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Agency conflicts, ownership concentration, and legal shareholder protection

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

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Abstract

This paper analyzes the interaction between legal shareholder protection, managerial incentives, monitoring, and ownership concentration. Legal protection affects the expropriation of shareholders and the blockholder's incentives to monitor. Because monitoring weakens managerial incentives, both effects jointly determine the relationship between legal protection and ownership concentration. When legal protection facilitates monitoring better laws strengthen the monitoring incentives, and ownership concentration and legal protection are inversely related. By contrast, when legal protection and monitoring are substitutes better laws weaken the monitoring incentives, and the relationship between legal protection and ownership concentration is non monotonic. 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.

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1 Introduction

Following the pioneering work by La Porta *et al.* (1997, 1998), 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. Examples of documented regularities are that better legal investor protection is associated with increased breadth and depth of capital markets, a faster pace of new security issues, and a greater reliance on external financing to fund firm growth (for surveys see La Porta *et al.* 2000b; Denis and McConnell 2003). One prominent issue in this recent literature is the relation between cross-country ownership patterns and legal rules. Empirical studies indicate that ownership is on average more concentrated in countries with poor legal shareholder protection. This finding leads La Porta *et al.* (1998) to argue that "with poor investor protection, ownership concentration becomes a substitute for legal protection, because only large shareholders can hope to receive a return on their investment." By contrast, investors are willing to take minority positions and finance companies in countries where legal rules are extensive and well enforced.[1]

This paper scrutinizes the commonly accepted argument that legal shareholder protection and outside ownership concentration are substitutes (see e.g., Denis and McConnell, 2003, p. 21). To this end we analyze the interaction between legal shareholder protection, managerial incentives, monitoring, and ownership in a model where shareholder control comes with costs and benefits. As emphasized in the law and finance literature, legal protection has an impact on the ease with which the manager, possibly in collusion with the blockholder, can divert corporate resources. There is, however, another channel which this literature has overlooked: the quality of legal rules also shapes the large shareholder's incentives to monitor. This effect matters for the relationship between the law and the ownership concentration because monitoring, like legal protection, weakens managerial incentives. Moreover, the impact of legal rules on the relation between ownership concentration and monitoring intensity is not uniform but depends on how legal rules interact with monitoring. While some rules tend to complement monitoring, others are more likely to be substitutes. Overall, we find that outside ownership concentration and legal shareholder protection are not necessarily substitutes. In particular, when the law is a substitute for monitoring, legal protection and ownership concentration can be complements. Thus, our model can also account for a non monotone relationship between ownership concentration and legal protection as for instance Aganin and Volpin (2003) document for Italy.

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

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[1] As regards inside or managerial block ownership, an argument based on Jensen and Meckling (1976) comes to the same conclusion. When legal investor protection is insufficient, entrepreneurs are forced to maintain large positions themselves to align their incentives with other shareholders (Shleifer and Vishny, 1997).

exerts effort. Given that the project is undertaken, the manager decides how much of the proceeds to pay out as dividends to the shareholders and how much to extract as private benefits. Managerial private benefit extraction involves no deadweight loss, but is subject to monitoring and legal constraints. More precisely, we assume that the law puts an upper bound on private benefit extraction and that monitoring lowers this bound further. By limiting private benefit extraction monitoring and legal protection increase shareholder control but also discourage managerial initiative. Depending on the quality of legal protection, maximizing net shareholder return may thus require to constrain monitoring by limiting ownership concentration or to offer the manager a higher wage.

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. 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.[2] This does, however, not preclude that they may on occasions collude at the expense of the small shareholders. Initially we abstract from such collusion and assume that private benefits are not transferable, or equivalently that the interests of the large and the small shareholders are perfectly congruent. We relax this assumption later (Section 5) and allow for collusion between the manager and the large shareholder.

When private benefits are not transferable, the governance problem is reduced to the traditional conflict of interest between manager and (all) shareholders. In accordance with the widely-held view that legal shareholder protection and ownership concentration are substitutes, we find that legal rules and the optimal amount of monitoring are inversely related. Weaker rules enable the manager to extract more private benefits. Therefore, the manager's incentive to exert effort can be preserved even if he is monitored more closely. This effect, henceforth the *extraction effect*, does, however, not imply that the optimal ownership concentration must also increase. The reason is that weaker legal protection also affects the large shareholder's incentives to monitor, henceforth the *monitoring effect*. The monitoring effect may reinforce or counteract the extraction effect depending on how legal shareholder protection interacts with monitoring.

Legal protection can be thought of as directly limiting the scope for managerial extraction and hence making monitoring less needed. Alternatively, one may argue that legal protection

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[2] The Agnelli family is generally considered to firmly control Fiat, the Italian car manufacturer. In 1976, when Giovanni Agnelli was the Chairman of the Board, the CEO of Fiat, De Benedetti, tried to gain control of Fiat at the expense of the Agnellis. Although this attempt was successfully stopped by Giovanni Agnelli, it illustrates that controlling shareholder and manager are not a team but distinct parties, each with its own interests.

facilitates or complements monitoring. We do not subscribe to one or the other interpretation but believe that some legal provisions are more suitably thought of as a substitute to monitoring and others as a complement. (We provide examples of both types of rules at the end of Section 2.) Our purpose is to show that the assumed relation between monitoring and the law determines the shape of the relationship between legal protection and outside ownership concentration.

In the case where monitoring and the law are (assumed to be) complements, legal shareholder protection and ownership concentration are inversely related. As legal protection becomes weaker, more monitoring is required and monitoring becomes less effective. Hence, a more concentrated ownership concentration is needed to implement the desired higher level of monitoring. In the case where monitoring and the law are substitutes, the monitoring effect runs counter to the extraction effect. Weaker legal protection allows the manager to extract more private benefits but also increases the large shareholder's monitoring incentives for a given equity stake. If the effect on the manager's incentives dominates the effect on the large shareholder's incentives, the optimal outside ownership concentration increases. Conversely, when the monitoring effect dominates the extraction effect, the large shareholder's stake needs to be reduced to restore the manager's incentives. It is, however, not possible to determine for which levels of legal protection the monitoring or the extraction effect prevails unless one resorts to specific functional forms. After solving the "general" model without such restrictions, we provide some examples to further illustrate our results.

Our central proposition that better legal shareholder protection can go together with more or less concentrated ownership proves robust to collusion between the manager and the large shareholder. We further propose 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.

Our paper builds on Burkart *et al.* (1997) who show that ownership dispersion is a commitment device to delegate 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. Our paper thus relates to the large literature on ownership structure as a governance mechanism. Some of the theoretical literature explicitly examines the link between ownership structure and legal protection. Himmelberg *et al.* (2001) derive an inverse relationship between ownership concentration and quality of the law based on the classical trade-off be-

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tween incentives and risk. La Porta *et al.* (2002) show how better legal protection enables a wealth-constrained entrepreneur to raise more outside finance, and Shleifer and Wolfenzon (2002) examine the impact of legal shareholder protection in a market equilibrium model. In these papers, ownership concentration is typically beneficial irrespective of the quality of the law because it aligns the insiders' interests with those of the investors. The inverse relationship between inside 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. Castillo and Skaperdas (2003) model the conflict between the owner-manager and the outside shareholders as an (wasteful) appropriation contest to secure a share of the firm's value. Since better legal protection strengthens the outsiders' relative power in this contest, it facilitates raising funds but induces the outsiders to engage in more appropriative activities. To counteract this adverse effect, the manager-owner has to commit to less appropriative activities by retaining a larger stake of the firm. Overall, Castillo and Skaperdas obtain a non-monotone relationship between the quality of the law and the size of the stake retained by the manager-owner.

Like the present paper, Stepanov (2003) examines the relationship between legal protection and outside ownership concentration. In his model, the alignment of shareholders' interests is the binding constraint in regimes with weak legal protection and implies an inverse relationship between the law and the outside blockholder's stake. In regimes with strong legal protection, the optimal monitoring intensity balances on the margin the monitoring cost and the deadweight loss associated with private benefit extraction, as in Pagano and Röell (1998). Since better legal protection increases the deadweight loss of private benefits extraction, monitoring and thus outside ownership concentration increase with the quality of the law. Thus, the model implies a "U-shaped" relationship between the quality of the law and outside ownership concentration. In our model, outside ownership concentration is determined by the trade-off between initiative and control, and ownership is fully dispersed in regimes with strong legal protection.

Finally, Burkart *et al.* (2003) endogenize in a model of managerial succession the choice between inside and outside block ownership and show how inside ownership concentration emerges in regimes with poor legal protection and separation of ownership and management in regimes with good legal protection. As regards the monitoring technology, they assume that legal protection does not affect the (marginal) effectiveness of monitoring. In contrast, the present paper argues that the law has a direct impact on the monitoring incentives and therefore affects the mapping from ownership concentration to monitoring.

The paper is organized as follows. Section 2 outlines the model. Section 3 examines the relationship between legal shareholder protection, managerial incentives, monitoring, and own-

ership concentration when shareholders have congruent interests. Section 4 relates our main results to the empirical findings in the literature. Section 5 considers two extensions; collusion between the large shareholder and the manager and inefficient private benefit extraction. Section 6 concludes.

2   Model

Consider a firm run by a risk neutral manager (M). A fraction α of shares is held by a single investor, the large shareholder (L), while the remaining fraction $1 - \alpha$ is dispersed among small shareholders. All shareholders are risk-neutral.

At date 1, the manager chooses to exert a non-verifiable effort $e \in \{0, 1\}$ at a cost ce.[3] If the manager does not exert effort, the date 3 value of the firm remains unchanged and is normalized to zero. If $e = 1$, the manager finds with probability p a project that generates with certainty proceeds Π at date 3. Although a project may not be undertaken (with probability $1 - p$) leaving firm value unchanged, exerting effort is efficient, i.e., $p\Pi - c > 0$. At date 2, shareholders can monitor the manager. The monitoring technology and the interaction between monitoring and legal shareholder protection are described below.

At date 3, the proceeds from the project are used to remunerate the manager and to pay dividends to all shareholders or to generate private benefits. Private benefits should be interpreted broadly to include theft or self-serving transactions with related parties as well as any use of corporate resources that is not in the (dispersed) shareholders' best interest such as e.g., empire building. The non-contractible resource allocation decision is modelled as the choice of $\phi \in [0, 1]$ such that dividends and managerial remuneration are $(1 - \phi)\Pi$ and the non-verifiable private benefits are $\phi\Pi$. While the extraction of private benefit does not involve any deadweight loss (inefficient extraction would not alter our results), both the law and monitoring limit the expropriation of shareholders.

