THE CHOICE OF STOCK OWNERSHIP STRUCTURE: AGENCY COSTS, MONITORING, AND THE DECISION TO GO PUBLIC*

MARCO PAGANO AND AILSA RÖELL

From the viewpoint of a company’s controlling shareholder, the optimal ownership structure generally involves some measure of dispersion, to avoid excessive monitoring by other shareholders. The optimal dispersion of share ownership can be achieved by going public, but this choice also entails some costs (the cost of listing and the loss of control over the shareholder register). If the controlling shareholder sells shares privately instead, he avoids the costs of going public but must tolerate large external shareholders who may monitor him too closely. Thus, the owner faces a trade-off between the cost of providing a liquid market and overmonitoring. The incentive to go public is stronger, the larger the amount of external funding required. The listing decision is also affected by the strictness of disclosure rules for public relative to private firms, and the legal limits on bribes aimed at dissuading monitoring by shareholders.

I. INTRODUCTION

Much existing literature in corporate finance focuses on public companies with a large number of dispersed shareholders and entrenched managers who effectively control the company. In this situation, typical of many large public companies in the United States, shareholders have little incentive to monitor managers and prevent them from putting their own personal interest above that of the company’s shareholders. A potential remedy is to have a less dispersed share ownership structure: shareholders with a large stake in the company have a greater incentive to play an active role in corporate decisions because they partially internalize the benefits from their monitoring effort.

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These shareholders also have a greater incentive to place a takeover bid for a badly managed company, because they appropriate part of the appreciation of the shares due to the improved management. So, via better monitoring and takeover bids, large shareholders alleviate the agency problem arising from the separation between ownership and control, as argued by Shleifer and Vishny [1986] and Grossman and Hart [1980]. Empirical evidence on the monitoring role of large shareholders is reported by Morck, Shleifer, and Vishny [1988]; Wruck [1989]; Franks, Mayer, and Renneboog [1997]; Yafeh and Yosha [1995]; Renneboog [1996]; and others.

In most European countries, share ownership is much more concentrated than in the United States.\(^1\) Most companies are not listed on stock exchanges, and even when they are, a single large shareholder or a tightly knit group of shareholders retains a controlling stake in the company. Since this ownership structure makes companies impervious to takeovers, the controlling stake is commonly retained by the founder of the company and by his descendants, even when the company is large and publicly listed. The controlling shareholder generally takes active interest in running the company, by choosing the management and directly taking executive positions. In this situation the main conflict of interest is that between the controlling shareholder and the minority shareholders,\(^2\) rather than between hired managers and the generality of shareholders as in the United States. This conflict can take several forms—from the diversion of corporate earnings to the advantage of the controlling shareholder to the use of the company's assets to favor other companies owned by him.

This conflict of interest cannot be analyzed by mechanically applying the models that focus on agency problems between management and shareholders. In contrast with a manager, the initial owner of a company himself determines the distribution of shareholding sizes, i.e., designs the company's ownership structure. Assuming that the initial owner retains a controlling stake,

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1. In Italy 88 percent of the manufacturing companies (accounting for 91 percent of the employed labor force) are controlled by one person or family [Barca et al. 1994], and in the majority of publicly listed companies one shareholder owns more than 50 percent of the voting rights [Zingales 1994]. In Germany 85 percent of the public companies have a major shareholder, and in France the corresponding figure is 79 percent, to be compared with only 16 percent in the United Kingdom [Franks and Mayer 1995, 1997].
2. As in the classic paper by Jensen and Meckling [1976].
the degree of discretion that he maintains in running the company will depend on how concentrated are the stakes of the outside shareholders. A large shareholder, such as a venture capitalist, will want to monitor his conduct more closely than a large group of small investors. As one guide to raising private funding for young companies puts it, the question is:

whether the founder of the business is willing to allow his creation to be sullied with petty considerations such as cash and short-term profit. . . . The chairman of a company which has recently received venture capital funding remarked of its managing director “In his head, he understands the need for the controls and influences the investor wants, but in his heart he cannot reconcile himself to sharing his authority” [Sharp 1991, p. 59].

Thus, the founder of the company may want to temper the involvement of outside shareholders by limiting their stakes. Our model captures this intuition. We show that the optimal ownership structure chosen by the entrepreneur generally involves some measure of dispersion (more than one external investor). It may also involve a certain degree of monitoring by a large external shareholder, because—in order to obtain equity capital more cheaply—the initial owner needs to restrain his own future tendency to stray from value maximization. Thus, the ownership structure acts as a precommitment device to limit agency costs.

But there are other considerations involved in widening the shareholder base of a company. In a private company, adding more shareholders can be very costly because each new shareholder in turn must expend time and effort to check that the company is a sound investment. Moreover, when he wants to liquidate his stake, he must incur further costs to search for a counterpart. Beyond a critical number of shareholders, it becomes more cost-effective to list the stock publicly, so that dissemination of

3. This point often surfaces in discussions of venture capital in the financial press. For example, The Economist [January 25, 1997] mentions that ‘‘entrepreneurs are sometimes suspicious of venture capitalists . . . [because] they have, for richer or poorer, married a meddlesome outsider . . . [who] will often demand management changes” (p. 21).

4. Other recent papers model the optimal design of the ownership structure by the initial owner of the firm. Zingales [1995] argues that selling an initial stake to dispersed shareholders indirectly strengthens the owner’s bargaining power in a subsequent transfer of control and thereby the total revenue obtained. Mello and Parsons [1994] focus on the design of a revenue-maximizing auction method in a setting where the investors’ valuations and the large investor’s potential contribution are both private information. The model of Stoughton and Zeckhauser [forthcoming] is closer to ours, because it focuses on the benefits of monitoring by large shareholders. They consider revenue-maximizing auction techniques under the assumption that the entrepreneur is obliged to sell all shares at a common price, a constraint which we do not impose.
information and trading activity are more centralized. In a publicly listed company expanding the shareholder base is quite inexpensive, although there is a large fixed cost to listing. (We argue that, in part, this cost derives from the fact that upon listing the company, its initial owner is no longer able to prevent changes in the identity of his external shareholders.)

Thus, if the initial owner of the company wants to sell out to many small shareholders, he must go public. If he keeps the company private instead, he cannot sell minority stakes to more than a few large shareholders. As a result, he saves the cost of listing the company on the exchange but has to accept a degree of monitoring far greater than that which minimizes agency costs. This is consistent with evidence that in going public, companies attempt to limit the sizes of individual stakes. Booth and Chua's [1996] evidence suggests that U. S. issuers underprice in order to achieve dispersed ownership. Similarly, Brennan and Franks [1997] find that, in U. K. initial public offerings, owners use rationing in the share allocation process in order to reduce the size of the largest shareholdings, thus making it less likely that they will be subject to the monitoring of a large shareholder (or to a hostile takeover).

The idea that minority shareholders may monitor too much seems at first sight surprising. Most of the relevant literature is concerned with the opposite problem: shareholders generally monitor too little to maximize the value of the company, because of free-riding problems. But our perspective is different, because we take the viewpoint of the initial owner of the firm. He cares not only about the market value of the company but also about his future private benefits as manager of the firm.\(^5\) So from his point of view, a level of monitoring that maximizes the market value of the firm may be excessive. This overmonitoring result parallels that obtained by Burkart, Gromb, and Panunzi [1997], who predict that a concentrated ownership structure leads to high monitoring and low managerial initiative.

Our model has several predictions. First, the danger of overmonitoring increases with the amount of outside finance to be raised. So companies are more likely to go public if they need a large amount of new funding relative to their value. This empiri-

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5. A few other papers take this perspective, notably Aghion and Bolton [1992], where capital structure is designed to optimally allocate control to the entrepreneur in those states where outside investors would inefficiently destroy his private benefits.
cal prediction is supported by Pagano, Panetta, and Zingales [forthcoming], who find that independent companies tend to go public in the wake of major investment programs. A second prediction of the model is that going public is attractive if extracting private benefits is not very wasteful, since then the benefits of monitoring by a large shareholder are lower. A third prediction is that the incentive to go public is greater if public companies are subject to more stringent disclosure rules and more transparent accounting standards than private companies, thus making monitoring more effective.

The choice between public and private financing is quite different if the controlling shareholder can pay off large minority shareholders to induce them to monitor less, at the expense of other minority shareholders. Then private financing from a single external shareholder no longer implies overmonitoring and strictly dominates going public. This may help to explain why in many European countries companies seldom go public, and prefer to rely on private partners or internally generated earnings to finance investment: in those countries minority shareholders receive so little legal protection that the controlling shareholder can use corporate resources to placate other large shareholders.

Finally, we investigate whether the ownership structure designed by the initial owner of the company will persist over time; i.e., whether minority shareholders have an incentive to alter their relative stakes by subsequent trading of shares. We show that this incentive is absent if all the investors have perfect information about the amount traded and the identity of traders, and are forward-looking. Then prices move so as to discourage a reshuffle of the ownership structure. If the secondary market is instead less than fully transparent or some shareholders are myopic, the ownership structure will not be stable.

The paper is structured as follows. Section II lays out the model and characterizes the optimal shareholder structure chosen by the initial owner. In Section III we discuss the costs of widening the shareholder base, and relate the analysis of the shareholder structure to the going public decision. In Section IV we show how the situation changes when the external shareholders can act cooperatively (subsection IV.1) and when the monitoring shareholder is able to collude with the controlling shareholder (subsection IV.2). In Section V we study the stability of the initial ownership structure, and in Section VI we briefly discuss the
implications of allowing for alternatives to equity financing. Section VII concludes.

