Economic Advisory Panel Meeting
November 21, 2008

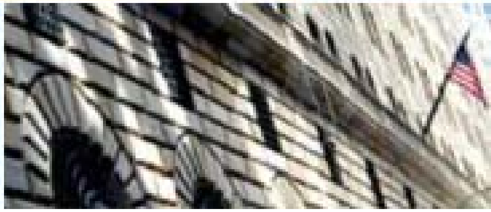
Agenda:

Overview of FRBNY Central Scenario
(Dick Peach)

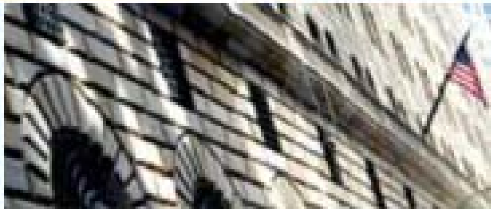
Policy Responses to the Crisis
(Jamie McAndrews)

Risks to Central Scenario
(Simon Potter)

Go-round on economic policy



Overview of FRBNY Central Scenario



Dick Peach

FRBNY Outlook

November ’08
(April ‘08)

Q4/Q4 growth rate	**2008H1 (AR)**	**2008H2 (AR)**	2008	2009	2010
GDP	1.8 (-0.8)	-2.0 (2.8)	-0.1 (1.0)	0.2 (3.0)	2.5 --
Total PCE Inflation	3.9 (3.4)	1.6 (2.0)	2.8 (2.7)	1.4 (1.7)	1.7 --
Core PCE Inflation	2.2 (2.0)	2.1 (1.8)	2.2 (1.9)	1.5 (1.8)	1.5 --
Unemployment (end of period level)	5.3 (5.6)	6.6 (6.0)	6.6 (6.0)	8.1 (5.6)	8.3 --

FRBNY Outlook: Contributions to GDP Growth

November '08
(April '08)

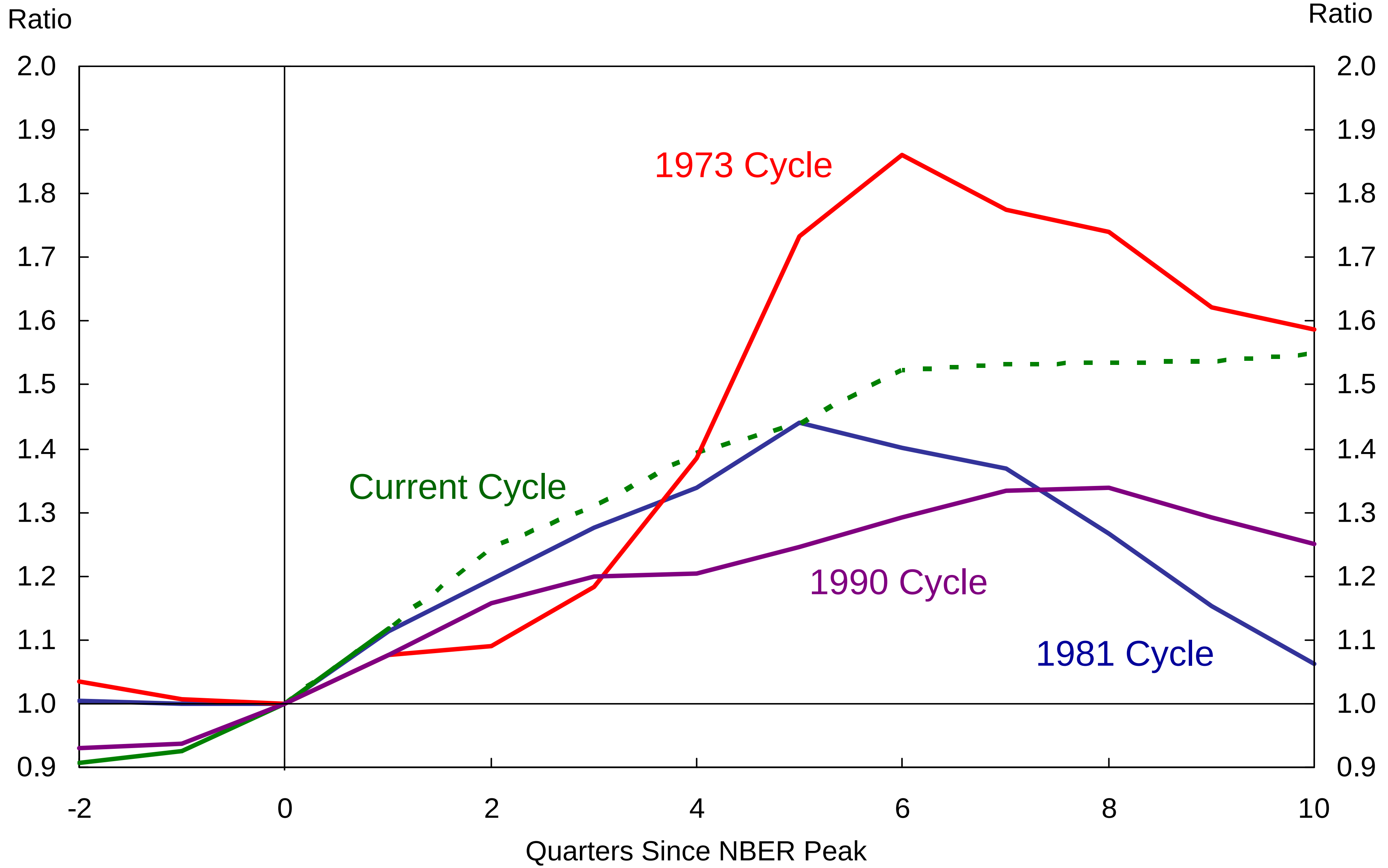
Q4/Q4 growth rate	2008	2009	2010
GDP	-0.1 (1.0)	0.2 (3.0)	2.5 --
Consumption	-1.0 (1.2)	0.6 (1.9)	1.6 --
Residential Investment	-0.8 (-0.9)	-0.4 (0.3)	0.1 --
Business Fixed Investment	0.1 (0.1)	-1.1 (0.4)	0.7 --
Inventory Investment	-0.5 (-0.1)	0.3 (0.3)	0.0 --
Net Exports	1.5 (0.4)	0.4 (-0.1)	-0.5 --

Key Features of the Forecast

- Unemployment Rate
- Housing Construction and Prices
- Consumer Spending
- Fiscal Policy

Unemployment Rate

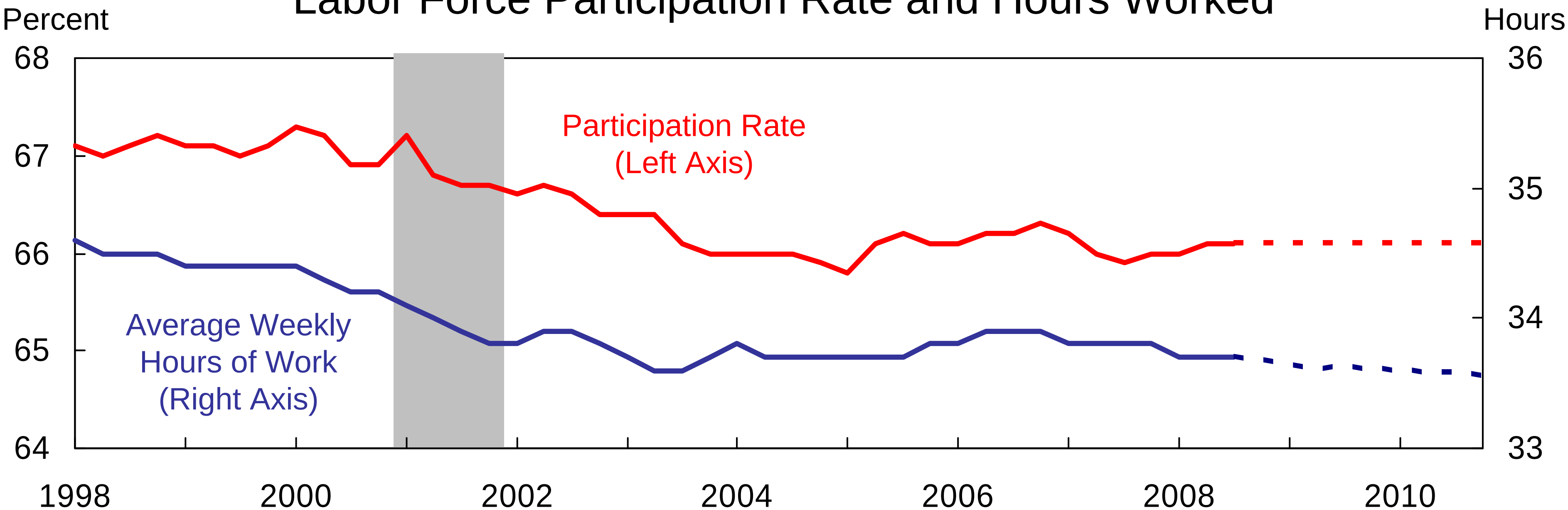
(Series Set to 1.0 at NBER Peak)



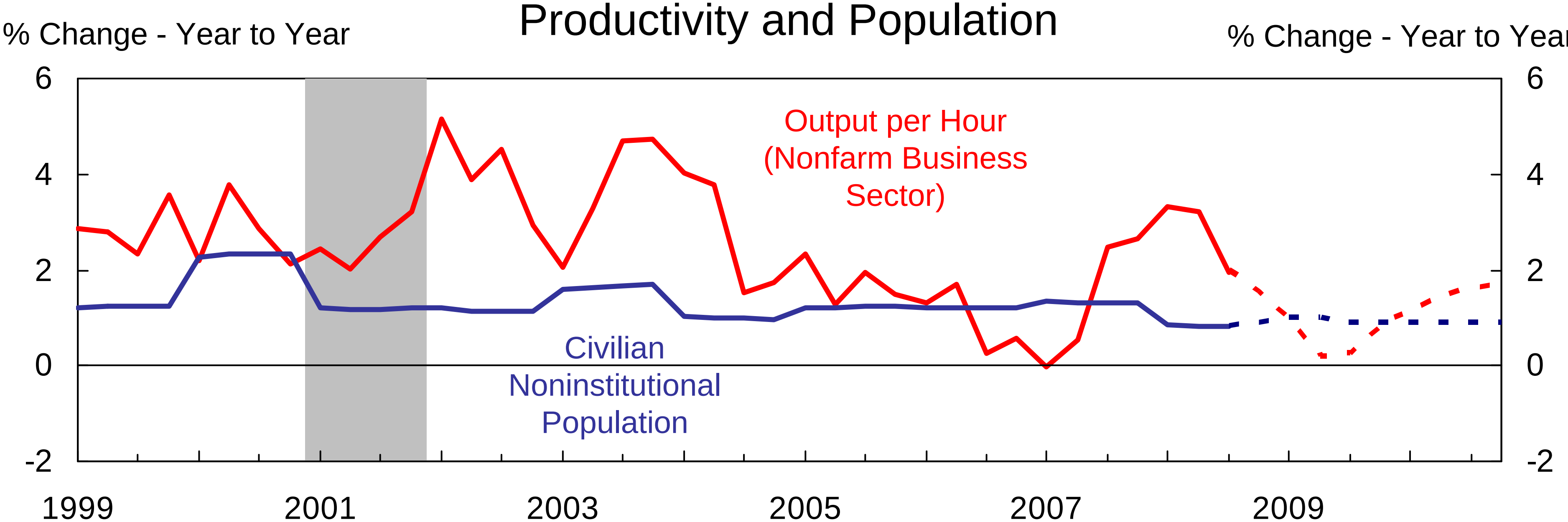
Source: Bureau of Labor Statistics

Note: Dashed line represents FRBNY forecast

Labor Force Participation Rate and Hours Worked



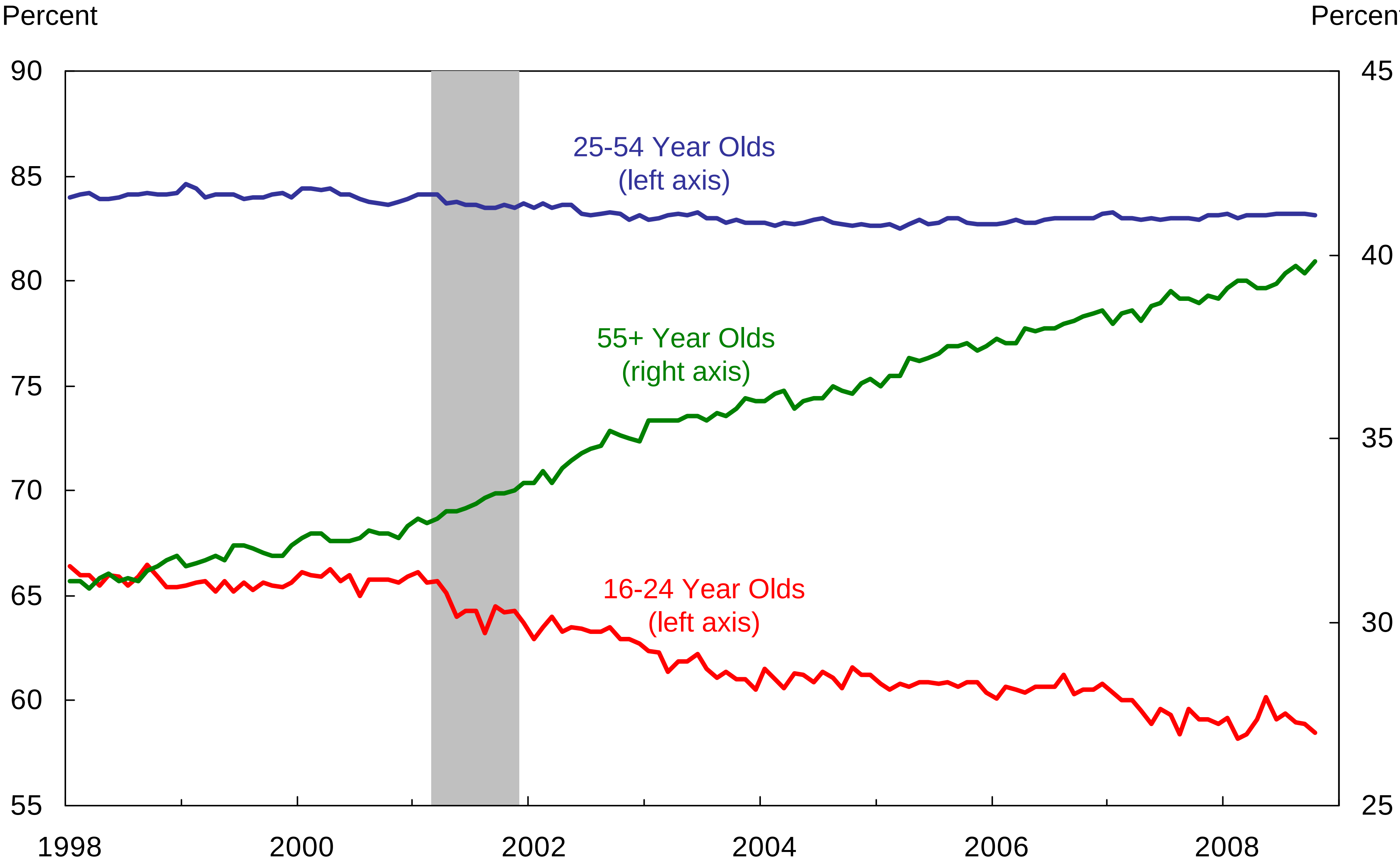
Productivity and Population



Source: Bureau of Labor Statistics

Note: Dashed lines represent FRBNY forecasts.
Shading represents NBER recession.

