Borrower and Lender Resilience

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- Motivation
- Baseline model
- Optimal policy

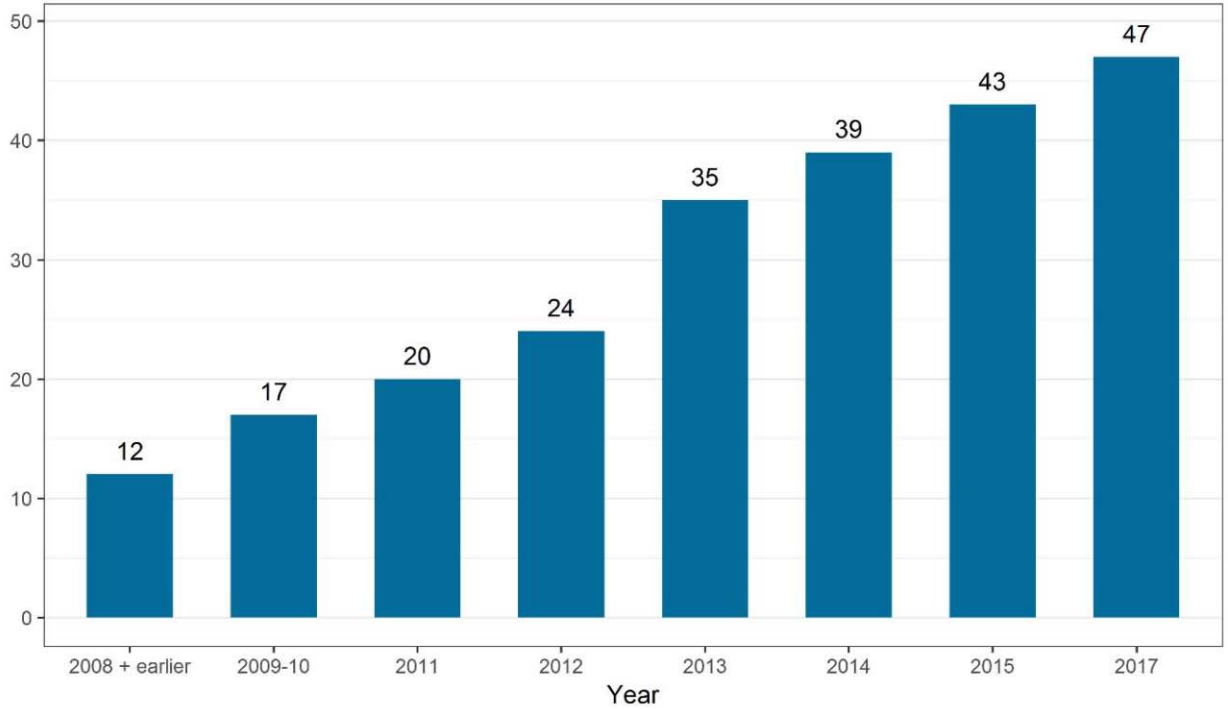
Any views expressed are our own and are not necessarily those of the Bank of England.

- Ben Bernanke in March 2009 speech “Financial Reform to Address Systemic Risk”

- [we need to] “consider whether the creation of an authority specifically charged with monitoring and addressing systemic risks would help protect the system from financial crises like the one we are currently experiencing”

- This authority would differ in its field of vision and its objectives
  - Look across the whole financial system and deliver overall stability

Number of Financial Stability Committees, by Year of Formation



	No. of countries
Macroprudential Authorities	
FSC	47
Formal	35
De facto	12
No FSC	11
CB is the macroprudential authority	9
PR is the macroprudential authority	2

Source: Edge and Liang (2019)

Country	borrower tool used	lender tool used
Australia	0	1
Austria	0	1
Belgium	0	1
Canada	1	1
Denmark	0	1
Finland	0	1
France	0	1
Germany	0	0
Ireland	1	1
Israel	1	1
Italy	0	1
Japan	0	1
Korea	1	1
Luxembourg	0	1
Netherlands	1	1
New Zealand	0	1
Norway	1	1
Spain	0	1
Sweden	0	1
Switzerland	1	1
United Kingdom	1	1
United States	0	1

Tools used to build lender resilience are used almost everywhere

Borrower resilience tools less likely to be used

Source: IMF Macroprudential Survey

Motivating questions

- What objective should these FSCs pursue?

- What do they need to do to achieve the objective?
  - What should they be monitoring?
  - Can they focus exclusively on lenders and credit supply?

- Do they have the tools they need?