II. THE MODEL

II.1. Assumptions

We consider an entrepreneur who is the single owner of a company worth $V_0$ in which he has invested all his wealth. Suppose that he needs to raise an amount of external finance $I$ to take advantage of a new investment opportunity (or, alternatively, to use for personal consumption). External finance is assumed to take the form of straight equity (the use of debt or hybrid securities is discussed in Section VI). Outside shareholders have no market power: they provide the funds $I$ at a price that just covers their costs, and the initial owner of the company appropriates the entire surplus from the investment.

Utility function. The entrepreneur’s utility is linear in wealth and private benefits ($B$). These benefits can be widely interpreted: managerial perks, excessive salaries, a quiet life, nepotistic appointments, unprofitable “pet” projects, advantageous deals with other firms in which he has a stake, etc. For simplicity, any value reduction $D$ that he inflicts on the company is assumed to yield private benefits at a constant rate $b < 1$. The parameter $b$ can be thought of as the value that the entrepreneur places on each dollar he diverts from the company. The fact that $b < 1$ means that diversion is inefficient: there is a loss of $1 - b$ for each unit diverted. He cannot extract more than a maximum amount $\overline{D}$, so that his private benefits are

\[(1) \quad B = bD, \quad \text{for } D \leq \overline{D}.\]

When the owner diverts an amount $D$, the security value of the firm is $V = \nabla - D$, where $\nabla$ is the maximum (zero-diversion) value of the firm.

Supply of external finance. The supply of external capital is perfectly elastic: potential shareholders are risk neutral, so that their required return is independent of the size of their stake. We rule out rationing of external funds, by assuming that the security value of the company is always larger than the amount of finance to be raised, irrespective of the severity of the diversion problem:

\[(2) \quad \nabla - \overline{D} \geq I.\]
Control. The owner of the company is assumed to retain enough voting stock that his position as manager of the company is unassailable, for instance, by issuing nonvoting stock to outside investors. Alternatively, his tenure as manager may be assured because he is the only person capable of running the company successfully. So we abstract from the issue of changes in corporate control, which are very rare events for the type of companies that we are trying to analyze.

Monitoring. Any shareholder can monitor the owner of the firm and hold down the amount of diversion to $D = D(M)$, where $M$ is the amount he spends on monitoring. This monitoring may be exerted via a direct involvement in the company: when venture capital is raised, “almost invariably, the investor will insist on the right to appoint a nonexecutive director,” especially if the investment is large or particularly risky [Sharp 1991, p. 160]. Alternatively, external shareholders may spend time and effort gathering information about the company, insisting on audits, orchestrating votes at shareholder meetings, generating publicity, or taking legal action against management’s policies. The extent to which these monitoring activities can be pursued depends on the legal and regulatory protection of shareholder rights, which varies greatly across countries [La Porta, López-de-Silanes, Shleifer, and Vishny 1996]. We assume that the more monitoring there is, the less the owner can divert ($D'(M) < 0$) and that there is a fixed cost $M$ to monitoring, so that shareholders with small enough stakes have no incentive to monitor. In the absence of monitoring, the entrepreneur can divert the maximal amount; i.e., $D(M) = \bar{D}$ for $M \leq \bar{M}$. The monitoring technology has increasing marginal costs ($D''(M) > 0$ for $M \geq \bar{M}$). Duplicate monitoring is assumed to be useless: if two shareholders spend $M_0$ and $M_1 > M_0$, respectively, on monitoring, then diversion will be held down to $D(M_1)$, and $M_0$ will be wasted. The baseline version of the model is developed under the assumption that external shareholders take their monitoring decision noncooperatively, so that in Nash equilibrium one of them monitors and the others free ride.

II.2. The Entrepreneur’s Financing Decision

The entrepreneur designs his shareholder base in such a way as to maximize the sum of his monetary wealth and his private benefits. In particular, he decides whether to go ahead with the investment and, if so, how to allocate stakes to external sharehold-
ers. In so doing, the entrepreneur must try to mitigate the agency problem between himself and the outside shareholders, possibly via the presence of a monitoring shareholder.

Formally, the entrepreneur’s problem is to choose his own stake in the firm, $\alpha$, and a prospective monitor’s stake, $\beta$, so as to maximize the total surplus that arises in the firm, defined as the market value of the whole firm minus the cost of the investment plus his private benefits minus monitoring costs. Since he extracts all the surplus and leaves the outside shareholders only with their reservation value, maximizing the total surplus is equivalent to maximizing his utility $U$:

$$U \equiv V - I + B - M = \nabla - I - (1 - b)D - M,$$

subject to incentive compatibility constraints for the entrepreneur and the monitor, and to participation constraints for the entrepreneur and the outside shareholders.

The solution to this problem yields the prices at which the entrepreneur sells stakes to the outside shareholders. Shareholders who are expected to incur monitoring costs in equilibrium obtain shares at a compensating discount relative to other external shareholders. Thus, we assume that the entrepreneur is able to sell shares to different outside investors at different prices reflecting their willingness to pay (in contrast to Stoughton and Zechner [forthcoming]).

To solve problem (3), there are three decision stages to be analyzed:

(i) the entrepreneur chooses the company’s ownership structure ($\alpha$ and $\beta$);
(ii) external shareholders choose the level of monitoring ($M$);
(iii) the entrepreneur chooses the level of diversion ($D$).

This three-stage problem is to be solved by backward induction.

In stage (iii) the entrepreneur chooses the level of diversion $D$ so as to maximize the value of his stake plus his private benefit:

$$D = \arg \max_{0 \leq D \leq D(M)} \alpha(\nabla - D) + bD = \begin{cases} D(M) & \text{if } \alpha < b, \\ 0 & \text{if } \alpha \geq b. \end{cases}$$

Due to the linearity of the diversion technology, the entrepreneur’s policy is very simple. Either he extracts as many private benefits as he can, or he extracts none: the agency problem
disappears ($D = 0$) if the entrepreneur’s stake $\alpha$ is large enough. This depends on the size of the required investment and on the value of the firm, because $\alpha$ is determined by the participation constraint of the outside shareholders. The latter must receive enough shares to compensate them for the money they invest, $I$, and spend on monitoring, $M$:

$$ (1 - \alpha)V \geq I + M. $$

We now turn to stage (ii), the monitoring decision. A large shareholder with stake $\beta$ will choose the monitoring level $M$ so as to minimize the sum of his monitoring costs and his share of the firm’s loss from diversion:

$$ \min_M M + \beta D, $$

where $D$ is given by equation (4).

Obviously, there is no monitoring if the entrepreneur has no incentive to divert resources: $M = 0$ if $\alpha \geq b$; i.e., if

$$ I \leq (1 - b)V. $$

This is the first-best case. In what follows, we focus instead on the more interesting opposite situation, where the investment is so large that the entrepreneur’s stake $\alpha < b$ and he wants to divert resources from the company (the no-first-best assumption):

$$ I > (1 - b)V. $$

Recall that we have also assumed $\nabla - \overline{D} \geq I$ in equation (2). Note that our analysis therefore applies to a range of values of $I$ such that $(1 - b)V < I \leq \nabla - \overline{D}$. Thus, $b$ must be sufficiently large if our analysis is to be relevant: we must have $b > \overline{D}/\nabla$.\(^6\)

Let $M(\beta)$ denote the monitoring level chosen by the external shareholder, i.e., the solution to problem (6). It is readily shown that the larger the external shareholder’s stake, the more he will want to monitor; i.e., the optimal $M(\beta)$ is increasing in $\beta$.\(^7\)

\(^6\) However, note that the assumption that $\nabla - \overline{D} \geq I$ is sufficient but not necessary to ensure that financing is available, because thanks to monitoring $D$ is generally below its maximum level $\overline{D}$. An alternative assumption that can rule out rationing is $U_0 > b\overline{D}$, where $U_0$ is the entrepreneur’s reservation utility; i.e., the project’s private benefits alone are not enough to make it attractive to the entrepreneur. Thus, the entrepreneur will not even demand funding for projects that yield insufficient security benefits to compensate the investors.

\(^7\) The problem at hand is nonconvex because we do not want to rule out the case of a fixed cost of monitoring. Therefore, we resort to revealed preference arguments rather than to first-order conditions for comparative statics. If $M^0$
Monitoring at level $M$ reduces diversion by $\overline{D} - D(M)$, and accordingly reduces the entrepreneur’s private benefit by $b(\overline{D} - D(M))$. The total net gain from monitoring, $G(\beta)$, is therefore $(1 - b)(\overline{D} - D(M))$ minus the cost of monitoring, $M$:

$$G(\beta) = (1 - b)[\overline{D} - D(M(\beta))] - M(\beta).$$

It is worth noting that

**Lemma 1.** For all $\beta > 1 - b$, the net gain from monitoring is decreasing in the monitoring shareholder’s stake; i.e., $G(\beta)$ is decreasing in $\beta$.

Intuitively, via the IPO price, the entrepreneur eventually pays for the private benefits he will extract later and for any monitoring expenses incurred by shareholders. From the entrepreneur’s viewpoint, $\$1$ diverted yields $\$b$ private benefits, so that ex ante he is willing to fund no more than $\$1 - b$ in monitoring expenses for every $\$1$ diverted. But the monitoring shareholder loses $\$b$ per $\$1$ diverted, so he is willing to spend up to $\$b$ to prevent it. Once the monitor’s stake $\beta$ exceeds $1 - b$, from the entrepreneur’s ex ante viewpoint there is too much monitoring, and the higher the stake $\beta$ the worse the problem becomes.