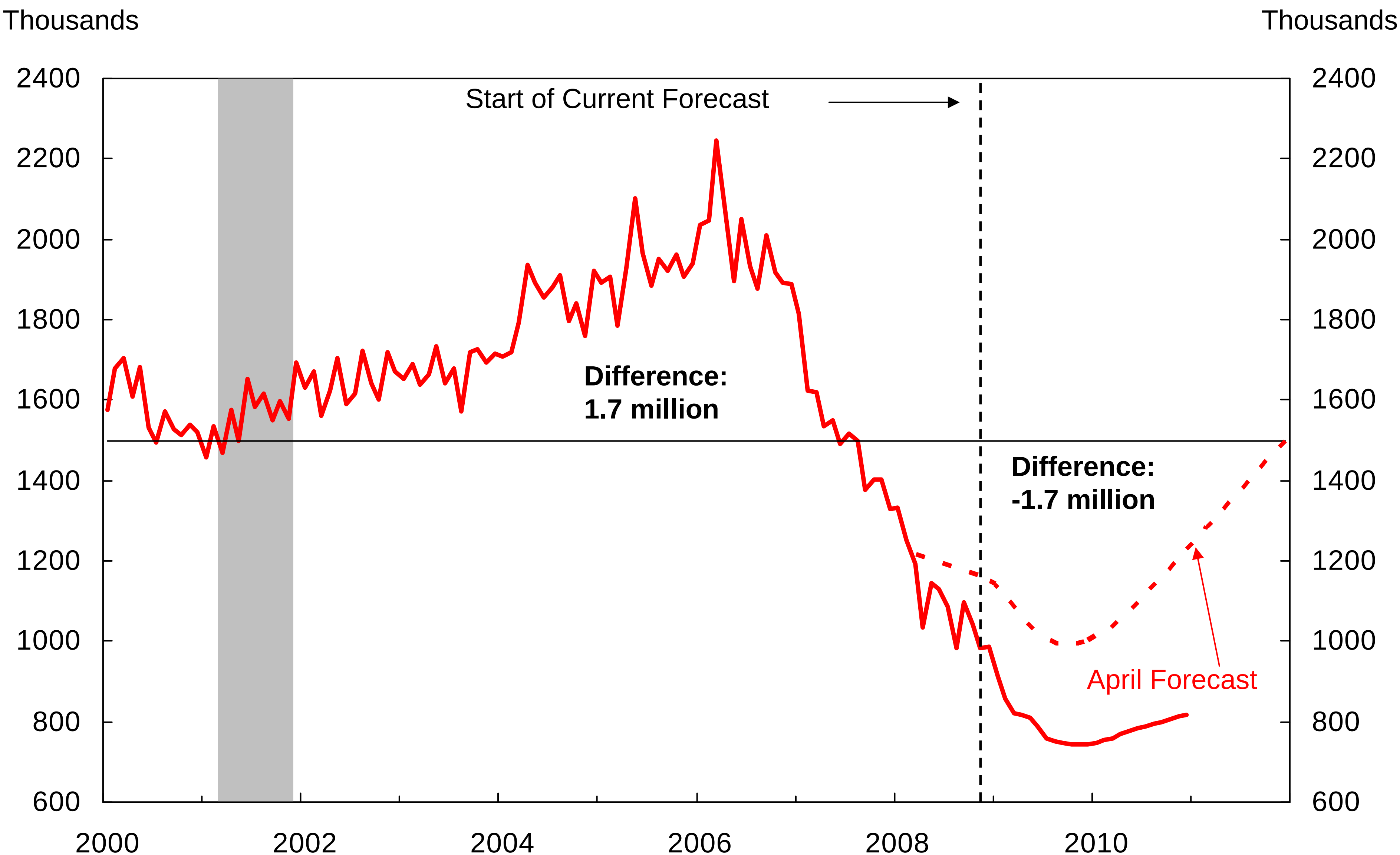
Labor Force Participation Rate



Source: Bureau of Labor Statistics

Note: Shading represents NBER recession.

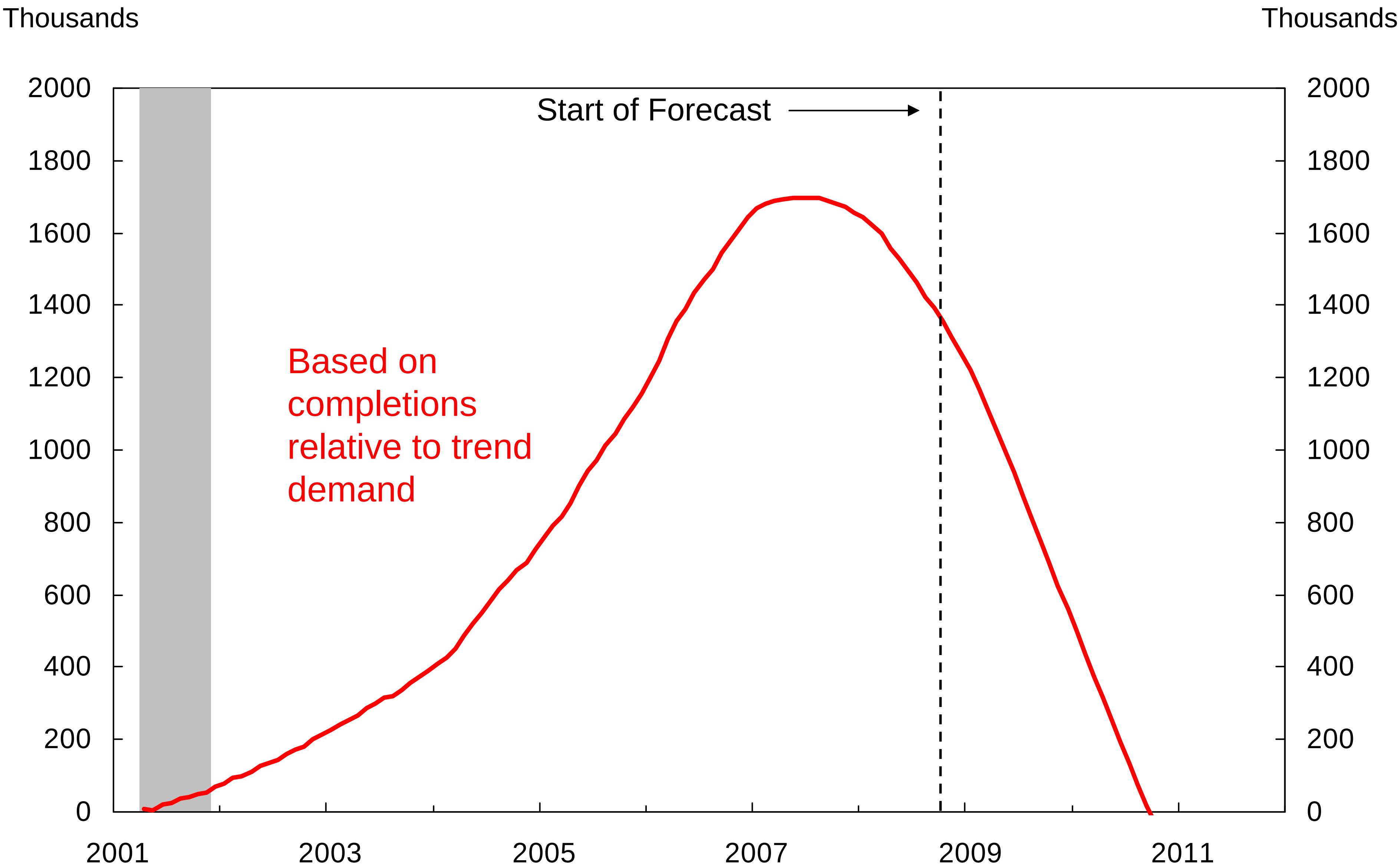
Housing Completions



Source: Census Bureau

Note: Trend demand for housing completions based on current population growth and 250,000 units per year of replacement demand. Shading represents NBER recession.

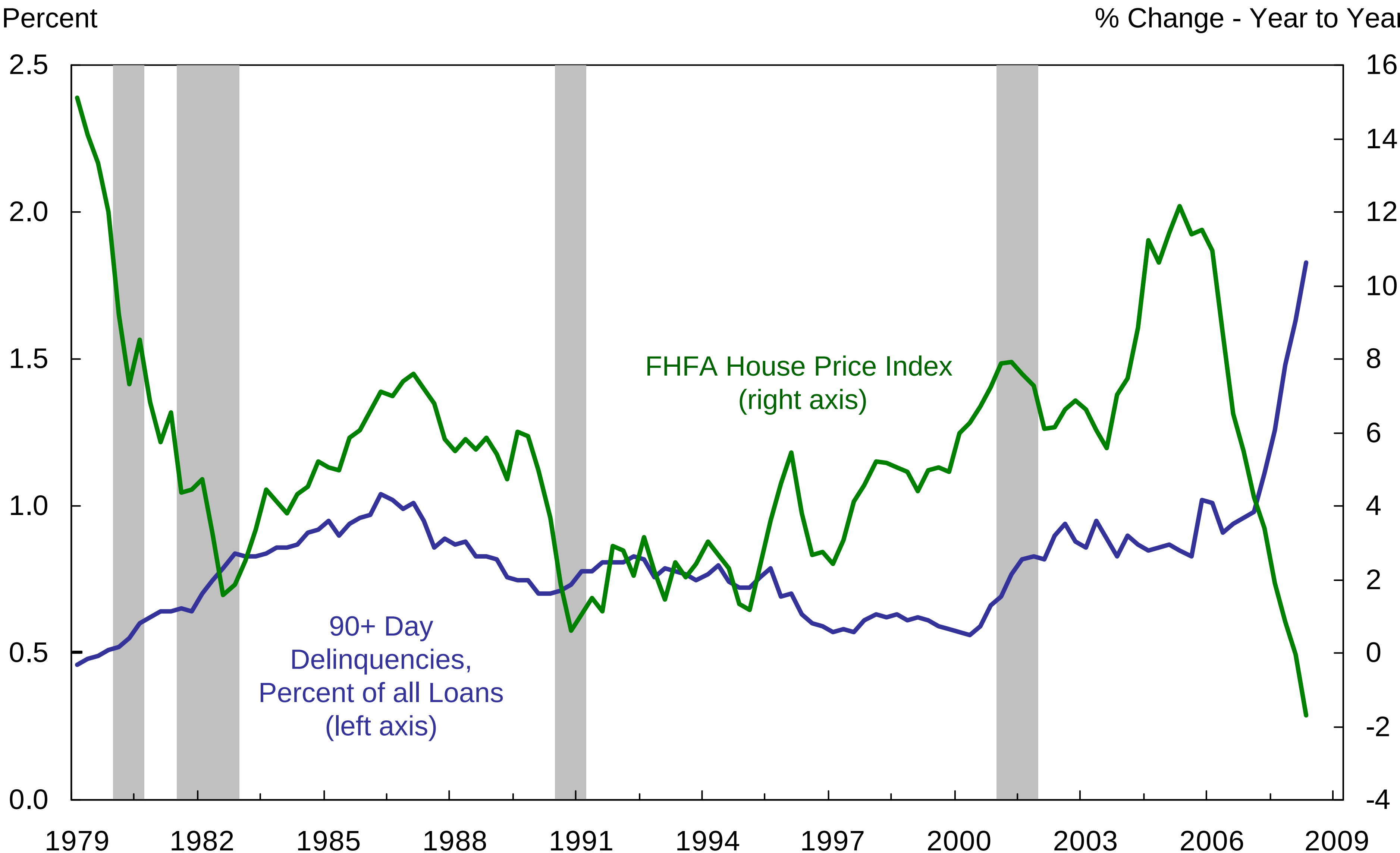
Measures of Excess Supply of Housing



Source: Census Bureau

Note: Forecast based on housing completions relative to trend demand. Shading represents NBER recession.

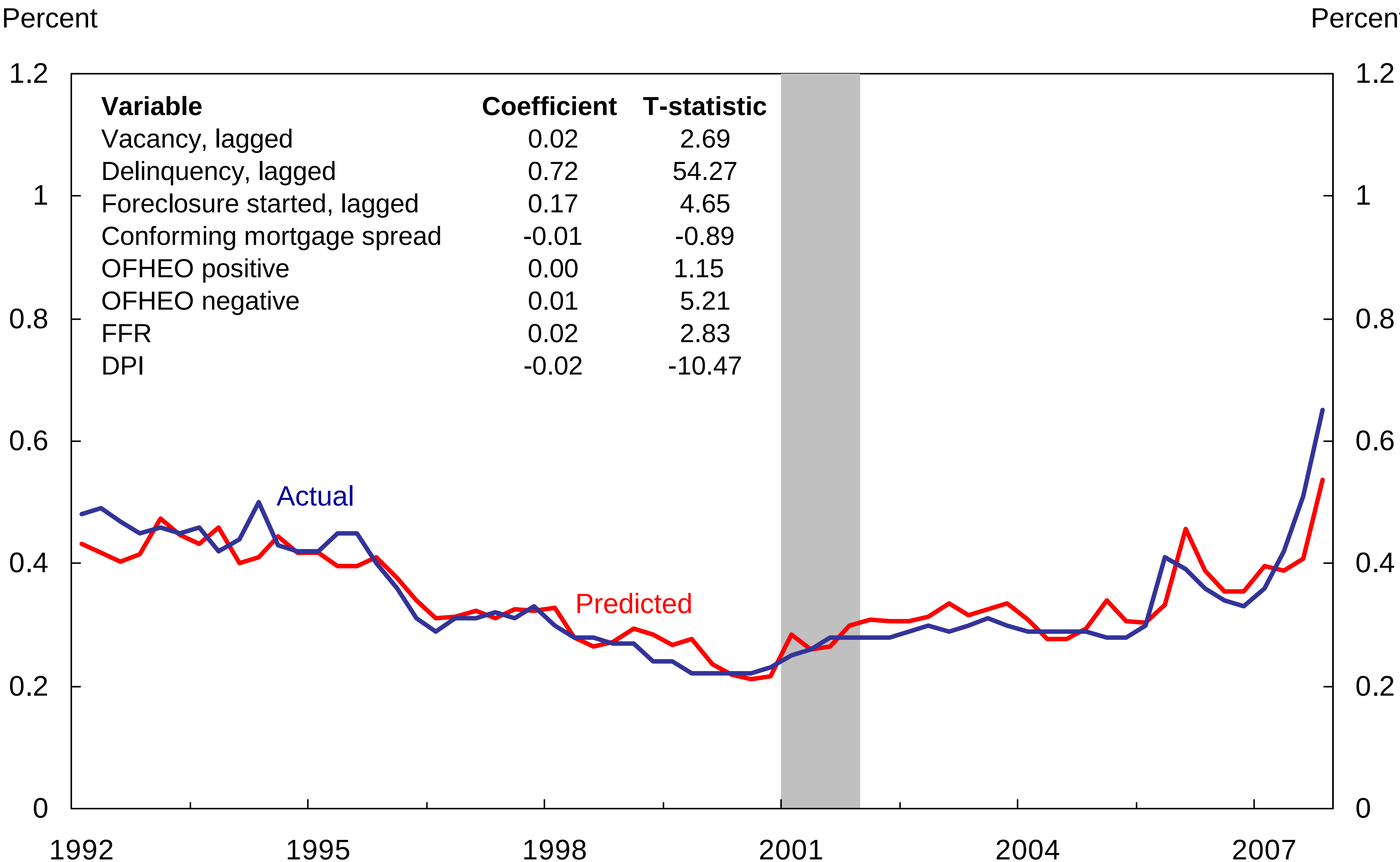
90+ Day Delinquencies and FHFA Price Index



Source: Mortgage Banker's Association and FHFA

Note: Shading represents NBER recessions.