Legal shareholder protection is modelled as putting an upper limit $\overline{\phi}$ on the extraction of private benefits. That is, the law effectively prescribes that at least $(1 - \overline{\phi})\Pi$ of the project proceeds are paid out to shareholders and manager. The upper limit $\overline{\phi}$ decreases with the quality of the law which we denote by $\gamma \in [\underline{\gamma}, \bar{\gamma}]$, with $\bar{\gamma}$ corresponding to the highest level of legal protection. Weak legal protection can be due either to poor quality of the law or to ineffective enforcement (Pistor *et al.* 2000). We abstract from such differences and focus on the ultimate impact of the law.

The law and finance literature documents that differences in legal protection are associated with differences in financial development. This suggests that contractual solutions cannot

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[3] Our results also obtain in a continuous effort choice model, provided that the response of managerial effort to monitoring is on the margin sufficiently large.

(fully) compensate for weak legal investor protection. Indeed, Nenova (2003) documents the limited usefulness of contractual solutions in poor legal environments. We capture this notion by assuming that firms cannot opt out of the legal environment via contracts, say through a better corporate charter. Thus, the parameter γ is appropriately interpreted as the quality of investor protection, including the contractual options available in the legal system.

While shareholders cannot choose the quality of law, they can monitor to further limit managerial expropriation. After having observed the manager's effort choice, shareholders can at date 2 exert a non-verifiable monitoring effort $m \geq 0$ at a cost $C(m)$. The cost $C(m)$ is an increasing and convex function of the monitoring intensity m with $dC(0)/dm = 0$. Because of the free-riding by small shareholders (say due to a small opportunity cost), only the large shareholder has an incentive to monitor. The quality of legal protection could in principal also be an argument of the monitoring cost. We do not explicitly account for this possibility because it is encompassed within our framework as we will show later.

Thus, monitoring and the law jointly determine the residual (fraction of) proceeds over which the manager has full discretion. Let $\bar{\phi}(m, \gamma)\Pi$ denote this maximum amount of proceeds that the manager can freely allocate.

Assumption 1 *The function $\bar{\phi}(m, \gamma)$ is decreasing in γ, decreasing and convex in m, and satisfies $\partial\bar{\phi}(0, \gamma)/\partial m < 0$ for all $\gamma \in [\underline{\gamma}, \bar{\gamma}]$.*

Better legal protection and more monitoring both reduce the scope for managerial expropriation ceteris paribus, and monitoring is assumed to have decreasing marginal returns, i.e., $\partial^2\bar{\phi}/\partial m^2 \geq 0$.

Thus, the present model assumes that managerial effort, monitoring, and project proceeds are observable but not verifiable. Legal shareholder protection limits the possibility to extract private benefits which is tantamount to making part of the project proceeds verifiable. Monitoring plays a similar role. It gives the large shareholder the discretion to make an additional fraction of the project proceeds verifiable. Monitoring is, however, costly to the large shareholder whereas reliance on legal protection is free to the shareholders. Clearly, this does not apply to all forms of legal protection, such as e.g., litigation. Our analysis does not require that legal protection is literally free, but that restricting managerial discretion to a given level through better laws and less monitoring is cheaper for the large shareholder than achieving the same through more monitoring and weaker laws.

Having described the constraints that monitoring and the law put on the manager's discretion, we can now fully specify how the proceeds are allocated (given that the project is undertaken): Legal shareholder protection demands that $[1 - \bar{\phi}(0, \gamma)]\Pi$ are paid out either as dividends to all shareholders or as remuneration to the manager. It proves convenient to express

the manager's remuneration as a fraction w of the expected project proceeds $p\Pi$. The allocation of the remaining $\bar{\phi}(0, \gamma)\Pi$ depends on monitoring. When monitoring with intensity m the large shareholder gains control over $[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)]\Pi$ and decides jointly with the manager how to use these proceeds. The manager retains full discretion over the residual proceeds $\bar{\phi}(m, \gamma)\Pi$. We model the joint decision of the manager and large shareholder over the use of the proceeds $[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)]\Pi$ as a simple Nash bargaining game: With probability $1 - \psi$, the large shareholder chooses $\phi \in [\bar{\phi}(m, \gamma), \bar{\phi}(0, \gamma)]$ and makes a take-it-or-leave-it offer how to share the resulting private benefits with the manager. The manager either accepts the offer or rejects it in which case ϕ is equal to $\bar{\phi}(m, \gamma)$ and the entire amount $[\phi(0, \gamma) - \bar{\phi}(m, \gamma)]\Pi$ is paid out as dividends. With the complementary probability ψ, the manager sets $\phi \in [\bar{\phi}(m, \gamma), \bar{\phi}(0, \gamma)]$ and offers part of the resulting private benefits to the large shareholder who either accepts it or rejects it in which case ϕ is again equal to $\bar{\phi}(m, \gamma)$.[4]

The outcome of the bargaining game depends on whether or not the large shareholder can enjoy part of the private benefits. Legal rules such as fiduciary duties or equal treatment provisions affect the transferability of private benefits and thereby the extent to which the large shareholder's interests conflict (coincide) with those of the manager and with those of the small shareholders. Besides legal constraints, there are other reasons which may prevent the manager and the large shareholder from sharing private benefits. For instance, private benefits may require consumption on the job, such as perks or labor hoarding, or may be indivisible, and the manager has insufficient wealth to compensate the large shareholder. The transferability of private benefits may also depend on the identity of a large shareholders. Typically, institutional investors (or their representatives) are viewed as being interested in security benefits, while a supplier or customer of the firm can benefit from preferential transaction terms. We assume that private benefits are either transferable and non-transferable for non-regulatory reasons and consider both cases.

A final important aspect of the model concerns the relation between legal shareholder protection and monitoring. As emphasized in the introduction, there are two interpretations for why better legal protection saves monitoring costs, each reflecting a different understanding of how legal shareholder protection and monitoring interact. One way to think about the interaction is that the law directly reduces the scope for expropriation and thereby reduces the need for monitoring. Alternatively, one may argue that legal protection facilitates monitoring. In our opinion, neither one nor the other view is universally valid. Instead, the appropriate interpretation differs across legal rules. Before providing examples, we make the two interpretations

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[4]Our bargaining game implies that the manager receives additional private benefits if the large shareholder consents to divert (part of) $[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)]\Pi$. This is tantamount to assuming that the manager is indispensable for the extraction of these private benefits, say due to his knowledge and expertise. Otherwise, the large shareholder would have no reason to share the diverted $[\check{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)]\Pi$ with the manager.

precise within the context of the model.

Definition 1 *When* $\dfrac{\partial}{\partial\gamma}\left|\dfrac{\partial\bar\phi(m,\gamma)}{\partial m}\right| < 0$, *monitoring and the law are substitutes, while they are complements when* $\dfrac{\partial}{\partial\gamma}\left|\dfrac{\partial\bar\phi(m,\gamma)}{\partial m}\right| > 0$.

Monitoring and the law are substitutes when the marginal impact of monitoring on private benefits extraction decreases with the quality of the law, i.e., $\partial^2\bar\phi/\partial m\partial\gamma > 0$. By contrast, when the law increases the marginal effectiveness of monitoring, i.e. $\partial^2\bar\phi/\partial m\partial\gamma < 0$, we refer to monitoring and the law as complements. The third possibility is that the marginal effectiveness of monitoring is independent of the law, i.e., $\partial^2\bar\phi/\partial m\partial\gamma = 0$. As we will show, this is merely a special version of the case where legal protection and monitoring are complements.

Rules pertaining to shareholder protection come from various sources such as e.g., company and security laws, stock exchange regulations, and accounting standards. Following Definition 1, we classify legal rules as complements if they reduce the (marginal) cost of monitoring and as substitutes if they reduce the (marginal) return from monitoring.

Straightforward examples of complements are disclosure requirements and accounting standards. Active shareholders' marginal monitoring costs are lower when firms are legally required to disclose more (accurate) information about their performance and financial condition.[5] Also complements to monitoring are the legal standards applied by courts in lawsuits against insiders in cases of asset diversion. A (large) shareholder's cost of challenging a self-dealing transaction increases with the specificity that his allegations have to meet for a judicial inquiry[6] and with the extent to which liability standards protect insiders from litigation.[7] Initiation and ratification rights are another example of complements. Monitoring is more effective when the law grants shareholders the power to ratify or initiate important (recurrent) decisions, such as reinvestment of earnings, rather than putting these decisions under the exclusive authority of board and management.[8]

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[5] The U.S. has the most stringent accounting standards and disclosure requirements. Listed U.S. firms do not only have to report their current financial position and past performance, but also disclose detailed information about managerial salaries and the background of their directors. In addition, firms must provide some forward-looking information, notably an assessment by management about likely future developments (Kraakman *et al.* 2003). The Sarbanes-Oxley Act (§ 401) further raises these requirements by mandating the disclosure of all off-balance sheet transactions, obligations, and other relationships with unconsolidated entities that may have a material effect on the firm's financial conditions.

[6] For instance, the U.S. Private Securities Litigation Reform Act (PSLRA) of 1995 raised the pleading standard. Under the PSLRA plaintiffs have to substantiate their allegations and identify specific events or actions which if proved in court would constitute fraud. Otherwise, the judge dismisses the case (Siegel 2003).

[7] For instance, most European and U.S. state courts refuse to review self-dealing transactions that have been ratified by disinterested board members, unless there is proof of gross negligence (Enriques 2000). Testing the effectiveness of cross-listing as a bonding device, Siegel (2003) documents how costly and difficult it is for (minority) shareholders of Mexican firms with ADRs (American Depositary Receipt) to prosecute under the U.S. regulatory regime insiders for blatant and large-scale asset diversion.

[8] In the U.S., initiation and ratification rights are rather limited. For instance, the shareholder proposal

Turning to rules that are a substitute to monitoring, one example is the mandatory dividend rules, common in French-civil law countries (La Porta et al. 1998). Such rules reduce the amount of earnings that managers may be able to divert as private benefits and hence also the amount that active monitoring may salvage from managerial expropriation.

