

# Seeking Alpha: Excess Risk Taking and Competition for Managerial Talent

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Global Corporate Governance Colloquia  
Stanford Law School

June 5, 2015

# Motivation

*“The dirty secret of bank bonuses is that these practices have arisen not merely due to a culture of arrogance; the more pernicious problem is a sense of insecurity. **Banks operate in a world where their star talent is apt to jump between different groups, whenever a bigger pay-packet appears, with scant regard for corporate loyalty or employment contracts. The result is that the compensation committees of many banks feel utterly trapped.**”* – Tett (Financial Times, 2009)

*“Should any investor be prepared to bet on [Mexico’s] next 100 years - or that of any country?... Cynics suggest **no one buys a century bond thinking further away than their next job move since it won’t be their problem when it does come due.**”* – Hughes (Financial Times, 2010)

# Introduction

- Question: why did private contracting not deter excessive undertaking of “tail” risks?
- Our answer: employers’ competition for “alpha” (talent of managers and traders) coupled with the fact that learning about employees’ “alpha” requires time.
- If employment duration at firms is short compared to maturity of projects employees take on, then such learning is not feasible.
- Employee ability to move to peer firms can preclude learning and efficient allocation.
- Why would managers engage in such churning that produces large tail risks? Can private contracts address it?

# Basic Idea

- Model of labor market equilibrium with risk-averse managers and competition for scarce managerial talent (“alpha”).
- Absent managerial mobility, firms set up compensation that:
  - allows for learning about talent and efficient assignment of managers to tasks; and
  - insures managers against risk of being low quality.
- When managers can move across firms, high-talent managers can fully extract the higher rents by leaving: hence, no co-insurance.
- In anticipation, risk-averse managers may churn across firms preventing their quality to be learnt, getting some insurance **but** delaying efficient assignment.
- Result: pay based on short-term performance and a buildup of excessive long-term risks.

# Outline of the talk

- Related literature.
- Setup of the model.
- Baseline case: two-period model.
  - Competitive labor market: managers mobile across firms; type revealed to all firms.
  - Non-competitive labor market: no managerial mobility across firms.
- Extensions.
  - Conditional pay, switching costs, asymmetric information.
  - Three-period model.
  - Infinite horizon model.
- Concluding remarks.

# Related literature

- We highlight a “dark side” of firms’ competition for managerial talent: each employer provides an “escape route” for managers from other companies (externality)  $\implies$  excess risk taking.
- Our model is close to that of Harris and Holmstrom (1982) where full insurance of workers is optimal but not feasible if there is labor market competition and worker mobility.
- Our paper introduces two novel elements: a project choice by firms, and a decision to move by managers.
- The former allows the firm to control whether types become observable, whereas the latter provides insurance to the managers, but also produces inefficiency in worker-project matching.

## Related literature (cont'd)

- Others have stressed the “bright side” where competition leads to efficiency of matching: Rosen (1981), Gabaix and Landier (2008). But these papers neglect the effect of competition on risk taking.
- Our idea parallels that of externalities in corporate governance: Acharya and Volpin (2009) and Dicks (2009) show that firms with weaker governance pay their managers more to incentivize them. Competition forces also other firms to pay their managers more, and thus discourages them from improving their governance.
- Contrast with models where excess risk-taking arises from difficulty to control managers' moral hazard: Axelson and Bond (2009), Makarov and Plantin (2010), De Marzo, Livdan and Tchisty (2010), etc.

# Setup

- $K$  profit-maximizing, competitive, risk-neutral firms.
- $I$  risk-averse agents (managers), who live for  $T$  periods:

$$V_{it} = \mathbb{E} \left[ \sum_{s=0}^{T-1} \rho^s u(w_{i,t+s}) \mid \Omega_t \right]$$

where  $u(w_{i,t+s})$  is the utility of the wage received,  $\rho$  is the discount factor and  $\Omega_t$  is the information available in period  $t$ .

- Managers have no initial wealth, limited liability and are impatient.



## Setup (cont'd)

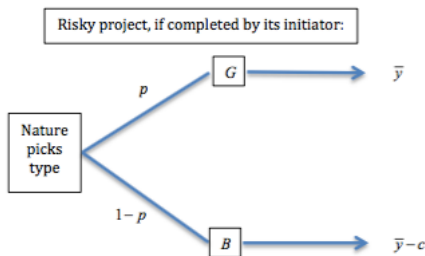
- Firm can make compensation conditional on projects assigned to the manager and on past information about the manager.
- A fraction  $p \in (0, 1)$  of managers are high-type ( $H$ ) and a fraction  $1 - p$  are low-type ( $L$ ), the former are scarce:  $p \leq 1/2$ .
- Managers initially do not know their type  $q_i$ : symmetric information.

