Systemic Risk and the Financial Crisis of 2008

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Caveats

• These views are mine and not necessarily those of the Federal Reserve Bank of Atlanta or the Federal Reserve System.
Systemic Risk

• What is systemic risk?
  – Relatively new term
  – Attempts to define it
Systemic Risk

• What is systemic risk?
  – Relatively new term
    • Risk to system
  – Attempts to define it
Systemic Risks
Kaufmann and Scott (2003)

- Common shock
- Successive losses along a chain
- Reassessment shock
Background

• Defaults on mortgages, especially subprime
  – Originally called the “subprime mess” by some
  – More subprime loans than historically
  – Relatively low risk spreads on risky mortgages

• How do we get from defaults on high-risk mortgages to all this widespread difficulty?
Housing Price Indices

January 2000 to August 2009

Case Shiller Index

OFHEO Index
U.S. Mortgage Originations by Type

2001 through 2007

Source: Inside Mortgage Finance
U.S. Mortgage Delinquencies by Loan Type

First Quarter 1998 through Second Quarter 2009

Note: Delinquent 90 days or more + foreclosures
Source: Mortgage Bankers Association
Story

- A tiny part of securities markets has put asset markets around the world in a state of turmoil
- How can that be?
  - Not a common shock
  - Reassessment shock
  - Chain of losses
Summary of Developments

• Prelude until August 9, 2007
• Main Act from August 9, 2007 to September 16, 2008
• Climax from September 16, 2008 to early 2009
  – Financial crisis
• Denouement from early 2009 to ????
PRELUDE
Prelude

• Rumblings of what was to come
  – Mortgage brokers started to fail
  – Prices of securities that were indicative of the problems started to fall
Collateralized Debt Obligations

• Mortgages are securitized
  – Residential Mortgage Backed Securities (RMBS)
  – Mortgages are pooled together and sold on the open market
    • Agency securities
    • Others
    • Can be divided into tranches

• Tranching
  – Typical bond has all holders suffering losses proportionately
  – Structured financial instruments structure receipts of payments

• CDOs of ABS
CDO Deals Idiosyncratic

- Not standardized contracts
- Number of tranches
- Collateralization
- Payment order can change over time
  - Principal may be paid initially to AAA holders
  - Proportionately to all after a couple of years
- Manager can be passive or active
- Trade over the counter
Securities and “Risk Sharing”

• CDOs were purchased by entities all over the world

• AAA rating made them seem like a fine purchase
  – AAA CDO is not a AAA corporate bond
    • CDO is based on a portfolio of loans
    • Behavior of cash flows in default is different
  – Ratings were conditioned on rising house prices
Global Issuance of Collateralized Debt Obligations

First Quarter 2005 through Second Quarter 2009

Source: SIFMA
Main Act
Runs on Particular Banks and Certain Money Market Funds

• Northern Rock

• Government Investment Pools
Concerns about Institutions

• Monoline insurance companies

• Ratings agencies
CLIMAX
Fever Chart: LIBOR less OIS Spread - 30 Days

December 4, 2001 through August 31, 2009
Fever Chart: LIBOR less OIS Spread - 30 Days

December 4, 2001 through August 31, 2009

Run on Money
Market Funds

End of Year
Northern Rock

Date

Basis Points

Fever Chart: LIBOR less OIS Spread - 30 Days

*December 4, 2001 through August 31, 2009*

- Run on Money Market Funds
- End of Year
- Northern Rock
- Kindergarten Day

Date

Basis Points

Total Net Assets in Taxable Money Market Funds

August 2007 through June 2009

Source: Investment Company Institute
Policy Response

- September 19, 2008, Treasury announced that it would use funds from the Exchange Stabilization Fund to guarantee money market fund investments.

- Federal Reserve responses
  - Money Market Investor Funding Facility (MMIFF)
  - Asset Backed Money Market Liquidity Facility (AMLF)
  - Commercial Paper Funding Facility (CPFF)
This Is Not All the Story

• House prices rose in many other countries other than the U.S.
  – House prices have fallen substantially in Ireland, Spain and other countries
  – Nothing directly to do with subprime mortgages or CDOs

• Widespread increases of leverage

• Widespread increases of maturity transformation
DENOUEMENT
What Remains?

- Recognition of losses and their implications
- Policy risk
Systemic Risk

- Reassessment shock

- Chain of losses