12-02 Class 19
Dealing with Liquidity Crises

Liquidity vs Structural pbs

The creation of the crisis

Intervention 2008 (AIG, some banks) rationale for deployment of TARP

Post mortem on TARP

Saving the system

- Bad news is out
  - Enough banks (or non-bank intermediaries) are insolvent or could be insolvent
  - Deposit flight
  - Loan rollover becomes difficult
  - Asset price drops
- You have a crisis: banks do not have the resources on hand to pay their creditors
- Crisis could be either one of liquidity or structural

Liquidity crisis

- A run on the banking system that is fundamentally sound (some banks are in trouble people do not know how many).
- Short run (many) banks can't pay on their liabilities (time mismatch between bank assets and liabilities).
  - investors and depositors want to move to safe and liquid assets (cash and government securities).
  - Banks freeze lending to generate as much cash as they can.
- In the medium term (say 2 years or so) bank could make payments in full.
- Making loans to the banks is the right short run policy response
  - Since the banks are fundamentally sound, you will get your money back and minimize the disruption to the economy .
- If not then lending freeze persist and economic activity will slow

Structural Crisis

- A run on the banking system that is fundamentally unsound (some banks are in trouble people do not know how many).
- Here both in the short term and the long term banks are insolvent because they have too many bad assets.
  - Could be they made bad loans (see Mortgage crisis)
  - Could be there was a large shock to the economy (See unexpected collapse of an industry)
- If structure then making loans to the banks is the wrong short run policy response
  - You want to either take the bad loans of the hands of the banks, or liquidate the banks
  - Making them loans is going to induce them to gamble for resurrection (equity value is negative => stockholders are risk loving option holders and management even more).
- Note at the start both type look the same,
  - A few banks with problems
  - asymmetric information (the banks know more than either investors or regulators)

Who intervenes

- Central Bank vs Treasury (finance ministry)
- Simple way to distinguish:
  - Central bank deals with liquidity crises Treasury has to deal with structural crises
  - Central bank has finite resources (in particular if it cannot use the inflation tax), treasury has the power to tax
  - Central bank cannot deal with really big problems because it cannot take equity positions, Treasury can.

Why liquidity crises

- Bank has short term liabilities, long term assets that you can't sell today except at a deep discount).
- Everyone is better off they do not happen . that is why the central bank exists.
- They arise because
  - Depositors run on bank
  - Different financial intermediaries have claims on each other or inter-related claims.
  - In both case there is counterparty risk

Deregulation-Regulation

- Counterparty risk before deregulation
  - Banks are specialized and make loans with their source of funds and hold nearly all to maturity
  - Counterparty risk is limited (banks do have clear the payment system but that is small, and most of that is off loaded to creditors)
- Deregulation
  - Banks can diversify but need to mark to market.
  - So securitization
  - Then because of low interest rate want to hold 'riskier securities in their high grade asset classes.
  - But these must be insured (by insurance companies (CDS-credit default swaps) or other financial intermediaries, or by purchasing options issued by other financial intermediaries.
- Counterparty risk after deregulation
  - The need to off load risk by insuring portfolios creates counter party risk. (1) because if the counterparty fails you will need a to buy new insurance. Or (2) if the counterparty has badly managed his portfolio of claims.
  - The longer the contracts you enter into the more serious this problem is because you do not know what the counterparty will do

The best of times

- Liquidity issues are all about debt, so we care about down side (bad news)
- Risk is idiosyncratic (because the market outcomes are positive). Counterparty risk not much of an issue.
- Insurance is cheap and profitable.
  - Cheap because people are optimistic
  - Profitable because all bets pay off

The worst of times

- Insurance contracts now have real value if the counter party has the resources to pay
  - implies the counter party has lots of liquidity.
  - Relative to the set of claims it faces
- If counterpart fails then it is hard to find alternative insurance and that may mean that you have to sell assets. Because your balance sheet no longer satisfies regulators.

Finance and the banking crisis

- Recall from last time regulation that pushed banks to mark to market led to
  - MBS (mortgage backed securities)
- Then the demand for senior tranches led to
  - CDO (collaterized debt obligations)
- But holding either of these then required banks to bear some risk
  - So there was a demand for a put option (the right to sell the securities at a pre specified price) or an insurance contract
- Solution the Credit Default Swap.
  - If you own a security and it goes into default you can give it to the counterparty in the CDS and they give you face value
- All good until there is a problem with the counterparty

The crisis in numbers

- Mortgage originators
  - Here there is both liquidity and structure
- Investment banks
- Insurance companies
- National (commercial) Banks
- Liquidity?