# Projects

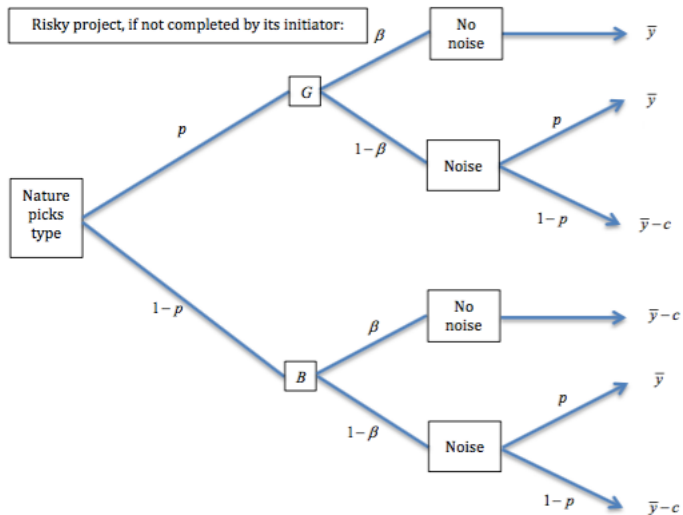
- Two types of projects:
  - safe ( $S$ ), which generate a low but certain payoff  $y_S$ ;
  - risky ( $R$ ), which generate a high payoff  $\bar{y}$  if managed by a  $H$  type and  $\bar{y} - c$  if managed by a  $L$  type.
- Assume:  $\bar{y} - (1 - p)c > y_S > \bar{y} - c \iff 1 - p < \eta < 1$  where  $\eta \equiv (\bar{y} - y_S)/c$ .
- **Key assumption:** the quality of a manager initiating an  $R$  project only becomes perfectly known if he stays at the firm until the end of the period, otherwise the outcome is a noisy signal about quality.

## Projects (cont'd)

- If the manager leaves and noise does not interfere (w.p.  $\beta$ ), then the outcome reflects the manager's ability. If it does interfere (w.p.  $1 - \beta$ ), then the outcome *completely* uninformative about the type.
- Noise does not change the ex-ante expected payoff of the project: it generates  $\bar{y}$  w.p.  $p$  and  $\bar{y} - c$  w.p.  $1 - p$ .



# Projects (cont'd)



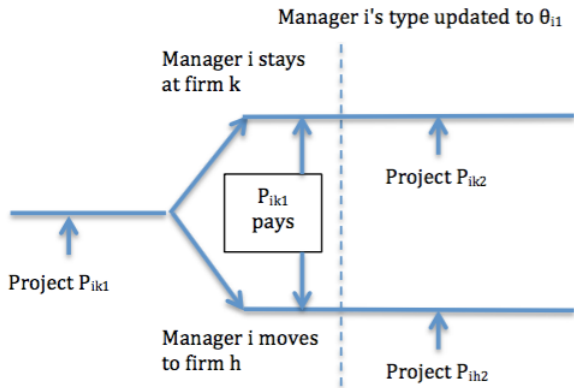
# Market for managerial talent

- At date  $t$ , firm  $k$  offers to manager  $i$  compensation  $\{w_{ik\tau}\}_{\tau=t}^{\tau=T}$  where  $w_{ik\tau}$  is contingent on the project  $P_{ik\tau} \in \{R, S\}$  and perceived quality of the manager  $\theta_{i,\tau-1}$ .
- Firms commit to paying the sequence of wages but not to project assignment:  $P_{ik\tau}$  chosen period-by-period to maximize expected profits.
- Manager decides period-by-period whether to stay with firm  $k$  or switch to a new firm in the following period, which is a function of perceived quality  $\theta_{i,\tau-1}$  so as to maximize expected utility.
- Firms bid competitively for managers, hence the latter extract all of the expected profit. Note that switching costs can prevent competition for managerial talent ex-post.

# Time line

- At the start of period  $t$ , manager  $i$  accepts (or renegotiates) an offer from firm  $k$ , which assigns him to project  $P_{ikt} \in \{R, S\}$ .
- Before completion of the project, the manager chooses whether to stay with employer  $k$  also in period  $t + 1$  or leave.
- At the end of period  $t$ , project  $P_{ikt}$  is completed and produces its payoff. If  $P_{ikt} = S$ , the payoff is  $y_S$ . If  $P_{ikt} = R$  and manager  $i$  stayed, the payoff perfectly reflects his quality; if he left, the payoff is a noisy signal of his quality.