Examples of substitutes can also be found in regulations other than corporate and securities laws. For example, to the extent that a large shareholder does not or cannot participate in private benefit extraction, his return from monitoring decreases with the level of the corporate tax rates. In addition, the enforcement of tax rules can affect the insiders' ability to expropriate shareholders and hence the returns from monitoring. Clearly, an outside shareholder's return from scrutinizing self-dealing transactions is lower when the tax authority enforces the requirement that insiders have to transact with the firm on the same terms as could be obtained in open market purchases.[9] More generally, regulatory agencies fulfil a monitoring function, thereby providing a substitute to private monitoring.[10]

Undoubtedly, not all rules pertaining to shareholder protection can be classified as either substitute or complement to monitoring.[11] First, the regulation of some specific corporate actions or decisions contains provisions that are both. For instance, some rules concerning self-dealing transactions are better thought of as substitutes, such as the ban of personal loans to executives,[12] while others facilitate private monitoring such as the requirements for executives to report their trading in the firm's shares (§ 403, Sarbanes-Oxley Act). Second, there are rules that are difficult to interpret in terms of complements or substitutes. For example, rules governing the compositions of the board and its committees seem to be aimed to hinder collusion among corporate insiders. It seems difficult to ascertain whether say the separation of CEO and chairman as recommended by several corporate governance codes increases or reduces the need (cost) for outside monitoring. Notwithstanding such ambiguities, the examples illustrate that both interpretations are empirically meaningful. Moreover, our analysis will show that the

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rule (Rule 14a-8 of the 1934 Security Exchange Act) permits a shareholder only one proposal per year and bars proposals in three key areas; director nominations, statements in opposition to management proposals, and alternatives to management proposals (Black 1990). France and the U.K. grant shareholders more decision rights. For example, both countries permit shareholder proposals against the opposition of the board and require that shareholders approve the appointment of the company's auditors and the distribution or reinvestment of earnings (Kraakman *et al.* 2003).

[9]Dyck and Zingales (2004) find that better tax enforcement, as measured by the degree of tax compliance, reduces private benefits.

[10]So far, only few corporate governance papers examine the effectiveness of public and private enforcement. La Porta *et al.* (2004) and Barth *et al.* (2003) find that relying on private enforcement rather than government-enforced regulation seems to be more conducive to the development of stock market and banking sector.

[11]Such difficulties already arise when trying to assess the extent of shareholder protection provided by various laws. Many rules pertaining to the governance of (public) firms are not easily interpretable as either strengthening shareholder protection or favoring management (La Porta *et al.* 1998).

[12]Until recently, credit transactions between a company and its executives were prohibited in the U.K., France and Italy, but not in the U.S. (Enriques 2000). Under the Sarbanes-Oxley Act (§ 402) loans to executives are now also banned in the U.S.

distinction between the two interpretations is relevant because the relationship between legal rules and monitoring has an impact on the ultimate shape of the relationship between law and ownership concentration.

Finally, to highlight the interaction between monitoring and legal shareholder protection we restrict attention to parameter constellations where the benefit of monitoring depends on the quality of the law.

Assumption 2 $\overline{\phi}(0, \bar{\gamma}) < c/p\Pi < \overline{\phi}(0, \underline{\gamma})$

Assumption 2 rules out constellations where monitoring is either never or always beneficial, irrespective of the quality of the law. Monitoring is never beneficial when the expected private benefits are insufficient to induce managerial effort even in the weakest legal environment and in the absence of monitoring $(\overline{\phi}(0, \underline{\gamma}) < c/p\Pi)$. Similarly, monitoring is always beneficial when the expected private benefits exceed the effort cost also in the strongest legal environment unless the large shareholder monitors $(\overline{\phi}(0, \bar{\gamma}) > c/p\Pi)$.

3   Monitoring and Legal Protection

In this section we abstract from the possibility of collusion and assume that private benefits are not transferable. We begin the analysis by examining the impact of legal protection on the manager's incentives to exert effort and on the large shareholder's incentives to monitor for a given ownership structure α and a compensation rate w. We then analyse the relationship between the quality of law and the optimal compensation and ownership concentration and further illustrate our results with the help of specific functional forms.

In our model, there are two dimensions of moral hazard. First, the manager must exert a non contractible effort $e = 1$ to find a new project. Second, if a new project is found and undertaken, the manager can appropriate (part of) the proceeds rather than pay them out to shareholders. Such managerial expropriation is constrained by both legal shareholder protection and monitoring. Limiting the manager's private benefits, whether through monitoring or by law, comes also at a cost because it reduces the manager's incentives to exert effort in the first place. To preserve managerial initiative, the large shareholder has to commit not to monitor excessively in a given legal environment. He can achieve this goal by dispersing (some of) the shares to small investors because the size of his block determines the monitoring intensity (Burkart *et al.* 1997). Since legal protection also limits the manager's expected private benefits, the size of the block that avoids excessive monitoring depends on the quality of the law. In addition (or instead) of granting the manager private benefits, he may be offered a higher salary.

3.1 Substitutes and Complements

Solving the game by backward induction, we begin with the date 3 resource allocation decision. When the project is undertaken, total proceeds Π are available. The law shields a fraction $[1 - \bar{\phi}(0, \gamma)]$ of the proceeds from private benefit extraction. That is, the amount $[1 - \bar{\phi}(0, \gamma)]\Pi$ must be paid out either as dividends to shareholders or as remuneration to the manager. How the remaining $\bar{\phi}(0, \gamma)\Pi$ are allocated depends on monitoring. When the large shareholder monitors with intensity m, he and the manager bargain over the use of $\left[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)\right]\Pi$. As the large shareholder, by assumption, cannot reap any private benefits, he imposes that none of it is diverted. More specifically, he either proposes $\phi = \bar{\phi}(m, \gamma)$ or rejects any offer $\phi > \bar{\phi}(m, \gamma)$ by the manager. Hence, the shareholders receive $\left[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)\right]\Pi$ in addition to $[1 - w - \bar{\phi}(0, \gamma)]\Pi$ as dividends. The professional manager retains full discretion over the residual project proceeds $\bar{\phi}(m, \gamma)\Pi$ and extracts all as private benefits.

Since private benefit extraction is efficient, shareholders cannot gain from using monetary incentives to resolve the conflict over the resource allocation. To induce the manager to abstain from extracting an additional dollar, shareholders would have to offer him a one-dollar transfer. By contrast, a monetary transfer can help to resolve the effort problem when private benefits are insufficient to compensate the manager for his effort cost c. We assume that the manager is protected by limited liability, thereby excluding penalties. Limited liability and the binary payoff structure $\{0, \Pi\}$ imply that the optimal scheme entails a positive remuneration only if the project is undertaken. This is equivalent to condition the manager's remuneration on a positive dividend payment. Given that the manager's compensation is performance-based, we refer to it as bonus.

At date 2, the large shareholder chooses his monitoring intensity $m \geq 0$ after having observed the manager's 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

$$\alpha[1 - w - \bar{\phi}(m, \gamma)]p\Pi - C(m)$$

He receives a fraction α of the project proceeds that are paid out net of the manager's bonus and incurs monitoring costs $C(m)$. The subsequent analysis implicitly assumes that $[w + \bar{\phi}(m, \gamma)] < 1$ which holds in equilibrium. Denote by $\hat{m}(\alpha, \gamma)$ the solution to the first order condition

$$-\alpha \frac{\partial \bar{\phi}(m, \gamma)}{\partial m} p\Pi = \frac{dC}{dm} \tag{1}$$

Decreasing marginal returns to monitoring (Assumption 1) and the convexity of $C(m)$ ensure the uniqueness of $\hat{m}(\alpha, \gamma)$. A larger block induces the large shareholder to monitor more

because he benefits more from forcing the manager to disgorge more proceeds as dividends. The relationship between monitoring intensity and legal protection is not as straightforward but depends on the role of the law.

Proposition 1 *For a given block α the large shareholder's monitoring intensity increases (decreases) with the quality of the law when legal protection and monitoring are complements (substitutes).*

Differentiating the solution to the first order condition $\hat{m}(\alpha, \gamma)$ with respect to legal protection γ yields

$$\frac{d\hat{m}}{d\gamma} = -\left[\alpha \frac{\partial^2 \overline{\phi}(m, \gamma)}{\partial m \partial \gamma} p\Pi\right] \bigg/ \left[\alpha \frac{\partial^2 \overline{\phi}}{\partial m^2} p\Pi + \frac{\partial^2 C}{\partial m^2}\right]$$

Since the denominator is positive, $\partial \hat{m}/\partial \gamma$ is positive (negative) when the cross-derivative $\partial^2 \overline{\phi}(m, \gamma)/\partial m \partial \gamma$ is negative (positive). A positive cross-derivative implies that the marginal impact of monitoring decreases when legal protection improves. That is, the law directly restricts the possibilities for managerial expropriation and is therefore a substitute for active monitoring. Consequently, the large shareholder monitors less for a given block α when legal protection becomes stronger. When $\partial^2 \overline{\phi}(m, \gamma)/\partial m \partial \gamma < 0$ holds, the marginal effectiveness of monitoring is enhanced by improvements in the law, and the large shareholder monitors more for a given block α.

Given the monitoring intensity m and the consequent date 3 resource allocation, the manager's incentive constraint is

$$[w + \overline{\phi}(m, \gamma)]p\Pi \geq c \tag{2}$$

The manager exerts effort $e = 1$ at date 1 only if the sum of the expected bonus and private benefits exceeds the effort cost. High levels of monitoring and strong legal protection reduce the manager's expected private benefits and may discourage him from exerting effort, while the bonus has the opposite effect. Thus, higher ownership concentration and better legal protection aggravate the manager's incentive problem whereas a higher bonus mitigates it.

We denote by $\bar{m}(\gamma)$ the level of monitoring such that the manager's incentive constraint binds. This maximum amount of monitoring increases with the bonus and decreases with the quality of the law.

3.2 Optimal Ownership Structure and Legal Protection

The objective when choosing the ownership concentration and the bonus at date 0 is to maximize total shareholder wealth net of monitoring costs. This implicitly assumes that the ownership structure is chosen at the same time as a (new) professional manager is hired (who does

not pay for getting the job). Thus, we maximize

$$V = [1 - w - \bar{\phi}(m, \gamma)] \, p\Pi - C(m) \tag{3}$$

subject to the manager's incentive constraint (equation 2) and the large shareholder's first order condition (equation 1).

