

Investor activism

- The costs and benefits of active monitoring
- Incentives of an active monitor

- Corporate governance
 - Banks vs stock markets
 - Concentrated vs dispersed ownership

- Costs and benefits of active monitoring
 - Costs
 - Monitoring costs
 - Scarcity rents to monitors
 - Monitor illiquidity
 - Benefits
 - Learning by lending
 - Externalities to non-monitoring investors
 - Control (chapter 10)

Basic model of investor activism

- Fixed-investment model
 - Risk neutral entrepreneur has asset A and a project needing $I > A$. Project yields R if success, 0 if failure. Success probability p_H if entrepreneur works, $p_L = p_H - \Delta p$ if not.

- No monitoring
 - Benefit from shirking B .
 - Funding to project if expected pledgeable income exceeds investors' expenses:

$$p_H(R - \frac{B}{\Delta p}) \geq I - A$$

- Monitoring
 - The monitor moves first.
 - The extent of moral hazard is reduced.
 - The benefit from shirking reduced from B to $b < B$.
 - Monitor's private cost: c
 - Interpretation
 - Manager picks among three projects: good, bad and Bad.

	Pr (success)	Private benefit
Bad	p_L	B
bad	p_L	b

- By incurring cost c , monitor eliminates Bad project but still cannot tell good from bad.

- With a monitor present, entrepreneur's incentive constraint is

$$R_b \geq \frac{b}{\Delta p}$$

- Incentives for the monitor
 - Also monitor is risk neutral
 - When not incurring cost c , the monitor cannot prevent shirking
 - Monitor's reward R_m must satisfy

$$R_m \geq \frac{c}{\Delta p}$$

- Suppose first that *monitoring capital is abundant*: there is a large supply of monitors willing to invest their capital.

- A monitor is available supplying investment I_m such that his net payment equals his costs:

$$p_H R_m - I_m = c$$

- Funding possible if non-monitoring investors' breakeven constraint is satisfied:

$$p_H(R - R_b - R_m) \geq I - A - I_m \Leftrightarrow$$

$$p_H\left(R - \frac{b}{\Delta p}\right) - (I_m + c) \geq I - A - I_m \Leftrightarrow$$

$$p_H\left(R - \frac{b}{\Delta p}\right) \geq I - A + c$$

- Monitoring reduces the moral-hazard problem – at cost c .

- Investment by monitor: blockholding

$$I_m = p_H R_m - c = p_H \frac{c}{\Delta p} - c = c\left(\frac{p_H}{\Delta p} - 1\right) = \frac{p_L}{\Delta p} c$$

- Return on the investment: $\frac{p_H R_m}{I_m} = \frac{p_H c / \Delta p}{p_L c / \Delta p} = \frac{p_H}{p_L}$

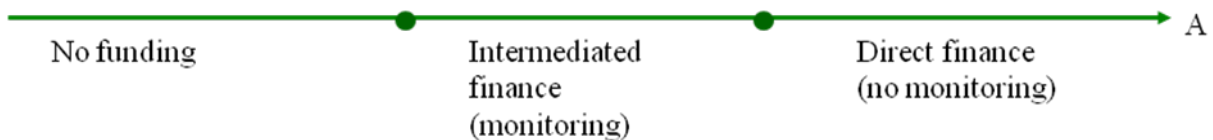
- Monitoring has a role to play when it increases pledgeable income, which happens when

$$p_H \frac{b}{\Delta p} + c < p_H \frac{B}{\Delta p} \Leftrightarrow c < \frac{p_H}{\Delta p} (B - b)$$

- Entrepreneur's utility equals NPV under monitoring

$$U_b = p_H R - I - c.$$

- The entrepreneur will only enlist a monitor when this is necessary to obtain funding.
- Strong firms are financed without monitoring.



- Empirical evidence: Legal systems with poor investor protection have also concentrated ownership.
 - High B leads to high needs for monitoring by a monitor holding a block of shares.

