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CAFRAL-Levy-IDEAs Workshop

January 6-10, 2014 - New Delhi, India

Macroeconomic management and financial regulation in core countries and the periphery

Exceptional monetary policy in response to the Crisis: US, Japan and European Union

Jan Kregel
Levy Economics Institute

How Many Crises, How Many Exceptional Policies?

- There were many crises: They were all different
  - First: Japan: Post Plaza/Louvre Equity/Real Estate Bubble/Crash 1989
    - Response: ZIRP, Exceptional Stimulus Policy
  - Then US 1989-90, 1996, 2006
    - Real Estate Bubble/Sub Prime Crisis
      - Financial System Crisis: Bear Stearns, Lehman
      - Great Recession Real Sector Crisis
- UK Real Estate Bubble:
  - Bank run on Northern Rock: wholesale funding collapses
    - Then Financial System collapse: RBS, Lloyds, Barclays etc
- EU: Icelandic Banks, French Real Estate Funds, German Land Banks
- Sovereign Debt Roll over Crisis: Greece, Portugal, Spain, Ital

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Financial Turmoil Timeline (June 2007 - November 2007)

Fed Policy Actions

26-Jun
FOMC maintains the target fed funds rate at 5.25%

17-Jul
Fed, OTS, FTC, and state agencies launch new program to supervise subprime mortgage lenders

7-Aug
FOMC maintains the target fed funds rate at 5.25%

10-Aug
Fed issues statement that it stands ready to provide liquidity via the discount window

17-Aug
Spread between the primary credit rate and the target fed funds rate is reduced to 50 bp

18-Sep
FOMC lowers target fed funds rate 50 bp to 4.75%

31-Oct
FOMC lowers target fed funds rate 25 bp to 4.5%

2-Nov
Fed approves Basel II

Jun 5 10 15 20 25 30 Jul 5 10 15 20 25 30 Aug 5 10 15 20 25 30 Sep 5 10 15 20 25 30 Oct 5 10 15 20 25 30 Nov 5 10 15 20 25 30

Market Events

23-Jun
Bear Stearns pledges $3.2 bn to aid one of its ailing hedge funds

9-Aug
BNP Paribas freezes three funds after being unable to value subprime mortgage based assets

13-Sep
Northern Rock receives emergency loan from the Bank of England

16-Oct
Citigroup begins a string of major bank writedowns based on subprime mortgage losses

27-Nov
Citigroup raises $7.5 bn from the Abu Dhabi Investment Authority

Jun 5 10 15 20 25 30 Jul 5 10 15 20 25 30 Aug 5 10 15 20 25 30 Sep 5 10 15 20 25 30 Oct 5 10 15 20 25 30 Nov 5 10 15 20 25 30

Other Policy Actions

26-Jun
SEC begins investigation of 12 CDO issuers

10-Oct
Paulson makes statement on "private sector alliance" to prevent mortgage default

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Financial Turmoil Timeline (December 2007 - February 2008)

Fed Policy Actions

11-Dec
FOMC lowers target fed funds rate 25 bp to 4.25%

12-Dec
Term Auction Facility (TAF) is announced and swap lines are established with the ECB and SNB for $20 bn and $4 bn respectively

17-Dec
The first TAF auction takes place for $20 bn of 28-day credit

21-Dec
Fed extends TAF auctions "for as long as necessary to address elevated pressures in short-term funding markets"

22-Jan
FOMC lowers target fed funds rate 75 bp to 3.5%

30-Jan
FOMC lowers target fed funds rate 50 bp to 3%

1-Feb
TAF auction size increased to $30 bn every two weeks

Dec 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 **Jan** 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 **Feb** 2 4 6 8 10 12 14 16 18 20 22 24 26 28

Market Events

11-Jan
Bank of America announces purchase of Countrywide Financial for $4 bn

29-Jan
Rating agencies threaten to downgrade Ambac Financial and MBIA, two major bond insurers

17-Feb
Britain nationalizes Northern Rock

Dec 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Jan 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Feb 2 4 6 8 10 12 14 16 18 20 22 24 26 28

Other Policy Actions

28-Jan
Economic Stimulus Act of 2008 proposed

13-Feb
Economic Stimulus Act of 2008 signed into law

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Financial Turmoil Timeline (March 2008-May 2008)

Fed Policy Actions

11-Mar
Term Securities Lending Facility (TSLF) is introduced and swap lines with the ECB and SNB are increased

14-Mar
Fed approves purchase of Bear Stearns by JPMorgan

16-Mar
The spread between the primary credit rate and target fed funds rate is cut to 25 bp

16-Mar
Primary Dealer Credit Facility (PDCF) is created

18-Mar
Target fed funds rate is lowered 75 bp to 2.25%

30-Apr
Target fed funds rate is lowered 25 bp to 2%

2-May
TSLF eligible collateral expands to include AAA rated ABS

2-May
TAF and swap lines increase

Mar 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Apr 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 May 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

Market Events

14-Mar
Bear Stearns receives emergency lending from the Fed via JPMorgan

13-Mar
Bear Stearns reports a $15 bn (88%) drop in liquid assets

16-Mar
JPMorgan announces it will purchase Bear Stearns for $2/share

24-Mar
JPMorgan's purchase price for Bear Stearns increases to $10/share

Mar 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Apr 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 May 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

Other Policy Actions

7-Mar
SEC proposes a ban on naked short selling

19-Mar
Fannie Mae and Freddie Mac capital requirements are eased to allow for increases in lending

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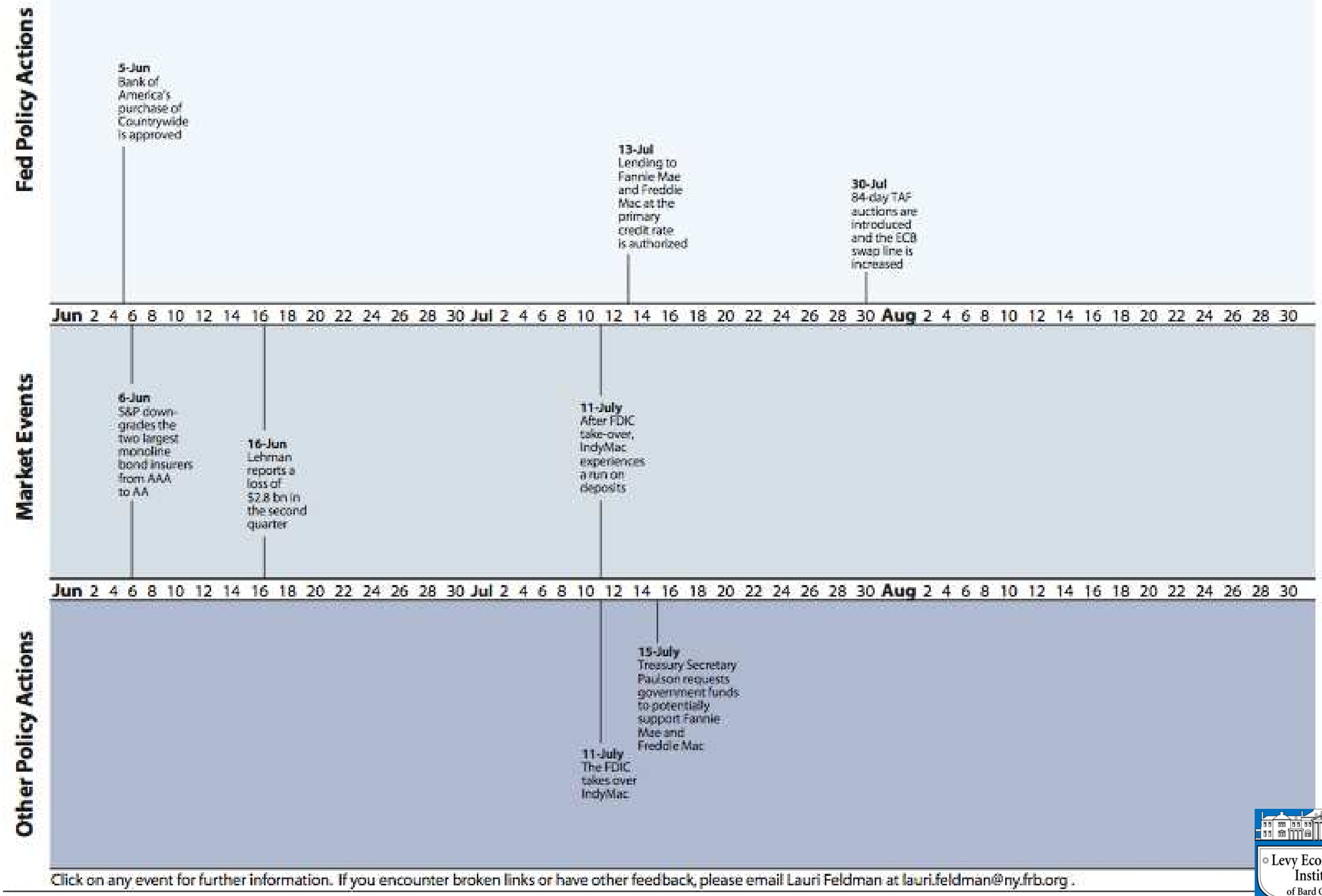
Financial Turmoil Timeline (June 2008-August 2008)



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Fed Policy Actions

14-Sep Eligible collateral for TSLF and PDCF expanded

16-Sep Fed funds rate maintained at 2%

16-Sep Fed loans $85 bn to AIG

18-Sep Swap lines increased by $180 bn

19-Sep AMLF established

21-Sep GS and MS approved as bank holding companies

24-Sep New swap lines opened with Bank of Australia, Sveriges Riksbank, Danmarks Nationalbank, and Norges Bank

26-Sep ECB and SNB swap lines are increased by $10 bn and $3 bn

29-Sep 84-day TAF allotments increased to $75 bn, two forward TAF auctions totalling $150 bn introduced, and total swap line doubled to $620 bn

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

6-Oct TAF increased to provide $900 bn of funding over year-end

7-Oct Commercial Paper Funding Facility (CPFF) established

8-Oct In conjunction 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 BOJ swap line is uncapped

16-Oct Tier I capital definition changed to include stock purchased by Treasury

21-Oct Money Market Investor Funding Facility (MMFF) 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 Brazil, Mexico, Korea, and Singapore for $30 bn each

5-Nov Interest on reserve rate increases

10-Nov AIG loan is restructured in coordination with US Treasury

25-Nov TALF established to provide loans collateralized by ABS

25-Nov Fed purchase of GSE direct obligations begins

Sep 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 $3.9 bn loss in Q3

12-Sep Moody's and S&P threaten to downgrade Lehman

14-Sep 10 banks create $70 bn liquidity fund

15-Sep Bank of America purchases Merrill 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 Wachovia

3-Oct Wells Fargo makes counteroffer for Wachovia

14-Oct 8 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

23-Nov Fed, FDIC, and Treasury agree to non-recourse loan to Citigroup if necessary

Sep 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 conservatorship

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

25-Sep OTS and FDIC acquire WaMu

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, Canada, Sweden, Switzerland, and the ECB join the Fed in cutting interest rates

14-Oct Treasury announces $250 bn capital injection plan

14-Oct FDIC insures all senior debt of regulated institutions

6-Nov European central banks make coordinated rate cuts

10-Nov Chinese government announces a ¥4 tn ($586 bn) fiscal stimulus package

12-Nov Treasury statement on assistance to consumer ABS

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Financial Turmoil Timeline (December 2008 - February 2009)

Fed Policy Actions

2-Dec
PDCF, AMLF, and TSLF are all extended through April 30th

16-Dec
Fed Funds rate lowered to a range of 0-0.25%

19-Dec
Operational details of the TALF released

16-Jan
Fed, Treasury, and FDIC jointly aid Bank of America. Fed agrees to provide non-recourse loan

28-Jan
FOMC announces willingness to begin purchase of long-term Treasury securities

28-Jan
Fed Funds rate maintained at 0-25 bp

3-Feb
All Fed facilities set to expire in April are extended through October

10-Feb
Fed states willingness to expand TALF to $1 trillion and to accept a wider set of acceptable collateral

23-Feb
Joint statement with other US government organizations discusses stress-test related capital injections

Dec 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Jan 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Feb 2 4 6 8 10 12 14 16 18 20 22 24 26 28

Market Events

1-Dec
NBER declares that a recession began in December 2007

17-Dec
November data show a decline in US consumer prices of 1.7%

20-Dec
Eleven of the world's largest banks are down-graded by S&P

10-Jan
US unemployment rises to 7.2%

16-Jan
Citigroup announces plan to split into two units after Q4 loss

24-Jan
Citigroup sells $12 bn of government guaranteed bonds

10-Feb
Markets decline after Geithner's speech due to a lack of specifics

Dec 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Jan 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 Feb 2 4 6 8 10 12 14 16 18 20 22 24 26 28

Other Policy Actions

29-Dec
Treasury injects $5 bn in GMAC

15-Jan
ECB cuts policy rate by 50 bp

16-Jan
Remaining TARP funds released by Senate

16-Jan
Fed, Treasury, and FDIC jointly aid Bank of America

19-Jan
UK announces a comprehensive bank rescue plan

26-Jan
Fannie and Freddie say they need $51 bn to continue operations

4-Feb
Treasury announces restrictions on executive pay for banks getting assistance from the government

10-Feb
Geithner launches Financial Stability Plan

18-Feb
Obama announces plan to aid homeowners with mort-gage payment

23-Feb
Bank reg-ulators issue statement on new round of capital injections

25-Feb
Treasury announces terms of the

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International Responses to the Crisis Timeline (Sept 2008 - Oct 2008)

Bank Liability Guarantees

Sep-07 thru Feb-08
United Kingdom
Government provides liquidity facilities and guarantees to Northern Rock before it is ultimately nationalized

20-Sept
Ireland
Deposit insurance increased to EUR 100,000

29-Sept
Germany
Hypo Real Estate receives EUR 35 billion guaranteed financing

30-Sept
Ireland
Six banks receive guarantees on all deposits and some debt instruments

3-Oct
United Kingdom
Deposit insurance increased to GBP 50,000

5-Oct
Germany
Government guarantees all private bank accounts

6-Oct
Sweden
Deposit insurance extended to all types of deposits, up to SEK 500,000

6-Oct
Germany
Hypo Real Estate financing guarantee increased to EUR 50 billion

8-Oct
United Kingdom
Credit Guarantee Scheme announced to guarantee debt of short maturity

9-Oct
France
Government guarantees 36.5% of EUR 150 billion Dexia refinancing

9-Oct
Italy
Government states no banks will fail, no depositors will suffer losses

13-Oct
France
EUR 320 billion fund to provide loans to banks and other financial firms announced

13-Oct
Germany
EUR 400 billion plan to guarantee bank financing announced

13-Oct
Italy
Government passes bank financing guarantee, will provide unspecified amount

20-Oct
Sweden
Government will guarantee up to SEK 1.5 billion in new debt issues

23-Oct
Canada
Canadian Lenders Assurance Facility announced to guarantee debt up to three years

31-Oct
Germany
Soffin provides Hypo Real Estate with an additional EUR 15 billion in guarantees

Sept 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 **Oct** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Liquidity and Rescue Interventions

Aug-07 thru Aug-08
Germany
IKB, WestLB, BayernLB and SachsenLB receive capital injections, credit lines and asset-backed security loss guarantees

25-Sept
United Kingdom
Bradford & Bingley bank nationalized, branch system and deposits sold to Banco Santander

30-Sept
France
Government and state-owned bank contribute EUR 3 billion to Dexia recapitalization

8-Oct
United Kingdom
Major financial institutions must raise Tier I capital by GBP 25 billion combined, funds will be available

8-Oct
Sweden
SEK 5 billion liquidity facility created for Kaupthing Bank

13-Oct
Germany
EUR 70 billion recapitalization fund announced

13-Oct
France
EUR 40 billion to be made available to recapitalize financial firms

13-Oct
United Kingdom
Capital injections of GBP 37 billion to HBOS/Lloyds, RBS

16-Oct
Switzerland
Government injects CHF 6 billion into UBS and creates an SPV to buy illiquid assets, funded by UBS capital and a central bank loan

20-Oct
Sweden
Stabilization fund announced, with SEK 15 billion initially; government will be given the right to buy out shareholders in systemically important institutions at market price

20-Oct
France
Government subscribes to EUR 10.5 billion in subordinated debt issue by six largest banks

27-Oct
Germany
Financial rescue fund Soffin begins operation, with power to guarantee financing, buy assets, and recapitalize firms

27-Oct
Sweden
SEK 1 billion liquidity facility created for Carnegie

28-Oct
Sweden
Carnegie liquidity facility increased to SEK 5 billion

Sept 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 **Oct** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Other Market Interventions

18-Sept
Sweden
Government will issue large amounts of T-bills, to counteract market shortage

18-Sept
Ireland
Short sales of financial stocks prohibited indefinitely

18-Sept
United Kingdom
Short sales of financial stocks prohibited, disclosure of short positions required

19-Sept
France
Short sales of financial stocks prohibited, plus disclosure requirements

19-Sept
Canada
Short sales of financial stocks prohibited temporarily

1-Oct
Italy
Short sales of financial stocks prohibited temporarily

3-Oct
Canada
Prohibition on **short sales** extended until end of SEC's ban

10-Oct
Canada
Government will purchase 25 billion in government-insured mortgage pools

10-Oct
Sweden
Central bank announces it will discontinue repos for monetary policy, and will instead issue debt to absorb liquidity

14-Oct
Japan
Disclosure of **short positions** now required daily by sector

15-Oct
Switzerland
Central bank will begin issuing its own debt to absorb excess liquidity

27-Oct
Japan
Naked **short selling** banned, exchanges must disclose holders of 0.25% short position, until end of April

29-Oct
Italy
Prohibition on **short sales** extended until year end

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International Responses to the Crisis Timeline (Nov 2008 - Mar 2009)

Bank Liability Guarantees

5-Nov Switzerland Deposit insurance increased to CHF 100,000

12-Nov Canada Canadian Lenders Assurance Facility lowers its guarantee fee to be in line with other programs

3-Dec Germany Soffin provides BayernLB with EUR 15 billion in guarantees

15-Dec United Kingdom Credit Guarantee Scheme guarantee lengthened to five years

22-Dec Germany Soffin provides IKB with EUR 5 billion in guarantees

19-Jan United Kingdom Credit Guarantee Scheme extended to guarantee debt issues until year-end 2009

21-Jan Germany Soffin provides Hypo Real Estate with an additional EUR 12 billion in guarantees

7-Mar Germany Soffin provides HSH Nordbank with EUR 30 billion in guarantees

Nov 3 6 9 12 15 18 21 24 27 30 Dec 3 6 9 12 15 18 21 24 27 30 Jan 3 6 9 12 15 18 21 24 27 30 Feb 3 6 9 12 15 18 21 24 27 Mar 3 6 9 12 15 18 21 24 27 30

Liquidity and Rescue Interventions

2-Nov Germany Soffin gives EUR 8.2 billion of loans to Commerzbank AG

10-Nov Sweden Carnegie seized by the government, as collateral on the liquidity facility that cannot be repaid

28-Nov Germany BayernLB receives EUR 7 billion of capital from Bavaria, requests 3 billion more from Soffin

14-Dec Ireland Finance Ministry announces EUR 10 billion will be made available for recapitalization

23-Dec Ireland Subject to shareholder vote, three banks will receive EUR 5.5 billion in preference shares

8-Jan Germany Soffin gives another EUR 8.2 billion of loans to Commerzbank, and buys 1.8 billion worth of equity

15-Jan Ireland Anglo Irish bank nationalized due to weak funding position and "unacceptable practices"

19-Jan United Kingdom Asset Protection Scheme announced; for a fee Treasury will assume 90% of losses after initial provision

19-Jan United Kingdom Treasury converts preference shares in RBS into common equity

21-Jan France Second round of recapitalization for another EUR 10.5 billion of debt

3-Feb Sweden SEK 50 billion recapitalization program announced

11-Feb Ireland New terms for recapitalization for two banks announced

24-Feb Germany Two German states recapitalize the state-owned HSH Nordbank

25-Feb Italy EUR 12 billion recapitalization plan approved

26-Feb France Government provides EUR 5 billion in debt and preference shares to two merging banks

26-Feb United Kingdom RBS agrees to participate in APS, receives capital injection of GBP 13 billion, giving 84% ownership to gov't

7-Mar United Kingdom Lloyds agrees to participate in APS, Treasury converts preference shares into common equity

17-Mar Japan Bank of Japan announces a subordinated loan program of JPY 1 trillion

30-Mar Germany Soffin purchases 8.7% of Hypo Real Estate for EUR 60 million

Nov 3 6 9 12 15 18 21 24 27 30 Dec 3 6 9 12 15 18 21 24 27 30 Jan 3 6 9 12 15 18 21 24 27 30 Feb 3 6 9 12 15 18 21 24 27 Mar 3 6 9 12 15 18 21 24 27 30

Unconventional Monetary Policy

19-Dec Japan Purchases of Japanese government bonds increased to JPY 1.4 trillion per month

19-Dec Japan Bank of Japan will conduct temporary purchases of commercial paper to ease year-end financing

19-Jan United Kingdom Bank of England announces GBP 50 billion in purchases of high-quality private sector assets

22-Jan Japan Bank of Japan will purchase JPY 3 trillion of CP and asset-backed CP

3-Feb Japan Bank of Japan will purchase JPY 1 trillion of bank stock

19-Feb Japan Bank of Japan will continue purchasing commercial paper until September

19-Feb Japan Bank of Japan will purchase JPY 1 trillion of corporate bonds

5-Mar United Kingdom Asset Purchase Plan increased to GBP 75 billion, will include purchases of gilts

12-Mar Switzerland Central bank will purchase CHF-denominated bonds

18-Mar Japan Purchases of Japanese government bonds increased to JPY 1.8 trillion per month

Nov 3 6 9 12 15 18 21 24 27 30 Dec 3 6 9 12 15 18 21 24 27 30 Jan 3 6 9 12 15 18 21 24 27 30 Feb 3 6 9 12 15 18 21 24 27 Mar 3 6 9 12 15 18 21 24 27 30

Other Market Interventions

12-Nov Canada Government announces an additional 50 billion in insured mortgage pool purchases

17-Dec Sweden Government announces it will purchase SEK 75 billion against EUR, in foreign exchange, given a historically weak krona

18-Dec France **Short sale** ban maintained, to be revisited in February

30-Dec Italy **Short sale** prohibition extended for financial stocks, rules for non-financial stocks relaxed

5-Jan United Kingdom **Short sale** disclosure requirements extended, additional disclosures required

19-Jan United Kingdom CGS-eligible firms can get a full or partial guarantee on AAA-rated ABS

29-Jan Italy **Short sale** prohibition extended for financial stocks

2-Feb Switzerland Central bank will now also issue debt denominated in USD

26-Feb Italy **Short sale** prohibition extended for financial stocks

12-Mar Switzerland Central bank will purchase foreign currency against the Franc to halt its appreciation

27-Mar Japan **Short sale** restrictions

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International Responses to the Crisis Timeline (Apr 2009 - Aug 2009)

Bank Liability Guarantees

2-Apr
Sweden
Guarantee scheme extended until end of October

14-Apr
Germany
Soffin extends EUR 52 billion in guarantees to Hypo Real Estate until mid-August

3-Jul
Germany
IKB receives an additional EUR 7 billion in guarantees

31-Jul
Italy
Banco Popolare becomes the first bank to use the Italian bank liability guarantee program

Apr 3 6 9 12 15 18 21 24 27 30 May 3 6 9 12 15 18 21 24 27 30 Jun 3 6 9 12 15 18 21 24 27 30 Jul 3 6 9 12 15 18 21 24 27 30 Aug 3 6 9 12 15 18 21 24 27 30

Liquidity and Rescue Interventions

7-Apr
Ireland
Government announces it will swap government bonds for EUR 90 billion face value of toxic assets

9-Apr
Germany
Soffin makes a bid for Hypo Real Estate, will nationalize if investors do not accept by May

11-Apr
Germany
Finance Minister proposes "bad bank" plan that keeps toxic assets on the books, but will take illiquid assets

3-Jun
Germany
Hypo Real Estate shareholders, led by Soffin at 47% ownership, vote for a EUR 3 billion capital injection giving government full control

10-Jul
Germany
Bad bank plan passed by legislature: trades toxic assets for guaranteed debt, but firms must repay any losses over 20 year period

30-Jul
Ireland
Bad bank draft proposal released, legislative debate to begin mid-September

20-Aug
Switzerland
Government converts its stake in UBS to shares and sells them, in addition to a cash payment from UBS in lieu of coupon payments

Apr 3 6 9 12 15 18 21 24 27 30 May 3 6 9 12 15 18 21 24 27 30 Jun 3 6 9 12 15 18 21 24 27 30 Jul 3 6 9 12 15 18 21 24 27 30 Aug 3 6 9 12 15 18 21 24 27 30

Unconventional Monetary Policy

7-May
United Kingdom
Asset purchase plan increased to GBP 125 billion in assets

7-May
ECB
Central bank announces EUR 60 billion in purchases of covered bonds

8-Jun
United Kingdom
Asset purchases to be expanded to include secured commercial paper

2-Jul
Sweden
Riksbank lowers monetary policy rates; deposit rate now negative 0.25%

6-Aug
United Kingdom
Asset purchase plan increased to GBP 175 billion in assets

Apr 3 6 9 12 15 18 21 24 27 30 May 3 6 9 12 15 18 21 24 27 30 Jun 3 6 9 12 15 18 21 24 27 30 Jul 3 6 9 12 15 18 21 24 27 30 Aug 3 6 9 12 15 18 21 24 27 30

Other Market Interventions

6-Apr
ECB, UK, Japan
Switzerland
Foreign central banks agree to provide the Federal Reserve with foreign currency liquidity

28-May
Sweden
Government announces it is expanding its SEK purchases against the EUR by SEK 35 billion to 50 billion

28-May
Italy
Short sale ban is relaxed except on firms receiving capital injections

25-Jun
ECB, UK, Sweden
Switzerland
Swap lines with the Federal Reserve extended until February 1st

26-Jun
United Kingdom
Short sale disclosure requirements extended until new, permanent regulations can be introduced

