Discussion of D Pierret:

Systemic risk and the solvency-liquidity nexus of banks

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What banks do

- Credit transformation
- Liquidity transformation
- Maturity transformation
What banks do and their externalities

- Credit transformation: too much risk
- Liquidity transformation: too little liquidity
- Maturity transformation: too big a duration mismatch
What banks do and regulation

- Credit transformation:
  minimum capital requirements

- Liquidity transformation:
  liquidity coverage ratio (LCR)

- Maturity transformation:
  net stable funding ratio (NSFR)
Minimum capital requirements

- Risk-weighted:
  - Common equity Tier 1
  - Risk-weighted Assets

- Unweighted Leverage Ratio:
  - Common equity Tier 1
  - Total Assets

- Buffers:
  - Conservation
  - Systemic risk
  - Countercyclical
The LCR promotes short-term resilience by ensuring that banks have an adequate stock of unencumbered high-quality liquid assets (HQLA) to meet their liquidity needs for a 30 calendar day liquidity stress scenario.
- Limits liquidity transformation activities

- Compel banks to hold an amount of liquid assets that can be easily sold to meet deposit outflows and the takedown of loan commitments that might occur during a crisis

- Meet obligations without
  - Asset fire sales
  - Reliance on central banks
The NSFR requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities. The NSFR limits overreliance on short-term wholesale funding, encourages better assessment of funding risk across all on- and off-balance sheet items, and promotes funding stability.
• Limits maturity transformation
• Requiring banks with long-term assets to have long-term liabilities
• Allow only those with short-term assets to issue short-term liabilities
Given liability structure, shift to ST assets:
- RWA ↓, easier to meet
- TA =: Leverage ratio more likely to bind
- LCR: available high-quality liquid assets likely rises
- NSFR: required stable funding falls

For given asset structure, shift to LT liabilities:
- RWA and TA =: capital requirement unchanged
- LCR: required high-quality liquid assets falls
- NSFR: available stable funding rises
Capital & liquidity are substitutes
- More capital makes deposits less likely to run
- More liquid banks are more able withstand a run
- But the tradeoff depends on things like
  - Depositor risk aversion
  - Extent of different externalities created by failure

Calibration should be joint
- NSFR $\Rightarrow$ capital requirement lower
Expected capital shortfall in a crisis defined at a 40% drop in the global equity market over 6 months.

\[
SRISK_i = E[k(D_i + MV_i) - MV_i | R_M = -40%] = E[kD_i - MV_i(1 - k - 40\% \times \beta_i)]
\]

- \( k \) = the unweight leverage ratio requirement (8% for US banks)
- \( MV \) = market capitalization of the bank
- \( D \) = debt liabilities of the bank
- \( \beta_i \) = market beta of the bank (varies over time)

[SRISK can also be written in terms of price-to-book and book leverage.]
Note:

$SRISK$ is a measure unweighted leverage, ignoring off-balance sheet positions, which $k$ to 8% for US banks. As a result, my preference is to focus on the changes, not the level itself.
Assuming $\beta$ changes slowly, we can write

$$SRISK_i = a_i - b_iMV_i$$

Diane scales $SRISK$ by total assets:

$$MV/TA = 1/L^M$$

So

$$SRISK/TA \sim -1/L^M$$
1. $\ln(\text{STDebt}) = 1.120 \times (\text{MV/TA})_{-1} + 0.074 \ln(\text{STAssets})_{-1}$

If MV/TA rises, leverage falls:

- ST liabilities rise for fixed short-term asset
- What about LT liabilities and LT assets?
- Impact on RWA, LCR & NSFR depends on this

[Since SRISK~--1/L, I change the sign relative to Table 1.]
2. MV/TA = -0.009 \ln(\text{STDebt})_{-1} + 0.003 \ln(\text{STAssets})_{-1}

If short term liabilities fall:

- MV/TA rises, so leverage falls
- ST assets unchanged
- What about LT assets and liabilities?

[Since SRISK\sim-1/L, I change the sign relative to Table 1.]
Capital & liquidity requirements?

- Capital requirements are about \( \frac{\text{Book Equity}}{\text{RWA}} \).
  - Is this related to \( \frac{\text{SRISK}}{\text{TA}} \) in equilibrium?

- LCR is about the \textbf{ratio} of \( \text{STAssets} \) to \( \text{STDebt} \)
  - Is this related to the levels of each in equilibrium?

- NFSR is about the \textbf{ratio} of \( \text{LTAssets} \) to \( \text{LTDebt} \)
  - Is this related to the levels of each in equilibrium?