

# **Bank Capital, Agency Costs, and Monetary Policy**

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Banking, Financial Stability and the Business Cycle

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## Background

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- Evidence on financial frictions
- Lending varies over the business cycle. In particular, credit crunches often coincide with deep recessions

## Questions

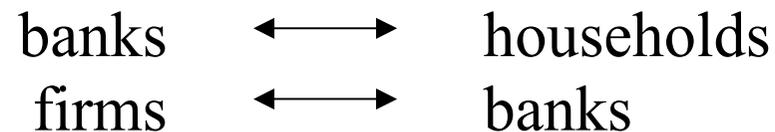
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- Are financial frictions important in *generating* or *amplifying* the business cycle?
  - explain why small shocks may have large effects?
  - explain dramatic recessions / depressions?
- This paper: Are frictions in the banking sector important?

## Model: Overview

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- Model with two layers of moral hazard:



- Dynamic and quantitative version of Holmstrom & Tirole (*QJE* 1997)
- Quantitative version of Chen (*JME* 2001)
- Added bank sector with second layer of moral hazard compared to Carlstrom & Fuerst (*Carnegie-Rochester* 2001)

## The Model

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- Final goods production:
  - Competitive
  - $Y = zK^\theta H^{1-\theta}$
- Entrepreneurs use final goods to produce new capital:

$$\text{invest } i \rightarrow \text{new capital} = \begin{cases} 0 & \text{if failure} \\ Ri & \text{if success} \end{cases}$$

with probability of success depending on firm's actions

- Total capital:  $K_{t+1} = (1 - \delta)K_t + \sum_{\text{successful}} Ri_t$

## The Model (contd.)

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- Banks:
  - lend  $l$  to entrepreneur
  - monitor entrepreneur?
  - monitoring makes “shirking” less attractive
- Houesholds:
  - lend  $a$  to bank
  - require that  $a < l$  so that banks have incentives to monitor
  - CIA constraint
- Central bank:
  - Taylor rule

## Results

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- Financial friction in banking sector
  - dampens impact effect of monetary policy shocks
  - increases persistence of shocks (?)

... reinforces Carlstrom & Fuerst's results
- Bank capital-asset ratio is countercyclical, as in reality

## Comments on the Model

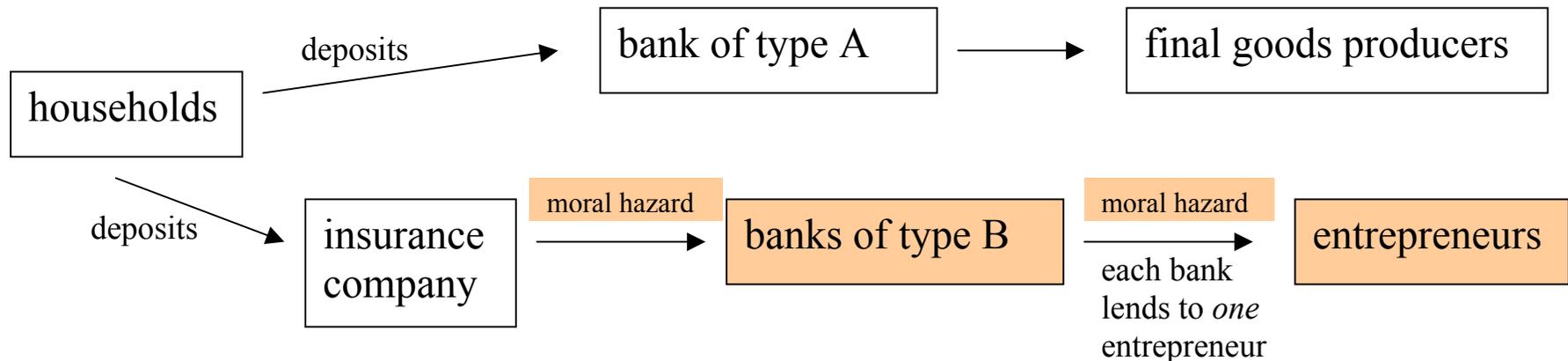
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- Two models!
  - Households risk neutral in most of the paper
    - ... the model MM describe and calibrate
    - ... not quantitatively interesting (?)
    - ... little contribution over Chen
  - Households risk averse in the “extended model” that is used for simulations
    - ... new utility function
    - ... new cash-in-advance constraint
    - ... new bank and insurance scheme
- Why not drop the “basic model” and focus on the one that is used for quantitative analysis?

## Comments on the Model (contd.)

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- Is the (extended) setup realistic?



Isn't the insurance company actually the bank? Why can the insurance company diversify but not the bank?

## Comments on the Model (contd.)

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- Is direct lending from households to firms forbidden? Or does it never happen in equilibrium?
- Theory and model part is otherwise nice but the contribution here is the quantitative analysis...

## Comments on Calibration

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- The fraction of activities that suffer from moral hazard
  - Investments rather than output
  - *All* investments – no firm has sufficient net worth to finance projects on its own
- For a particular bank, all project either fail or succeed
  - MM say that results hold as long as returns are not uncorrelated...
  - Qualitative results may survive, but *quantitative*?
- Reputation & Repeated Games?
  - One-period contracts & anonymity most relevant for small firms?
  - How relevant is this assumption for banks?

## Comments on Calibration (contd.)

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- Quarterly model
  - Is timing realistic?
  - Does the timing matter?
- Why different utility functions for leisure in the two models?
  - Model 1:  $u = c - \chi \frac{(h+v)^\gamma}{\gamma}$
  - Model 2:  $u = \log c - \chi \log(1-h-v)$
- How is CA ratio defined in the extended model?

$$CA = \frac{\text{bank B capital}}{\text{bank B lending}}, \text{ or } CA = \frac{\text{bank B capital}}{\text{bank A lending} + \text{bank B lending}} \quad ?$$

# Comments on Quantitative Analysis

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- Fluctuations caused by monetary policy shocks appear very small compared to those caused by productivity shocks
  - Is monetary policy not important here?
  - Why so little focus on productivity shocks?
- Does the monetary policy rule matter?
  - Experiment with different rules?

## How to Interpret the Results

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- ... no amplification of shocks
- ... no important effect on persistence

- Shall we conclude that financial frictions in the banking sector do not contribute to our understanding of business cycle?
- Does the paper imply that central bankers need not worry about boom-bust lending cycles, credit crunches, etc?
- Or does the model just fail to capture important frictions? Could one introduce (direct) shocks to asset values? Would that help?

## Conclusion

- Nice theory and model
- Nice first quantitative study