15-Jul
Japan
Swap line with the Federal Reserve extended until February 1st

24-Jul
France
Short sale ban on financial firms extended until January 2010

28-Jul
Japan
Short sale restrictions extended until October 31st

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International Responses to the Crisis Timeline (Sep 2009 - Jan 2010)

Bank Liability Guarantees

9-Sep
Germany
Commerzbank announces it will return all of its unused debt guarantees

8-Oct
Sweden
Guarantee scheme extended an additional six months to April 30th

21-Dec
Germany
Hypo Real Estate receives an extension of EUR 43 bn liquidity facility until Dec 2010, EUR 52 bn in guarantees to expire in Jun 2010

Sep 3 6 9 12 15 18 21 24 27 30 Oct 3 6 9 12 15 18 21 24 27 30 Nov 3 6 9 12 15 18 21 24 27 30 Dec 3 6 9 12 15 18 21 24 27 30 Jan 3 6 9 12 15 18 21 24 27 30

Liquidity and Rescue Interventions

29-Sep
Italy
Unicredit announces it will raise capital through selling stocks in lieu of planned government capital injection

29-Sep
France
BNP Paribas announces a rights offer to raise capital in order to repay government aid

6-Oct
France
Societe Generale follows BNP Paribas, announcing a rights offer to repay government aid

3-Nov
United Kingdom
Lloyds exits the Asset Protection Scheme for a fee; RBS will continue participating under new conditions

Unconventional Monetary Policy

5-Nov
United Kingdom
Asset purchase plan increased to GBP 200 billion in assets

Sep 3 6 9 12 15 18 21 24 27 30 Oct 3 6 9 12 15 18 21 24 27 30 Nov 3 6 9 12 15 18 21 24 27 30 Dec 3 6 9 12 15 18 21 24 27 30 Jan 3 6 9 12 15 18 21 24 27 30

Other Market Interventions

23-Oct
Japan
Short sale restrictions extended until January 11th

22-Jan
Japan
Short sale restrictions extended until April 30th

27-Jan
EU, UK, Japan, Sweden, Switzerland
Swap lines with the Federal Reserve are allowed to expire on February 1st

27-Jan
France
Short sale ban on financial firms extended indefinitely until EU-wide permanent regime in p

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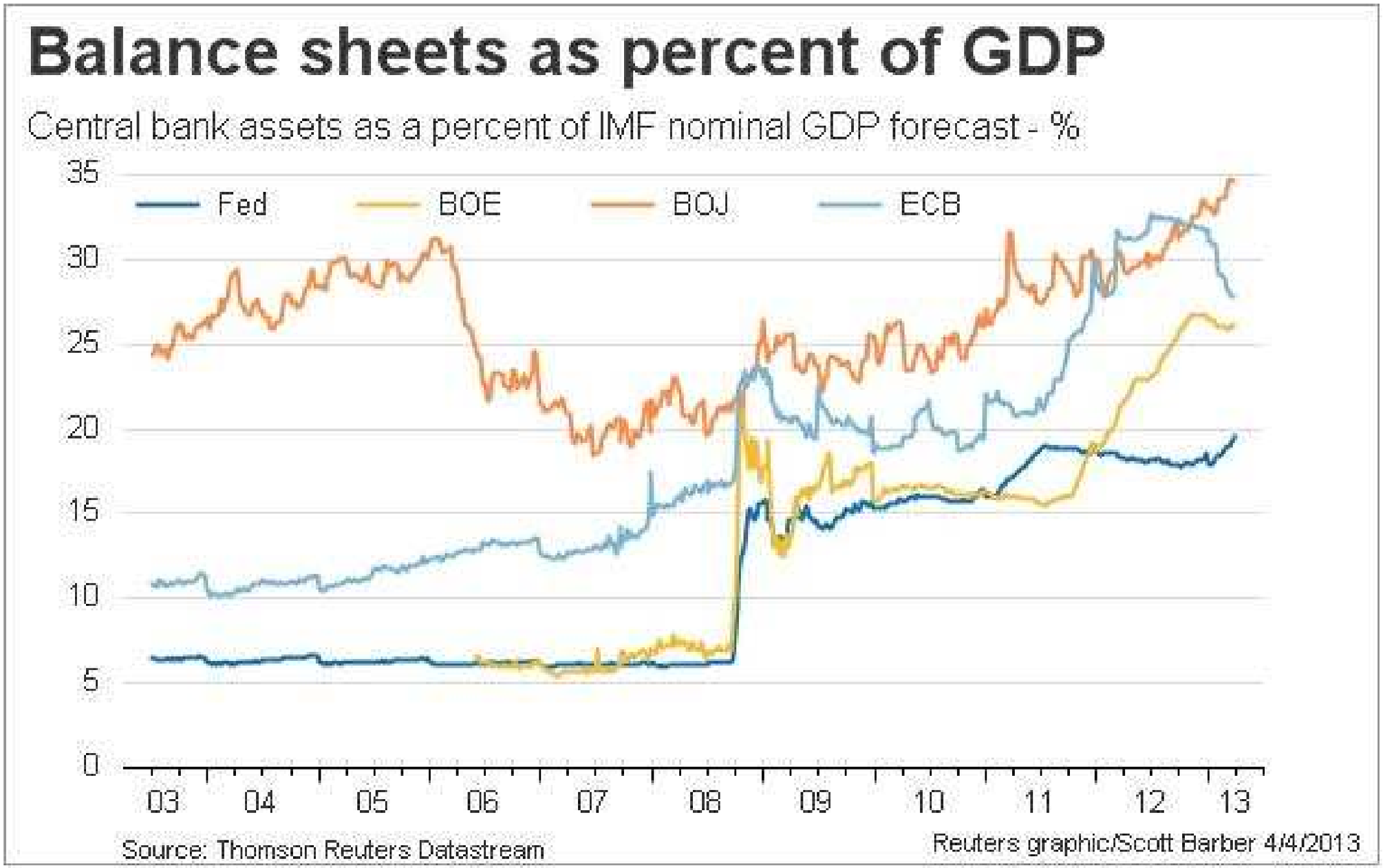
But they all had one thing in common: Balance Sheets



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Extraordinary Monetary Policies: Financial Sector

- In Response to the Crisis
  - Bagheot Rule: Provide liquidity at penalty rates against good collateral did not apply
  - Keynes's Rule: If they want Green Cheese give them Green Cheese
    - Fed Reg 13(3) lend to anyone who cannot get accommodation from financial system
  - But, under mark to market accounting, a liquidity crisis destroys market pricing references and defaults due to failure to access short-term funding meant most financial institutions faced insolvency
- Extreme liquidity preference caused by uncertainty over solvency of counterparties
  - Led to a freeze in all financing of the productive sector
  - Creation of Special Vehicles to acquire bad assets
    - Kahn rule: the financial system is responsible for providing money in exchange for the financial assets the public does not want to hold
    - The Central Bank is responsible for providing reserve deposits in exchange for the financial assets the financial system does not want to hold
  - Payment of interest on all reserve deposits to counter freeze in interbank market
  - Removal of Assets from bank balance sheets to reduce uncertainty over solvency

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Policy was Neither New nor Exceptional

- Recommended by Keynes's Treatise on Money in Response to the 1930s Crisis
- Challenged monetary authorities to take "deliberate and vigorous action" to reduce interest rates via "extraordinary" monetary policy action:
- "the purchase of securities by the central bank until the long-term market rate of interest has been brought down … to any figure at which it is itself prepared to buy long-term securities."… "Thus I see small reason to doubt that the central bank can produce a large effect ... if it is prepared to persist with its open-market policy far enough."
- Thus, Keynes not only recommends pushing the rate of interest down towards zero, but buying in the long-term market to reduce long rates.
- Keynes notes that these policies are not at all different from normal open-market policies, and that the central bank possesses the power to set any interest rate, short or long, at any level it desires.

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Extraordinary Monetary Policies: Recovery

- In Response to the Collapse of lending to the Productive Sector and the Great Recession
- Keynes's Monetary Policy **à outrance**
- Restore Lending to the Productive Sector, Support Investment
  - How to make banks lend more
  - How to make business borrow more
  - Flatten (or Invert) the Yield Curve
    - Lower the short price! {ZIRP}
    - Lower the long price! {QE I,II, III}
    - Swap bills for bonds Maturity Extension Program
  - Make Risk Free assets Risky; Drive Investors to Riskier Assets
    - Stock Market Boom, Mortgage Refinancing Boom
- Catch 22 Policy:
- If economy improves allow rates to rise, losses on bonds but higher mortgage and financing costs cut off recovery
- If economy deteriorates extend policy, invest in bonds for capital gains not real investment
- NO NET IMPACT ON INVESTMENT SPENDING OR CONSTRUCTION

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Keynes soon gave up on Monetary Policy Alone

- It is Expected Profit not financing cost that drives expenditure and employment: Effective Demand
- The problem not only wealth destruction in the banks, it is wealth destruction in the households and policies to protect wealth in the firms
- Households could not swap their mortgages for bank deposits the way banks swapped MBS for Central Bank reserves
  - Households must earn back their losses and/or reduce expenditures
  - Unemployment, falling wages, make this even harder
- Monetary Policy alone is not enough to start Recovery:
  - Dunkman (1933): "no technique has been devised for placing bank {reserves} credit directly at the disposal of the community"
- Who can spend without fear of loss?? This is the role of Government

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How can Private Sector Rebuild?

- Sectoral Financing Objectives in response to the Great Recession:
  - Households S>I Higher Incomes or Lower Consumption to Repay Debt
  - Firms S>I reduce Capacity to avoid losses on Investment, conserve cash in liquidity freeze
  - Private Sector Balance = Households + Firms = S>I
  - Foreign Sector Balance:
    - For US: NX < 0,
    - For Europe, Japan NX > 0
  - Public Sector Balance:
    - For US, Japan Short Term Stimulus G>T rising, Long Term Reduction G>T rising
    - for Europe Austerity Short Term G > T falling, Long Term G=T
- Final Expenditures Y= C + I + G + NX or
- Sectoral Financial Balances S-I = T-G + NX
- Only compatible with Global NX>0

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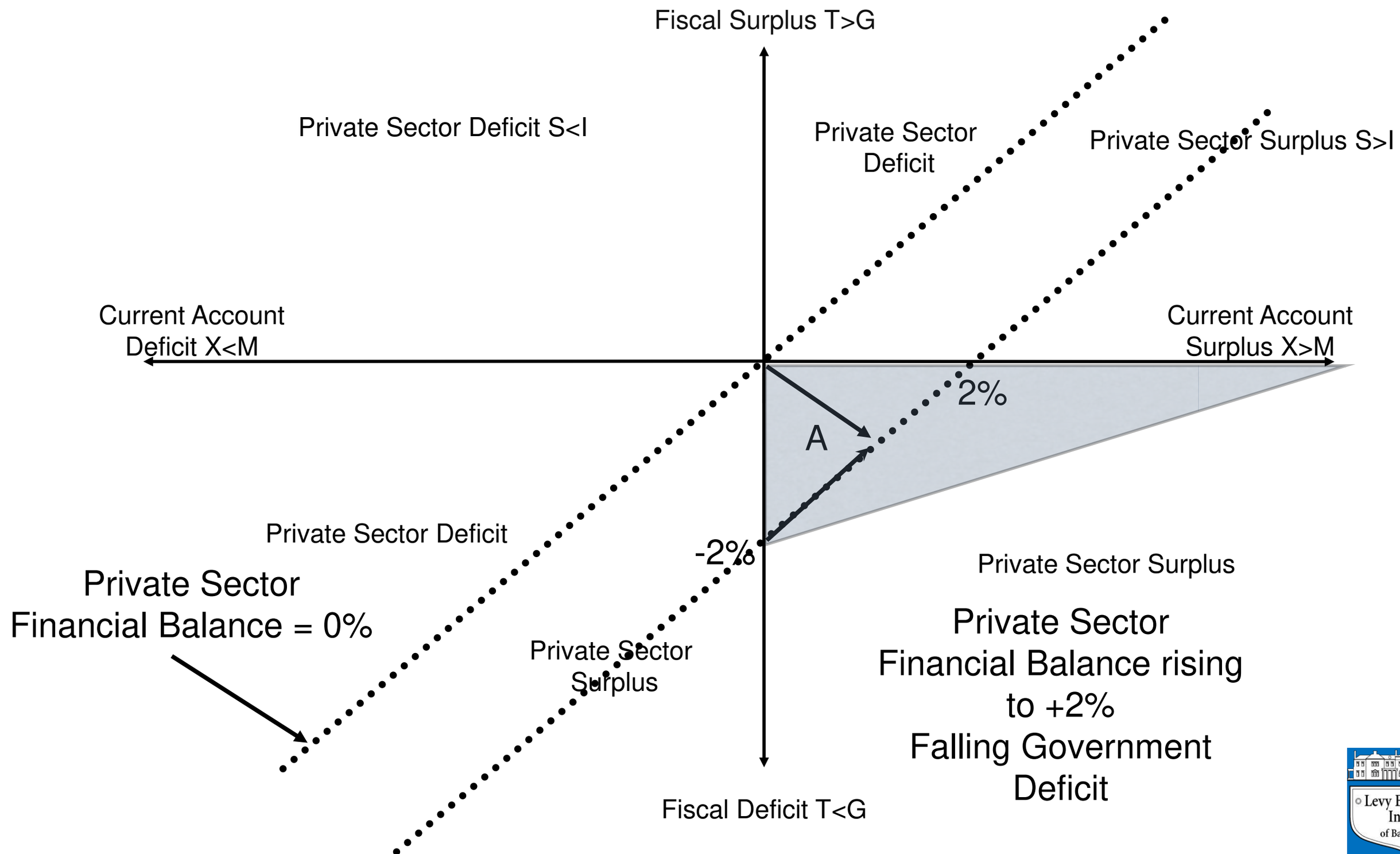
Sectoral Financial Balances 0 = (S-I) + (T-G) + (X-M)



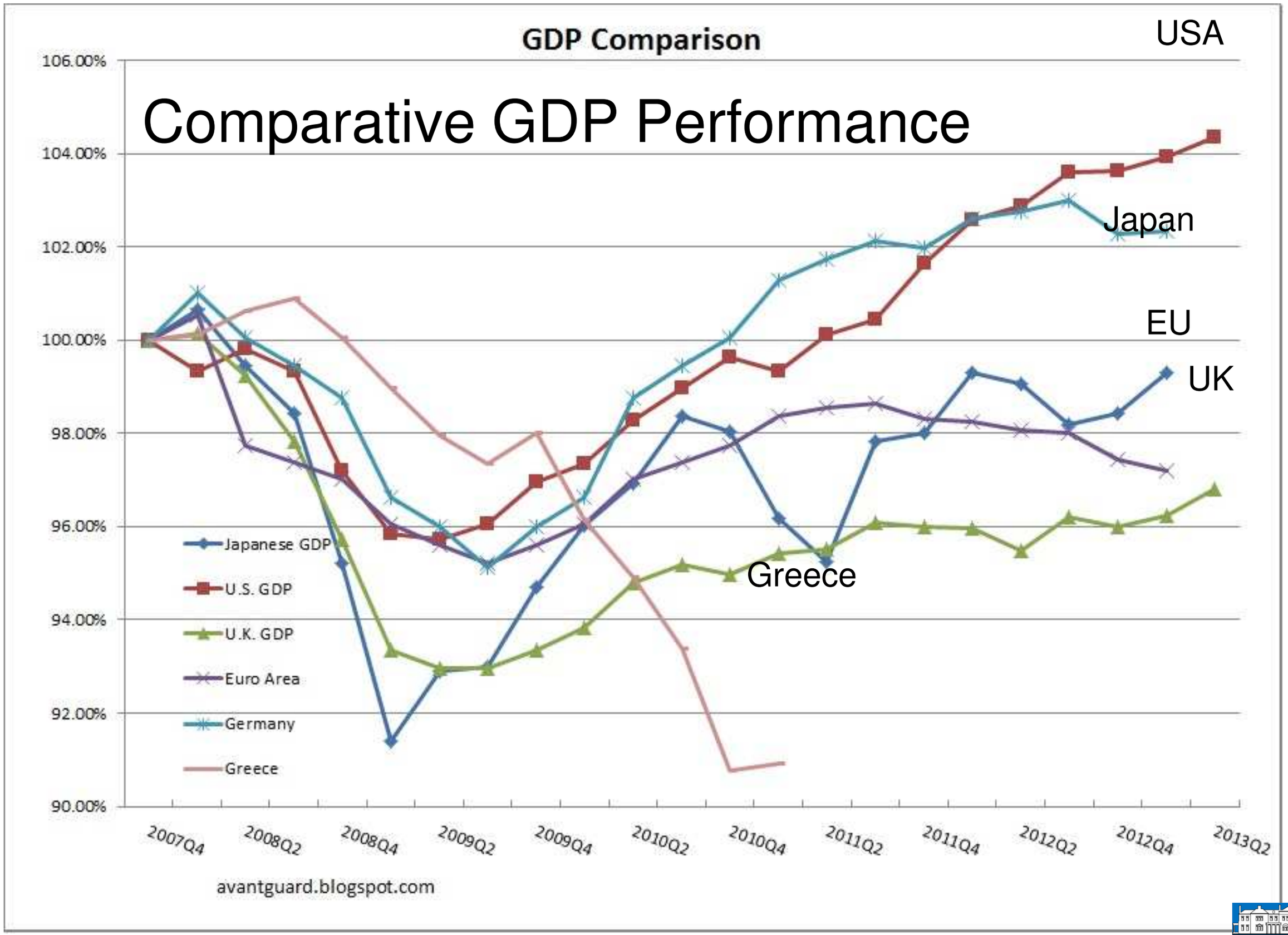


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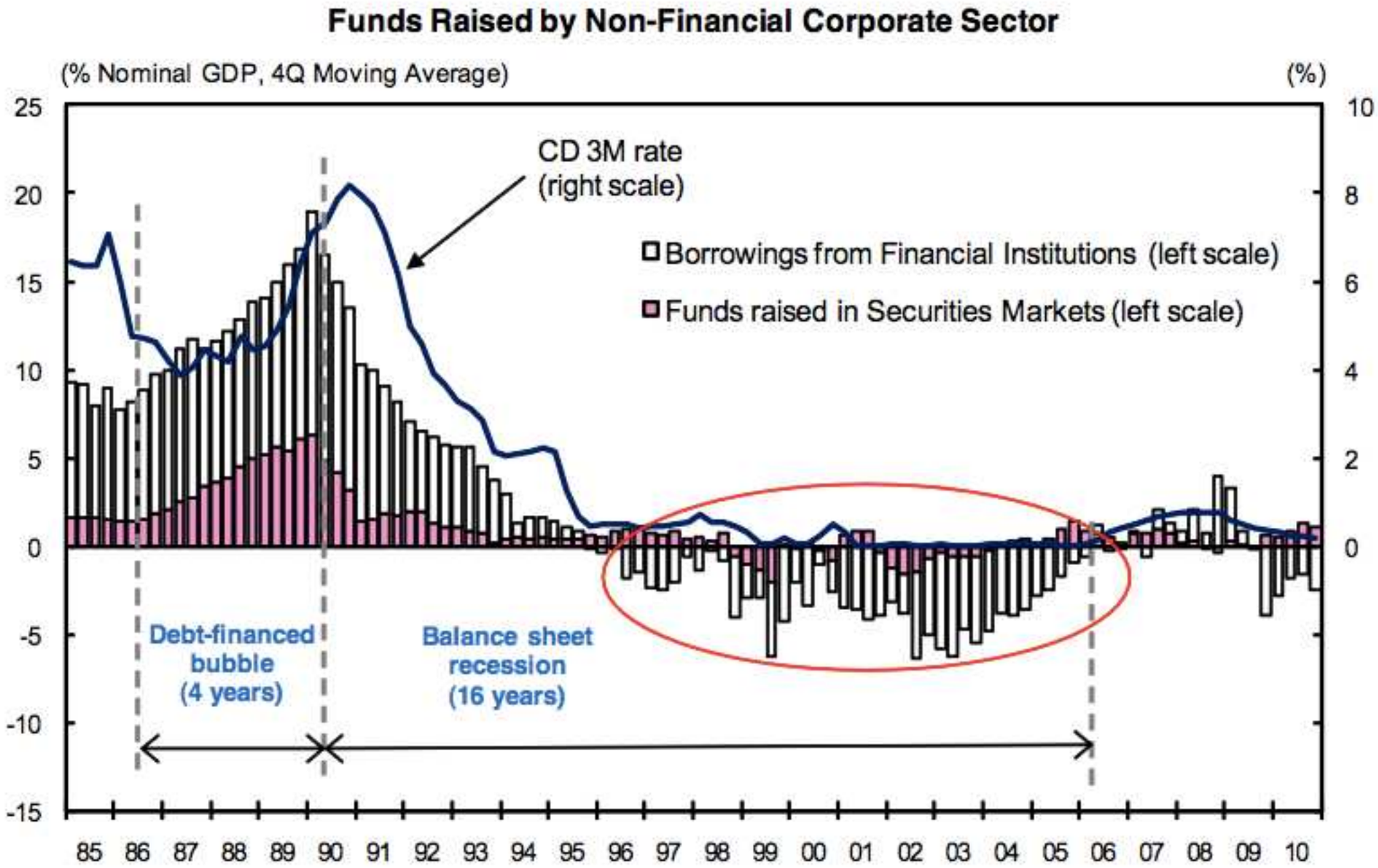
Exhibit 6. Japan's de-leveraging with zero interest rates lasted for 10 years



Sources: Bank of Japan, Cabinet Office, Japan

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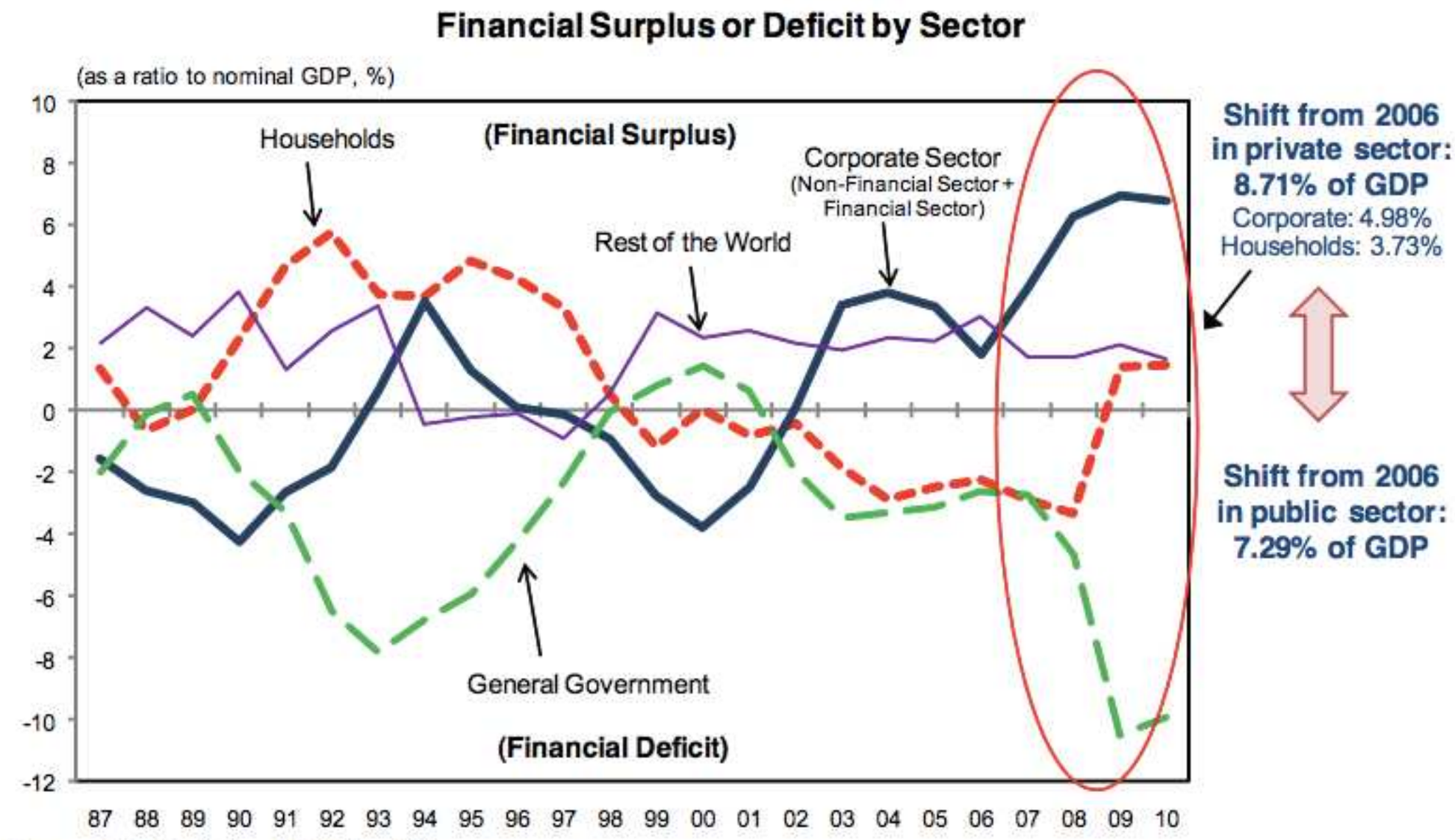
Exhibit 12. UK flow of funds