# Time line (cont'd)



# Evolution of beliefs about managerial quality

- At  $t$ , employment history of manager  $i$  is summarized by the belief  $\theta_{i,t-1}$  that he is a  $H$  type, shared by all players.
- At the beginning, the quality of the manager is unknown, hence  $\theta_{i0} = p$ , but in subsequent periods the belief may be updated based on performance and the decision to stay or leave.
- If assigned to  $S$  project, no updating. If assigned to  $R$  project and stays, type revealed but if he leaves, belief updated using Bayes' rule.



# Evolution of beliefs about managerial quality (cont'd)

- The law of motion of manager's reputation is:

$$\theta_t = \begin{cases} \theta_t^U \equiv \theta_{t-1} \times \frac{1+\delta^+}{1+\theta_{t-1}\delta^+} > \theta_{t-1} & \text{if } y_t = \bar{y}, \\ \theta_{t-1} & \text{if } y_t = y_S \\ \theta_t^D \equiv \theta_{t-1} \times \frac{1-\delta^-}{1-\theta_{t-1}\delta^-} < \theta_{t-1} & \text{if } y_t = \bar{y} - c. \end{cases}$$

where  $\delta^+ \equiv \frac{\beta}{(1-\beta)p}$  and  $\delta^- \equiv \frac{\beta}{1-(1-\beta)p}$ .

- For example, updating after period 1 payoffs are realized are of the form:

$$\theta_{i1} = \begin{cases} \theta_H \equiv \beta + (1-\beta)p > p = \theta_{i0} & \text{if } y_{ik1} = \bar{y}, \\ \theta_L \equiv (1-\beta)p < p = \theta_{i0} & \text{if } y_{ik1} = \bar{y} - c. \end{cases}$$

## Two-period model: competitive labor market

- Simple two-period model shows some of the key results of the model.
- Consider in turn two polar cases: *competitive* and *non-competitive labor market*.
- In the former, the managers are free to move between firms at the end of period 1. Solve by backward induction.
- Firm chooses a project for manager  $i$  in period 2 to maximize expected profits based on the manager's reputation. There are two cases to consider:

- if  $\eta \geq 1 - \theta_L$ , then  $P_{i2} = \begin{cases} R & \text{if } \theta \in \{1, \theta_H, \theta_L\}, \\ S & \text{otherwise.} \end{cases}$
- if  $\eta < 1 - \theta_L$ , then  $P_{i2} = \begin{cases} R & \text{if } \theta \in \{1, \theta_H\}, \\ S & \text{otherwise.} \end{cases}$

## Two-period model: competitive labor market (cont'd)

- Firm pays the manager  $w_{i2} = \begin{cases} \bar{y} - (1 - \theta_{i1})c & \text{if } P_{i2} = R, \\ y_S & \text{if } P_{i2} = S. \end{cases}$
- Manager  $i$  switches firm at the end of period 1 if the expected utility from moving is greater than the expected utility from staying:

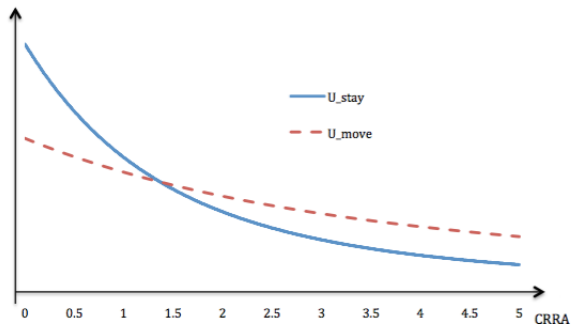
$$(1 - p) [u(\bar{y} - (1 - \theta_L)c) - u(y_S)] \geq p [u(\bar{y}) - u(\bar{y} - (1 - \theta_H)c)]$$

where  $\theta_H \equiv \beta + (1 - \beta)p$  and  $\theta_L \equiv (1 - \beta)p$ .

- By switching, the manager trades a reduction in expected wage for insurance i.e. lower variance in the period 2 wage.
- Notice the Hirshleifer (1971) trade-off: information revelation has a cost (destroying insurance possibilities) but also a benefit (enhancing production efficiency).

## Two-period model: competitive labor market (cont'd)

- The expected gain from moving is increasing in the efficiency gain from the risky project  $\eta$ , decreasing in the informativeness of the risky project's payoff  $\beta$  and increasing in the manager's risk aversion.



