

Booms, crashes, and choking in the financial sector
and other speculative industries

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Discussion

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1. Summary

- An economy populated by unit masses of managers and investors.

Investor i requires a return $\rho(i)$

Manager j has a reservation wage $w(j)$

ρ, w increasing.

- Each manager owns a technology that can transform \$1 into \$1 if the technology is bad (B type) and $\$(1+r)$ if the technology is good (G type).
- Types are perfectly positively correlated across managers.
Common prior π that the type is G .
- In equilibrium, **the number of projects undertaken m^*** solves:

$$\rho(m^*) + w(m^*) = 1 + r\pi$$

- Assume now that successive generations of managers and investors interact this way. Each generation observes past outcomes thereby updating its estimate of the probability
- In the paper, the stochastic structure is such that π_t keeps increasing as long as the high outcome is realized, and snaps back to 0 and remains there forever at the first negative outcome.
- This generates slow booms and sudden busts.

$$\rho(m_t^*) + w(m_t^*) = 1 + r\pi_t$$

- Assume now **an agency problem** between managers and investors: Managers can steal the output.
- The stealing technology destroys $(1-x_B)\%$ of the output if the project is B , while it destroys $(1-x_G)\%$ of the output if the project is G .
- This implies that managers must earn a wage at least equal to

$$(1 - \pi_t) x_B + \pi_t (1 + r) x_G = x_B + \pi_t ((1 + r) x_G - x_B)$$

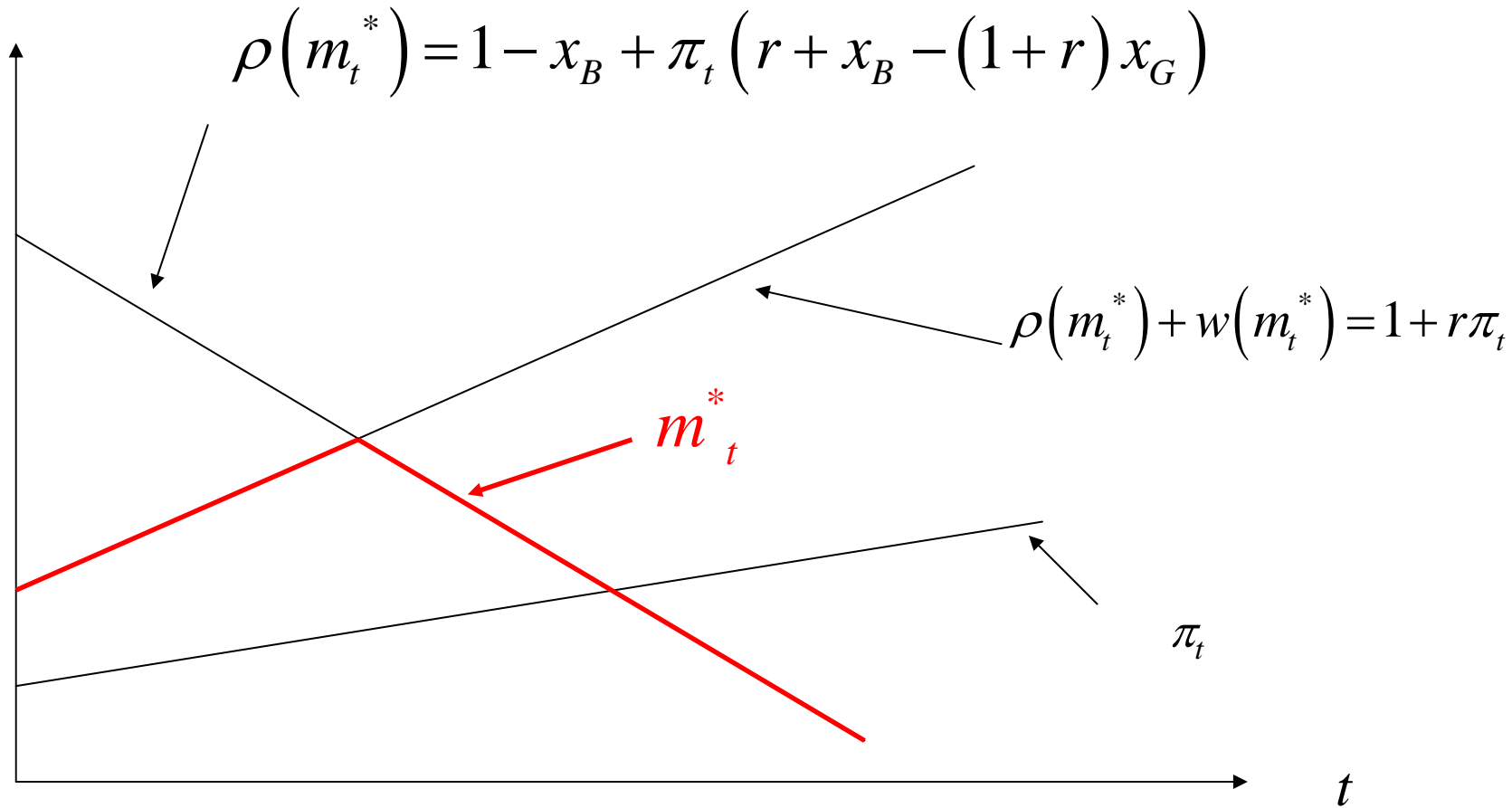
- As a result the pledgeable return to an investor is

$$1 - x_B + \pi_t (r + x_B - (1 + r) x_G)$$

- This is **decreasing with respect to π_t if stealing is sufficiently relatively more efficient for G -type projects:**

$$x_G > \frac{x_B + r}{1 + r}$$

- “Choking”: informational rents increase over time, thus the innovative industry shrinks while managers maintain very high compensations.