Model

- Three periods *t = 0,1,2*

- A population of heterogeneous consumers, with income shocks at 0 and 1, preferences

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

- A representative bank intermediates between borrowing and lending consumers

Time line

t = 0

- Endowment economy
- Incomes y_{i0}
- Bank makes loans, take deposits

t = 1

- Aggregate shock θ
- 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: Sticky prices

- Sticky prices: output can be below potential
- At *t=1* each agent has labor supply ω_i
- If aggregate demand is $Y_1 < Y^* \equiv \int_i \omega_i di$

  workers are rationed (proportionally)

Friction 2: Incomplete markets/default

- Consumers hit by uninsurable shocks
- When $a_1 + y_1 + p_1 y_2 < c^*$ consumers are constrained, cut back spending
- When $a_1 + y_1 + p_1 y_2 < \underline{c}$ consumers default

Friction 3: Banks' moral hazard

- Banks' balance sheet

$$p_1 L_2 = N_1 + q_1 D_2$$

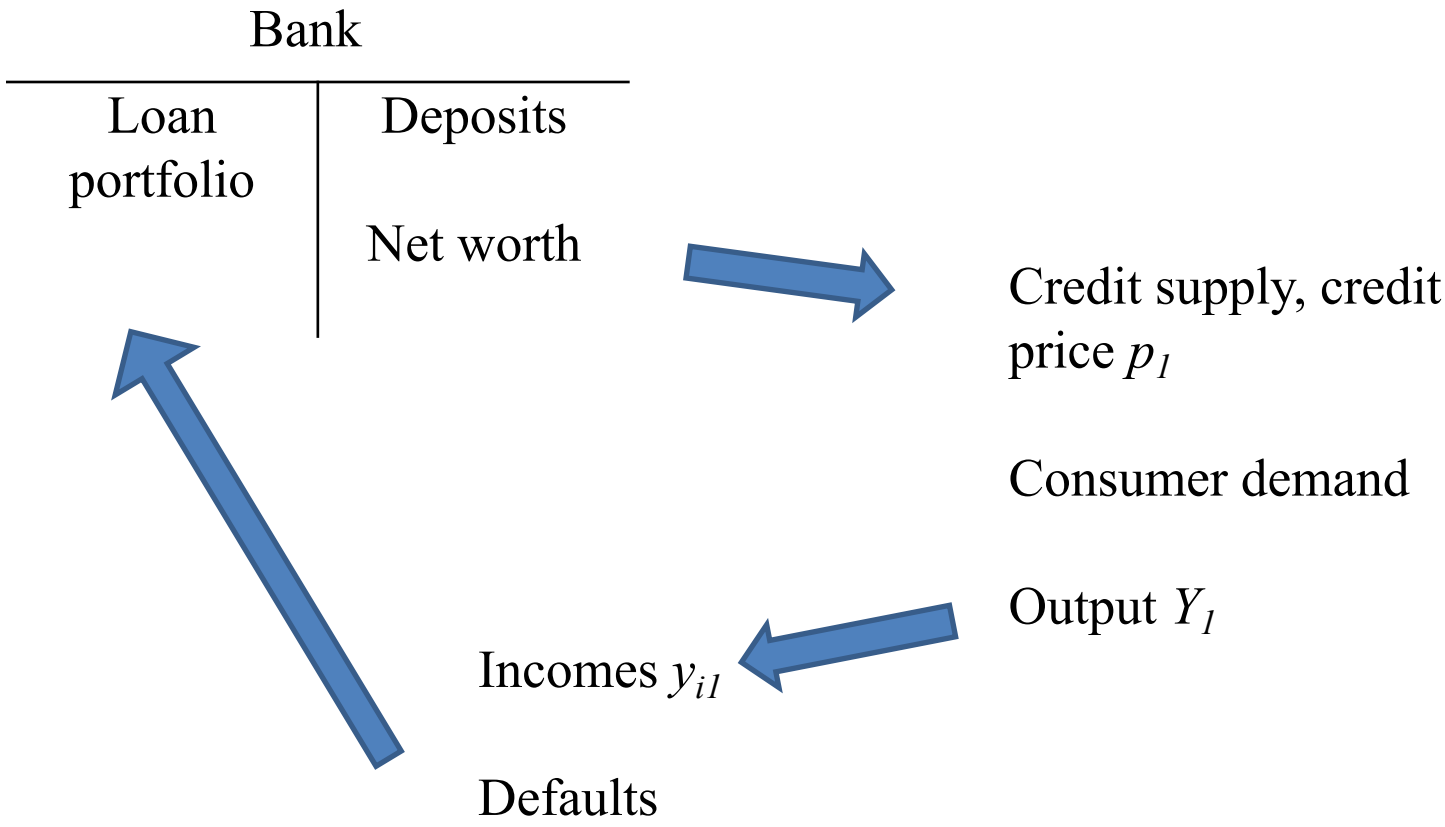
- If banks shirk they make worse quality loans, so we need skin-in-the-game

