds the one of the monitoring incentives $(\frac{dE}{d\lambda})$, the optimal outside ownership concentration has to increase in order to restore the equality. Conversely, when the impact of a weakened legal protection is stronger on the monitoring incentives, the large blockholder's stake needs to be reduced. It is, however, not possible to determine for which λ values the derivative $d\alpha^*/d\lambda$ is positive or negative, unless further restrictions are imposed, e.g. specific functional forms are used.[13] (See also Proposition 3 on this point.)

Our result that weaker shareholder protection may also go together with lower ownership concentration conflicts with the common interpretation that ownership concentration and legal protection are substitutes. We like to emphasize that our result supports the view that weaker legal rules require more monitoring. As discussed above, the maximum level of monitoring that preserves managerial initiative E^{NC} is inversely related to the quality of the law. Thus, our model concurs with the argument that more monitoring improves return on equity when legal protection is weak. In addition, it offers an alternative interpretation: Only regimes of weak legal shareholder protection allow for close monitoring. In regimes with good shareholder protection, frequent shareholder interference would frustrate managerial initiative.

Proposition 1 differs from the common view in that it explicitly accounts for the impact of legal rules on the incentives to monitor. As weaker shareholder protection increases both shareholder expropriation and monitoring, implementing a higher optimal level of monitoring, i.e., E^{NC}, may require a higher or lower outside ownership concentration.

The identity of the blockholder is another important reason why our result differs, predicting that changes in the quality of shareholder protection may go together with an increase or a decrease in ownership concentration. Other Law and Finance papers, e.g., La Porta *et al.* (1999) and Shleifer and Wolfenzon (2000), consider wealth-constrained owner-managers. In these models, legal shareholder protection and ownership concentration are substitutes; the former reduces private benefit extraction because better rules make the expropriation technology less efficient, the latter because an owner-manager with a larger stake internalizes more of the dead-weight loss associated with private benefit extraction. In fact, irrespective of the quality

---

[13]Formally, $dE^{NC}/d\lambda$ is a function of $\rho_\lambda(\phi^0, \lambda)$, while due to the dead-weight loss of private benefit extraction $dE/d\lambda$ depends on $d\phi^0/d\lambda$.

of legal investor protection, more inside ownership concentration is always beneficial, as it reduces inefficient private benefit extraction. Outside finance arises because owner-managers are wealth-constrained, and the inverse relationship between ownership concentration and legal shareholder protection follows from a multiplier effect. Better legal protection increases the amount of pledgeable funds. This enables an entrepreneur with some given wealth to raise more outside funds, thereby lowering the fraction that his wealth contributes to the overall funding, i.e., his equity stake. If our framework is modified into an inside equity model (by removing the initiative effect and by allowing managerial equity), it would also deliver these results. Thus, our analysis supports the view that legal shareholder protection and inside ownership concentration are substitutes, but also establishes that the relationship is more intricate in case of outside ownership concentration.

Finally, we like to point out that Proposition 1 does not hinge on the adverse initiative effect, but is a more general result. Models based on other costs of ownership concentration could also deliver Proposition 1, provided that changes in the legal protection affect these costs directly. Consider for instance a framework with risk-averse (large) investors. Provided that the variance of the security benefits increases following a reduction in shareholder protection, the overall impact on the optimal ownership concentration may also be ambiguous. We base our model on the initiative effect because it captures one important difference between inside and outside equity ownership (concentration). In a firm with a manager-owner and otherwise dispersed small shareholders, neither lacking initiative nor excessive shareholder interference are essential issues.

4   Optimal Ownership Structure and Legal Protection

We now expand the framework and include monetary compensation for the manager. While the introduction of monetary incentives does not qualitatively alter our results, it allows to make them more precise. In particular, full dispersion emerges as the optimal ownership structure in regimes with good legal shareholder protection, and the relationship between the optimal outside ownership concentration α^* and the quality of the law λ can be characterized.

Within our model, there are two reasons why shareholders, or more appropriately the large shareholder on behalf and in the interest of all shareholders, may want to offer the manager monetary incentives. First, a wage may induce the manager to exert effort when the (expected) private benefits are (too) small. Second, monetary incentives may resolve the conflict between the manager and the shareholders with respect to the resource allocation decision.

We first analyze the latter problem of aligning the manager's and shareholders' interests. This is an issue only if the firm has undertaken the project and monitoring has failed. Otherwise, there are either no resources to allocate or the informed large shareholder simply enforces that

the entire project proceeds Π are paid out as dividends. In fact, the large shareholder is unable to commit not to interfere were the manager to extract some private benefits.

To reduce or avoid the extraction of private benefits, shareholders can at date 0 offer the manager an equity stake $\omega \geq 0$.[14] In addition, they can renegotiate with the manager at date 3 prior to the resource allocation decision. Since project proceeds are observable (although not verifiable) and private benefit extraction is inefficient, such renegotiation is feasible and efficient. For simplicity, we assume that the shareholders have all the bargaining power. That is, they can make a take-it-or-leave offer to the manager, proposing a reward b in exchange for setting $\phi = 0$. All offers that do not entail a dividend payment Π can be bypassed, because the remaining private benefit extraction leaves scope for further renegotiations. Moreover, the renegotiated benefits b can be conditioned on the verifiable dividends, thereby overcoming opportunistic behavior by the manager.

Suppose that the manager is initially offered a fraction $\omega > 0$ of the dividends. When monitoring fails, the manager diverts ϕ^{ω} of the resources where ϕ^{ω} satisfies $1 - \omega - \rho_{\phi}(\phi, \lambda)) = 0$, and $\phi^{\omega} < \phi^0$ holds. Thus, managerial share ownership $\omega < 1$ merely mitigates the conflict over the resource allocation. To induce the manager to set $\phi = 0$, shareholders have to complement his dividend claim ex post with a renegotiated benefits that matches the private benefits that he could extract, i.e., $b = (\phi^{\omega} - \rho(\phi^{\omega}, \lambda))\Pi$. The resulting payoff for the shareholders is $((1 - \omega)(1 - \phi^{\omega}) + \rho(\phi^{\omega}, \lambda))\Pi$ which is decreasing in ω. Hence, the cost efficient way to implement $\phi = 0$ is to offer the manager no equity ($\omega = 0$) and to renegotiate when monitoring fails. In the renegotiation, shareholders offer $b = (\phi^0 - \rho(\phi^0, \lambda))\Pi$ if dividends are Π and 0 otherwise. This incentive scheme fully aligns the manager's interests ex post by rewarding him if and only if he pays out the entire project proceeds Π. As the renegotiated benefits b are equal to the private benefits for a given level of legal shareholder protection, its size decreases with the quality of the law.

Since renegotiation resolves the conflict over the resource allocation, the role of a monetary incentive scheme, henceforth wage, is confined to incentivate the manager to exert effort $e = 1$. Given the manager's limited liability and the binary project returns, the optimal contract entails a positive wage only if the project is undertaken. Since either successful monitoring or renegotiation ensure $\phi = 0$, it suffices to condition the wage on a positive dividend payment. We express the wage as fraction w of the expected project proceeds $p\Pi$.

