Financial Crisis & FED response –

S&P Case-Shiller 20-City Home Price Index (SPCS20RSA)
Source: Standard and Poor's

Shaded areas indicate US recessions.
2012 research.stlouisfed.org
Securitization of mortgages:

*Traditional mortgages:*

Commercial bank originates the loan and holds it.

Bank’s funds come from depositors at a low interest rate; Bank lends to mortgagee at a higher rate; Bank makes profit on the spread.

But: Mortgagee may default. Originators have to evaluate the borrower and assume the risk of default.
Securitization of mortgages:

*Traditional mortgages:*

Commercial bank originates the loan and holds it.

Bank’s funds come from depositors at a low interest rate; Bank lends to mortgagee at a higher rate; Bank makes profit on the spread.

But: Mortgagee may default. Originators have to evaluate the borrower and assume the risk of default.

*Securitization:*

Mortgages (or other loans) sold to an institution that bundles them together and sells the bundle – a mortgaged back security, or MBS – to other investors.
What’s the point of securitization?

MBS’s are safer for investors than the individual mortgages:

Pooling of risks. Insures against regional problems.

A more efficient way of funneling investor money to individual borrowers. Lowering lender risk allows lower rates for individual mortgages.
What’s the point of securitization?

MBS’s are safer for investors than the individual mortgages:

Pooling of risks. Insures against regional problems.

A more efficient way of funneling investor money to individual borrowers. Lowering lender risk allows lower rates for individual mortgages.

Freddie Mack and Fanny May did most of the bundling for smaller mortgages; they also insured the buyer of the MBS against nonperformance of the loan.

Jumbo mortgages were securitized by private financial institutions; not always insured against nonperformance.
Problems:

   Originator collects fees, and just passes mortgages on.

   Little incentive to verify the borrowers ability to pay.

   (common recommendation: make originators keep part of the mortgage)
Problems:

Originator collects fees, and just passes mortgages on.

Little incentive to verify the borrowers ability to pay.

(common recommendation: make originators keep part of the mortgage)

Low down payments and ARM’s only made sense if housing prices continued to rise; an implicit assumption

low initial R’s ballooned, so you had to refinance
Problems:

Originator collects fees, and just passes mortgages on.

Little incentive to verify the borrowers ability to pay.

(common recommendation: make originators keep part of the mortgage)

Low down payments and ARM’s only made sense if housing prices continued to rise; an implicit assumption

low initial R’s ballooned, so you had to refinance

Could not do so if prices fell

Could quickly be “under water” with low down payment
Problems:

Originator collects fees, and just passes mortgages on.

Little incentive to verify the borrowers ability to pay.

(common recommendation: make originators keep part of the mortgage)

Low down payments and ARM’s only made sense if housing prices continued to rise; an implicit assumption

low initial R’s ballooned, so you had to refinance

Could not do so if prices fell

Could quickly be “under water” with low down payment

Crisis quickly spread to any firm needing short term loans: corporate paper, mmf, interbank lending; credit default swaps.
Spreads used to measure counter party risk, or the break down of interbank lending: Libor-OIS spread, TED spread

Libor Rate: an average of London bank loan offering rates
Loans are uncollateralized: Risk that borrower won't be able to pay back principle.
Spreads used to measure counter party risk, or the break down of interbank lending: Libor-OIS spread, TED spread

Libor Rate: an average of London bank loan offering rates
   Loans are uncollateralized: Risk that borrower won’t be able to pay back principle.

OIS (overnight indexed swap) Rate:
   Swaps are exchanges of income streams – a form of insurance.
   Involves no principle, just swap of interest rate streams
   OIS rate is good measure of expected money market rate over a given period.
So: Libor - OIS Rate = risk premium on principle.
   A good measure of counter party risk.

See graph of spread.

Peaks are Bear Stearns, Lehman, other bailouts.

listen to Bernanke for a discussion of bailouts; I am not an expert on these bailouts.
TED spread: 3 mo Libor - 3 mo Treasury bill rate
Best private borrowers vs govt borrowing spread
US treasuries are considered the safest of assets.
Spread measures risk premium (principle plus interest) for lending to
best private borrowers instead of the U.S. government.