$$D_2 \leq \phi L_2$$

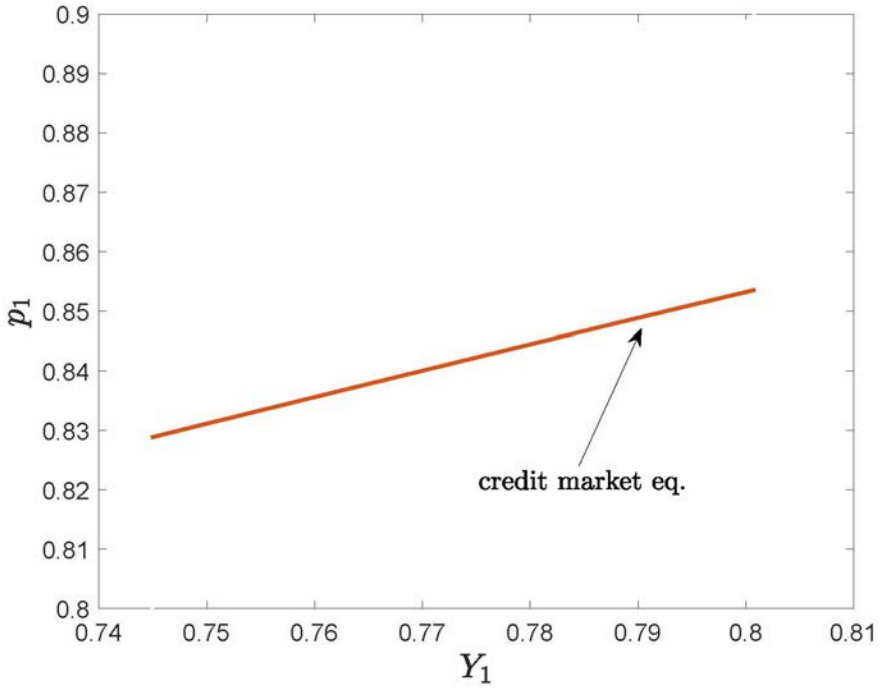
- In equilibrium, if net worth is low, there is a positive credit spread

$$p_1 < q_1$$

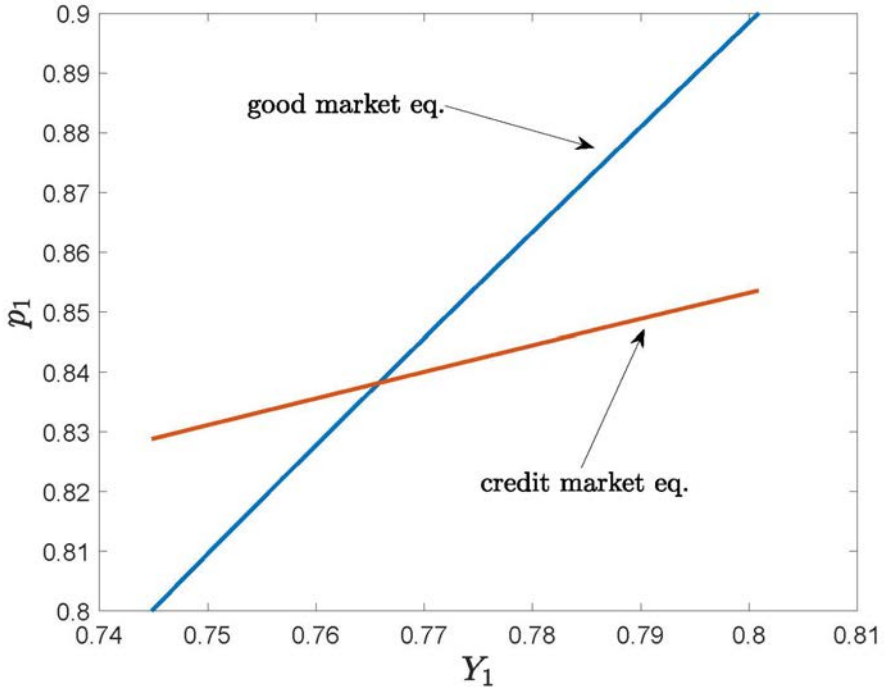
Feedbacks


Bank
Loan portfolio
Deposits
Net worth
Credit supply, credit price p_1
Consumer demand
Output Y_1
Incomes y_{i1}
Defaults

