Financial Regulation in a System Context

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Basel-style Capital Standards

• Problem is default by borrowers
  – Focus on asset side of balance sheet
• Capital is buffer to protect creditors
  – Especially retail depositors
• Preferred shares and subordinated debt are capital
Bear Stearns

- Bear Stearns failed because of run by creditors, not defaults by borrowers
- (Immediate) problem was on liabilities side of balance sheet
Micro- and Macro-prudential Perspective

“Ensuring the soundness of each individual institution ensures soundness of system as a whole”

- Can this serve as the basis for a prescriptive rule?
- Yes, if following micro-prudential imperative invariably promotes overall stability
- But…
Figure 1

Bank 1

Bank 2

A L

A L

claim

obligation
Proposition 1

It is possible that actions that enhance the soundness of an individual financial institution undermine the stability of the system as a whole.
Figure 2
Investor $10 stake

- Stay
  - $11 if proportion $k$ or more stay
- Withdraw
  - $0 otherwise

$10
$c$ is cost of miscoordination as fraction of good payoff
Proposition 2

A creditor run is more likely if the coordination threshold is high or when the cost of miscoordination is high. Policies that lower the coordination threshold and the cost of miscoordination are likely to promote system stability.
Figure 4

Bank 1  Bank 2  Bank 3
Proposition 3

There is a distinction between risky assets and systemically important assets. Safe assets can be systemically important.
Lehman Balance Sheet (2007)

Assets

- Collateralized lending: 44%
- Receivables: 6%
- Cash: 1%
- Other: 4%
- Long position: 45%

Liabilities

- Short position: 22%
- Short term debt: 8%
- Long-term debt: 18%
- Collateralized borrowing: 37%
- Payables: 12%
- Equity: 3%
Bear Stearns Balance Sheet (2007)

Assets
- Receivables: 14%
- Collateralized lending: 32%
- Other: 6%
- Cash: 5%
- Long position: 43%

Liabilities
- Long-term debt: 17%
- Short term debt: 11%
- Collateralized borrowing: 34%
- Payables: 22%
- Other: 2%
- Short position: 11%
- Equity: 3%
Liquidity Regulation

Make Bank 0 more resilient
Make creditor banks less trigger-happy
Liquidity Regulation

• Vicious circle of reasoning leads to run
• Harness the same externalities to promote virtuous circle of reasoning
  – More robust debtor and more relaxed creditors
• Required liquidity levels may not be so onerous if distributed well in the system
Liquidity Regulation

The diagram illustrates the relationship between liquidity requirements on creditors and debtors in different regions of the $k$ and $c$ plane:

- **Run Region**: Arising under the condition $k > c$, this region is characterized by a liquidity requirement on creditors.
- **Stable Region**: Arising under the condition $k < c$, this region is characterized by a liquidity requirement on debtors.

Points A and B indicate different states within these regions, with A representing a situation requiring liquidity on creditors and B requiring liquidity on debtors.
Tri-party repos

- Money market mutual funds have high cost of miscoordination $c$
- Presence of jittery (or constrained) creditors makes stabilizing reinforcement less likely from others
US Broker Dealer Sector
Ratio of Cash to Total Financial Assets
(Source: US Flow of Funds)
Secured Funding

Bank 1

Bank 2

Bank 3

Scenario: generalized increase in haircuts
Secured Funding

- If haircuts rise from 2% to 4%, permitted leverage falls from 50 to 25
- Evidence suggests bulk of adjustment happens through shrinking of assets
  - Bank 2 can adjust down flexibly
  - Bank 1 suffers a run
“Lump of Liquidity” Fallacy

• “Liquidity” suggests stock that can be reallocated
• But liquidity is better understood as growth of balance sheets – as a flow
• Liquidity doesn’t get reallocated – it disappears altogether
• Secured funding is less secure for the system than cash
Leverage Regulation

• Leverage regulation aims to prevent excessive erosion of haircuts in peak of the financial cycle
  – “reaching for yield” is especially precarious
• Leverage regulation is non-risk-weighted capital requirement
  – safe assets ≠ systemically unimportant
Measuring Leverage

• Numerator (Assets)
  – securitized assets
  – derivatives hedges

• Denominator (Equity)
  – common equity
  – common equity + preferred shares
  – common equity + preferred shares + sub debt
Composition of Northern Rock’s Liabilities
(June 1998 - June 2007)

- Billion pounds
- Equity
- Other Liabilities
- Securitized notes
- Retail Deposits

Graph showing the composition of Northern Rock’s liabilities from June 1998 to June 2007, with a focus on Equity, Other Liabilities, Securitized notes, and Retail Deposits.
Northern Rock’s Leverage
June 1998 - December 2007

- Leverage on total equity
- Leverage on shareholder equity
- Leverage on common equity
System Risk-weighted Capital Requirements

• Bank that lends to high system-weighted banks has high system weight
  – fixed point calculation
  – but infeasible without simplifying further
• Traditional regulatory segregation can sometimes be along natural boundaries
• Summary measures
  – Adrian and Brunnermeier (CoVaR)
Countercyclical Capital

• Liquidity requirements and leverage constraints are complementary with counter-cyclical capital requirements
• Kashyap, Rajan and Stein (2008)