A New Policy

Since the financial crisis, governments have spent considerable time crafting new resolution policies for big banks.

These new policies, called bail-ins, are designed with the goal of maintaining financial stability and promoting market discipline.

Bail-ins impose the losses of the bank onto the shareholders and creditors and recapitalizes the bank by converting debt claims into equity.

Research Question

How do banking industry dynamics differ under bailout and bail-in policies?

In this paper, I build a quantitative model of the US banking industry prior to the financial crisis.

In the benchmark model, big banks have an expectation of bailout if they fail.

In a counterfactual exercise, I replace the expectation of bailout with one of bail-in.

I compare the two steady state equilibria and the change in bank exit, lending, and borrowing decisions under each policy.

Bank Optimization Problem

Banks finance loans (l) with insured deposits (δ), uninsured debt (b), and equity (e) to maximize dividends (d).

Loans earn a stochastic return of z.

Bailouts, Bail-ins, and Banking Industry Dynamics

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Entering Resolution

- If the bank’s realized equity to asset ratio falls below , the bank is sent into resolution.
- With probability 1 − ρ(l), banks in resolution are liquidated. Liquidation involves selling the loans at a discount and using the proceeds to repay the creditors and then shareholders.
- Creditors expect to receive a haircut under liquidation and increase the price of the debt (lower q).
- In the benchmark model, the remaining ρ(l) banks in resolution will be bailed out. In the counterfactual, they will be bailed in.

Bailout Model

- Banks receive an equity injection of τ equal to the amount of equity needed to meet .

  \[ \tau(z, l, b) = \delta + b - (1 - \tau)z \]

- Creditors are fully repaid b.

- Because creditors receive b, q increases with the probability of bailout.

- Shareholders receive the value of a less leveraged bank.

  \[ V_O(z, l, b) = V_C(z, l + \frac{\tau(z, l, b)}{z}, b) \]

Bail-in Model

- All uninsured debt is converted to equity.

- The bank is valued as a new “all-equity” bank.

- Creditors receive the value of the new shares.

  \[ \min\{b, V_C(z, l, 0)\} \]

- Because creditors may receive less than b, q does not increase as much as under bailout.

- Shareholders receive any excess value of the new shares.

  \[ V_I(z, l, b) = \max\{0, V_C(z, l, 0) - b\} \]

Why do banks borrow less?

- Choosing b*: banks weigh marginal benefit today (∂b\(\tau\), ∂b\(q\)) versus marginal increase in mandatory repayment tomorrow

  Bailout: bank must repay b, but receives τ
   - q incorporates repayment of b, but the bank does not
     \[ \Rightarrow b^* \uparrow \]

  Bail-in: if V(z', l', 0) > b', shareholders must repay b'
     \[ \Rightarrow b^* \downarrow \]

- Under bail-in, the cost to the bank from b' is more closely aligned to the price q(z, l, b').

Mechanism

Bail-ins correct the mismatch between the price of uninsured debt and the marginal cost of borrowing to the bank, causing banks to choose less uninsured debt in equilibrium.

Steady State Distributions

Conclusion

- Under bail-in policies, banks borrow significantly less due to a realignment between the price of uninsured debt and the marginal cost of borrowing for the bank.

- Due to having less leverage, banks enter resolution at a fraction of the rate as under the benchmark.

- Bail-ins achieve their goals of maintaining financial stability and promoting market discipline.