Indy-Mac and Countrywide

- These firms had entered the mortgage business as mortgage originators
- Business model
  - Working capital from the money market
  - Collect mortgages and funds them from working capital
  - Then sell the mortgages (to issuers of MBS) and reimburse the working capital
  - Retain no interest in loans
  - Then get new round of funding
- Makes money strictly on spreads and on funding mortgages.
  - So lots of option (we have a mortgage for you).
  - Favor subprime and Alt-A (spreads larger)
- Business model ends when money market dries up and demand for such loans declines (Spring of 2008)
- Not a source of counterpart risk (no longer part of transactions…)

The investment bank problems

- Bear Stearns.
  - Run hedge funds with large long positions on the most risky parts of the mortgage market (CDOs)
  - Highly leveraged (Equity 11 billion assets 395 billion)
  - June 2007. Put up collateral for 3 billion dollar loan to bail out their (CDO) funds. Then Merril-Lynch seizes 850 million dollars of the collateral but can only realize 100 million dollars
  - July 2007 CDO funds are revealed to be worthless
  - March 2008 Bear Stearns, can't refinance. Tries to get a 25 billion dollar loan from NY-Fed that fails. Then sold to JP-Morgan for 10 a share (1.2 billion) along with a 29 Billion dollar non recourse loan. Note (this is pre Tarp)
  - Debate as to whether the firm was actually insolvent.
- Lehman Brother
  - Also a major investor in CDO (and equity tranches) also very heavily leveraged (44-1 by 2007). Faces investor flight. Its failure 9-15-2008 is usually the beginning of the crisis

The AIG problem

- AIG was the larger insurance company in the world
  - As an issuer of life insurance policies it had long held mortgages to fund policy payouts. As a traditional issuer it was long in mortgages
- It entered the securities insurance business by issuing credit default swaps.
  - This was easy to do for AIG because as a AAA rated company it did not have to post collateral against these insurance contracts
  - Good for the investors because they off load the risk of default
  - Do this for corporate bonds and MBS and later CDOs.
  - 441 billion of CDOs of which 57Billion that were subprime
- 9-16-2008.
  - AIG looses its AAA rating has to post collateral
  - Federal reserve extends a 85 billion credit facility that is entirely spend on paying out collateral requirements (in return for warrants that amount to 79% of AIG's stock. Latter will lend almost another 100 billion. (in the end the loans work out and government clears 22billion dollars)
- Note the risk management pb

Wa-Mu and Wachovia

- Late comers to the subprime market
- WaMu fails on September 2008 and is promptly sold to JPMorgan chase (at the time the big winner in all this)
  - At time of failure has 307 Billion dollars in assets of which 118 billion in mortgages of which 52 in option adjustable and 16 in subprime.
  - Did not act like Countrywide
  - Retain a lot of skin in the game (it seems to have had the game wrong)
  - Faces a massive run (17 billion in 10 days)
- Wachovia
  - Same story bigger number (but also higher residual value)

Wells Fargo and JPM-Chase

- Wells Fargo
  - Not involved in subprime by strategic decision
  - Accepts low spreads on standard mortgages and focuses on volume
  - Since crisis has emerged as dominant mortgage lender (33% of all in 2012)
- JPM Chase
  - Involved in three ways
    - As player in the CDO market (generally retained little interest)
    - As buyer of Bear Stearns and WaMu
    - As a client of AIG (and thus an indirect beneficiary of its bailout)
    - Has run into trouble of late (and is paying major fines)

Quiz 12/12

Intervention

- Before September 2008
  - Selective rescues and consolidations
  - Government has to act as lender of last resort
- Fannie and Freddie
- TARP
- Interest rates
- QE1 and QE2

Fannie and Freddie

- GSE (Government sponsored enterprises) designed to make the housing market more stable in the 1930s.
  - First owned the government but privatized in 1968 (to keep its liabilities out of the national debt)
  - By the 1970s owned about half the mortgages in the US (mostly the very safe (prime with low LTV)). Issued standard MBS against these mortgages but also guaranteed these securities
  - Regulatory changes pushed the GSE into the marginal markets to achieve higher rates of ownership for low H-O populations (minorities, the poor)
- September 2008
  - Faced with an expectation of losses at the GSEs they were taken over (government owns 80%). Two reasons.
  - First because in the short run Fannie and Freddie were insolvent, second because the government wanted to make sure there would not be a complete mortgage collapse

TARP 1.0

- Passed 10-3-2008 major piece of legislation to deal with the crisis
- Initially conceived as creating a bad loan bank.
- Ideas was to clean up the banks balance sheets by running auctions for bank assets.
- This would be efficient
  - Competition implied banks would have to deliver large amounts of bad assets per million dollar of TARP funds.
  - Problem was that it would remove lots of nominal (not marked to market) assets from bank balance sheets without removing any liabilities.
  - Marking to market (which is what the auction amounts to) was a bad idea in the liquidity crunch)
- Tarp 1.0 abandoned

Tarp 2.0

- Instead the decision was made to recapitalized the banks.
- 10/12/2008 9 CEOs of 9 largest banks are brought to Washington and ‘forced’ to take 125 billion dollars in equity, and suspend dividends. Total disbursement 250 Billion dollars. Net outstanding today 2.6 billion.
- Because investment was made as equity government benefited from recovery bet profit 23 billion (note this does not count the cost of capital)

