Monetary Policy and Financial Stability in Emerging-Market Economies: An Operational Framework

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Workshop on Central Bank Forecasting

October 14-15, 2010

Federal Reserve Bank of Kansas City

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A DSGE model of a small open economy with

1. Bank capital requirements
2. Financial frictions → Bank capital channel, endogenous defaults and lending spreads
3. Other real and nominal rigidities
4. Monetary Policy

- Intended as a ‘platform’ for use in practical macroprudential policy making
- Amplification and rich dynamics

Financial Frictions: Entrepreneurs

- Entrepreneurs borrow from banks using nominal, non-state contingent debt
  - Aggregate and idiosyncratic productivity shocks
  - Default can occur and is costly → one reason for lending spreads
  - Contract exposes the banks to aggregate risk.
    - Different from BGG, but similar to Christiano, Motto Rostagno and others.

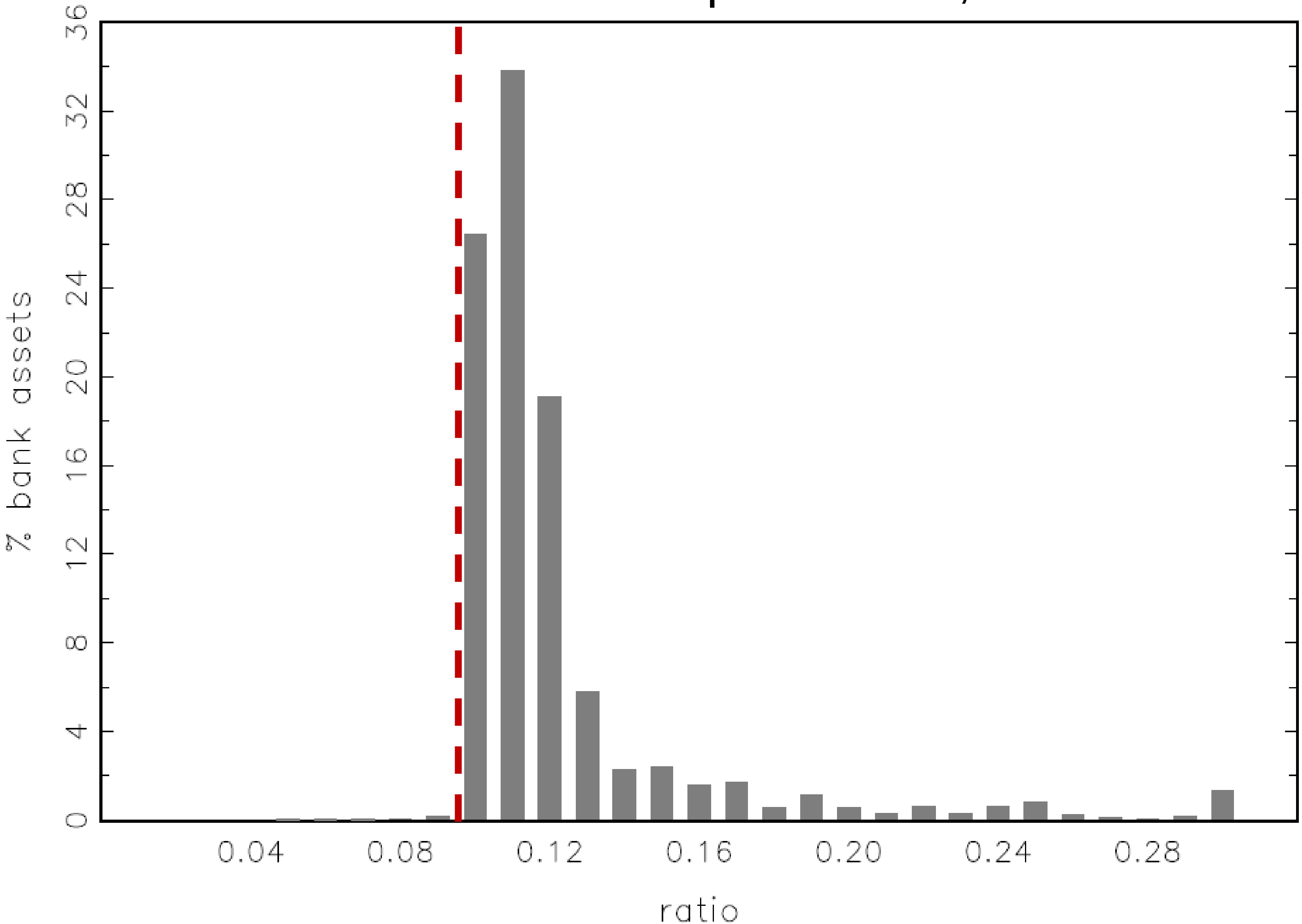
Financial Frictions: Banks

- Banks make loans to entrepreneurs
- Funded by inexpensive short-term debt from abroad and more expensive equity, owned by households (or foreigners).
- Bank Capital Regulation
  - Minimum required ratio of bank equity to loans
  - If bank equity falls below this minimum, there is a regulatory penalty (deadweight cost)
  - This penalty is sometimes incurred because…

Financial Frictions: Banks

- Frictions in the market for Bank Equity:
  1. Bank cannot *immediately* raise equity in response to defaults.
     - So banks optimally hold a precautionary buffer of excess capital to minimize the risk of capital inadequacy (Milne, Van den Heuvel) (→)
  2. Households pay a cost when the adjust their bank equity holdings.
     - Reduced form adjustment cost.
     - Captures dividend smoothing: the cost is minimized when banks pay out a constant fraction of their gross earnings as dividends.

Total Risk-Based Capital Ratios, 2004.IV



The Bank Capital Channel

Shocks → bank capital → lending → real economy

Need 3 failures of M-M for a bank capital channel:

1. Bank capital is needed for lending due to a friction at the bank level
   - Here: Regulatory capital requirements
2. The market for bank equity is imperfect
   - Here: Raising equity is subject to a delay and adjustment costs → lending spread depends on bank capital
3. Bank lending matters
   - Here: Banks have a funding advantage – only they can borrow cheaply from abroad.