Source: Office for National Statistics, UK

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US Exceptional Policies

- Crisis in the Financial Sector

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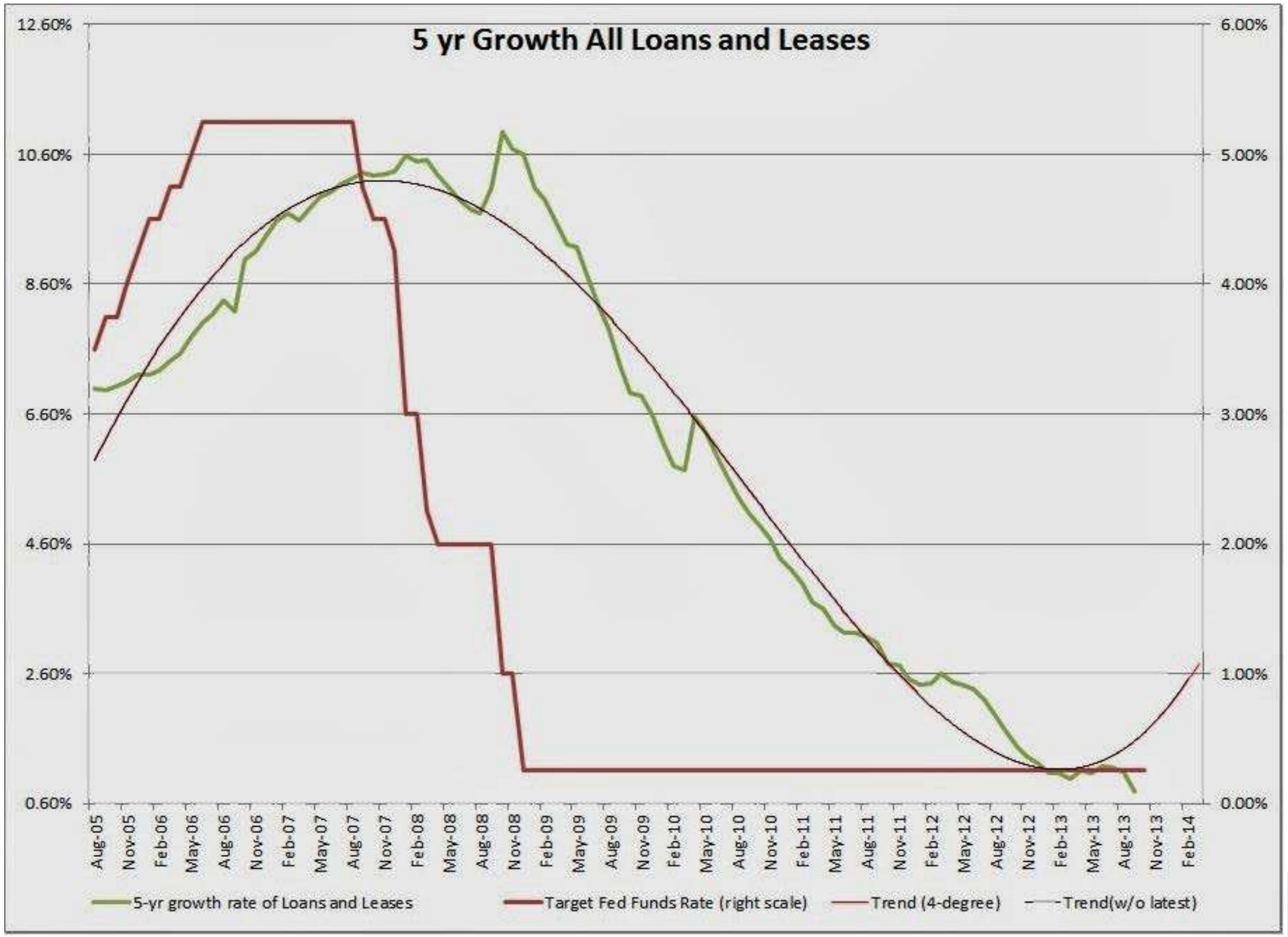
The Financial System Stops Lending



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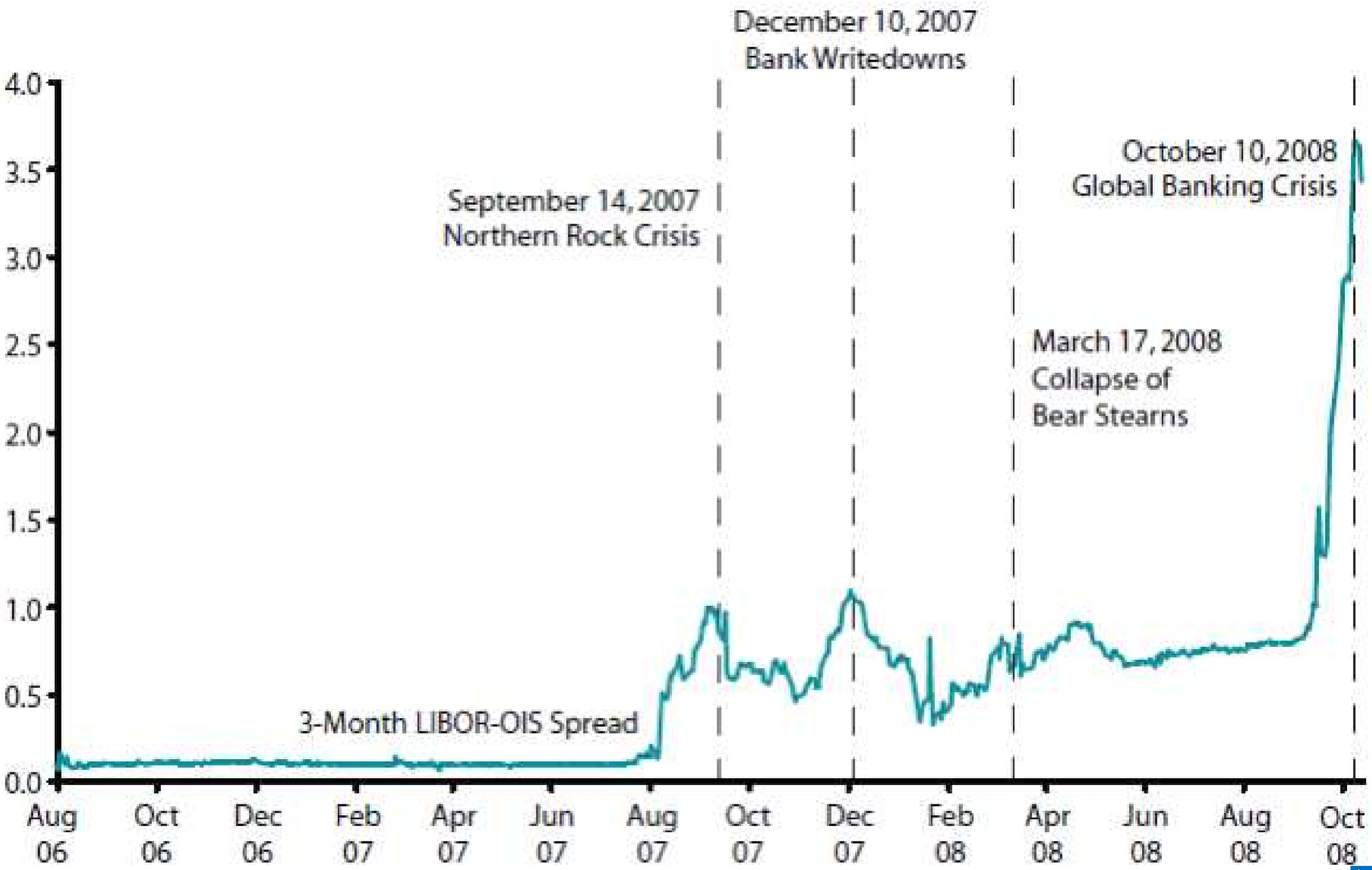

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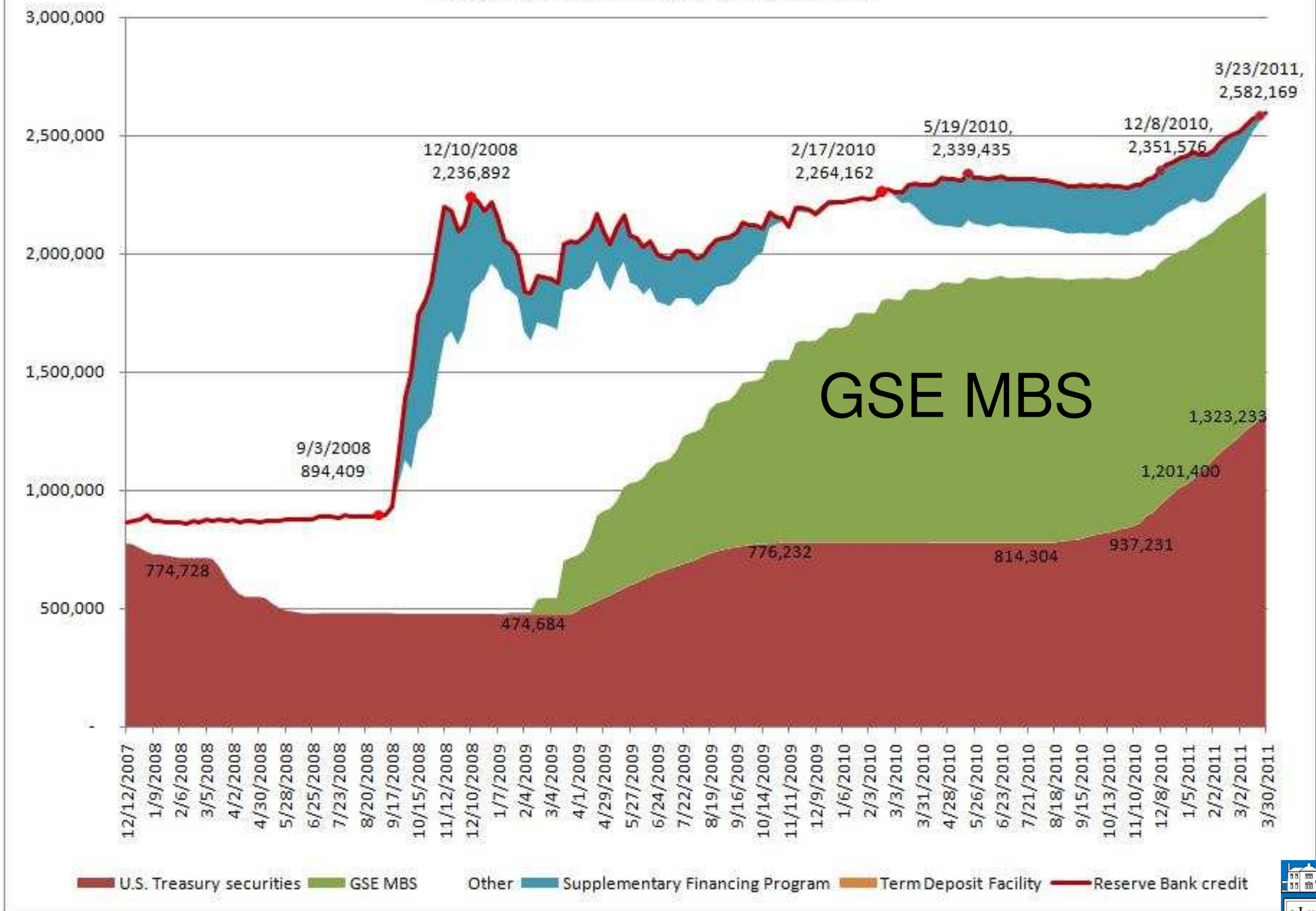
Federal Reserve Balance Sheet



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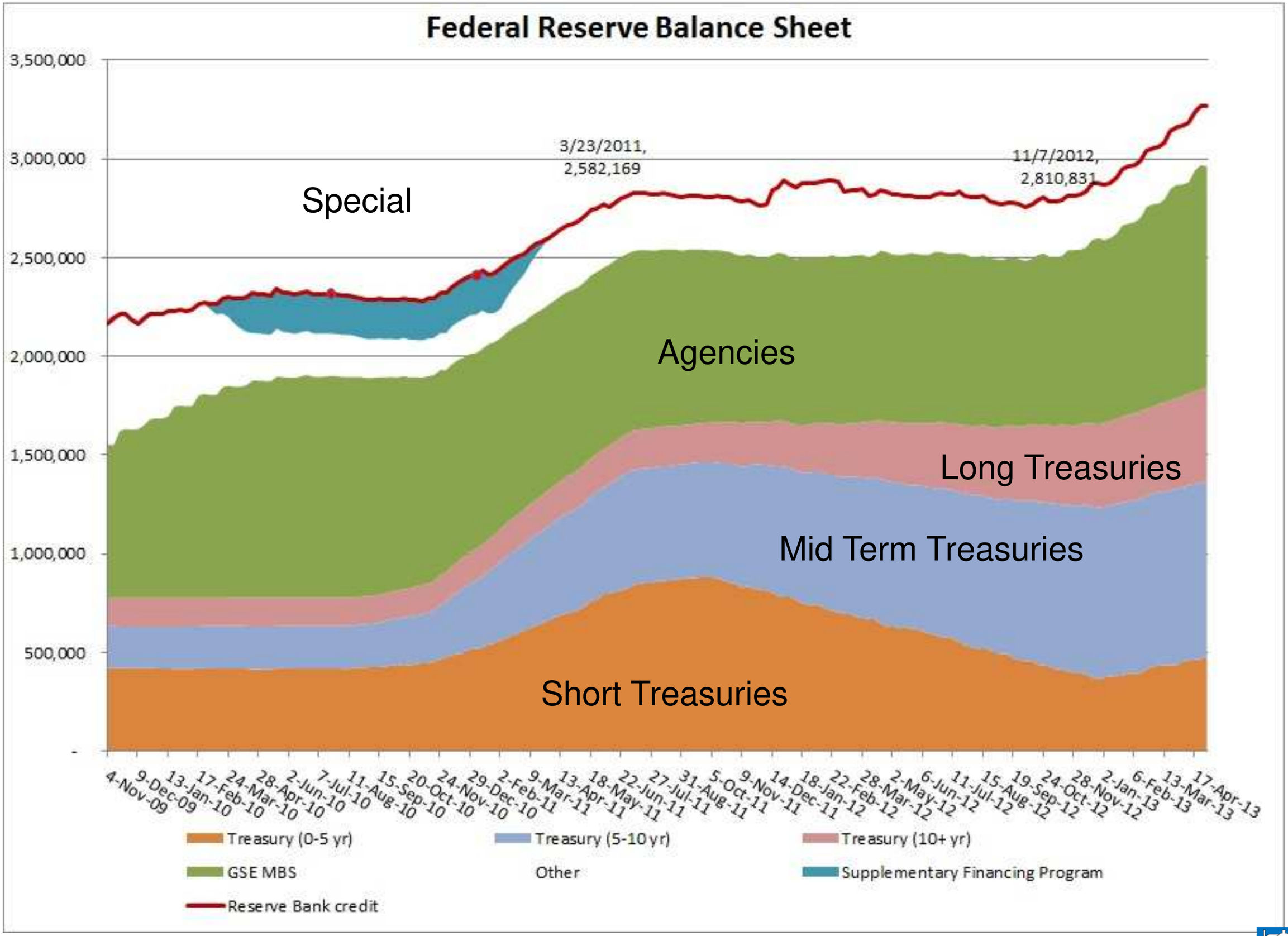

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Stage One—Provision of Short-Term Liquidity

- Crisis facilities associated with Stage 1 were aimed at providing "short-term" liquidity to solvent banks and other depository institutions as well as other types of financial institutions.
- Aimed at improving aggregate liquidity and also distribution of liquidity across financial institutions.

Term Auction Facility (TAF)

- Announced December 12, 2007
- 12/17/2007-3/8/2010 (approx. 39 months)
- Stress in sub-prime market; credit ratings downgrade; stigma problem; Federal Home Loan Bank System (FHLB) increased lending by 272% (from $235B to $875B) second half of 2007; was directed at depository institutions
- Authorized under FRA section 10B
- Auctioned 28 and 84 day discount window loans to eligible depository institutions
- 416 Unique Borrowers, 24 would comprise 71% of all borrowing
- Total loans issued: 4,214
- Cumulative lending: $3.817 trillion
- Peak outstanding: $493 billion
- Peak monthly usage: $347 billion
- All loans repaid in full

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Central Bank Liquidity Swaps (CBLS)

- Announced 12/12/07
- 12/17/2007-2/1/2010 (approx. 38 months)
- Reopened for select banks , 5/2010-1/2012
- Foreign banks having difficulty borrowing dollars; implemented to prevent fall in asset prices resulting from selling out of positions; was directed at foreign central banks
- Authorized under FRA section 14
- Swapped U.S. dollars for foreign currency
  - U.S. not subject to FX risk
- 10 borrowers (ECB comprised 80% of total borrowing)
- 569 loans issued 12/17/2007-2/1/2010
- Cumulative Lending: $10.057 trillion
- Peak outstanding: $583.13 billion
- Peak monthly usage: $2.887 trillion
- All transactions were executed in full, in accordance with the terms of the swap arrangements

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Single-Tranche Open Market Operations (ST OMO)

- Announced March 3/7/2008
- 3/7/2008-12/31/2008 (approx. 9 months)
- Intent was to ease strains in the agency MBS market by providing liquidity; directed at primary dealers
- Provided liquidity via repo operations
- 19 Borrowers, top 5 borrowed 69% of all loans
- Total loans issued: 375
- Cumulative lending: $855 billion
- Peak outstanding: $80 billion
- Peak Monthly Usage: $20 billion
- All loans repaid in full

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Term Securities Lending Facility & TSLF Options Program (TSLF & TOP)

- Announced 3/11/2008
- Closed:
  - 7/1/2009 (Schedule 1) (approx. 16 months)
  - 2/1/2010 (Schedule 2) (approx. 22 months)
- Authorized under FRA section 13(3); first time to be used
- Fed concerned about efficacy of conventional liquidity channel via depository institutions; repo market showing signs of considerable pressures; directed at primary dealers
- Auctioned treasury securities to primary dealers for a fee at a term of one month; was implemented to provide more acceptable collateral base for trades and prevent settlement fails
- Under TOP, offered supplementary liquidity in times of heightened market pressure
- 18 borrowers (11 used TOP), 9 dealers comprised 86% of all borrowing
- Total loans issued: 560
- Cumulative Lending: $2.006 trillion
- Peak outstanding: $235 billion
- Peak monthly usage: $260 billion
- All loans repaid in full

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Bear Stearns & Maiden Lane I

- Negotiated March 2008
- Bridge Loan to Bear Stearns through JP Morgan
  - March 14, 2008−$12.9 billion
  - Repaid with interest two days later
- Maiden Lane I; created a Special Purpose Vehicle (SPV)
  - $28.991 billion
  - Repaid June 12, 2012

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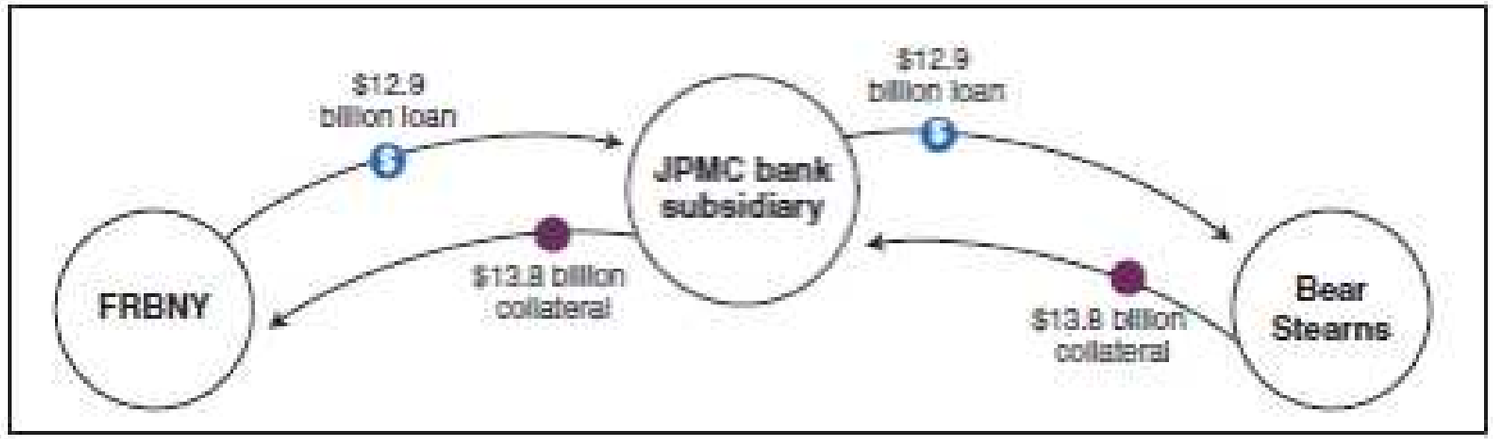
Bear Stearns—JPMorgan Bridge Loan Transaction Structure



Source: GAO presentation of Federal Reserve Board information.

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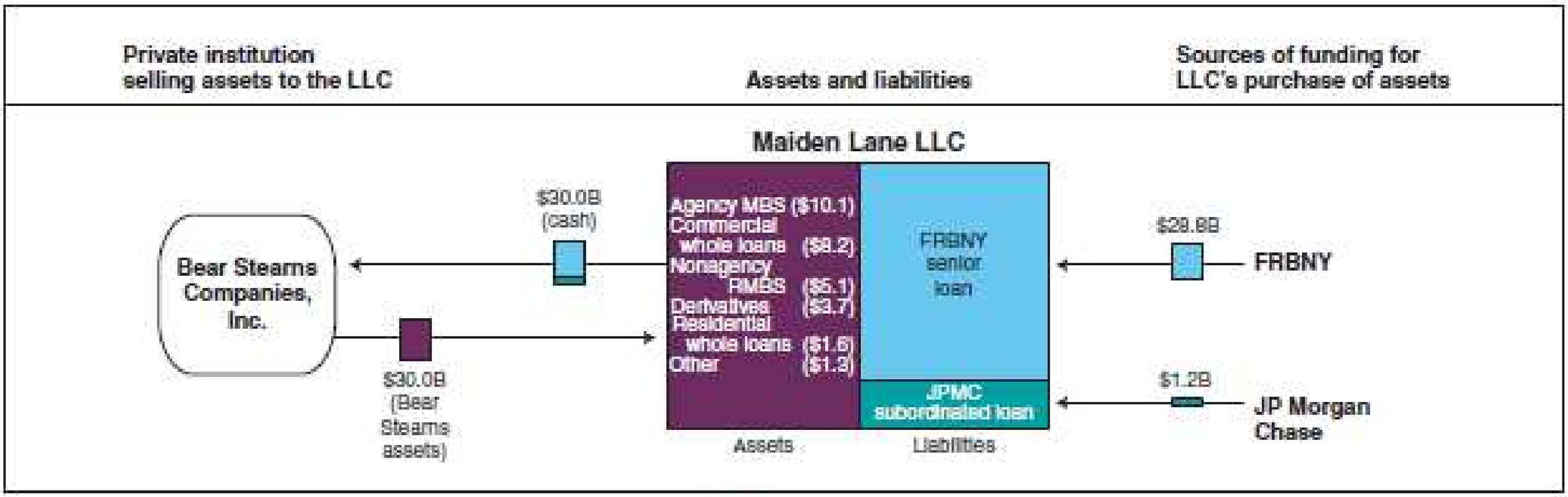
Maiden Lane I Transaction Structure



Source: GAO analysis of FRBNY information.