## Two-period model: non-competitive labor market

- In the *non-competitive labor market* the managers cannot move between firms at the end of period 1.
- Since they compete for managers, the firms will offer them full insurance against unknown quality: good managers subsidize bad ones.
- Firms assign managers to a  $R$  project in period 1, and then efficiently to either a  $R$  or  $S$  project in period 2, depending on their type, which is revealed. The managers are paid:

$$w_{ik1} = \mathbb{E}_0[\pi(P_{ik1}|p)] = \bar{y} - (1 - p)c$$

$$w_{ik2} = \mathbb{E}_0[\pi(P_{ik2}|q_i)] = p\bar{y} - (1 - p)y_S$$

## Comparing the two cases

- *Non-competitive labor market:*
  - **First-best is achieved:** complete insurance of risk-averse managers by risk-neutral firms and productive efficiency.
- *Competitive labor market:*
  - **First-best is not achieved:** inefficient risk-sharing and project allocation.
  - **Problem:** best managers can be poached away.
- The competitive equilibrium features inefficient project assignment and partial risk-sharing if managers move across firms, and efficient project assignment but no risk sharing if they do not.

## Extensions of the two-period model

- Allow firms to make pay conditional on the payoff of the project assigned to the manager and their decision to leave the firm.
  - Firms will not choose to offer such compensation packages.
- Allow for switching costs.
  - An intermediate case between the *competitive* and *non-competitive labor market* cases examined before.
  - With a switching cost  $s$ , manager  $i$  moves iff:

$$(1 - p) [u(\bar{y} - (1 - \theta_L)c) - u(y_S)] - s \geq p [u(\bar{y}) - u(\bar{y} - (1 - \theta_H)c)].$$

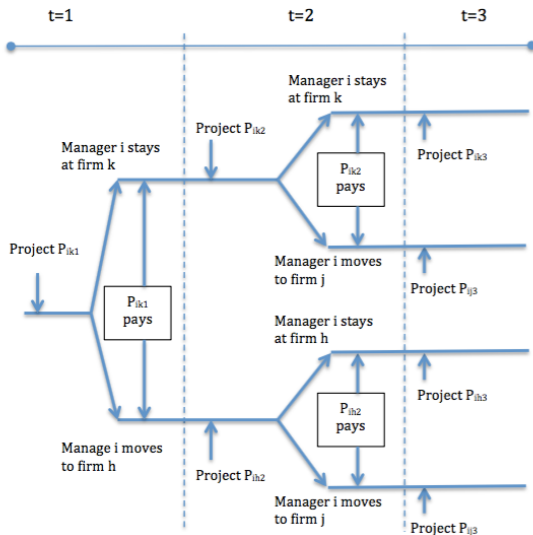
- The higher the switching cost  $s$ , the smaller the parameter region in which managerial mobility is worthwhile.
- Allow for asymmetric information: some managers know their type.
  - Managers are less likely to move as the degree of asymmetric information increases.

# Three-period model

- Allows the analysis of how changes in reputation of managers affect their mobility decisions.
- Again solved by backward induction, derivations become substantially more complex.



# Three-period model (cont'd)

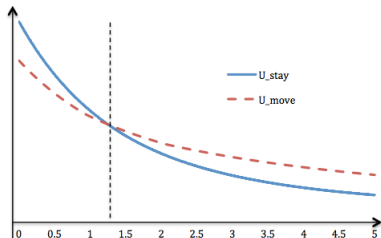


## Three-period model (cont'd)

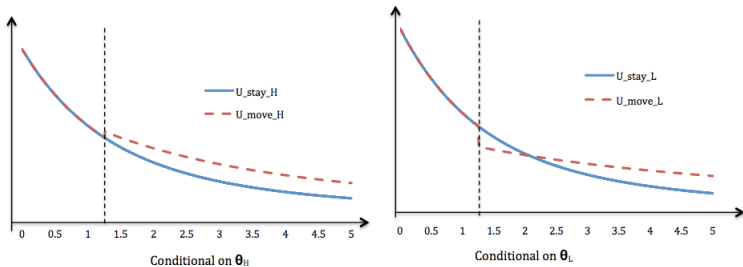
- Mobility is serially correlated and decreases over the manager's career.
- Reputation  $\theta_L$  or  $\theta_H$  acquired by the manager at the end of period 1 affects mobility in period 2; high-performance managers are more likely to move than low-performance ones since a manager is more interested in slowing down learning if he has gained a good reputation than a bad one.
- Increasing the horizon expands the scope for mobility as an insurance mechanism.

