Too much right can make a wrong: Setting the stage for the recent financial crisis

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The views expressed here are my own and may not represent those of the Federal Reserve Bank of Chicago or the Federal Reserve System.
Why was this crisis different from all other crises?

- People do foolish things – or at least, things that look foolish after the fact – all the time.
- Sometimes a lot of people do a lot of the same foolish things at the same time.
  - This can lead to a financial crisis.
Why was this crisis different from all other crises?

- Why might smart investors make foolish financial decisions?
  - Focus on reasons identified by behavioral economics.
- How this might have led to the recent financial crisis.
- Are we setting the stage for another crisis?
Causes of the recent financial crisis

- The crisis through the lens of securitization (although securitization alone did not cause the crisis):
  - A glut of foreign savings with a desire for low risk increased demand for MBS.
  - This gave banks an incentive to create MBS.
  - Problems crept into MBS valuations, but rising home prices covered these up.
  - Falling home prices exposed faults.

...
Setup: would you buy this?

- We know (after the fact) that a lot securitized bonds did poorly in the financial crisis.
  - Were investors foolish to buy securitized bonds?
Traditional bank financing

- Investors (that is, depositors) need to believe that:
  - Bank is lending to solid borrowers.
  - On average, defaults will be small.
Securitization

- Investors need to:
  - Believe borrowers are solid.
  - Understand potential distribution of defaults.

Borrower

Bank

Loan is sold

Payment for loan

SPV containing pool of loans

Investor

Bonds

AAA

AAA

BBB

B

other

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Securitization grew rapidly prior to the crisis

Sources: JP Morgan (ABS) and Inside Mortgage Finance (MBS).
Why did securitization expand?

- Securitization provided efficiencies and access to a broader investor base.
Why did securitization expand?

- Securitization also allowed
  - *regulatory arbitrage* and
  - *tax minimization*.
- Recent settlements also suggest fraud may have played a role.
Securitization

Borrower

Bank

Investor

Loan

Loan is sold

Payment for loan

Some tranches may be hard to sell.

SPV containing pool of loans

Bonds

AAA

AAA

BBB

B

other

Payment for loan

Buys bond

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**CDO^2: Second-stage securitization**

- **B-rated MBS**
- **B-rated MBS**
- **B-rated MBS**
- **Random ABS**

**CDO^2 Bonds**

- AAA
- AAA
- A
- BB
- B
- other

**Investor**

- Buys bond

- Investors need to:
  - Believe MBS/ABS are solid.
  - Understand potential distribution of defaults of MBS/ABS which depends on understanding distribution of defaults on underlying MBS/ABS.
The role of investors

- Investors (at least technically) were financially sophisticated.

  Why would they buy securities like CDO\(^2\)?
  - ABS, MBS, and CDO\(^2\) typically had higher yields than corporate bonds with equivalent ratings.
The role of investors: overconfidence

Possible reasons for ‘rational’ investors to purchase ‘bad’ structured securities:

- **Overconfidence**: Structured securities such as MBS are complex and difficult to evaluate. An overconfident investor may believe that she is better at pricing these securities than others are.
  - These investors may believe that high yields for structured securities implied money left on the table.
The role of investors: confirmation bias

Why might overconfidence have been stronger in 2006 than in 2002?

- Long string of successes reinforced confidence.
- Even as problems started, *confirmation bias* may have made them difficult to see.
The role of investors: inattention

Busy investors may also have been *rationally inattentive*.

- Capacity constraints for information or costly information processing may mean that individuals do not continuously update their knowledge.
- Long string of successes reinforced rational inattention.
Investors could use ratings by credit ratings agencies (CRAs). 

- Ratings may have served as an anchor for investors’ beliefs.
  - Especially if investors were overloaded with information on complex securities (Brunnermeier and Oehmke, 2009).
Are CRAs reliable?

There has long been a debate about what credit ratings reflect (see, e.g., Partnoy, 1999; Hill, 2009).

- Did CRAs try to get it right or maximize their revenues?
- Some claim CRAs worked with issuers to shape structured security issues (Fons, 2008; Mason and Rosner, 2007).
  - A majority of Moody’s revenues came from structured securities at the peak (Mason and Rosner, 2007).
  - Some argue that this may have led CRAs to abet a hidden increase in risk for structured securities (Kane, 2008).
Setting the stage

The combination of innovative banks, the CRAs, and overconfident/inattentive investors may have led to the more complex and controversial securities such as CDOs.

- Issuers have incentive to add risk (e.g., to have access to more assets).
- CRAs have an incentive to go along with this.
- Investors may not account for the risks in pricing as long as existing, somewhat similar securities have done well.
  - Also, may not look beyond the surface for fraud.
Other people’s money

- Incentives
  - Long investment chains (Shin, 2009).

- May lead to:
  - Reach for yield.
    - High reported return $\rightarrow$ more investors (Sirri and Tufano, 1998)
    - Concentration of risk in a small number of states of nature.
  - Herd behavior.

- Issue: Banks were among the largest owners of MBS (Greenlaw, et al., 2008).
Was the recent crisis different: Banks versus the shadow banking system

- Intermediation chain (Shin, 2009) is longer with SBS than with banks.
- The SBS is skewed more toward short-term rewards than is the traditional banking system (fees vs. income).
- SBS firms (esp. investment banks) were more leveraged than banks.

- But, banks participated in the SBS, and also made covenant-lite loans.
Where we are now: excesses?

Stock Prices, then and now

2009Q1-20014Q2

2002-2006

Source: Standard & Poor's / Haver Analytics.
Where we are now: excesses?

Source: Standard & Poor's / Haver Analytics.
Where we are now: excesses?

LA Home Prices, then and now

Source: Standard & Poor's / Haver Analytics.
Where we are now: excesses?

VIX, 1990-2014

Source: Standard & Poor's / Haver Analytics.
Where we are now: institutional memory

- Are excesses building up?
  - Stock prices are up, but that doesn’t always mean a bubble (1949-1973).
  - Home prices are again rising, but not to recent highs.
  - Volatility measures suggest calm, even in light of recent issues (European debt, Ukraine, etc.).
- Is this time different?
  - How long is memory (*institutional memory hypothesis*)?
In case you think this time is different

- Derivatives in the early 1990s:
  - Procter & Gamble “lost” $157 million on a derivative the value of which depended on the difference between a 5-year T-bond price and a 30-year T-bond yield.
  - Orange Country lost $1.7 billion on a $7.4 billion fund.
  - Gibson Greetings “lost” over $20 million on a series of derivatives that started with a “plain vanilla” swap, included a “knock-out” call option, and ended with a “wedding band” swap.
Concluding comments

- The financial crisis had a lot of causes.
- Investor behavior has not received a lot of attention.
- Overconfidence and rational inattention could have contributed to the increases in risk in the financial system in the early part of the century.
  - The problems may have been exacerbated because some participants were investing other people’s money.
The rise of the shadow banking system

- The SBS is a term for financial institutions that provide alternatives to traditional bank financing.

- Examples of shadow banking include:
  - Commercial paper including ABCP
  - Repurchase agreements (repos)
  - Structured finance (including mortgage-backed securities (MBS) and asset-backed securities (ABS))
Shadow Bank Liabilities versus Traditional Bank Liabilities

Trillions of U.S. dollars

Sources: Board of Governors of the Federal Reserve System, “Flow of Funds Accounts of the United States” (as of 2011:Q3); Federal Reserve Bank of New York.