Rational Overoptimism and Limited Liability

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Motivation

Systematic **excess risk taking** during credit booms

- Credit booms predict **higher risk** of financial crisis
- … but are characterized by **lower risk premia**
- … and predict **negative excess return** on bank stocks

(Schularick and Taylor, 2012; Krishamurthy and Muir, 2017; Baron and Xiong, 2017)

Existing literature:

- **Limited liability** *(Coimbra and Rey, 2020)*
- **Behavioral overoptimism** *(Bordalo et al, 2018)*

Research question

Is there a link between **risk-taking incentives** and **biased beliefs** driving credit cycles?

→ I show that procyclical **overoptimism** can arise *rationally* from **risk-taking incentives**

→ Agents don't pay attention risk accumulation because not incentivized to do so

Model's ingredients

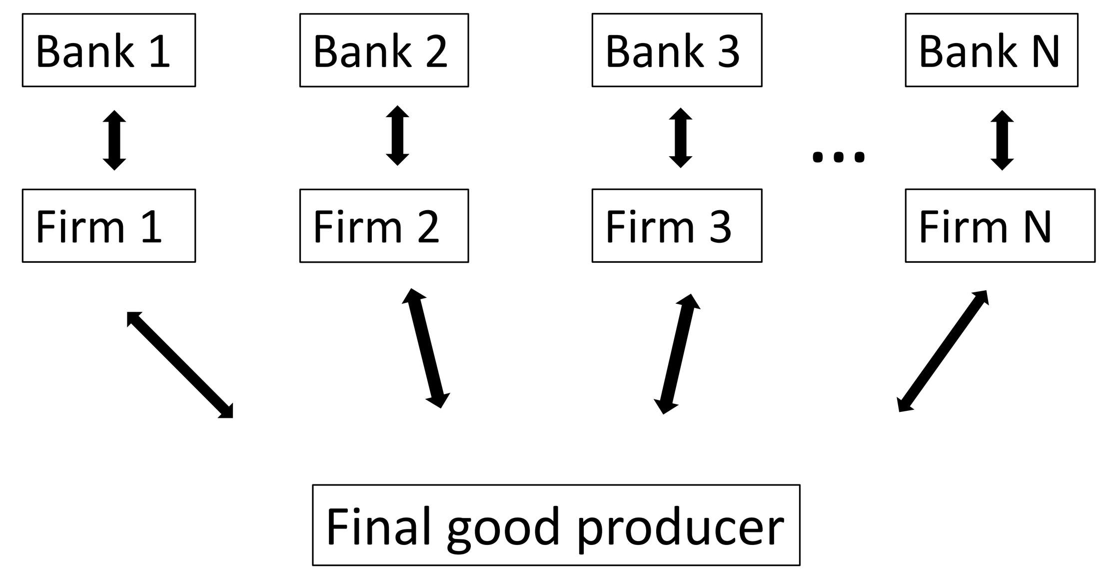
- Continuum of **firms** borrowing from **banks** to purchase inputs

1. Strategic substitutability

- Firms compete to sell to the same **aggregate final good producer**
- The more other firms produce, the lower price & revenue will be

2. Information dispersion

- Firms and bank can't freely observe aggregates/competitors
- But they can pay an attention cost to observe them



Rationally Extrapolative Beliefs

$$\underbrace{a_j}_{local\ TFP} = \underbrace{e_j}_{local\ shock} + \underbrace{\theta_j}_{aggregate\ TFP}$$

