The Financial Turmoil in 2007 and 2008
Government Actions

Gerald P. Dwyer, Jr.

May 2008

Caveats

- Worth repeating
- I am speaking for myself, not the Federal Reserve Bank of Atlanta or the Federal Reserve System

An Issue for Government at All?

- A period of financial instability
  - What is “financial stability”?
  - A period of financial instability is one in which a large number of agents experience reductions in their access to funds “which are not warranted by their previous behaviour, and where these crises collectively have seriously adverse macro-economic effects.” Allen and Wood (2006)

Does This Episode Qualify as Financial Instability?

- This is a period of financial instability, if this is an adequate definition
- Manifestation of problems in many unrelated markets
  - Prime mortgages
  - Corporate bonds
  - State and local financing
  - Bank loans
- Forecasts of lower real GDP growth
- There are problems with this definition

How Define Financial Instability?

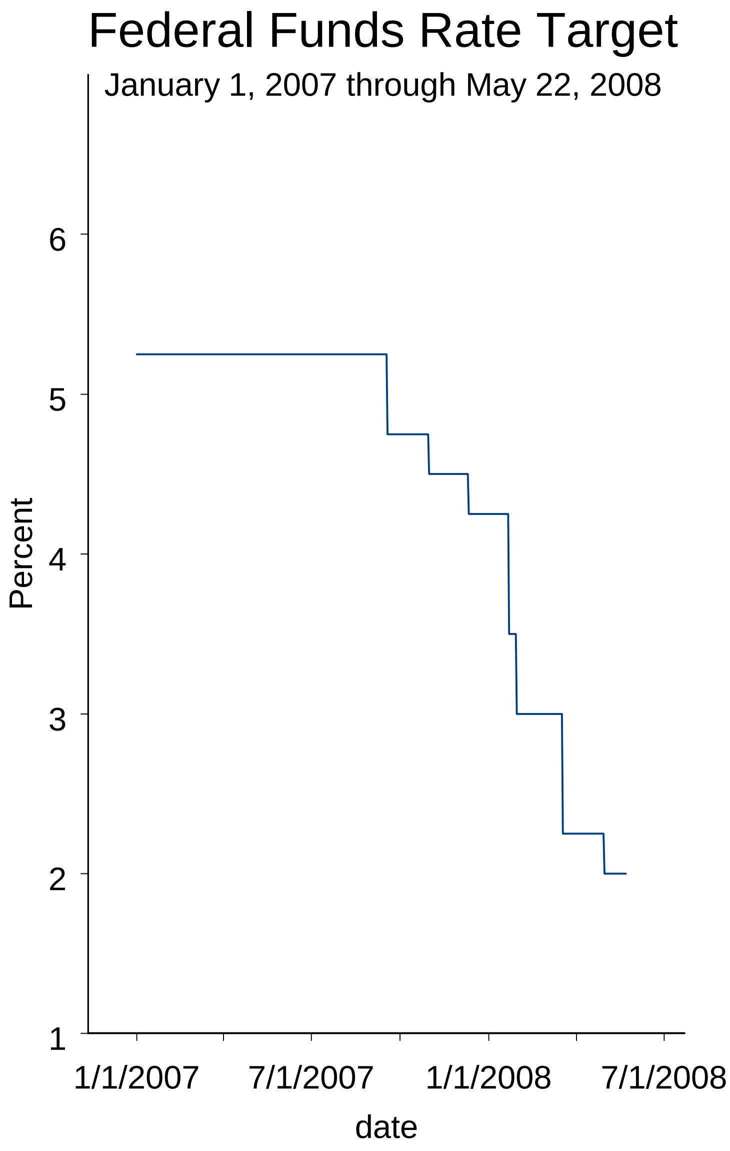
- What do you think?