Stage (i) is the choice of ownership structure. This amounts to choosing the large investor’s stake $\beta$, so as to induce the amount of monitoring that maximizes the utility defined by (3):

$$\max_{\beta \in [0,1]} U = \nabla - I - (1 - b)D(M(\beta)) - M(\beta) = \nabla - I - (1 - b)\overline{D} + G(\beta),$$

subject to participation constraints for both the external investors

minimizes $M + \beta^0 D$, and $M^1$ minimizes $M + \beta^1 D$, then

$$M^0 + \beta^0 D(M^0) \leq M^1 + \beta^0 D(M^1),$$

$$M^1 + \beta^1 D(M^1) \leq M^0 + \beta^1 D(M^0).$$

Hence,

$$(\beta^1 - \beta^0)[D(M^1) - D(M^0)] \leq 0,$$

and, since $D(M)$ is a decreasing function of $M$,

$$\beta^1 > \beta^0 \Rightarrow M^1 \geq M^0.$$

8. The Appendix contains the proofs of this lemma and of all propositions (except Proposition 1).
and the entrepreneur. First, the external investors will provide funding only if the value of the company net of monitoring expenses is large enough to reward them for their investment:

\[(11) \quad \nabla - D(M(\beta)) - M(\beta) \geq I.\]

Second, the entrepreneur’s participation constraint is

\[(12) \quad U \geq U_0,\]

where \(U_0\) is the reservation utility, which includes the value of the company if the investment opportunity is forgone, \(V_0\).

Suppose that the financing constraint (11) does not bind. Then the entrepreneur chooses \(\beta\) to maximize the net gain from monitoring, \(G(\beta)\). This is achieved by setting the monitor’s stake \(\beta\) so as to align his private incentive with the maximization of the entrepreneur’s utility. From (6) the monitor’s private objective is

\[\min_M M + \beta D(M).\]

The entrepreneur’s objective is

\[(13) \quad \max_{\beta} G(\beta) = (1 - b)\nabla D - (1 - b)D(M(\beta)) - M(\beta).\]

These two problems coincide if \(\beta = 1 - b\). This establishes

**Proposition 1.** The monitor’s optimal stake is

\[(14) \quad \beta = 1 - b.\]

Intuitively, the monitor must be given a percentage stake in the company that induces him to maximize the entrepreneur’s utility \(U\). For every dollar diverted, only a fraction \(1 - b\) is wasted (the remaining fraction \(b\) goes into private benefits). If the monitor’s stake \(\beta\) is set equal to \(1 - b\), every dollar that is diverted implies a loss of \(1 - b\) dollars for him, so that in his monitoring decision his incentives are perfectly aligned with maximization of the entrepreneur’s utility.

Proposition 1 has an important implication. If the amount of money to be raised is so large that external financing generates an agency problem (equation (8)), then the money should *not* be raised from a single external shareholder. For then his stake would exceed the optimal value \(1 - b\), and he would have the incentive to overmonitor the entrepreneur. By Lemma 1 any reduction in his stake would then improve the situation. Thus, the external funding must be provided by at least two shareholders.
More specifically, the proposition tells us that at least \((1 - \alpha)/(1 - b)\) shareholders are required to achieve an optimal ownership structure. This ensures that the largest shareholder’s stake can be set to \(1 - b\) (since the total external shareholders’ stake is \(1 - \alpha\)). This is optimal, since it is reasonable to assume that the largest shareholder will monitor in equilibrium.

To summarize our main findings so far, we write down the expression for the entrepreneur’s utility when the external stakes are allocated optimally:

\[
U = \begin{cases} 
\max (\overline{V} - I, U_0) & \text{if } I \leq (1 - b)\overline{V}, \\
\max (\overline{V} - I - (1 - b)\overline{D} + G^*, U_0) & \text{if } I < (1 - b)\overline{V},
\end{cases}
\]

where \(G^*\) denotes the maximum gain from monitoring; i.e., \(G^* = G(1 - b)\) by Proposition 1. So if the investment is low relative to the value of the company, the utility reaches its first-best level \(\overline{V} - I\). Otherwise, it is reduced by the agency cost \((1 - b)\overline{D}\), but this reduction is mitigated by the gain from monitoring. The maximum gain from monitoring \(G^*\) is an increasing function of the effectiveness of the monitoring technology and of the wastefulness of diversion, \(1 - b\).

Figure I provides a graphical representation of the model. The entrepreneur’s private benefits (\(B\)) are measured along the

9. Suppose that there are two or more shareholders whose stakes are large enough that each of them would want to monitor, if nobody else does (that is, for some level of his monitoring expense \(M\), the resulting increase in the value of his stake, \(\beta(D - D(M))\), exceeds \(M\)). If their stakes are not too different in size, any one of them could act as the monitor in Nash equilibrium. The equilibrium in which the largest shareholder monitors seems a natural “focal point,” because all the other shareholders would most prefer this outcome. In contrast, if their stakes differ substantially, there is a unique Nash equilibrium, in which the largest shareholder monitors. The relevant condition is that the two largest shareholders’ stakes (\(\beta^1\) and \(\beta^2\), where \(\beta^1 > \beta^2\)) differ sufficiently, so that \(\beta^1 D(M(\beta^1)) + M(\beta^1) \leq \beta^1 D(M(\beta^2))\). Then the largest shareholder always chooses to monitor, even if any other shareholder does. Hence, no other shareholder monitors in Nash equilibrium.

10. This is shown as follows. When monitoring is more effective, the same level of monitoring \(M\) implies less diversion: \(D^1(M) \leq D^0(M), \forall M\). Let \(M^0\) and \(M^1\) be the respective choice of \(M\) when \(\beta = 1 - b\). Then, from the expression for \(G^*\),

\[
G^* = (1 - b)\overline{D} - (1 - b)D^1(M^1) - M^1 \\
\geq (1 - b)\overline{D} - (1 - b)D^1(M^0) - M^0 \\
\geq (1 - b)\overline{D} - (1 - b)D^0(M^0) - M^0 = G^0,
\]

where the first inequality follows from the optimality of \(M^1\) and the second from \(D^1(M) \leq D^0(M), \forall M\).

To show that \(G^*\) is increasing in \(1 - b\), one can again use a revealed preference argument. For brevity, denote \(1 - b \equiv c\), and the values of \(M(c^1), D(M(c^1))\) and \(G(c^1)\)
vertical axis, and the company's value along the horizontal axis. If the entrepreneur were the sole owner of the company, his utility would be the sum of his private benefits and the security value of

by $M^i, D^i$ and $G^i$, where $i = 0, 1$. Suppose that $c^1 > c^0$. Then

$$G^1 - G^0 = (c^1 - c^0)\overline{D} - (c^1D^1 - c^0D^0) + (M^0 - M^1),$$

but

$$M^1 + c^1D^1 \leq M^0 + c^1D^0,$$

so that

$$G^1 - G^0 \geq (c^1 - c^0)(\overline{D} - D^0) \geq 0.$$

So $1 - b^1 > 1 - b^0$ implies that $G^1 \geq G^0$. 

**Figure I**

Private Benefits, Monitoring, and Firm Value
the company \((V + B)\), and his indifference map would be a field of straight lines with slope \(-1\). If he instead has a stake \(\alpha < 1\) in the company, his indifference curves have slope \(-\alpha\).

With no monitoring, the segment \(AO\)—with slope \(-b\)—is the possibility frontier indicating how the entrepreneur can transform corporate resources into private benefits. If his stake \(\alpha\) in the company is greater than \(b\), there is no agency problem: the entrepreneur does not divert resources, the security value of the company is \(V\) and so the unconstrained optimum (point \(O\)) is reached. Conversely, if his stake \(\alpha\) falls short of \(b\) (the no-first-best assumption), he will go to the other corner solution (point \(A\)), where he extracts maximum private benefits \((B = bD)\) and the security value of the company falls to its minimum \((V = V - D)\).

With monitoring, the possibility frontier net of the monitoring cost \(M\) shifts to the left and becomes the curved locus in the figure. Each point along this locus corresponds to a different level of monitoring, with the security value of the firm minus the monitoring cost shown horizontally. Point \(E\) represents the constrained social optimum, i.e., the tangency point between the new production possibility frontier and a line with slope \(-1\). If this line lies above point \(A\), then at point \(E\) the entrepreneur achieves a higher total utility \(U\) than with no monitoring: in this case, monitoring helps to reduce the agency problem. Otherwise, monitoring is inefficient, and point \(A\) is preferable.

If the monitor’s stake is very small, he has little incentive to monitor, diversion is maximal, and point \(A\) is reached. If he owns 100 percent of the firm’s equity, he chooses his monitoring level so as to attain the rightmost point \(F\), at which the security value of the firm is maximized, net of monitoring costs. With a stake intermediate between 0 and 100 percent, he selects monitoring and corresponding diversion levels somewhere between \(A\) and \(F\). As shown in Proposition 1, the constrained optimum \(E\) is reached if the monitor’s stake \(\beta\) is equal to \(1 - b\).

So far, we have taken for granted that the entrepreneur can costlessly implement the optimal ownership structure just described. In practice, there are costs involved. The next section discusses this point.

III. Optimal Monitoring and the Decision to Go Public

III.1. Costs of Widening the Shareholder Base

Private companies tend to have very few external shareholders compared with publicly listed companies. For example, in
Italian private companies that were subsequently listed in 1982—1992, the median number of shareholders was three, rising to over 3000 after the initial public offer [Pagano, Panetta, and Zingales forthcoming]. This suggests that there may be substantial costs to widening the shareholder base of a private company.