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Primary Dealer Credit Facility (PDCF)

- Announced 3/16/2008
- 3/17/2008-2/1/2010 (approx. 23 months)
- Designed to help investment banks *directly* by providing cash against collateral; directed at primary dealers
- Authorized under FRA section 13(3)
- Lent reserves on an overnight basis directly to Primary Dealers; similar to conventional discount window lending to depository institutions
- 18 borrowers, 6 would comprise 92% of all borrowing
- Total loans issued:
  - 1,021 for PDCF
  - 355 to London affiliates
- Cumulative lending: $8.95 trillion
- Peak outstanding: $146.56 billion
- Peak monthly usage: $2.47 trillion
- All loans repaid in full

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AIG Support Operation

- Revolving Credit Facility
  - Designed to help with liquidity shortfalls
  - $140.31 billion
  - Fully repaid
- Securities Borrowing Facility
  - Engaged in repos against AIG collateral
  - $802.32 billion
  - Fully repaid
- Maiden Lane II—SPV
  - Purchase non-agency RMBS
  - $19.5 billion.
  - Assets sold February 28, 2012
- Maiden Lane III—SPV
  - Was an attempt to “restructure” AIG’s debt to Fed.
  - Purchase multi-sector CDOs against which AIG had written CDSs
  - $24.3 billion
  - Sale of securities allowed repayment to the Fed on June 14, 2012 and repayment of AIG equity interest on July 16, 2012. All remaining securities sold August 23, 2012.
- All required authorization of section 13(3) of FRA

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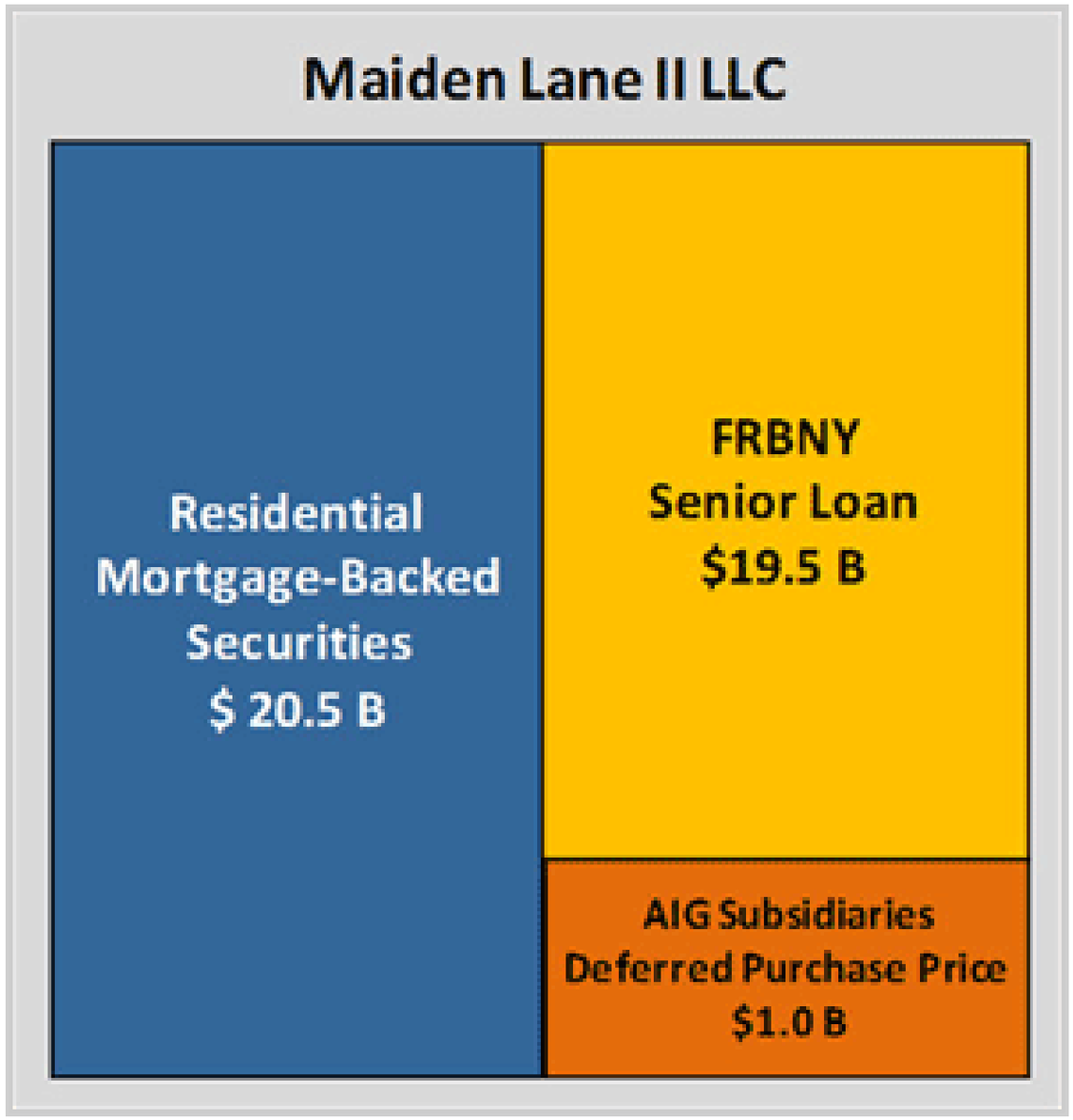
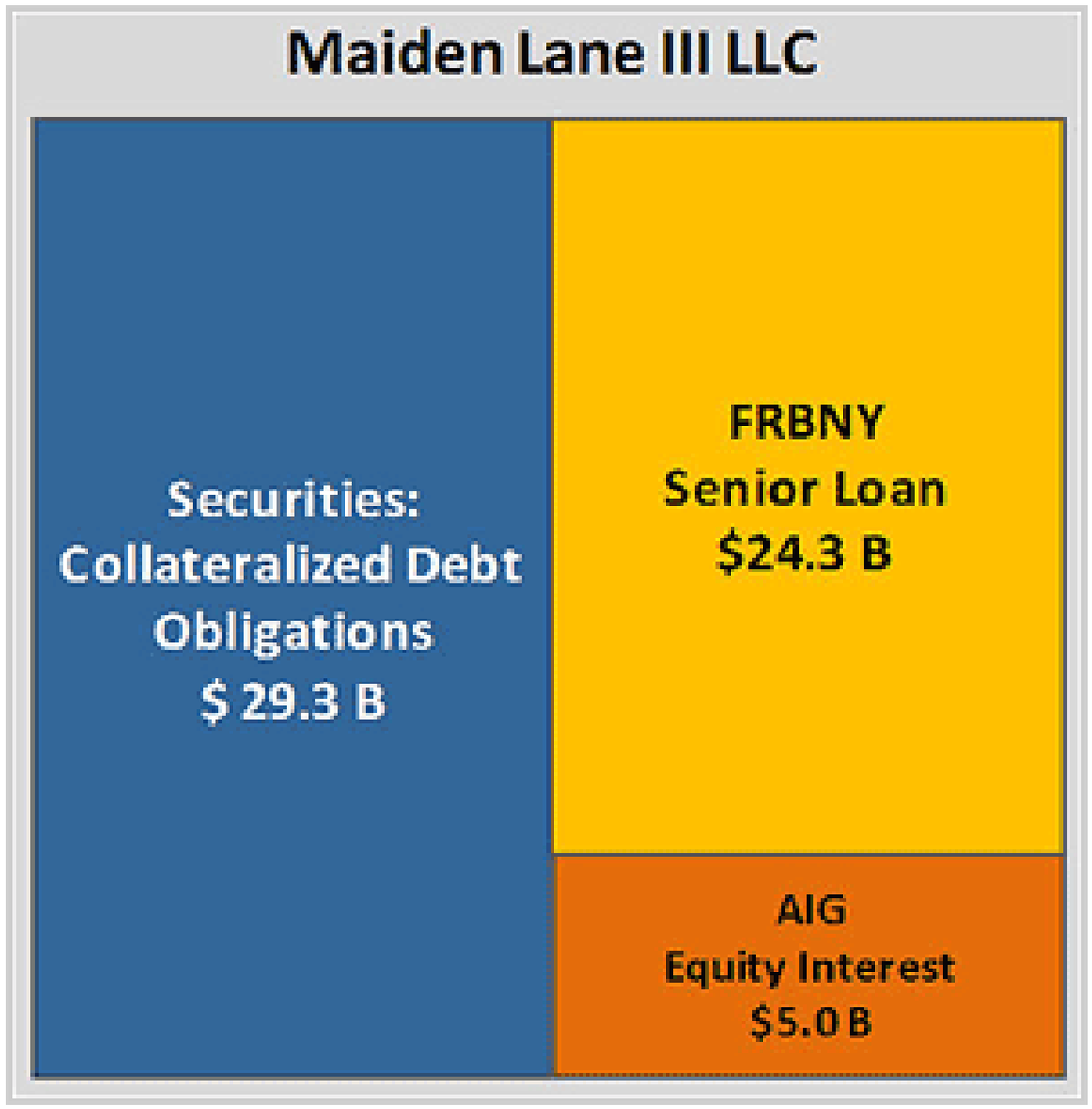
More Maiden Lanes





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Maiden Lane II Transaction Structure

Source: GAO analysis of FRBNY information.

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Maiden Lane III Transaction Structure

Source: GAO analysis of FRBNY information

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Stage Two—Provision of Liquidity to Borrowers and Investors in Key Credit Markets

- Departure from conventional LOLR operations.
- Designed to restart the flow of credit to households and businesses through the institution of programs designed to provide loans to intermediaries who would then purchase new Private debt issued in key financial markets.
- Fed begins to act as "market or dealer" LOLR.

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Asset-Backed Commercial Paper Money Market Fund Liquidity Facility (AMLF)

- Announced 9/19/2008
- 9/22/2008-2/1/2010 (approx. 15 months)
- Money market mutual funds (MMMFs) experiencing considerable withdraws and forced to liquidate positions; first facility to be directed at credit markets; specifically MMMFs
- Authorized under FRA section 13(3)
- Made nonrecourse loans to intermediary borrowers to purchase ABCP from MMMFs
- 11 borrowers (from 7 holding companies), two of which would comprise 92% of total borrowing
- 161 sellers
- Total loans issued: 1,133
- Cumulative lending: $217.45 billion
- Peak outstanding: $152.1 billion
- Peak monthly usage: $97.6 billion
- All loans repaid in full

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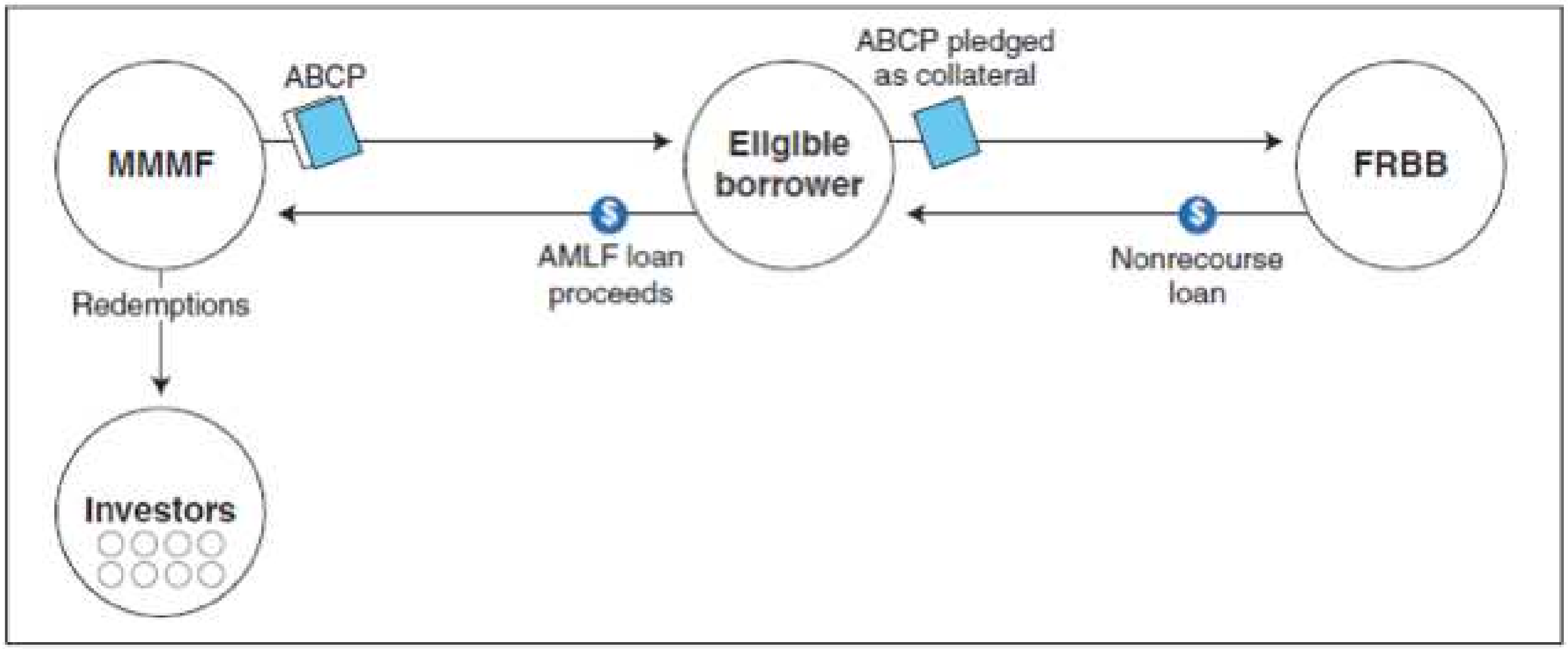
AMLF, Cont'd: Structure



Source: GAO presentation of FRBB information.

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Commercial Paper Funding Facility (CPFF)

- Announced 10/7/2008
- 10/27/2008-3/8/2010 (approx. 15 months)
- Commercial paper (CP) showing signs of stress; source of funding for both financial and non-financial businesses; investors wary of the credit and liquidity risk; as with AMLF this facility was directed at credit markets; specifically the commercial paper market
- Authorized under FRA section 13(3)
- Purchased highly rated U.S. dollar denominated, unsecured and ABCP with a maturity of three month; created an SPV
- 120 borrowers, 11 of which comprised 54% of total borrowing
- Total loans issued: 1,157
- Cumulative Lending: $737.07 billion
- Peak Outstanding: $350.5 billion
- Peak monthly usage: $226 billion
- All loans repaid in full

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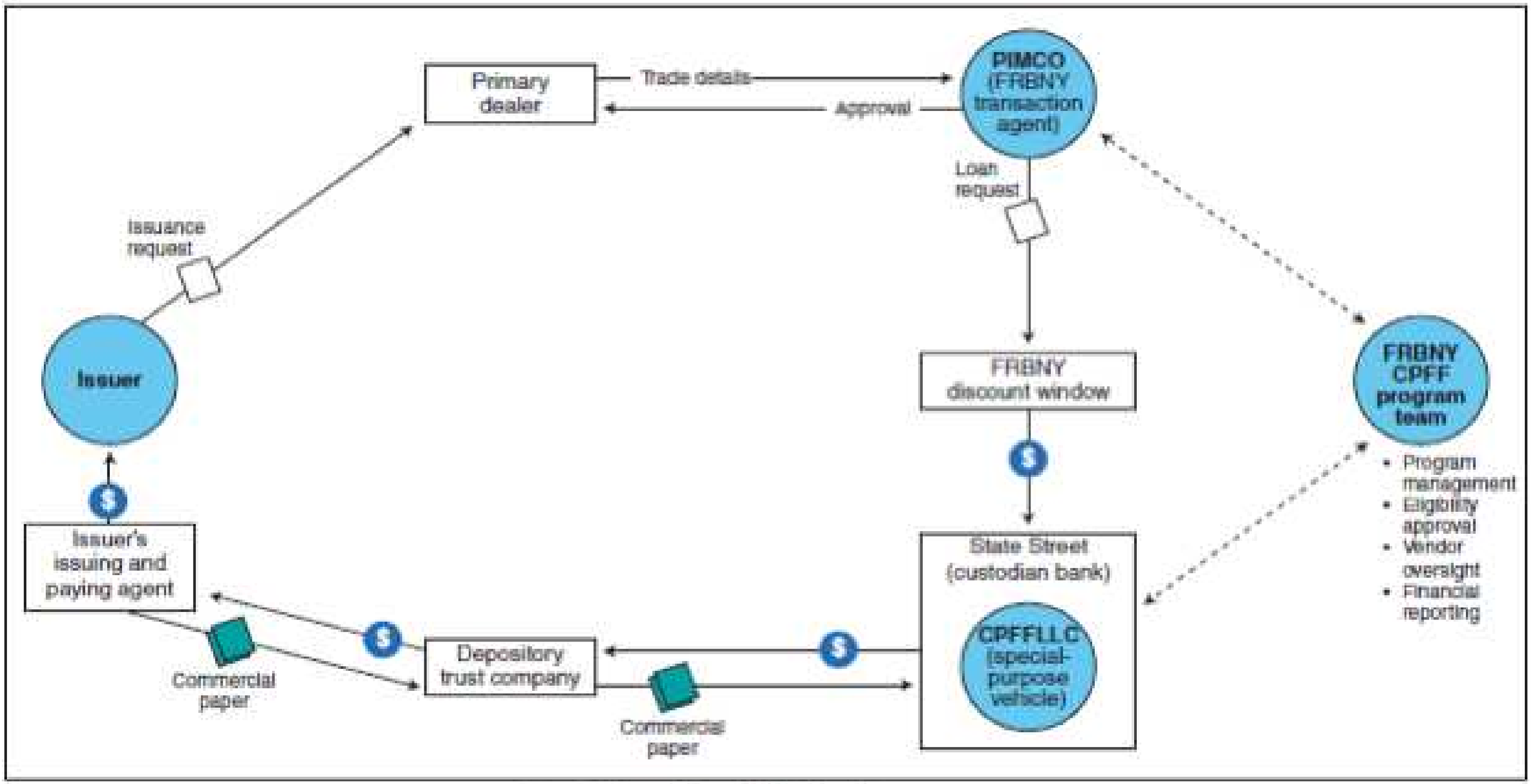
CPFF, Cont'd: Structure



Source: GAO presentation of FRBNY information.

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Term Asset-Backed Securities Loan Facility (TALF)

- Announced 11/25/2008
- 3/17/09-6/30/2010 (approx. 14 months)
- Asset-backed securities (ABS) packaging bank loans, credit card receivables, student loans, equipment, etc. began to see an increases in lending standards; TALF created to drive new issuances of ABSs; directed at providers of credit to small businesses and households
- Authorized under FRA section 13(3)
- Made nonrecourse loans to borrowers who bought ABCP from issuers
- 177 borrowers, 9 of which would comprise 54% of total borrowing
- Total loans issued: 2,310
- Cumulative lending: $71.09 billion
- Peak outstanding: $48 billion
- Peak monthly usage: $10.72 billion
- Real Housewives of Wall Street

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Stage Three—Purchases of Medium- and Long- Term Securities

- Designed to further facilitate the smooth operation of credit markets through the "expansion of traditional open market operations support to the functioning of credit markets through the purchase of long-term securities for the Fed's portfolio" (Federal Reserve, 2011).

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Agency Mortgage-Backed Securities Purchase Program

- Announced 11/12/2008
- 1/5/2009-3/31/2010 (approx. 15 months)
- Designed to help support the housing market by decreasing cost of borrowing; directed at the housing market via purchase of MBSs
- Authorized under FRA section 14
- 16 borrowers, 7 comprising 79% of total borrowing
- Total Loans Issued: 10,057
- Cumulative lending: $1,850.1
- Peak Outstanding: $1,127.6
- Peak monthly usage: $361.5
- As of March 1, 2012, $840.79 billion on Fed's balance sheet

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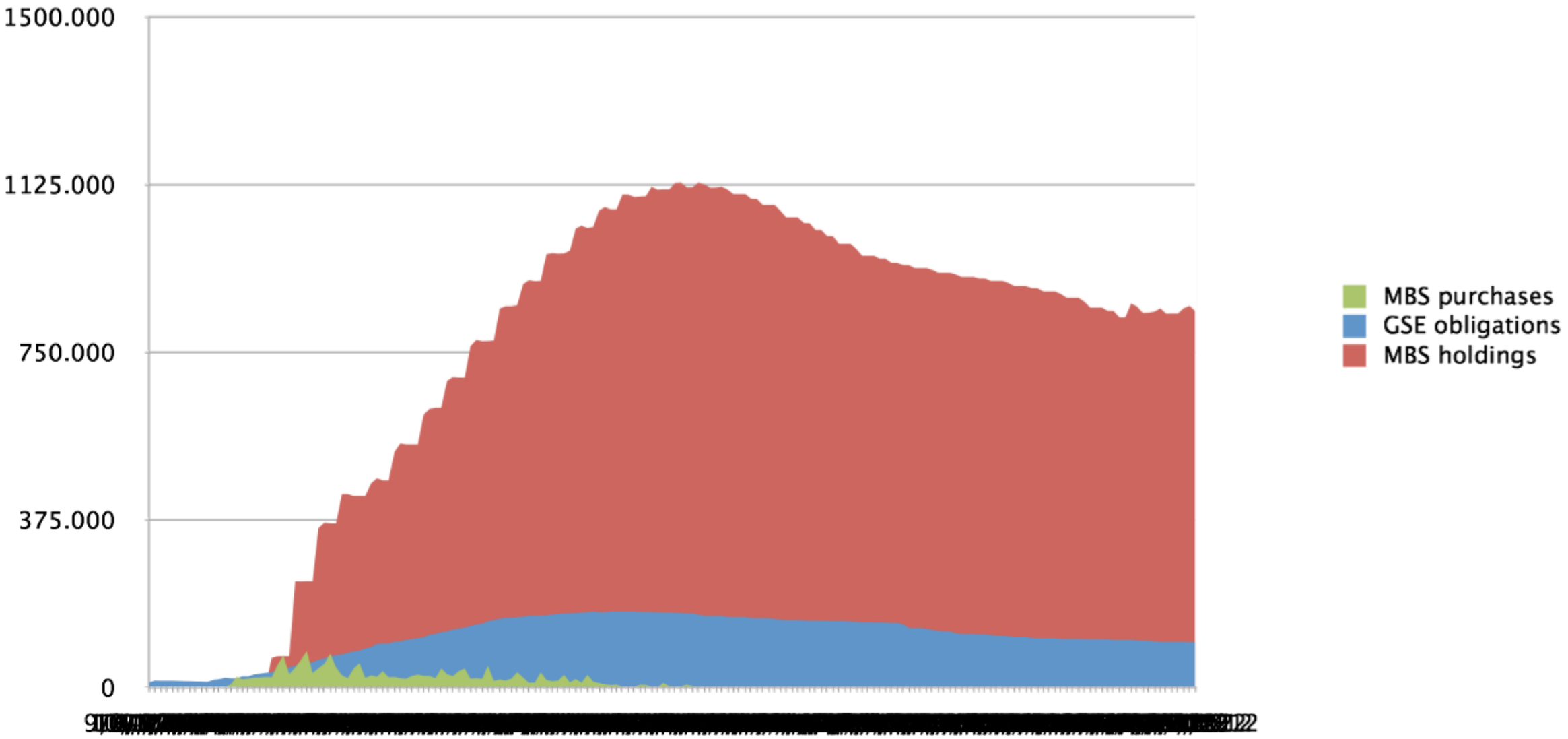
Government Sponsored Entity Direct Obligation Purchase Program

- Problems in subprime market began to impact the market for conventional mortgages.
- Announced November 25, 2008.
- Authorized to purchase up to $160 billion in direct GSE obligations.

MBS Purchase Program, Cont'd



Summary

- Three facilities (TAF, CBLS, and PDCF) would comprise 77.3% of borrowing across all facilities
- Excluding CBLS, which provided dollar liquidity to central banks and not private institutions, thirteen banks would comprise 79% of total borrowing totaling to $15.418 trillion
  - The top three were Citigroup ($2.654 trillion), Merrill ($2.429 trillion) and Morgan Stanley ($2.274 trillion)

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Summary, by Facility

Conventional			Unconventional		
Facility	Total	Percentage	Facility	Total	Percentage
TAF	$3,818.41	12.8%	CBLS	$10,057.4	33.77%
TSLF/ TOP	2,005.7	6.7	ST OMO	855	2.87
			PDCF	8,950.99	30.05
			Bear Stearns Bridge Loan	12.9	0.04
			Maiden Lane I	28.82	0.10
			Maiden Lane II	19.5	0.07
			Maiden Lane III	24.30	0.08
			AIA/ ALICO	25	0.08
			AIG RCF	140.32	0.47
			AIG SBF	802.32	2.69
			AMLF	217.45	0.73
			CPFF	737.07	2.47
			TALF	71.09	0.24
			GSE	169.01	0.57
			MBS	1,850.14	6.21
TOTALS	**$5,824.12**	**19.55%**		**$23,961.48**	**80.45%**

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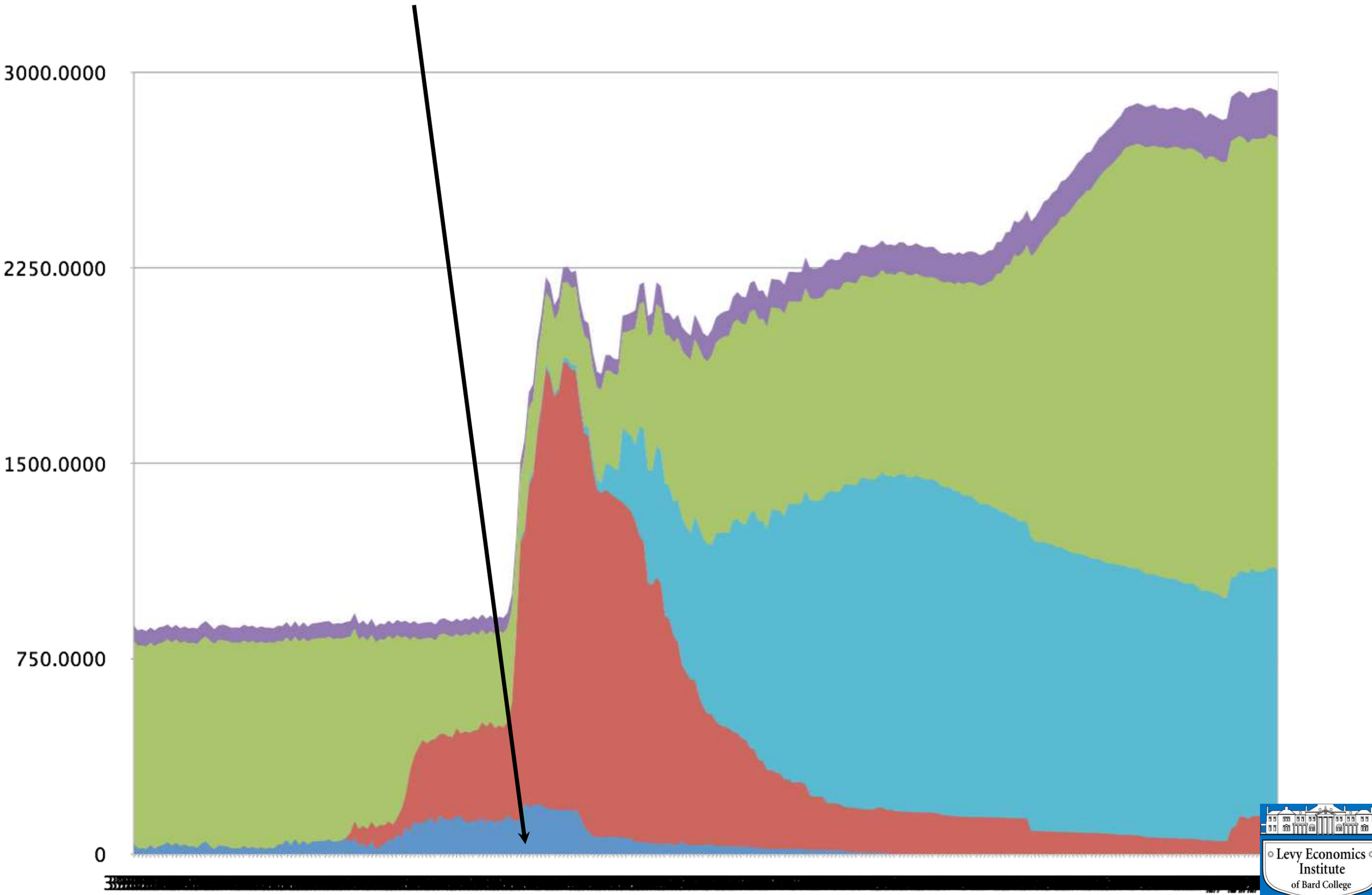
Normal vs. Exceptional



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Exceptional Policy Response to the Great Recession

- Learning from Japan, or Friedman, or Keynes
- ZIRP: Zero Interest Rate Policy end 2008
- Quantitative Easing
- Maturity Transformation

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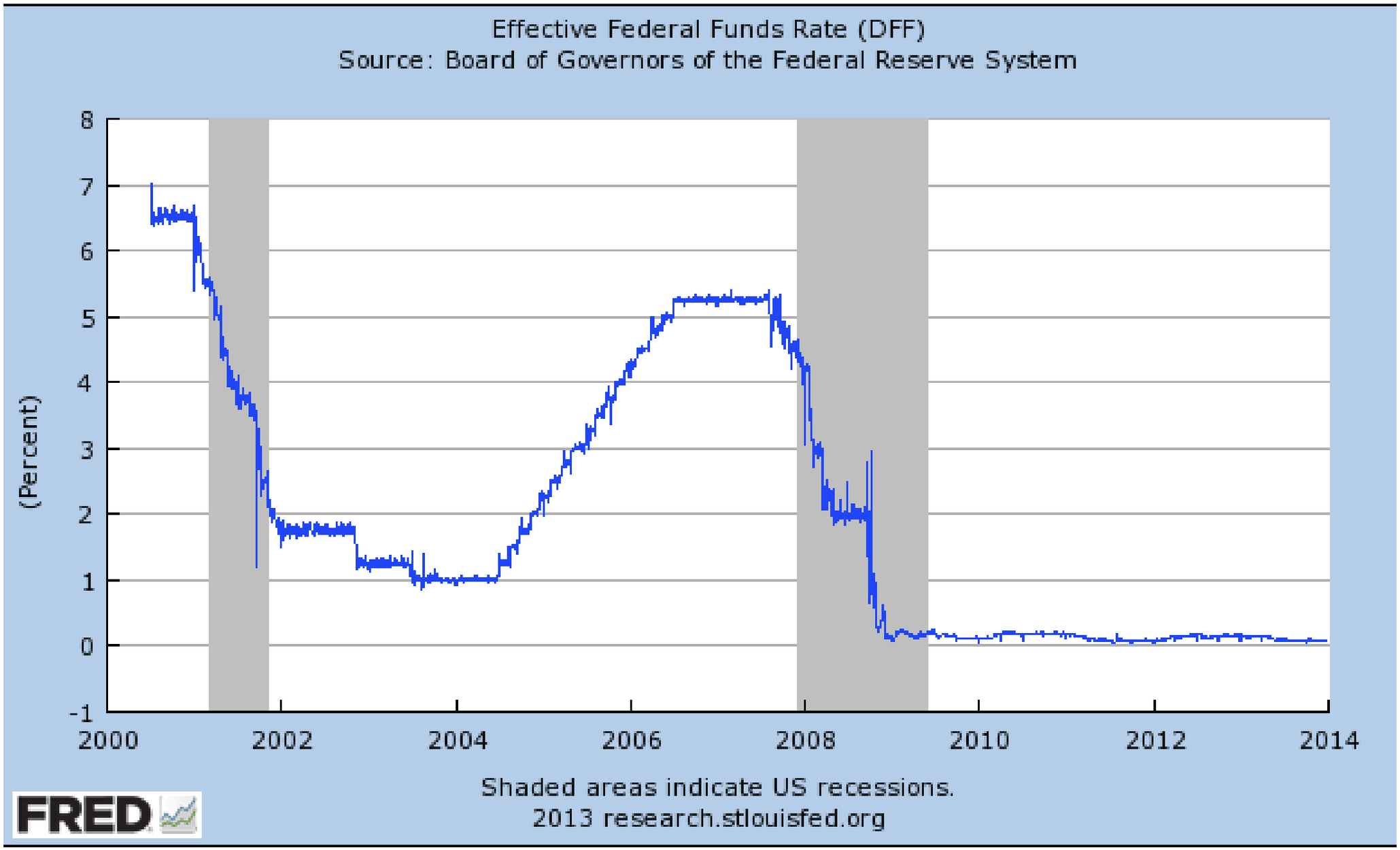

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Mortgage rates and the Fed

Click through the timeline below to see the effect the Fed's moves had on mortgage rates.