Renegotiation and wage affect the large shareholder's incentive to monitor. Having observed $e = 1$, he maximizes his total return

$$\alpha \left[1 - w - (1 - E)(\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - \frac{E^2}{2}.$$

[14] As the project proceeds are either 0 or Π, the restriction to linear incentive schemes is without loss of generality.

13

Maintaining the assumption that the large shareholder never becomes informed with probability 1, i.e., $1 > p\Pi$, the FOC gives

$$E = \alpha \left[\phi^0 - \rho(\phi^0, \lambda) \right] p\Pi. \qquad (IC_L^{NCw})$$

While the comparative static properties of E remain as in section 3, there is a level effect. Monitoring is now less valuable because renegotiation avoids the dead-weight loss and the entire efficiency gains accrue by assumption to the shareholders. For the same reason, the manager's effort decision at date 1 is not affected by the renegotiation. He chooses $e = 1$ only if

$$\left[w + (1 - E)(\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c \geq 0 \qquad (IC_M^{NCw})$$

or equivalently if

$$E \leq E^{NCw} \equiv \frac{\left[w + (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c}{(\phi^0 - \rho(\phi^0, \lambda)) p\Pi}.$$

The positive relationship between the wage and the maximum level of monitoring that preserves managerial initiative has two implications. First, effort can be induces even if the effort cost c exceed the private benefits, respectively the renegotiated benefits b. Hence, Assumption 3 can be relaxed to include parameter constellations where $(\phi^0 - \rho(\phi^0, \lambda)) p\Pi < c$ holds. Second, the threshold E^{NCw} exceeds the threshold E^{NC} unless the wage equals zero. That is, managerial initiative can be sustained at higher levels of ownership concentration by paying the manager a wage. In equilibrium, a positive wage and ownership concentration are, however, mutually exclusive.

Proposition 2 *There exists a critical level of legal shareholder protection $\lambda_1 > 0$ such that fully dispersed ownership and a positive wage are optimal ($\alpha^* = 0$ and $w^* > 0$) when legal protection is good ($\lambda > \lambda_1$). Otherwise ($\lambda \leq \lambda_1$), outside ownership concentration and a zero wage are optimal ($\alpha^* > 0$ and $w^* = 0$).*

While renegotiation eliminates the deadweight loss associated with the extraction of private benefits, neither a wage nor monitoring are in general redundant. The reason is that the renegotiated benefits b decrease with the quality of the legal shareholder protection. In regimes with good legal protection, the expected renegotiated benefits are smaller than the effort cost, even in the absence of monitoring. Consequently, the manager exerts effort only if the reward b is supplemented with a wage. In regimes with weak legal protection, the expected renegotiated benefits b exceed the effort cost. Thus, there is no need to offer the manager a wage. In addition, there is (partial) ownership concentration because successful monitoring enables shareholders to control the resource allocation and implement $\phi^0 = 0$ without having to bribe the manager.

Wages and ownership concentration do not coexist in equilibrium because monitoring is costly and because renegotiation eliminates the deadweight loss. A simultaneous reduction of the ownership concentration and the wage which leaves the sum of expected wage and renegotiated benefits unchanged does not affects the manager's effort decision. Substituting higher wages with a higher probability of paying the reward b saves, however, monitoring cost, thereby increasing net shareholder return. Because of the mutually exclusive use of wages and monitoring, the second part of Proposition 2 basically restates Lemma 1.[15] Weak shareholder protection goes together with outside ownership concentration as the large private (renegotiated) benefits admit some monitoring without frustrating managerial initiative.

Proposition 2 also extends Lemma 1. When shareholder protection is good, abstaining from monitoring is not sufficient to induce the manager to exert effort. Hence, the ownership structure is indeterminate, unless the manager's incentives are boosted with an additional wage. Due to the direct monitoring cost, the efficient way to implement managerial initiative is to disperse ownership and to offer a wage that exactly covers the difference between effort cost and expected renegotiated benefits. Formally, the wage obtains by setting $E = 0$ in the manager's incentive constraint and by rearranging it to

$$w = \frac{c}{p\Pi} - (\phi^0 - \rho(\phi^0, \lambda))$$

Differentiating w with respect to λ yields $dw/d\lambda = \rho_\lambda(\phi^0, \lambda) > 0$. Thus, there is a positive correlation between the wage and the quality of the law. Given that the manager's incentive constraint binds, the wage has to increase as legal protection improves to compensate for the lower renegotiated benefits. Thus, Proposition 2 implies that the composition rather than the total expected payoff $b + w$ varies with the quality of the law. That is, the ratio of ex ante agreed wage to ex post renegotiated benefits increases with the quality of the law. Given that the renegotiated benefits are less easily observable,[16] Proposition 2 predicts higher managerial compensations in countries with better legal shareholder protection. This is consistent with evidence documenting higher managerial compensations and better legal protection in the U.S. and U.K. than in Continental Europe and Japan (e.g., Kaplan (1997) and La Porta *et al.* (1997)).

As regards the relationship between outside ownership concentration and the quality of the law, we find the qualitative properties of Proposition 1 confirmed. Changes in the legal

---

[15] The transformation of inefficient private benefits into renegotiated benefits entails a different threshold value above which α^* equals 1. In Lemma 1, the threshold is $(\phi^0 - \rho(\phi^0, \lambda))p\Pi < c + \phi^0 p\Pi[(\phi^0 - \rho(\phi^0, \lambda))p\Pi]$, while with renegotiation (Proposition 2) the threshold is $(\phi^0 - \rho(\phi^0, \lambda))p\Pi < c + [(\phi^0 - \rho(\phi^0, \lambda))p\Pi]^2$. In either case, $\alpha^* = 1$ implies that the manager's expected benefits exceed the effort cost, i.e., that his incentive constraint does not bind.

[16] Proposition 2 does not require that the reward b is in cash. The essence of the renegotiation is the elimination of inefficiencies. Hence, the bribe can be any private benefit that does not impose a dead-weight loss on the shareholders.

shareholder protection affect again the incentives of both the manager and the large shareholder, and the optimal ownership structure is non monotone in the quality of the law. In addition, the elimination of the dead-weight loss makes it possible to determine when legal shareholder protection and ownership concentration are substitutes and when they are complements.[17]

Proposition 3 *There exists another threshold value of legal shareholder protection* $0 < \lambda_2 < \lambda_1$ *such that the optimal outside ownership concentration* α^* *decreases with the quality of the law when legal protection is of intermediate quality* $(\lambda_2 < \lambda \leq \lambda_1)$. *When legal shareholder protection is poor* $(\lambda \leq \lambda_2)$, *the optimal outside ownership concentration* α^* *increases with the quality of the law.*

As in the previous section, net shareholder return increases in ownership concentration, provided it does not deter managerial initiative. Hence, the optimal block size satisfies the condition $E = \alpha(\phi^0 - \rho(\phi^0, \lambda))p\Pi = E^{NCw}(\phi^0(\lambda))$ where $w = 0$. When legal shareholder protection is of intermediate quality, a reduction in λ has a larger impact on managerial incentives than on the behavior of the large shareholders. Consequently, larger outside block ownership goes together with less legal shareholder protection. Once the quality of the law reaches the critical value λ_2, the reverse holds. The enlarged scope to divert corporate resources promotes monitoring more than it encourages managerial initiative. Due to the adverse effect of monitoring on managerial initiative, further reductions in legal protection are associated with less concentrated ownership.