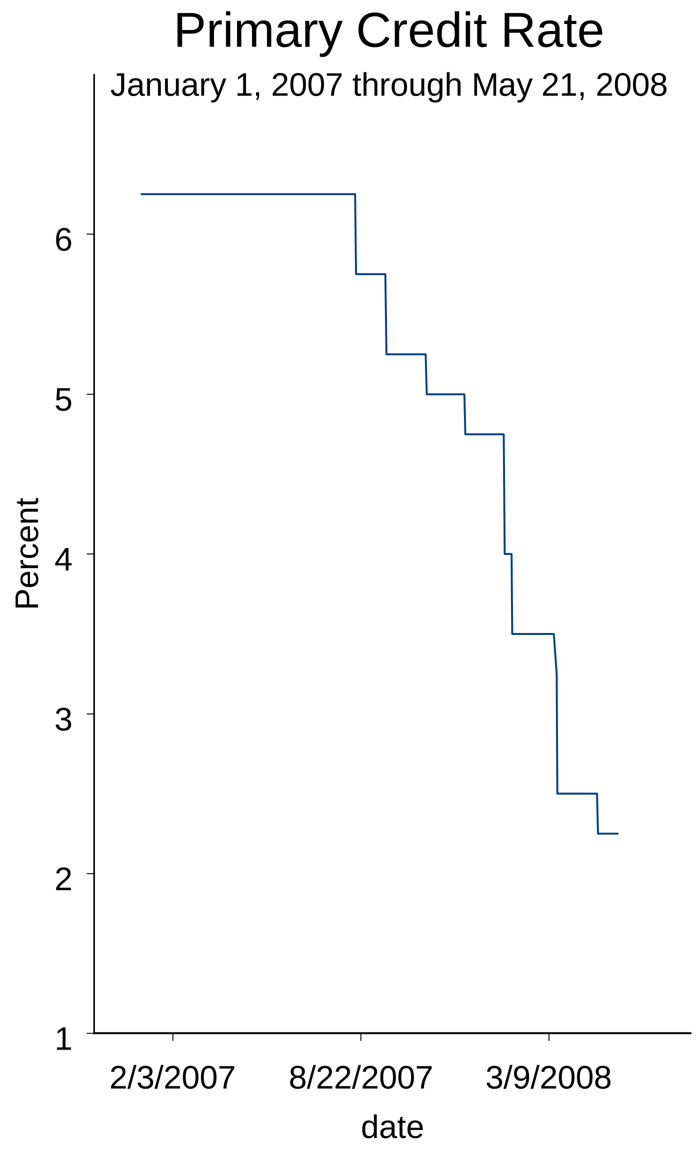
Elements of Financial Instability From Discussion in Class

- Problems in seemingly unrelated markets
- Widespread
- Possible Elements
  1. Reduction in access to funds
  2. Large losses on financial assets
  3. High volatility
  4. Liquidity discounts
  5. Undefined aspects of legal systems
- If add 6. “only if ‘large’ adverse effect on economy”, then do not need imprecise adjectives above
- Issues
  – Efficiency of economy
  – What if no effect on ‘economy’? Ignore?
    - Maybe so if actions based on utility of households’ consumption

Policy Measures

- I will focus on the U.S. because I am most knowledgeable about the U.S. and it is central
- Financial measures by Federal Reserve
- Government intervention in particular markets
  - Housing
  - Mortgages
  - Bear Stearns closing


Federal Funds Rate Target
January 1, 2007 through May 22, 2008
Percent
1
2
3
4
5
6
1/1/2007
7/1/2007
1/1/2008
7/1/2008
date


Primary Credit Rate
January 1, 2007 through May 21, 2008
Percent
1
2
3
4
5
6
2/3/2007
8/22/2007
3/9/2008
date

Federal Reserve Interest Rate Actions

- Apparent liquidity problems
  - Lowered Federal Funds interest rate over time
  - Lowered Primary Credit interest rate over time
    - Lowered Primary Credit rate 75 basis points more than Fed Funds rate