2008 Financial crisis
September/October 2008

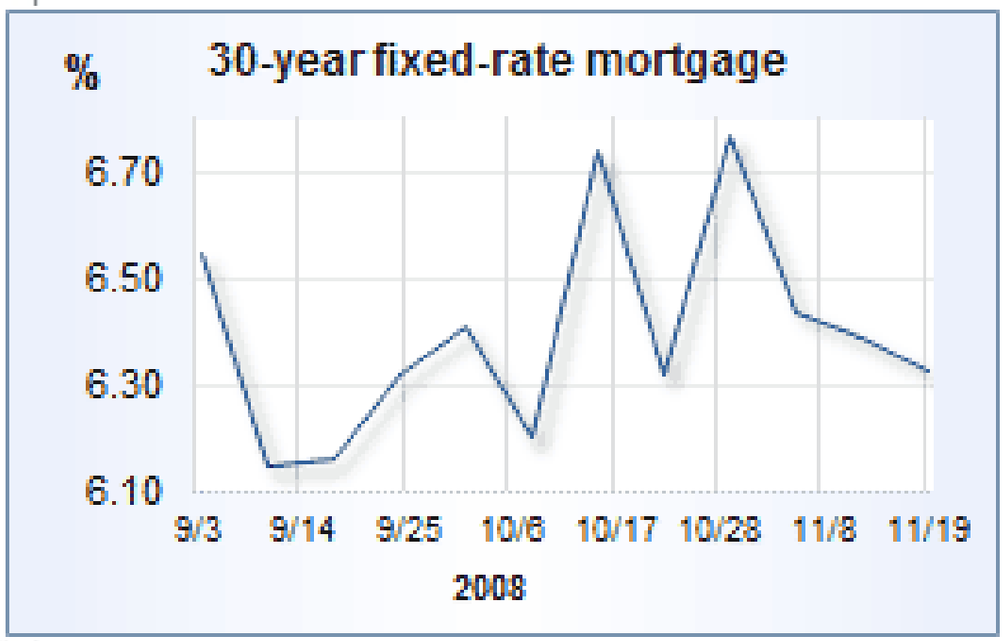
QE1
Nov. 25, 2008 - March 31, 2010

End of QE1
March 31, 2010

QE2
Nov. 3, 2010 - June 30, 2011

End of QE2
June 30, 2011

QE3
Sept. 13, 2012 to present



2008 financial crisis (collapse/bailout phase): September/October 2008

What the Fed did

- On Sept. 8, 2008, the U.S. Treasury seized control of mortgage giants Fannie Mae and Freddie Mac and pledged a $200 billion cash injection to help the companies cope with mortgage default losses.
- About a week later the government bailed out American International Group Inc., or AIG, with $85 billion.
- The Fed refused to save Lehman Brothers and the company was forced to file for bankruptcy. Some of the largest financial institutions were on the verge of collapse as the mortgage market melted down. As the crisis hit the global market, the credit freeze spread.
- The Treasury and the Federal Reserve began working on a $700 billion bailout plan.
- President George W. Bush signed the bailout plan into law Oct. 3.
- Weeks later, on Oct. 29, the Fed cut the key interest rate to 1 percent.

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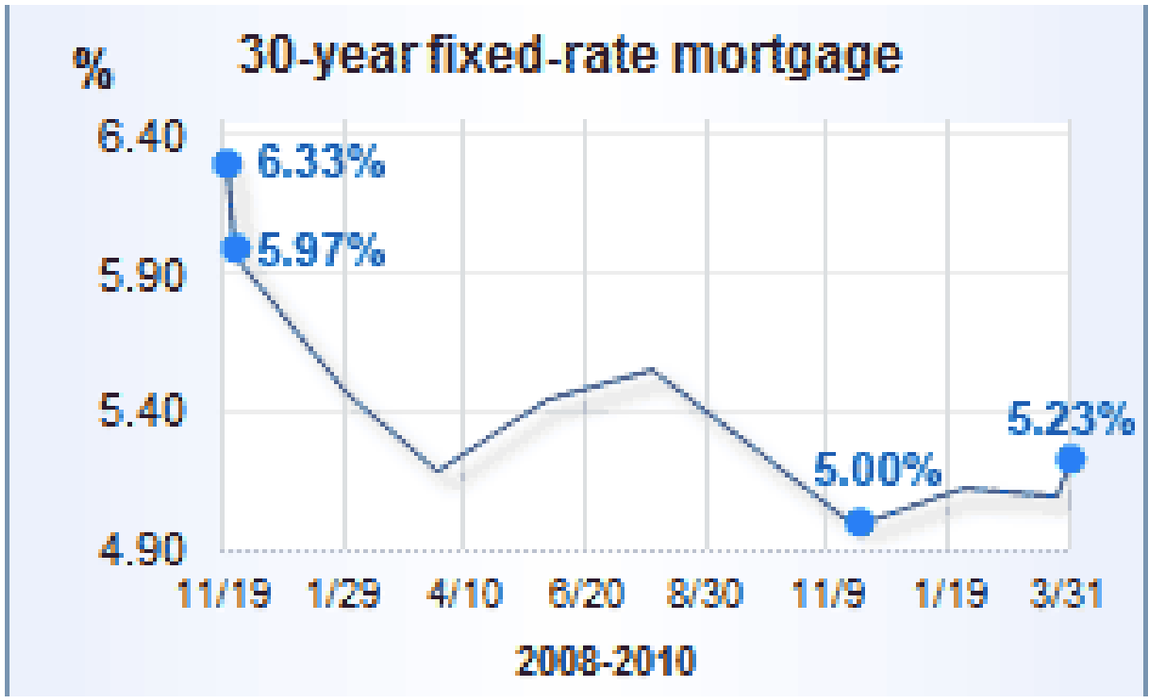
Mortgage rates and the Fed

Click through the timeline below to see the effect the Fed's moves had on mortgage rates.

QE1: Nov. 25, 2008 - March 31, 2010

What the Fed did

- The Fed initiated purchases of $500 billion in mortgage-backed securities.
- It announced purchases of up to $100 billion in debt obligations of mortgage giants Fannie Mae, Freddie Mac, Ginnie Mae and Federal Home Loan Banks.
- The Fed cut the key interest rate to near zero, Dec. 16, 2008.
- In March 2009, the Fed expanded the mortgage buying program and said it would purchase $750 billion more in mortgage-backed securities.
- The Fed also announced it would invest another $100 billion in Fannie and Freddie debt and purchase up to $300 billion of longer-term Treasury securities over a period of six months.
- The quantitative easing program, or QE1, concluded in the first quarter of 2010, with a total of $1.25 trillion in purchases of mortgage-backed securities and $175 billion of agency debt purchases.



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Mortgage rates and the Fed

Click through the timeline below to see the effect the Fed's moves had on mortgage rates.

2008 Financial crisis
September/October 2008

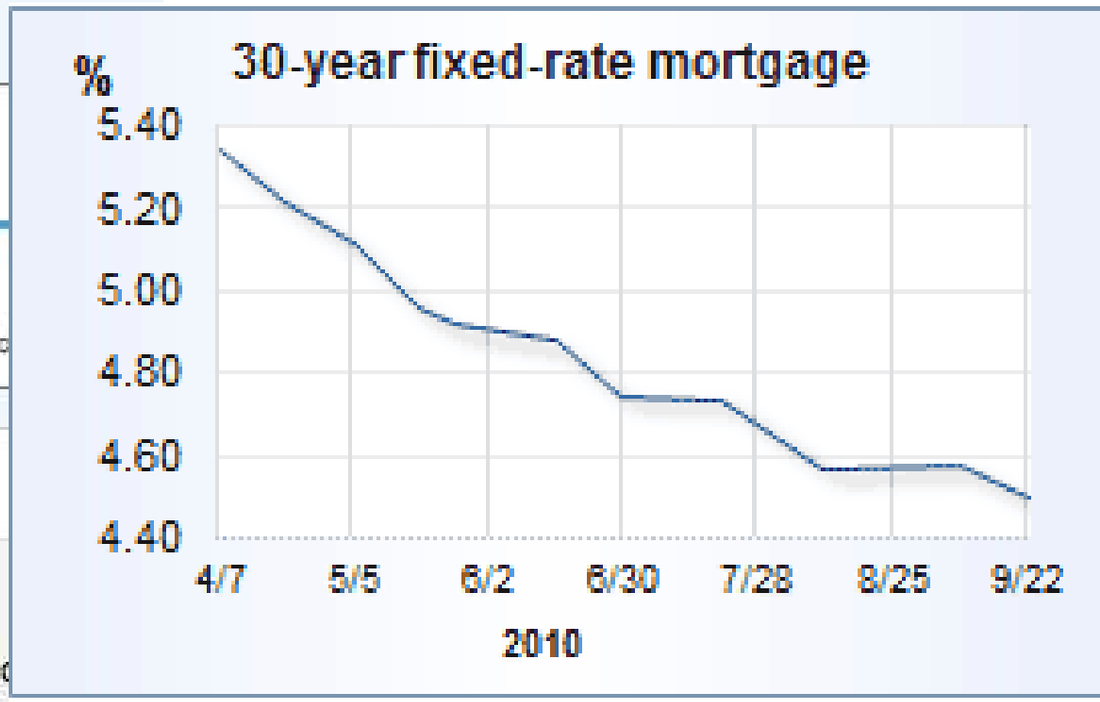
QE1
Nov. 25, 2008 - March 31, 2010

End of QE1
March 31, 2010

QE2
Nov. 3, 2010 - June 30, 2011

End of QE2
June 30, 2011

QE3
Sept. 13, 2012 to



End of QE1: March 31, 2010

What the Fed did

- After completing the purchase of $1.25 trillion in mortgage-backed securities, $300 billi Treasury bonds and $175 billion in federal agency debt, the Fed ended QE1.
- QE1 was initially open-ended. The Fed did not set an end date for the program until about six months out, as it slowed the buying pace.

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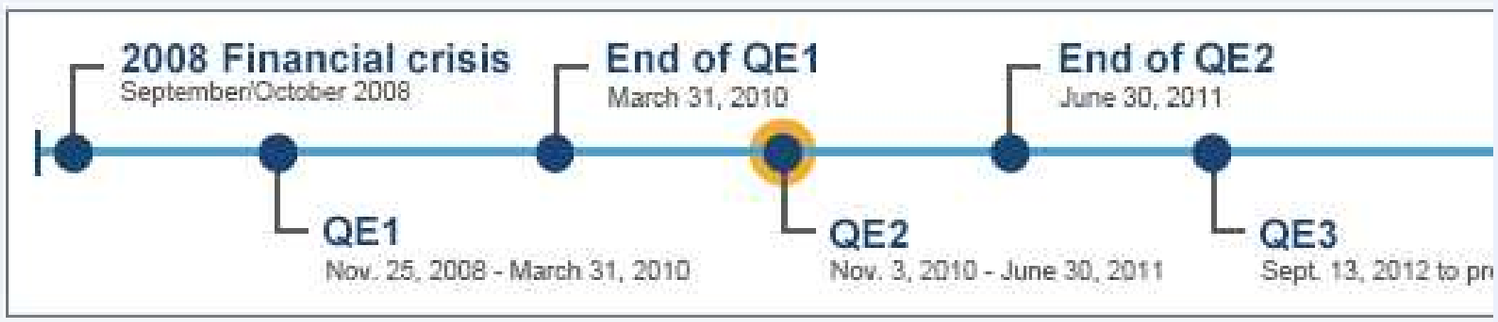
Mortgage rates and the Fed

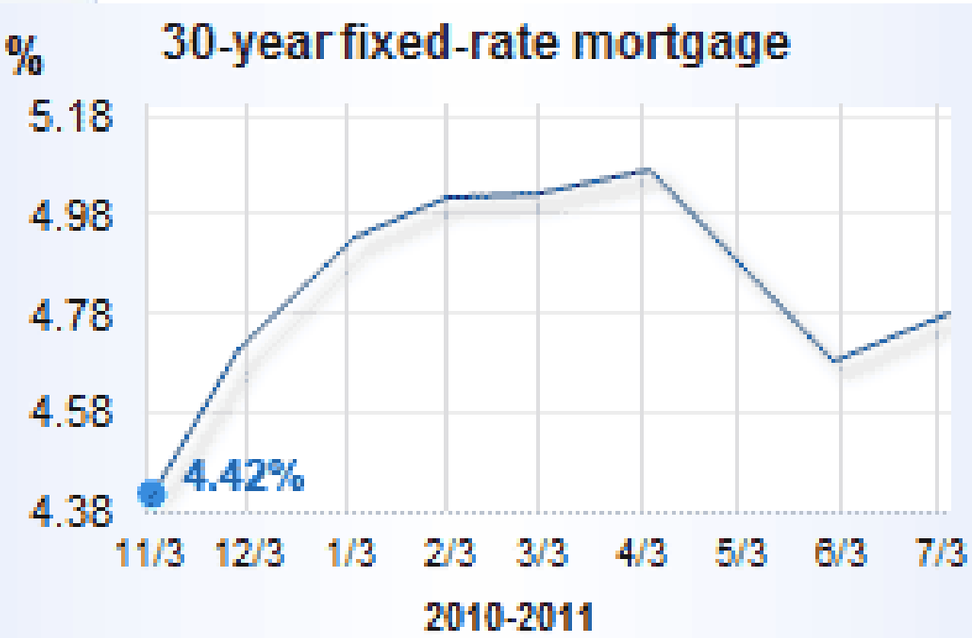
Click through the timeline below to see the effect the Fed's moves had on mortgage rates.



QE2: Nov. 3, 2010 - June 30, 2011

What the Fed did

- The Fed continued to reinvest payments on securities purchased during the QE1 program
- In addition, it began the purchase of $600 billion of longer-term Treasury securities.



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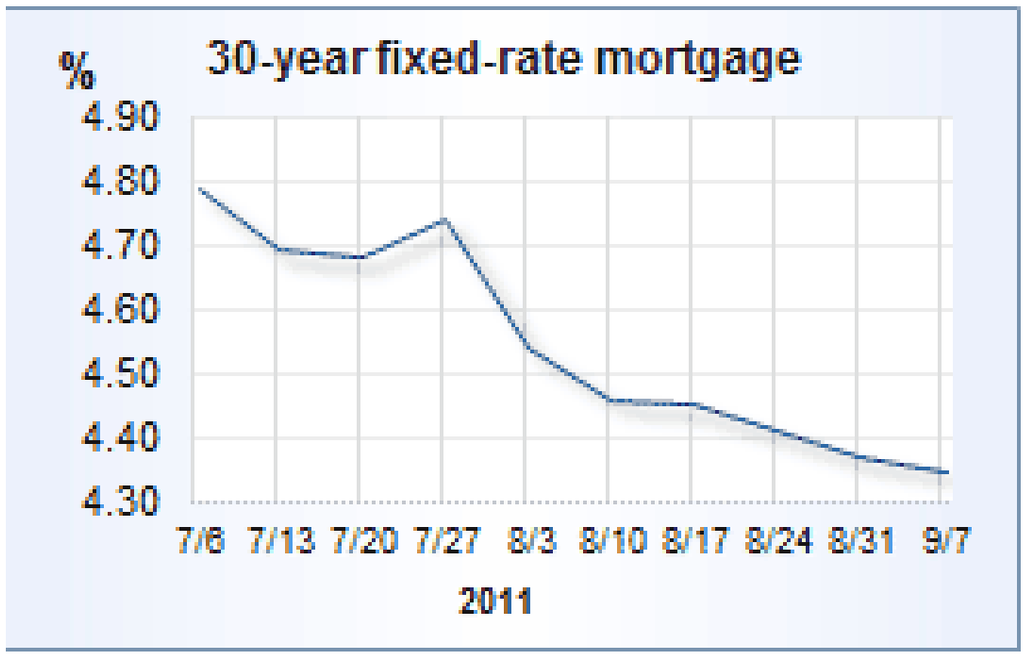
Mortgage rates and the Fed

Click through the timeline below to see the effect the Fed's moves had on mortgage rates.

End of QE2: June 30, 2011

What the Fed did

- As previously announced, the Fed concluded its $600 billion bond purchasing program.
- QE2 was conducted at an even pace, and the end date was telegraphed from the start of the program.



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Mortgage rates and the Fed

Click through the timeline below to see the effect the Fed's moves had on mortgage rates.

QE3: Sept. 13, 2012 to present

What the Fed did

- The Fed is planning to buy another $40 billion in mortgage-backed investments each month until the economy improves. That's on top of the tens of billions of dollars in mortgages it already had been buying each month, making U.S. banks flush with cash.
- The central bank continues to sell short-term bonds and use the money to buy long-term bonds.
- The time period during which the Fed will keep interest rates near zero was extended from the end of 2014 to mid-2015.

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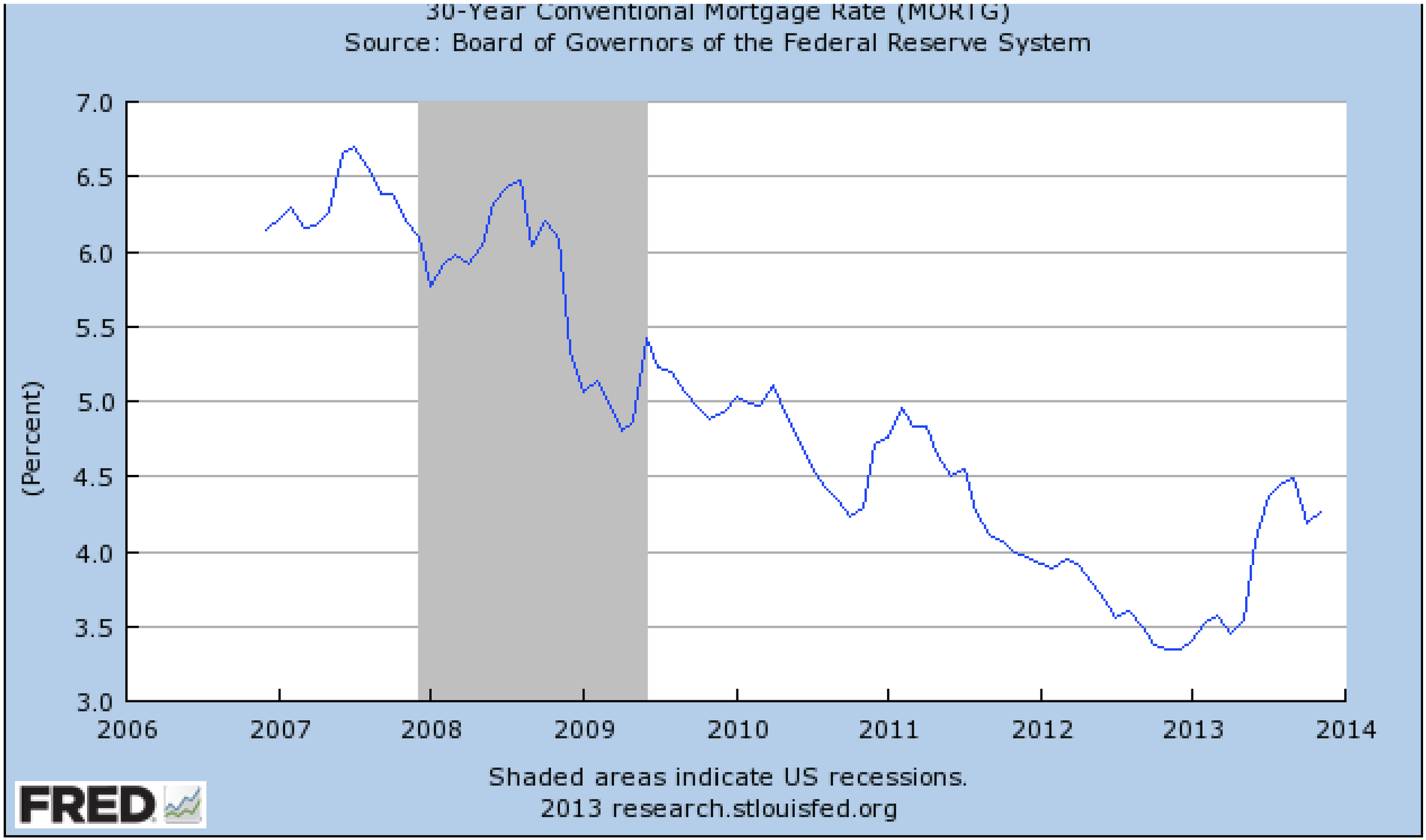

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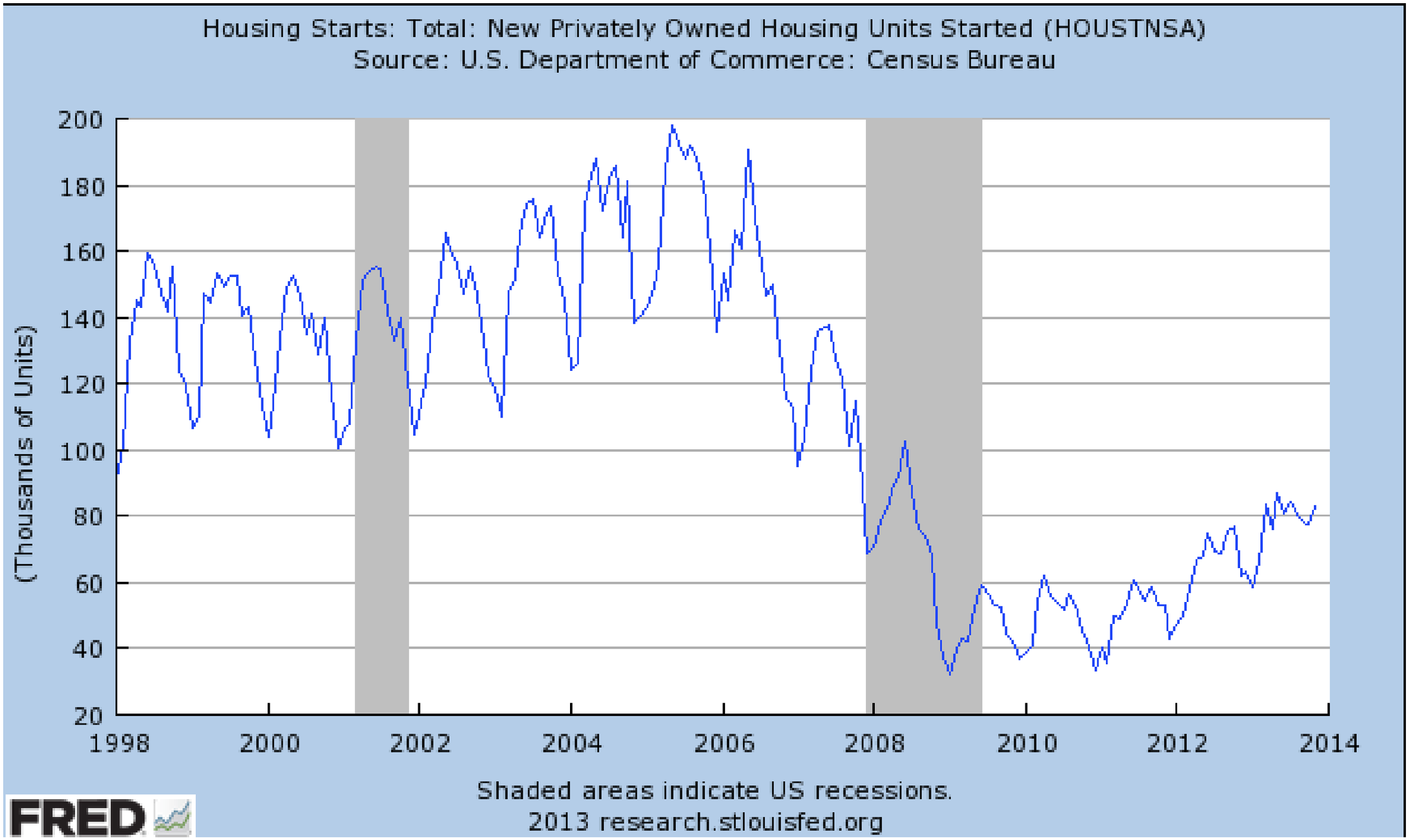