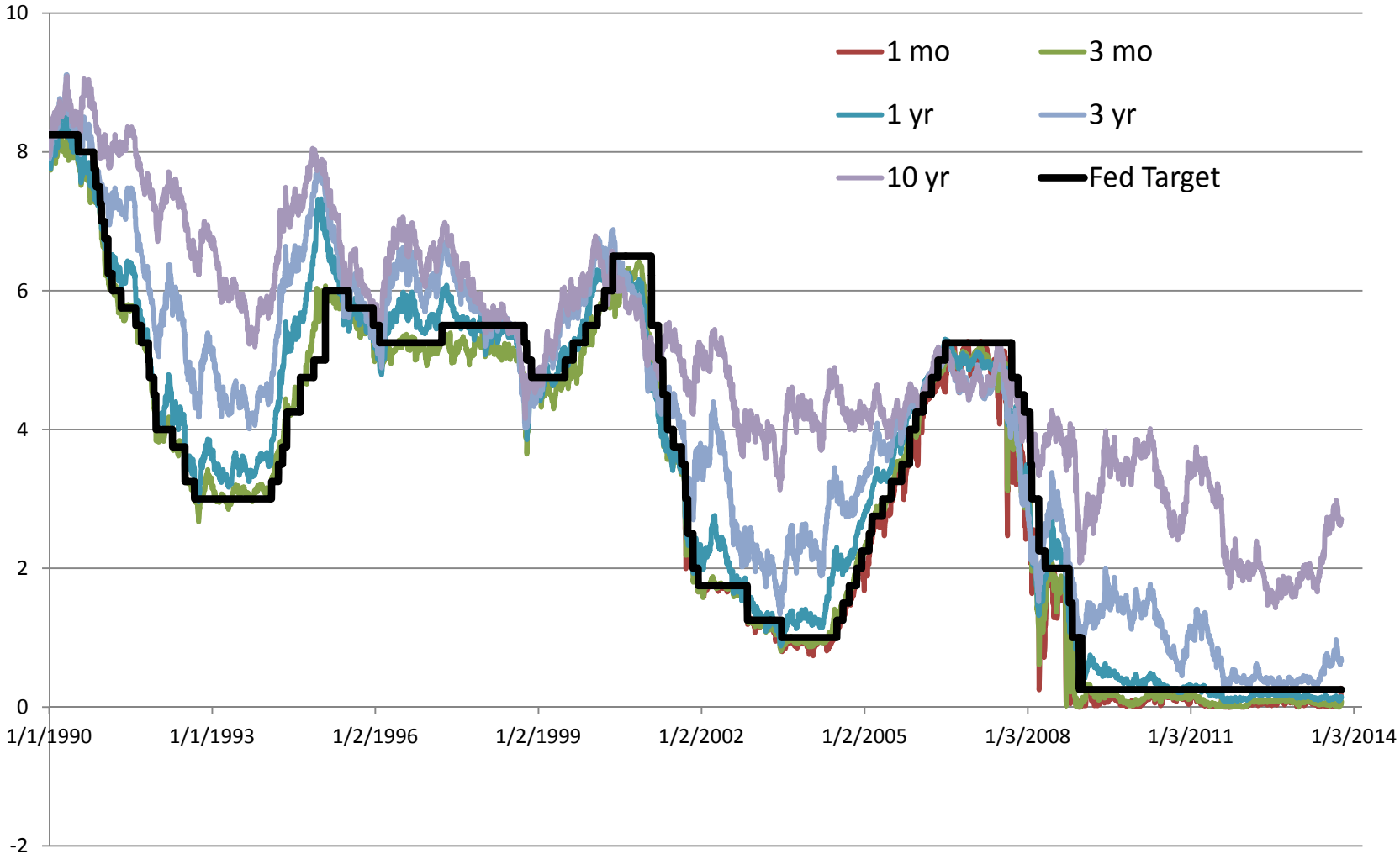
Beyond the banks

- Banks 250 Billion net profit 23
- AIG 67.8 Billion net profit 5
- Credit markets 20 Billion. net profit 3.5
- Housing support 10 Billion written off
- GM and Chrysler 79.7 Billion still outstanding 12.7 and current net loss 19.1 Billion
- Overall total disbursed was 422 total recovered 430.2
- Net of auto bailout the nominal return is positive (21 billion)
- Interest cost is hard to figure but smaller than return

Interest rates

- The classic mechanism for dealing with a liquidity crisis is to lower interest rates and for the central bank to make more credit available
- The Fed does so.
- and also provides “extraordinary credit facilities”
- Problem the investment banks (E.g. Goldman Sach or Morgan Stanley) are not commercial banks must thus convert.

Fed Target rate and Bond Yields



QE1 and QE2

- Banks are very concerned with their balance sheets so once liquidity concerns arise
- Reduction in lending and turn to safe assets
- How to make banks more willing to lend
- Buy up some of their assets so as to ‘force’ them back into the market
- This is the rationale for QE1 and QE2.
- It is more of an issue to get the economy moving again. But that is for next time

Evaluations

Quantitative easing

12-04 Class 20
Long Term Crashes

Japan since 1989; Nasdaq vs NYSE 2001-2; Older bubbles; Consequences for survivors? Reform?