90+ Day Delinquencies

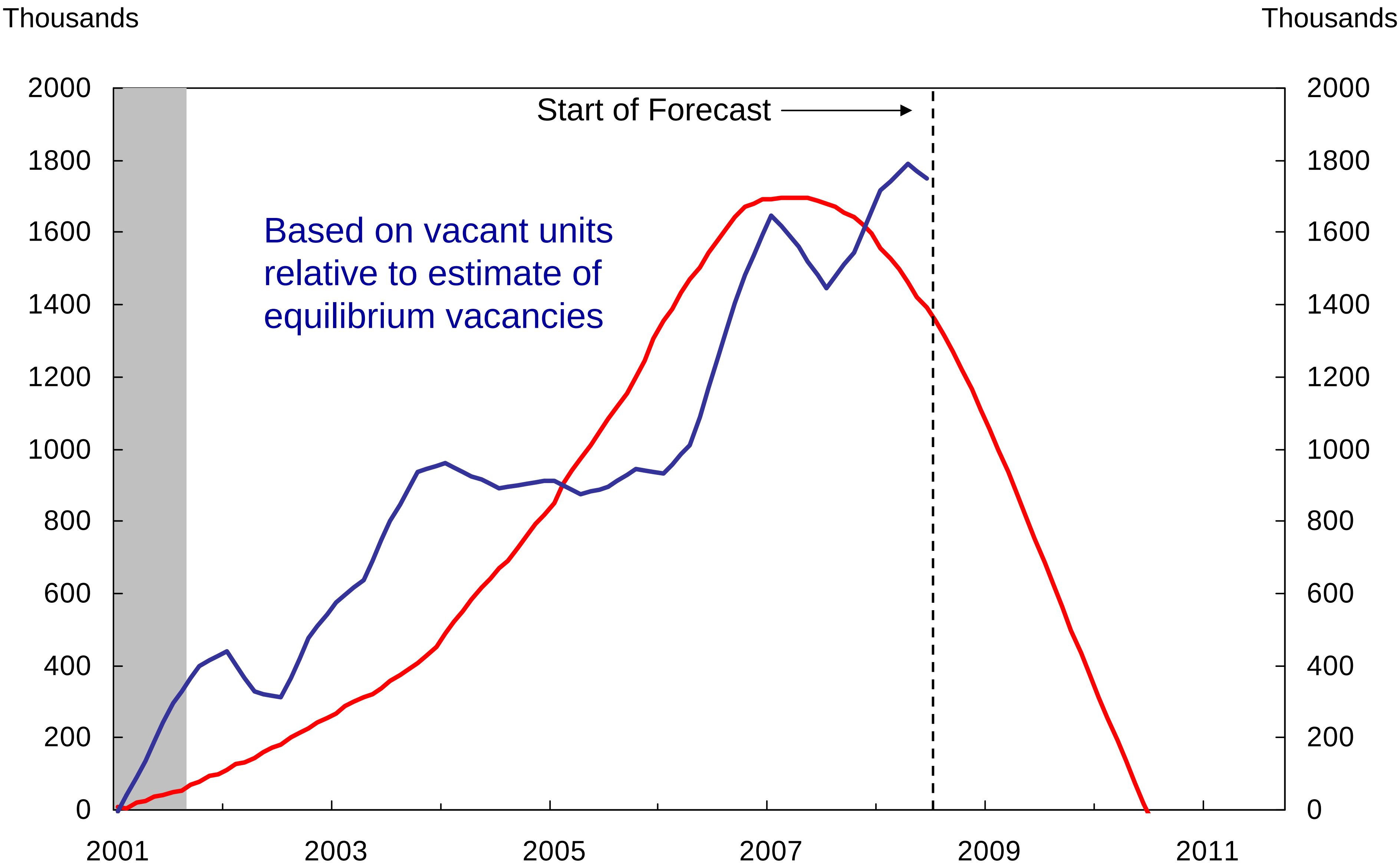


Variable	Coefficient	T-statistic
Vacancy, lagged	0.02	2.69
Delinquency, lagged	0.72	54.27
Foreclosure started, lagged	0.17	4.65
Conforming mortgage spread	-0.01	-0.89
OFHEO positive	0.00	1.15
OFHEO negative	0.01	5.21
FFR	0.02	2.83
DPI	-0.02	-10.47

Source: MBA & Author's Calculations

Note: Shading represents NBER recession.

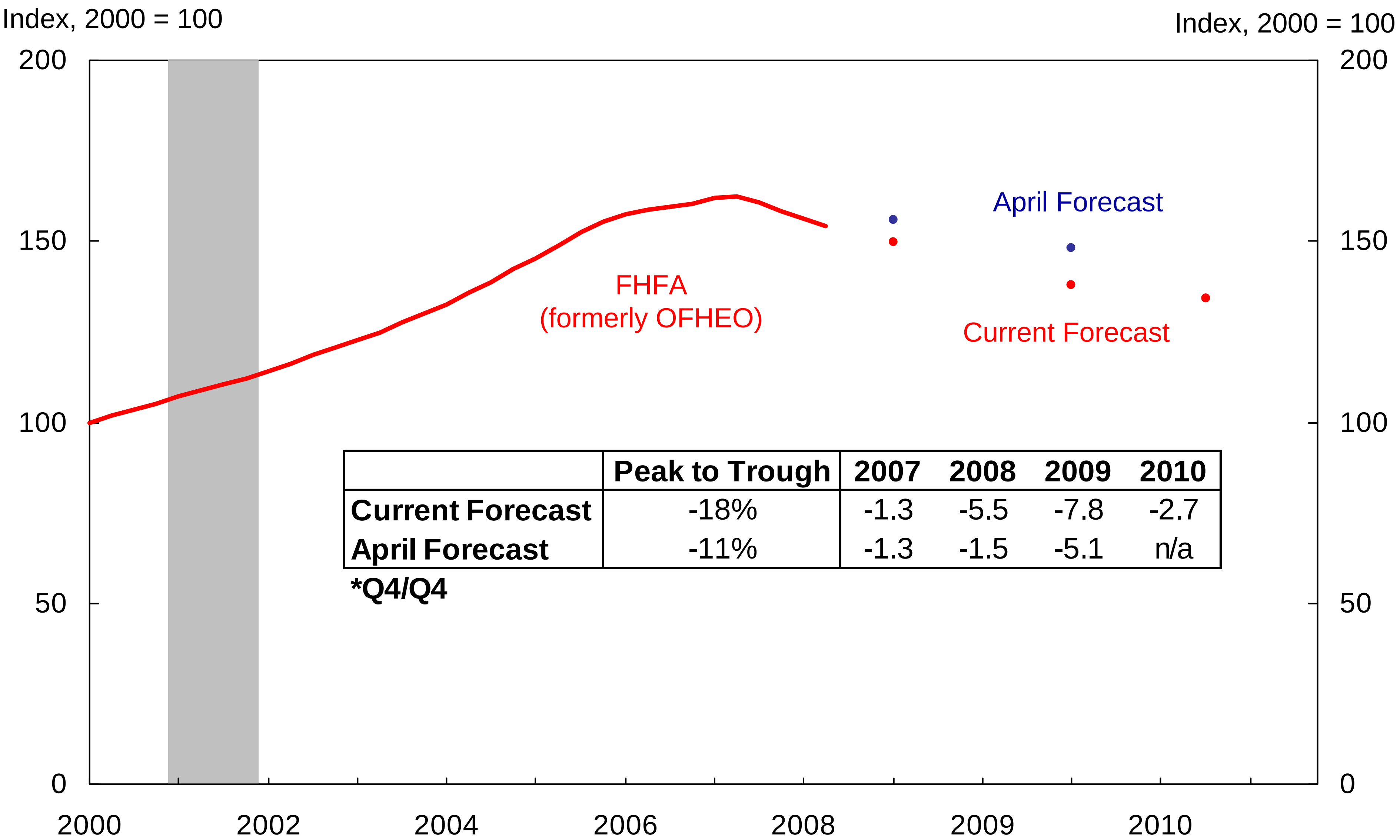
Measures of Excess Supply of Housing



Source: Census Bureau

Note: Red line based on construction data; blue line based on vacant homes relative to their equilibrium rate. Shading represents NBER recession.

Actual and Projected House Price Indices



	Peak to Trough	2007	2008	2009	2010
Current Forecast	-18%	-1.3	-5.5	-7.8	-2.7
April Forecast	-11%	-1.3	-1.5	-5.1	n/a

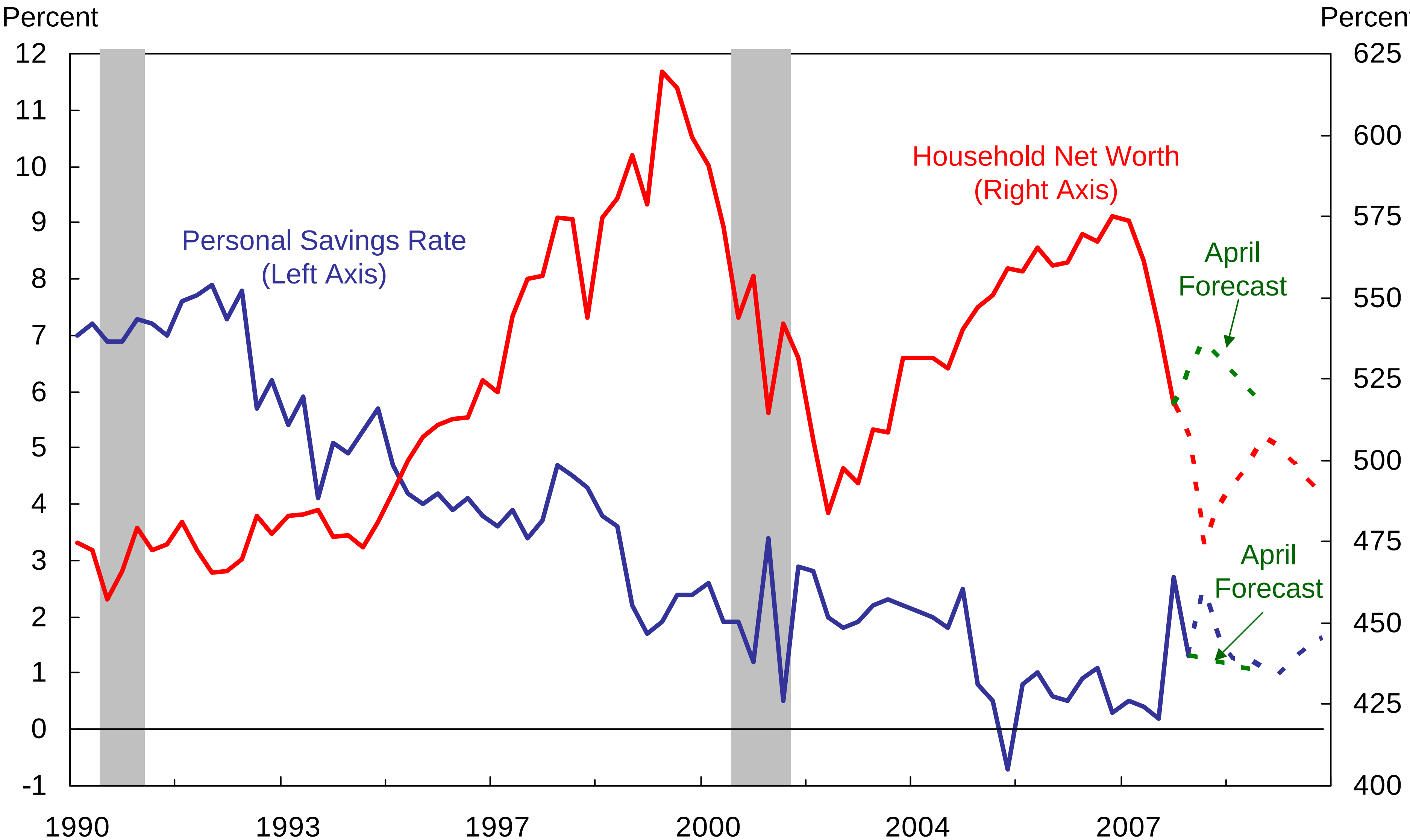
***Q4/Q4**

Source: FHFA, FRBNY Calculations

Note: Dots represent forecasted values.
Shading represents NBER recession.

Personal Savings Rate and Household Net Worth

(Percent of Disposable Personal Income)



Source: FRB and BEA

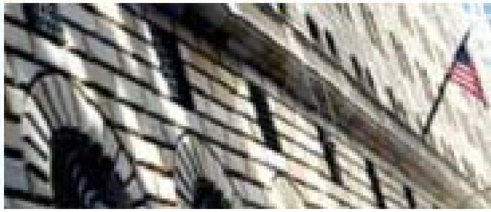
Note: Dotted lines represent current FRBNY forecasts.
Shading represents NBER recessions.

Fiscal Policy Assumptions

- Some blend of HR 7110/S 3689 is enacted in 2009Q1.

	Estimated Effects on Outlays / Revenues (Billions of Dollars)			
	House		Senate	
Outlays	2009	2010	2009	2010
Infrastructure	9.8	12.3	10.6	13.2
State Fiscal Relief (Medicaid)	12.2	2.5	29.7	9.2
Extended Unemployment Benefits	6.2	-	5.7	-
Food Stamps	2.6	-	4.3	-
Revenues				
Auto Sales Tax / Interest Deductions	-	-	-1.3	-3.4
Total	30.8	14.8	51.6	25.8
	0.2%		0.4%	

