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XIV) The financial crisis of 2008

A) Before the crisis: the 1990s

1) Banks

Banks borrowed short-term through deposits and overnight loans. They held illiquid assets (loans and illiquid bonds). Thus they were in danger of liquidity crises and runs.

To protect banks from runs, the United States had developed many regulations and institutions over the years, which I have described in earleir sections: capital requirements; deposit insurance (run through the FDIC, the Federal Deposit Insurance Corporation); access to LOLR loans from the Fed; and "resolution authority" (special fast bankruptcy procedures).

The Federal Reserve Act said the Fed could, ordinarily, lend only to banks. One section of the act, Section 13(3), said the Fed could lend to nonbanks but only in special declared emergencies with permission of the President. In the Great Depression of the 1930s the Fed used section 13(3) to lend to nonbanks.

2) Nonbank financial companies

a) Introduction

There were many kinds of financial firms other than banks. They were not subject to the same regulations or have the same protections as banks, but that was not a problem. Most nonbank financial firms did not engage in financial intermediation. The ones that did financial intermediation did not hold illiquid assets. Two important types were...

b) Money-market mutual funds (MMMFs)

See Glossary. These firms took demand deposits but held only short-term liquid bonds (like Treasury bills, commercial paper) or made very short-term loans (like overnight loans). Because all of a MMMFs assets were short-term, interest-rate risk could not be a problem. Because they were liquid, a liquidity crisis could not be a problem.

I said MMMFs took demand deposits; that wasn't exactly true. Because MMMFs legally mutual funds, not banks, a MMMF was legally required to pay you back only your share of the value of the assets held by the fund. If those assets were worth less than the deposits, the MMMF could pay you less than you had deposited - just ninety cents on the dollar, for example. That was called "breaking the buck."

But people did not worry about that.

c) Investment banks

See Glossary.

3) Mortgages and mortgage-backed securities (MBS)

A mortgage is a loan to a household or business, collateralized by a piece of real estate. If a mortgage borrower defaults on the loan, the lender seizes the piece of real estate in a legal action called "foreclosure."

Many people take mortgages to finance the purchase of a house or condo to live in. In the 1990s, most mortgage loans had provisions designed to reduce the probability of default on the mortgage, by making sure that the monthly mortgage payment was small enough, relative to the borrower's monthly income, that the borrower would have little trouble making the payments out of his income. Mortgages that have these provisions are called "prime" or "conforming" mortgages.

Two government-related corporations, nicknamed Fannie Mae and Freddie Mac, made a business of buying up conforming mortgages and making them into bonds. The bonds were insured against default by Fannie and Freddie. See "Mortgages, etc." in the Glossary.

B) The run-up to the crisis

1) House prices rise

Around 1999-2001 house prices began to rise rapidly, relative to the general price level. "Real" house prices continued to rise rapidly for several years. (See the figure at the end of these notes.) Previous waves of rising house prices in America had been confined to specific geographic regions. This one was almost nationwide. The only place where house prices did not rise was upstate New York. No kidding.

Economists still debate whether this was the result of irrational thinking on the part of housebuyers. It's hard to prove either way. Anyway, it happened.

2) Subprime (nonconforming) mortgages

People believed that house prices would keep rising forever. So many lenders and investors began to believe that the rules of conforming mortgages were unnecessary. If a person couldn't pay off a mortgage out of her income, she could just sell the house at a profit and pay off the mortgage that way! They began making mortgage loans without these rules. These mortgages were called "subprime" or "nonconforming" mortgages.

Of course, if house prices stopped rising, there would be lots of defaults on subprime mortgages. But nobody worried about that.

For details, see Glossary, "Mortgages etc."

3) Mortgage-backed securities made from subprime mortgages

a) Introduction

Financial firms other than Fannie and Freddie began to make MBS's out of nonconforming mortgages.

b) Credit-default swaps (CDS)

These MBS were not insured by Fannie or Freddie, but they were frequently sold with a sort of insurance policy attached, called a credit-default swap.

A CDS is a type of "derivative."

Generally, a derivative is a financial contract in which the payments that the parties promise to make in the contract depend on what happens to a bond, loan or other financial contract (hence "derivative" - the derivative contract is *derived* from another deal).