# Three-period model (cont'd)

Panel A: Expected utility from staying (in blue) and moving (in red) as a function of CRRA in period 1



Panel B: Expected utility from staying (in blue) and moving (in red) as a function of CRRA in period 2

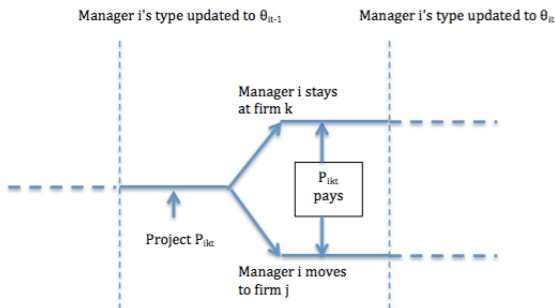


# Infinite horizon model

- Problem now becomes stationary and can be studied in recursive form:

$$V(\theta_{t-1}) = \mathbb{E} \left[ \sum_{s=0}^{\infty} \rho^{t+s} u(w_{t+s}) \mid \theta_{t-1} \right] = u(w_t) + \rho \mathbb{E} [V(\theta_t) \mid \theta_{t-1}]$$

- Timing:



## Infinite horizon model (cont'd)

- Project that the manager is assigned to depends on his reputation:

$$P_{kt} = \begin{cases} R & \text{if } \eta \geq 1 - \theta_{t-1}, \\ S & \text{if } \eta < 1 - \theta_{t-1}. \end{cases}$$

- Manager is paid his expected productivity:

$$w_t = \begin{cases} \bar{y} - (1 - \theta_{t-1})c & \text{if } P_{kt} = R, \text{ expected to stay at } t, \\ \bar{y} - [1 - \beta\theta_{t-1} - (1 - \beta)p]c & \text{if } P_{kt} = R, \text{ expected to move at } t, \\ y_S & \text{if } P_{kt} = S. \end{cases}$$

## Infinite horizon model (cont'd)

- Manager's utility depends on whether he stays or leaves:

$$V(\theta_{t-1}) = u(w_t) + \rho \max \left\{ \theta_{t-1} V_H + (1 - \theta_{t-1}) V_L, [\beta \theta_{t-1} + (1 - \beta) p] \times \right. \\ \left. \times V \left( \theta_{t-1} \frac{1 + \delta^+}{1 + \theta_{t-1} \delta^+} \right) + [1 - \beta \theta_{t-1} - (1 - \beta) p] V \left( \theta_{t-1} \frac{1 - \delta^-}{1 - \theta_{t-1} \delta^-} \right) \right\}$$

where  $V_L \equiv \frac{u(y_S)}{1-\rho}$  and  $V_H \equiv \frac{u(\bar{y})}{1-\rho}$ .

- Manager's utility  $V(\theta)$  is increasing in his reputation  $\theta$ , and is bounded between  $V_L$  and  $V_H$ .

## Infinite horizon model (cont'd)

- If  $p \leq \bar{\theta}$ , the manager moves in period  $t$  iff  $\theta_{t-1} \in [\underline{\theta}, \bar{\theta}]$ , otherwise he never moves. The upper and lower bounds are implicitly defined by the model's parameters and we have that  $0 < \underline{\theta} < p$  and  $0 < \underline{\theta} < \bar{\theta}$ .
- When his reputation drops to  $\underline{\theta}$ , the manager stops moving because the wage that he would get by moving is very close to the wage that he gets if stays and is revealed as a  $L$  type.
- When the reputation reaches  $\bar{\theta}$ , he stops moving because he is sufficiently likely to be revealed as a  $H$  type, so that the wage that he can expect if his true quality is revealed is likely to be the high wage  $\bar{y}$ .
- In both cases, the insurance gain from moving is too small compared with the implied inefficiency in project assignment.

# Conclusion

- We analyzed the “dark side” of the managerial labor market.
- Managerial churning is like “moving elsewhere to restart the clock” and insuring against early disclosure of quality.
- When talent is scarce, search for “alpha” by (competing) firms hinders the information generation role of firms.
- Equilibrium can feature high managerial turnover, little learning about alpha (“fake alpha”), and tail-risk buildup.
- Competition for managerial talent induces inefficiencies in two ways: it limits risk-sharing opportunities and it induces excessive risk taking.
- Empirical prediction: positive correlation between the mobility of managers and traders across financial institutions and their risk-taking.