Denote by $\tilde{\gamma}$ the value of γ such that the manager's incentive constraint binds with a zero bonus and in the absence of monitoring, i.e., such that $\bar{\phi}(0, \gamma)p\Pi = c$ holds. Uniqueness of $\tilde{\gamma}$ follows from Assumption 1, while Assumption 2 ensures that $\tilde{\gamma} \in (\underline{\gamma}, \bar{\gamma})$. The shareholders' optimization problem has the following solution.

Lemma 1 *i) For* $\gamma \geq \tilde{\gamma}$, $\alpha^* = 0, w^* = c/p\Pi - \bar{\phi}(0, \gamma), m^* = 0$, *and* $V(a^*, w^*, \gamma) = p\Pi - c$.

ii) *For* $\gamma < \tilde{\gamma}$ *and* $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi \leq c$, $\alpha^* \in (0, 1)$ *is such that* $\bar{\phi}(\hat{m}(\alpha^*, \gamma), \gamma)p\Pi = c$, $w^* = 0$, $m^* = \hat{m}(\alpha^*, \gamma)$, *and* $V(a^*, w^*, \gamma) = p\Pi - c - C(m^*)$.

iii) *For* $\gamma < \tilde{\gamma}$ *and* $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi > c$, $\alpha^* = 1$, $w^* = 0$, $m^* = \hat{m}(1, \gamma)$, *and* $V(a^*, w^*, \gamma) = [1 - \bar{\phi}(\hat{m}(1, \gamma), \gamma)]p\Pi - C(\hat{m}(1, \gamma))$.

The key to the intuition of Lemma 1 is the fact that shareholder net wealth V increases with the ownership concentration and decreases with the bonus, provided that the manager's incentive constraint is satisfied. Differentiating V with respect to α we obtain

$$\frac{\partial V}{\partial \alpha} = \frac{\partial m}{\partial \alpha} \left[-\frac{\partial \bar{\phi}}{\partial m} p\Pi - \frac{dC}{dm} \right]$$

From the large shareholder's first order condition and the decreasing marginal returns from monitoring it follows that the term in the square bracket is positive. Since monitoring increases in the large shareholder's stake $\partial V/\partial \alpha > 0$ holds for all $\alpha < 1$. The inverse relationship between shareholder wealth and bonus is immediate ($\partial V/\partial w = -p\Pi < 0$).

Clearly, a binding incentive constraint is in the shareholders' interest because managerial rents come at their expense. It is, however, not always possible to avoid leaving a rent to the manager. More precisely, if $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi > c$ the incentive compatibility constraint (equation 2) does not bind even with a zero bonus and a fully concentrated ownership, i.e., maximum monitoring. In this range of legal protection (case *iii*), the optimal ownership is fully concentrated ($\alpha^* = 1$) and the bonus w^* is zero, but the manager extracts nonetheless a rent $R = \bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi - c$. Shareholders receive the fraction of the expected project proceeds that the law and monitoring shield from expropriation, net of the monitoring cost.

Otherwise (cases *i* and *ii*), there always exists a combination of ownership concentration and bonus that does not leave any rents to the manager. Inserting the manager's binding

incentive constraint $[w + \bar{\phi}(m, \gamma)]p\Pi = c$ into the objective function (equation 3) yields

$$V = p\Pi - c - C(m)$$

Thus, it is optimal to minimize the level of monitoring while leaving the manager's incentive constraint binding. For $\gamma \geq \tilde{\gamma}$, expected private benefits are insufficient to induce managerial effort even in the absence of monitoring. In this case the optimal ownership is fully dispersed and the manager is offered a bonus that covers the difference between effort cost and expected private benefits. Total shareholder wealth is at its highest possible level $V = p\Pi - c$.

For $\gamma < \tilde{\gamma}$, legal protection is insufficient to prevent the manager from extracting private benefits in excess of his effort cost. As a result, the large shareholder has to monitor the manager. Moreover, setting the bonus to zero minimizes the level of monitoring that keeps the manager's incentive constraint binding. Shareholder wealth is equal to expected project proceeds net of the manager's effort cost and the monitoring cost.[13]

A last remark related to Lemma 1 concerns the condition separating cases *(ii)* and *(iii)*. The issue is that there may be more than one γ value such that $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi = c$ holds. Differentiating this condition yields

$$\frac{d}{d\gamma}(\bar{\phi}(\hat{m}(1, \gamma), \gamma) = \frac{\partial \bar{\phi}}{\partial m} \cdot \frac{\partial \hat{m}}{\partial \gamma} + \frac{\partial \bar{\phi}}{\partial \gamma}$$

From Proposition 1 we know that the sign of $\partial \hat{m}/\partial \gamma$ is ambiguous. When legal protection and monitoring are complements ($\partial \hat{m}/\partial \gamma > 0$), both terms are negative and a unique threshold value of γ exists that separates case *(ii)* from case *(iii)*. In contrast, when legal protection and monitoring are substitutes, the sign of $\frac{d}{d\gamma}(\bar{\phi}(\hat{m}(1, \gamma), \gamma)$ is indeterminate. This implies that the set of γ values such that $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi \leq (>)c$ need not be convex.

Summarizing the above discussion, the ownership structure and the bonus are chosen to solve the dual moral hazard problem of providing incentives and limiting managerial expropriation. How these two instruments are put to use depends on the quality of the law.

Proposition 2 *When legal protection is good ($\gamma \geq \tilde{\gamma}$) a fully dispersed ownership and a positive bonus are optimal ($\alpha^* = 0$ and $w^* > 0$). Otherwise ($\gamma < \tilde{\gamma}$), outside ownership concentration and a zero bonus are optimal ($\alpha^* > 0$ and $w^* = 0$).*

The prospect of extracting private benefits provides incentives for the manager to exert effort. Because these private benefits decrease with the quality of the law, bonus and monitoring both have a role. When legal protection is good ($\gamma \geq \tilde{\gamma}$), letting the manager extract

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[13] Once the manager has exerted effort, a higher monitoring intensity reduces the private benefit extraction by the manager, and net shareholder return increases with the block size. The (large shareholder's) incentives to increase ownership concentration ex post can be eliminated by compensating the manager with a "bonus" conditioned on the final block size.

private benefits is part of the efficient compensation package that needs to be complemented with a bonus. The ownership structure is fully dispersed because each dollar salvaged from managerial expropriation through monitoring would have to be paid as bonus in order to satisfy the manager's incentive constraint. When legal protection is weak ($\gamma < \tilde{\gamma}$) (partial) ownership concentration restricts managerial expropriation. A bonus is not offered since it would merely require more costly monitoring (or concede a rent to the manager). Thus, bonus and ownership concentration do not coexist in equilibrium.

The ownership predictions of Proposition 2 are corroborated by the empirical evidence. La Porta *et al.* (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.[14]

Proposition 2 and Lemma 1 have also implications for the bonus in regimes with good legal protection ($\gamma \geq \tilde{\gamma}$). As explained, abstaining from monitoring minimizes the bonus necessary to satisfy the manager's incentive constraint. This bonus depends on the quality of the law.

Corollary 1 *In regimes with good legal protection ($\gamma \geq \tilde{\gamma}$) the bonus increases with the quality of legal protection.*

Given that dispersed shareholders do not monitor, the bonus exactly covers the difference between effort cost and expected private benefits. Thus, the bonus is equal to

$$w = \frac{c}{p\Pi} - \bar{\phi}(0, \gamma)$$

and positively correlated with the quality of the law ($dw/d\gamma = -d\bar{\phi}/d\gamma > 0$). Since the manager's incentive constraint binds, the bonus has to increase as legal protection improves to compensate for the lower private benefits. Thus, Corollary 1 implies that the composition rather than the total expected payoff $[\bar{\phi}(0, \gamma) + w]p\Pi$ varies with the quality of the law. That is, the ratio of agreed bonus to extracted private benefits increases with the quality of the law. Given that the private benefits are less easily observable, Corollary 1 predicts higher managerial compensations in countries with better legal protection. This is consistent with the evidence that managerial compensation is substantially higher in the U.S. than in Continental Europe and Japan (Murphy 1998). In a recent cross-country study Bryan *et al.* (2003) document that the primary factors explaining variations in executive compensation are the size of the debt

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[14]While ownership patterns are heterogeneous across as well as within countries, our model implies a unique optimal ownership structure for a given quality of the law (γ value). Himmelberg *et al.* (2001) argue that the ease with which corporate resources can be diverted also depends on firm-specific characteristics such as R&D expenditures. Their study documents that firm-specific variables are indeed statistically significant predictors of ownership concentration. Introducing firm characteristics as an additional determinant of private benefit extraction is an extension of our model that would yield diverse ownership patterns within countries.

market and the quality of legal protection. In particular, they find that executive compensation is more equity-based (e.g., includes more stock options) in countries with stronger shareholder protection.

We now turn to the relationship between ownership concentration and legal shareholder protection. We restrict attention to the case where there is an interior solution for the optimal ownership concentration α^*.

Proposition 3 *i) When legal protection and monitoring are complements, weaker legal protection goes together with more concentrated ownership.*
ii) When legal protection and monitoring are substitutes, weaker legal protection may imply a more or a less concentrated ownership.

An interior solution implies that the manager's incentive constraint (equation 2) binds, i.e., that $\bar{\phi}(\hat{m}(\alpha^*, \gamma), \gamma)p\Pi = c$ holds. Using the implicit function theorem we obtain

$$\frac{d\alpha^*}{d\gamma} = -\left[\frac{\partial\bar{\phi}}{\partial m} \cdot \frac{\partial m}{\partial \gamma} + \frac{\partial\bar{\phi}}{\partial \gamma}\right] \bigg/ \left[\frac{\partial\bar{\phi}}{\partial m} \cdot \frac{\partial m}{\partial \alpha}\right]$$

Given that the denominator is negative, the sign of $d\alpha^*/d\gamma$ is determined by the sign of the numerator. Since managerial extraction is decreasing in monitoring and in legal protection ($\partial\bar{\phi}/\partial m < 0$ and $\partial\bar{\phi}/\partial \gamma < 0$), ownership concentration decreases as legal protection improves, provided that monitoring and legal protection are complements. (Recall from Proposition 1 that $\partial^2\bar{\phi}/\partial m\partial\gamma < 0$ implies $\partial m/\partial\gamma > 0$). Moreover, ownership concentration is (weakly) decreasing in legal protection: Initially, when legal protection is very strong, ownership is fully dispersed. As legal protection becomes weaker ($\gamma \leq \tilde{\gamma}$) ownership becomes more and more concentrated and may eventually become fully concentrated. Thus, a strictly inverse relationship between legal shareholder protection and outside ownership concentration obtains when the marginal effectiveness of monitoring is increasing with the quality of the law.