Lowering of Rate versus Willing to Lend Funds to “Solvent” Institutions

- Traditional advice: Lend freely at a penalty rate
- Loans were made at lower rates than rates before crisis
- Possible reasons to do this
  - Signal willingness to lend
  - Economic growth was decreasing
    - Partly related to decrease in residential investment
    - By 2008, possibly related to increased difficulty obtaining financing
- Possible reasons not to do this
  - Assisting otherwise insolvent institutions
  - Making such loans an attractive source of funding

Discount Window (Primary Credit)

- Perceived “stigma” associated with borrowing
  - Borrowing at a penalty rate 100 basis points over market Federal Funds rate
  - Sufficiently little borrowing that it was perceived that market participants could figure out who was paying a penalty for funds
  - Such borrowing could immediately signal problems with credit worthiness of borrower and create problems for the borrowing bank

Initiatives to Lend Funds to Institutions

- Made funds available through auctions
- Increased term of lending
- Increased securities accepted
- Increased institutions that could borrow

New Liquidity Programs Introduced by Federal Reserve

- Term Auction Facility (TAF)
- Term Repurchase Agreements
- Term Securities Lending Facility (TSLF)
- Primary Dealers Credit Facility (PDCF)

Term Auction Facility

- Announced December 13
- Auction of funds to commercial banks through auction
- Fixed term of 28 days

Term Repurchase Agreements

- Announced March 7
- Provision of funds usually by overnight contracts (repurchase agreements)
- Term extended to 28 days

Term Securities Lending Facility

- Announced March 11 to begin March 27
- Swap Treasury and Agency securities held by Federal Reserve for other securities including AAA mortgage CDOs
- All primary dealers eligible
  - Primary dealers trade Federal and Agency securities with the New York Federal Reserve
  - Investment banks in addition to commercial banks

Bear Stearns Developments March 10-14

- Bear Stearns financed most of its portfolio of assets by overnight borrowing
- Counterparties became concerned about Bear’s ability to repay

Bear Stearns and J.P. Morgan

- March 14
- Federal Reserve lent $30 million to J.P. Morgan which relent the funds to Bear Stearns
  - Bear Stearns was an investment bank
  - J.P. Morgan has a commercial bank (Chase)
  - Federal Reserve has authority to lend to commercial banks, not investment banks (in the normal course of events)
- Nonrecourse loan
  - If Bear defaulted on paying to J.P. Morgan, the Fed could not sue J.P. Morgan to obtain payment
  - Effectively a loan to Bear Stearns from New York Federal Reserve
  - Approved by Board of Governors

Bear Stearns Purchased by J.P. Morgan

- Weekend of March 15-16
- J.P. Morgan agrees to buy Bear Stearns
  - Price of $2 per share, later increased to $10 per share
  - Earlier prices of Bear Stearns stock
    - $70 per share in February, 2008
    - $153.95 on June 1, 2007

Bear Stearns, J.P. Morgan and Federal Reserve

- Federal Reserve loan to J.P. Morgan relent to Bear Sterns interpreted as backed only by Bear Sterns assets used as collateral
- March 20, Wednesday
  - – Loan of $30 billion to J.P. Morgan changed from entirely nonrecourse to requiring J.P. Morgan to bear the first $1 billion of losses on assets

Primary Dealer Credit Facility

- March 16 announcement
- Beginning March 17, Primary Dealer Credit Facility to begin
  - Extended loans to primary dealers even if not commercial banks
  - Will exist for at least six months
  - Basis for creating this facility is a Depression-era law
- Lowered discount rate another 25 basis points relative to Fed Funds rate
- Increased maximum maturity of primary credit loans from 30 days to 90 days

Increase in Collateral for TSLF

- May 2
- Primary dealers may now pledge AAA-rated asset-backed securities
  - RMBS and CMBS and Agency collateralized mortgage obligations already eligible
  - Now asset-backed securities for non-mortgage financial assets
    - Student loans, Auto loans, Credit cards