These costs can arise in several ways. First, each investor needs to verify some basic facts about the value of the company: existence of a sound business plan, adequacy of the asset base, competence of the management, etc. Evaluating such information demands considerable time and effort from each shareholder. Second, each investor anticipates that at some stage he may have to liquidate his stake, and thus incur transaction and search costs in finding a counterpart. These costs have a large fixed component per shareholder, which is independent of the size of his stake. We capture this element by assuming that there is a fixed cost $c$ for each additional shareholder.

For every additional shareholder, the entrepreneur bears these costs in the form of a lower total issue price for the new equity. Thus, there is a cost to increasing the number of shareholders in a private company.

Once the number of external shareholders passes a critical level, it becomes more cost-effective to go public. Listing provides a certification function, a stock price to inform all shareholders of the company’s value, and a centralized forum for trading. Then the number of shareholders can be drastically increased at no extra cost: all duplication in gathering and evaluating information, as well as in search activity, is virtually eliminated.

But not every company would want to go public. There is a substantial fixed cost to listing, which includes the present value of listing fees, the cost of complying with stock exchange disclosure requirements, and the loss of flexibility due to the stricter regulations applying to public companies. Ritter [1987] estimates that for U.S. companies listing fees and commissions at the time of going public alone amount to $250,000 plus 7 percent of the

11. Indeed, once the shares of a company become sufficiently dispersed, regulators may effectively force it to go public. In Italy the stock exchange surveillance commission (CONSOB) can list a company ex officio if it meets the legal criteria for going public (which include a minimum of 500 shareholders) and if its shares are widely traded informally. This procedure can be triggered even if these criteria are not met, whenever CONSOB considers the listing to be “in the interest of the general investing public” (articles 25—27 of Regulation 4088, 4 May 1989, as modified in 1990, 1991, and 1992). In the Netherlands there is a similar procedure of ex officio listing. In the United States, companies with more than 750 shareholders and $1,000,000 of total assets are subject to the same disclosure requirements as publicly listed companies, and thus already bear one of the main costs of a public listing.
money raised. In addition, there is the important implicit cost associated with the loss of control over the identity of the external shareholders—a point taken up in subsection III.3.

Formally, these considerations can be captured by assuming that the total cost of having \( n \) external shareholders is

\[
C = \begin{cases} 
  cn & \text{for a private company,} \\
  L & \text{for a public company,}
\end{cases}
\]

where \( L \) denotes the fixed cost of listing. It seems plausible to assume that \( c < L \); i.e., that with a single external shareholder it is cheaper not to list.\(^{12}\)

### III.2. The Decision to Go Public

We now integrate these costs of increasing the number of shareholders into the analysis of optimal monitoring conducted in Section II. There, we argued that a single external shareholder generally has an incentive to overmonitor. There is clearly a trade-off here: increasing the number of shareholders beyond one alleviates the overmonitoring problem, but it also carries a cost. We now analyze this trade-off and its implications for the decision to go public.

**Private finance.** If the company stays private, the entrepreneur’s utility is given by

\[
U = \nabla - I - (1 - b)D - M - cn.
\]

Consider the entrepreneur’s problem in choosing shareholders’ stakes. Let us assume that the entrepreneur cannot designate a particular shareholder to do the monitoring.\(^{13}\) As argued in the previous subsection, it is then reasonable to assume that in Nash equilibrium (any one of) the largest shareholder(s) will monitor. Let us denote the optimal number of external shareholders under private finance by \( \tilde{n} \) and their stakes by \( \tilde{\beta}_i \) for \( i = 1, \ldots, \tilde{n} \), where

\(^{12}\) The linear specification \( C = cn \) is analytically convenient, but the general findings of the paper hold for any specification where the cost \( C \) arising under private financing is increasing in the number of shareholders.

\(^{13}\) If he were able to do so, he would designate the monitor, assign him a stake \( \beta^0 \), and give all the other shareholders larger stakes—just large enough to ensure that they will not want to monitor too. In this way, the stakes are as large as possible to reduce the number of shareholders and hence \( cn \), without affecting the equilibrium level of monitoring. This solution has the unattractive property that the smallest shareholder does the monitoring, which is the worst outcome from the point of view of the outside shareholders collectively. If these were able to coordinate in selecting who monitors, they would assign the task to the largest shareholder.
\( \tilde{\beta}_{\max} \) and \( \tilde{\beta}_{\min} \) are the highest and lowest of these stakes, respectively.

The external equity raised by the entrepreneur must cover the cost of the investment, the implied transaction costs, and the cost of monitoring, \( I + c\tilde{n} + M \). So the fraction \( 1 - \alpha \) of the company to be sold to the external shareholders to satisfy their participation constraint is

\[
1 - \alpha = \sum_{i=1}^{\tilde{n}} \tilde{\beta}_i = \frac{I + c\tilde{n} + M(\tilde{\beta}_{\max})}{\nabla - D(M(\tilde{\beta}_{\max}))}.
\]

The optimal largest stake \( \tilde{\beta}_{\max} \) and the optimal number of shareholders \( \tilde{n} \) are determined by maximizing

\[
G(\tilde{\beta}_{\max}) - cn.
\]

The number of shareholders should be kept as low as possible to economize on the shareholder cost \( cn \). This is achieved by choosing \( \tilde{n} \) to be the smallest integer greater than or equal to \( (1 - \alpha)/\tilde{\beta}_{\max} \).

Assuming that the entrepreneur’s participation constraint (12) holds, his utility under private finance is

\[
U_P = \begin{cases} 
\nabla - I - c & \text{if } I \leq (1 - b)\nabla - c, \\
\nabla - I - (1 - b)\nabla D + G(\tilde{\beta}_{\max}) - c\tilde{n} & \text{if } I > (1 - b)\nabla - c,
\end{cases}
\]

where \( \tilde{n} \) and \( \tilde{\beta}_{\max} \) are obtained by maximizing (18) subject to (17) and to the requirement that \( \tilde{n} \) is an integer greater than or equal to \( (1 - \alpha)/\tilde{\beta}_{\max} \). As in equation (15), the first line of the expression is the entrepreneur’s utility if the investment is small enough, so that the first best is obtained. The second line indicates his utility in the no-first-best scenario, where the monitor’s stake \( \tilde{\beta}_{\max} \) is chosen to minimize the sum of the agency costs and the costs of the shareholder base \( c\tilde{n} \).

It can be shown that

**Proposition 2 (Overmonitoring Problem).** Under private finance, two cases can arise:

(i) the individual stakes of external shareholders are all equal and greater than \( 1 - b \), so that monitoring exceeds the optimal level;

(ii) the largest external shareholder’s stake is equal to \( 1 - b \), and there are at least two external shareholders, so that monitoring is at the optimal level.
If the optimal number of shareholders is sufficiently large, case (i) prevails.

If the company stays private, it is costly to increase the number of shareholders. To keep this cost down, the entrepreneur may—as described in case (i)—choose a concentrated ownership structure and therefore accept some overmonitoring. Then, in terms of Figure I, as the stake of each external shareholder increases above \(1 - b\), we move downward along the curved locus from \(E\) toward \(F\), shifting the entrepreneur to a lower indifference curve. Alternatively—as described in case (ii)—the entrepreneur may prefer to accept a costly increase in the number of shareholders and keep monitoring at the optimal level. Either way, the danger of overmonitoring imposes a cost.

**Public finance.** Once the entrepreneur decides to go public, there is no incremental cost attached to having more shareholders. Therefore, if feasible, we will assign a stake of size \(1 - b\) to the monitoring shareholder, and achieve optimal monitoring; the other shareholders are simply assigned smaller stakes of arbitrary size. Adjusting equation (15) for the listing cost \(L\) and assuming that the entrepreneur’s participation constraint (12) holds, we obtain the entrepreneur’s utility under public finance:

\[
U_L = \begin{cases} 
\nabla - I - L & \text{if } I \leq (1 - b)(\nabla - L), \\
\nabla - I - (1 - b)\Omega + G^* - L & \text{if } I > (1 - b)(\nabla - L).
\end{cases}
\]

**Comparison between the two financing regimes.** Now we can evaluate the pros and cons of going public, by comparing the utility that the entrepreneur obtains from the two financing regimes. We shall focus on the case where an agency problem exists, i.e., on the second line of equations (19) and (20), respectively. The other case, where the first best is attainable, is less interesting, since the choice between the two regimes reduces to a pure comparison of the listing cost \(L\) with that of the private financiers \(cn\).14

When an agency problem exists, the entrepreneur faces a trade-off between avoiding excessive monitoring and containing the cost of the company’s shareholder base. If overmonitoring is a

14. If there is no agency problem (first line in equations (19) and (20)), the choice of financial regime involves simply comparing the listing cost \(L\) with that of a single private financier \(c\) (for in that case the whole external stake might as well be held by a single shareholder). Since by assumption \(c < L\), the company will never go public.
serious problem, he will want to have many, small, shareholders, and thus it will be more cost-effective for the company to go public. If overmonitoring is not a major consideration, then the entrepreneur will prefer to stay private and put up with few large shareholders, thus avoiding the cost of a wide shareholder base. The gain from going public, to be denoted by $\Delta$, is composed of three terms:

\begin{equation}
\Delta \equiv U_L - U_P = [G^* - G(\bar{\beta}_{\text{max}})] + c\bar{n} - L.
\end{equation}

The first term in square brackets is the gain from avoiding the overmonitoring that can arise under private financing. It is nonnegative, because when the company is public the gain from monitoring, if any, is maximal and therefore is at least as large as under private financing. The second term is the cost saving from not having a private shareholder base. These two benefits are to be weighted against the third term, which is the cost of listing. This trade-off determines the decision to go public.