When legal protection reduces the marginal effectiveness of monitoring ($\partial^2\bar{\phi}/\partial m\partial\gamma > 0$), the relationship between legal protection and ownership concentration becomes more complex. It is still true that for very strong legal protection ownership is dispersed, but two conflicting effects shape the relationship between ownership concentration and the law. On the one hand, a reduction in legal protection entails larger private benefits and hence increases the maximum level of monitoring that is compatible with managerial incentives ($\bar{m}(\gamma)$). Ceteris paribus, this translates into a more concentrated ownership structure. On the other hand, weaker legal protection also increases the large shareholder's return from monitoring for a given stake α. Since more monitoring reduces the manager's expected private benefits, it discourages managerial initiative, and the increased monitoring incentives have to be curtailed by reducing ownership concentration.

If the effect of weaker legal protection on managerial incentives dominates the effect on monitoring incentives, the optimal outside ownership concentration has to increase in order to avoid leaving rents to the manager, i.e., to restore a binding incentive constraint. Conversely, when the monitoring effect of weaker protection is stronger than the extraction effect, the large shareholder's stake has to be reduced to satisfy the manager's incentive constraint. It is, however, not possible to determine for which γ values the derivative $d\alpha^*/d\gamma$ is positive or negative, unless further restrictions are imposed such as specific functional forms (see the next section).

We would like to emphasize that such a non-monotonic relationship between ownership concentration and legal protection does not conflict with the view that weaker legal rules require more monitoring. In fact, it is easy to see that the maximum level of monitoring that preserves managerial incentives is inversely related to the quality of the law. In equilibrium the condition $\bar{\phi}(\hat{m}, \gamma)p\Pi = c$ holds. When the law becomes weaker, private benefits increase, and a higher monitoring intensity is required to restore the equality. Thus, our model concurs with the argument that more monitoring improves the return on equity when legal protection is weak. In addition, it offers an alternative interpretation: Only regimes of weak legal protection allow for close monitoring. In regimes with good protection, frequent shareholder interference would frustrate managerial initiative.

Our result of a non-monotonic relationship differs from the common view because it accounts for the impact of legal rules on the incentives to monitor. When weaker shareholder protection increases the large shareholder's monitoring incentives, implementing the higher optimal level of monitoring may require a higher or lower outside ownership concentration.

The comparative static predictions of our theory (Proposition 3) are mute on the question how the optimal ownership structure adapts to a change in legal protection. We discuss this issue informally, outside of our static model. Suppose an unanticipated legal reform has taken place that increases the optimal ownership concentration. The adjustment may, however, not take place because the share value (dividend level) depends on the monitoring intensity, and hence the ultimate size of the large shareholder's block. The extent to which frictions hinder the adjustment depends on how the gains are shared among large and small shareholders, which in turn depends on the trading environment. When trading is not anonymous, fully rational small shareholders free-ride on the share value improvement and only sell their shares at a price equal to the post-acquisition share value. Consequently, the large shareholder does not gain from increasing his block. Moreover, the increase in the monitoring costs due to a larger final block exceeds the value increase of the shares initially owned by the large shareholder. Thus, no adjustment takes place in a fully transparent setting.[15]

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[15] A proof of a similar result can be found in Burkart *et al.* (1997) and Pagano and Röell (1998).

By contrast, complete adjustment takes place when the large shareholder can purchases shares at the pre-acquisition value, say because trading is anonymous and small shareholders are myopic and do not anticipate the subsequent increase in share value. Given that the large shareholder appropriates all the value improvement of the purchased shares, he has sufficient incentives to adjust his block. More plausible than the two polar cases is a setting where some investors are not fully rational and trade for liquidity or life cycle motives. As shown by Kyle and Vila (1991), the presence of noise traders enables the large shareholder to hide, at least partially, his identity and to buy some shares at a profitable price.[16]

Matters are much simpler when the large shareholder can share some of the private benefits with the manager. As we will show later, the minority share value (dividend level) depends in this case only on the law. Following an unanticipated legal change, the minority share value adjusts, but remains thereafter the same, irrespective of the large shareholder's trading activities. Thus, any small shareholder is willing to trade with the large shareholder or any other party at the price equal to the minority share value. Facing a perfectly elastic (net) supply, the large shareholder gains from adjusting his block to the new optimal size. Or putting it differently, since the appropriation of private benefits is not plagued by a free-rider problem, the adjustment of the ownership structure occurs without frictions.

Summing up, there are gains from adapting the monitoring intensity to a change in legal shareholder protection. The required adjustment is, however, subject to frictions because the large shareholder who bears the adjustment costs may have to share the gains with the small investors. In general, we would expect at least some gradual adjustment because noise trading and collusion with the management enable the large shareholder to appropriate part of these gains. In support of this conclusion, Kole and Lehn (1999) document a gradual increase in outside blockholdings in the U.S. airline industry following its deregulation in 1978 which increased the importance of the managerial role and the need to monitor management.

3.3 Examples

As shown above, the relationship between outside ownership concentration and legal protection depends on how legal provisions and monitoring interact. The subsequent examples aim at providing further intuition for the two cases of Proposition 3.

A straightforward example of legal protection being a complement to monitoring is the case where the monitoring costs $C(.)$ rather than (the ease of) private benefit extraction $\overline{\phi}(.)$ depend inversely on the quality of the law. More precisely, suppose that $\overline{\phi} = \overline{\phi}(m)$ and $C = C(m, \gamma)$ with $\partial C/\partial \gamma \leq 0$ and $\partial^2 C/\partial m \partial \gamma \leq 0$. Totally differentiating the large shareholder's optimal

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[16] Croci (2004) provides evidence that activist blockholders do indeed accumulate blocks through open market purchases.

monitoring intensity $\hat{m}(\alpha, \gamma)$ with this specification yields

$$\frac{d\hat{m}}{d\gamma} = -\left[\frac{\partial^2 C(m,\gamma)}{\partial m \partial \gamma}\right] \bigg/ \left[\alpha \frac{\partial^2 \overline{\phi}}{\partial m^2} p\Pi + \frac{\partial^2 C}{\partial m^2}\right]$$

From $\partial^2 C/\partial m \partial \gamma \leq 0$ it follows that monitoring increases with the quality of legal protection $(\partial \hat{m}/\partial \gamma > 0)$. Since $\overline{\phi}(.)$ only depends on the monitoring intensity, this result implies that outside ownership concentration and legal protection are inversely related $(d\alpha^*/d\gamma < 0)$. Stricter legal rules reduce the scope for managerial extraction and the large shareholder's monitoring cost. That is, the optimal monitoring intensity and the block size necessary to implement a given monitoring intensity decrease when legal protection becomes stronger. As the monitoring effect of an improvement in legal protection reinforces the extraction effect, outside ownership concentration decreases when legal protection improves. Obviously, this result also holds in the absence of the monitoring effect. When the quality of the law has no impact on the (marginal) effectiveness of monitoring $(\partial^2 \overline{\phi}(m, \gamma)/\partial m \partial \gamma = 0)$, monitoring only depends on the size of the large shareholder's stake. Hence, ownership concentration decreases as legal protection becomes better to implement the required reduction in the monitoring intensity.

Arguably, much of the empirical law and finance literature - implicitly or explicitly - presupposes that monitoring and legal protection are substitutes.[17] In view of this presumption the non-monotonic relationship between outside ownership concentration and legal protection (part ii) of Proposition 3) seems of particular interest. The purpose of the subsequent example is to show that this result does not rely on restrictive or unusual assumptions.

Assume that legal shareholder protection γ imposes an upper bound $1 - \gamma$ on the fraction of proceeds that can be diverted (at no cost) where $\gamma \in [0, 1]$. The monitoring intensity m reduces the fraction of proceeds that are not protected by the law from expropriation by m. Hence, the amount of proceeds that the manager can freely allocate is given by $(1 - \gamma)(1 - m)\Pi$. For simplicity, the large shareholder's monitoring cost are $C = m^2/2$ and $p\Pi < 1$ to ensure interior solutions for the monitoring intensity. Finally, we abstract from the possibility that the manager can obtain a rent even though ownership is fully concentrated. To exclude this outcome (case *iii* in Lemma 1) we impose $c > 1/4$.

When the project is undertaken, the manager extracts all the residual proceeds over which he has full discretion as private benefits. Thus, given that the large shareholder monitors at date 2 with intensity m, the manager obtains $(1 - \gamma)(1 - m)\Pi$ (plus the bonus $w\Pi$), whereas the shareholders realize a payoff $[\gamma + m(1 - \gamma) - w]\Pi$. At date 2, the large shareholder monitors

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[17] Lins (2003) states that "..ownership concentration coincides with a lack of investor protection because owners who are not protected from controllers will seek to protect themselves by becoming controllers." See also the quote from La Porta *et al.* (1998) in the introduction of the paper.

if the manager has exerted effort at date 1, maximizing his total return

$$\alpha \left[\gamma + m(1 - \gamma) - w \right] p\Pi - m^2/2.$$

The monitoring intensity chosen by the large shareholder is thus

$$\hat{m}(\alpha, \gamma) = \alpha(1 - \gamma)p\Pi$$

with $\partial \hat{m}/\partial \alpha = (1 - \gamma)p\Pi > 0$ and $\partial \hat{m}/\partial \gamma = -\alpha p\Pi < 0$. A larger stake and a lower quality of legal protection induce the large shareholder to monitor more. Thus, legal shareholder protection and monitoring are substitutes as the marginal return from monitoring decreases with the quality of the law (high γ values).

Given m and $(1 - \gamma)$ the manager exerts effort at date 1 only if

$$m \leq \bar{m}(\gamma) \equiv \frac{((1 - \gamma) + w)p\Pi - c}{(1 - \gamma)p\Pi}$$

The maximum level of monitoring that preserves managerial incentives decreases with the quality of the law ($d\bar{m}/d\gamma < 0$). If the manager exerts effort $e = 1$, total net shareholder wealth is equal to

$$V = \left[\gamma + m(1 - \gamma) - w \right] p\Pi - m^2/2$$

As in the general case, the optimal ownership structure is as concentrated and the bonus is as small as possible, subject to the condition $\hat{m}(\alpha, \gamma) \leq \bar{m}(\gamma)$.

