Mobile Collateral versus Immobile Collateral

Gary Gorton, Yale and NBER
Tyler Muir, Yale
The Transformation of the Financial System

• Over the last 30 years prior to the crisis, the architecture of the financial system changed.

• **Immobile collateral** bank loans → became **mobile collateral** in the form of MBS and ABS—can be traded, posted in derivative positions, collateral for repo and ABCP, rehypothecated.
The Financial Crisis Regulatory Aftermath

• New money vulnerable to runs.
• Since the financial crisis, “reform” has aimed to return to the system of *immobile collateral*.
  – Must post collateral to CCPs, but CCPs do not post back.
  – On-balance sheet derivatives require collateral, and it cannot be rehypothecated.
  – The LCR requires essentially that all repo be backed dollar for dollar with Treasuries—a kind of narrow banking. One kind of money backs another kind of money.
Policy Evaluation

• How can we understand the possible effects of the LCR?
  – Lucas Critique → need a GE model
  – Without such a model, what should policy makers do?

• We tried this system before: the U.S. National Banking Era. Intended to end banking panics.

• Private bank notes had to be backed by Treasuries—didn’t go well.
Agenda

• Examine the transformation to a system of mobile collateral.
• Provide some new evidence on the scarcity of Treasuries now and prior to the crisis.
• Examine National Banking Era
  – Evidence of a convenience yield on Treasuries
  – Rise of a shadow banking system: demand deposits
  – Conceptual confusion
  – Banking panics
• Implications for the future
Components of Privately-Produced Safe Debt as a Fraction of Total Privately-Produced Safe Debt (U.S.)
Ratio of Total Private Securitization to Total Bank Loans

Source: Flow of Funds.
Growth of Assets in Four Financial Sectors (March 1954=1)

Source: Flow of Funds.
Securitization

Pooling of Assets

Traditional Bank: Creates Loans

Sells Cash Flows From Loans

Master Trust Pool of Loans

Proceeds of Sale of Assets

Securitization Investors

AAA 85%

AA

A

BBB

Last (equity) Tranche Not Sold
Treasuries have a Convenience Yield


Source: Krishnamurthy and Vissing-Jorgensen JPE 2012
Private Response to Scarcity of Treasuries

• Lei (2012): Examines *daily* issuance data on 20,000 MBS/ABS deals with 300,000 tranches from 1978-2011.

• Finds that MBS/ABS issuance occurs when convenience yield rises.

• Sunderam (2014) finds the same phenomenon with weekly data on ABCP.
More Evidence of Scarcity

• Repo fails
  – Occur when one side of the contract “fails to deliver” or “fails to receive”

• Question: Are fails due to a shortage of safe debt?
Primary Dealer Treasury Fails

- $ Millions

- Total Treasury Receive
- Total Treasury Deliver

Graph showing Primary Dealer Treasury Fails from 7/4/1990 to 7/4/2014.
A Measure of Scarcity

• GC Repo minus Treasury (1 month)
  – 36 bps average over 1978 -2011
Pressure in Repo Market Spreads

Stresses amplify price swings in government bonds

By KATY BURNE
April 2, 2015 6:23 p.m. ET

A shortage of high-quality bonds is disrupting the $2.6 trillion U.S. market for short-term loans known as repurchase agreements, or “repos,” creating bottlenecks for a key source of liquidity in the financial system and sending ripples through short-term debt markets.

Stresses in the repo market are amplifying price swings in government bonds and related debt markets.
Econometrics

• Shows that repo fails are caused by a rise in the scarcity premium or convenience yield.

• When Treasuries are scarce, there are more repo fails.
Bank Runs

• This new money—repo, ABCP-- was vulnerable to bank runs, just as in most of U.S. history.
The National Banking Era

• National Banking Act passed in 1863 to finance Civil War.
  – Set up a new system of National Banks
  – These banks could issue bank-specific national bank notes by depositing US Treasuries with the Treasury Dept.
  – Expected to end banking panics.
The Under-Issuance Puzzle

• Too little money was issued, the “under-issuance puzzle” -- a puzzle for over a century!
Riskless Arbitrage?

• It was profitable to buy Treasuries, deposit them, and issue bank notes.

\[ r \approx \frac{(0.04)(1.10) - (0.017)(0.9)}{1.10 - 0.9} \approx 14.4\% \]

  – Bond price=$1.10 with yield of 4%
  – 0.017 is issuance cost
  – 0.9 is the fraction of the bond that can be issued as notes
  – Denominator is leverage that can be obtained.
Profit Rate from Note Issuance, % per annum: Traditional Calculation
But . . .

• There was no arbitrage opportunity. “Profit” due to:
  – a convenience yield on Treasuries
  – and costly bank capital.

• Treasuries scarce. Had to reverse them in at 1-2%.

• Banks held Treasuries on balance sheet.
Profit Series (shaded areas = recessions)
“Arb Profits” Reflect Convenience Yield?

• Measures/Proxies for convenience yield:
  – Follow Krish and V-J: outstanding Treasuries to GDP
  – Also look at “available Treasuries”
  – Muni spreads

• No proxies for bank capital.
Econometric Results

• “Arb profits” explained by scarcity of Treasuries (and costs of bank capital).
  – Banks had other uses for Treasuries
  – Insurance companies also demanded Treasuries
Meanwhile --

• - - - the shadow banking system grew---
Ratio of Notes to Deposits and Treasury Debt to GDP
Correlation = 0.96
Demand Deposits not Understood

• Bray Hammond (1957), in his Pulitzer Prize-winning book *Banks and Politics in America*, wrote: “. . . the importance of deposits was not realized by most American economists . . . till after 1900” (p. 80).

• Russell C. Leffingwell, the Assistant Secretary of the Treasury wrote as late as 1919: “All of these people who believe in the quantity theory of money . . . choose to call bank deposits money, but bank deposits are not money.”
Conclusions

• Design of Nat’l Banking System led to the rise of demand deposits—"shadow banking."
• Five major banking panics.

• Same problems now:
  – Unintended consequences
  – Conceptual issues
“Those who ignore history are entitled to repeat it.”