After an aggregate shock ↑ θ

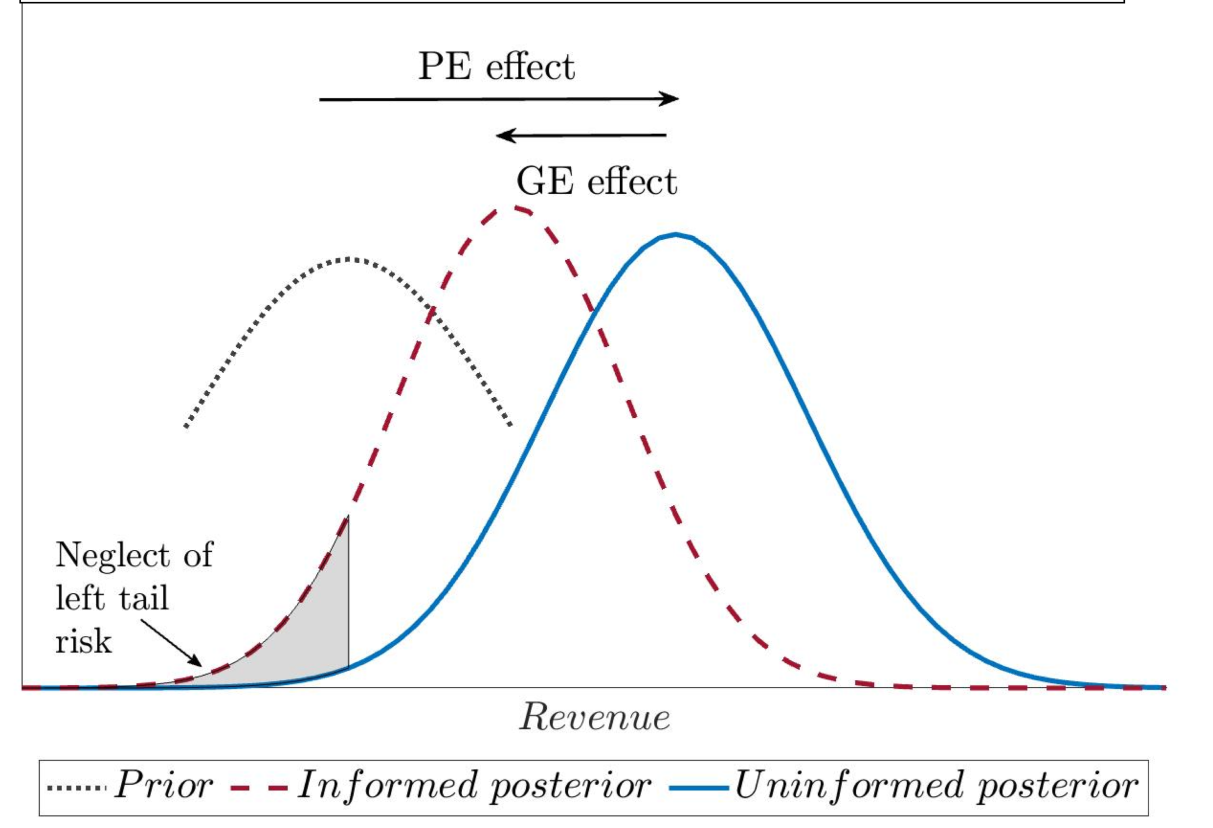
- ↑ local TFP a_j: **positive PE** effect
- ↑ aggregate production: **negative GE** effect from ↑ competition

Agents who do not observe aggregates:

- Partially confound aggregate for local shock → **rational confusion**
- Underestimate negative GE effect → **overoptimism** about own revenue