Lemma 2 *i) For $\gamma \geq 1 - c/p\Pi$, $\alpha^* = 0$, $w^* = c/p\Pi - \bar{\phi}$, $m^* = 0$, and $V = p\Pi - c$.*

ii) For $\gamma < 1 - c/p\Pi$, $\alpha^* = \left[(1 - \gamma)p\Pi - c \right] \big/ \left[(1 - \gamma)p\Pi \right]^2$, $w^* = 0$, $m^* = 1 - c/\left[(1 - \gamma)p\Pi \right]$, and $V = p\Pi - c - \left(1 - c/\left[(1 - \gamma)p\Pi \right] \right)^2 \big/ 2$.

When legal protection is good, expected private benefits have to be complemented with a bonus to satisfy the manager's incentive constraint. Otherwise, private benefits exceed the manager's effort cost and monitoring is necessary to reduce managerial expropriation.[18]

To examine how legal protection affects the optimal ownership concentration we restrict attention to the case where α^* is an interior solution. Simple calculations show that

$$\frac{d\alpha^*}{d\gamma} = \frac{(1 - \gamma)p\Pi - 2c}{(1 - \gamma)^3(p\Pi)^2}$$

For $\gamma > 1 - 2c/p\Pi$ we obtain $d\alpha^*/d\gamma < 0$ whereas $d\alpha^*/d\gamma > 0$ for $\gamma < 1 - 2c/p\Pi$. Thus, the relationship is indeed non monotone, confirming part *(ii)* of Proposition 3 when monitoring

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[18]The assumption $c > 1/4$ implies that $\hat{m}(1, \gamma) > \bar{m}(\gamma)$. Thus, there always exists a combination of ownership concentration and bonus such that the manager's incentive compatibility constraint binds.

and legal protection are substitutes. 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 $\hat{m}(\alpha, \gamma) = \bar{m}(\gamma)$, i.e., $\alpha(1-\gamma)p\Pi = 1 - c/[(1-\gamma)p\Pi]$. A decrease in γ increases both sides of the condition. If the extraction effect dominates the monitoring effect, the ownership concentration has to increase to restore the equality. This holds when γ is in the interval $[1 - 2c/p\Pi, 1 - c/p\Pi]$. In this case, a larger outside block goes together with weaker legal protection. The reverse holds for $\gamma < 1 - 2c/p\Pi$. In such regimes a decrease in the quality of the law has a stronger effect on monitoring incentives than on managerial incentives, and a less concentrated ownership goes together with weaker legal protection.

4 Evidence

Cross-country studies document that ownership is typically more concentrated in countries with weaker legal shareholder protection (Denis and McConnell, 2003).[19] These findings suggest an inverse relationship between ownership concentration and legal protection. In contrast, we argue that the relationship between outside ownership concentration and legal protection is more intricate because legal protection also affects the outside blockholders' monitoring incentives and has thereby repercussions on the ownership structure. Most notably, our theory predicts a non-monotone relationship between outside ownership and the quality of legal protection for rules that are substitutes for monitoring. This prediction is counter to the common empirical findings in most studies. These studies are, however, not directly applicable to Proposition 3.

In particular, cross-country ownership studies typically focus on the largest shareholder[20] and do either 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 is evidence orthogonal to our theory.[21]

Also, most comparative studies use as a measure of legal shareholder protection a cumulative index, commonly the anti-director rights index developed by La Porta *et al.* (1998). Our theory

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[19]The law and finance literature continues the large literature on the effects of ownership structure on corporate decisions and firm value. The numerous single-country studies, most often on the U.S., yield conflicting results and the relation between ownership structure and performance is very much the subject of an ongoing debate.

[20]A recent exception is Lins (2003) who examines the relationship between firm value and ownership across 18 emerging markets. He reports a positive impact of non-management blockholders on firm value but he does not explicitly link the size of these blocks to the quality of legal protection.

[21]For instance, Claessens *et al.* (2002) report that managers and their families are the largest shareholders in about two-thirds of 1300 publicly traded companies in eight East Asian economies.

implies that the relationship between outside ownership and legal protection depends on the overall quality of the law and on the nature of the various rules. In particular, we predict an unambiguously negative impact of rules that facilitate monitoring, while rules that are a substitute to monitoring can have a positive or negative effect on the ownership concentration. Accordingly, testing Proposition 3 requires (at least) two separate measures of legal shareholder protection, one composed of complementing rules and another composed of substituting rules. In fact, La Porta *et al.* (1998) find that better accounting standards have a negative effect on ownership concentration while the mandatory dividend rule has a positive effect. Our theory can explain why two rules that both reduce the ease with which shareholders can be expropriated have opposite effects on the ownership concentration.

For the most part, ownership studies do not provide sufficiently detailed or disaggregated evidence to be a suitable test of Proposition 3. Notwithstanding, there is some evidence that suggests deviations from an inverse relationship between ownership concentration and legal shareholder protection. First, Faccio *et al.* (2001) examine the dividend policy in nine East Asian and five Western European countries. They report that Western European corporations have a more concentrated ownership structure and pay higher dividends. To the extent that higher dividends are a reflection of better shareholder protection, as argued by la Porta *et al.* (2000a), this finding is inconsistent with an inverse relationship between law and ownership concentration.

Second, two developments in Eastern and Central Europe are also not easily reconciled with an inverse relationship. On the one hand, legal changes during the 1990s raised the quality of legal shareholder protection in most transition economies from a level well below the world average to a level that is within close range of the average common law country (Pistor 2000). On the other hand, the transition economies experienced an increase in ownership concentration during this period. For instance, the blocks held by outsiders and managers increased substantially in Russia during the late 90s (Biletsky *et al.*, 2002; Sprenger, 2001). The blocks of the largest and second largest shareholder also increased in Poland, Estonia, and Slovakia (Dzierzanowski and Tamowicz, 2001; Olsson and Alasheyeva, 2000). Commentators usually view the increased concentration as a correction of the dispersed ownership created through the mass privatizations. This interpretation complements rather than excludes an interpretation along the lines of Proposition 3. Non-management blockholdings may also have increased, particularly during the late 90s, to provide or maintain monitoring incentives after legal reform had improved shareholder protection.

Third, examining the evolution of Italian firms traded on the Milan Stock Exchange Aganin and Volpin (2003) document a non-monotonic relationship between legal investor protection and ownership concentration (and financial market development). While legal investor protection

improved since World War II in Italy, the largest shareholder owned on average about 45 percent of the votes in 1947, 55 percent in 1987, and 47 percent in 2000. According to the authors, this evolution of the ownership structure is largely inconsistent with the law and finance view that ownership concentration acts as a (partial) substitute for lacking institutional governance mechanisms. They propose political economy arguments to account for the observed non-monotonic relationship between ownership concentration and legal protection. The present paper shows that this may be a hasty conclusion because deviations from an inverse relationship are not incompatible with a law and finance explanation.

Since Aganin and Volpin focus on the largest shareholder's voting and cash flow rights without separating management and non-management blockholders, their study is not a direct test of Proposition 3. One of their findings is, however, of interest or even suggestive. The return rights held on average by the largest shareholder was 40.38 percent in 1947, 42.11 percent in 1987, and 51.31 percent in 2000. The increase between 1987 and 2000 is particularly noteworthy because Italy strengthened its legal investor protection substantially in 1998. The so-called Draghi's law improved Italy's anti-director rights index from 1 to 5 (out of a possible 6). To the extent that non-management blockholders own these shares, this observed concentration of return rights is evidence in support of our result that legal protection and ownership concentration can be complements (Proposition 3, part ii).[22]

5   Collusion

Large shareholders can be effective monitors, but they can also use their influence to extract private benefits. Indeed, both sides are documented in numerous studies, though the net impact of large shareholders on firm value remains disputed (Denis and McConnell, 2003). Accordingly, the relevance of Proposition 3 depends upon whether it also holds when the interests of the blockholder diverge from those of the small shareholders.

5.1   Transferable private benefits

In section 3 private benefits are by assumption not transferable, which is tantamount to assuming that the large and small shareholders have perfectly congruent interests. Here we consider the other extreme, where private benefits are perfectly transferable, thereby aligning the large shareholder's interests with those of the manager. When the large shareholder can share the private benefits, monitoring is no longer a public good, the benefit of which are shared by all shareholders. Instead, monitoring becomes a rent-seeking activity that serves to raise the

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[22]For instance, the Agnelli family owned (through its holding companies Ifi and Ifil) 21 percent of equity capital of Fiat in 1995 and 30 percent by the end of 2002. These numbers are taken from La Porta *et al.* (1999) and the website of the commissione nazionale per le societa e la borsa (www.consob.it).

blockholder's share of the private benefits.

To solve the game with transferable private benefits we repeat the analytical steps of section 3. Provided that the project has been undertaken, proceeds Π are allocated at date 3. Since the law stipulates that $(1 - \bar{\phi}(0, \gamma))\Pi$ are paid out as dividends or salary, the manager and the large shareholder bargain over the remaining $\bar{\phi}(0, \gamma)\Pi$. Given Nash bargaining, the large shareholder (manager) receives his outside option plus a fraction $1 - \psi$ (ψ) of the surplus. The payoff that each party obtains if the bargaining breaks down - the outside option - corresponds to the payoff with non-transferable private benefits. Given that the large shareholder monitors with intensity m he can force the manager to pay out an additional amount $(\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma))\Pi$ as dividends of which he receives a fraction α. Hence, the large shareholder's outside option is $\alpha(\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma))\Pi$. The manager's outside option is then $\bar{\phi}(m, \gamma)\Pi$, the amount over which he retains full discretion. Since bargaining is efficient, the large shareholder and the manager always agree to extract the maximum level of private benefits given the legal constraints, i.e. $\bar{\phi}(0, \gamma)\Pi$. Thus, the large shareholder's payoff in the bargaining is

$$\left[\alpha + (1 - \psi)(1 - \alpha)\right] \left[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)\right] \Pi$$

and the manager's payoff in the bargaining amounts to

$$\left[\bar{\phi}(m, \gamma) + \psi(1 - \alpha)[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)]\right] \Pi$$

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

$$\alpha \left[(1 - w - \bar{\phi}(0, \gamma)\right] p\Pi + \left[\alpha + (1 - \psi)(1 - \alpha)\right] \left[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)\right] p\Pi - C(m)$$

Let $\hat{m}(\alpha, \gamma)$ denote again the solution to the first order condition

$$-\alpha \frac{\partial \bar{\phi}(m, \gamma)}{\partial m} p\Pi - (1 - \psi)(1 - \alpha) \frac{\partial \bar{\phi}(m, \gamma)}{\partial m} p\Pi = \frac{dC(m)}{dm} \tag{4}$$

The right-hand side of the first order condition reveals the two motives for monitoring. The first term corresponds to monitoring in the absence of collusion (equation 1). It reflects the monitoring incurred to protect the large shareholder's block from expropriation by the manager. The second term captures the additional monitoring that the large shareholder undertakes to appropriate a larger share of the private benefits.

