Borrower and Lender Resilience

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Post-crisis regulation

- After financial crisis new regulatory tools
- Mostly focused on ensuring lenders’ resilience
- Objective: avoid a credit crunch
- At the same time growing evidence that borrowers’ balance sheets matter (Jorda, Shularik and Taylor, 2017, Mian, Sufi, Verner, 2017)
- Should regulation worry about both credit demand and credit supply?
**Borrower and lender tools**

**Table: IMF Macroprudential Survey**

<table>
<thead>
<tr>
<th>Country</th>
<th>Borrower tool used</th>
<th>Lender tool used</th>
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<td>Australia</td>
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This paper

- Build a model where lenders’ and borrowers’ balance sheets both matter
- Identify externalities that justifies macro regulation
- Study effect of policies working on lenders’ and borrowers’ side
- Study optimal policy
Model

- Three periods $t = 0, 1, 2$
- Consumers’ preferences:

$$E [u (c_{i0}) + u (c_{i1}) + c_{i2}] ,$$

- Consumers borrow or lend depending on shocks
- Banks intermediate between borrowing and lending consumers
Timeline

$t = 0$
- Endowment economy
- Incomes $y_{i0}$
- Bank makes loans, take deposits

$t = 1$
- Aggregate shock $\theta$
- Production economy
- Incomes $y_{i1}$ and $y_{i2}$ realized
- Some $i$ defaults
- Bank makes loans, takes deposits

$t = 2$
- Endowment economy
- Debt repaid
Friction 1: Incomplete markets/default

- Consumers hit by idiosyncratic income shocks
- Consumer balance sheet at date 1
- Present value of resources
  \[ a_1 + y_1 + p_1 y_2 \]
- If smaller than \( c \) default
- Bank writes down debt so consumers don’t default
Friction 2: Banks’ moral hazard

- Banks’ balance sheet: $N_1$ depends on value of loans issued at 0
- Budget constraint
  \[ p_1 L_2 = N_1 + q_1 D_2 \]
- If banks’ shirk, they make low quality loans
- No shirking constraint
  \[ D_2 \leq \phi L_2 \]
- If banks’ have low intermediation capacity $p_1 < q_1$ (spread)
Friction 3: Sticky nominal wages (and ZLB)

- At date 1 consumers have labor supply $\omega_i$
- Aggregate demand can be
  \[ Y_1 < Y^* \equiv \int \omega_i di \]
  if $q_1 = 1$ (ZLB)
- Otherwise $q_1 < 1$ and $Y_1 = Y^*$
- Unemployment: if $Y < Y^*$ workers are rationed
Consumption function

The diagram illustrates the consumption function, showing different consumption behaviors based on the cash on hand ($a_1 + y_1$). Key points include:

- **Zero Position**: Indicates no consumption when cash on hand is zero.
- **Unconstrained Saver**: A positive amount is saved regardless of cash on hand.
- **Unconstrained Borrower**: A positive amount is borrowed regardless of cash on hand.
- **Constrained Borrower**: Borrowing is limited to the amount of cash available.
- **Defaulter**: Borrowing exceeds the available cash, leading to default.

The graph visually represents these consumption behaviors across different cash on hand values.
Credit and good market equilibrium

![Graph showing good market eq. and credit market eq.](image-url)
Changing asset positions at $0$
Credit and good market equilibrium (with less household debt)
Externalities

- Aggregate demand externality: higher $Y_1$ avoids wasteful unemployment (Korinek-Simsek (2016), Farhi-Werning(2016))
- Pecuniary externality: higher $p_1$ better allocation of credit (Lorenzoni (2008))
- Corrective Pigouvian taxes should fall on agents that have larger GE effects on $Y_1$ and $p_1$
- In general different wedge depending on $a_1$