Foreign Central Banks

- Foreign central banks have been borrowing dollars from the Federal Reserve to lend to commercial banks in Europe
- Probably more important than commonly realized
    - Foreign commercial banks have substantial losses on U.S. dollar denominated assets such as CDOs

Defaults and Foreclosures

- U.S. Treasury
- U.S. Congress
- Federal Reserve

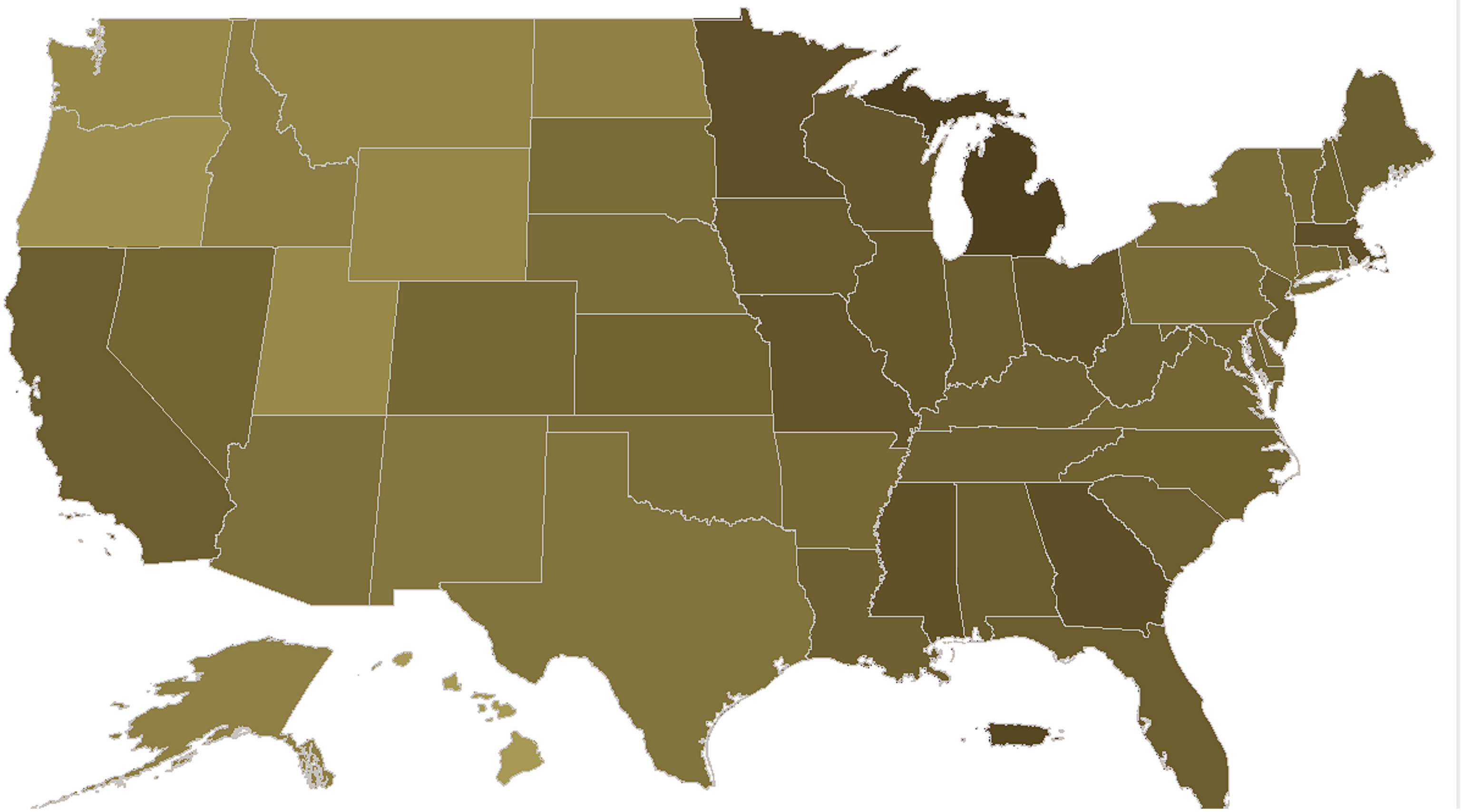
U.S. Treasury

- Negotiated agreement with lenders on how to handle certain subprime borrowers in danger of defaulting
  - Based on resets of adjustable rate mortgages
  - Became less relevant as general level of U.S. dollar denominated interest rates fell