Combining Propositions 2 and 3, we obtain the following prediction regarding the relationship between ownership concentration and legal shareholder protection. When legal shareholder protection is strong, ownership is dispersed. As legal protection becomes weaker, outside ownership concentration initially increases, but then decreases. Hence, legal protection and outside ownership concentration are substitutes when legal protection is of intermediate quality, while they are complements when legal protection is poor.

Proposition 2 is corroborated by the empirical evidence. La Porta, Lopez-de-Silanes, and Shleifer (1999) among others find that widely held firms are more common in countries with good shareholder protection. Also, dispersed ownership of medium-sized firms (those with market valuations near, but above, \$500million) is prevalent only in the U.S. and U.K. both of which come out on top in cross-country comparisons of legal shareholder protection.

As regards the relationship between ownership concentration and legal protection, empirical studies (e.g., La Porta *et al.* (1998) and Himmelberg *et al.* (2001)) typically document an inverse relationship, while our theory postulates a non-monotone relationship in the range

---

[17]The sign of $d\alpha^*/d\lambda$ can be determined because both $dE^{NCw}/d\lambda$ and $dE/d\lambda$ are a function of $\rho_\lambda(\phi^0, \lambda)$. The latter is due to the fact that renegotiation eliminates the dead-weight loss which in turn implies that $dE/d\lambda = \left[(d\phi^0/d\lambda)[1 - \rho_\phi(\phi^0, \lambda)] - \rho_\lambda(\phi^0, \lambda) \right] \alpha p\Pi = -\rho_\lambda(\phi^0, \lambda)\alpha p\Pi.$

where legal protection is not strong (Propositions 1 and 3). Despite this contradiction, we do not regard this evidence as a conclusive rejection of our theory for two reasons.

First, empirical Law and Finance papers either do not distinguish between inside and outside ownership concentration or define any blockholder as insider who participates in management or who owns more than say 20 percent of the shares. In contrast, we consider a blockholder as an outsider, unless he is an executive officer, e.g., the CEO. Moreover, our theory presupposes outside blockholdings. Hence, it cannot offer predictions about how the quality of the legal protection affects the likelihood of outside rather than inside ownership concentration. Accordingly, the prevalence of inside ownership in countries with poor legal protection, such as transition economies, is evidence orthogonal to our theory.

Second, our primary contribution is to show that legal shareholder protection and ownership concentration can be substitutes or complements because legal protection shapes the monitoring incentives which in turn affects managerial incentives. In our view, a direct test of Propositions 1 and 3 requires more detailed investigations than regressing mean ownership concentration on compri ioooutsidoownershi whicptir   esrrrwniotinitm36pususm36pm36pmmorn
concentrat(es)-10m   l   .   .
                            e   t   a   t

In this section, we allow for the possibility that the (informed) large shareholder colludes with the manager at the expense of the small shareholders. More precisely, private benefits can now be shared between the manager and the large shareholder at no costs other than the dead-weight loss of extraction (Assumption 1).[19] Since the focus is on how collusion affects the relationship between legal protection and ownership concentration, we abstract for simplicity from monetary incentives. Moreover, the analysis in the previous section shows that the introduction of monetary incentives does not fundamentally alter this relationship and makes us confident that this also holds with transferable private benefits.

We start solving the game again by deriving the resource allocation, given that the project is undertaken. When monitoring fails, the resource allocation remains unchanged. Having effective control, the manager chooses ϕ as in section 3. Thus, he appropriates private benefits $[\phi^0 - \rho(\phi^0, \lambda)]\Pi$, and the shareholders receive security benefits $(1 - \phi^0)\Pi$.

When the large shareholder is informed, he can agree to divert resources and share the private benefits with the manager, who is by assumption indispensable for the private benefit extraction. Alternatively, the informed large shareholder can also impose the zero diversion. Accordingly, the outside options of the large shareholder and the manager in the bargaining are $\alpha\Pi$ and 0 respectively. When the manager proposes a resource allocation (with probability ψ), he has to fully compensate the large shareholder for the value reduction of the block. Unless the manager offers $\alpha\phi\Pi$, the large shareholder reject the proposal. Thus, the manager chooses ϕ to maximizes $[\phi - \rho(\phi, \lambda) - \alpha\phi]\Pi$. When the large shareholder sets ϕ (with probability $1 - \psi$), he simply maximizes his payoff $[\alpha(1 - \phi) + \phi - \rho(\phi, \lambda)]\Pi$, as the manager's outside option is zero. As both parties' objective functions (with respect to ϕ) coincide, the analysis of the bargaining game simplifies to maximizing the joint coalition payoff $[\alpha + \phi(1 - \alpha) - \rho(\phi, \lambda)]\Pi$. Denote by ϕ^α the solution to the first-order condition $(1 - \alpha) = \rho_\phi(\phi, \lambda)$. As the joint coalition payoff $[\alpha + \phi^\alpha(1 - \alpha) - \rho(\phi^\alpha, \lambda)]\Pi$ exceeds the sum of the outside options $\alpha\Pi$, the large shareholder and the manager always agree to collude. Given that the manager (large shareholder) makes a take-it-or-leave-it offer how to share the private benefits with probability ψ $(1 - \psi)$, the expected collusion payoffs are

$$U_M = \psi\left[(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right]\Pi$$

and

$$U_L = \left[\alpha + (1 - \psi)[(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]\Pi.$$

---

[19] One may argue that collusion between manager and large shareholder facilitates the extraction of private benefits, thereby reducing the associated dead-weight loss. Our model could easily accommodate such considerations through upward shifts in the extraction technology. We abstract, however, from this added feature because it does not interfere with the basic mechanism. Crucial for our result is that a larger block entails more monitoring and a larger share of the private benefits for the blockholder.

Although our formalization of the resource allocation decision is rather stylized, it has some appealing properties. First, the share of private benefits that the manager can secure for himself is inversely related to the size of the large shareholder's block ($\partial U_M/\partial \alpha = -\phi^\alpha < 0$). Thus, when outside ownership concentration is relatively low, the manager extracts a larger fraction of the private benefits, reflecting his increased discretion. Second, the large shareholder's interests are partially aligned both with those of the manager and with those of the small shareholders. While he colludes with the manager at the expense of the small shareholders, the extent of diversion is inversely related to the size of the block. As α increases, the large shareholder's interests become more aligned with those of the dispersed shareholders. He internalizes more of the inefficiency and extracts less private benefits.