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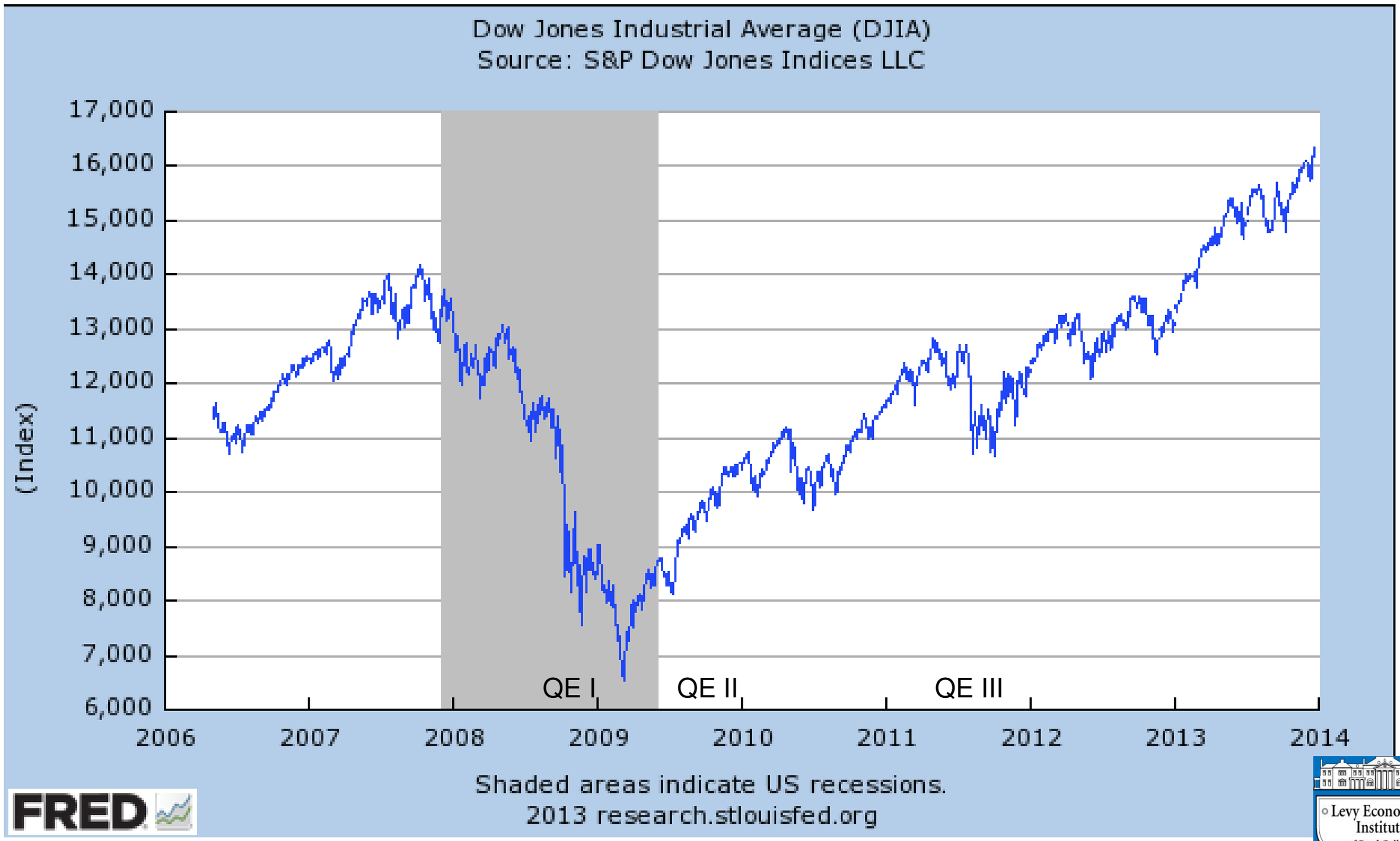
Dow Jones Industrial Average (DJIA)
Source: S&P Dow Jones Indices LLC
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
(Index)
QE I
QE II
QE III
2006
2007
2008
2009
2010
2011
2012
2013
2014
Shaded areas indicate US recessions.
2013 research.stlouisfed.org
FRED
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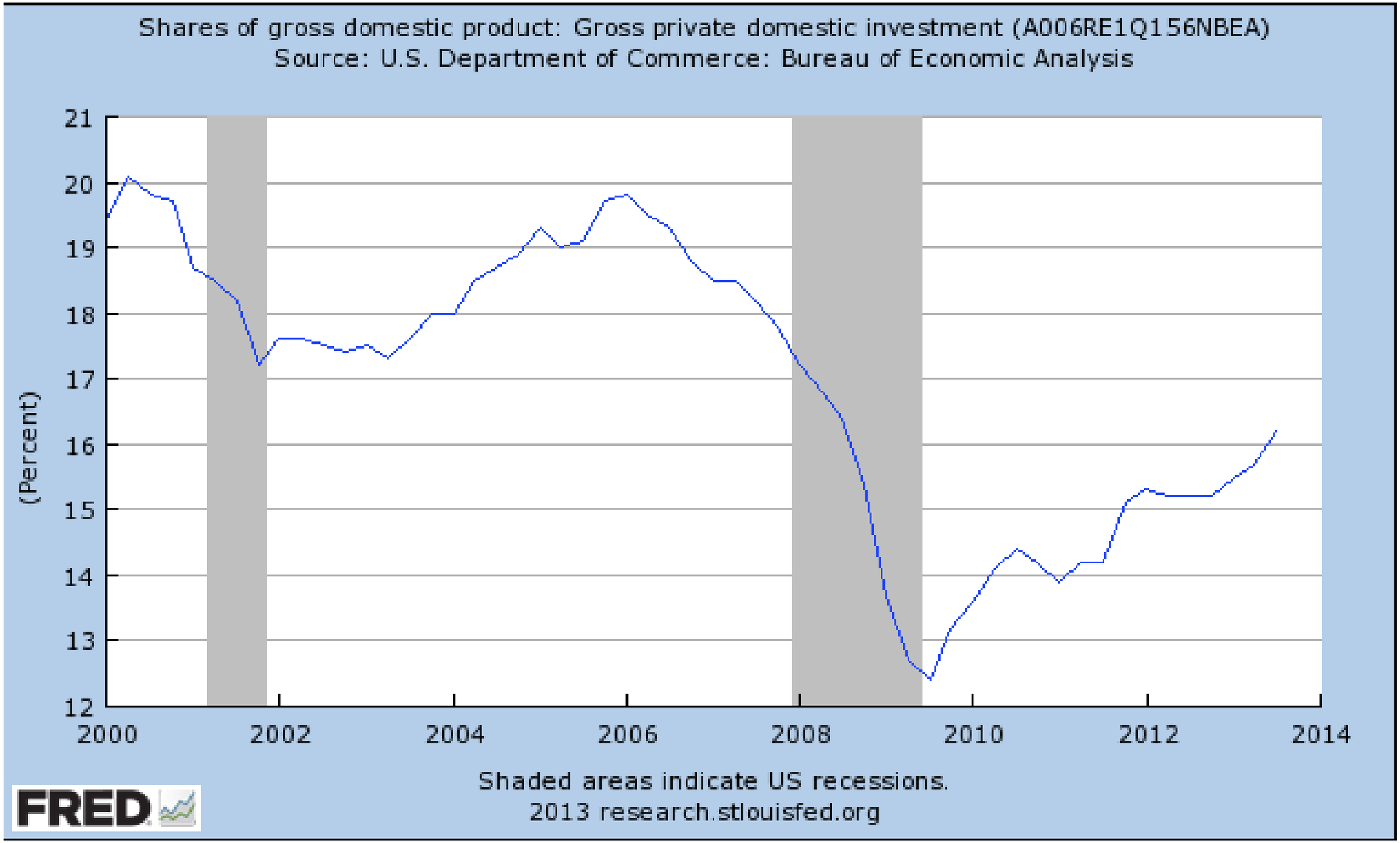

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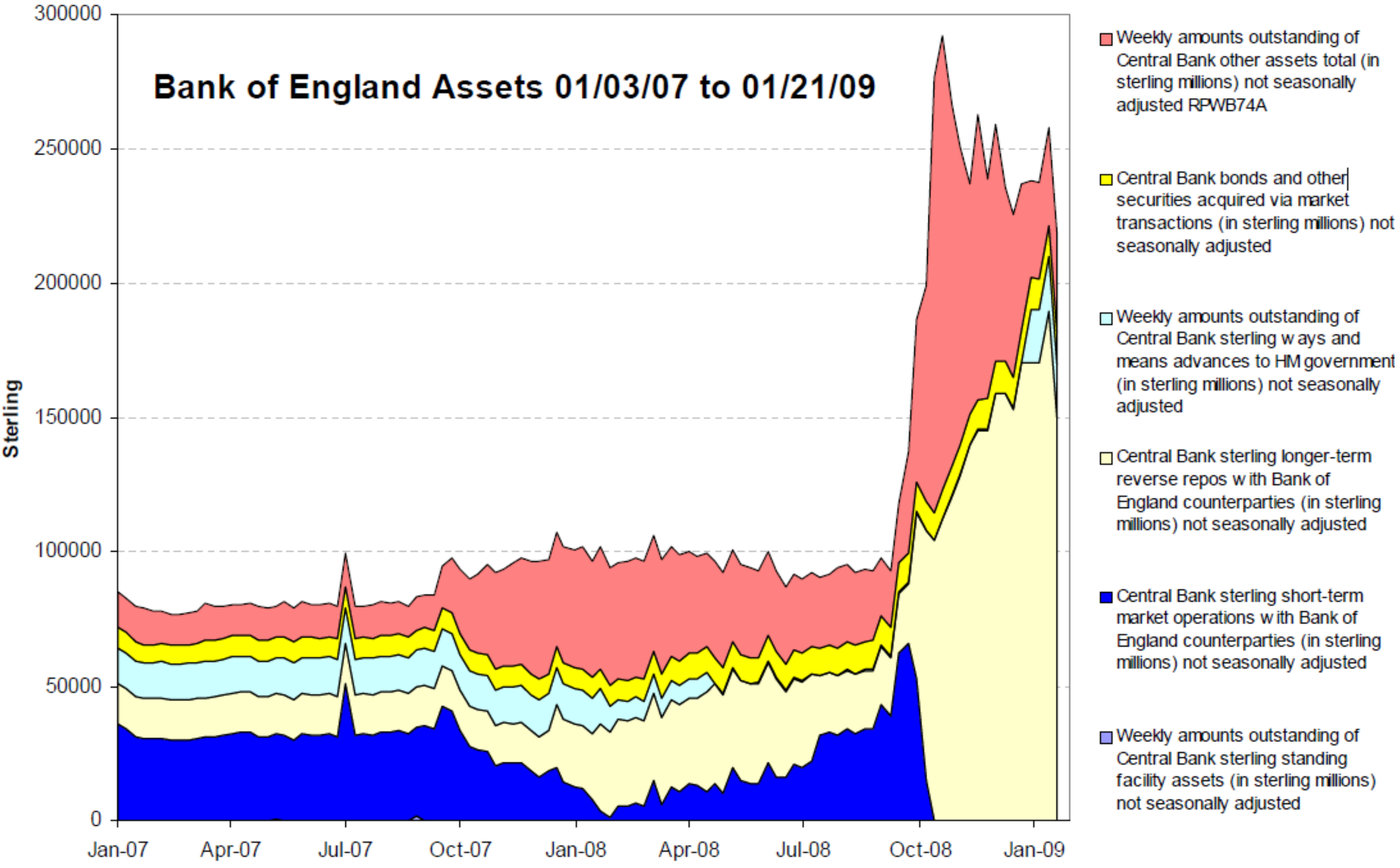

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ECB Exceptional Measures

- Crisis in Europe was different
  - French and German holders of MBS
  - Sovereign country default
    - Iceland, Ireland
- ECB policy was primarily to support Sovereign Debt Markets

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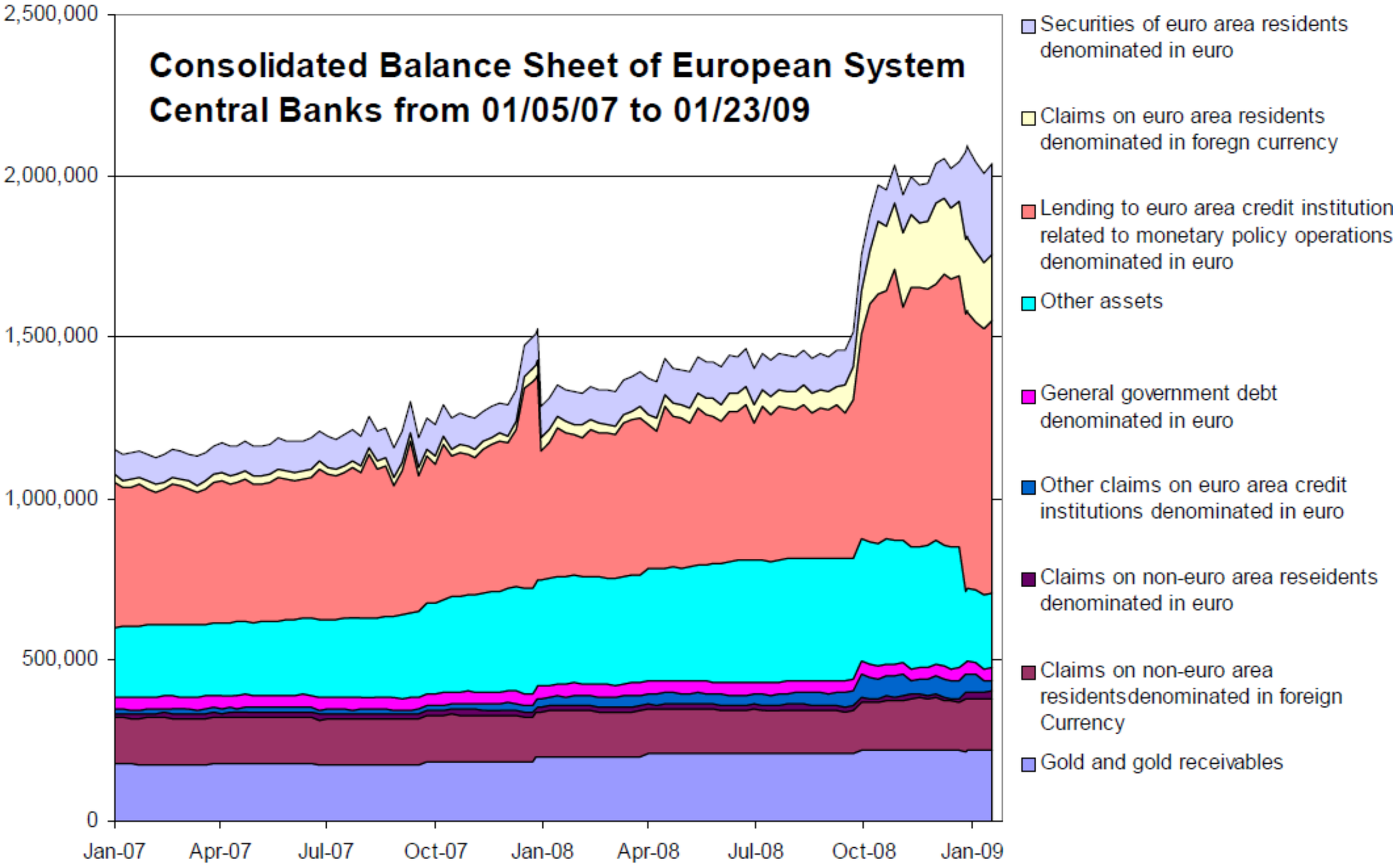

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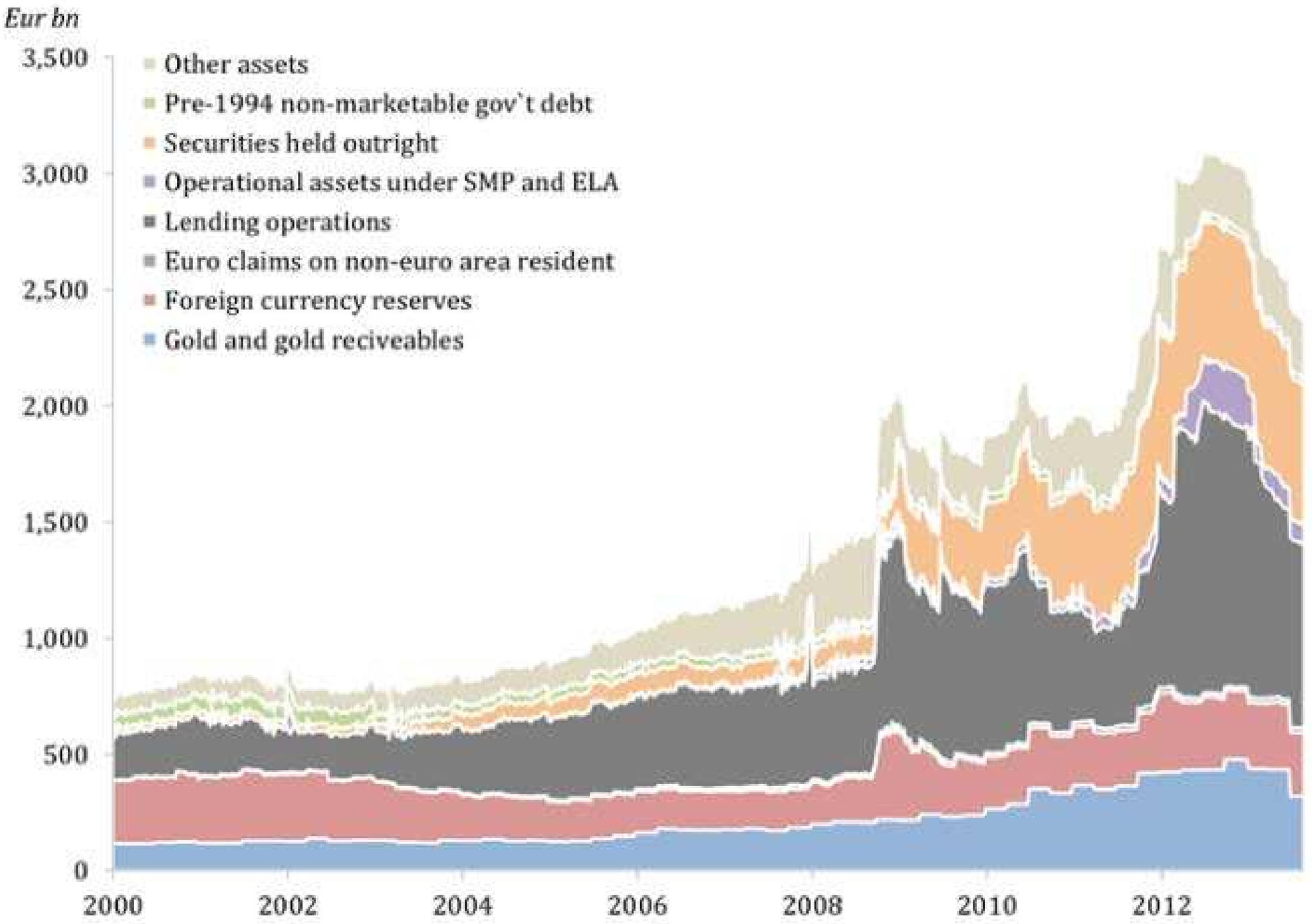
ECB balance sheet; assets



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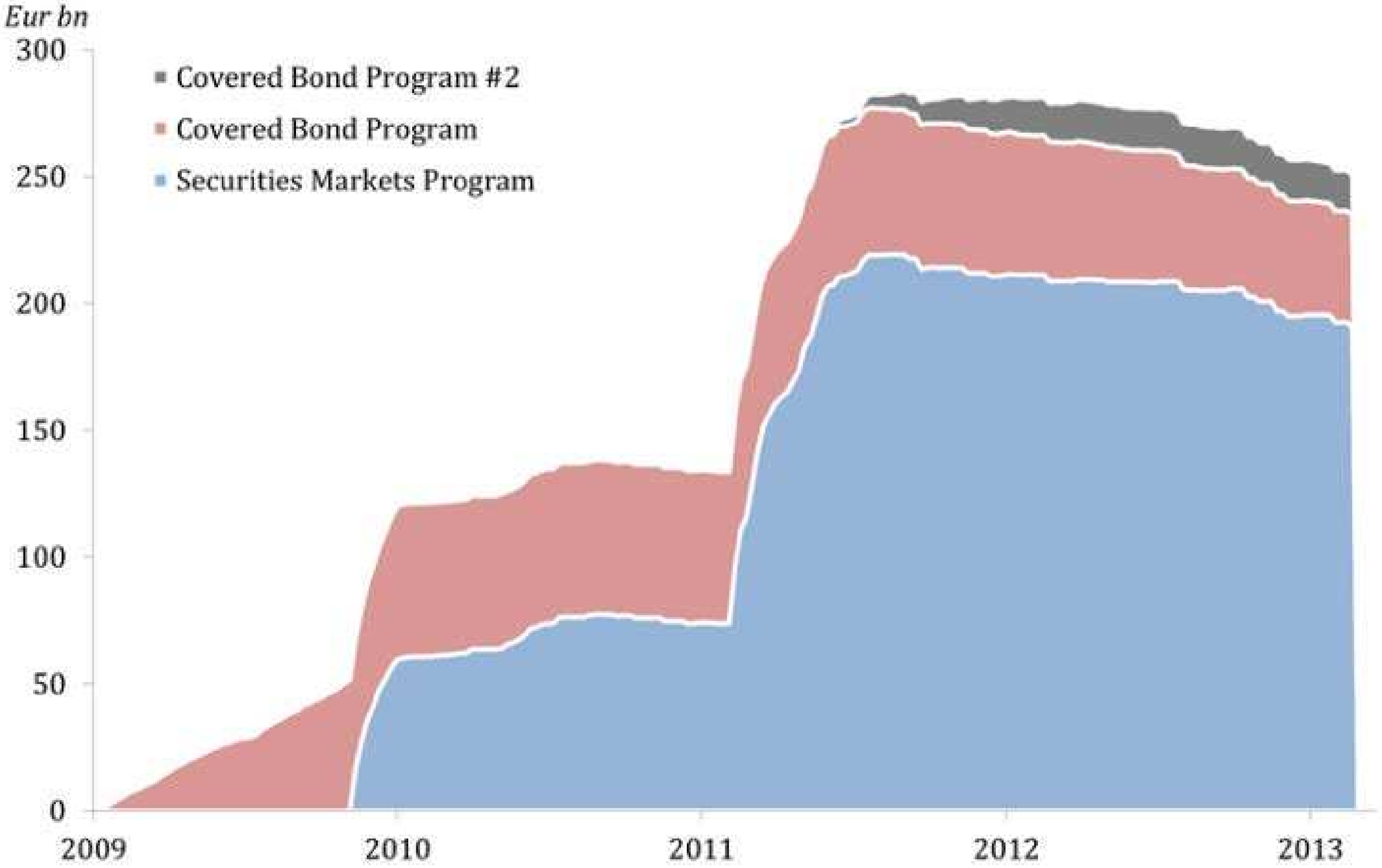
Securities held for monetary purposes



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Enhanced credit support: Fixed rate tender procedures with full allotment

- Following the Bundesbank operating procedures, the ECB lends at auction against approved collateral at fixed or variable rates or volumes. Thus banks require eligible collateral to bid on ECB liquidity. When there is a shortage of eligible assets in the banking system and interbank lending halts there is a liquidity crisis and banks must access the marginal lending facility that charges a premium interest rate to banks that are unable to participate in the normal weekly tender auction.