Policy Responses to Financial Crisis

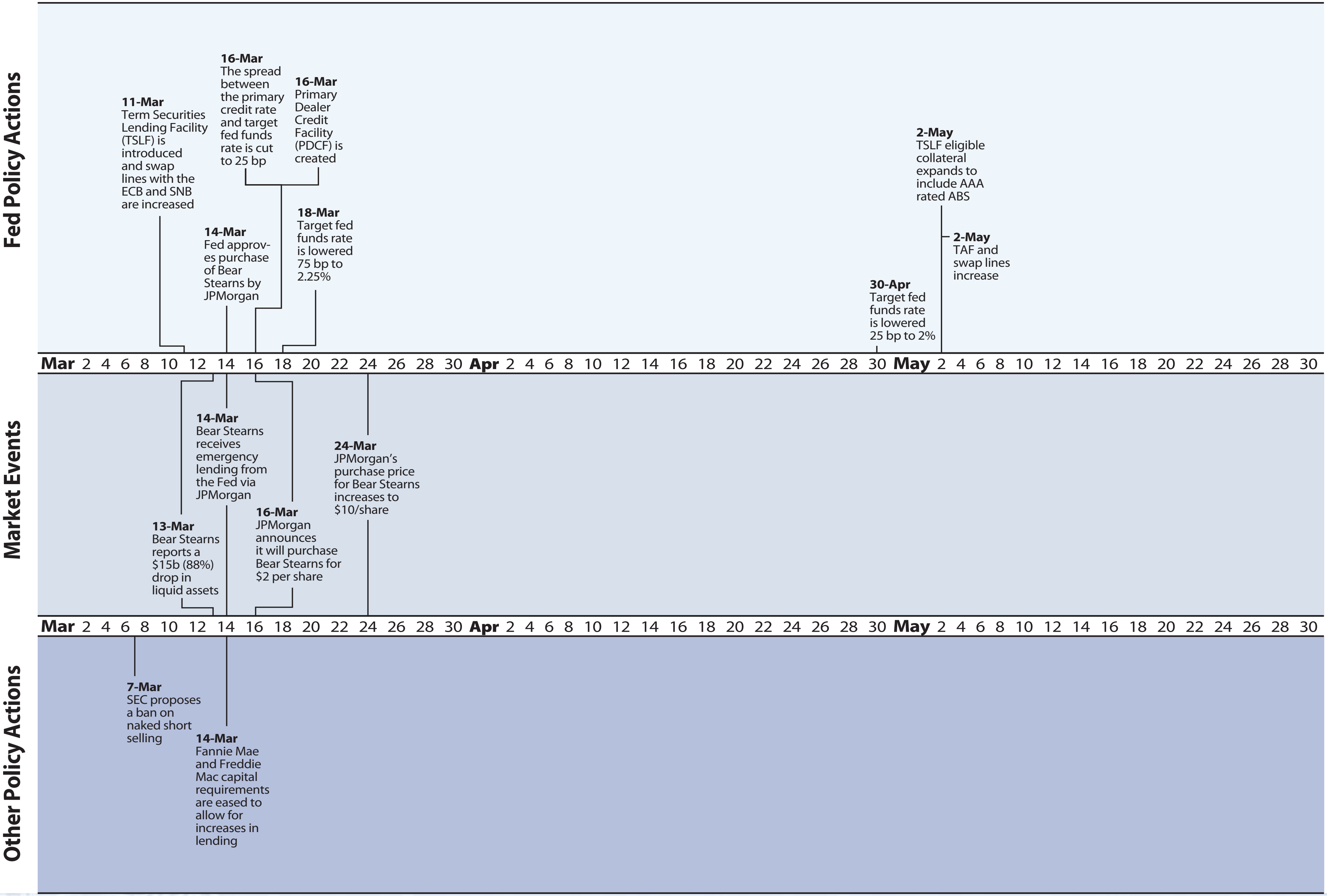


Jamie McAndrews

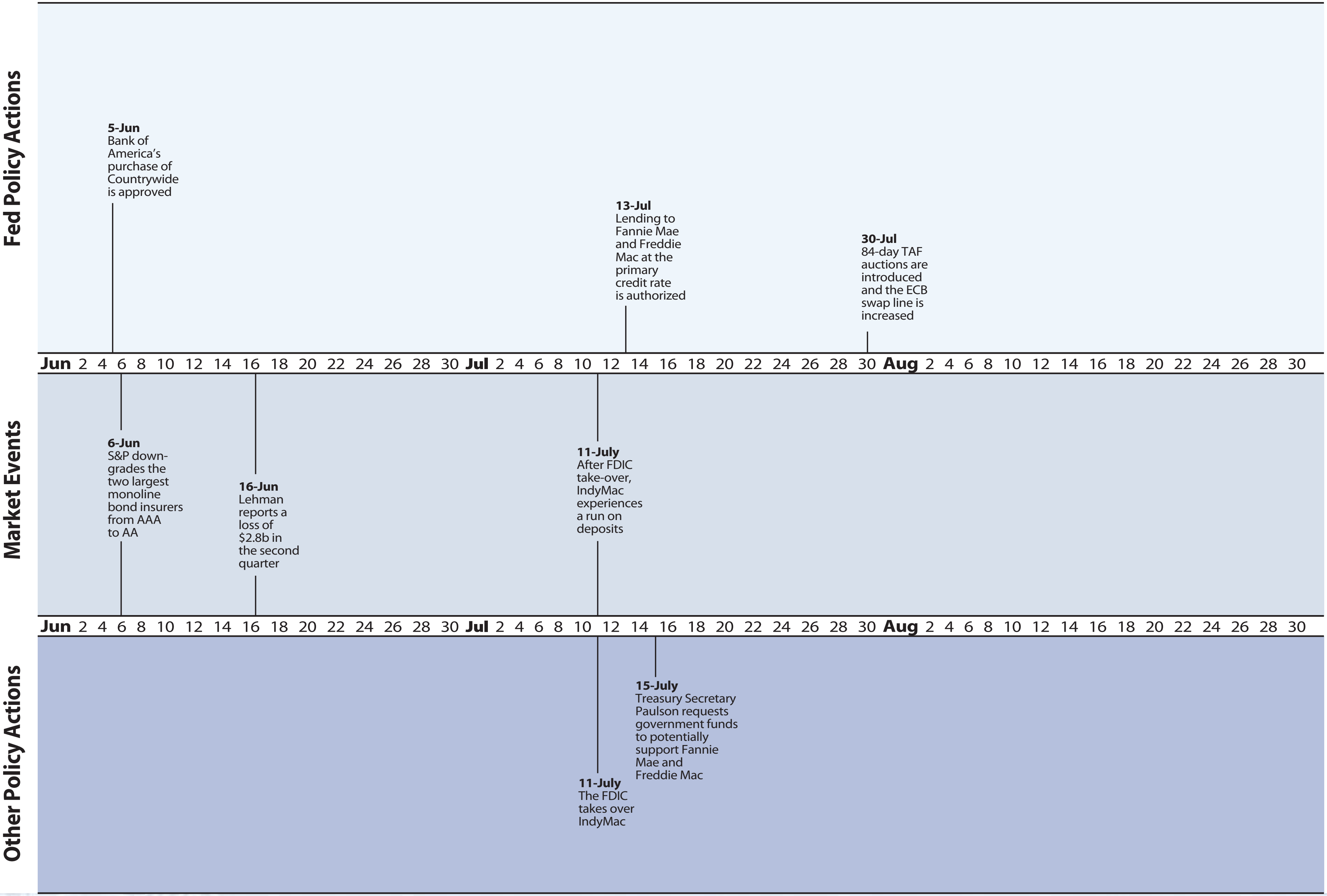
Policy Responses to Financial Market Run

- Both economic and financial conditions deteriorated markedly in September 2008.
- Failures and near-failures of large financial firms including investment banks, the world's largest insurance company, and the nation's fourth largest bank, imperiled the stability of the global financial system.
- Policy actions have been extraordinarily broad and responsive to the threat of global run on the financial system.
- Policy pushed capital into the largest banks simultaneously, guaranteed a broad set of bank liabilities, and vastly expanded lender of last resort actions.

Financial Turmoil Timeline (March-May)



Financial Turmoil Timeline (June-August)



Financial Turmoil Timeline (Sept - Nov)

Fed Policy Actions

- **14-Sep** Eligible collateral for TSLF and PDCF expanded
- **16-Sep** Fed funds rate maintained at 2%
- **16-Sep** $85b loan given to AIG
- **18-Sep** Swap lines increased by $180b
- **19-Sep** AMLF established
- **21-Sep** GS and MS approved as bank holding companies
- **22-Sep** 5 day waiting period to become bank holding companies is waived for Goldman Sachs and Morgan Stanley
- **24-Sep** New swap lines opened with Bank of Australia, Sveriges Riksbank, Danmarks National-bank, and Norges Bank
- **26-Sep** ECB and SNB swap lines are increased by $10b and $3b, bringing total swap line to $290b
- **29-Sep** Fed agrees to provide Citigroup with liq-uidity to aid in Wachovia purchase
- **29-Sep** 84-day TAF allotments increased to $75b, two forward TAF auctions totalling $150b intro-duced, and total swap line doubled to $620b
- **7-Oct** Commercial Paper Funding Facility (CPFF) established
- **8-Oct** In con-junction with cuts by other central banks target rate lowered to 1.5 %
- **9-Oct** Payment of interest on reserves begins
- **12-Oct** Wells Fargo's purchase of Wachovia is approved
- **13-Oct** Fed uncaps ECB, BoE, and SNB swap lines
- **14-Oct** Fed announces that the CPFF will begin funding purchases on Oct 27th
- **14-Oct** Bank of Japan swap line is uncapped
- **16-Oct** Tier I capital definition changed to include stock purchased by Treasury
- **21-Oct** Money Market Investor Fund-ing Facility (MMIFF) is established
- **22-Oct** Rate paid on excess reserves increases by 40 bp
- **29-Oct** Fed Funds rate cut 50 bp to 1 %
- **29-Oct** USD Swap lines established with Brasil, Mexico, Korea, and Singapore for $30b each
- **5-Nov** Interest on reserve rate increases
- **10-Nov** AIG loan is restructured in coordination with US Treasury

Sept 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Oct 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Nov 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

Market Events

- **10-Sep** Lehman announces $3.9b loss in third quarter
- **12-Sep** Moody's and S&P threaten to down-grade Lehman
- **15-Sep** Bank of America purchases Merril Lynch
- **15-Sep** Lehman files for bankruptcy
- **15-Sep** AIG debt downgraded by all three major ratings agencies
- **16-Sep** RMC money market fund "breaks the buck"
- **17-Sep** More money market funds come under pressure
- **25-Sep** WaMu closed by OTS
- **29-Sep** Systemic risk exception allows open bank assistance to Wachovie
- **3-Oct** Wells Fargo makes counter-offer for Wachovia
- **14-Oct** 9 Large banks agree to capital injection from the Treasury
- **23-Oct** Alan Greenspan testifies before the House Committee of Government Oversight and Reform
- **28-Oct** Consumer confidence hits lowest point on record
- **30-Oct** Government data shows a 0.3% decline in real US GDP for Q3 2008

Sept 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Oct 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Nov 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

Other Policy Actions

- **7-Sep** Fannie Mae and Freddie Mac are placed in Federal conserv-atorship
- **19-Sep** Treasury establishes the money market guarantee program
- **19-Sep** Paulson calls for government plan to purchase troubled assets from financial institutions
- **19-Sep** SEC bans short-selling on 799 financial stocks
- **29-Sep** Treasury bailout plan is voted down in the House
- **30-Sep** Ireland guarantees the deposits of the 6 largest Irish banks
- **3-Oct** Revised Treasury plan passes the House along with new clauses raising FDIC insurance limits to $250,000
- **8-Oct** Central banks in England, China, Can-ada, Sweden, Switzerland, and the ECB join the Fed in cutting interest rates
- **14-Oct** Treasury announces $250b capital injection plan
- **14-Oct** FDIC insures all senior debt of regulated institutions
- **31-Oct** Bank of Japan cuts policy rate 20 bp to 0.3%
- **6-Nov** European central banks make coordinated rate cuts
- **10-Nov** Chinese government announces a 4 trillion yuan ($586b) fiscal stimulus package

Time-Out Policy Options in early October

In the event of a run on the financial system, there are three broad options

- *Lender of last resort actions*: assists the economy in adjusting to the run
- *Guarantees*: assists in keeping liability holders in place
- *Capital injections*: assists in strengthening existing intermediaries

Broadly complementary, but each option comes with its own problems, including

- Boundary problems, namely, who is included and who is excluded?
- Performance problems, reflecting the credibility and efficient operation of the policy
- Exit problems, how to extract the government from these policies that result in inefficient allocations in normal times

Some escalation on *all three fronts* was needed in the U.S. in early October and alternative combinations of the policies were examined.

Time-out Strategy Considerations

Call a *credible time out*. But how could the limited and disparate powers of UST, FDIC and Fed be used?

Solution: Credibility from the *combination* of a broad guarantee of bank liabilities (FDIC) combined with a large simultaneous capital injection into a wide range of banks (UST) with a massive provision of liquidity (Fed).

Incentive compatibility problem: "*Coercion"* not allowed in US system. Both the guarantee and capital injection could be viewed as stigmatizing by strong banks.

Solution: "sign up" 9 major financial institutions to both the capital injection and the guarantee at the launch of the *time out* on terms also applicable to 1000s of other FI.

Implementation Problem: Plan needed to be implemented with *utmost speed* (i.e., over a weekend). How do you get 9 CEOS from a diverse set of FI to all agree to sign up in one day?

Solution: standardize amounts across classes of institution, take it or leave it offer

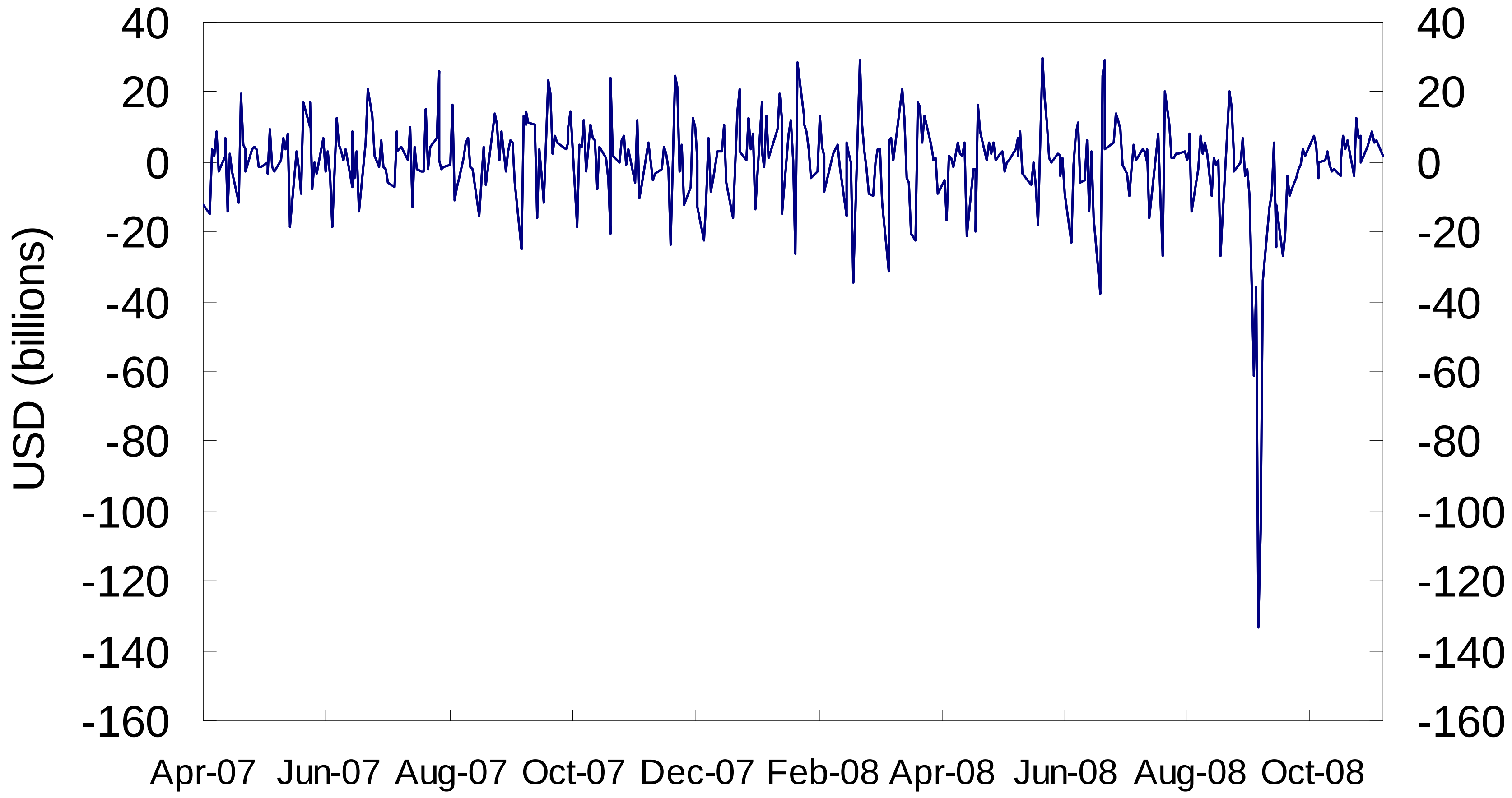
Standardization and Simultaneity

- Voluntary capital purchase program
  - $125 billion preferred stock injection into nine large banks
  - Split 9 large systemically important banks into 3 classes
    - 4 big "Banks" JPMC, BoA, Citi and Wells $25 billion each
    - 3 I-Banks: GS, MS, $10 billion each, ML included with BoA
    - 1 Clearing Bank BONY $3 billion, 1 custodian State Street $2 billion
  - Another $125 billion injected more broadly into banks
  - Smaller and regional banks receiving capital now
- Simultaneity is vital
  - Recent events indicate complexity of all aspects of financial system
  - Inter-bank markets are as important as bank deposit markets and the bank loan market…
  - Thus, capital needs to be injected into individual banks and more importantly into their *counterparties* (i.e., other banks)

