Discussion of
"A Macroeconomic Model with Financial Panics"
by Gertler, Kiyotaki and Prestipino
AEA, 2018

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Overview

- Macroeconomic model of financial panics

- Expands Gertler-Kiyotaki model by considering:
  - nominal rigidities
  - non-linear dynamics

- Rich and ambitious laboratory to study
  - Build up in vulnerability & macroprudential policy
  - Role of monetary policy both prudential and in crisis

Discussion

- Review model and mechanisms
- Comments/questions:
    - maturity
    - individual vs. aggregate bankruptcy
    - role of monetary policy
    - realized vs. unrealized panics

Banks

$$V_t(b, k) = \max_{b', k' \geq 0} \left[0, \mathbb{E} m_{t+1} \left[(1 - \sigma) V_{t+1}(b', k') + \sigma V_{t+1}^e(b', k') \right] \right]$$

$$Q_t k' + b' q_t^b(b', k') \leq \underbrace{k[(1 - \delta_t) Q_t + r_t^k] - b}_{networth}$$

$$\theta Q_t k' \leq V_t(b, k)$$

$$V_t^e(b, k) = \max \left[0, \ Q_t k(1 - \delta_t + r_t^k) - b_t \right]$$

- Own capital and rent it to firms.
- Issue one-period deposits, subject to leverage constraints which depends on current market value of equity value
- No choice of equity (dividends only when exit) or liquidity.
- Vulnerable to drop in asset prices

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Financial Panics: Mechanism

- Suppose asset prices are low

- If $n \equiv k[(1 - \delta_t)Q^{LOW} + r_t^k] - b < 0 \Rightarrow$ bankruptcy

- Capital needs to be absorbed by households, which value it less than banks

- More capital on the hands of households rationalize the initial decline in asset prices

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Possibility of financial panics depend on macroeconomic fundamentals (Gertler-Kiyotaki)

Role of Maturity and Rollover

Condition for panic seems to depend entirely on sign of networth:

$$n \equiv k[(1 - \delta_t)Q + r_t^k] - b < 0$$

vs. Cole-Kehoe. In CK:

- only fraction of debt that is due today matters

- possible to have bankruptcy even with positive networth $n > 0$ if LIQUID ASSETS - DEBT DUE TODAY < 0

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- possible to have bankruptcy even with positive networth $n > 0$
  if LIQUID ASSETS - DEBT DUE TODAY < 0
- In GKP: Key seems Q, not so much maturity
- Could be interesting to study interaction between the two. I
  expect panics more likely when leverage is high, just like now

Individual vs. system wide runs

- Would be interesting to consider equilibrium in which only some banks get hit by sunspot

- If some banks go bust, rest of the system would not completely pick up the slack because they would be against their leverage constraint?

- Strategic complementarities through asset prices and substitabilities through rate on deposits

Role of Monetary Policy

- Recall bad equilibrium if $n \equiv [(1 - \delta_t)Q^{LOW} + r_t^k] - b < 0$,

- Direct effect of monetary policy through effects on r_t^k

  - $\downarrow i \Rightarrow \uparrow c \Rightarrow$ higher demand for K and $\Rightarrow \uparrow r^K$

  and Q through arbitrage between bonds and K

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- Additional effects could arise with nominal contracts (Allen-Gale, Diamond-Rajan, Carapella, Robatto)

Realized vs. Non-Realized Panics

- In practice, even the increase in the probability of a financial panic, seem to have devastating effects in the economy.

- Could be interesting to allow for **time-varying sunspot probability**, and analyze the effects of an increase in the probability of a panic

- Complication is that it would add one more state variable (see Aguiar et al. and Bocola-Dovis for rollover crisis in sovereign debt markets)

Final Remarks

- Important contribution

- Very nice model integrating relevant ingredients of financial crisis. Fertile ground to think about financial stability role of monetary policy and macroprudential policies