We can then characterize how the propensity to go public is affected by changes in the parameters of the model:

**Proposition 3 (Propensity to Go Public).** The propensity to seek public rather than private funding is increasing in the size of the investment $I$ (holding constant either $V$ or the net present value of the investment by setting $\Delta V = \Delta I$) and in the marginal cost of private shareholders, $c$. It is decreasing in the first-best value of the company $V$, the cost of listing $L$, and the wastefulness of diversion $1 - b$.

The model predicts that a company is more likely to go public if the external funding required is large relative to the value of the company. This is because external shareholders will have to take a very large stake in the company, exacerbating the overmonitoring problem associated with private finance. A second prediction of the model is that if diversion is very efficient, in the sense that every dollar diverted yields a large private benefit, then ex ante the entrepreneur will not want to see many resources going into monitoring, and will prefer a dispersed shareholder base, so that the company will tend to go public.

In Proposition 3 we have considered changes in the scale of investment that are not accompanied by commensurate increases in opportunities for diversion and monitoring. We could conduct an alternative thought experiment, in which all parameters of the
model are scaled up proportionately with investment $I$. This would obviously leave the decision to go public unaffected. If the first-best value of the firm after the investment, $\nabla$, were instead to increase less than proportionately (after all, a part $V_0$ of the firm’s total value derives from its preexisting assets and not from new investment $I$), then analytically the effect would be the same as that of a reduction in $\nabla$ holding all else constant. Then, as a straight corollary of Proposition 3, the increase in investment would again lead to a greater propensity to go public. So our result that a larger investment makes it more likely that a company will go public appears robust.

The same variables affecting the choice between financing regimes also affect the decision to carry out the project at all, via the entrepreneur’s participation constraint $U \geq U_0$.

**Proposition 4 (Propensity to Invest).** The propensity to carry out the investment is decreasing in the size of the investment $I$ (holding its net present value constant), in the costs $L$ and $c$ and in the wastefulness of diversion $1 - b$. It is increasing in the net present value of the investment opportunity $\nabla - I$ and in the first-best value of the company $\nabla$.

If the scale of the investment relative to the company size is very large, a large external stake is required. As a result, the danger of overmonitoring is more acute, and mitigating this via a wider shareholder base is costly. This makes the project less appealing to the entrepreneur. As for the other comparative statics experiments considered in the proposition, they all directly concern the NPV of the security, or the private benefits from the investment project, or both.

### III.3. Loss of Control over Shareholder Base as a Cost of Going Public

An important implicit cost of going public that we have neglected in our analysis so far is the loss of control over the identity of the external shareholders. Private companies routinely include in their statutes clauses restricting the transferability of their shares. For instance, often transactions must be sanctioned by the controlling shareholder, or shares must be offered to existing shareholders before being sold to outsiders. Unsanctioned transactions can be declared null and void. When a company goes public, such clauses must be erased from its statutes. Groups of shareholders can still agree not to buy or sell
shares without each other’s prior consent. But trades violating these agreements cannot be reversed (at best, compensatory payments for identifiable damages can be extracted). As a result, the controlling shareholders of public companies are vulnerable to unwelcome changes in the composition of their shareholder register.

Our model can illustrate why the controlling shareholder may want to limit the transferability of shares. Such restrictions can be used to ensure that the controlling shareholder captures a bigger share of any rents that may result from future changes in shareholders’ stakes.

Consider the following illustrative example. At time 0, external financing is raised by selling a stake of size $\beta$ to a large monitoring shareholder ($A$) and the rest $(1 - \alpha - \beta)$ to atomistic shareholders. At time 1, with some probability, a third party ($B$) arrives on the scene who has exclusive access to a much superior monitoring technology. For simplicity, assume that he is able to reduce diversion to zero at virtually no cost to himself. He will bargain with the existing large shareholder to buy his stake (Proposition 6 argues that he will not be able to build up a stake by trading with atomistic shareholders).

Let us compare what happens if the company is public or if it is private.

If the company is public, the controlling shareholder cannot prevent $A$ from selling his stake to $B$. The joint gain from trade accruing to these two agents is

$$\beta D(M(\beta)) + M(\beta),$$

namely, the increase in the values of the stake of size $\beta$ due to the elimination of all diversion, plus the saving in monitoring cost. They bargain bilaterally over this gain, and depending on their relative bargaining power the outsider $B$ captures some fraction $\lambda > 0$ of it.

If the company is private instead, the entrepreneur will veto this deal unless he is compensated for his net loss $(b - \alpha)D(M(\beta))$, namely his loss of private benefit $bD(M(\beta))$ net of the gain in the value of his stake $\alpha$ (note that $\alpha < b$, or we would be in the first-best case). He will demand a side payment of at least this amount if he is to let the deal go through. As a result, the gain from trade shrinks to

$$\beta D(M(\beta)) + M(\beta) - (b - \alpha)D(M(\beta)).$$
Let us assume that $\beta$ is large enough, so that this expression is positive. Even so, it is smaller than the net gain in the public listing case, (22). Thus, the size of the pie bargained over shrinks; moreover, three parties are involved in bargaining ($A$, $B$, and the controlling shareholder) rather than two. Thus, one would expect party $B$ to extract a lower rent from the transaction—a smaller fraction (less than $\lambda$) of a smaller pie (expression (23)).

The fact that third parties can extract more rents from a public company than from a private one is a deterrent to going public, because it is ultimately borne by the original owner of the company. Let us see why. In our example, the total social gain associated with the intervention of party $B$ is the same in both financing regimes (if $B$ appears on the scene, the same improvement in monitoring occurs in both regimes). But its ultimate distribution is different. Under our assumptions, the initial large shareholder $A$ and the atomistic shareholders only get their reservation values in both regimes, private and public.\(^{15}\) So the total social gain is shared between the controlling shareholder and the outsider $B$. We have shown that $B$ gets more if the company is public. Hence, the controlling shareholder is worse off. This can be seen as a cost of going public.\(^{16}\)

### III.4. The Effect of Tighter Disclosure Rules for Public Companies

So far, we have assumed that, except for the trading costs, the parameters of the entrepreneur’s problem are the same irrespective of whether his company goes public or stays private. In fact, in most countries publicly traded companies are subject to considerably tighter disclosure requirements and more transparent accounting standards than private companies. Therefore, in public companies it should be easier for a minority shareholder to verify that the controlling shareholder is not cheating. In terms of our model, this can be expressed by saying that going public reduces the cost of monitoring.

It turns out that tougher regulatory standards encourage

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15. Any rent that they expect to receive at time 1 is fully discounted into the price they pay at time 0 (for example, in the public listing regime $A$ expects to earn a larger rent at time 1, but he pays correspondingly more for his stake at time 0).

16. Naturally, the fact that third parties can rip off larger rents from a public company provides them with a greater incentive to seek improvements (say, in the monitoring technology) which can in turn benefit other shareholders and, ultimately, the entrepreneur, ex ante. Thus, more generally, giving up control over the shareholder register can have benefits, as well as costs, for the initial owner of the company.
companies to go public, rather than discouraging them from doing so.

PROPOSITION 5. If under public financing there is less scope for diversion in the sense that, for any level of monitoring expense, there is less diversion, then the incremental gain from going public increases.

At first sight this result may seem surprising, considering that this parameter change reduces the extraction of private benefits and encourages monitoring even under public financing. But the rationale of the result is clear if one considers that this reduction of private benefits stems from more efficient monitoring, rather than from overmonitoring as under private financing. Formally, what happens is that the entrepreneur’s ex ante utility from listing, $U_L$, increases because the net gain from monitoring, $G^*$, increases. So stringent disclosure rules that make it easy to verify the conduct of controlling shareholders may actually encourage new listings. This result provides a counterweight to the usual argument that the burden and cost of stricter disclosure regulation tend to discourage new listings.

IV. Cooperation among Shareholders

Up to this point our discussion has assumed that all shareholders behave noncooperatively. But one can envisage circumstances in which they might strike informal bargains over the level of monitoring. Monitoring is, to some extent, a verifiable activity: examples of certifiable monitoring expenses are payments to accountants and lawyers, time spent in board meetings, and information dissemination costs. And even when monitoring is noncontractible, a subset of shareholders may be able to sustain a cooperative agreement in their monitoring activity if their interactions are sufficiently stable over time (see Tirole [1992]). Then, some large external shareholders may team up together to fix the level of monitoring activity so as to maximize their joint welfare—a scenario explored in subsection IV.1. Similarly, the controlling shareholder might be able to strike and enforce a collusive agreement with a large shareholder in order to reduce his

17. In contrast, diversion by the entrepreneur is much less easy to measure and contract upon, because it involves a very wide array of nonvalue-maximizing activities, such as pursuing “pet projects” or appointing congenial but incompetent employees.
monitoring activity. Subsection IV.2 analyzes this possibility. In both cases, the feasibility of cooperative behavior also depends on the regulatory environment. A stronger legal protection of minority shareholders promotes cooperation among external shareholders and hinders collusion between the entrepreneur and potential monitors. As we shall see, our model predicts that via both of these effects improved legal protection of minority shareholders increases companies’ propensity to go public. This prediction is consistent with the cross-country evidence reported by La Porta, López-de-Silanes, Shleifer, and Vishny [1997], who show that better legal protection of shareholders’ rights is associated with a larger value and number of publicly listed companies and of initial public offerings.