Overmonitoring

- The monitor exerts two kinds of externalities
 - A positive externality on other investors
 - A negative externality on the entrepreneur
- A model of *variable monitoring intensity*.
 - The monitor identifies the Bad project with prob x , and learns nothing with prob $1 - x$.
 - The greater monitoring costs incurred, the greater is the probability x :

$$c = c(x), c' > 0, c'' > 0.$$

- Borrower's utility equals NPV and depends on x :

$$U_b(x) = xp_H R + (1 - x)(p_L R + B) - I - c(x)$$

- NPV is maximized at monitoring level x^* , where

$$c'(x^*) = (\Delta p)R - B$$

- Suppose that this monitoring level is sufficient for funding, while no monitoring is not.

- The monitor's incentives: he maximizes

$$[xp_H + (1 - x)p_L]R_m - c(x)$$

- In order to get the monitor to choose the correct monitoring level, it is necessary for the entrepreneur that

$$(\Delta p)R - B = c'(x^*) = (\Delta p)R_m \Leftrightarrow R_m = R - \frac{B}{\Delta p}$$

- The entrepreneur not getting funding without monitoring implies that $R_b < \frac{B}{\Delta p}$. Therefore:

$$R_m = R - \frac{B}{\Delta p} < R - R_b \Leftrightarrow R_b + R_m < R$$

- In order to get the proper monitoring level, the entrepreneur needs other, non-monitoring investors in addition to the monitor.

- If the monitor holds all external shares, there is no positive externality on other outside investors, only a negative externality on the entrepreneur – *excessive monitoring*.

- A large monitoring investor may also

- aggravate the problem of soft budget constraints, by facilitating renegotiations
- dampen the entrepreneur's incentives to come up with new ideas.

Scarce monitoring capital

- People with *both* skills in monitoring *and* own capital to invest may be scarce.
- Polar case – monitor has no own capital: $I_m = 0$.
 - Example: monitors as non-owning board members.
 - Monitor's incentive constraint: $R_m \geq \frac{c}{\Delta p}$
 - Monitor earns a *rent*: $p_H R_m - c = \frac{p_L}{\Delta p} c$.
 - Borrower's utility is no longer equal to NPV.

$$\text{NPV} = p_H R - I - c$$

$$U_b = p_H R - I - c - \frac{p_L}{\Delta p} c = p_H R - I - \frac{p_H}{\Delta p} c$$
 - A decrease in the scope for monitoring, and an increase in the occurrence of no funding.
- More generally, a high return on monitor's investment, because of investment opportunities elsewhere:

$$\chi = \frac{p_H R_m}{I_m} > \frac{p_H}{p_L}$$

- Monitor's rent:

$$M = p_H R_m - I_m - c = p_H R_m - \frac{p_H R_m}{\chi} - c =$$

$$p_H \frac{c}{\Delta p} \left(1 - \frac{1}{\chi}\right) - c = \left(p_L - \frac{p_H}{\chi}\right) \frac{c}{\Delta p} > 0.$$

- Borrower's utility: $p_H R - I - c - M$.
- Funding possible if

$$p_H \left(R - \frac{b}{\Delta p}\right) - c - M \geq I - A$$

- The scarcer monitor capital is, the higher is χ , the higher is M , and therefore the more difficult it is to get funding.

Monitor-entrepreneur collusion

- *A three-tier hierarchy*
 - principal-supervisor-agent
 - here: investor-monitor-entrepreneur
 - two incentive problems: agent and supervisor
 - in addition: the agent may try to persuade the supervisor into not performing
 - Ex ante collusion: the agreement to collude is made before the monitor decides to collect information.
 - Ex post collusion: the monitor collects information and then offers to the entrepreneur to be cooperative, by not ruling out the Bad project.
- A model of *ex post* collusion
 - The entrepreneur bribes the monitor into colluding by diverting corporate resources. The diversion creates a gain $G > 0$ to the monitor but uniformly reduces the success probability by $\tau > 0$: from p_H to $p_H - \tau$ if entrepreneur works, from p_L to $p_L - \tau$ if not.
 - The diversion is wasteful: $G < \tau R$. Direct payments not possible.
 - Collusion occurs if both monitor and entrepreneur gain from it:
$$G \geq (\Delta p + \tau)R_m$$
$$B \geq (\Delta p + \tau)R_b$$
 - In order to prevent collusion, monitor's stake must be raised from $\frac{c}{\Delta p}$ to $\frac{G}{\Delta p + \tau}$, if the latter is higher.

