Discussion of Duarte-Eisenbach’s "Quantifying Fire-Sale Spillovers" and N. Liang’s "Implementing Macroprudential Policies"

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Duarte-Eisenbach follow Greenwood-Landier-Thesmer (2012) to construct Aggregate Vulnerability measure to monitor the firesale spillover risk

An important question and a nice attempt

But,

When banks suffer capital loss due to firesale, why don’t they reduce the asset holdings further?

Who buy these assets from banks?

Ignores forward looking aspect of asset market
Example of One Asset and Representative Bank

Before the shock hits, the bank equity is

\[ e^- = a^- - d^- = Q^- S^- - d^- \]

where \( Q^- \) is asset price and \( S^- \) is quantity of assets held by banks before the shock hits.

Asset price changes due to a direct shock \(-f\) and the firesale

\[ \frac{dQ}{Q} = -f + \eta \frac{dS}{S}, \text{ where } \eta = \frac{S dQ}{Q dS} \]

After the shock, the bank equity and balance sheet are

\[ e = QS^- - d^- \]

\[ QS = a = e + d = (1 + b)e \]
If the leverage is constant,

\[
\left(\frac{dQ}{Q} + \frac{dS}{S}\right) a = (1 + b)de = (1 + b)\frac{dQ}{Q} a^{-}
\]

Using the approximation \( a \simeq a^{-} \), we have

\[
\frac{dS}{S} = b \cdot \frac{dQ}{Q} = b \cdot \left( -f + \eta \frac{dS}{S} \right) = -bf \quad \frac{dQ}{Q} = \frac{f}{1 - b\eta}
\]

\[
\frac{de}{e} = -[1 + b\eta + (b\eta)^2 + ..] (1 + b) f = -\frac{(1 + b)f}{1 - b\eta}
\]
Supply of asset equals to the demand of bankers $S_t$ and non-bankers $S_t^N$

$$
\overline{S_t} = S_t + S_t^N
$$

Nonbankers require participation cost $g(S_t^N)$ to hold asset $S_t^N$, where $g', g'' > 0$ and $g(0) = g'(0) = 0$

Suppose a unit asset owner at date $t$ is entitled to receive dividend $y_{t+1}$ and $\lambda$ unit of date $t+1$ asset. The nonbanker’s choice $\rightarrow$

$$
E_t \left[ \frac{y_{t+1} + \lambda Q_{t+1}}{Q_t + g'(S_t^N)} \cdot M_{t,t+1} \right] = 1
$$

where $M_{t,t+1}$ is marginal rate of substitution. The asset price:

$$
Q_t = E_t \left( \sum_{\tau=t+1}^{\infty} \lambda^{\tau-t-1} M_{t,\tau} y_\tau \right) - E_t \left[ \sum_{\tau=t}^{\infty} \lambda^{\tau-t} M_{t,\tau} g'(S_{\tau}^N) \right]
$$
The asset price in the nonstochastic steady state is

\[ Q = \frac{\beta y - g'(S^N)}{1 - \beta \lambda} \]

Using a linear approximation, we get

\[ \eta = \frac{S_t dQ_t}{Q_t dS_t} \simeq \frac{S}{S^N} \cdot \frac{g'(S^N)}{\beta y - g'(S^N)} \cdot \frac{S^N g''(S^N) dS_t}{g'(S^N)} \]

\[ \cdot (1 - \beta \lambda) E_t \left[ \sum_{\tau=t}^{\infty} (\beta \lambda)^{\tau-t} \frac{dS_{\tau}}{dS_t} \right] \]

The sensitivity of the asset price to the bank’s asset holding depends upon

(a) relative size of holdings of banks and nonbankers

(b) importance and elasticity of marginal participation cost

(c) how persistent the bank suffers in future
Implementing Macroprudential Policies - Financial Stability Monitoring

1. Dodd Frank Act of 2010

Enhance the prudential standards for systemically important financial institutions (SIFI)

Regulatory conduct of macroeconomic stress test

Plan for orderly resolution of large financial institutions

Does not address the problem of run on shadow banking
2. Preemptive Macroprudential Policies to Foster Financial Stability

(A) SIFI

Macro stress test: disclose the result of individual bank’s resilience to 3 alternative scenarios of adverse macroeconomic shocks

(B) Shadow banking

Large players are regulated as SIFI

Promote central clearing and regulate secured funding market

Improve data collection
(C) Asset market and Nonfinancial sector

Bubble is hard to identify

But there are early warning signs, such as the ratio of real estate value to GDP, and the bank credit-to-GDP ratio

Reduce vulnerability of financial system to a large asset price fall

  Counter-cyclical bank capital requirement

  Increase liquidity requirement of banks

  Lower the loan-to-value ratio and debt-to-income ratio in asset market
Comments:

1. Need to consider policy assignment

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Dodd Frank Act limits the lender-of-the-last-resort intervention

→ Needs forward-looking systemic risk monitor and macroprudential policy

Needs a better contingency plan during crisis
2. Trade-off between the spreads between assets and liabilities of banks during normal time vs. crisis time

"Goodbye financial repression, Hello financial crash" Carlos Diaz-Alejandro

Do not want "Goodbye financial crash, Hello financial repression" neither

3. How to identify and offset the misallocation of resources?

Finance productive investment is fine

Transfer fund from risk-averse/pessimistic to risk-tolerant /optimistic agents can lead to excess volatility
4. Should consider the long-run effects of crisis: Delays

Banks are slow to recognize the loss → slow to recapitalize

Businesses & households learn banks may not lend when needed

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→ Save in liquid assets instead of banks’ liquidity facility

→ Delay investing on illiquid assets, such as R&D and on-the-job-training

→ Slow growth