At date 2, the large shareholder monitors only if the manager exerts effort at date 1. Having observed $e = 1$, the large shareholder maximizes his total return

$$E\left[\alpha + (1-\psi)[(1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]p\Pi + (1-E)\alpha(1-\phi^0)\Pi - \frac{E^2}{2}.$$

By Assumption 3, the FOC gives

$$E = \left[\alpha\phi^0 + (1-\psi)[(1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]p\Pi. \qquad (IC_L^C)$$

The large shareholder monitors both to avoid expropriation of his stake and to extract private benefits. Reflecting these motives, tighter shareholder protection, more managerial bargaining power, and a smaller block all reduce the level of monitoring, because either private benefits, the large shareholder's share thereof, or the expropriation threat (of his stake) are diminished ($\partial E/\partial \lambda < 0$, $\partial E/\partial \psi < 0$, and $\partial E/\partial \alpha > 0$). In contrast to section 3, a fully dispersed ownership structure does not prevent monitoring. The mere prospect of reaping private benefits induces the large shareholder to monitor, i.e., $E(\alpha = 0) > 0$.

At date 1, the manager chooses $e = 1$ only if

$$\left[(1-E)(\phi^0 - \rho(\phi^0, \lambda)) + E\psi\left[(1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right]\right]p\Pi \geq c \qquad (IC_M^L)$$

or equivalently if

$$E \leq E^C \equiv \min\left[1, \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]p\Pi}\right].$$

It follows from $(1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) > 0$ that $E^{NC} \leq E^C$. Collusion promotes managerial initiative (unless $\psi = 0$) because the manager also receives private benefits when the large shareholder is informed, albeit less than when monitoring fails. Hence, collusion lowers the cost of ownership concentration. If $E^C < 1$, tighter shareholder protection, less managerial bargaining power, and higher outside ownership concentration all reduce the maximum level

of monitoring preserving managerial initiative (see Lemma 3 in the Appendix). As before, Assumption 3 ensures that $E^C > 0$. Nonetheless, it may be impossible to implement managerial initiative because the prospect of appropriating part of the private benefits may already induce a monitoring level that exceeds the threshold E^C.

The optimal ownership concentration obtains again from maximizing total net shareholder return. In contrast to the previous sections, net shareholder return does not coincide with net equity value, as it includes the private benefits accruing to the large shareholder. Provided that $e = 1$, total shareholder return net of monitoring costs is

$$
\begin{aligned}
V^C &= E[(1-\alpha)(1-\phi^\alpha) + \alpha + (1-\psi)\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)]p\Pi \\
&\quad + [(1-E)(1-\phi^0)]p\Pi - \frac{E^2}{2}.
\end{aligned}
$$

Differentiating V^C with respect to α yields

$$
\frac{dV^C}{d\alpha}\Big|_{e=1} = p\Pi\left\{\frac{dE}{d\alpha}\left[(1-\alpha)(\phi^0-\phi^\alpha)\right] + E\left[\psi\phi^\alpha - (1-\alpha)\frac{d\phi^\alpha}{d\alpha}\right]\right\} > 0.
$$

Net shareholder return increases with the ownership structure for three reasons. First, higher outside ownership concentration reduces the likelihood that the manager has effective control and expropriates shareholders. Second, it increases the share of private benefits that the large shareholder can appropriate at the expense of the manager. Third, it lowers the extent of inefficient extraction chosen jointly by the manager and the large shareholder because the latter's interests are more aligned with those of the small shareholders.

Lemma 2 *A) For* $\left[(1-\psi)(\phi^0 - \rho(\phi^0, \lambda))p\Pi\right]^2 > (\phi^0 - \rho(\phi^0, \lambda))p\Pi - c$, *the optimal ownership structure is indeterminate.*

B) For $\left[(1-\psi)(\phi^0 - \rho(\phi^0, \lambda))p\Pi\right]^2 \leq (\phi^0 - \rho(\phi^0, \lambda))p\Pi - c$, *there is a unique optimal ownership structure.*

i) If $\phi^0 p\Pi(\phi^0 - \rho(\phi^0, \lambda))p\Pi \leq (\phi^0 - \rho(\phi^0, \lambda))p\Pi - c$, $\alpha^* = 1$.

ii) Otherwise, $\alpha^* < 1$ *and given by the condition*

$$
\left[\alpha\phi^0 + (1-\psi)[(1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]p\Pi = \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]p\Pi}.
$$

The optimal ownership structure with transferable as with non-transferable private benefits implements the maximum level of monitoring that is compatible with managerial initiative. It does, however, not only depend on the size of the private benefits, but also on the distribution of the bargaining power. A manager with little bargaining power is not willing to tolerate much interference by the large shareholder. In fact, if the manager has very little bargaining power,

even a completely dispersed ownership structure fails to induce managerial effort (case A).[20] This outcome can arise because the level of monitoring with transferable private benefits is strictly positive for any ownership concentration, including a fully dispersed structure.[21] (The introduction of a wage would obviously resolve the effort provision problem and eliminate the indeterminacy. Analogous to section 4, a fully dispersed ownership structure and a positive wage would be optimal.)

Conversely, a manager with much bargaining power extracts substantial private benefits even when ownership concentration and monitoring levels are high (case B). A higher outside ownership concentration improves shareholder control but discourages managerial initiative. As with non-transferable private benefits, it may thus be optimal to limit monitoring by restricting the stake of the large shareholder (case Bii). Aligning the large shareholder's interest by increasing his stake is prohibitively costly because it would deter managerial initiative. Despite colluding with the large shareholder, the manager does not extract more rents. Irrespective of whether private benefits are transferable or not, the manager's incentive constraint binds, and his expected payoff is equal to the effort cost c. From the minority shareholders' perspective, collusion between the manager and the large shareholder is not purely detrimental. Although it reduces security benefits following successful monitoring by $\phi^\alpha \Pi$, it also allows for a higher level of monitoring which in turn reduces expected diversion by $(E^C - E^{NC})(\phi^0 - \phi^\alpha)$.

Having characterized the optimal ownership structure, we can now address the relationship between legal shareholder protection and ownership concentration when private benefits are transferable. We focus again on the parameter configuration which gives rise to an interior solution for α^*.

Proposition 4 *When the manager and the large shareholder collude at the expense of the small shareholders, weaker legal shareholder protection may imply a lower or higher optimal outside ownership concentration α^*.*

Legal shareholder protection and outside ownership concentration may be substitutes or complements in Proposition 4 for the same reasons as in Proposition 1. First, changes in the legal shareholder protection directly affect both the manager's incentive to exert effort and the large shareholder's incentive to monitor. Second, managerial initiative and (large) shareholder control are conflicting objectives. Hence, the ownership structure that implements the optimal level of monitoring may increase or decrease following a change in the quality

---

[20]Rearranging the condition for case A) yields $\psi < 1 - \dfrac{\sqrt{(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c}}{(\phi^0 - \rho(\phi^0, \lambda))p\Pi}$.

[21]In our view, this is a rather mechanical result. The existence of a large shareholder who does not own a block ($\alpha = 0$) but is in a strong position relative to the manager seems rather implausible. If, in the spirit of this argument, the allocation of bargaining power were restricted to $\psi = 1$ for $\alpha = 0$, managerial initiative could always be implemented by setting $\alpha = 0$ and the resulting net shareholder return would be $V = (1 - \phi^0)p\Pi$.

of the legal shareholder protection. This result does not depend on the large shareholder's motive to monitor which distinguishes Proposition 1 and Proposition 4. In the former the large shareholder monitors exclusively to reduce expropriation by the manager, in the latter securing part of the private benefits provides an additional motive for monitoring.