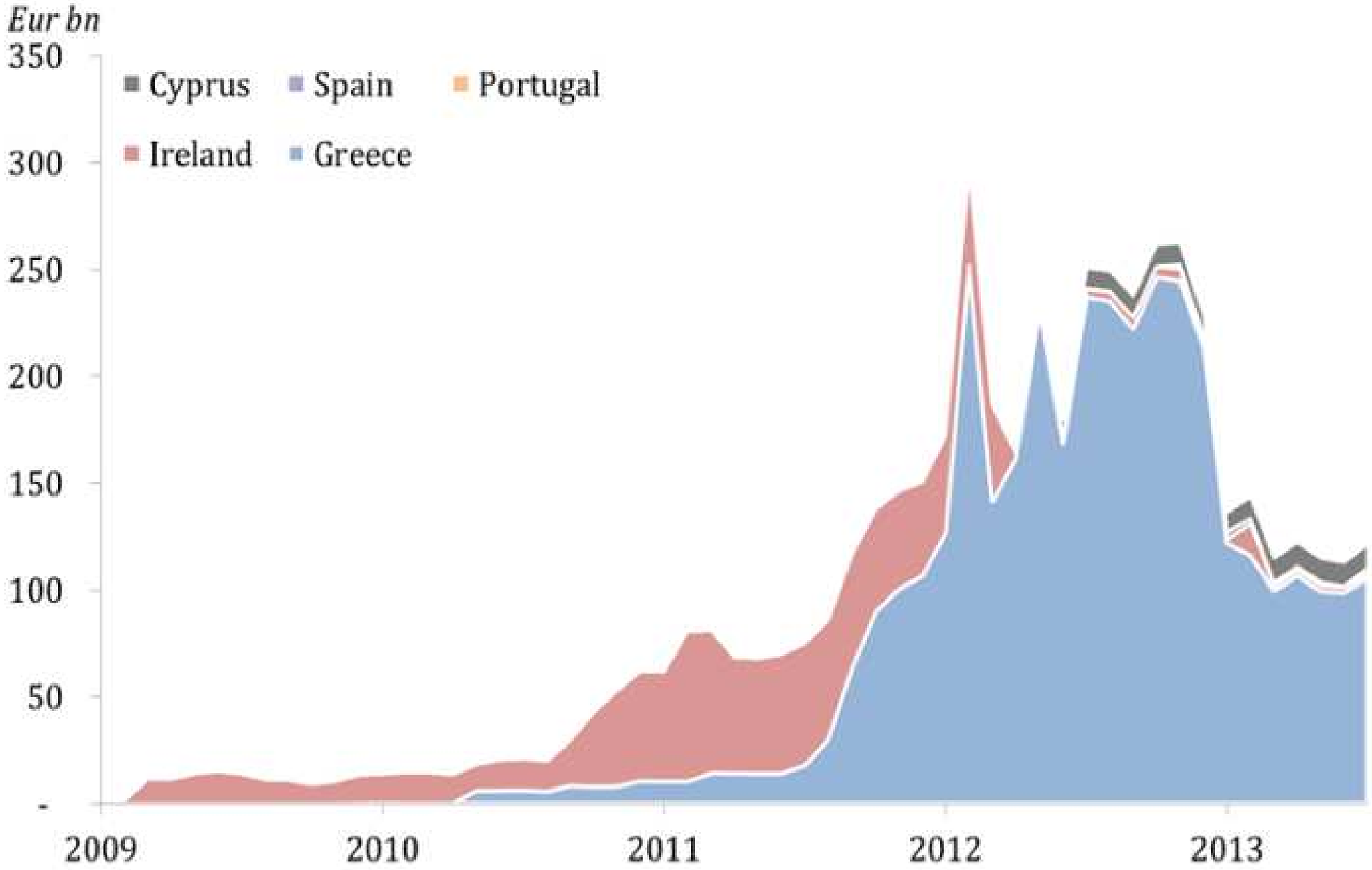
- The ECB first responded by granting full allotment to banks bidding at the normal refinancing operation, but this made the marginal lending facility redundant and countered the Bagheot principle of lending against good collateral at a penalty rate.

- In addition some eligible assets such as sovereign issued bonds deteriorated in quality below ECB requirements requiring repayment or the tender of better assets. Thus credit rating standards were softened in May 2010 for Greek sovereign- and sovereign guaranteed bonds, and a year later for Portuguese bonds and in July 2011 for Irish bonds.

- In May 2010 the ECB bought government bonds directly in the secondary market under the Securities Market Program. The support to mark-to-market asset prices improved bank balance sheets.

- However, the larger the proportion of bank assets in the hands of official holders who could not accept default meant a larger write-down for private investor in case of default. This tended to offset the positive impact of ECB action on interest rates.

Emergency Lending Facility (ELA)



*Source: Banco de España, Central Bank of Cyprus, Banco de Portugal, Central Bank of Ireland, Bank of Greece, own calculations, *estimates provided by Bawerk.net*

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Emergency Liquidity Assistance (ELA)

- Article 14.4 of the Statutes of the European System of Central Banks and of the European Central Bank states:
- “National central banks may perform functions other than those specified in this Statute unless the Governing Council finds by majority of two thirds of the votes cast, that these interfere with the objectives and task for ESCB. Such functions shall be performed on the responsibility and liability of national central banks and shall not be regarded as being part of the functions of the ESCB.
- In other words an NCB can undertake any funding operations of its domestic banking system as long as the governing council of the ECB does not object.
- This is the equivalent of the Fed Section 13.3 and is commonly referred to as emergency lending. When its national banking system has pledged all eligible collateral within the European system of central banks, the NCB can extend lending at discretionary credit standards.

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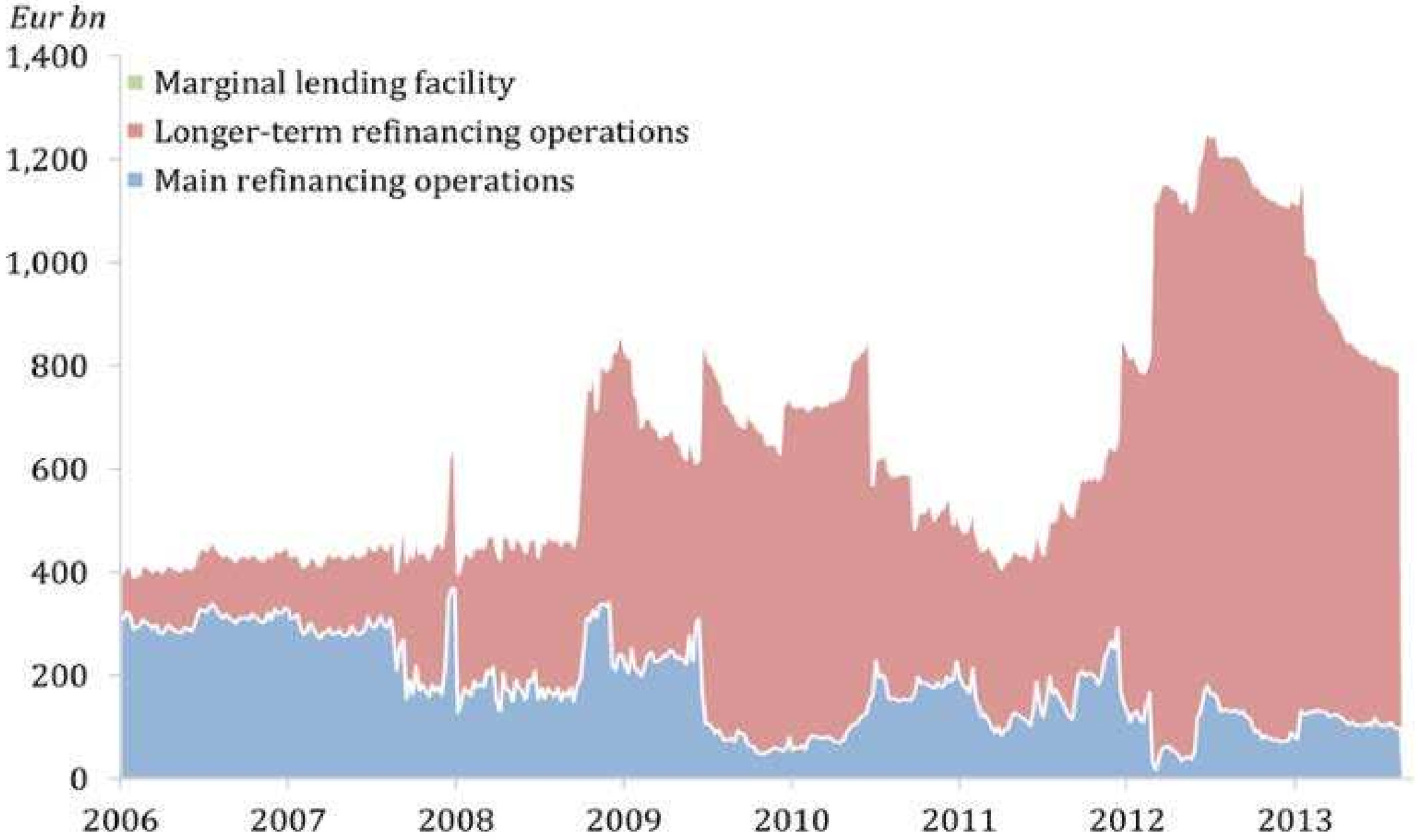
LTROs

- In addition to the ELA, the ECB on September 6 2012 decided on “additional measures to preserve collateral availability for counterparties to maintain their access to the Eurosystem`s liquidity-providing operations.”
- The ECB suspended ”minimum credit rating thresholds in the collateral eligibility requirements for the purpose of the Eurosystem`s credit operations in the case of marketable debt instruments issued or guaranteed by the central government…”
- In plain English, it means European banks can pool all sorts of outstanding loans of dubious quality into one single “marketable debt instrument” get the government to sign a guarantee and pledge the bond as collateral at the ECB!
- The original decision to provide full allotment in the main refinancing operations was restricted to only one week, creating uncertainty over its maintenance. The ECB had long term refinancing facility available for maturities up to three months, but the facility was traditionally not a means to conduct interest rate policy. In other words, the ECB would not use the long-term facility to manage interest rates. In order to end uncertainty in the bank funding market, the ECB under Mario Draghi announced they would conduct three-year LTRO`s with fixed rates.
- The response was almost overwhelming as the LTRO facility rose to more than €1.1 trillion during two operations in December 2011 and March 2012.

Refinancing operations (MRO & LTRO)



Source: European Central Bank (ECB)

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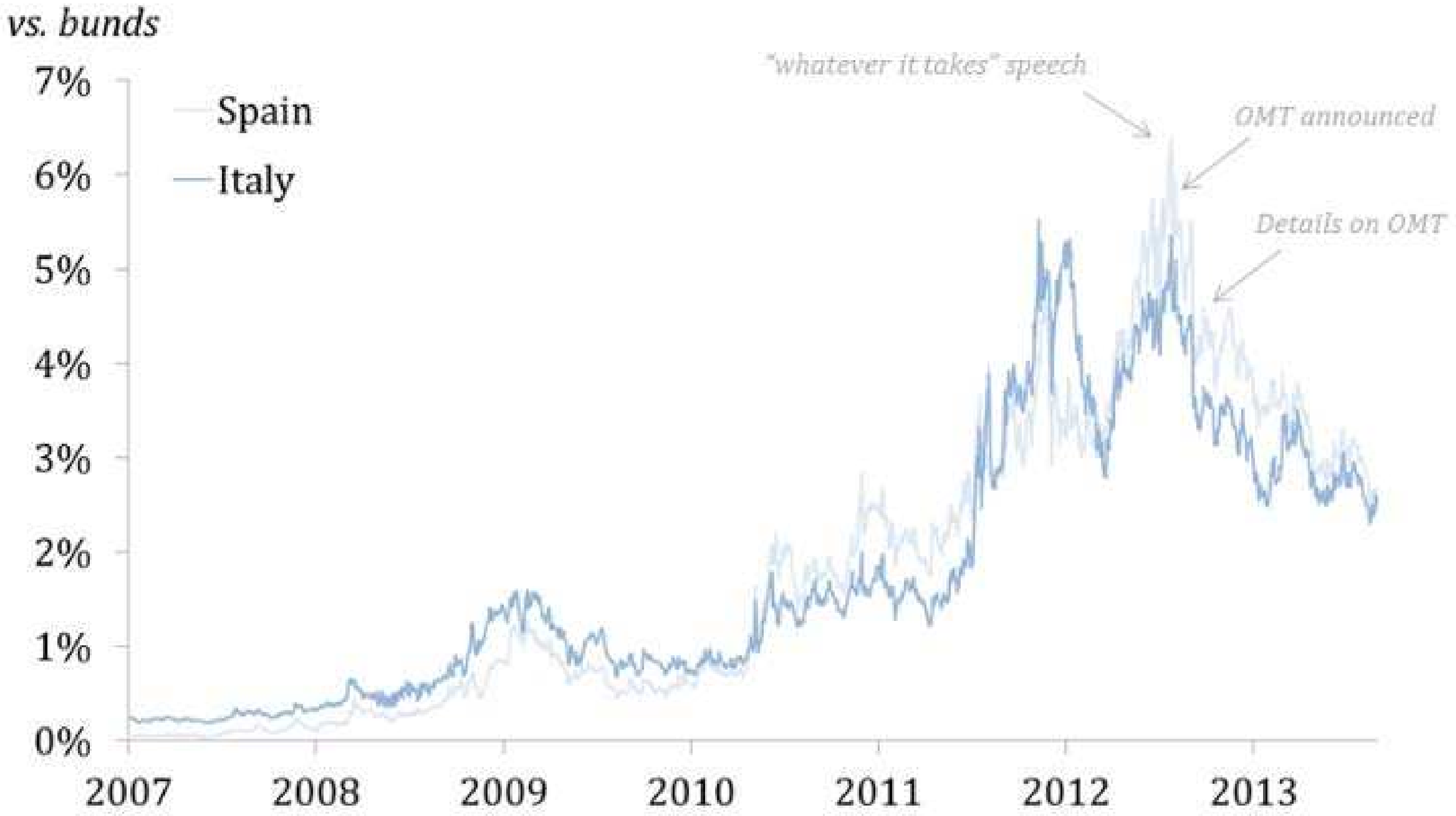
Ten year Bund spreads



ource: Bloomberg

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Current Policy:
Outright market transactions (OMT)

- Despite measures taken by the ECB yield spreads on peripheral bonds continued to rise until July 26 2012 when Chairman of the Governing Council, Mario Draghi announced that the ECB would "whatever it takes"
- Yield spreads declined and have remained low; capital flight from the periphery was reversed and investors moved into high yielding Spanish bonds given the explicitly announced put-option from the ECB.
- A week later Draghi formally announced that the ECB would buy unlimited amounts of sovereign bonds in the secondary market for every country that signed up for conditionality under an ESM-program.
- The fiscal objectives in the conditions made OMT a quasi fiscal program and hence outside the ECB mandate because the ECB actions depend on fiscal authorities ability to meet preconditions. As a result OMT is under investigation by German court.
- All OMT purchases will be treated "pari passu" in case of default.
- The OMT is a put on prices and which makes Sovereign investments in peripheral bonds virtually riskless.

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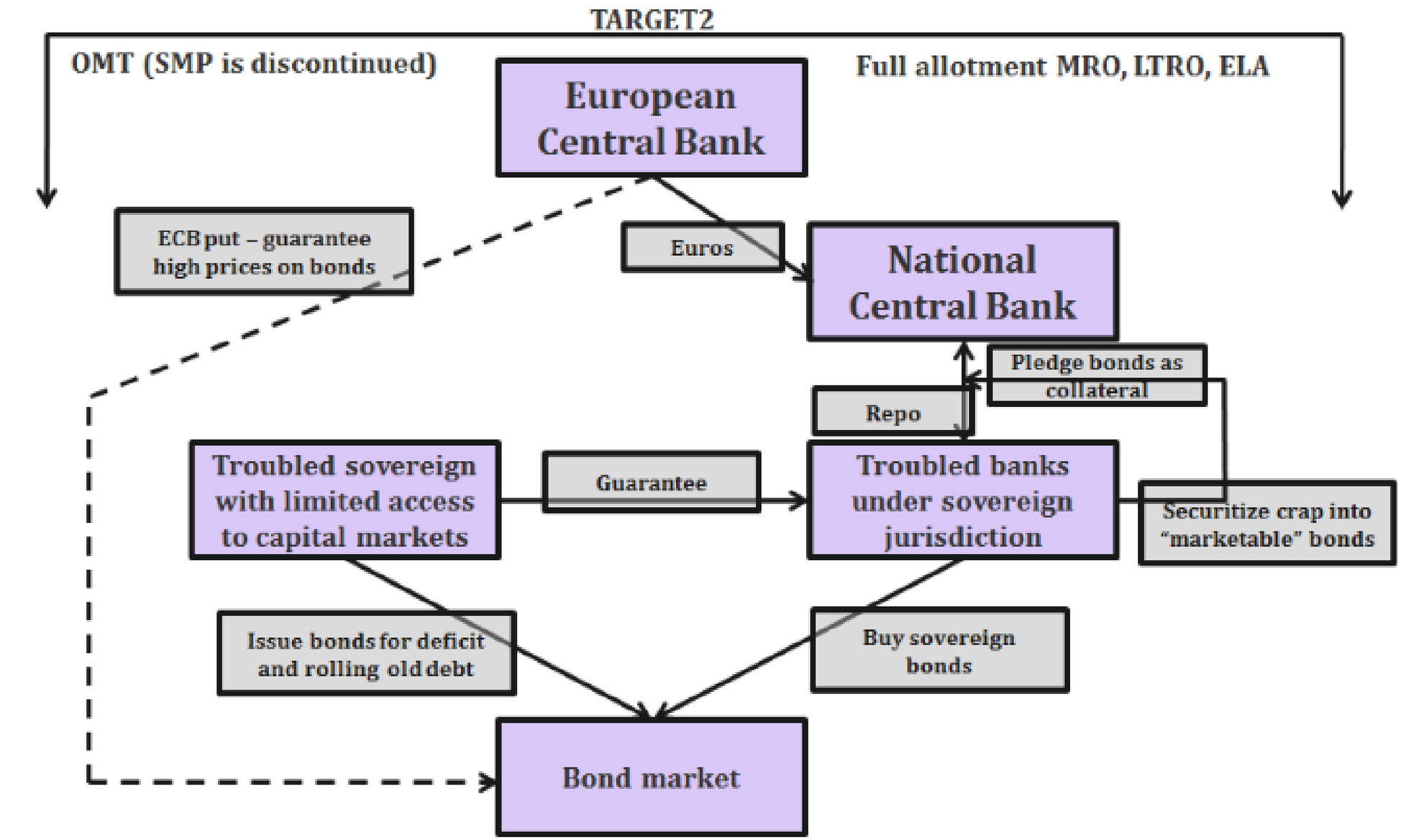
ECB bailing out Europe



Source: Bawerk.net

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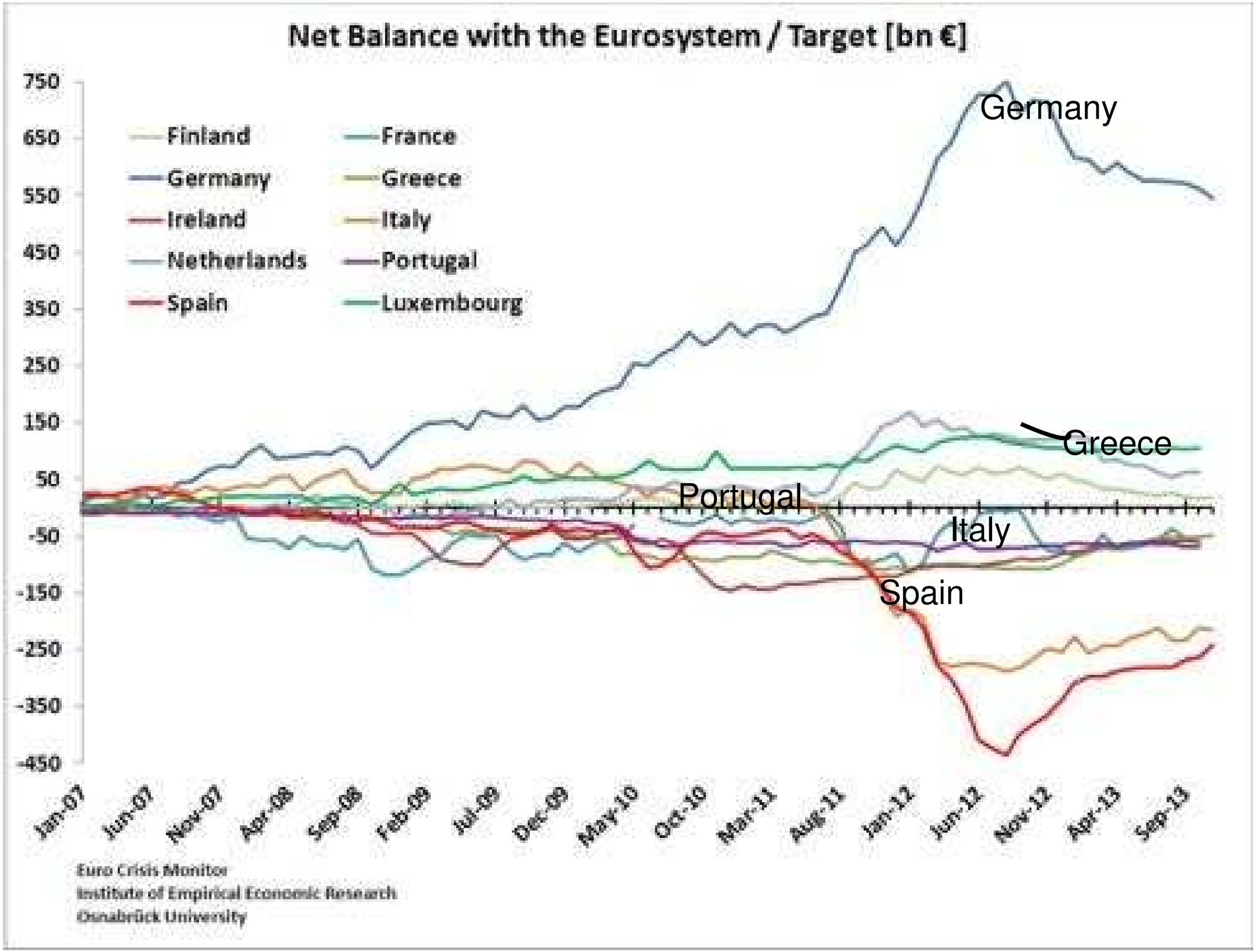

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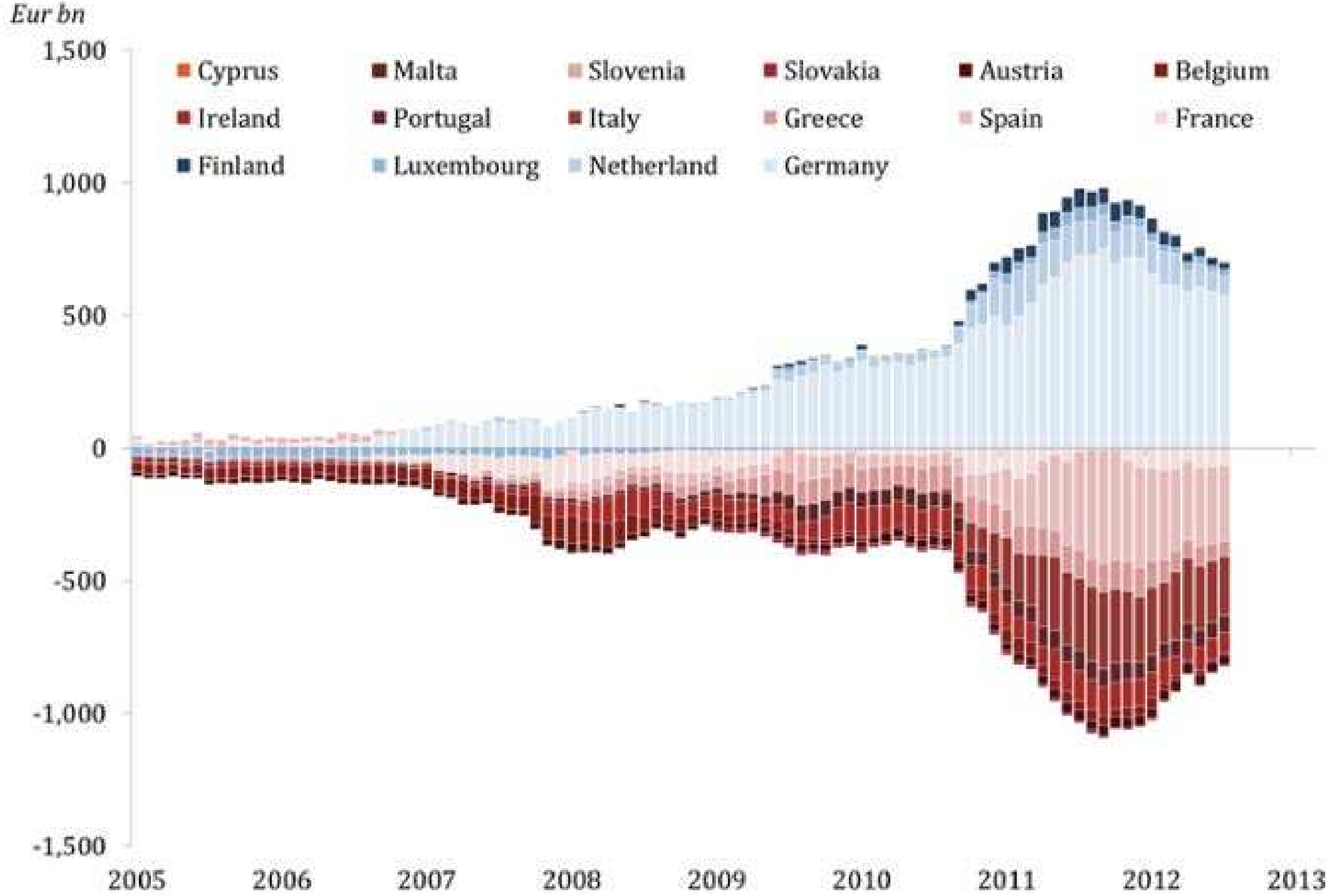
Target2 balances in EMU



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Target 2 ECBS Level Playing Field

- Spanish importer buys from a German company
- Spanish importer finances the payment with a loan from Spanish Bank
  - Spanish bank can't fund in international or local market
- Spanish bank issues acceptance as collateral for advance from the Banco de España.
- Banco de España issues "temporary" credit line used by Bundesbank to provide funds to German exporter's bank.
- The bank acceptance on the Banco de España balance sheet is balanced by Target 2 liability. This Target 2 liability is a Bundesbank Target 2 asset.
- This asset is balanced by a liability to the exporter's bank. The exporter's bank provides the exporter with a deposit credit.
- The Spanish bank loan to the importer is thus transferred to the exporter as a deposit in its German bank.
- Normally the deposit would enter EU capital flows providing a Spanish claim on Germany offsetting the Spanish importers loan.
- When capital flows ceased, there is no offset and T2 balances may accumulate without limit. They replaced capital flows and reached around 1 T Euro