The monitor as advisor

- Board members and others perform *two* tasks: monitoring and advising.
- Advisory activity is *productive*, like that of the entrepreneur.
 - A double-sided moral hazard problem
 - The advisor increases NPV and is useful even without own capital.
 - Strong entrepreneurs do not need *pure monitors* to get funding and are therefore more interested in a *pure advisor*.
- A model of pure advising
 - Fixed investment I , entrepreneur's own funds $A < I$.
 - Success probability is $p + q$
 - Entrepreneur determines $p \in \{p_H, p_L\}$ and earns B when misbehaving.
 - Advisor determines $q \in \{q_H, q_L = 0\}$ and incurs non-verifiable cost c to give a useful advise raising success probability by q_H .
 - Suppose advising is socially efficient: $(\Delta q)R > c$.
 - Crucial difference between entrepreneur and advisor: Entrepreneur owns the idea and decides whether or not to hire advisor.
 - Benchmark: no advisor.
 - Funding if $A \geq \bar{A} = I - p_H(R - \frac{B}{\Delta p})$
 - Borrower's utility: $U_b^{nm} = p_H R - I$.

- Suppose that advisors' capital is abundant.
- In case of success, entrepreneur receives R_b , advisor R_m , and other investors $R - R_b - R_m$.
- Advisor's incentive constraint binding: $R_m = \frac{c}{\Delta q}$.
- Investment demanded from advisor:

$$I_m = (p_H + q_H)R_m - c = (p_H + q_H) \frac{c}{\Delta q} - c$$

- Borrower's utility equals NPV, since advisor does not receive rent: $U_b^m = (p_H + q_H)R - I - c$.
- The entrepreneur prefers advising as long as she can afford it, since $U_b^m > U_b^{mm}$.
- But does advising make funding easier?
- Other investors' breakeven constraint with advising:

$$(p_H + q_H)\left(R - \frac{B}{\Delta p} - \frac{c}{\Delta q}\right) \geq I - A - I_m \Leftrightarrow$$

$$(p_H + q_H)\left(R - \frac{B}{\Delta p}\right) - c \geq I - A \Leftrightarrow$$

$$A \geq \hat{A} = I - (p_H + q_H)\left(R - \frac{B}{\Delta p}\right) + c$$

- Funding facilitated by advising if and only if

$$q_H\left(R - \frac{B}{\Delta p}\right) > c$$

- Two cases

- If $q_H R > c > q_H\left(R - \frac{B}{\Delta p}\right)$, then advising increases NPV but makes funding more difficult. Advisor hired by strong firms only.
- If $q_H\left(R - \frac{B}{\Delta p}\right) > c$, then advising helps on funding. Advisor hired by all funded firms.

A monitor arising endogenously

- Suppose, in stead of the entrepreneur enlisting him (a *private deal*), the monitor needs to arise through share purchases in the stock market.
- To start with, external shares are held by dispersed owners.
- A potential large monitor makes *an unconditional and unrestricted tender offer* of price P per share on all external shares.
 - Unconditional and unrestricted: the offer stands irrespective of how many shares it attracts.
- A free-rider problem
 - Getting a monitor enhances the value of the firm.
 - Selling to the potential monitor supplies a public good to other current share owners.
- In order to attract any shares, the potential monitor has to offer a price corresponding to the ex post value of the firm.
- The potential monitor has himself to bear the full cost of monitoring.
- In equilibrium, there will no monitoring.
- Ways to monitoring in equilibrium
 - Liquidity traders, making it possible for the potential monitor to disguise his offer.
 - Risk aversion among current investors.
 - The entrepreneur selling shares.