See graph of spread
TED spread
The FED’s initial response was conventional interest rate policy.
FED lowered R for 2001 recession, then raised them again. Why?
Avoid inflation as economy recovered.
Avoid zero bound trap for the inevitable next recession.

What is a good “normal” level for R?
Real rate on Govt bonds must = mkt equilibrium rate.
\[ R - \pi^e \approx 2.5\% \] (this is a historical average)
\[ R = 2.5\% + \pi^e \]

FED recently announced an inflation target: \( \pi^T = 2\% \)
If FED has credibility, \( \pi^e = \pi^T = 2\% \)
So, \( R = 2.5\% + \pi^e = 2.5\% + \pi^T = R = 2.5\% + 2\% = 4.5\% \)
But, longer term rates affect aggregate demand –

Two recent non-conventional policies:
1. Try to influence expectation of future FFRs to affect long term rates:
   Example: \( 1 + R_{2\text{period}} = (1 + R_1)(1 + R_{2e}) \)
   Promise to keep \( R < .25 \) for 2 years.
But, longer term rates affect aggregate demand –

Two recent non-conventional policies:

1. Try to influence expectation of future FFRs to affect long term rates:
   Example: \(1 + R_{2 \text{period}} = (1 + R_1)(1 + R_2^e)\)
   Promise to keep \(R < .25\) for 2 years.

2. Operation twist:
   Suppose there are two money/bond mkts
   \(B\) (with \(R\)) and \(B^{LT}\) (with \(R^{LT}\))
   \(M\uparrow\) in \(B\) mkt (\(R\uparrow\)); \(M\uparrow\) in \(B^{LT}\) (\(R^{LT}\downarrow\))
   No net effect on \(M\)! (Addresses political pressures.)
Tried earlier, not deemed very successful –
The Fed gets VERY creative:

Fed’s traditional tools were not working, \( R \approx 0 \).

Recall: traditional tools expand/contract liabilities side of balance sheet.

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Reserves, ( B^{cb} )</td>
<td>Com Bank Deposits</td>
</tr>
<tr>
<td>Foreign Reserves, ( B^{*cb} )</td>
<td>Currency</td>
</tr>
</tbody>
</table>
The Fed gets VERY creative:
Fed’s traditional tools were not working, \( R \approx 0 \).

Recall: traditional tools expand/contract liabilities side of balance sheet.

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Reserves, ( B^{cb} )</td>
<td>Com Bank Deposits</td>
</tr>
<tr>
<td>Foreign Reserves, ( B^{*cb} )</td>
<td>Currency</td>
</tr>
</tbody>
</table>

review OMOs, FEIs and \( M1 = \text{multiplier} \times (\text{currency} + \text{reserves}) \)

Doesn’t matter which of the assets are used to raise/lower balance sheet.
New tools make distinctions between the (new) assets:

Make credit available to specific groups or markets

Bernanke divides them into 3 categories

1. Short-term liquidity in the lender of last resort category

Make a wider range of institutions eligible at the discount window

“hair cut” = discount rate - FFR drops from 100bp to 25bp

Overnight loans lengthened to 90 days
New tools make distinctions between the (new) assets:

Make credit available to specific groups or markets

Bernanke divides them into 3 categories

1. Short-term liquidity in the lender of last resort category

Make a wider range of institutions eligible at the discount window

“hair cut” = discount rate - FFR drops from 100bp to 25bp

Overnight loans lengthened to 90 days

Term Auction Facility: makes 3 mo loans

Term Securities Lending Facility:

lends Treasuries against less liquid collateral
New tools make distinctions between the (new) assets:

Make credit available to specific groups or markets

Bernanke divides them into 3 categories

1. Short-term liquidity in the lender of last resort category

Make a wider range of institutions eligible at the discount window

“hair cut” = discount rate - FFR drops from 100bp to 25bp

Overnight loans lengthened to 90 days

Term Auction Facility: makes 3 mo loans

Term Securities Lending Facility:

lends Treasuries against less liquid collateral

Currency Swaps with 14 other central banks:

$ reserves available central banks to lend to banks in their area
2. Help for particular key credit markets