U.S. Congress

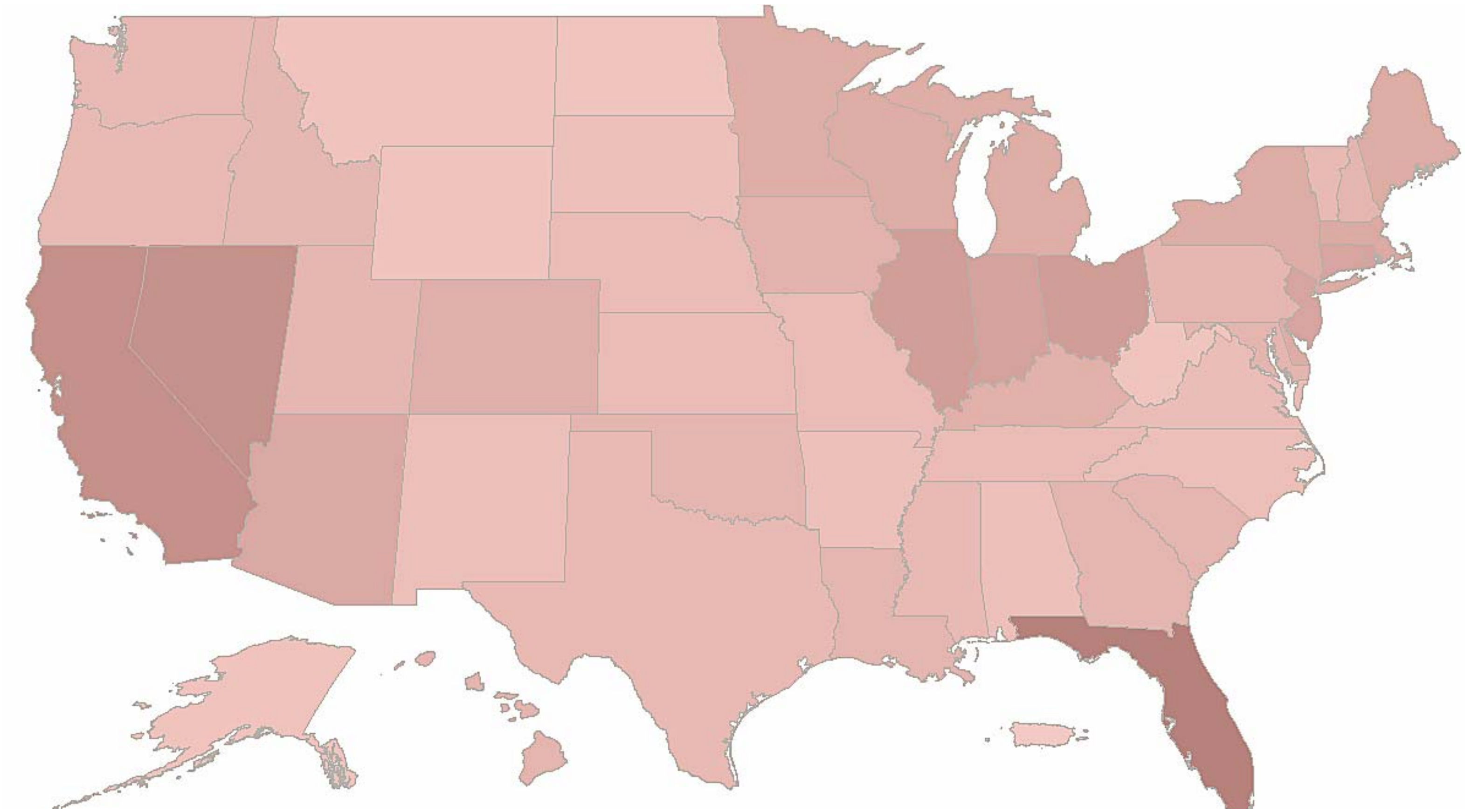
- Proposals to have U.S. government (taxpayers) bear risk of default
  - Holder of mortgage – prime or subprime – takes a loss
  - U.S. government acquires mortgage and takes risk of additional loss
  - Only some borrowers would be eligible
  - Not clear how many people would benefit
- Defaults are geographically concentrated