**IV.1. Cooperation among External Shareholders**

In the previous sections the level of monitoring was assumed to be the noncooperative equilibrium outcome of a game in which each shareholder simultaneously chooses how much to monitor. But external shareholders may be able to sustain cooperative behavior in the choice of their monitoring level. If so, outside shareholders can set their joint monitoring effort at the level that would be chosen by a single large shareholder owning their joint total stake $1 - \alpha$. As a result, the danger of overmonitoring for the entrepreneur becomes much more serious than in the noncooperative case.

External shareholders are likely to cooperate if their interactions are sufficiently stable over time. Their ability to cooperate also depends on the legal protection afforded to minority shareholders: it will be greater if the law facilitates collective action in exerting voting rights (for instance, voting by mail or cumulative voting for directors) and in reacting to perceived mismanagement by directors (for instance, allowing class action suits). But such cooperation is unlikely to emerge if shareholders are sufficiently small, both because shareholders with small stakes have a greater incentive to free ride and because they are less likely to maintain stable mutual relationships. This points to an additional benefit of going public: the ownership structure can be arranged so that there is one large shareholder who monitors, while all the others are atomistic and therefore too small to sustain cooperation in monitoring.

If the firm stays private, as argued before, it is too costly to expand the number of shareholders so much that they will be
small enough to behave atomistically. In this situation the initial owner might just as well seek finance from just one large outside shareholder, to economize on the costs of adding more shareholders. As a result, the monitor will hold the whole external stake: $\beta = 1 - \alpha$. Relative to our previous analysis, therefore, the overmonitoring problem under private finance is much more acute, and correspondingly the incentive to go public is strengthened. The net benefit from going public in fact becomes

$$\Delta = [G^* - G(\hat{\beta})] + c - L,$$

where

(24) $$\hat{\beta} \equiv 1 - \alpha = \frac{I + t + M(\hat{\beta})}{\nabla - D(M(\hat{\beta}))}.$$

Intuitively, $\hat{\beta}$ is determined by the investor’s participation constraint. The large outside shareholder’s stake is determined by the size of the investment to be financed. Reducing it has no effect on the amount of monitoring, because external shareholders will cooperate anyway. Compared with the noncooperative case considered in the previous section, the entrepreneur can no longer regulate the incentives to monitor by fine-tuning individual shareholders’ stakes. Thus, if large external shareholders are able to cooperate in monitoring, going public becomes more attractive because the overmonitoring problem under private financing is more acute.

IV.2. Collusion between the Entrepreneur and the Monitoring Shareholders

So far, we have portrayed the large monitoring shareholder as a boon to minority shareholders, as in much of the literature on agency problems in corporations (e.g., Shleifer and Vishny [1986]). This presupposes that the entrepreneur cannot pay the shareholder to curtail his monitoring activity. This assumption is appropriate if the entrepreneur has no private wealth and the legal system prevents him from sharing private benefits with potential monitors. In many countries, such as the United States and the United Kingdom, to protect minority shareholders the law imposes a fiduciary duty on managers, making it difficult for them to pay off potential monitoring shareholders out of company funds
in return for reduced monitoring activity.\textsuperscript{18} (In contrast, the law does not prevent noncontrolling shareholders from cooperating with each other in their monitoring activities. Indeed, such cooperation generates more monitoring and thus tends to benefit other shareholders.)

However, the view that large monitoring shareholders help to protect minority shareholders is far less appropriate in many European countries, such as Italy, where large noncontrolling shareholders are often bought off by the company’s managing shareholder via disguised side payments, in the form of favorable supply contracts, reciprocal share deals, etc. In these circumstances, the presence of a large outside shareholder may harm, rather than help, the other minority shareholders.

In our model, this possibility can be captured by assuming that, once the entrepreneur has funded the investment by selling equity to external shareholders, he can collude with any potential monitor to set the level of monitoring activity. Suppose that the entrepreneur (with stake $a$) and a large shareholder or set of cooperating shareholders (with stake $b \leq 1 - a$) choose the level of monitoring $M$ so as to maximize their joint utility:

$$ \max_M (\alpha + \beta)(\overline{V} - D(M)) + bD(M) - M. $$

It is readily shown that the level of monitoring that solves this problem is an increasing function of $\alpha + \beta$.\textsuperscript{19} Moreover, the joint utility of the entrepreneur and the monitoring shareholder(s) is maximized if and only if $\alpha + \beta = 1$. Intuitively, they must together

\textsuperscript{18} For example, in the United States “greenmail” payments to see off a large shareholder are highly controversial and have declined sharply in recent years [Herzel and Shepro 1990].

\textsuperscript{19} Let $\alpha + \beta = \gamma$, and consider the two values $\gamma'$ and $\gamma''$, with $\gamma'' > \gamma'$. Denote the corresponding optimal choices of $M$ by $M'$ and $M''$, respectively. Then, by revealed preference,

$$ \gamma''(\overline{V} - D(M'')) + bD(M'') - M'' \geq \gamma''(\overline{V} - D(M')) + bD(M') - M', $$

and

$$ \gamma'(\overline{V} - D(M'')) + bD(M'') - M'' \leq \gamma'(\overline{V} - D(M')) + bD(M') - M'. $$

Subtracting the second inequality from the first,

$$ (\gamma'' - \gamma')(D(M') - D(M'')) \geq 0. $$

So $D(M') \geq D(M'')$, and therefore $M' \leq M''$, since $D(M)$ is a decreasing function of $M$.\textsuperscript{19}
own the whole company if they are to set the best level of monitoring. If $\alpha + \beta < 1$, there will be undermonitoring. In this case, the $1 - \alpha - \beta$ stake sold to other minority shareholders would command a low price, in anticipation of collusion between the entrepreneur and other large shareholder(s).

Since diffuse shareholders are redundant in preventing over-monitoring and, if anything, lead to undermonitoring, companies have no incentive to go public. This may help to explain why in countries where the law offers little protection to minority shareholders, such as Italy, entrepreneurs are reluctant to finance expansion of their companies by listing them and selling shares to dispersed shareholders.

V. Stability of the Ownership Structure

In the previous sections we have assumed that the stakes allotted by the initial owner to outside parties cannot be changed. Obviously, he can ensure this by inserting in the corporate charter limits on assembling or splitting up large share stakes. But does he need to do so? In this section we investigate the incentives of shareholders to alter their stakes via subsequent trading, and show that subsequent trading is not a problem if market participants are forward-looking and observe who is trading and how much. This is because they will value the shares at a price that reflects the value of the firm under the new ownership structure, with its implied incentives to divert (for the entrepreneur) and to monitor (for large shareholders).

Proposition 6 (Incentives to Retrade I). Neither the monitoring shareholder (if there is one) nor the entrepreneur have an incentive to alter their stakes by subsequent trading, if all investors are forward-looking and have perfect knowledge of the size of the trades and of the identity of the traders.

This extreme stability of the corporate ownership structure is a special case of Proposition 1 of Admati, Pfleiderer, and Zechner [1994] for risk-neutral investors. It is based on the implicit assumption that atomistic shareholders think that, even if they personally refuse to trade, the planned reallocation of ownership stakes will still go through. As in Grossman and Hart [1980], the monitoring shareholder cannot increase his stake at a profitable price: each of the atomistic shareholders will refuse to sell to him for a price lower than that reflecting the higher posttrade firm’s
value, without realizing that their collective refusal will prevent the trade from going through.

A contrasting approach, exemplified by the work of Huddart [1993], takes agents to believe that, if they do not trade, the status quo ownership structure will be maintained. They are willing to trade if they can effect a mutually advantageous change relative to the current situation. We will refer to this as the case of “static” expectations. For this setting we have the following result.

PROPOSITION 7 ( INCENTIVES TO RETRADER II). Under static expectations the unique equilibrium ownership structure is one where all shares are held by the entrepreneur and one external shareholder (or set of cooperating external shareholders), and the entrepreneur’s stake exhausts his wealth.

The analysis of this section has maintained throughout that the market is fully transparent, in the sense that traders’ identities are known. An analysis of retraiding in a less than fully transparent market, such as one where trading is anonymous and some of it is liquidity-driven (as in Bolton and von Thadden [forthcoming]) remains outside the scope of this paper but may yield very different results. For instance, in the extreme case in which the market price does not react at all to orders placed by the monitoring shareholders (so that it reflects the value of the company under the current ownership structure), it is easy to show that the monitoring shareholder will always gain from trading, whether he reduces or increases his stake.

VI. ALTERNATIVES TO EQUITY FINANCING

The reader may be wondering why we concentrate on equity finance, considering that risk-free debt might be issued without incurring any agency cost. In that case, it is clearly best to issue safe debt rather than equity, for then there is no agency problem. But issuing risk-free debt is not always possible if the value of the firm $V$ is stochastic. And, when risky debt or other hybrid securities are issued, the agency problem that we analyze in connection with the issuance of equity is still present. Of course, this agency problem would be tempered to the extent that the firm can still issue securities that are as insensitive as possible to the firm’s value: this would sharpen the entrepreneur-manager’s incentives as much as possible.

