Securitization, Haircuts and Repo: Why Regulate Shadow Banking?

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Bank Capital Requirements

2010 Dodd-Frank Act did not mandate specific levels for banks’ capital requirements – left it to Basel Committee on Banking Supervision

September 2010 – Basel III:
- minimum equity capital set at 7% of assets
- counter-cyclical buffer of up to 2.5% of assets imposed by regulators during “good times”

“Basel III is much tougher than Basel II...implies the bankers’ incentive to game the system is even greater than before...” (Financial Times, 9/21/2010)
Financial Crisis and Banking

- Financial crisis triggered by “systemic event” – increase in subprime mortgage defaults
- Caused bank run in “shadow-banking” sector – forced rescues (Bear Stearns) and bankruptcies (Lehman Brothers)
- Pre-1930s, bank runs occurred when depositors sought to withdraw cash *en masse*
- Collapse of liquidity in recent crisis due to run on repurchase market - rise in price of “haircuts” and cessation of “repo” lending on certain collateral
Shadow Banking

- Issuance of short-term money market instruments (repo and commercial paper) backed by asset backed securities (ABS)

- Players: broker-dealers, structured investment vehicles, and money market mutual funds (MMMFs)

- 2008 – liabilities of $20 trillion

- Evolved over past 30 years due to:
  - competition – MMMFs and junk bonds
  - regulatory change – repeal of Glass-Steagall Act
  - innovation – derivatives and securitization
Shadow Banking

In this diagram, investors (MMMFs) invest in ABS (asset-backed securities) through SPVs (Special Purpose Vehicles), which are then used as collateral for repo agreements. Banks provide loans to borrowers, and Retail Investors provide shares to Investors (MMMFs). The key terms are:

**Key:**
- ABS = asset-backed securities
- MMMFs = money market mutual funds
- SPVs = Special Purpose Vehicles

Source: Gorton and Metrick (2010)
With cap on deposit insurance, large institutions have no access to safe short-term investments.

In repo agreements, bank sells asset (collateral) to investor for $X, and buys asset back at $Y, where $(Y-X)/X$ is “repo rate” – investor keeps collateral if bank defaults on promise to repurchase.

Amount investor deposits with bank typically less than value of asset, i.e., there is a “haircut”

**Example:** Bank sells asset worth $100 for $80, and repurchases at $88, “repo rate” = 10%, and “haircut” = 20%
Securitization

- Loan originators can sell claims to cash flows
- Multiple loans “pooled”, and assembled off-balance sheet in a trust - Special Purpose Vehicle
- Pool of loans “tranched” – designation of classes of claimants on cash-flows, i.e., AAA through to BBB

Example: N loans in pool, BBB tranche loses money if 1 loan not repaid, AAA tranche only loses if all N loans not repaid

- ABS sold to capital market to finance purchase of cash flows from originator or used as collateral in repo agreements
Securitization

Source: Gorton (2009)
Why Securitization?

**Benign Story:**

Securitization spreads risks across a wider range of investors – lowers lending costs.

Also, if securitization done properly, senior tranches of ABS relatively easy for non-specialized investors to evaluate – expands buyer-base.

**“Regulatory Arbitrage” Story:**

Rules on bank capital requirements, i.e., 1988 Basel I provisions avoided via off-balance-sheet vehicles.
## Traditional vs. Shadow Banking

<table>
<thead>
<tr>
<th>Traditional Banking</th>
<th>Shadow Banking</th>
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</thead>
<tbody>
<tr>
<td><strong>Reserves:</strong></td>
<td><strong>Haircuts:</strong></td>
</tr>
<tr>
<td>- minimum levels set</td>
<td>- minimum levels set by counterparties</td>
</tr>
<tr>
<td>- shortfalls can be borrowed from Federal Reserve</td>
<td>- no borrowing from Federal Reserve</td>
</tr>
<tr>
<td><strong>Deposit Insurance:</strong></td>
<td><strong>Collateral:</strong></td>
</tr>
<tr>
<td>- guaranteed by FDIC</td>
<td>- asset backed securities</td>
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<tr>
<td><strong>Interest Rates on Deposits:</strong></td>
<td><strong>Repo Rates:</strong></td>
</tr>
<tr>
<td>- can be raised to attract deposits when reserves low</td>
<td>- can be raised to attract counterparties when funds low</td>
</tr>
<tr>
<td><strong>Loans on Balance Sheets</strong></td>
<td><strong>Loans Securitized:</strong></td>
</tr>
<tr>
<td></td>
<td>- some ABS kept on balance sheet to be used as collateral</td>
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</tbody>
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Source: Gorton and Metrick (2009)
The Run on Repo

- 2007, investors became concerned about quality of ABS and began to pull back on short-term lending – causing run on repo, with sharp increase in haircuts
- If borrower has $1 billion of ABS, and haircuts rise from 2% to 50%, equivalent to deposits falling from $980 to $500 million
- Borrowers forced to liquidate ABS, depressing prices via “fire-sale” effect, reducing value as collateral, and causing further pullback in short-term lending
- Liquidity crisis eventually backstopped by Federal Reserve after Lehman’s collapse
The Run on Repo

Source: Gorton (2009)
Shadow Banking Regulation

- “Basel III and Dodd-Frank: Useful Steps Forward, but Watch the Shadows” (US Economonitor, 10/4/2010)

- Financial crisis driven by run on repo market due to deterioration in certain securitized assets

- Shadow banking ought to be regulated as it is a new form of banking that has same vulnerabilities as traditional banking, objective being to eliminate runs

- Whether banks operate on or off balance sheets, regulators need to evaluate risks, i.e., as in past, need to set capital requirements for new system
Shadow Banking Regulation

- Repo needs to be backed by high-quality collateral:

(1) All securitized assets should be sold to Narrow Funding Banks (NFBs) who are chartered, face capital requirements, and have access to Federal Reserve discount window

- NFBs only purchase ABS and issue liabilities
- investors buy liabilities of NFBs

(2) Regulator determines asset classes that can be purchased by NFBs, and sets their portfolio criteria based on proportions and ratings of assets
Need to provide safe “deposit-type” accounts for lenders in repo market:

(1) NFBs and commercial banks, allowed to borrow, pay interest and provide collateral - US treasuries and NFB liabilities

(2) Licensed non-banks can engage in repo, subject to minimum haircuts and position limits

- minimum haircuts – would limit excessive leverage
- position limits set by regulator, based on firm size and collateral used