Other Elements of Time-Out Policies

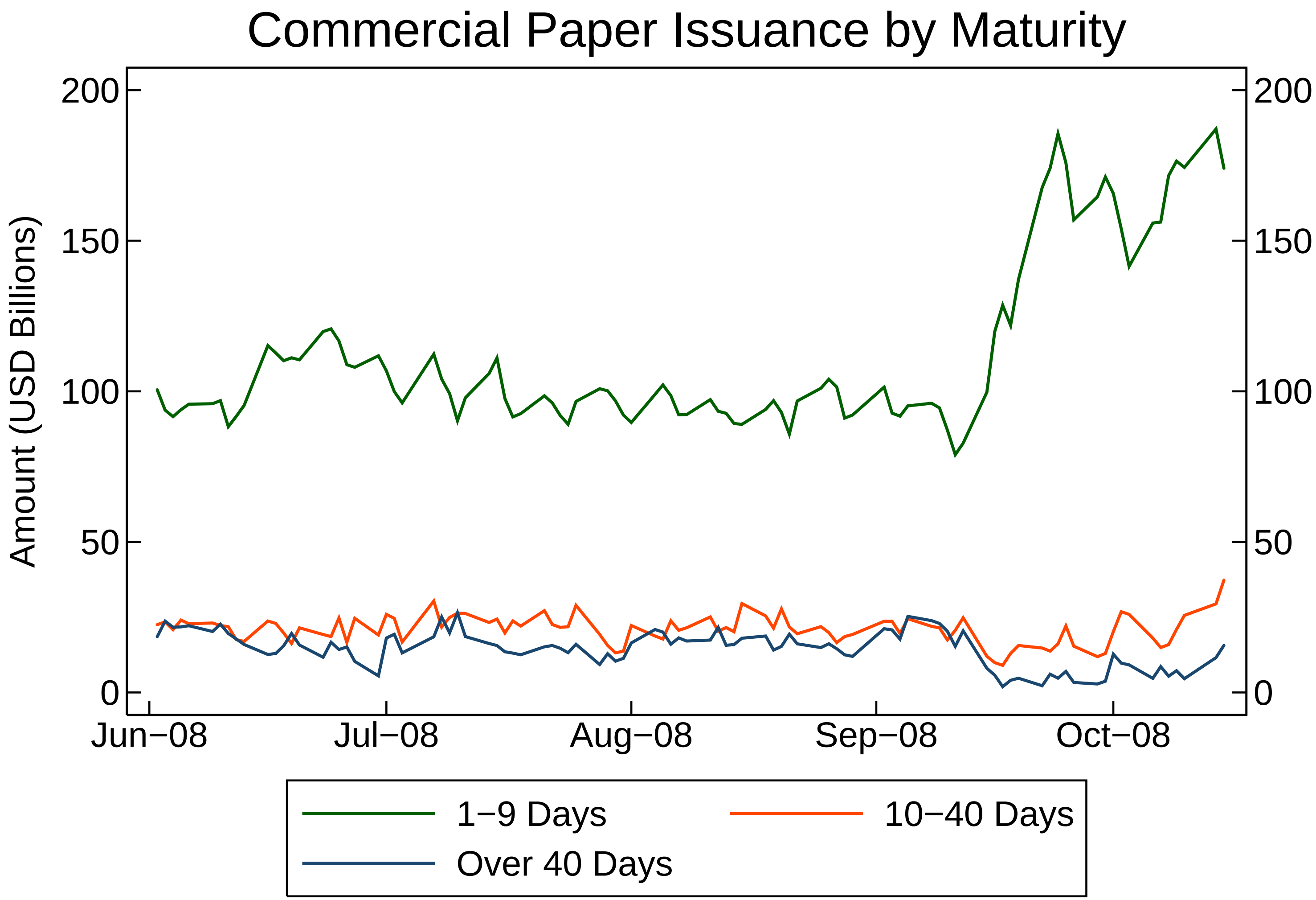
- Initial injection is reinforced by the announcement of a quickly deployable capital injection reserve to meet any unforeseen developments
  - Credibility of this announcement itself reinforced by the fairness of the initial injection
  - $40 billion deployed to AIG
- Additional $450 billion to allocate under TARP
- Critical that the capital plan be accompanied a credible guarantee of the liabilities of the banking system
- Temporary Liability Guarantee Program of senior debt of FDIC-insured institutions c. $1.5 trillion
- Federal Reserve Commercial Paper Funding Facility