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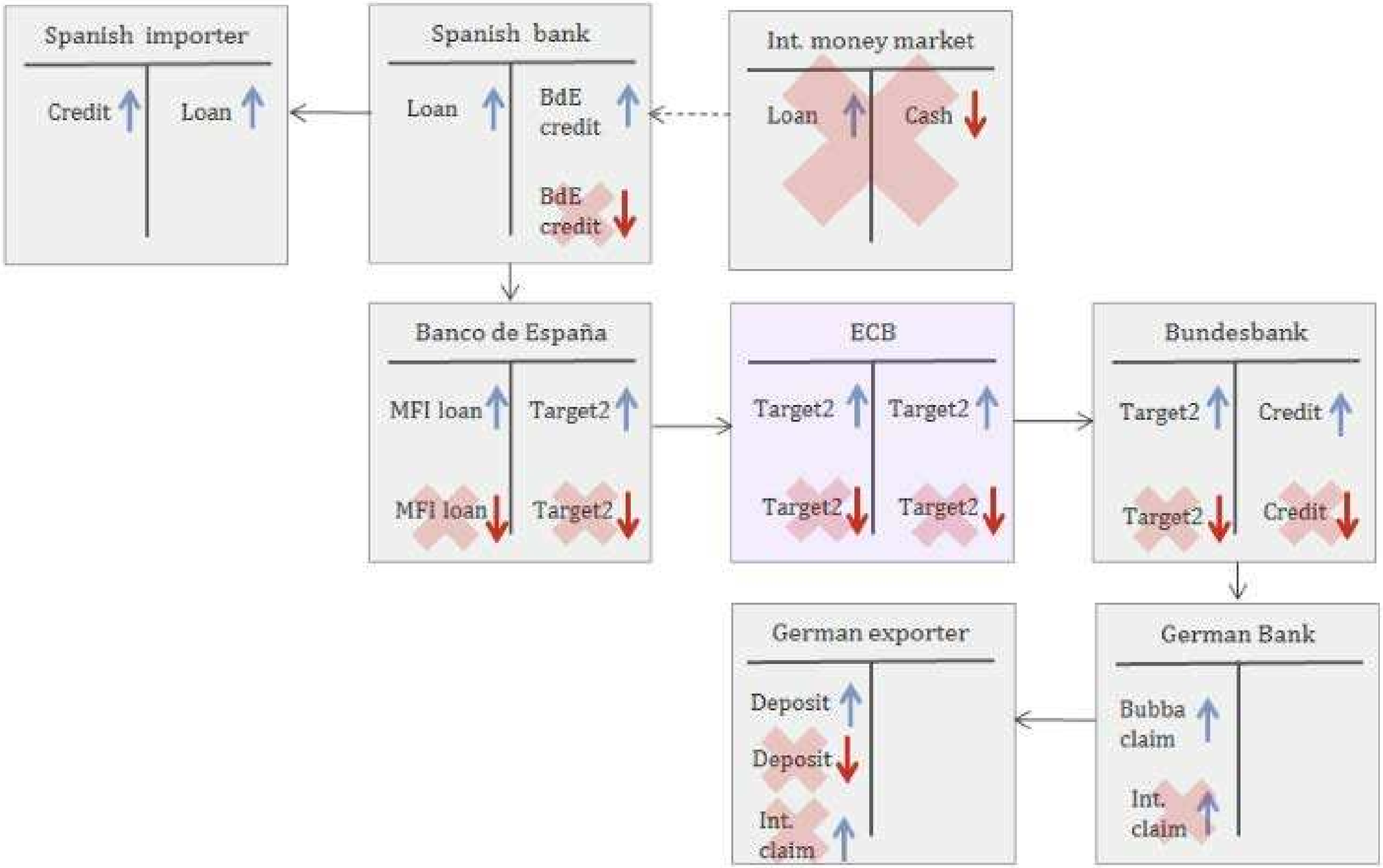

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The Essence of the ECB Support Policy

- The banking system is allowed to pool securitize into “marketable” bonds which will receive a “guarantee” from the sovereign state. As the ECB accepts all sovereign guarantees the new marketable bonds are almost money good.
- The bonds can be pledged as collateral at the national central bank, which in turns receive the right to manufacture euros from the centralized central bank
- The national central bank provide euro liquidity (and dollar through the swap line if needed) to the banking system.
- As a gratitude for the state guarantee, the banking sector will buy government bonds for the euros received from the NCB
- That said the banks are obviously not reluctant to buy these bonds since the OMT put provided by the ECB guarantees the price through an implicit yield ceiling.
- In this elaborate scheme developed since the crises erupted the ECB is bailing out both banks and sovereigns by allowing monetization of increasingly dubious assets.

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Non-ECB Support Measures: EFSF, ESFM,ESM

- A bilateral loan facility of €80bn was created for Greece, administered by the European Commission with advice and funding from the IMF.
- When this quickly proved insufficient the European Financial Stability Facility (EFSF) and SPV capable of issuing bonds for €440bn., but with no capital paid. The EFSF was combined with the European Financial Stabilization Mechanism (EFSM) capable of raising €60bn using the EU budget as collateral.
- The EFSF was supplanted by the European Stability Mechanism (ESM), but its disbursments (€188bn) will run alongside ESM capacity until the last disbursement is repaid in 2048.

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European Financial Stability Facility

	EZ16	EZ16 w/o bailed out	EZ16 w/o Spain
Austria	5,239	5,640	6,468
Belgium	6,544	7,045	8,080
Cyprus	369	-	-
Estonia	-	-	-
Finland	3,383	3,642	4,177
France	38,369	41,307	47,375
Germany	51,094	55,005	63,086
Greece	5,301	-	-
Ireland	2,997	-	-
Italy	33,716	36,297	41,630
Luxembourg	471	507	582
Malta	171	184	211
Netherlands	10,760	11,584	13,286
Portugal	4,723	-	-
Slovakia	1,871	2,014	2,310
Slovenia	887	955	1,095
Spain	22,404	24,120	-
Total	**188,300**	**188,300**	**188,300**

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European Stability Mechanism (ESM)

	Capital Key	Paid-in Capital	Callable Capital	*w/o bailed out*	*Incl EFSF*	Capital Buffer	Lending Capacity
Austria	2.78%	2,220	19,425	*23,970*	*30,418*	5,550	13,875
Belgium	3.47%	2,773	24,266	*29,944*	*37,999*	6,933	17,333
Cyprus	0.20%	157	1,370	-	-	391	978
Estonia	0.26%	205	1,791	*2,210*	*2,804*	512	1,279
Finland	1.79%	1,434	12,544	*15,479*	*19,643*	3,584	8,960
France	20.32%	16,260	142,272	*175,559*	*222,785*	40,649	101,623
Germany	27.06%	21,652	189,453	*233,779*	*296,666*	54,129	135,323
Greece	2.81%	2,247	19,657	-	-	5,616	14,041
Ireland	1.59%	1,270	11,112	-	-	3,175	7,937
Italy	17.86%	14,288	125,019	*154,269*	*195,768*	35,720	89,299
Luxembourg	0.25%	200	1,748	*2,157*	*2,737*	499	1,248
Malta	0.09%	72	632	*780*	*990*	181	452
Netherlands	5.70%	4,560	39,899	*49,234*	*62,478*	11,400	28,499
Portugal	2.50%	2,001	17,511	-	-	5,003	12,508
Slovakia	0.99%	793	6,937	*8,560*	*10,863*	1,982	4,955
Slovenia	0.47%	376	3,289	*4,059*	*5,151*	940	2,350
Spain	11.87%	9,494	83,075	-	-	23,736	59,339
Total	**100%**	**80,000**	**700,000**	***700,000***	***888,300***	**200,000**	**500,000**

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ESM

- Direct Loans
  - A member without market access or at unreasonable rates can receive a direct loan. A memorandum of understanding must be signed detailing the adjustment program to get the nation back on a sound footing.Money paid in tranches which may consist of several disbursements conditional on progress.
- Precautionary Financial Assistance
  - A precautionary credit line can be established for a country deemed sound in the form of A pre-conditioned Precautionary Conditioned Credit Line (PCCL) or the more stringent Enhanced Conditioned Credit Line (ECCL) for one year extended for two more six-month periods.
- Primary Market Support Facility (PMSF)
  - Instead of a direct loan, the ESM may engage in primary market purchases. The ESM can also buy in the secondary market in order to manipulate bond yields.
- Recapitalization of Financial Institutions
  - The ESM may provide a loan to for the specific purpose of recapitalizing financial institutions. The ESM will not provide a loan if banks have not tried to tap private market for capital first. ESM loan will be senior to all other capital, the problem of subordination thus re-emerges, now in the banking sector.

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Other Securities Market Measures

- Collective Action Clauses (CAC) on all new euro area government bonds
- Transfer of ECB profits from SMP.
  - The ECB under SMP bought Greek bonds at a discount but were repaid at par producing ECB “profits”. The “profit” would be transferred to the Greek ministry of finance. However since the ECB cannot engage in fiscal policy, the “profits” were sent back to the owners of the ECB according to their share of the capital stock and were then transferred to Greece.
- Debt-buy backs.
  - Some of the money Greece received was used to buy back debt in the market at a discount in order to reduce the nominal value of outstanding stock, but these buy-backs have a tendency to increase the market value of outstanding stock and usually do not provide long-term debt relief.
- PSI will be sought in exceptional cases
  - The preamble of the ESM Treaty states that a proportionate private sector involvement shall be sought in exceptional cases. While it does not state what exceptional, Greece must have been regarded exceptional as they forced a “voluntarily” PSI in the winter of 2012.

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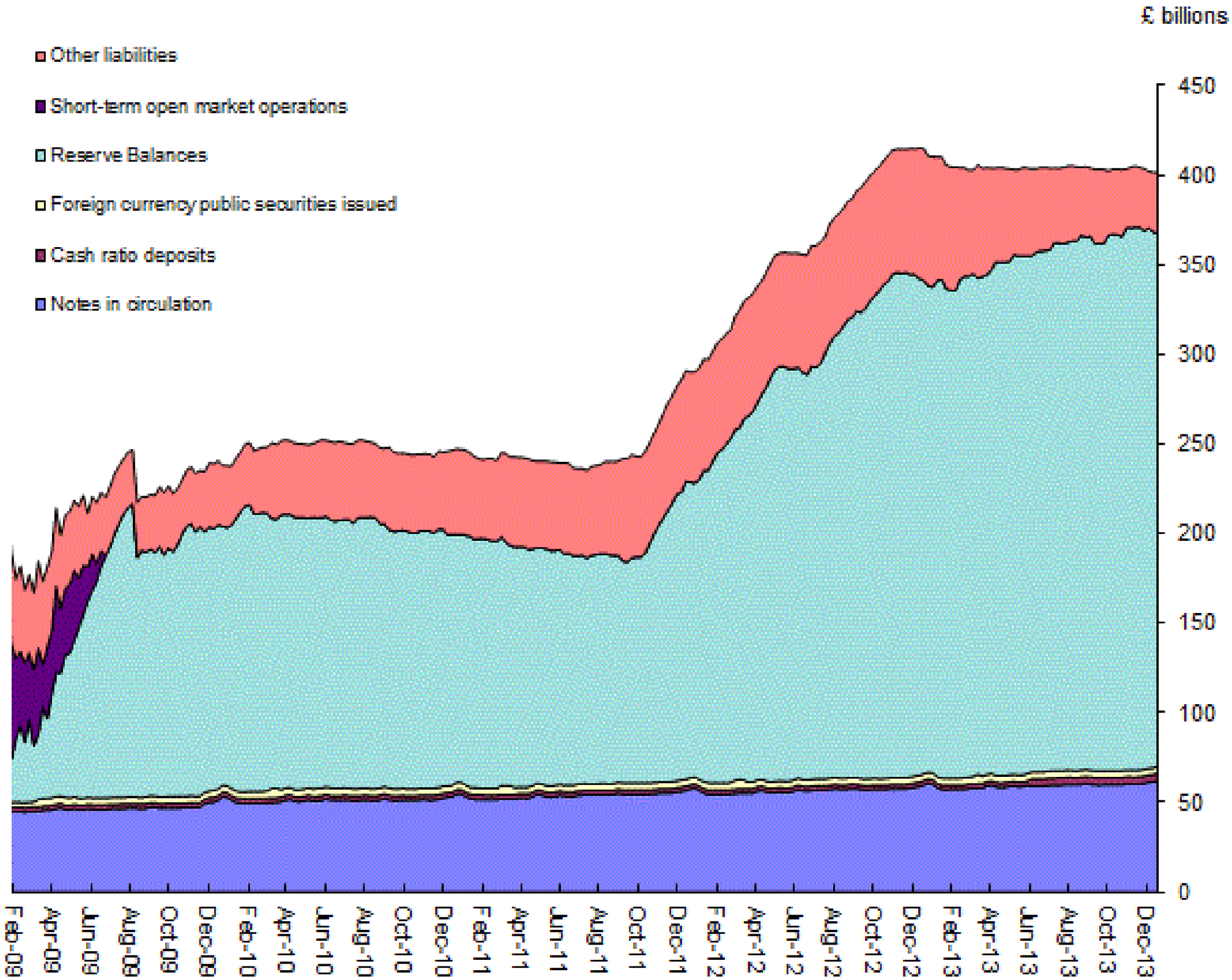
Bank of England consolidated balance sheet: liabilities [a]



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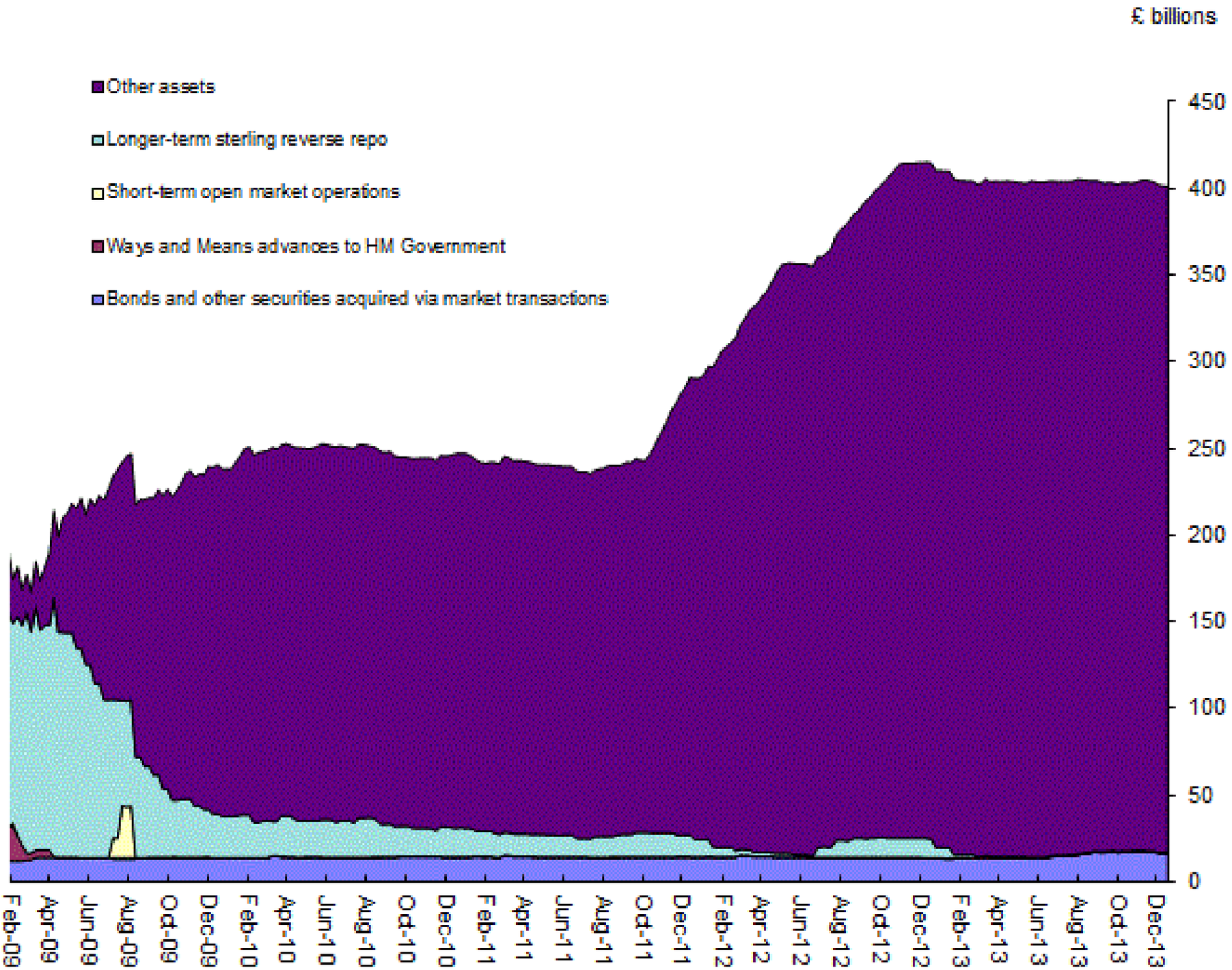
Bank of England consolidated balance sheet: assets (a)



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Other operations: Quantitative Easing

In January 2009, under a remit from the Chancellor of the Exchequer, the Bank established a subsidiary company, the Bank of England Asset Purchase Facility Fund (BEAPPF), with the initial objective of improving the liquidity of the corporate credit market by making purchases of high-quality private sector assets. In March 2009 the remit was extended to allow the MPC to use the Asset Purchase Facility to make purchases of assets (now including gilt-edged securities) in pursuit of its monetary policy aims.

The accounts of the Fund are not consolidated with those of the Bank. But the Fund is financed by loans from the Bank and those loans are included in “other assets” in the chart above. They account for the bulk of the increase in “other assets” since March 2009. The Bank’s loans to the Fund were in the initial phase financed with a deposit by the government’s Debt Management Office with the Bank. Since March 2009, as already noted, the Bank’s loans have been financed by increased reserves liabilities on the Bank’s balance sheet. See the **Asset Purchase Facility Balance Sheet Impact** pages for more information. The transactions of the Fund itself are reported separately. See **Asset Purchase Facility Quarterly Report** page for the latest report. The greatest part of the Fund’s purchases has been of gilts.

The Special Liquidity Scheme was introduced in April 2008 to improve the liquidity position of the banking system by allowing banks and building societies to swap their high quality mortgage-backed and other securities for UK Treasury Bills for up to three years. As these trades are stock lending transactions they are off balance sheet. The drawdown period for the scheme closed on 30 January 2009. For more information see the **Special Liquidity Scheme** pages.

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Chart 3: Bank of England consolidated balance sheet: liabilities[(a)]

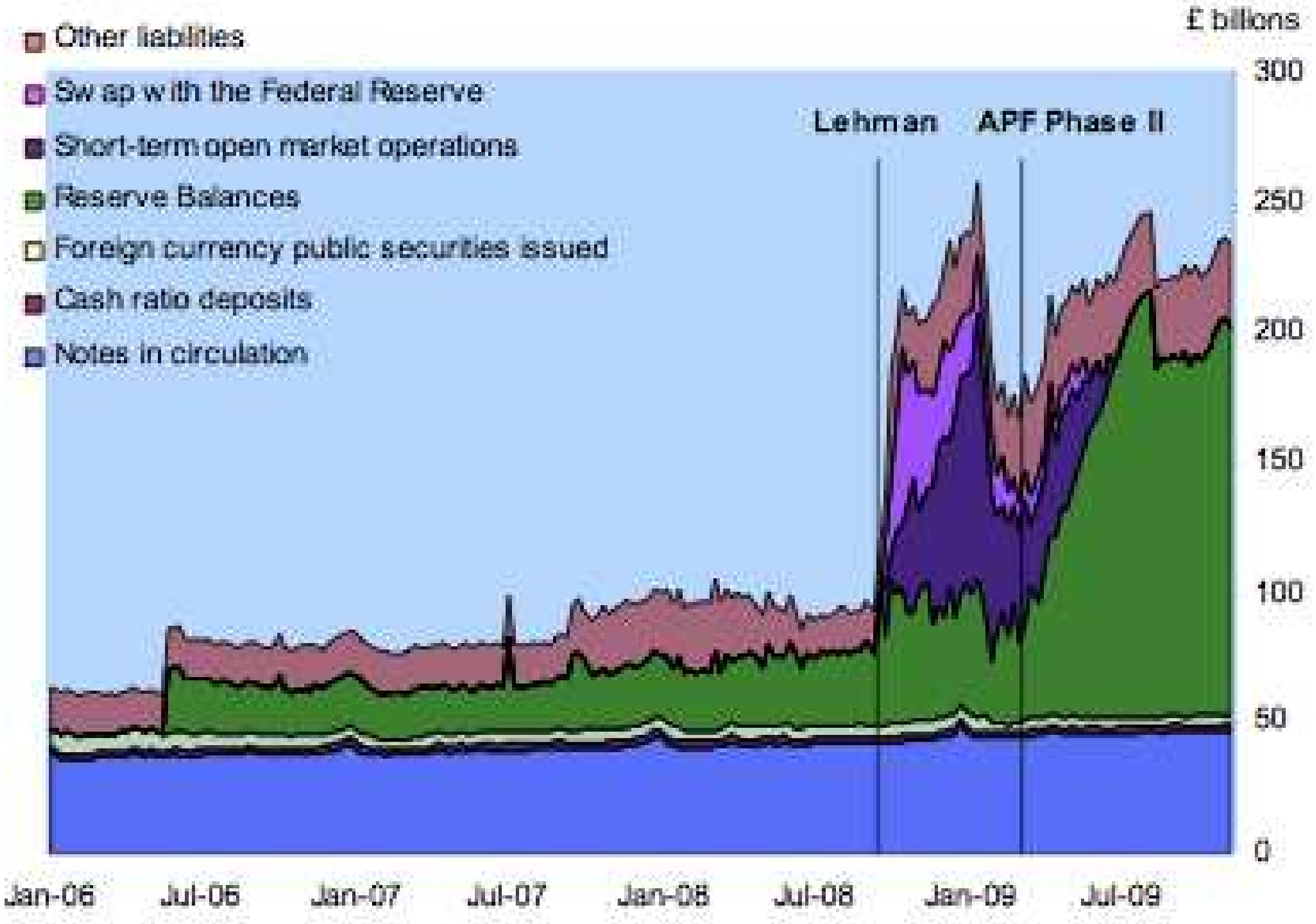

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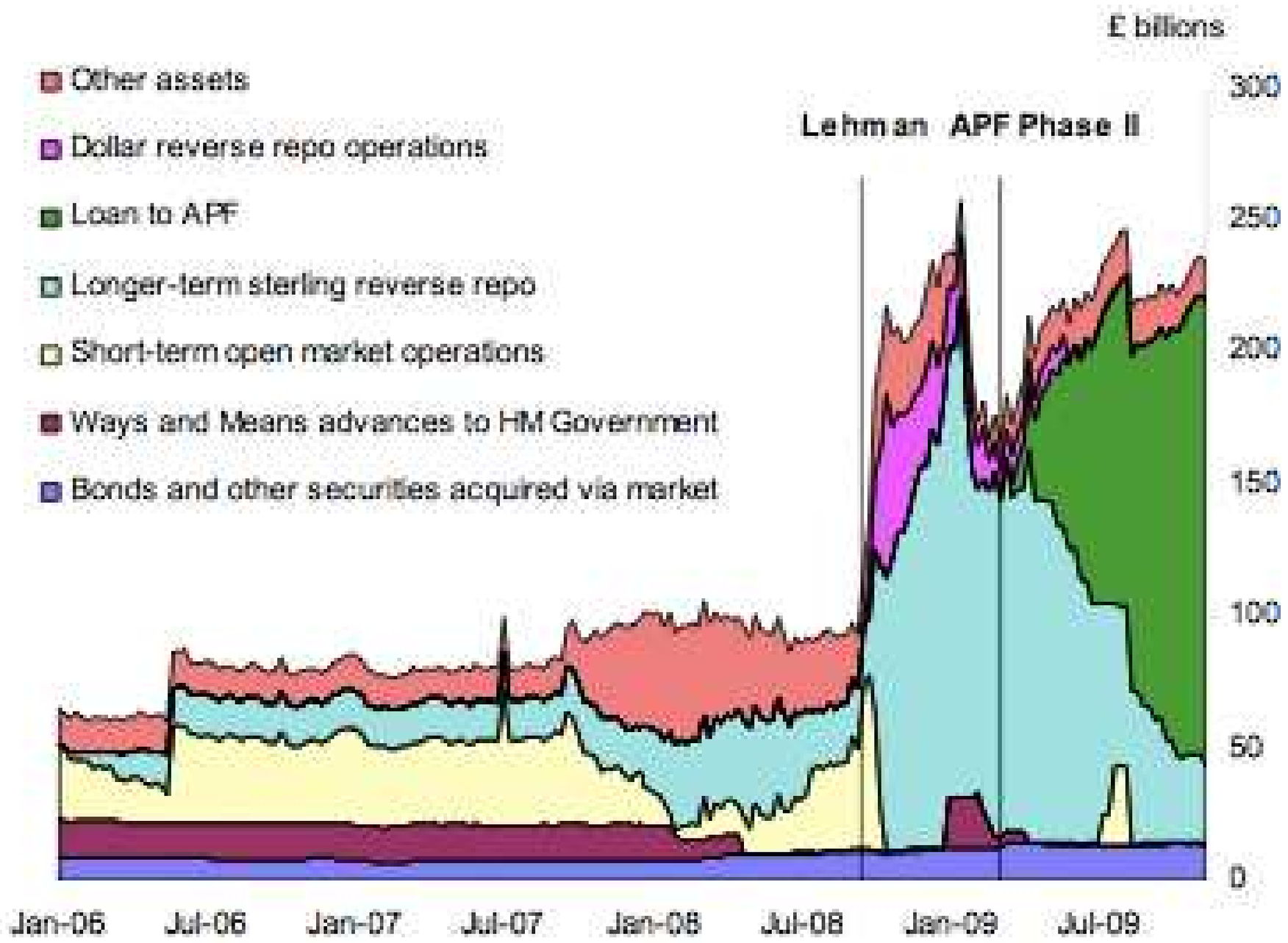
Chart 4: Bank of England consolidated balance sheet: assets[(a)]



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