The general qualitative results of our analysis will still apply
to the choice between the private placement and the public issue of such risky securities to dispersed bondholders (in such an extension, our variable $V$ is to be reinterpreted as the expectation of a stochastic firm value). Just like small shareholders, dispersed bondholders will not monitor as much as a bank with a large and risky exposure, as a result of a substantial loan or a large bond holding.

Capturing these intuitions formally by extending our model is possible but beyond the scope of this paper.

VII. Conclusions

This paper has analyzed the optimal design of the ownership structure of a company. We have taken the viewpoint of an initial owner who cannot bind himself not to behave opportunistically, once he has given up a stake in his firm to outside investors in return for investment funds. Since ex ante he internalizes all relevant agency costs, he must design shareholders’ stake sizes so as to induce them to do the right amount of costly monitoring. He will not choose an ownership structure so concentrated that it maximizes firm value net of monitoring costs, because he takes into account his own future private benefits. Instead, the shares must be sufficiently dispersed to ensure the optimal degree of monitoring.

This has interesting implications for the decision to go public. If a controlling shareholder wants to sell a minority stake to external shareholders without listing the company, he cannot aim for a large and dispersed shareholder base, and as a result, may have to accept more stringent monitoring. If the company goes public instead, he can “fine-tune” the stakes of external shareholders to ensure that they monitor optimally. But in this case he must also bear some costs. First, listing a company on the stock exchange involves some direct costs, with a large fixed component. Second, it entails losing control over the identity of the external shareholders, with potentially adverse consequences for the controlling shareholder. So the initial owner of the company faces a trade-off between the costs of overmonitoring and the costs of going public.

The model has a number of empirical predictions. First, the incentive to go public is an increasing function of the amount of external finance to be raised, of the inefficiency of monitoring and of the value of the private benefits of control. All these factors limit
the degree to which monitoring is worthwhile. Second, companies are more willing to list if public companies are subject to tighter accounting and disclosure standards than private companies: this set of rules enables them to precommit to “fair play,” by making it harder to extract private benefits because it is easier to monitor the company. Third, if external shareholders are able to cooperate in their monitoring activity, going public tends to become a more attractive option relative to staying private. Finally, if minority shareholders receive so little legal protection that the managing shareholder can bribe large shareholders to monitor less, there is no incentive to go public.

APPENDIX

Proof of Lemma 1

Again, we can use a revealed preference argument. Denote $M(\beta^i), D(M(\beta^i))$, and $G(\beta^i)$ by $M^i, D^i$, and $G^i$, where $i = 0, 1$. Then

$$G^1 - G^0 = (1 - b)(D^0 - D^1) + (M^0 - M^1),$$

but by revealed preference,

$$M^0 + \beta^0 D^0 \leq M^1 + \beta^0 D^1,$$

so that

$$G^1 - G^0 \leq (1 - b - \beta^0)(D^0 - D^1).$$

Note that we are in the no-first-best region where $\beta^i > 1 - b$, and recall that $\beta^0 < \beta^1$ implies $D^0 \geq D^1$. So $\beta^0 < \beta^1$ implies that $G^0 \geq G^1$. ■

Proof of Proposition 2

The proof is structured as follows. First, we show that $\bar{\beta}_\text{max}$ cannot be strictly smaller than $1 - b$. Second, we prove that if $\bar{\beta}_\text{max} > 1 - b$, then all stakes are equal: $\bar{\beta}_i = \bar{\beta}_\text{max}$ for all $i$ (case (i)). Third, we show that if $\bar{\beta}_\text{max} = 1 - b$, then the number of external shareholders $\bar{n} > 1$ (case (ii)). Last, we argue that for $\bar{n}$ large enough, case (i) prevails.

Step 1. Proof of $\bar{\beta}_\text{max} \geq 1 - b$. Suppose not, that is, $\bar{\beta}_\text{max} < 1 - b$. Then if $\bar{n} = 1$, the first-best solution obtains, a situation ruled out by our assumption (8). If $\bar{n} > 1$ instead, the largest external
stake $\tilde{\beta}_{\text{max}}$ can be increased by reducing the stakes of other shareholders or by even eliminating some of them. In this way, either we reach $\tilde{\beta}_{\text{max}} = 1 - b$, or we end up again with the first-best outcome (a single external shareholder with a stake below $1 - b$). If we reach $\tilde{\beta}_{\text{max}} = 1 - b$, then we increase the net gain from monitoring to its maximum $G^*$ while holding constant or even reducing the number of shareholders and the implied cost, so that the initial situation cannot be optimal. Hence, the entrepreneur chooses $\tilde{\beta}_{\text{max}} \geq 1 - b$.

**Step 2.** Proof that if $\tilde{\beta}_{\text{max}} > 1 - b$, then $\tilde{\beta}_i = \tilde{\beta}_{\text{max}}$ for all $i$. Suppose not, and $\tilde{\beta}_{\text{min}} < \tilde{\beta}_{\text{max}}$. Then it is possible to reduce $\tilde{\beta}_{\text{max}}$ while increasing $\tilde{\beta}_{\text{min}}$ offsettingly. By Lemma 1, this increases the net gain from monitoring $G(\tilde{\beta}_{\text{max}})$ without altering the number of shareholders and thus their implied cost. This shows that the assumed situation cannot be optimal.

**Step 3.** If $\tilde{\beta}_{\text{max}} = 1 - b$ and there is only one shareholder, then the situation is first best, which is ruled out by our assumption (8).

**Step 4.** Proof that for $\tilde{n}$ large enough case (i) prevails. Suppose not, that is, $\tilde{\beta}_{\text{max}} = 1 - b$, and $\tilde{n} > 1$. Hence the total stake held by outside shareholders $\sum_{i=1}^{N} \tilde{\beta}_i$ is at most $\tilde{n}(1 - b)$. We want to show that the entrepreneur’s utility can be raised by reducing the number of shareholders and raising $\tilde{\beta}_{\text{max}}$ above $1 - b$. With $\tilde{n} - 1$ shareholders, the entrepreneur can get at least the utility that he would obtain by assigning to each external shareholder an equal stake $\tilde{n}(1 - b)/(\tilde{n} - 1) = (1 - b)[1 + 1/(\tilde{n} - 1)]$. His utility will be increased if

$$G\left((1 - b)\left(1 + \frac{1}{\tilde{n} - 1}\right)\right) - (\tilde{n} - 1)c > G(1 - b) - \tilde{n}c,$$

which can be rewritten as

$$G\left((1 - b)\left(1 + \frac{1}{\tilde{n} - 1}\right)\right) - G(1 - b) > -c.$$

As $\tilde{n}$ becomes large, if the $G(\cdot)$ function is continuous, the left-hand expression tends to zero, so that the inequality holds. Hence setting $\tilde{\beta}_{\text{max}} = 1 - b$ cannot be optimal. To complete the proof, we still have to show that assigning $\tilde{n} - 1$ equal stakes
summing to a total outside stake \( \tilde{n}(1 - b) \) is feasible in the sense that the investors’ participation constraint is satisfied. Suppose not, that is,

\[
I + M\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right) + c(\tilde{n} - 1) > \tilde{n}(1 - b)\left[\nabla - D\left(M\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right)\right)\right].
\]

We know that the participation constraint would be met with \( \tilde{n} \) investors:

\[
I + M(1 - b) + c\tilde{n} \leq \tilde{n}(1 - b)[\nabla - D(M(1 - b))].
\]

Subtracting the first inequality from the second yields

\[
M(1 - b) - M\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right)
+ c < \tilde{n}(1 - b)\left[D\left(M\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right)\right) - D(M(1 - b))\right].
\]

Upon rearranging, this inequality becomes

\[
-M(1 - b) - (1 - b)D(M(1 - b)) + M\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right)
+ (1 - b)D\left(M\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right)\right) > c + (\tilde{n} - 1)(1 - b)
\]

\[
\cdot \left[D(M(1 - b)) - D\left(M\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right)\right)\right] \geq c,
\]

where the second inequality follows from the fact that \( D(M(\cdot)) \) is a nonincreasing function. Recalling the definition of the gain from monitoring \( G(\cdot) \), we have

\[
G(1 - b) - G\left(\frac{\tilde{n}}{\tilde{n} - 1}(1 - b)\right) > c.
\]

This inequality no longer holds if \( \tilde{n} \) is large enough, provided that \( G(\cdot) \) is continuous. Thus, the participation will hold for large enough values of \( \tilde{n} \). \( \blacksquare \)
Proof of Proposition 3

The net gain from going public is obtained from equation (21):

\[
\Delta = G^* - G(\tilde{\beta}) + c(\tilde{n}) - L \\
= -[(1 - b)D(M(1 - b)) + M(1 - b)] \\
+ (1 - b)D(M(\tilde{\beta})) + M(\tilde{\beta}) + c\tilde{n} - L,
\]

using equation (9) and Proposition 1. Our proof assumes that in the private case the number of external shareholders \( n \) is a continuous variable, neglecting that it can only take integer values. Therefore, we focus on case (i) of Proposition 2, where each external shareholder has an equal stake \( \tilde{\beta} \).

We investigate changes in each of the parameters in turn, observing that \( \tilde{\beta} \) solves

\[
\min_{\tilde{\beta}} (1 - b)D(M(\tilde{\beta})) + M(\tilde{\beta}) + c\tilde{n},
\]

where

\[
\tilde{n} = n(\tilde{\beta}) = \frac{I + M(\tilde{\beta})}{\tilde{\beta}[\nabla - D(M(\tilde{\beta}))] - c}
\]

and where \( M(\tilde{\beta}) \) solves

\[
\min_{M} \tilde{\beta}D(M) + M.
\]

Increases in \( I \) (holding \( \nabla \) constant).