Outflows from Money Market Mutual Funds



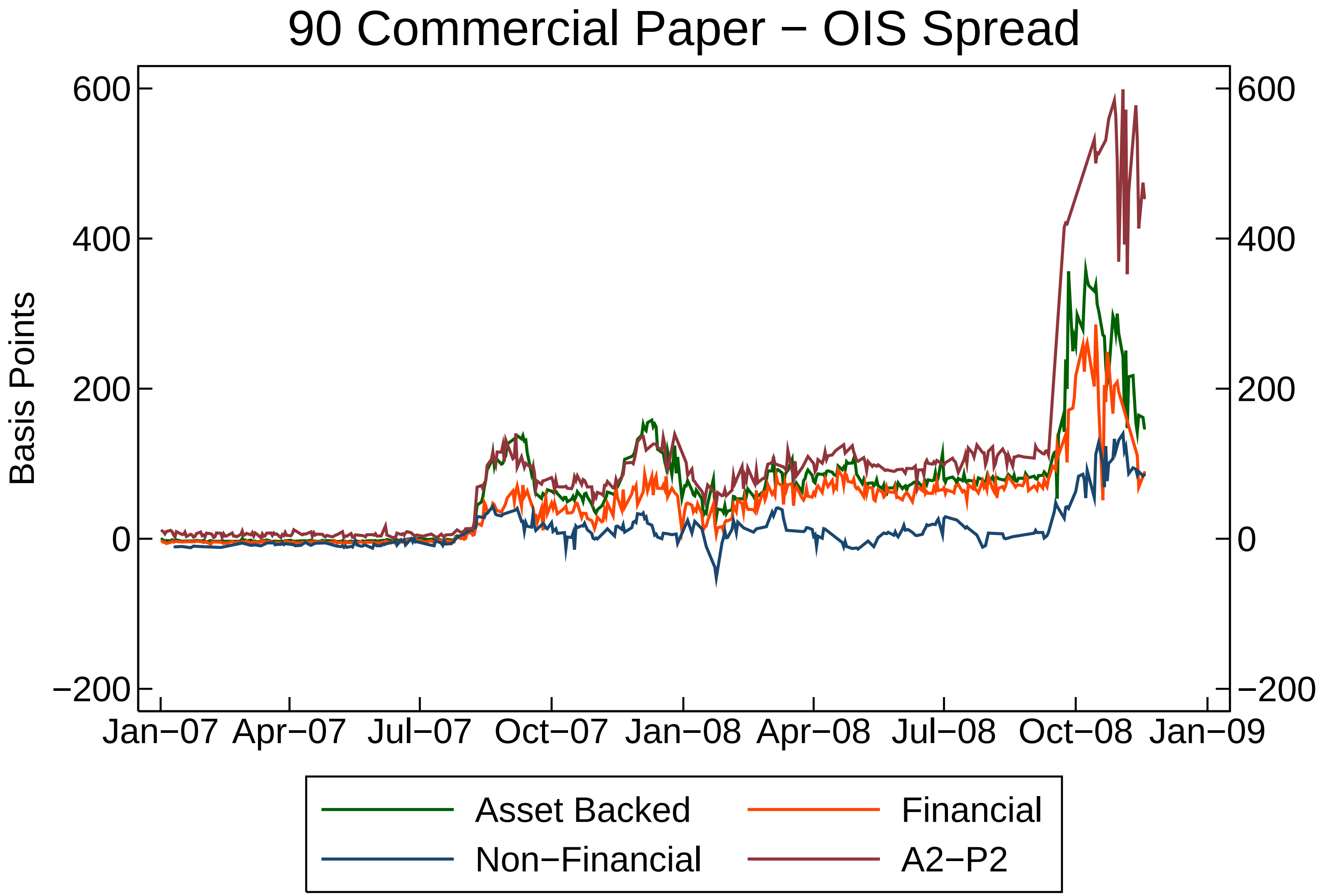
Source: Federal Reserve

Commercial Paper Market Issuance



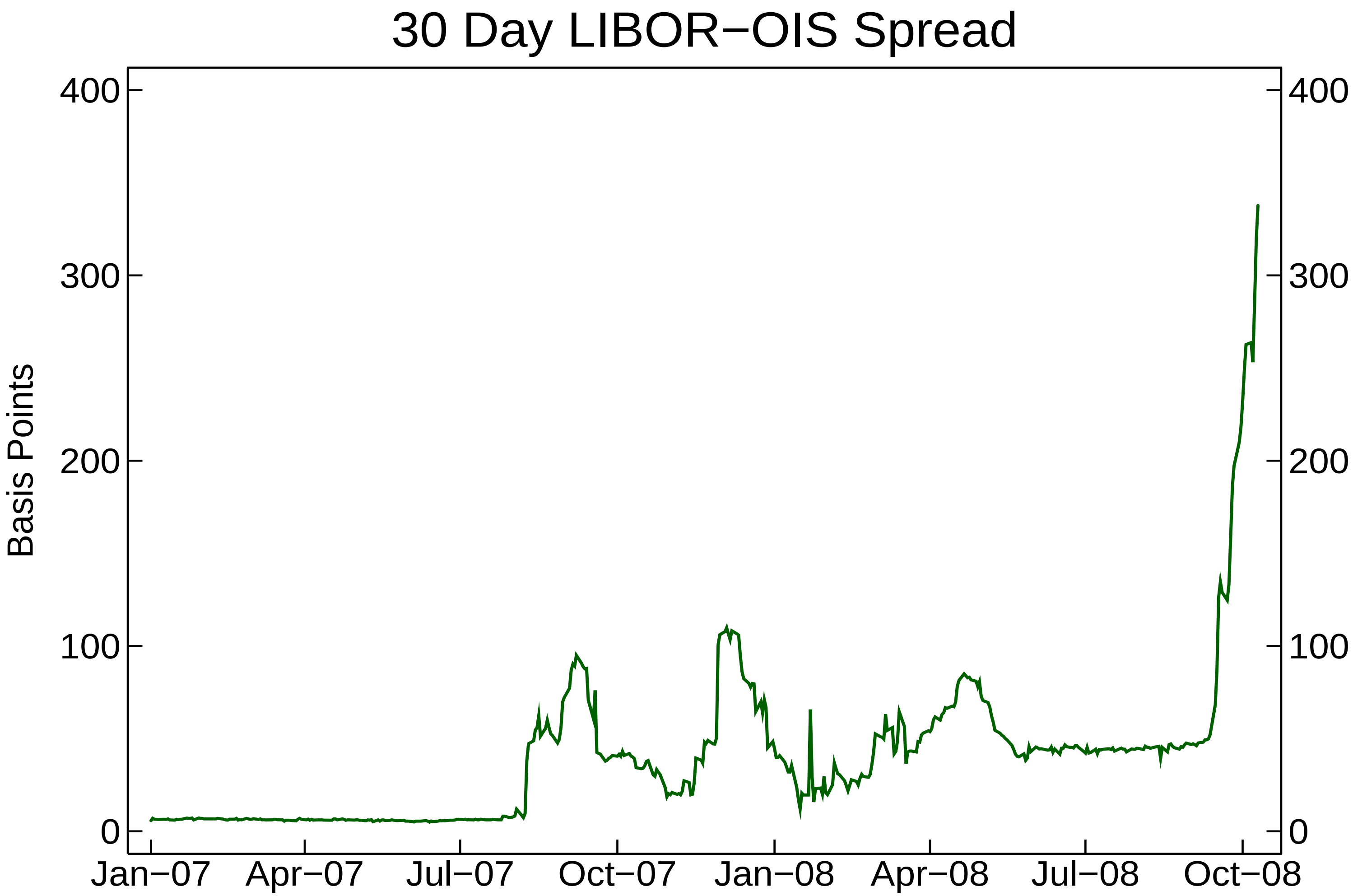
Source: Federal Reserve Board

Commercial Paper Market Spreads Widen



Source: Federal Reserve Board, Bloomberg

Term Inter-bank Lending Crisis

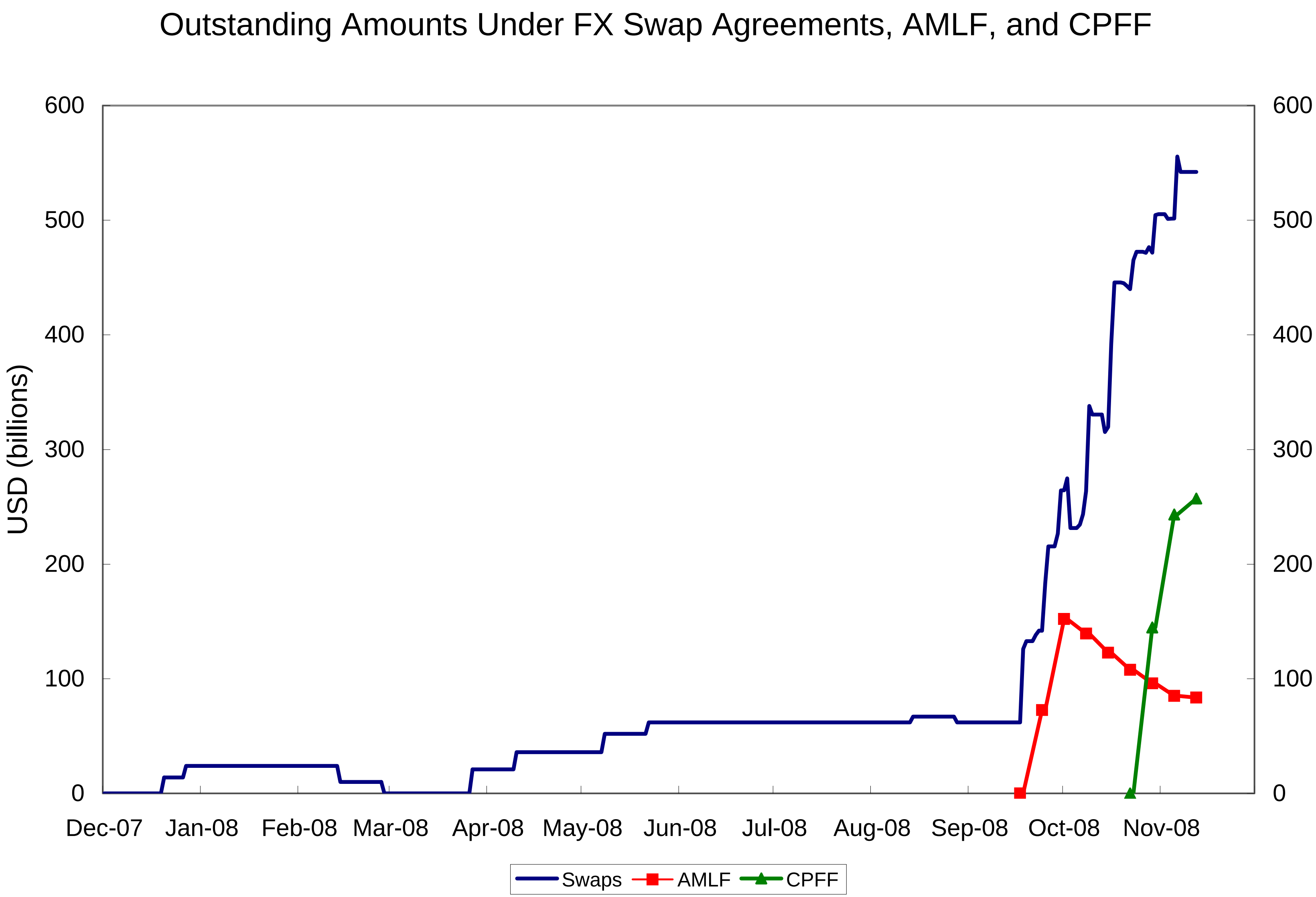


Source: Bloomberg

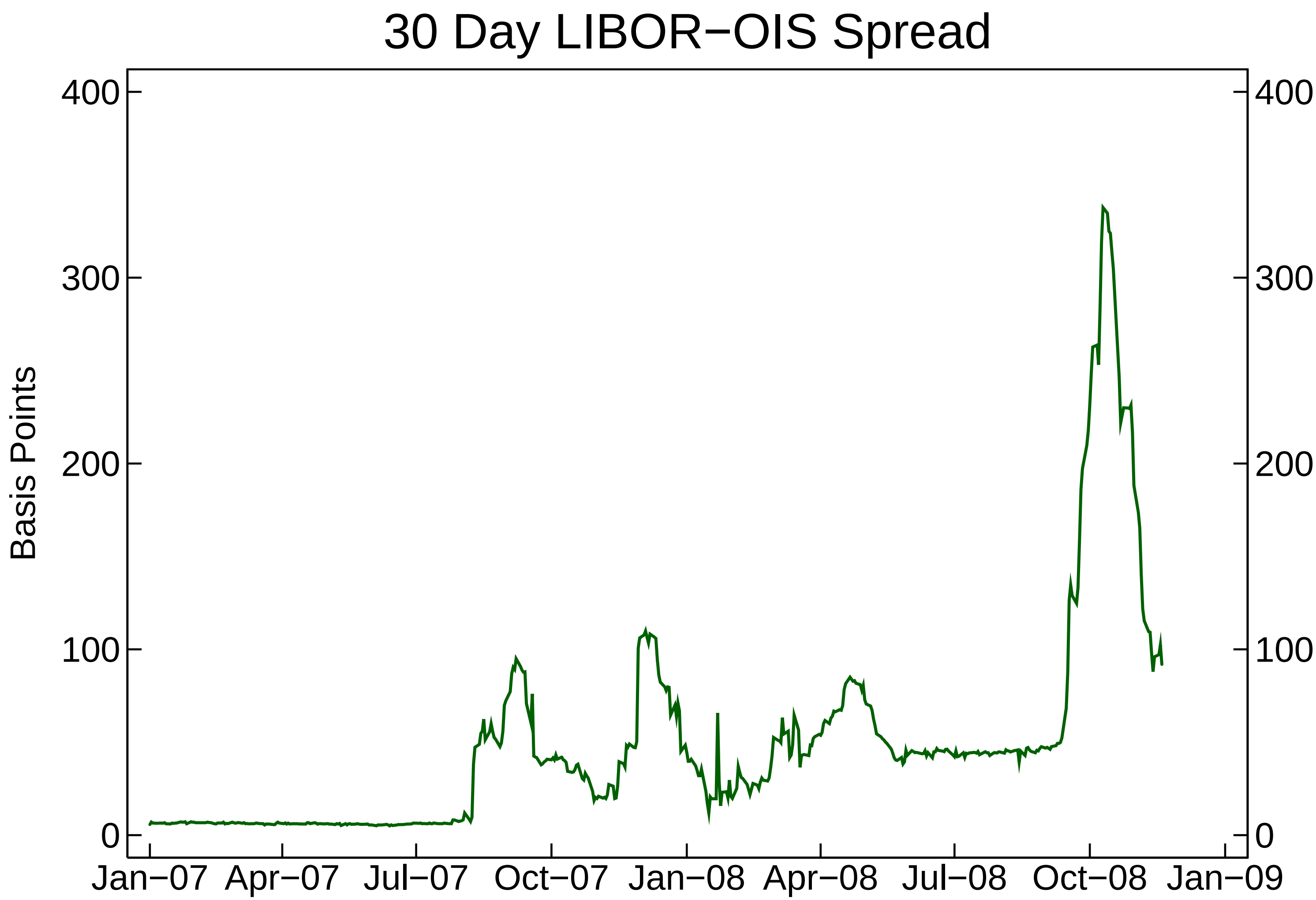
Fed Liquidity Escalation

- The Fed provided expanded access to liquidity in nearly all of its new facilities.
- In September it expanded its swap facilities by adding other central banks and increasing the sizes of outstanding swap lines. It engaged in an internationally coordinated rate cut on October 8th, 2008. On October 13th, in conjunction with the ECB, SNB, and BoE, it offered full allocation, fixed-rate tenders at the OIS + 100 basis points.
- On September 19th, it announced the creation of the AMLF, a facility to provide loans against asset backed commercial paper. And on October 14th it announced the creation of the CPFF, a facility to finance the purchase, directly from issuers, of A1-P1 rated commercial paper.

Fed Liquidity Escalation

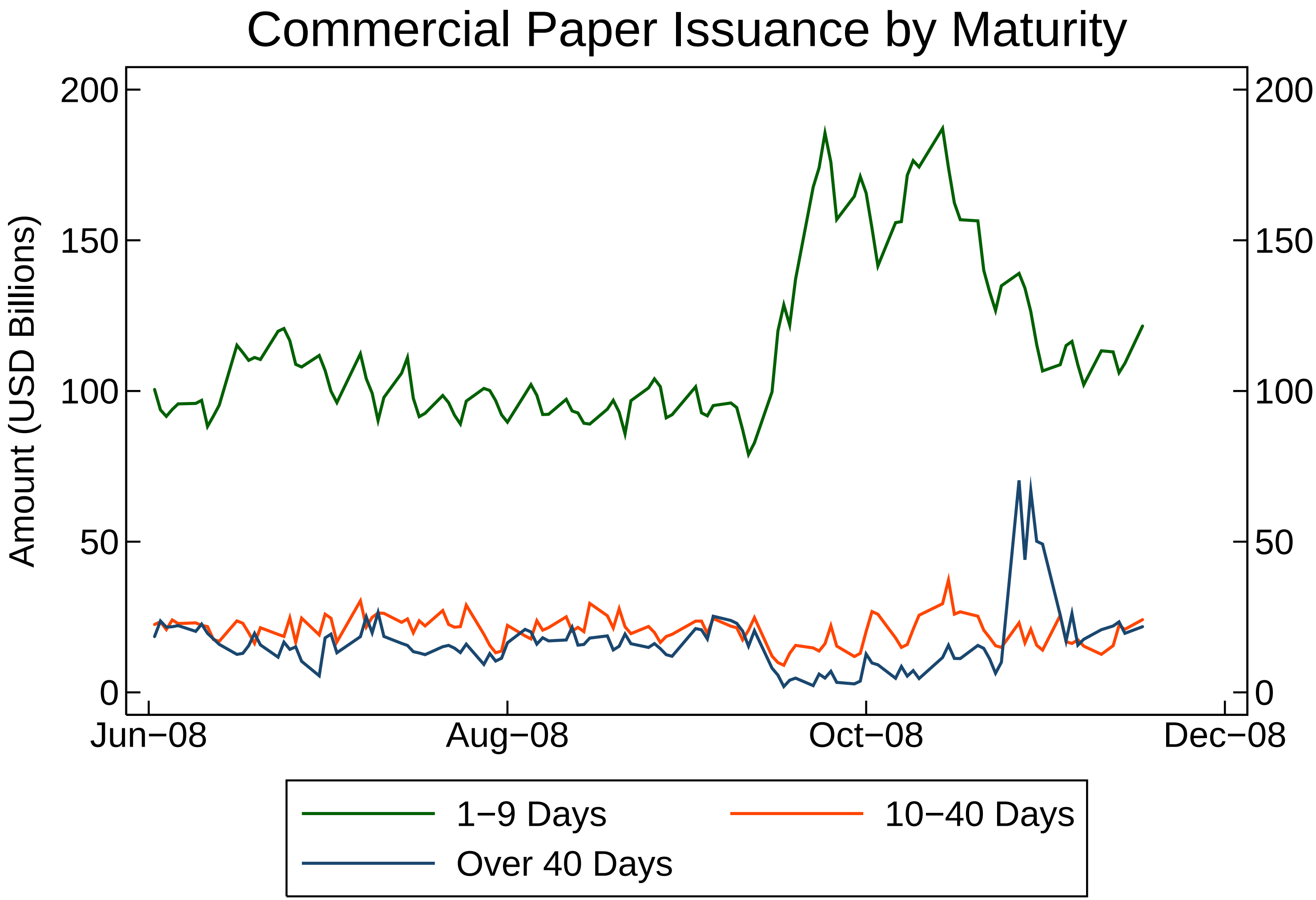


Inter-bank Money Market Rates Retreat



Source: Bloomberg

Commercial Paper Issuance Normalizes



Source: Federal Reserve Board

Financial Turmoil Timeline Summary (Sept - Nov)

Fed Policy Actions

16-Sep
$85b loan given to AIG

19-Sep
Asset-Backed Commercial Paper Money Market Mutual Fund Lending Facility (AMLF) established

29-Sep
Fed agrees to provide Citigroup with liquidity to aid in Wachovia purchase

7-Oct
Commercial Paper Funding Facility (CPFF) established

12-Oct
Wells Fargo's purchase of Wachovia is approved

21-Oct
Money Market Investor Funding Facility (MMIFF) is established

27-Oct
CPFF begins funding purchases

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Market Events

15-Sep
Lehman files for bankruptcy

15-Sep
AIG debt downgraded by all three major ratings agencies

16-Sep
Money market mutual funds (MMMF) come under pressure as RMC "breaks the buck"

29-Sep
Systemic risk exemption allows open bank assistance to Wachovia

14-Oct
9 Large banks agree to capital injection from the Treasury

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Other Policy Actions

19-Sep
Paulson calls for government plan to purchase troubled assets from financial institutions

19-Sep
Treasury establishes the money market guarantee program

25-Sep
WaMu closed by OTS

29-Sep
Treasury bailout plan is voted down in the House

3-Oct
Revised Treasury plan passes the House along with new clauses raising FDIC insurance limits to $250,000

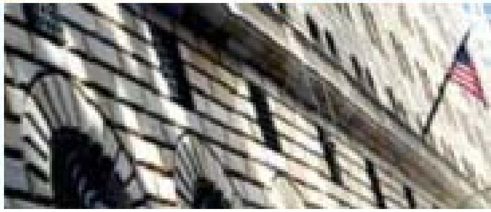
14-Oct
Treasury announces $250b capital injection plan