Model: The Mechanism

Example: Adverse Bank Capital shock

→Higher risk of capital inadequacy

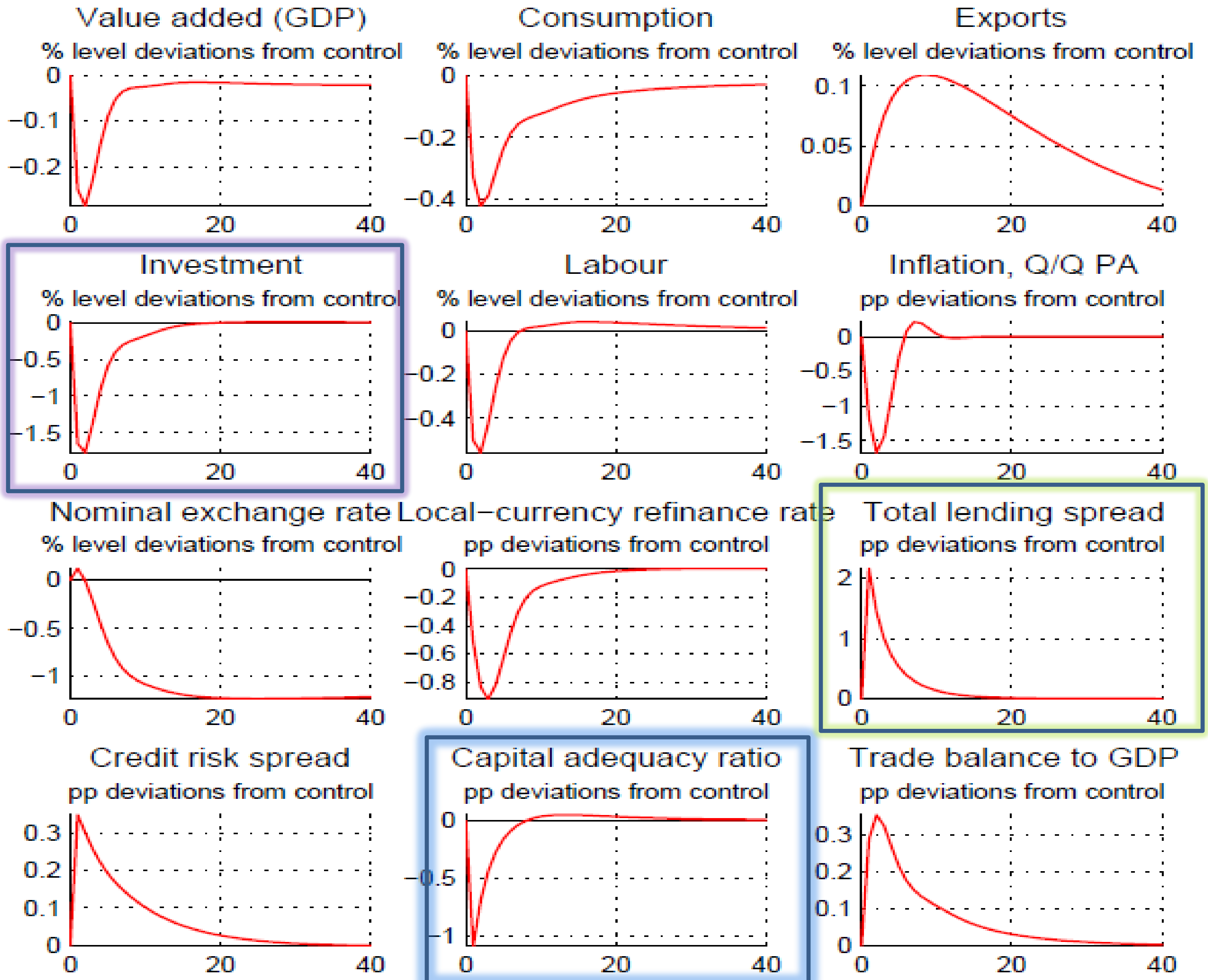
→Banks lend less and increase lending spread

- Both to *limit*, and be *compensated* for, the higher probability of paying the regulatory penalty.

→Lower investment

→Lower output and employment

- Lending spread increases more than pure credit risk spread.
- What happens to the price of physical capital?


Value added (GDP)
% level deviations from control
Consumption
% level deviations from control
Exports
% level deviations from control
Investment
% level deviations from control
Labour
% level deviations from control
Inflation, Q/Q PA
pp deviations from control
Nominal exchange rate
% level deviations from control
Local−currency refinance rate
pp deviations from control
Total lending spread
pp deviations from control
Credit risk spread
pp deviations from control
Capital adequacy ratio
pp deviations from control
Trade balance to GDP
pp deviations from control

Comments

- Great to see a general equilibrium model with an occasionally binding capital requirement and a bank capital channel, and…
- Macroprudential and monetary policy.
- No explicit rationale for capital regulation, so no welfare analysis.
- Solving is numerically challenging.
- The model has a lot going on.
- Some parts are still missing from the paper.

Advice

- Dig deeper into the mechanism.
- Show returns (first moments and response) and the second moments of the model.
- Consider a stripped down version for exposition?

Technical Comment

- Bank maximization problem

$$\max \mathrm{E}_t \left[\frac{R_{t+1} L_t - R_{F,t}(L_t - E_t) - v L_t \chi_{t+1}}{R_{E,t+1}} \right] - E_t$$

$$\text{with } \chi_{t+1} = I\{R_{t+1} L_t - R_{F,t} F < \gamma R_{t+1} L_t\}$$

- Discounting by alternative return on equity is correct only in a nonstochastic environment.
- Use instead HH IMRS, adjusted for equity adjustment cost.