Learning by lending

- An additional effect from monitoring
 - Not only alleviating the moral hazard problem
 - But also providing the monitor with information about the borrower that the monitor can profit from later on.
- Competition among asymmetrically informed investors.
- Model: Fixed investment. Two periods. Discount factor β . No cash initially: $A = 0$. No savings between periods. Short-term contracts only.
- Date 1: Entrepreneur has a project requiring $I > 0$. Private benefit without monitoring, B , is large: no funding unless a monitor is enlisted. With monitor, private benefit $b < B$. No scarcity of monitors.
 - Assume pledgeable income sufficient even with no continuation project:

$$p_H(R - \frac{b}{\Delta p}) \geq I + c$$

- Date 2: Independently of what happens at date 1, the entrepreneur has a new project, statistically independent from the first project, and identical to it, with one difference:
 - With probability α , the date-2 profitability is high: success probability has increased uniformly by τ . If the entrepreneur behaves, the success probability is $p_H + \tau$, if not, it is $p_L + \tau$. But B is so large that the project still gets no funding without monitoring.
 - With probability $(1 - \alpha)$, the success probabilities are unchanged from date 1.

- Symmetric information: no-one learns date-2 profitability. No gain to the borrower from having the same monitor in both periods.
- Asymmetric information: only the date-1 monitor (the incumbent) learns date-2 profitability.
 - Suppose the entrepreneur auctions off the position as active monitor.
 - The incumbent has an informational advantage.
 - Sequential-move bidding game where incumbent moves last: pure-strategy equilibrium.
 - Stage 1 of date-2 bidding game: Entrepreneur offers a monitor a stake $R_m^2 = c/\Delta p$ in the date-2 project and seeks bids of investment contribution I_m^2 for the position of active monitor.
 - Stage 2: New investors bid.
 - Stage 3: Incumbent monitor bids.
 - Stage 4: Uninformed investors contribute the residual investment: $I - I_m^2$.
 - Adverse selection: it never pays for uninformed investors to bid according to a higher date-2 success probability than p_H ; if it is in fact higher, uninformed bidders will be outbid.
 - Monitor investment at date 2:

$$I_m^2 = p_H R_m^2 - c = p_H \frac{c}{\Delta p} - c$$
 - Date 1: Because of the expected informational rent at date 2, investors are willing to contribute up to

$$I_m^1 = p_H \frac{c}{\Delta p} + \beta \alpha \tau \frac{c}{\Delta p} - c = (p_L + \beta \alpha \tau) \frac{c}{\Delta p}$$
 - The monitor position acquired at a premium and maintained at a discount.

- Discussion: Learning by lending
 - Endogenous date-2 profitability: a *hold-up problem*
 - Suppose the entrepreneur, through an effort, can affect the chance of increased date-2 profitability. The incumbent monitor's informational advantage deteriorates the entrepreneur's incentives to perform.
 - Empirical studies indicate a value to being associated with a long-term investor.
 - Firms with close ties to investors are less liquidity constrained than others.
 - Firms with a bank relationship observe positive reactions in stock price.
 - The possibility of commitment.
 - The entrepreneur's own knowledge about date-2 profitability.
 - Competition among investors: with imperfect competition among available investors, the possibility for the monitor to recoup expenses later on is further increased, facilitating funding at date 1 even more.
 - Empirical evidence: concentrated banking markets may facilitate funding for weak firms.

Liquidity needs among monitors

- Tradeoff: commitment vs liquidity
- Comparative corporate governance
 - Market-based systems: lack of investor commitment
 - Bank-based systems: lack of investor liquidity
- A monitor may have liquidity needs before project returns arrive. Liquidity vs accountability – just as with the borrower (chapter 4).
 - Late compensation to the monitor is good for accountability, since more information about the project is known, but bad for monitor liquidity.
- Performance measures along the way may give the monitor an exit option.
 - A role for *passive monitoring* in providing liquidity to the active monitor.
- A model of monitor liquidity
 - Basic model of investor activism, with monitor liquidity needs added.
- Fixed-investment model. Risk neutral entrepreneur has asset A and a project needing $I > A$ at date 0. Project yields R if success, 0 if failure, at date 2. Success probability p_H or p_L .
- At date 1, the monitor faces a liquidity shock with probability λ : An investment opportunity transforming an intermediate compensation r_m into μr_m , where $\mu > 1$.
- Strategic exit: the monitor may choose to exit even without a liquidity shock.