Credit market equilibrium

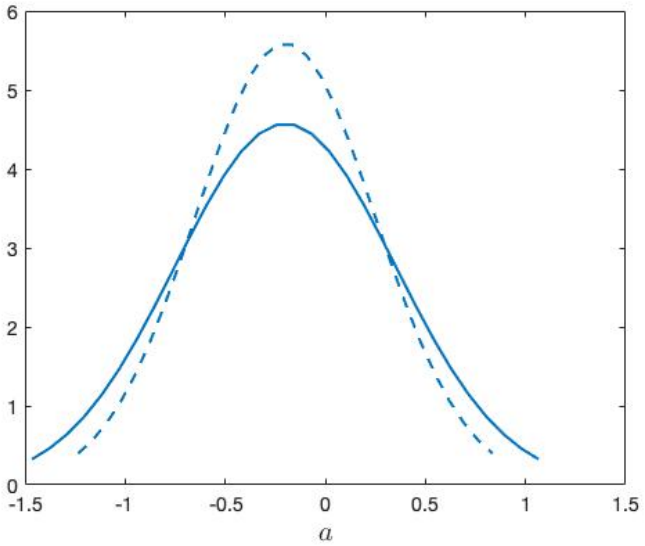


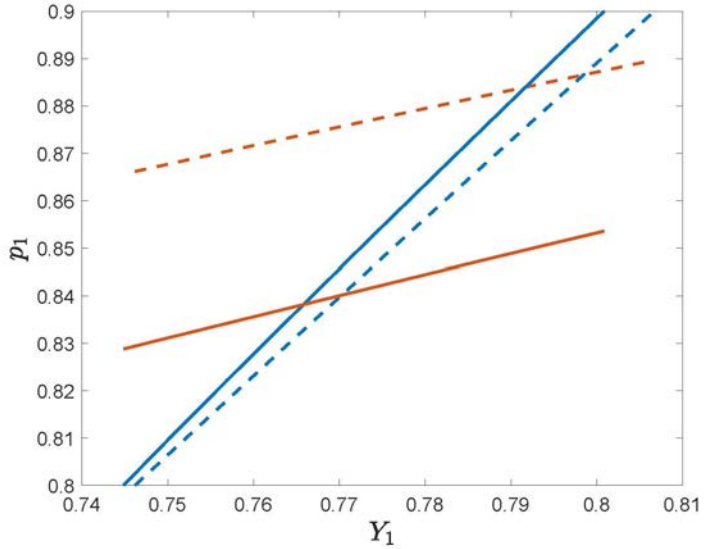
Goods market equilibrium



Comparative statics

- Suppose we enter period 1 with a more compressed distribution of net positions *a*





Optimal taxes on a

- In period 0 we can intervene by taxing positions a, change shape of distribution
- Effects of changing $A(y_0)$

$$E\left[u'\left(c_1\right)\iota|y_0\right]\mu\left(y_0\right) - \xi_B E\left[\frac{1-\phi}{p_1-\phi q_1}\iota|y_0\right] + ...$$

Repayment dummy

Adjusted Pareto weight

Pareto weight on bank

Marginal value of bank's net worth

Externalities

- Aggregate demand externality

$$... + E\left\{E\left[u'\left(\tilde{c}_1\right)\mu\left(\tilde{y}_0\right)\tilde{i} + \frac{1-\phi}{p_1-\phi q_1}\left(1-\tilde{i}\right)|\theta\right]\frac{dY_1\left(\theta,A\right)}{dA\left(y\right)}\right\} + ...$$

- Pecuniary externality

$$... + E\left\{E\left[\left(u'\left(\tilde{c}_1\right)\mu\left(\tilde{y}_0\right) - \xi_B\frac{1-\phi}{p_1-\phi q_1}\right)\tilde{i}\tilde{a}_2^{-}|\theta\right]\frac{dp_1\left(\theta,A\right)}{dA\left(y\right)}\right\} + ...$$

Results

- Conditional efficiency: no intervention optimal if no GE effects (with appropriate Pareto weights)

- If binary income shock at 0, only one borrower
- Equivalence result: regulating lenders or borrowers is the same

- Equivalence result breaks with more than one borrower type

- Open question: does borrower regulation increase or decrease need for banks' regulation? (complementarity or substitutability)