Overall, our analysis shows that the widely held view of an inverse relationship between legal shareholder protection and ownership concentration does not hold for outside ownership concentration. In fact, a strictly inverse relationship only obtains if the two following restrictive conditions are satisfied. First, legal shareholder protection must have no direct impact on the security benefits. That is, a change in the quality of the law affects the dead-weight loss $\rho(.)$ but not the fraction of diverted corporate resources ϕ.[22] Second, there is only one agency problem, namely the traditional conflict between manager and homogeneous (small) shareholders. If either of these restrictions is relaxed, legal shareholder protection and outside ownership concentration can be both substitutes or complements. In particular, if there are multiple agency problems, i.e., conflict of interests among small and large shareholders and among shareholders and managers, the relationship ceases to be monotone, irrespective of whether legal protection directly affects both security and private benefits or only private benefits.

Legal rules also shape the nature of monitoring by determining how much importance the large shareholder attaches to enhancing security benefits relative to extracting private benefits. Or putting it differently, the law influences the extent to which the interests of the large shareholder conflict with those of the small shareholders.

Proposition 5 *Better legal shareholder protection need not alleviate the conflict of interest between the large and the small shareholders.*

The resource allocation ϕ^α chosen by the informed large shareholder is a decreasing function of both his block α and of the quality of legal shareholder protection λ. An improvement in the quality of legal protection increases the dead-weight loss associated with the extraction of private benefits. Ceteris paribus, this induces the informed large shareholder (and the manager) to divert less corporate resources. In addition, an improved quality of legal protection leads to change in the optimal ownership concentration α^*. Suppose better legal protection goes together with a higher ownership concentration ($d\alpha^*/d\lambda > 0$). Owning a larger stake, the large shareholder internalizes a larger fraction of the dead-weight loss and further reduces the extent of private benefit extraction. Thus, better legal protection unambiguously increases the extent

---

[22]Such rules do not really protect shareholders, i.e., do not increase security benefits, but merely convert managerial rents into dead-weight loss. In fact, an improvement in the quality of such rules may be detrimental to shareholders. An increase in the dead-weight loss $\rho(.)$ lowers net shareholder return if managerial initiative is no longer incentive compatible due to the reduction in private benefits.

to which the interests of the large shareholder are aligned with those of the small shareholders, when legal shareholder protection and ownership concentration are complements.

By contrast, when legal shareholder protection and ownership concentration are substitutes, the indirect effect is running counter to the direct effect. To preserve managerial initiative, an improvement in the legal protection has to be matched by a reduction in the ownership concentration. Owning a smaller stake, the large shareholder attaches more importance to private benefit extraction when choosing ϕ. When the indirect effect dominates, better legal protection exacerbates the conflict of interests among shareholders.

6   Conclusions

The recent Law and Finance literature emphasizes the role that the law and its enforcement plays in creating shareholder value. While acknowledging the importance of legal shareholder protection, we argue that the evaluation of governance systems needs to consider the direct and indirect effects of governance mechanisms. In particular, strengthening legal shareholder protection has adverse effects on the incentives of other parties to contribute to shareholder value. Reduced possibilities to expropriate shareholders lowers the manager's incentives to exert effort and the large shareholder's incentives to monitor. To restore the balance of incentives, the stake of the large shareholder must adjust. Contrary to the widely held view, we do not find a strictly inverse relationship between the quality of legal shareholder protection and outside ownership concentration. Better legal shareholder protection may have a larger impact on the behavior of the manager or on that of the large shareholder. Depending on which effect prevails, outside ownership concentration and legal shareholder protection are substitutes or complements. This result holds irrespective of whether shareholder interests are congruent or whether the large shareholder colludes with the manager and extracts private benefits at the expense of the small shareholders.

In the extended framework with monetary incentives, we can determine whether a change in the legal protection has a larger impact on managerial initiative or on monitoring incentives: When the law is of intermediate quality, the former holds and legal shareholder protection and outside ownership concentration are substitutes; when legal protection is poor, the latter holds and legal shareholder protection and outside ownership concentration are complements. When legal shareholder protection is good, ownership is fully dispersed and managerial wages increase with the quality of the law.

We also show that there is a link between the quality of the law and the nature of monitoring. Better legal shareholder protection reduces private benefits and thus the interest of the large shareholder to extract private benefits. In addition, better shareholder protection may imply a less concentrated ownership structure to preserve managerial initiative. This in turn induces the

large shareholder to attach more importance to private benefit extraction. As a consequence, better shareholder protection need not alleviate the conflict of interests among shareholders.

An important limitation of the present paper is the restriction to blockholders who are distinct from the firms' management and have different objectives. Inside share ownership is a simple way to (partially) align the interests of the manager with those of the shareholders. Alignment of interests through inside block ownership is, however, likely to come at a cost. Wealthy investors tend to be less able and qualified than professional managers to run a firm. Thus, the union of management and block ownership mitigates agency conflicts but involves a loss of managerial expertise, while the separation thereof achieves high managerial expertise but requires costly monitoring due to the conflict of interests. Applying this trade-off to analyze how the quality of legal shareholder protection affects both the ownership structure and the separation of ownership and management seems a fruitful avenue for future research.

A Proof of Lemma 1

Since V^{NC} is increasing in α, provided that $E(\alpha) \leq E^{NC}$, this constraint determines α^*. The threshold $E^{NC} \equiv 1 - \dfrac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}$ is independent of α and by Assumption 3 strictly positive. By contrast, $E(\alpha) = \alpha\phi^0 p\Pi$ is strictly increasing in α with $E(\alpha = 0) = 0$ and $E(\alpha = 1) = \phi^0 p\Pi$. Hence, there are two possible cases.

For $\phi^0 p\Pi > 1 - \dfrac{c}{[\phi^0 - \rho(\phi^0)]p\Pi}$, the constraint binds. Solving $E(\alpha) = E^{NC}$ yields $\alpha^* = \dfrac{1}{p\Pi\phi^0}\left[1 - \dfrac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}\right] < 1.^{23}$ The resulting net shareholder return is

$$
\begin{aligned}
V^{NC} &= \left[1 - \frac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}\right]\phi^0 p\Pi + (1 - \phi^0)p\Pi - \frac{1}{2}\left[1 - \frac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}\right]^2 \\
&= p\Pi - \frac{c\bar{\phi}}{[\phi^0 - \rho(\phi^0, \lambda)]} - \frac{1}{2}\left[1 - \frac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}\right]^2
\end{aligned}
$$

For $\phi^0 p\Pi \leq 1 - \dfrac{c}{[\phi^0 - \rho(\phi^0)]p\Pi}$, the constraint $E(\alpha) \leq E^{NC}$ does not bind, $\alpha^* = 1$ and

$$
V^{NC} = (1 - \phi^0)p\Pi + E\left[\phi^0 p\Pi\right] - \frac{E^2}{2} = (1 - \phi^0)p\Pi + \frac{\left[\phi^0 p\Pi\right]^2}{2}
$$

