Main goal

Understand effects of capital and liquidity regulation on economic outputs

Methodology

General Equilibrium model
Adverse selection in interbank market
Calibration

Results

Capital and Liquidity requirements are large and reinforce each other
17.35% and 12.5% respectively
Interesting paper with a nice "micro-macro" approach
- Talk about "nice micro-macro" approach next
- Analysis of interbank friction
  - Bank quality is heterogeneous and unobservable
There are some issues that might be worth analyzing
- Other regulatory policies?
- How relevant is timing?
**Finance Relevance - frictions**

- Modigliani and Miller (1958) - Irrelevance Proposition
  - In a **frictionless** financial **financing decisions irrelevant**
    - Theoretical model already with deviations (Taxes)
- Economic fluctuations are not caused by financial issues
  - Analyzing finance is at best second order
    - At most could be auxiliary to other frictions
- 1958 onwards
  - Theoretical and Empirical literature on **financial frictions**
  - Compelling arguments that financial markets have frictions
    - Informational frictions, Adverse selection, moral hazard, coordination failures, risk taking incentives, etc
Financing with frictions

- Finance decisions can be relevant for economic outputs
- Two different approaches
  - With different objectives
- Microeconomic approach (Ant)
  - Understand different mechanisms (frictions)
  - Little focus on aggregate implications
  - Partial equilibrium models
- Macroeconomic approach (Bird)
  - Focus on aggregate implications
  - Little focus on different frictions
  - General equilibrium models
Micro Financial frictions (Ant) - lessons

- Various frictions shape financial landscape
  - Moral hazard problems (Holmstrom and Tirole, 1997)
    - From borrowers & from lenders
  - Runs in demandable debt (credit lines) (Diamond and Dybvig, 1983)
  - Many others

- Not all financial frictions have the same implications
  - Neither the same solutions

- Financial Intermediaries are a KEY player
  - Solve and generate economic problems
    - React to different economic conditions
  - Risk is a fundamental element of the analysis
    - Exposure (creation) of risk by Financial Intermediaries
Micro Financial frictions (Ant) - caveats

- Main question is the Financial Sector
  - Not much analysis of spillovers to other sectors
  - Not much analysis of overall economic impact
- Effort to clarify the mechanism at play
  - Mickey Mouse models
  - Cost of not exploring all the ramifications
Macro Financial frictions (Bird)- lessons

- Focus on aggregate outcomes
  - DSGE Models as a benchmark (RBC)
- Financial frictions have aggregate effects
  - Important role in amplifying shocks
- Focus on borrower driven issues (subset of frictions)
  - Borrower moral hazard
    - Pledgeability Constraint (Kiyotaki and Moore (1997))
Macro Financial frictions (Bird) - caveats

- Low detail of the financial sector
  - Small possibility of risk origination in Financial Sector
  - Main role is to amplify crisis not to create them
  - Financial Industry = Parameter (in some cases)

- Disregard Financial Industry issues
  - Ad-hoc constraints
  - Frictionless financial markets
  - No (correlated) bank failures
• The Bird (Macro) and the Ant (Micro) should talk

• The Ant (Micro) can be shortsighted
  • Not all frictions have implications for overall output
  • Some "nice" frictions could have little impact
  • Some of them could have important spillovers not analyzed

• The Bird (Macro) can miss relevant details
  • There can be other relevant frictions at play (not only one)
  • It can be really difficult to analyze them together
  • Different frictions mean different problems and solutions
A Micro Macro Finance Approach

- Need a Body of new research
  - **This paper** is part of this new body of research
  - Also Boissay, Collard and Smets (2016) JPE

- **Financial Intermediaries** should have a **prevalent role**
  - Different underlying issues
    - Maturity Mismatch, Moral Hazard, Safety Asset, Risk-taking
  - **Source** of economically significant issues

- **Aggregate implications should be important**
  - General equilibrium and multiple markets
Road Map