Late Payments on Subprime Mortgages in 2007



Source: Federal Reserve Bank of New York website, May 24, 2008

Foreclosures on Subprime Mortgages in 2007



Source: Federal Reserve Bank of New York Website, May 24, 2008

House Price Decreases

- Concentrated geographically
- Similar geographic distribution
  - Not identical, similar
- All areas with subprime mortgage problems have decreases in house prices

Federal Reserve and Foreclosures

- Federal Reserve is working with community groups to inform people in financial difficulties about options
  - Useful to borrowers
    - Information not obvious to some
    - Many borrowers owe substantially more than the house is worth
  - An activity best done by a central bank?

Is It Over?

- Not over
  - More financial problems may surface – "You never know."
  - U.S. residential construction at a low level
  - Likely to continue for some time
  - Flat to falling house prices

Is It Over?
Financial Markets

- The worst financial-market problems may be behind U.S.
  - Prices of higher-rated CDOs increasing
  - Risk spreads on corporate bonds decreasing
  - CDOs are liquid because they can be traded for Treasury securities with Federal Reserve
    - If traded at market prices, cost of exchange to holder of CDO is foregone interest on margin required

Is It Over?
Economy

- Recession?
  - I think more than one quarter of negative GDP growth in the U.S. is unlikely
  - Second quarter 2008 will be low or negative growth
- U.S. households still will feel pain
  - Exports increasing
  - Household consumption falling or flat

What About Europe?