2. Comments

2.1 Contribution

- If innovations with the highest unit NPV are also the most information-problematic ones, then investment patterns within innovative industries will exhibit “choking” after a sufficiently long series of good news. Individual rents of the survivors will increase and total scale will decline.
- To my knowledge, this point is novel.
- Tease out predictions that differentiate this theory from other theories of **slow booms and sudden busts** (e.g., positive adoption externalities, inefficient social learning...).

2.2 Motivation

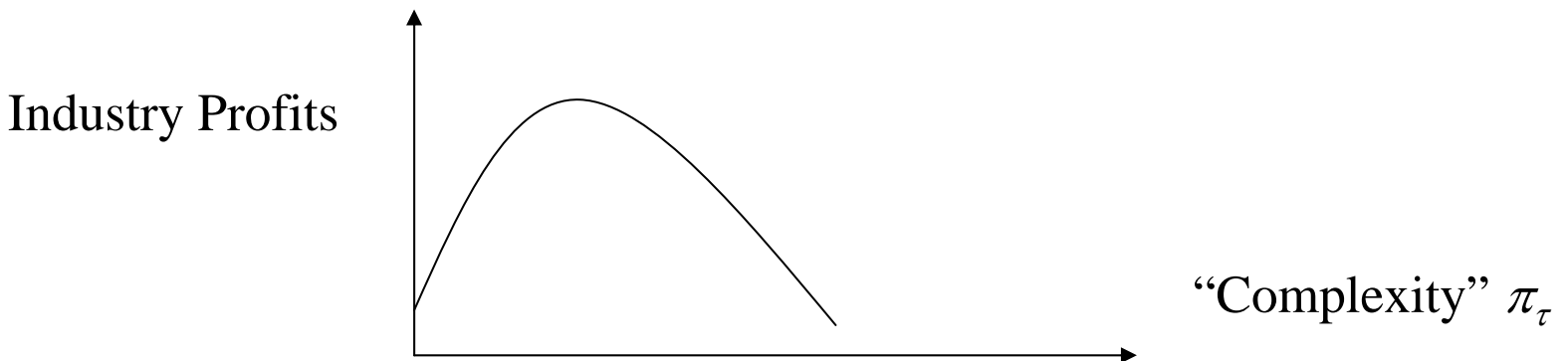
- The motivating slides refer to **uncertainty regarding the fundamental quality** of the innovative technology. How socially desirable is it?
- For many innovations, the first-order uncertainty is not about the existence of a social surplus. Rather about **firms' ability to extract rents** (search engines, pharmaceuticals,...).
- I would re-interpret the “macro shocks” in the slides as news regarding the **competitive structure**: legal decisions regarding intellectual property, strategic moves (entry, exit, alliances,...)

2.3 Main assumption

- The keystone of the paper is the assumption that **innovations that have the highest unit NPV are also the ones with the most severe agency problems ($x_G \gg x_B$)**. Motivating this point is **crucial**. Is this reasonable? It depends on the nature of the competitive advantage in the product market .
- If an innovation has a high unit NPV because potential competitors cannot understand/ replicate the production process, then yes, this is reasonable.
What is a blessing in the product market is a curse in the capital markets: if competitors cannot replicate/understand the key assets, then it is likely that the key assets also have low collateral value.
- On the other hand, if the competitive advantage in the product markets stems from cost structure, legal barriers to entry (e.g., electricity), then it is not clear that the conditions for “choking” are met.

2.3 Main Result

- I really view the main point of the paper as a point of comparative statics on π_i :
 - If it is too low, total surplus is low,
 - If it is too high, the fraction of the total surplus that is pledgeable is low.
- In a sense there is an optimal complexity of key assets that trades off the magnitude of the rents in the product market and the pledgeability of these rents.



2.4. Dynamics

- The “slow boom then choking” dynamics derives mechanically from this static property + the **exogenous timing** of investments.
- There is a literature that endogenizes slow collective learning because firms do not internalize the positive learning externalities that their experimentations generate (even absent competitive concerns as is the case here). Barbarino and Jovanovic, "Shakeouts and Market Crashes", *IER*, 2007.
- To push this dynamic interpretation of the model, it would be nice to further endogenize the dynamics of π_t . For instance, endogenous investment timing.

Negative learning externalities here? If many people experiment before me, then my π_t will be very large or very small, which is bad either way.

2.5 Financial Innovations

- Financial innovations: Investment banks structure/make a market for new tradeable claims.
- Completing markets or improving liquidity may (or may not!) be socially desirable.
- Investment banks extract rents mostly because of barriers to entry.
- It is widely believed that insufficient incentives to monitor/screen loans has played a role in the current securitization crisis. (Keys, Mukherjee, Seru, and Vig, 2008)
- In light of this model:
 1. Unusually low cost of capital (low and flat $\rho(\cdot)$)
 2. Slowly revealed role of incentives (Basel I-type capital requirements)

Thus large volumes of bad loans before “choking”.