Using the envelope theorem,

\[
\frac{d [G(\tilde{\beta}) - c\tilde{n}(\tilde{\beta})]}{dI} = c \frac{\tilde{\beta}\tilde{n}}{\partial I} > 0
\]

from equation (27). So \( \Delta \) increases, since \( G^* - L \) is unaffected by changes in \( I \).

Increases in \( I \) (holding the NPV of the investment constant).

To keep the NPV of the investment constant, consider an equal increases in \( I \) and \( \nabla \). The effect on \( G^* - L \) is zero. By the
envelope theorem the effect on $G(\tilde{b}) - cn(\tilde{b})$ is

$$\frac{\partial[G(\tilde{b}) - cn(\tilde{b})]}{\partial I} + \frac{\partial[G(\tilde{b}) - cn(\tilde{b})]}{\partial \nabla} = c \left( \frac{\partial \tilde{n}}{\partial I} + \frac{\partial \tilde{n}}{\partial \nabla} \right)$$

$$= c \frac{\tilde{b} [\nabla - D(M(\tilde{b}))] - c - \tilde{b} [I + M(\tilde{b})]}{[\tilde{b} [\nabla - D(M(\tilde{b}))] - c]^2}.$$ 

The numerator of this expression is positive because, if we multiply it by $\tilde{n}$, we have

$$\tilde{n} \tilde{b} [\nabla - D(M(\tilde{b}))] - I - M(\tilde{b}) - \tilde{n}c$$

$$\geq \tilde{n} \tilde{b} [\nabla - D(M(\tilde{b}))] - I - M(\tilde{b}) - \tilde{n}c \geq 0,$$

where the first inequality holds because $\tilde{n} \tilde{b} = 1 - \alpha \leq 1$ and the second inequality holds by the participation constraint. Thus, $\Delta$ increases.

*Increases in $\nabla$.*

By a similar argument, since clearly $\partial \tilde{n}/\partial \nabla < 0$ in equation (27), $\Delta$ is decreasing in $\nabla$.

*Increases in $c$.*

By the envelope theorem again, $\Delta$ is clearly increasing in $c$:

$$\frac{\partial \Delta}{\partial c} = \tilde{n} + c \frac{\partial \tilde{n}}{\partial c} > 0$$

because $\partial \tilde{n}/\partial c > 0$, differentiating (27).

*Increases in $L$.*

Obviously, $\Delta$ is decreasing in $L$.

*Increased wastefulness of diversion $1 - b$.*

Using the envelope theorem,

$$\frac{\partial (G^* - L)}{\partial (1 - b)} = -D(M(1 - b))$$

and

$$\frac{\partial [G(\tilde{b}) - cn(\tilde{b})]}{\partial (1 - b)} = -D(M(\tilde{b})).$$

Thus,

$$\frac{\partial \Delta}{\partial (1 - b)} = D(M(\tilde{b})) - D(M(1 - b)) < 0$$

because $\tilde{b} \geq 1 - b.$
Proof of Proposition 4

The entrepreneur will seek finance for the investment project to be carried out if \( \max(U_L, U_P) \geq U_0 \). Consider the public listing and the private finance cases in turn.

Public listing \((U_L)\)

From expression (20),

\[
U_L = \nabla - I - [(1 - b)D(M(1 - b)) + M(1 - b)] - L.
\]

Clearly, this is increasing in \( \nabla - I \) (a measure of the NPV of the investment) and decreasing in \( L \). Using the envelope theorem, one sees that

\[
\frac{\partial U_L}{\partial (1 - b)} = -D(M(1 - b)) < 0.
\]

In the case of a public listing, if the NPV of the project \((\nabla - I - V_0)\) is held constant, any increases in scale, i.e., in \( \nabla \) or \( I \) or both, have no effect on \( U_L - V_0 \).

Private finance \((U_P)\)

From expression (19),

\[
U_P = \nabla - I - [(1 - b)D(M(\tilde{b})) + M(\tilde{b}) + \hat{c}\tilde{n}],
\]

where \( \tilde{b} \) and \( \hat{n} \) are chosen to minimize the expression in square brackets subject to equation (27).

Clearly, \( U_P \) is decreasing in the wastefulness of diversion \((1 - b)\), as argued for the case of a public listing.

Regarding the NPV of the project, the first part of the expression for \( U_P \) is clearly increasing in \( \nabla - I \). As for the part in square brackets, observe that, by Proposition 3, \( U_P - U_L \) is increasing in the size of the investment \( I \) and the marginal shareholder cost \( c \), and it is decreasing in \( \nabla \).

Combining these observations with the above results for \( U_L \) (in the case of a public listing) immediately yields the desired result.

\]

Proof of Proposition 5

Suppose that monitoring technology 1 is more effective than monitoring technology 0, or that alternatively there is less scope for diversion under situation 1 than 0, in the sense that there is less or equal diversion for a given level of monitoring: \( D^1(M) \leq D^0(M) \), \( \forall M \). Redefine \( M^i \) and \( U^i_L \) as the values of \( M \) and of \( U_L \)
corresponding to technology $i$, for $i = 0, 1$. Then
\[
U_L^1 = \nabla - I - L - (1 - b)D^1(M^1(1 - b)) - M^1(1 - b) \\
\geq \nabla - I - L - (1 - b)D^1(M^0(1 - b)) - M^0(1 - b) \\
\geq \nabla - I - L - (1 - b)D^0(M^0(1 - b)) - M^0(1 - b) = U_L^0,
\]
where the first inequality follows by revealed preference and the second from the fact that $D^1(M) \leq D^0(M)$ for all $M$.\[\]

Proof of Proposition 6

First, the initial owner and the monitoring shareholder will not trade with each other. The only way for them to increase their total utility would be by harming the other shareholders via reduced monitoring, since the shareholder base has been designed to maximize the entrepreneur’s utility after compensating the monitor for his cost. But this is impossible, because the entrepreneur has no personal wealth to buy shares from the monitor and thereby reduce his stake.

Second, consider the monitor’s incentive to trade with other outside shareholders. Suppose that he wants to change his initial stake $\beta$ by a fraction $\Delta$ of the company’s shares. The farsighted investors will then set the stock price at
\[
V(\beta + \Delta) - L \equiv \nabla - (1 - b)D(M(\beta + \Delta)).
\]
The monitor’s trading problem is
\[
\max_\Delta (\beta + \Delta)(V(\beta + \Delta) - L) - M(\beta + \Delta) - \Delta(V(\beta + \Delta) - L) \\
= \beta(V(\beta + \Delta) - L) - M(\beta + \Delta).
\]
But then it is optimal to set $\Delta = 0$. To see this, observe that, by revealed preference,
\[
\beta(V(\beta) - L) - M(\beta) \geq \beta(V(\beta + \Delta) - L) - M(\beta + \Delta), \quad \forall \Delta.
\]

Third, let us see whether the entrepreneur can profit by selling shares to third parties. If we are not in the first-best situation, the entrepreneur’s stake is irrelevant: without monitoring, the amount of diversion is $\overline{D}$ anyway; with monitoring, it is the stake of the monitor that determines the amount of diversion. If we are in the first-best situation, the entrepreneur’s stake becomes relevant if he lowers it below $b$, where the agency problem arises, and starts diverting resources away from the company. Suppose that, starting from an initial stake $\alpha > b$, the
entrepreneursellsafraction $\Delta$ of the company so large as to end up with a fraction $\alpha - \Delta < b$. If the third parties to whom he sells the shares are rational, they will buy them for a price $\Delta(\nabla - D)$, so that the entrepreneur’s utility after the sale is $(\alpha - \Delta)(\nabla - D) + \Delta(\nabla - D) + bD = \alpha\nabla - (\alpha - bD) < \alpha\nabla$. But without the sale his utility level would have been $\alpha\nabla$: he too has no incentive to sell. The argument is almost identical if his sale were to prompt a large shareholder to start monitoring (just replace $D$ with $D(M)$ in the previous expressions).

**Proof of Proposition 7**

Suppose that there are at least three independent shareholders: the entrepreneur with stake $\alpha$, the (potentially) monitoring shareholder(s) with stake $\beta$, and a third shareholder with stake $\gamma > 0$. With static expectations, the two external shareholders have an incentive to trade. Let $\delta \equiv \beta + \gamma$ be the sum of their stakes. Then their joint utility sums to

$$\delta(\nabla - D(M(\beta))) - M(\beta).$$

This expression would be higher if $\beta$ were replaced by $\delta$, since by revealed preference,

$$\delta D(M(\delta)) + M(\delta) \leq \min_{[\beta]} \delta D(M(\beta)) + M(\beta).$$

Thus, their joint utility is maximized if the third shareholder sells his entire stake to the monitor, so that the latter can pay him enough to make him better off than in the status quo. Thus, an ownership structure with more than one external shareholder is unstable, unless they choose monitoring cooperatively.

Now we check that an ownership structure with two shareholders does not permit further mutually advantageous trading. Neither the entrepreneur nor the external shareholder has an incentive to sell shares to third parties, as argued in the first part of the proof of Proposition 6. Regarding the potential for mutually advantageous trades between the entrepreneur and the external shareholder, their joint utility is maximized if the stake of the entrepreneur is as large as he can afford. If he is wealthy enough, it will exceed $b$ and the first-best is reached. If he is not, it is optimal to keep the monitoring shareholder’s stake as low as possible (as close to $1 - b$ as possible).
REFERENCES