B Proof of Proposition 1

Differentiating the equilibrium condition $E(\alpha) = E^{NC}$ for $0 < \alpha^* < 1$, with respect to λ, we obtain

$$
\begin{aligned}
\frac{d\alpha^*}{d\lambda} &= \frac{\frac{dE^{NC}}{d\lambda} - \frac{dE}{d\lambda}}{\frac{dE}{d\alpha}} = \frac{\left[-\frac{\rho_\lambda(\phi^0, \lambda)c\phi^0}{[\phi^0 - \rho(\phi^0, \lambda)]^2\phi^0 p\Pi}\right] - \left[\frac{\frac{d\phi^0}{d\lambda}(\phi^0 - \rho(\phi^0, \lambda))\left[[\phi^0 - \rho(\phi^0, \lambda)]p\Pi - c\right]}{[\phi^0 - \rho(\phi^0, \lambda)]^2\phi^0 p\Pi}\right]}{\phi^0 p\Pi} \\
&= -\frac{\rho_\lambda(\phi^0, \lambda)c\phi^0 + \frac{d\phi^0}{d\lambda}(\phi^0 - \rho(\phi^0, \lambda))\left[[\phi^0 - \rho(\phi^0, \lambda)]p\Pi - c\right]}{[(\phi^0 - \rho(\phi^0, \lambda))\phi^0 p\Pi]^2}
\end{aligned}
$$

Since $\frac{d\phi^0}{d\lambda}$ is negative, the numerator has an ambiguous sign.

---

[23] In a simultaneous move game, or equivalently if the large shareholder were to monitor without having observed the manager's effort choice, there is a mixed-strategy equilibrium for $1 > \alpha > \alpha^*$, where the manager randomizes between $e = 0$ and $e = 1$ and the shareholder chooses $E = E^{NC}$. Assuming simultaneous moves would not affect the analysis in this section because the mixed-strategy equilibria are Pareto-dominated. When private benefits are transferable (section 5), pure and mixed-strategy equilibria are difficult to Pareto-ranked without assuming a specific dead-weight loss function $\rho(\phi, \lambda)$.

C Proof of Proposition 2

Given renegotiation leads to $\phi = 0$ and a payment $b = (\phi^0 - \rho(\phi^0, \lambda))\Pi$, the pair (α^*, w^*) solves the program

$$\max V^{NC_w} = \left[1 - w - (1 - E)(\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - \frac{E^2}{2}$$

subject to

$$\left[w + (1 - E)(\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c \geq 0 \qquad\qquad (IC_M^{NC_w})$$

$$E = \alpha \left[(\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi \qquad\qquad (IC_L^{NC_w})$$

$$w \geq 0 \qquad \text{and} \qquad 0 \leq \alpha \leq 1$$

Substituting $IC_L^{NC_w}$ into V^{NC_w} and $IC_M^{NC_w}$ yields

$$V^{NC_w} = \left[1 - w - (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi + \alpha \left(1 - \frac{\alpha}{2} \right) [(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2$$

and

$$\left[w + (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - \alpha [(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2 \geq c.$$

The function V^{NC_w} is decreasing in w and increasing in α, while the opposite holds for $IC_M^{NC_w}$.

Consider first the parameter constellation $(\phi^0 - \rho(\phi^0, \lambda)) p\Pi \geq c + [(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2$. The constraint $IC_M^{NC_w}$ is satisfied even when setting $w = 0$ and $\alpha = 1$. As $dV^{NC_w}/dw < 0$ and $dV^{NC_w}/d\alpha > 0$, $w^* = 0$ and $\alpha^* = 1$ in this constellation. The resulting net shareholder return is $V^{NC_w} = \left[1 - (\phi^0 - \rho(\phi^0, \lambda))[1 - (\phi^0 - \rho(\phi^0, \lambda)) p\Pi/2] \right] p\Pi$.

For $(\phi^0 - \rho(\phi^0, \lambda)) p\Pi < c + [(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2$, the constraint $IC_M^{NC_w}$ must bind. (Otherwise it would be possible to reduce w and/or to increase α without violating $IC_M^{NC_w}$.) Substituting

$$\alpha = \frac{\left[w + (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c}{[(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2} < 1 \qquad\qquad (IC_M^{NC_w})$$

into V^{NC_w} yields

$$\begin{aligned}
V^{NC_w} &= \left[1 - w - (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi \\
&\quad + \left(\left[w + (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c \right) \left[1 - \frac{\left[w + (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c}{2[(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2} \right]
\end{aligned}$$

$$\Leftrightarrow$$

$$V^{NC_w} = p\Pi - c - \frac{\left(\left[w + (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c \right)^2}{2[(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2}$$

Given the constraint $IC_M^{NC_w}$ is satisfied for a pair $(\tilde{w}, \tilde{E}(\alpha))$, it must also be satisfied for $(\tilde{w}, 0)$. Hence,

$$\frac{dV^{NC_w}}{dw} = -\frac{\left(\left[w + (\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi - c \right)}{[(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2} < 0.$$

Thus, there are two cases: For $p\Pi(\phi^0 - \rho(\phi^0, \lambda)) \geq c$, $w^* = 0$, $\alpha^* = \frac{[(\phi^0 - \rho(\phi^0, \lambda))] p\Pi - c}{[(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2}$, and $V^{NC_w} = p\Pi - c - \frac{((\phi^0 - \rho(\phi^0, \lambda)) p\Pi - c)^2}{2[(\phi^0 - \rho(\phi^0, \lambda)) p\Pi]^2}$. For $p\Pi(\phi^0 - \rho(\phi^0, \lambda)) < c$, $w^* = \frac{c}{p\Pi} - (\phi^0 - \rho(\phi^0, \lambda))$,

$\alpha^* = 0$, and $V^{NCw} = p\Pi - c$. Finally, denote by λ_1 the value of λ such that $(\phi^0 - \rho(\phi^0, \lambda))p\Pi = c$. As $(\phi^0 - \rho(\phi^0, \lambda))$ monotonically decreases in λ $(\frac{d[(\phi^0 - \rho(\phi^0, \lambda))]}{d\lambda} = -\rho_\lambda(\phi^0, \lambda)) < 0)$, λ_1 is unique and for $\lambda < \lambda_1$, $(\phi^0 - \rho(\phi^0, \lambda))p\Pi > c$, while the reverse holds for $\lambda > \lambda_1$.