Note that the large shareholder monitors only to protect himself. From the small shareholders' perspective monitoring is a pure rent-seeking activity, since the large shareholder and the manager always agree to set $\phi = \bar{\phi}(0, \gamma)$. Thus, diverging interests among shareholders are one reason why legal protection and monitoring differ. The law protects all shareholders from expropriation by the manager, while the large shareholder stands up (monitors) for his own

interests. He can protect his interests without simultaneously fending off minority shareholder expropriation.

One implication of the disparate effect of monitoring is that large and small shareholders have contrary preferences towards changes in legal protection. Given monitoring is a pure rent-seeking activity, dividends only depend on the quality of the law. Hence, small shareholders support better laws as they result in an increase in share value. By contrast, the large shareholder opposes such law-induced redistributions.[23]

As shown in the appendix, the comparative static properties of $\hat{m}(\alpha, \gamma)$ remain the same as in the case with non transferable private benefits. Monitoring incentives increase with the block size and with the quality of the law when legal protection and monitoring are complements, but decrease with the quality of the law when legal protection and monitoring are substitutes.

The prospect of reaping private benefits implies that monitoring is positive even if the large shareholder were to own no shares, i.e., $\hat{m}(0, \gamma) > 0$. The existence of a (large) shareholder who does not own a block ($\alpha = 0$) but is in a strong enough position to extract private benefits seems implausible. One way to remove this mechanical feature of the model is to assume that the large shareholder's bargaining power depends on the size of his stake. Following Burkart *et al.* (2003), we choose a simpler discrete formalization of this notion.

Assumption 3 *If the large shareholder owns less than $\alpha < \underline{\alpha}$ he abstains from monitoring.*

Unless the large shareholder owns a minimum stake he lacks the authority *vis-à-vis* the manager to monitor effectively. In other words, owning less than $\underline{\alpha}$ allows the large shareholder to commit not to monitor and interfere.

At date 1, the manager exerts effort only if the bonus and his share of private benefits exceed the effort cost. Given the large shareholder and the manager collude, the manager's incentive constraint is

$$\left(w + \bar{\phi}(\hat{m}, \gamma) + \psi(1 - \alpha) \left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}, \gamma) \right] \right) p\Pi \geq c \tag{5}$$

A more concentrated ownership stifles managerial incentives because it increases the incentives to monitor and the share of private benefits that the large shareholder appropriates. Nonetheless, collusion promotes ceteris paribus managerial initiative. In addition to the private benefits the manager appropriates in the absence of collusion ($\bar{\phi}(\hat{m}, \gamma)p\Pi$), he receives the fraction ψ of the amount that he and the large shareholder agree to withhold from the small shareholders, i.e., $\psi(1 - \alpha)(\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}, \gamma))p\Pi$.

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[23]Besides reducing private benefits, better laws also make it easier for the large shareholder to control the manager, i.e., increase the productivity of rent-seeking. In our view, this latter effect is unlikely to offset the loss in private benefits, and large shareholders who collude with management are bound to be worse off from legal improvements. This surely applies to improvements in minority shareholder protection such as equal treatment provisions or liability standards (fiduciary duty) for large shareholders.

The optimal bonus and ownership concentration obtain again from maximizing total net shareholder wealth which includes the dividends paid out to all shareholders and the private benefits accruing to the large shareholder minus the monitoring costs.[24] Thus, the stake of the large shareholder and the bonus are chosen to maximize

$$V = \left[(1 - w - \bar{\phi}(0, \gamma)\right] p\Pi + \left[\alpha + (1 - \psi)(1 - \alpha)\right] \left[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)\right] p\Pi - C(m) \qquad (6)$$

subject to the constraint $\alpha \in (\{0\} \cup [\underline{\alpha}, 1])$ imposed by Assumption 3 and subject to the incentive constraint of the manager (equation 5) and that of the large shareholder (equation 4).

The complete solution for the collusion case is given in the appendix (Lemma 3). Here we offer a cursory discussion of how the quality of the law shapes the optimal bonus and ownership structure. While collusion affects the rationale for monitoring it does not qualitatively change the relationship between the law and the ownership concentration. In particular, when legal protection is very strong or very weak, a dispersed ownership, respectively a fully concentrated structure, remains optimal. In fact, in either case the solutions with transferable and non-transferable private benefits coincide because the possibility of collusion does not matter in the absence of either a large shareholder ($\alpha = 0$) or of small shareholders ($\alpha = 1$).

When legal protection is of intermediate quality, monitoring is - like in the no collusion case - required to avoid leaving a rent to the manager. However, Assumption 3 complicates matter as it imposes a discontinuity in the feasible monitoring intensity. In particular, the feasible monitoring intensity may no longer be compatible with a binding incentive constraint and a zero bonus. As a result, there are two constellations. First, the restriction $\alpha \notin (0, \underline{\alpha})$ is not a binding constraint of the shareholders' optimization problem. In this case, the optimal bonus is zero, the large shareholder owns a block $\alpha \geq \underline{\alpha}$ and monitors accordingly. Since collusion grants the manager more private benefits for a given monitoring intensity, the large shareholder needs to monitor more in order to avoid leaving a rent. Compared to the no collusion case, a more concentrated ownership structure (larger α) is thus needed to make the manager's incentive constraint binding.

Second, the restriction $\alpha \notin (0, \underline{\alpha})$ binds, leaving the choice between under- and overmonitoring. On the one hand, a dispersed ownership ($\alpha < \underline{\alpha}$) and no monitoring concede a rent to the manager even with a zero bonus. On the other hand, the minimum block size $\underline{\alpha}$ induces the large shareholder to monitor with an intensity that violates the manager's incentive constraint, unless a positive bonus is offered. A dispersed ownership structure is the better option when the sum of monitoring cost and bonus exceeds the managerial rent.

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[24] Within our setting monitoring is a prerequisite for collusion as it forces the manager to share part of the private benefits with the large shareholder. Thus, monitoring is a costly activity that adds value albeit not for the dispersed shareholders; it increases the value of the block and thereby total shareholder return.

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 case where the shareholder's optimization problem has an interior solution with $\alpha^* \in [\underline{\alpha}, 1)$ and $w = 0$. Such a solution implies that the manager's incentive constraint binds, i.e.,

$$\left[\bar{\phi}(\hat{m}(\alpha^*, \gamma), \gamma) + \psi(1 - \alpha)\left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}(\alpha^*, \gamma), \gamma)\right]\right]p\Pi = c$$

holds. Totally differentiating this condition with respect to λ yields

$$\frac{d\alpha^*}{d\gamma} = -\frac{[1 - \psi(1 - \alpha)]\left[\frac{\partial\bar{\phi}(m,\gamma)}{\partial m}\frac{\partial m}{\partial\gamma} + \frac{\partial\bar{\phi}(m,\gamma)}{\partial\gamma}\right] + \psi(1 - \alpha)\frac{\partial\bar{\phi}(0,\gamma)}{\partial\gamma}}{[1 - \psi(1 - \alpha)]\frac{\partial\bar{\phi}(m,\gamma)}{\partial m}\frac{\partial m}{\partial\alpha} - \psi\left[\bar{\phi}(0,\gamma) - \bar{\phi}(\hat{m}(\alpha^*, \gamma), \gamma)\right]}$$

As the denominator is negative the sign of $d\alpha^*/d\gamma$ coincides with the sign of the numerator. The numerator has an ambiguous sign for the same reasons as in the case with non-transferable private benefits. First, better legal protection reduces the ease with which the manager can extract private benefits. To restore his incentives to exert effort, monitoring must decrease. The extraction effect of better legal protection on the ownership concentration is always negative ($\partial\bar{\phi}(.)/\partial\gamma < 0$). Second, an improvement in legal protection also has an impact on the large shareholder's incentives to monitor (for a given block α). The monitoring effect on the ownership concentration is reflected in the first term of the numerator ($\partial\bar{\phi}(.)/\partial m \cdot \partial m/\partial\gamma$). When legal protection and monitoring are complements ($\partial m/\partial\gamma > 0$), this term is also negative, and the ownership concentration unambiguously decreases with the quality of the law. In contrast, when legal protection and monitoring are substitutes, the relationship between outside ownership concentration and the quality of the law is not monotone. If better legal protection weakens managerial incentives more than monitoring incentives, outside ownership concentration decreases to preserve managerial initiative. Conversely, if the monitoring effect is stronger than the extraction effect, ownership concentration increases to avoid leaving a rent to the manager.

Thus, our main result (Proposition 3) linking legal protection and ownership concentration also holds when the manager and the large shareholder can collude at the expense of small shareholders. The relationship between outside ownership concentration and legal protection may be inverse or non-monotonic, contrary to the common view that law and ownership concentration are (always) substitutes. Our findings differ from this view because we explicitly consider how legal rules and monitoring interact in curbing managerial extraction and how changes in legal protection affect the monitoring incentives.

5.2 Inefficient private benefit extraction

So far we have considered the two polar cases where the interests of the large shareholder are either completely aligned with those of the small shareholders or with those of the manager. The evidence that blockholders do both improve firm value and extract private benefits suggests that the large shareholder's interest tend to be partially aligned both with those of the manager and with those of the small shareholders. To obtain such partial alignment within a formal model, private benefits must be transferable and the extraction must involve a marginally increasing dead-weight loss. Unless such an inefficient extraction technology is assumed, the large shareholder always prefers a corner solution, i.e., he agrees to divert as much as possible or he opposes extraction altogether as in the preceding sections.

Replacing an efficient with an inefficient extraction technology does not alter the result that the relationship between ownership concentration and legal protection crucially depends on whether legal rules and monitoring are complements or substitutes. In particular, a non-monotonic relationship also obtains when legal protection and monitoring are substitutes, as shown in an earlier version of this paper (Burkart and Panunzi 2001). In addition, inefficient private benefit extraction allows to explore how (a change in) legal protection affects the conflict of interest between the large and the small shareholders. This is the final issue that we want to address.