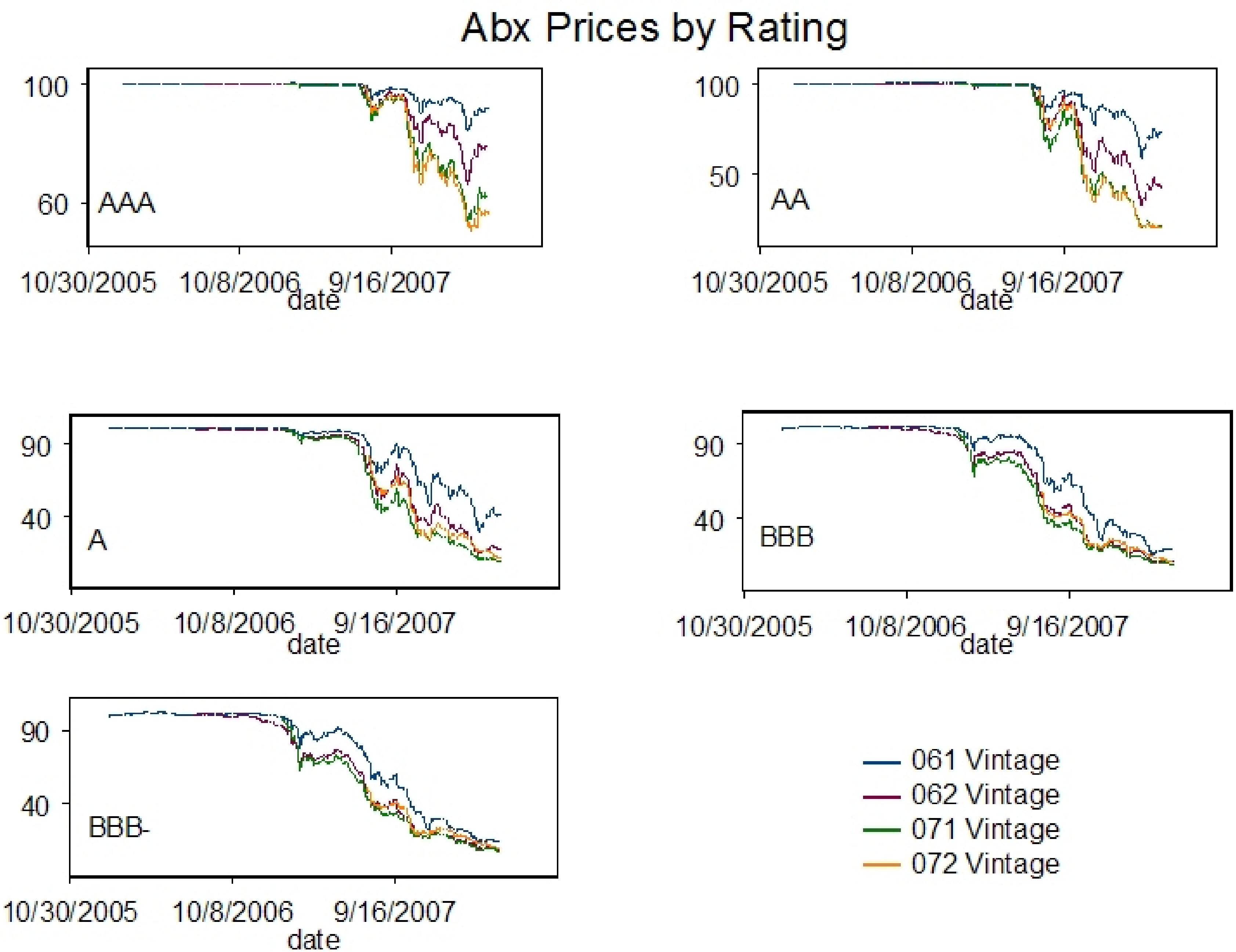
- Prices of residences falling
  - A lot of non-owner-occupied housing
  - Perhaps a fair amount of “speculative” ownership
- Holdings of mortgages by banks
  - Serious problem in U.K.
  - Spain?

Summary of Policy Actions

- Federal Reserve played biggest role in financial turmoil
- Lowered interest rates
  - Lowered Federal Funds rate from 5.25 percent to 2.00 percent
  - Lowered Primary Credit Rate from 6.25 percent to 2.25 percent
- Increased lending to institutions
  - Made funds available through auctions
  - Increased term of lending
  - Increased securities accepted
  - Increased institutions which could borrow