D Proof of Proposition 3

From Proposition 2 it follows that for $\lambda \leq \lambda_1$ and $(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c < [(\phi^0 - \rho(\phi^0, \lambda))p\Pi]^2$ $w^* = 0$ and

$$\alpha^* = \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))\right]p\Pi - c}{[(\phi^0 - \rho(\phi^0, \lambda))p\Pi]^2}$$

Differentiating the equilibrium condition $E(\alpha) = E^{NCw}$ for $0 < \alpha^* < 1$, with respect to λ, we obtain

$$\frac{d\alpha^*}{d\lambda} = \frac{\frac{dE^{NC}}{d\lambda} - \frac{dE}{d\lambda}}{\frac{dE}{d\alpha}} = \frac{\left[-\frac{\rho_\lambda(\phi^0, \lambda)c}{[(\phi^0 - \rho(\phi^0, \lambda))p\Pi]^2}p\Pi\right] - \left[\frac{-\rho_\lambda(\phi^0, \lambda)[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c]}{[(\phi^0 - \rho(\phi^0, \lambda))p\Pi]^2}p\Pi\right]}{(\phi^0 - \rho(\phi^0, \lambda))p\Pi}$$

$$= \frac{\rho_\lambda(\phi^0, \lambda)\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - 2c\right]p\Pi}{[(\phi^0 - \rho(\phi^0, \lambda))p\Pi]^3}$$

The above definition of λ_1 implies that the term $\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - 2c\right]$ is negative for $\lambda = \lambda_1$. As $(\phi^0 - \rho(\phi^0, \lambda))$ monotonically decreases in λ, there exists a unique $\lambda_2 < \lambda_1$ such that $(\phi^0 - \rho(\phi^0, \lambda))p\Pi = 2c$. Hence, for $\lambda > \lambda_2$, $\frac{d\alpha^*}{d\lambda} < 0$ and the reverse holds for $\lambda < \lambda_2$. Indeed for $[(\phi^0 - \rho(\phi^0, \lambda))p\Pi]^2 + c > (\phi^0 - \rho(\phi^0, \lambda))p\Pi > \sqrt{c}$, $\frac{d\alpha^*}{d\lambda} > 0$ and $\alpha^* < 1$.

E Comparative-Static Properties of E^C

Lemma 3 *Provided $E^C < 1$, $\partial E^C/\partial\lambda < 0$, $\partial E^C/\partial\psi > 0$, and $\partial E^C/\partial\alpha < 0$.*

Proof.

$$\frac{dE^C}{d\alpha}\big|_{E^C<1} = \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]\psi p\Pi\left[\frac{\partial\phi^\alpha}{\partial\alpha}[(1-\alpha) - \rho_\phi(\phi^\alpha, \lambda)] - \phi^\alpha\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]^2[p\Pi]^2}$$

$$= -\frac{\phi^\alpha\psi p\Pi\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]^2[p\Pi]^2} < 0$$

$$\frac{dE^C}{d\psi}\big|_{E^C<1} = \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)p\Pi}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]^2[p\Pi]^2} > 0$$

$$\frac{dE^C}{d\lambda}\big|_{E^C<1} = \frac{\left[\frac{\partial\phi^0}{\partial\lambda}[1 - \rho_\phi(\phi^0, \lambda)] - \rho_\lambda(\phi^0, \lambda)\right]p\Pi\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi[(1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]p\Pi}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]^2[p\Pi]^2}$$

$$-\frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1-\alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]^2[p\Pi]^2}$$

$$\times \left[\frac{\partial \phi^0}{\partial \lambda}[1 - \rho_\phi(\phi^0, \lambda)] - \rho_\lambda(\phi^0, \lambda) - \psi \frac{\partial \phi^\alpha}{\partial \lambda}[(1 - \alpha) - \rho_\phi(\phi^\alpha, \lambda)] + \psi \rho_\lambda(\phi^\alpha, \lambda) \right] p\Pi$$

$$= -\frac{\rho_\lambda(\phi^0, \lambda) \left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right] p\Pi}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi \left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right) \right]^2 [p\Pi]^2}$$

$$+ \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c \right] \left[\rho_\lambda(\phi^0, \lambda) - \psi \rho_\lambda(\phi^\alpha, \lambda) \right] p\Pi}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi \left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right) \right]^2 [p\Pi]^2}$$

$$= -\frac{\rho_\lambda(\phi^0, \lambda) \left[\frac{c}{p\Pi} - \psi(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right] p\Pi}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi \left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right) \right]^2 [p\Pi]^2}$$

$$- \frac{\psi \rho_\lambda(\phi^\alpha, \lambda) \left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c \right] p\Pi}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi \left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right) \right]^2 [p\Pi]^2}$$

As $E^C(\alpha = 1) < 1$ implies $\psi \left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right) < \dfrac{c}{p\Pi}$, both terms are negative and hence $\partial E^C / \partial \lambda < 0$. $\blacksquare$

F Proof of Lemma 2

Since V^C is increasing in α, provided that $E(\alpha) \leq E^C$, this constraint determines α^*. Monitoring $E(\alpha) = \left[\alpha\phi^0 + (1 - \psi)[(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)] \right] p\Pi$ is strictly increasing in α with $E(\alpha = 0) = (1 - \psi)[\phi^0 - \rho(\phi^0, \lambda)]p\Pi > 0$ and $E(\alpha = 1) = \phi^0 p\Pi < 1$. The threshold E^C is equal to

$$\min \left[1, \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c \right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi \left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right) \right] p\Pi} \right],$$

where $\dfrac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c \right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi \left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda) \right) \right] p\Pi}$ is strictly decreasing in α (Lemma 3), $E^C(\alpha = 1) = 1 - \dfrac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi} < 1$ by Assumption 3, and $E^C(\alpha = 0) = \min \left[1, \dfrac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c \right]}{\left[(1 - \psi)(\phi^0 - \rho(\phi^0, \lambda)) \right] p\Pi} \right].$

The constraint $E(\alpha) \leq E^C$ never binds if the minimum threshold value $E^C(\alpha = 1)$ exceeds the maximum level of monitoring $E(\alpha = 1)$. This condition is satisfied when $\phi^0 p\Pi \leq 1 - \dfrac{c}{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}$. The optimal ownership concentration is then $\alpha^* = 1$, and

$$V^{NC} = \left[\phi^0 p\Pi \right]^2 + (1 - \phi^0)p\Pi - \frac{\left[\phi^0 p\Pi \right]^2}{2} = \frac{\left[\phi^0 p\Pi \right]^2}{2} + (1 - \phi^0)p\Pi$$

Similarly, the constraint $E(\alpha) \leq E^C$ is always violated when the minimum level of monitoring $E(\alpha = 0)$ exceeds the maximum threshold value $E^C(\alpha = 0)$. This also requires that $E^C(\alpha = 0) < 1$, i.e., $c > \psi(\phi^0 - \rho(\phi^0, \lambda))p\Pi$. Both conditions are satisfied when

$(1 - \psi)[\phi^0 - \rho(\phi^0, \lambda)]p\Pi > \dfrac{[\phi^0 - \rho(\phi^0, \lambda)]p\Pi - c}{(1 - \psi)[\phi^0 - \rho(\phi^0, \lambda)]p\Pi}$. Given that $e = 1$ cannot be implemented in this parameter constellation, the optimal ownership structure is indeterminate and $V^C = 0$.