Buy Commercial Paper

Liquidity for Money Market Mutual Funds, avoid depositor runs

Lend against securities collateralized by student loans, car loans, credit card loans, SBA loans
2. Help for particular key credit markets
   Buy Commercial Paper
   Liquidity for Money Market Mutual Funds, avoid depositor runs
   Lend against securities collateralized by student loans, car loans, credit card loans, SBA loans

The new idea (Bernanke’s idea?) seems to be these markets are now segmented:
   Normal times: change in FF and other interest rates adjust
   Now: markets are segmented and must intervene in each separately.
Bernanke’s lecture was not very forthcoming on any of this.
3. Buying longer-term securities

Government-sponsored-enterprise or GES (ie, Freddie Mack and Fanny May) debt

Longer term treasuries

Again idea is these markets are segmented:

Normal times: set one R, microeconomics of fin mkts set other R’s.
set one P, microeconomic of goods markets set other P’s

Abnormal times: microeconomics of fin mkts breaks down
have to lend in many fin mkts to bring R’s down.
The purchase of all these assets have greatly increased the size of the Fed balance sheet (and the monetary base = currency + private bank reserves) to a degree that is totally unprecedented.
Other central banks also increased their balance sheets:
Quantitative Easing vs Credit Easing

BOJ, BOE and ECB vs FED
Quantitative Easing vs Credit Easing

BOJ, BOE and ECB vs FED

Traditional Quantitative Easing:

R driven to 0, but keep on buying B, increasing bank reserves.
Quantitative Easing vs Credit Easing

BOJ, BOE and ECB vs FED

Traditional Quantitative Easing:

R driven to 0, but keep on buying B, increasing bank reserves.

Credit Easing:

Mix of assets purchased matters: FED thought credit was not being transferred across mkts. Have to lend directly in many mkts. Increases bank reserves, but also provides direct lending in particularly troubled markets.
The “exit strategy” or how to avoid a big $\pi$ as the economy recovers.

The Problem:

Fed has vastly expanded monetary base ($M + \text{bank res}$), which is now being hoarded by banks.

As economy recovers it will be lent out, increasing $M1$.

Recall: $M1 = \text{multiplier}*(\text{currency} + \text{bank dep})$
The “exit strategy” or how to avoid a big δ as the economy recovers.

The Problem:

Fed has vastly expanded monetary base (M + bank res), which is now being hoarded by banks.

As economy recovers it will be lent out, increasing M1.

Recall: M1 = multiplier*(currency + bank dep)

Raises questions about inflation

may create inflationary expectations

FED may get caught between fighting inflation and keeping R low for the recovery
The Solution:

Fed reverses the process that built up the monetary base

Sell the assets being paid back in reserves.

Some will happen naturally as short term assets expires

But, recall the build up of MBS, student loans, car loans, credit cards

toxic assets may be hard to sell, again Bernanke not to forthcoming

political pressures in certain mkt's
The Solution:

Fed reverses the process that built up the monetary base

Sell the assets being paid back in reserves.

Some will happen naturally as short term assets expires

But, recall the build up of MBS, student loans, car loans, credit cards
toxic assets may be hard to sell, again Bernanke not to forthcoming political pressures in certain mkts

Credit Easing harder to reverse than Quantitative Easing.

With QE, can just let bonds expire.

Were the ECB and others right to stick with QE?
Possible solutions (new tricks) for Fed:

1. Sell “FED bonds” collateralized by this hard to sell assets.
   - FED gets paid in reserves.
   - Not yet tried.
Possible solutions (new tricks) for Fed:

1. Sell “FED bonds” collateralized by this hard to sell assets.
   Get paid in reserves.
   Not yet tried.

2. Slow down banks from taking out their deposits at the FED
   Fed can now pay higher rate on bank reserves.
   Convert to longer term reserves; currently being tested.
Where are we now?

Challenge to central bank independence?

FED/Treasury lines blurring

Criticism about bailouts and quantitative/credit easing

Stock market getting close to levels prior to the financial crisis.
Seem to have avoided a double dip; resuming the lack luster growth that proceeded the Great Recession.
Turning the corner faster than in last recession, but much further to go.