→ **Uninformed** agents are **overoptimistic** in booms

Posterior firm revenue after aggregate shock ↑ θ



Inattentive booms

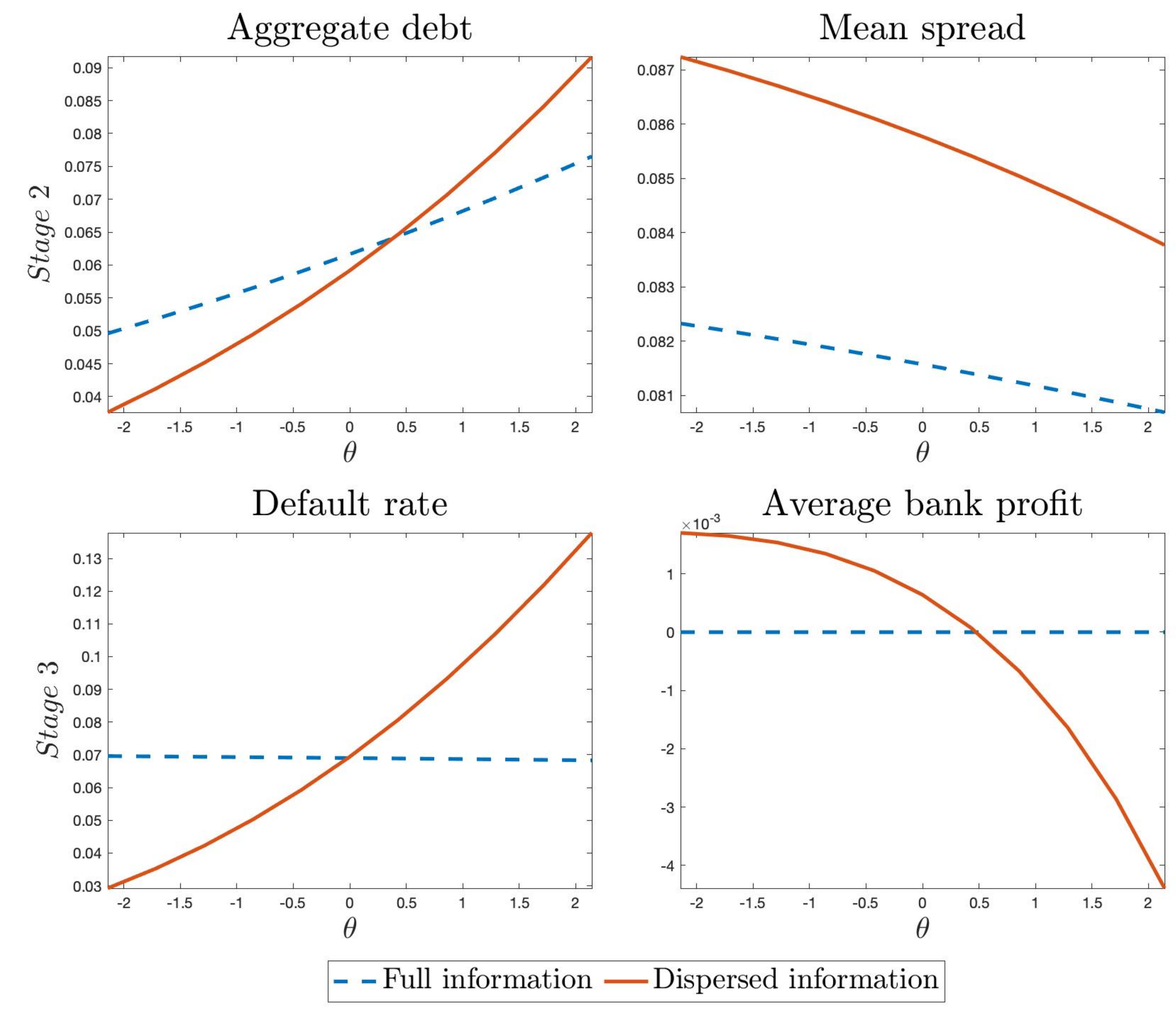
Full information (---) → Do **not** match the evidence

- x Default risk lower in booms
- x Spread low when risk is low
- x Lenders make non-negative excess returns after booms

Dispersed information (—) → Match the evidence

- ✓ Over-borrow compared to future revenue → **higher risk** of default after booms
- ✓ Banks underestimate default risk → **lower risk premia** even if risk larger
- ✓ Risk is mispriced → **negative excess return** on loans

→ **Overoptimism** leads to **excessive risk taking** in booms



Inattention from Limited Liability

1. Banks & firms can observe aggregates by paying an **attention cost**
2. Introduce **limited liability** on payoffs: lower exposure to downside risk *(e.g. public bailout, public guarantees on loan, option compensation,…)*

→ Higher **limited liability** lowers **incentives to collect info** on risk factors

Conclusions

Model of ***unexpected* boom&busts**

- Neglect of risk driven by risk taking incentives
- Informed agents reduce risk-taking

→ Lowering risk-taking incentives encourages attention to risk factors and mitigates credit cycles

References

1. Baron, M. and W. Xiong (2017): "credit expansion and neglected crash risk," the quarterly journal of economics, 132, 713–764.
2. Bordalo, P., N. Gennaioli, and A. Shleifer (2018): "diagnostic expectations and credit cycles," the journal of finance, 73, 199–227.
3. Coimbra, N. and H. Rey (2020): "financial cycles with heterogeneous intermediaries", National bureau of economic research.
4. Krishnamurthy, A. and T. Muir (2017): "how credit cycles across a financial crisis", National bureau of economic research
5. Schularick, M. and A. M. Taylor (2012): "Credit booms gone bust: Monetary policy, leverage cycles, and financial crises, 1870-2008," American Economic Review, 102, 1029– 61.

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