Finally, for $\left[(1 - \psi)[\phi^0 - \rho(\phi^0, \lambda)]p\Pi\right]^2 \leq (\phi^0 - \rho(\phi^0, \lambda))p\Pi - c < \phi^0 p\Pi(\phi^0 - \rho(\phi^0, \lambda))p\Pi$, $e = 1$ can be implemented and the binding constraint $E(\alpha) = E^C$ determines α^*. Given $\frac{\partial E^C}{\partial \alpha} < 0$ and $\frac{\partial E(\alpha)}{\partial \alpha} > 0$, there exists a unique $\alpha < 1$ such that

$$
\begin{aligned}
E(\alpha) &= \left[\alpha\phi^0 + (1 - \psi)[(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]p\Pi \\
&= \frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]p\Pi} = E^{NC}
\end{aligned}
$$

The resulting net shareholder return is

$$
\begin{aligned}
V^C &= (1 - E)(1 - \phi^0)p\Pi + E\left[(1 - \alpha)(1 - \phi^\alpha) + \alpha + (1 - \psi)[(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]p\Pi - \frac{E^2}{2} \\
&= (1 - \phi^0)p\Pi + E\left[(1 - \alpha)(\phi^0 - \phi^\alpha) + \alpha\phi^0 + (1 - \psi)[(1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)]\right]p\Pi - \frac{E^2}{2} \\
&= (1 - \phi^0)p\Pi + E\left[(1 - \alpha)(\phi^0 - \phi^\alpha)\right]p\Pi + \frac{E^2}{2} \\
&= (1 - \phi^0)p\Pi + \frac{\left[(1 - \alpha)(\phi^0 - \phi^\alpha)\right]\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]} \\
&\quad + \frac{1}{2}\left[\frac{\left[(\phi^0 - \rho(\phi^0, \lambda))p\Pi - c\right]}{\left[(\phi^0 - \rho(\phi^0, \lambda)) - \psi\left((1 - \alpha)\phi^\alpha - \rho(\phi^\alpha, \lambda)\right)\right]p\Pi}\right]^2
\end{aligned}
$$

G   Proof of Proposition 4

Follows from proof of Proposition 1 and $\frac{dE^C}{d\lambda} < 0$.

H   Proof of Proposition 5

Differentiating the first-order condition $\rho_\phi(\phi^\alpha, \lambda) = 1 - \alpha$ with respect to λ yields

$$
\frac{d\phi^\alpha}{d\lambda} = -\frac{1}{\rho_{\phi\phi}}\left[\frac{d\alpha}{d\lambda} + \rho_{\phi\lambda}\right].
$$

For $\frac{d\alpha^*}{d\lambda} < 0$, the net effect is ambiguous.

References

[1] Aghion, Philippe and Benjamin Hermalin, 1990, "Legal Restrictions on Private Contracts Can Enhance Efficiency", *Journal of Law, Economics, and Organization*, 6: 381-409.

[2] Aghion, Philippe and Jean Tirole, 1997, "Real and Formal Authority in Organizations", *Journal of Political Economy*, 107: 1-29.

[3] Barca, Fabrizio and Marco Becht (eds.), 1999, "Ownership and Control: A European Perspective", mimeo Free University of Brussels.

[4] Bebchuk, Lucien Ayre, 1999, "A Rent Extraction Theory of Corporate Ownership and Control", NBER WP No. 7203.

[5] Bebchuk, Lucien Ayre, Reiner Kraakman, and George Triantis, 1999, "Stock Pyramids, Cross-Ownership, and Dual Class Equity: The Creation and Agency Cost of Separating Control from Cash Flow Rights", NBER WP No. 6951

[6] Boot, Arnoud and Jonathan Macey, 1999, "Objectivity, Proximity and Adaptability in Corporate Governance", CEPR WP No. 2257, London.

[7] Burkart, Mike, Denis Gromb, and Fausto Panunzi, 1997, "Large Shareholders, Monitoring, and the Value of the Firm", *Quarterly Journal of Economics*, 112: 693-728.

[8] Burkart, Mike, Denis Gromb, and Fausto Panunzi, 1998, "Why Higher Takeover Premia Protect Minority Shareholders", *Journal of Political Economy*, 106: 172-204.

[9] European Corporate Governance Network (ECGN), 1997, "The Separation of Ownership and Control: Aurvey of 7 European Countries", Preliminary Report to the European Commission, Volumes 1-4, Brussels, European Corporate Governance Network.

[10] Faccio, Mara, Larry H. P. Lang, and Leslie Young, 2000, Dividends and Expropriation", forthcoming *American Economic Review.*

[11] Franks, Julian and Oren Sussman, 1999, "Financial Innovation and Corporate Insolvency", mineo London Business School.

[12] Grossman, Sanford J., and Oliver D. Hart, 1988, "One Share - One Vote, and the Market for Corporate Control", *Journal of Financial Economics*, 20: 175-202.

[13] Grossman Sanford J., and Oliver D. Hart, 1986, "The Costs and Benefits of Ownership: A Theory of Verical and Lateral Intergration", *Journal of Political Economy*, 94: 691-719.

[14] Himmelberg, Charles P., Glenn Hubbard, and Inessa Love, 2001, "Investor Protection, Ownership, and Capital Allocation", mimeo Columbia University.

[15] Holderness, Clifford and Dennis Sheehan, 1988, "The Role of Majority Shareholders in Publicly Held Corporations: An Exploratory Analysis", *Journal of Financial Economics*, 20: 317-346.

[16] Kaplan, Steven, 1997, "Corporate Governance and Corporate Performance: A Comparison of Germany, Japan and the U.S.", in *Comparative Corporate Governance*, Klaus J. Hopt and Eddy Wymeersch, eds., Berlin: Walter de Gruyter.

[17] La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, 1999, "Corporate Ownership around the World", *Journal of Finance*, 54: 471-517.

[18] La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert W. Vishny, 2000a, "Agency Problems and Dividend Policies around the World", *Journal of Finance*, 55: 1-33.

[19] La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert W. Vishny, 2000b, "Investor Protection and Corporate Governance", *Journal of Financial Economics*, 58: 3-27.

[20] La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert W. Vishny, 1999, "Investor Protection and Corporate Valuation", NBER WP No. 7403.

[21] La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert W. Vishny, 1998, "Law and Finance", *Journal of Political Economy,* 106: 1113-55

[22] La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1997, "Legal Determinants of External Finance", *Journal of Finance,* 52: 1131-1150.

[23] Pagano, Marco and Ailsa Roell, 1998, "The Choice of Stock Ownership Structure: Agency Costs, Monitoring and the Decision to Go Public", *Quarterly Journal of Economics*, 113: 187-226.

[24] Pistor, Katharina, Martin Raiser, and Stanislaw Gelfer, 2000, "Law and Finance in Transition Economies", mimeo, Kennedy School of Government, Harvard University and European Bank for Reconstruction and Development.

[25] Shleifer, Andrei, and Daniel Wolfenzon, 2000, "Investor Protection and Equity Markets", mimeo Harvard University and University of Michigan.

[26] Tirole, Jean, 2001, "Corporate Governance", *Econometrica*, 69: 1-35.

[27] Wolfenzon, Daniel, 1999, "A Theory of Pyramidal Ownership", mimeo Harvard University.

[28] Zingales, Luigi, 1995, Insider ownership and the decision to go public, *Review of Economic Studies*, 62: 425-448.

[29] Zwiebel, Jeffrey, 1995, Block investment and partial benefits of corporate control, *Review of Economic Studies*, 62: 161-185.