CREDIT BOOMS, FINANCIAL CRISSES AND MACROPRUDENTIAL POLICY
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Contribution

- Extends Gertler & Kiyotaki (2015, AER) bank run model
  - Booms induced by news shocks (GKP 2018)
  - Macroprudential policy

- Main results
  - Crises are hard to forecast
  - Regulatory capital requirement should not be constant
Model

- Fixed supply of capital managed by banks or households
- Households less efficient
- Banks financed with short term debt facing leverage constraint
- "Bank run" equilibrium possible
- Model driven by productivity shocks
Bank’s problem

\[ V_t(n) = \max_{\phi \geq 0} \left\{ 0, E_t \Lambda_{t,t+1} \left[ (1 - \sigma) n' + \sigma V_{t+1}(n') \right] \right\} \]

\[ n' = \left[ \left( \frac{Z_{t+1} + Q_{t+1}}{Q_t} - \bar{R}_{t,t+1}(\phi) \right) \phi + \bar{R}_{t,t+1}(\phi) \right] n : "net worth" \]

\[ \phi = \frac{Q_t k^b}{n} : "leverage ratio" \]

\[ \theta Q_t k^b \leq V_t(n) \]

- no dividend/equity choice
- time-varying choice of \( \phi \) through equilibrium
- need \( n > 0 \), (new banks get "start-up equity")
Bank run

- Possible if
  \[(Z_t + Q_t^*) K_{t-1}^b < D_{t-1} \bar{R}_{t-1,t}\]
  - \(Q_t^* < Q_t\), run can make banks insolvent!
- Need large decline in price of capital
  \[Q_t = \sum_{j=1}^{\infty} E_t (\Lambda_{t,t+1} Z_{t+j}) - \alpha \sum_{j=0}^{\infty} E_t (\Lambda_{t,t+1} (1 - K_{t+j}^b))\]
- Bank net worth is the endogenous state variable \(K_t^b (N_t, Z_t)\)
  \[N_{t+1} = \sigma \left[ \left( \frac{Z_{t+1} + Q_{t+1}}{Q_t} \right) - \bar{R}_{t,t+1} \right] \phi_t + \bar{R}_{t,t+1} \right] N_t + W\]
- Bank capitalization affected by exogenous "start-up equity" \(W\)
Bank run, history dependence

Possible if

\[(Z_t + Q_t^*) K_{t-1}^b < D_{t-1} \bar{R}_{t-1,t}\]

or

\[Z_t + Q_t^* < Q_{t-1} \bar{R}_{t-1,t} \left(\frac{\phi_{t-1} - 1}{\phi_{t-1}}\right)\]

with \(\phi = Q_t k^b / n\)

- More likely if \(\phi_{t-1}\) high and \(Q_{t-1}\) high
- \(\phi_{t-1}\) high with high expected returns
- \(Q_{t-1}\) high with high bank intermediation
Regulatory capital ratio

\[ \bar{\kappa}_t \leq \frac{n_t}{Q_t k_t^b} = \frac{1}{\phi_t} \]

- Trade off
  - lower run probability
  - lower bank intermediation, \( k_t^b \)
  - more useful when economy fragile (high \( N \))
Run after large negative shock - benchmark
Run after large negative shock - high "start-up equity"
Excess Return on Equity U.S. banks

Shaded areas indicate U.S. recessions

Sources: Board of Governors, ...

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Conclusion

- Important work. Nonlinearity and history dependence in parsimonious environment.
- Endogenous external bank equity would be useful