In a CDS, party A promises to pay party B some money if there is a default on a specified loan or bond. If party B is the owner of the bond or loan in question, then party B has effectively purchased an insurance policy against default on the bond or loan, like the fire insurance your parents have on their house on Long Island. Party A is like an insurance company. But in a CDS party A doesn't have to be an insurance company. Many investment banks and other types of financial firms acted as party A in CDS.

Subprime-mortgage MBS's were often sold along with a CDS contract that promised a payment to the holder of the MBS if there was a default on the MBS.

c) Subprime-mortgage MBS's were liquid

Remember that everyone thought house pries would go on rising. Even though these MBS's were constructed from subprime mortgages, people did not think there would be lots of defaults on these mortgages, so they though the probability of default on the bonds was low. And the bonds were "insured" by the CDS anyway.

Because people did not worry about default risk on the bonds, there was no "lemons problem" on the bonds. They were very liquid.

4) Investment banks start engaging in financial intermediation

Investment banks began to borrow overnight to fund acquisition of bonds, especially subprime-mortgage MBS's. They borrowed overnight through "repos" (see Glossary).

5) Asset-backed commercial paper

Commercial paper is a short-term bond (three months to a year) issued by a private company. Many companies issue commercial paper to pay for inventories of raw materials (to manufacture things) or stocks of goods to sell (retailers).

In the run-up to the crisis, banks and investment banks began to issue commercial paper and using the money raised that way to buy long-term bonds, especially subprime MBS's. Commercial paper issued for this purpose was called "asset backed commercial paper" (the "assets" referred to were the bonds). This was a sort of financial intermediation, of course.

The banks and investment banks involved did this in a tricky way. They did not want to be on the hook to pay off the commerical paper if the bonds went bad. So they set up separate corporations called "shell corporations," controlled by the bank or investment bank but legally a separate corporation. The shell corporation did nothing but issue the commerical paper and buy and hold the bonds. The bank or investment bank that had set up the shell corporation would keep the profits from the spread between the return to the bonds and the yield paid on the commercial

paper. But if the bonds went bad and the shell corporation was bankrupt, the bank or investment bank was not liable to pay off the comerical paper.

See Glossary, "Asset-backed commerical paper."

6) Money-market mutual funds

started buying the asset-backed commercial paper issued by shell corporations to buy subprime MBS's.

C) Crisis

1) House prices fall

See the figure.

2) Defaults on subprime mortgages

Lots of defaults.

3) Subprime MBS's become illiquid

Of course, there began to be defaults on subprime MBS. But even before there were many defaults on the bonds, subprime MBS's generally became illiquid as investors realized that there was, in fact, considerable default risk on subprime MBS's, and that someone else might know more about that default risk - lemons problem. They also began to realize that the companies who had "insured" the bonds by being "party A" in a CDS contract might themselves default on the insurance.

b) Defaults

And, of course, there were lots of defaults on these bonds

4) Runs on financial intermediaries

a) Banks

People began to worry that banks holding MBS's would go under. People did not withdraw deposits from banks, because deposits are insured by the FDIC. But they did begin to withdraw ordinary short-term loans to banks. Thus the Fed began to make lots of LOLR loans to banks.

b) Investment banks

There were runs on investment banks: people who had been lending to the investment banks overnight refused to roll over their loans. The MBS's held by the investment banks had become illiquid. Liquidity crisis! And contagion: many financial intermedaries, including banks, had

been lending to these investment banks. One such investment bank was Bear Stearns; another was Lehman Brothers.

The Fed wanted to help with LOLR loans, but it could not lend to investment banks without invoking section 13(3). It did not want to invoke section 13(3) for fear that would cause greater panic.

The Fed engaged in some pretty fancy operations to provide LOLR help to investment banks without invoking 13(3). For example, it would make a non-recourse loan (see Glossary) to a bank on condition that the bank lend them money on to a troubled investment bank. Many investment banks became banks so that they could get access to LOLR loans.

Eventually the Fed invoked section 13(3) so that it could lend to investment banks and other nonbank financial intermediaries such as money-market mutual funds (see below).

c) Money-market mutual funds

As I said earlier, MMMFs had bought the asset-backed commercial paper issued by structured investment vehicles to acquire subprime MBS. As people began to fear defaults on the bonds they began to fear defaults on the asset-backed commerical paper so they began to fear defaults by the MMMFs and they withdrew their deposits from the MMMFs.

An important MMMF invoked its right to pay back less than 100 cents on the dollar on withdrawals. General panic ensued.

D) The Fed's response

What did the Fed do? See the readings!