To fix ideas suppose that the deadweight loss increases with the extent of extraction (ϕ). Following La Porta *et al.* (2000b) assume further that better legal protection renders the extraction technology less efficient. That is, the marginal deadweight loss increases with ϕ and γ. Since bargaining between the large shareholder and the manager is efficient, they agree on a level of extraction that maximizes their joint payoff, i.e., the sum of private benefits and of the value of the large shareholder's block α. Hence, their resource allocation decision takes into account that they have to bear a fraction α of the cost of inefficient extraction. A larger block implies that the large shareholder and the manager internalize more of the inefficiency and extract less private benefits, thereby increasing the value of all shares. Thus, while the large shareholder colludes with the manager at the expense of the small shareholders, a larger block reduces the conflict among shareholders.

Similarly, private benefit extraction is also inversely related to the quality of the law. Since better legal protection increases the deadweight loss, it reduces the incentives of a large shareholder with a given block α to extract private benefits. This does, however, not imply that better laws necessarily alleviate the conflict of interest among shareholders. The reason is that better legal protection also affects the optimal ownership concentration α^*. In fact, both the manager's incentive to exert high effort and the large shareholder incentive to monitor are affected by a change in the law.

Consider the case where better legal protection goes together with a lower ownership concentration ($d\alpha^*/d\gamma < 0$). To preserve managerial initiative, an improvement in legal protection has to be matched with a reduction in the ownership concentration. Owning a smaller stake, the large shareholder attaches more importance to private benefit extraction when choosing ϕ. Thus, while better legal protection increases the inefficiency of private benefit extraction it decreases the fraction of this cost that the large shareholder bears. When the latter effect dominates the former better legal protection exacerbates rather than alleviates the conflict of interests among shareholders.

In case better legal protection goes together with a more concentrated ownership structure ($d\alpha^*/d\gamma > 0$), better legal protection unambiguously alleviates the conflict of interests among shareholders. Private benefit extraction is then less efficient and the large shareholder, owning a larger block, internalizes a larger fraction of the deadweight loss, further reducing extraction.

6   Conclusion

This paper scrutinizes the hypothesis, first put forward by La Porta *et al.* (1997, 1998), that outside ownership concentration and legal shareholder protection are substitutes. To this end, we analyze the interaction between legal shareholder protection, managerial incentives, monitoring, and ownership in a setting where monitoring and legal shareholder protection comes with costs and benefits. On the one hand, more monitoring or better legal protection reduce the risk of expropriation by the manager. On the other hand, more shareholder control deprives the manager of his private benefits, thereby reducing managerial initiative. Since managerial initiative generates shareholder return, it can be advantageous to restrict monitoring by partly dispersing share ownership and/or offer the manager a bonus when legal protection curtails private benefit extraction.

As the 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 the quality of legal rules also shapes the large shareholders' incentives to monitor. Because monitoring weakens managerial incentives, both effects jointly determine the relationship between legal protection and ownership concentration. When legal protection facilitates monitoring better laws strengthen the monitoring incentives, and ownership concentration and legal protection are inversely related. By contrast, when legal protection and monitoring are substitutes better laws weaken the monitoring incentives, and the relationship between legal protection and ownership concentration is non-monotonic. This holds irrespective of whether or not the large shareholder can reap private benefits. Thus, our analysis shows that the assumed relationship between monitoring and the law (substitutes or complements) is the decisive assumption with respect to the shape of the relationship between the law and outside ownership

concentration.

A   Analysis with Transferable Private Benefits

A.1   Comparative static Properties of $\hat{m}(\alpha, \gamma)$

$$\frac{\partial \hat{m}}{\partial \alpha} = -\frac{\psi \frac{\partial \bar{\phi}(m, \gamma)}{\partial m} p\Pi}{[\alpha + (1 - \psi)(1 - \alpha)]\frac{\partial^2 \bar{\phi}}{\partial m^2} p\Pi + \frac{\partial^2 C}{\partial m^2}} \geq 0$$

$$\frac{\partial \hat{m}}{\partial \gamma} = -\frac{[\alpha + (1 - \psi)(1 - \alpha)]\frac{\partial^2 \bar{\phi}(m, \gamma)}{\partial m \partial \gamma} p\Pi}{[\alpha + (1 - \psi)(1 - \alpha)]\frac{\partial^2 \bar{\phi}}{\partial m^2} p\Pi + \frac{\partial^2 C}{\partial m^2}}$$

As the denominator is positive, the sign of $\partial \hat{m}/\partial \gamma$ depends on $\partial^2 \bar{\phi}(m, \gamma)/\partial m \partial \gamma$. A positive (negative) cross-derivative implies that $\partial \hat{m}/\partial \gamma$ is negative (positive).

A.2   Optimal Bonus and Ownership Concentration

Lemma 3 *i) For $\gamma \geq \tilde{\gamma}$, $\alpha < \underline{\alpha}, w^* = c/p\Pi - \bar{\phi}(0, \gamma), m^* = 0$, and $V(a^*, w^*, \gamma) = p\Pi - c$.*

ii) For $\gamma < \tilde{\gamma}$, $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi \leq c$, and

$$\left(\bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma) + \psi(1 - \underline{\alpha})\left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma)\right]\right) p\Pi < c,$$

either $\alpha^* < \underline{\alpha}$, $m^* = 0$, and $V(a^*, w^*, \gamma) = p\Pi(1 - \bar{\phi}(0, \gamma)) - c$,
or $\alpha^* = \underline{\alpha}$, $m^* = \hat{m}(\underline{\alpha}, \gamma)$, and $V(a^*, w^*, \gamma) = p\Pi - c - C(\hat{m}(\underline{\alpha}, \gamma))$.

iii) For $\gamma < \tilde{\gamma}$, $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi \leq c$, and

$$\left(\bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma) + \psi(1 - \underline{\alpha})\left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma)\right]\right) p\Pi \geq c,$$

α^* is such that $\left(\bar{\phi}(\hat{m}(\alpha^*, \gamma), \gamma) + \psi(1 - \alpha)\left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}(\alpha^*, \gamma), \gamma)\right]\right) p\Pi = c$, $w^* = 0$, $m^* = \hat{m}(\alpha^*, \gamma)$, and $V(a^*, w^*, \gamma) = p\Pi - c - C(m^*)$.

iv) For $\gamma < \tilde{\gamma}$ and $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi > c$, $\alpha^* = 1$, $w^* = 0$, $m^* = \hat{m}(1, \gamma)$, and $V(a^*, w^*, \gamma) = p\Pi - c - C(m^*)$.

Proof: Abstract for the time being from the constraint $\alpha \in (\{0\} \cup [\underline{\alpha}, 1])$ imposed by Assumption 3 and suppose that the monitoring intensity is given by equation (4). Differentiating total net shareholder wealth (equation 6) with respect to α yields

$$\frac{\partial V}{\partial \alpha} = \psi \left[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma)\right] p\Pi - [\alpha + (1 - \psi)(1 - \alpha)]\frac{\partial m}{\partial \alpha}\frac{\partial \bar{\phi}(m, \gamma)}{\partial m} p\Pi - \frac{\partial m}{\partial \alpha}\frac{dC(m)}{dm}$$

Using equation 4, this expression simplifies to

$$\frac{\partial V}{\partial \alpha} = \psi \left[\bar{\phi}(0, \gamma) - \bar{\phi}(m, \gamma) \right] p\Pi > 0.$$

Moreover, $\partial V / \partial w = -p\Pi < 0$. If $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi > c$, the manager's incentive constraint (equation 5) is slack for any admissible pair (α, w). Hence, the optimal solution is $\alpha^* = 1$ and $w^* = 0$ (case iv).

For $\bar{\phi}(\hat{m}(1, \gamma), \gamma)p\Pi \leq c$ equation (5) must be binding, that is,

$$\left[w + \bar{\phi}(\hat{m}, \gamma) + \psi(1 - \alpha) \left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}, \gamma) \right] \right] p\Pi = c$$

holds. Inserting this condition in equation (6) yields

$$V = p\Pi - c - C(m).$$

Thus, maximizing net shareholder wealth requires to minimize the monitoring intensity subject to equation (5). As in the Lemma 1, there are two possible situations: For $\gamma \geq \tilde{\gamma}$, or equivalently $\bar{\phi}(0, \gamma)p\Pi \leq c$, $m^* = 0$ (and thus $\alpha^* < \underline{\alpha}$) and $w^* = c/p\Pi - \bar{\phi}(0, \gamma)$ (case i).

For $\gamma < \tilde{\gamma}$, the manager's incentive constraint (equation 5) is slack for $w = 0$ and $m = 0$. Hence, w should be set equal to zero and α such that

$$\left[\bar{\phi}(\hat{m}(\alpha, \gamma), \gamma) + \psi(1 - \alpha) \left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}(\alpha, \gamma), \gamma) \right] \right] p\Pi = c. \tag{7}$$

Whenever the α value that satisfies this condition falls in the range $(0, \underline{\alpha})$, it is not an admissible solution because it violates the constraint $\alpha \in (\{0\} \cup [\underline{\alpha}, 1])$. Since the manager's payoff decreases with α, all α values that satisfy equation (7) also exceed the threshold $\underline{\alpha}$ provided that

$$\left[\bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma) + \psi(1 - \underline{\alpha}) \left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma) \right] \right] p\Pi \geq c$$

Given this condition holds, $w^* = 0$ and α^* is the solution to equation (7) (case iii).

For $\left[\bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma) + \psi(1 - \underline{\alpha}) \left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}(\underline{\alpha}, \gamma), \gamma) \right] \right] p\Pi < c$, the solution to equation (7) violates the constraint $\alpha \in (\{0\} \cup [\underline{\alpha}, 1])$ (case ii). There are two possibilities. Either to choose $\alpha = 0$, thereby abstaining from monitoring and conceding a rent $R = \bar{\phi}(0, \gamma)p\Pi - c$ to the manager, or to set $\alpha = \underline{\alpha}$ and to pay the manager a bonus

$$w = c/p\Pi - \left(\bar{\phi}(\hat{m}, \gamma) + \psi(1 - \alpha) \left[\bar{\phi}(0, \gamma) - \bar{\phi}(\hat{m}, \gamma) \right] \right)$$

in which case $V = p\Pi - c - C(\hat{m}(\underline{\alpha}, \gamma))$. $\blacksquare$

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