14-Oct
FIDC Temporary Liquidity Guarantee Program begins

9-Nov
Treasury statement on assistance to consumerABS

Risks to Central Scenario

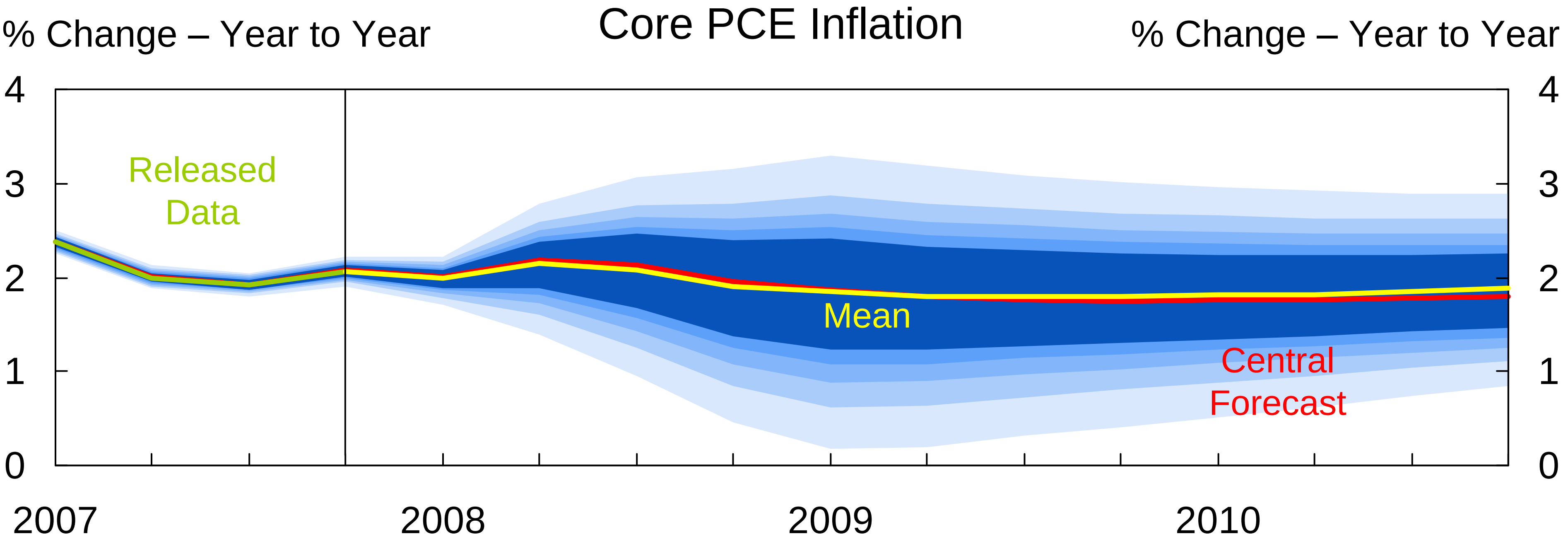
Simon Potter

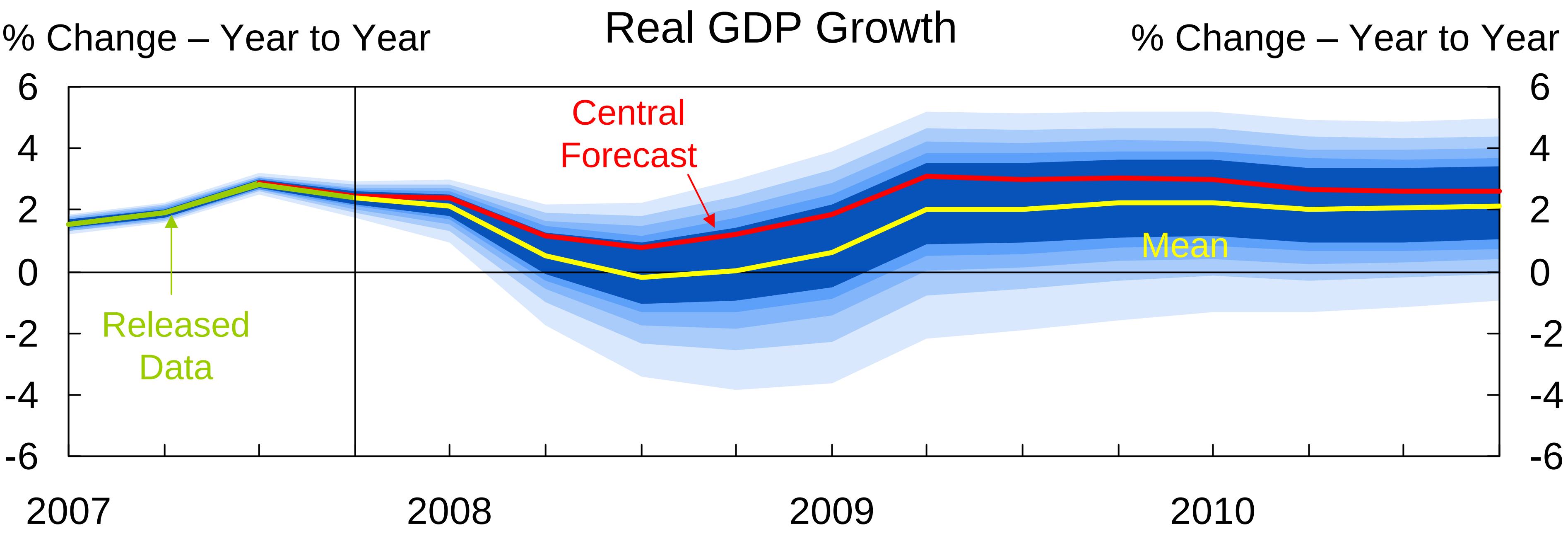


Main Risks to Central Scenario

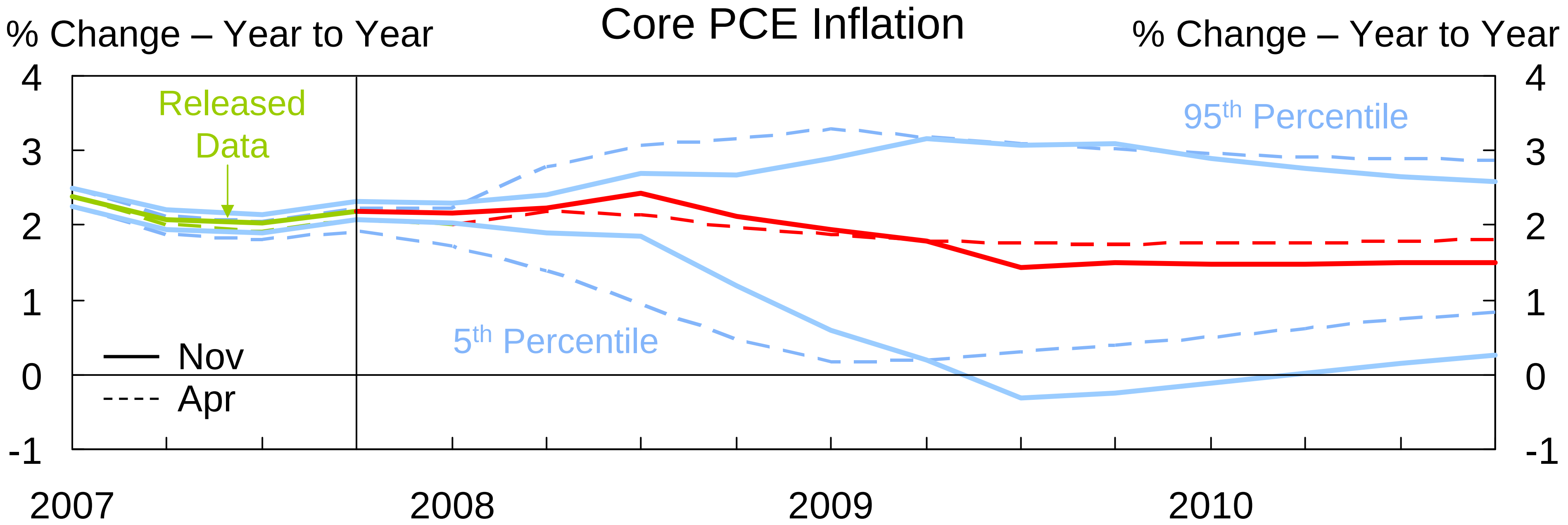
Scenario	Evidence in Favor	Effect on Forecast
Global Credit Crunch: temp misallocation+demand shock	Financial market panic, global slowdown	**Output:** Down Sharply, strong rebound **Inflation:** Down
Credit Repricing: *US Economy over consumed*	Global imbalances Recent sharp drop in consumption	**Output:** Down **Inflation:** down in short run/up in medium run
Policy Stance too Accomodative	Increase in deficit Increase in Fed balance sheet	**Output:** Up in short run, down in medium run **Inflation:** Up, potentially large