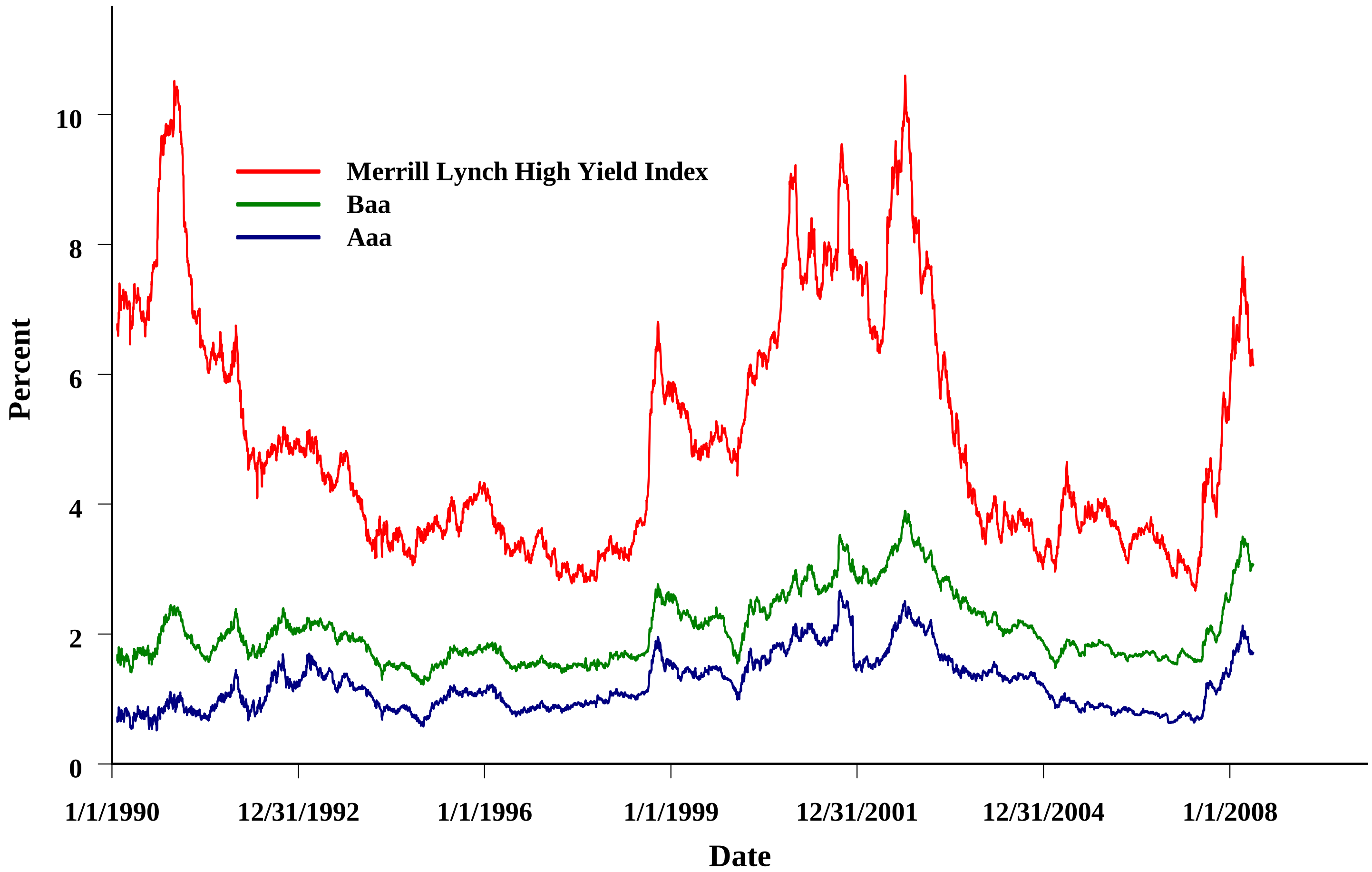
Were These Actions Helpful?

- Lower Federal Funds rate
  - Not necessary to provide liquidity
  - Some estimates suggest it is lower than would usually be expected given state of economy and forecasts
- Increased Funding
  - Exchange of Treasury and Agency securities for CDOs seems to have been associated with improvement
  - Simultaneous with Bear Stearns purchase
  - Simultaneous with Federal Reserve assistance of acquisition


Abx Prices by Rating
AAA
100
60
AA
100
50
A
90
40
BBB
90
40
BBB-
90
40
10/30/2005
10/8/2006
9/16/2007
date
061 Vintage
062 Vintage
071 Vintage
072 Vintage

Corporate Bond Spreads over Ten-Year Treasury Yield

February 1, 1990 through May 19, 2008



Were These The Right Actions?

- Use standard economic theory to define "right"
- Pro
- Con

Market-value Accounting versus Book-value Accounting

- Increases in liquidity discounts appear as losses
- Lowers capital
- Constrains firms' actions
  - Raise capital at temporarily disadvantageous prices
  - Hold fewer assets
    - Sell assets at disadvantageous prices
    - A bank makes fewer loans
- Arguably, problem is market-value accounting combined with other rules that do not recognize the implications of market-value accounting
- Changing other rules probably is better solution than going back to arbitrary book-value accounting