- Imperfect performance measurement at date 1: After the monitor learns about the liquidity shock, speculative information arrives which is informative about effort, but which is *not* a sufficient statistic: the final outcome is even more informative.

- The probability of an H signal is q_H with effort and q_L without effort, where

$$\frac{q_H - q_L}{q_H} < \frac{p_H - p_L}{p_H}$$

- Scarce monitoring capital
 - Monitor earns a gross surplus $U_m = \kappa I_m$, where $\kappa \geq \lambda\mu + 1 - \lambda$ is the monitor's return on alternative investments.
- *Illiquid contract*: Monitor receives R_m at date 2 if success, and nothing at date 1.
 - Participation constraint of monitor: $p_H R_m - c = \kappa I_m$
 - Incentive constraint of monitor: $R_m \geq \frac{c}{\Delta p}$
 - The cost of enlisting an active monitor exceeds the cost of monitoring

$$C^{IL} = p_H R_m - I_m = \frac{p_H - p_L}{p_H - p_L} \kappa c \geq c$$

- Borrower's utility: $U_b = p_H R - I - C^{IL}$
- Pledgeable income: $p_H(R - \frac{b}{\Delta p}) - C^{IL}$

- *Liquid contract*: $\{r_m, R_m\}$. The monitor receives
 - r_m at date 1 if signal is H and nothing at date 2, in the case of a liquidity shock.
 - R_m on date 2 if success and nothing at date 1, in the case of no liquidity shock.

- Assume p_L is so low that, if he does not monitor, the active monitor prefers receiving r_m than waiting for an unlikely R_m , even without a liquidity shock. Without monitoring, he earns

$$\lambda\mu q_L r_m + (1 - \lambda)q_L r_m = [\lambda\mu + 1 - \lambda]q_L r_m$$

- Truth-telling constraint when there is no liquidity shock:

$$p_H R_m \geq q_H r_m$$

- With monitoring, the active monitor earns

$$U_m = \lambda q_H \mu r_m + (1 - \lambda)p_H R_m - c$$

- Incentive constraint for the monitor:

$$\lambda q_H \mu r_m + (1 - \lambda)p_H R_m - c \geq [\lambda\mu + 1 - \lambda]q_L r_m$$

- The constraint is binding, and so the monitor earns

$$U_m = [\lambda\mu + 1 - \lambda]q_L r_m$$

- The cost of hiring the monitor with a liquid contract is

$$C^L = \lambda q_H r_m + (1 - \lambda)p_H R_m - I_m =$$

$$\lambda\mu q_H r_m + (1 - \lambda)p_H R_m - \lambda(\mu - 1)q_H r_m - I_m =$$

$$U_m + c - \frac{U_m}{\kappa} - \lambda(\mu - 1)q_H r_m =$$

$$c + r_m \left[\left(1 - \frac{1}{\kappa}\right) (\lambda\mu + 1 - \lambda)q_L - \lambda(\mu - 1)q_H \right] =$$

$$c + K r_m > c \text{ if and only if } K > 0.$$

- Providing the monitor with liquidity – that is, giving him a liquid contract – is optimal if $C^L < C^{LL}$.

- Simple case: $p_L = 0 \rightarrow C^{LL} = c$.
- We have $C^L < c = C^{LL}$ if and only if

$$\left(1 - \frac{1}{\kappa}\right)(\lambda\mu + 1 - \lambda)q_L < \lambda(\mu - 1)q_H \Leftrightarrow$$

$$\frac{q_H - q_L}{q_H} > \frac{1}{\kappa - 1} \left(\frac{\kappa}{\lambda\mu + 1 - \lambda} - 1 \right)$$

- The liquid contract is more likely to be the optimal one when

- The monitor's liquidity shock is likely: λ high
- The value of the monitor's reinvestment opportunity is high: μ high
- Speculative information is of high quality:

$$\frac{q_H - q_L}{q_H} \text{ high}$$

- Speculative activity helps in providing liquidity for large, monitoring shareholders.
- Monitoring capital is not too scarce: κ low
 - When scarcity is high, too much of the benefit from liquidity is kept by the monitor and not returned to the entrepreneur.