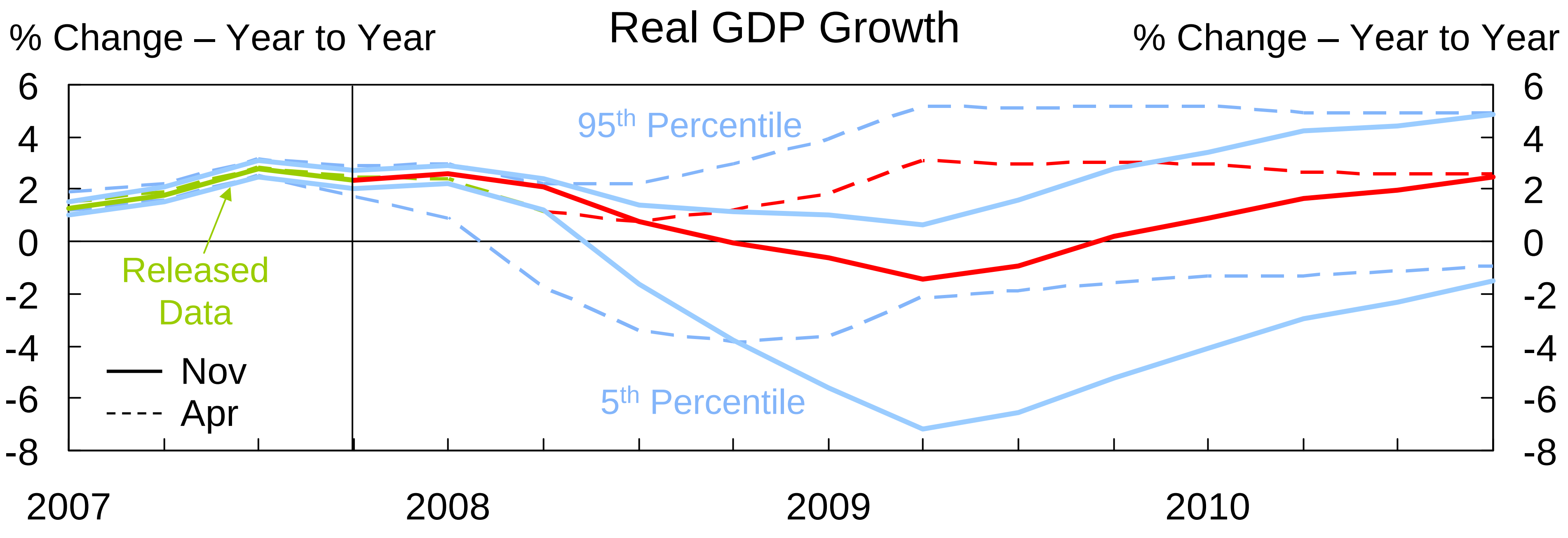
April ’08 Forecast Distributions



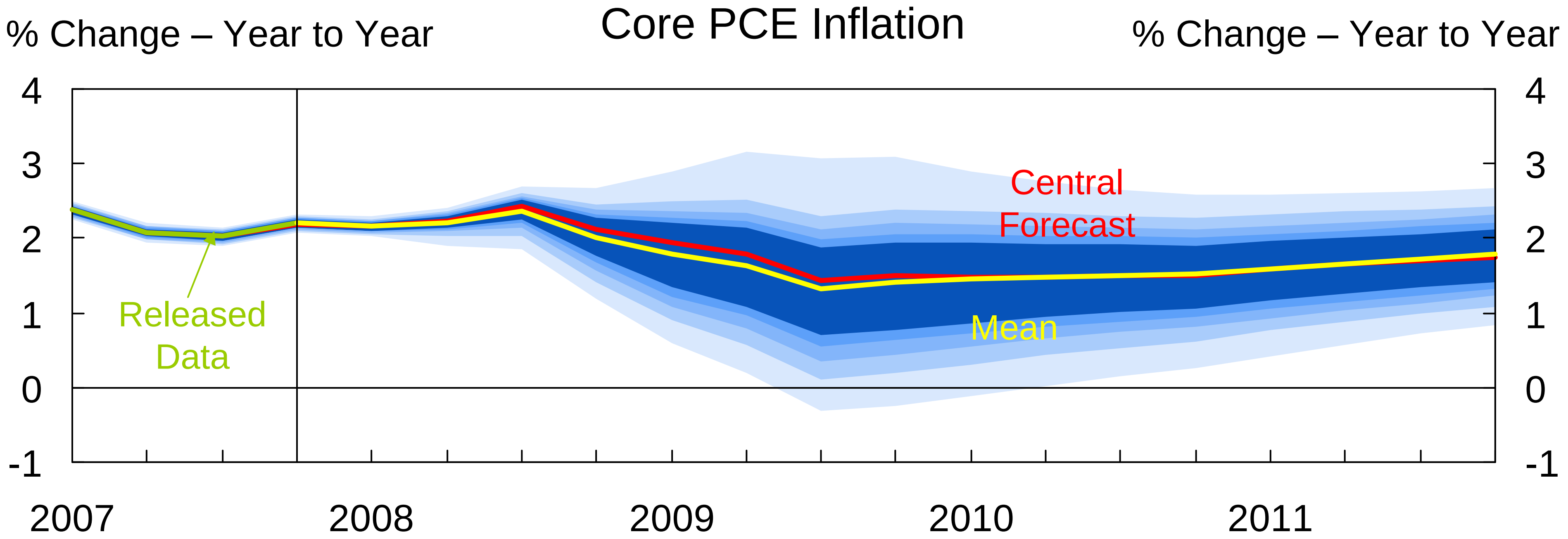


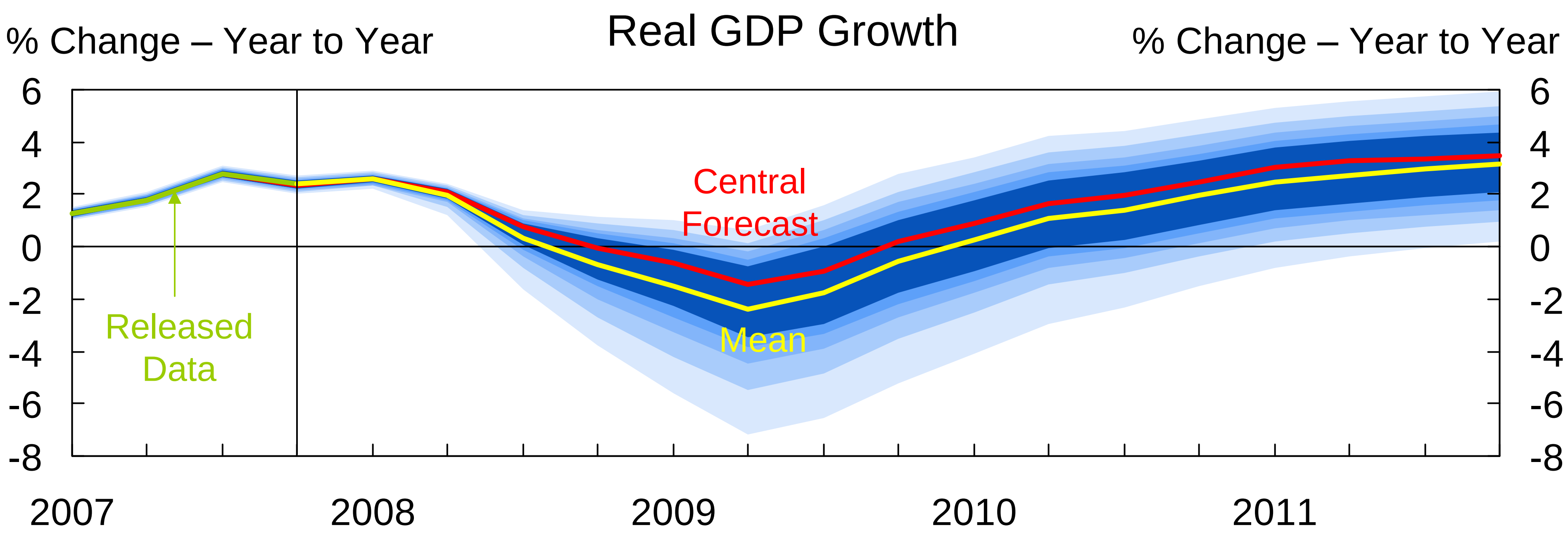
Change from April '08 to Nov '08



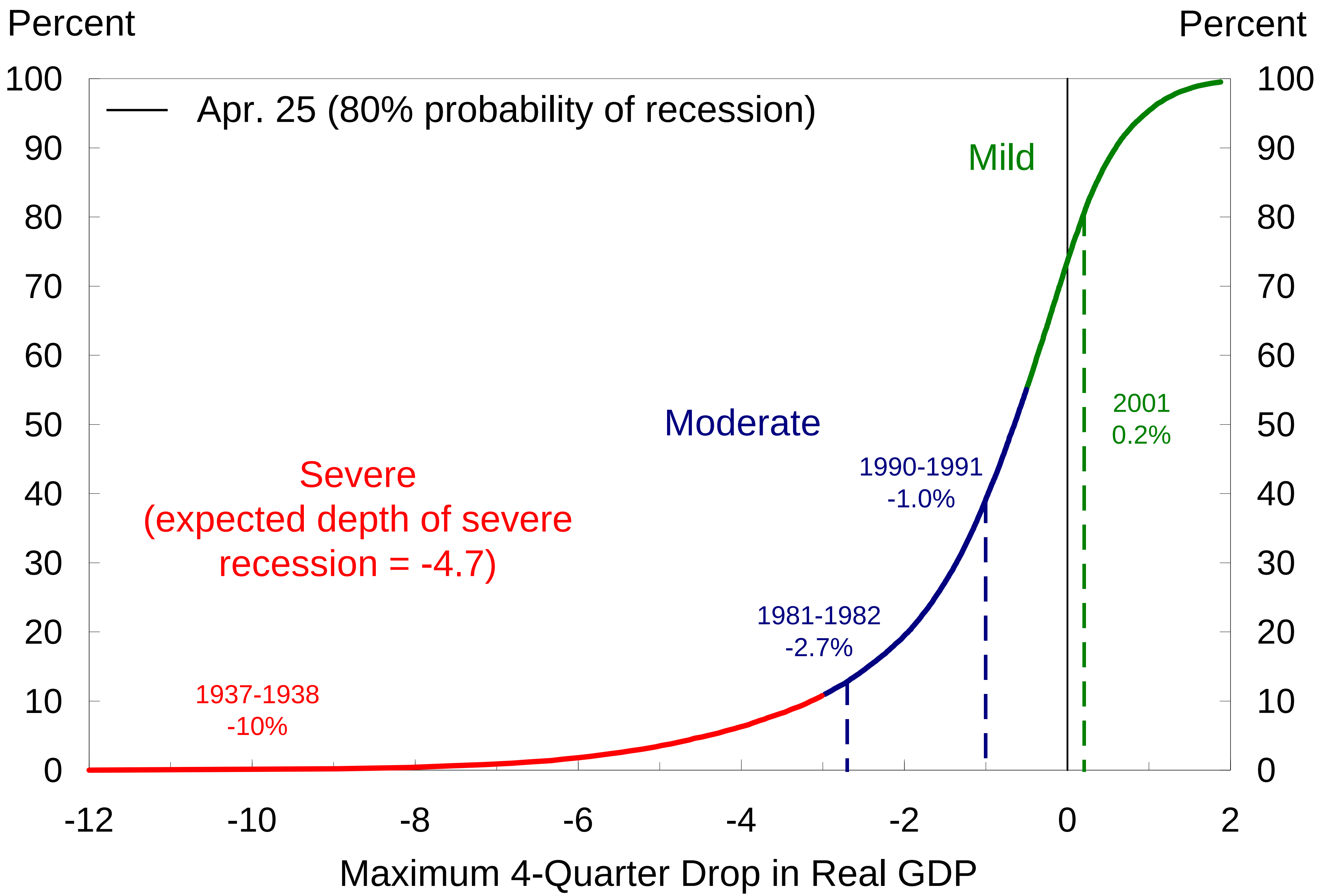


Nov ’08 Forecast Distributions





Depth of Recession



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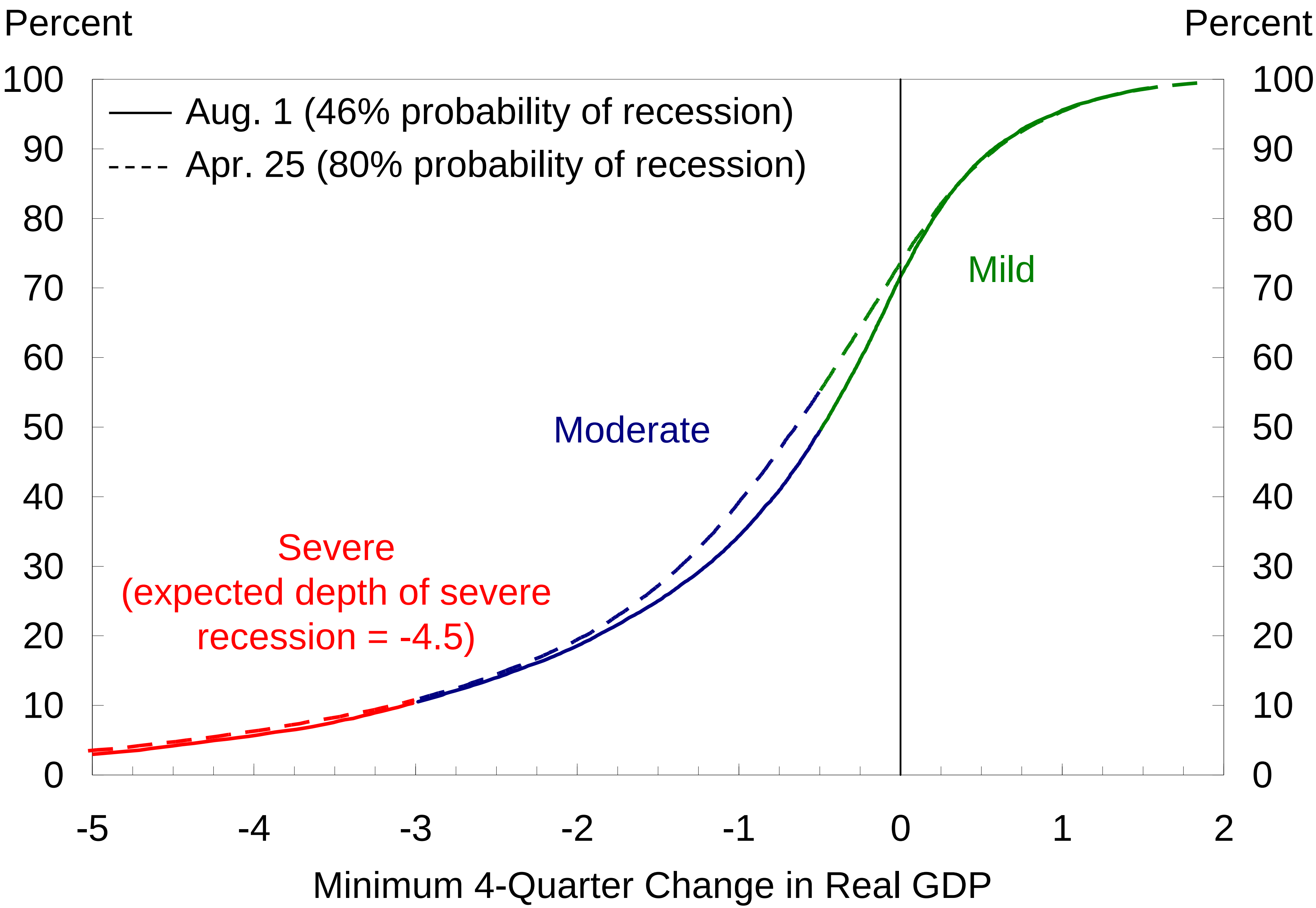

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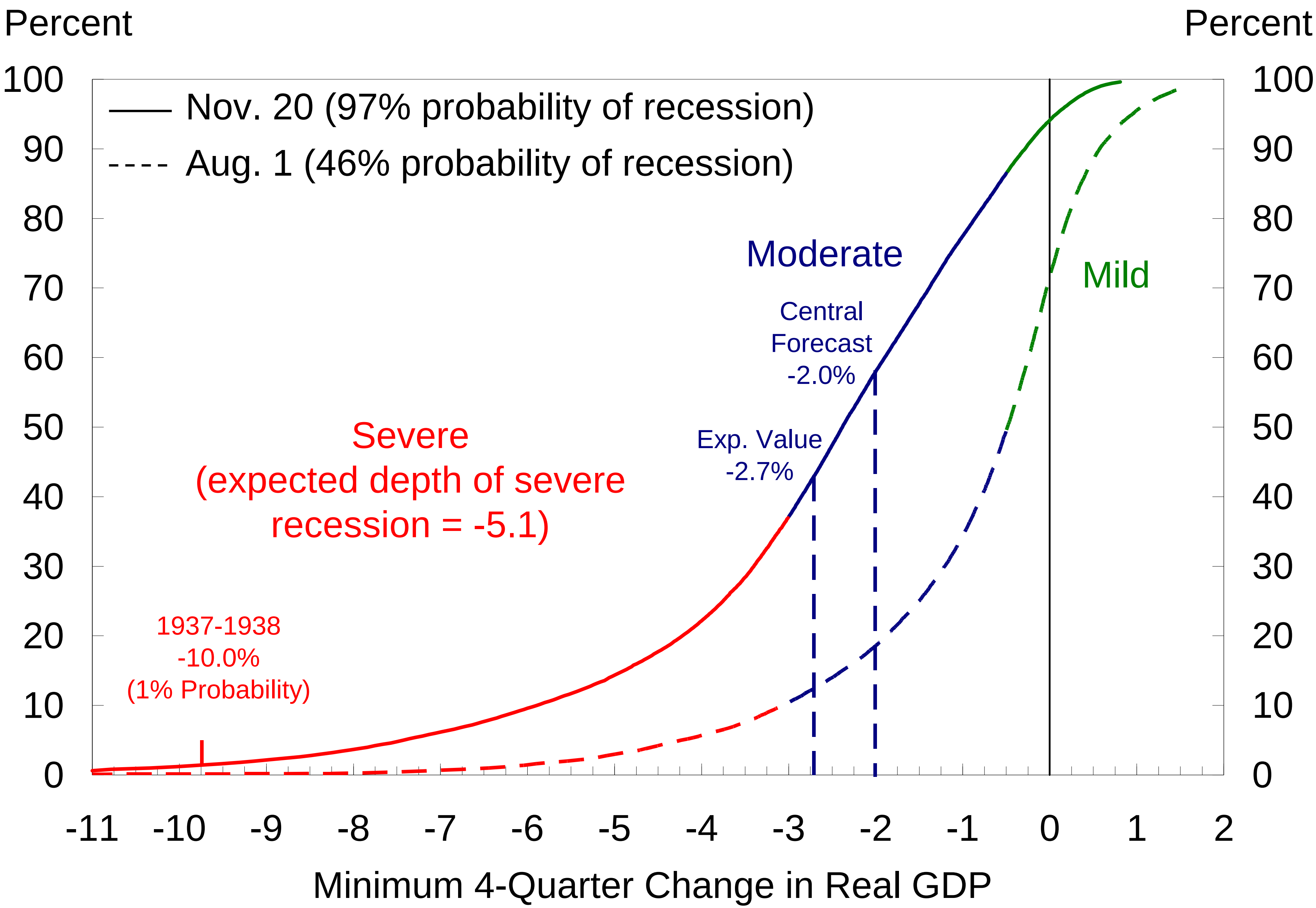
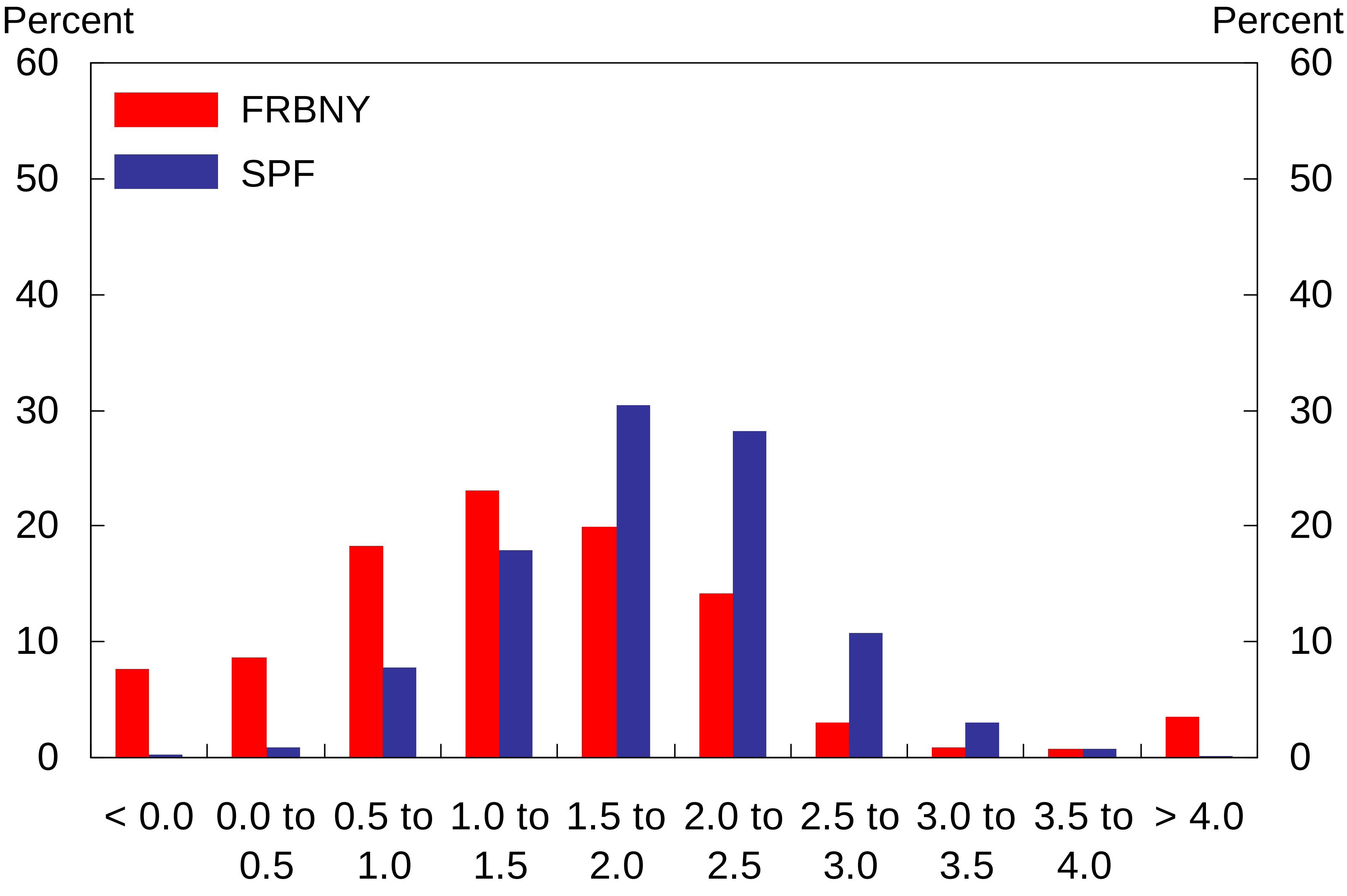
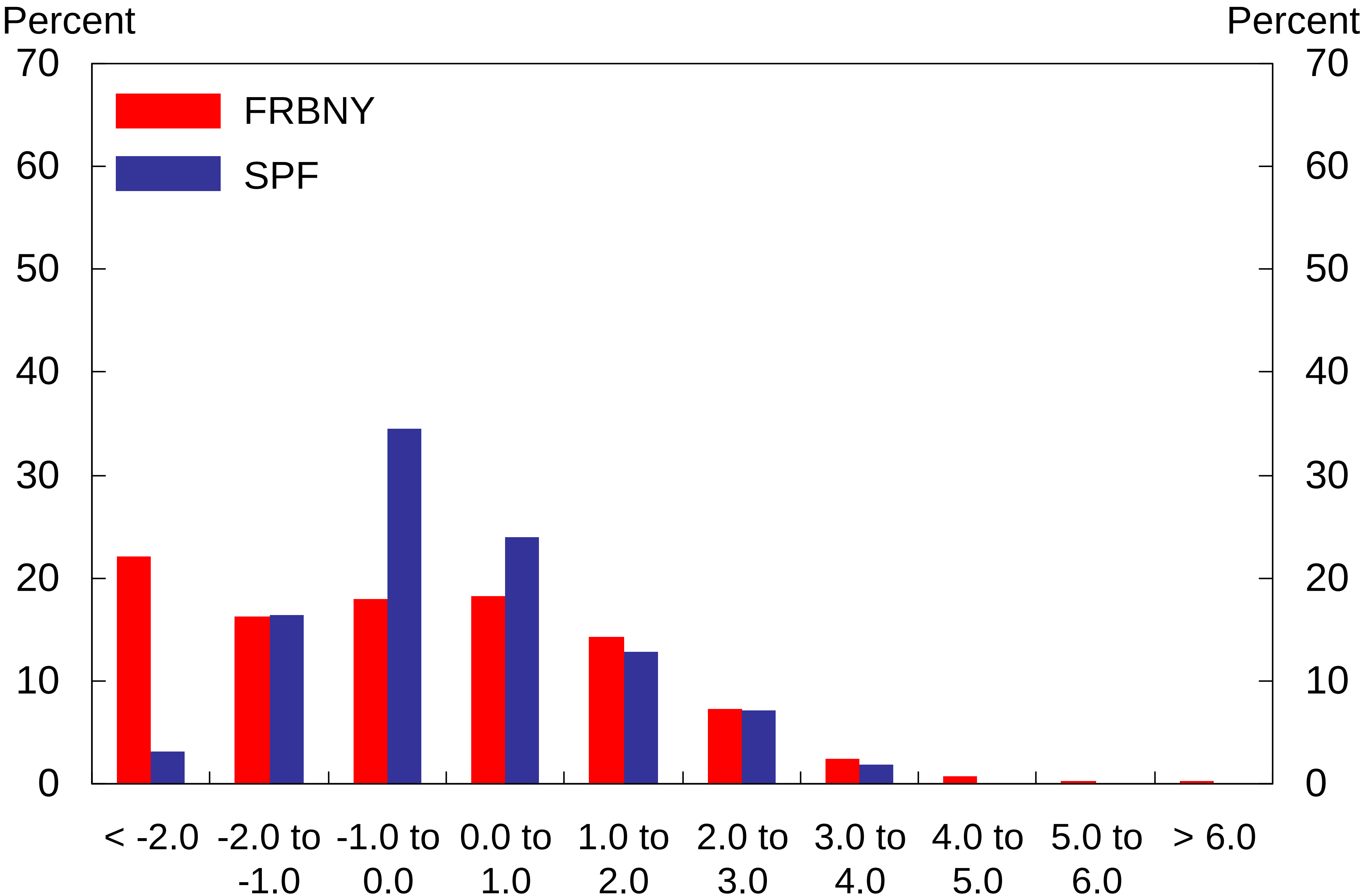


2009Q4/Q4 Core PCE Inflation Probabilities



2009/2008 Real GDP Growth Probabilities



Some Measures of the Current Stance of Monetary Policy

Policy Rule	Rate Prescription
Contemporaneous Feedback	1.0 to 2.5
Forecast Based	0.0 to 1.5
Forecast Based with Risks	-1.0 to 0.5
DSGE Var Counterfactual	0.5 to 2.0
DSGE Var Counterfactual with Global Credit Crunch scenario	-1.5 to 1.5