- Brief recap of the model - friction
- Brief review of results
- Comments
Brief recap of the model

- Macro model with financial frictions - Aggregate effects
  - Calibrated - magnitude of effects
- Households make traditional decisions
  - Consumption, labour and savings decisions
  - Infinitely lived
- Government: issues debt (exogenously)
  - Gov bonds are the liquid assets
- Firms (short lived) use factors of productions
  - Need finance to prepay those factors
- Financing is done (partly) through banks
  - Raise funding from households (deposits)
  - Raise funding from other banks - interbank market
Brief recap of the friction

- Banks have some funding at the beginning of the period
  - After that they receive an heterogenous shock to their quality
  - Better quality banks make firms produce more (production-link)

- Banks can receive an interbank loan from another bank
  - This allows goods banks to lend more
  - Better allocation of resources

- However **banks can divert (steal) money** $\gamma < 1$
  - This is why the best bank can not raise a lot of money

- The amount of funds a bank can raise in the interbank money is limited
  - Hampers production as good banks can not lend a lot
Brief recap of the friction

- How much can a bank borrow in the interbank market $\phi$?
  - Has to guarantee that bad banks don’t want to divert funds
    - If a bad bank doesn’t want a good bank won’t either

- The following condition (IC) has to hold for no diversion (determines $\phi$)

$$
\gamma(1 + \phi)n \leq r_s s^b - r_d d + r_m n
$$

- Where $n = d + e - s^b$

- Less incentives fund diversion (more $\phi$ is possible)
  - High return in the interbank market
  - High amount (return) of liquid assets
  - Also higher equity ratios (less incentives to steal from yourself)
Brief recap of the friction-inefficiency

- Banks are price takers
  - Do not internalize the impact of their decisions on market prices
  - Raise to pecuniary externalities

- Imagine $r^m$ increases (for everyone)
  - Reduces the leverage constraint of banks $\phi \uparrow$
  - Increases the amount of borrowing banks can do
  - Increases the amount of bad banks that lend in interbank
  - Better economic allocations

- But banks are atomistic so they do not want high $r^m$ on their own

- Similar effects when holding liquidity or equity
  - More liquid assets - more borrowing - increases $r^m$
  - More equity funding - more borrowing - increases $r^m$

- Role for regulation
Brief recap of the friction-general equilibrium

- However general equilibrium effects matter
- Higher liquid assets regulations
  - Reduces the return of gov bonds $r^s$
  - Increases the demand of deposits - decreases deposit rate
  - Increases the leverage of banks (deposits are cheaper than equity)
  - Change in effect of equity regulation
- Liquidity and Equity regulation are linked
  - Role for a general equilibrium model
The paper calibrates the model and shows that

<table>
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<th>Table 3: Welfare Gains</th>
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<td>Perm. cons. gain (%)</td>
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<td>St. St. Incl. Transition</td>
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<tr>
<td>NR ( \rightarrow ) ORM 0.6591</td>
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*Note: NR \( \rightarrow \) ORM: Permanent Consumption gain (in percent) from the non-regulated (NR) economy to the economy with the optimal regulatory mix (ORM).*
Would other policy measures be more effective?

- Could regulations in the interbank market help?
- For example setting a centralized interbank market
- Another example would be setting reference interbank rates

**Liquid assets and diversion**

- Are liquid assets easier to divert or not?
- Divert an illiquid house vs divert cash

**What if the shock is not after deposits are raised but before**

- Could good banks then raise more deposits and the interbank friction be lowered?
- Or would there still be a friction vis a vis the depositors with a similar magnitude?
Conclusion

- Nice paper
  - Role for bank heterogeneity generating aggregate effects
    - Through an interbank friction
  - Role for bank regulation to have aggregate effects
    - Carefully calibrated
- Policy measures could be broader
  - Capital and liquidity requirements are very important
  - But maybe are not the only way to solve this issue