



EUROPEAN CENTRAL BANK

EUROSYSTEM

2015 US Monetary Policy Forum
Panel discussion on Central Banking
with Large Balance Sheets

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- **1. Nature and size of the measures taken by central banks after the crisis:**
 - Interest rate cuts and liquidity provision.
 - Central banks increased their balance sheet, namely through credit easing or quantitative easing. The ECB difference: small amount of outright purchases until now. Monetary base and balance sheet increase resulted from banks' borrowings. Different channels of transmission were used.
 - In all cases, no proportionate response of credit or broad money aggregates to monetary base increases. No link between monetary base developments and changes in inflation or economic activity. ECB monetary policy not responsible for the double dip of growth in 2012-2013.
- **2. Channels of transmission and effects of Large Scale Asset Purchases (LSAP)**
- **3. Developments in the Euro area: TLTROs and purchases of simple ABSs and CBs; market anticipation of LSAP including government bonds**
- **4. Risks and potential costs of LSAPs**
- **5. Future of LSAPs as a permanent component of the monetary policy toolkit**

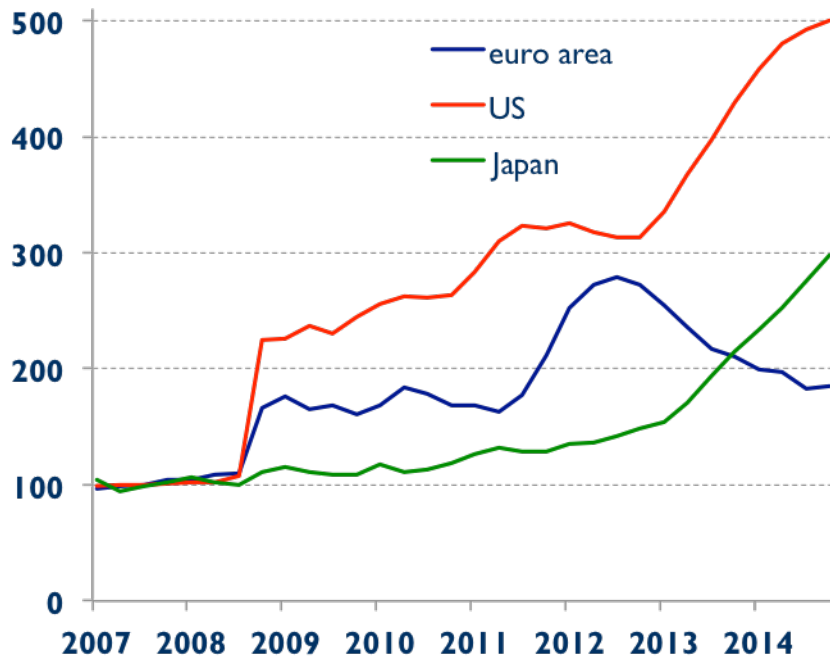
1. Monetary policy in the crisis

ECB	Fed	BoJ
2008 - Fixed-rate full allotment - FRFA	2008 - Term-Auction Facility - TAF; Term Securities Lending Facility - TSLF	2008 - Securities Lending Facility - expansion
2008/2009/2011 - Long-term Refinancing Operations (6m, 1Y, 3Y) - LTRO	2008 - Primary Dealer Credit Facility - PDCF	2008 - Outright purchases JGBs
2009/2011/2014 - Covered Bonds Purchase Programme (s) - CBPP	2008 - Asset-Backed CP MMMF Liquidity Facility - AMLF (and MMIFF)	2008 - CP repo operations - expansion; Outright purchases CP
2012 - Outright Monetary Transactions (announcement) - OMT	2008 - Commercial Paper Funding Facility - CPFF	2008 - Special Funds-Supplying Operations to Facilitate Corp. Financing
2013 - Forward guidance	2009 - Term Asset-Backed Securities Loan Facility (ABS CMBS) - TALF	2009 - Outright purchases Corporate Bonds
2014 - Targeted Long-term Refinancing Operations - TLTROs	2009 - Liquidity to credit markets - consumer, small business CMBS - TALF	2010 - Asset Purchase Programme - APP
2014 - ABS and Covered Bond Purchase Programme - ABSPP, CBPP	2008/2010/2012 - Large-scale Asset Purchases - QE1, QE2, QE3 - LSAP	2012 - Loan Support Programme
2015 - Expanded Asset Purchase Programme - APP	2008/2011/2012/2014 - Forward guidance (qualitative and quantitative)	2013 - Quantitative and Qualitative Monetary Easing

1. Central banks' balance sheets and monetary base

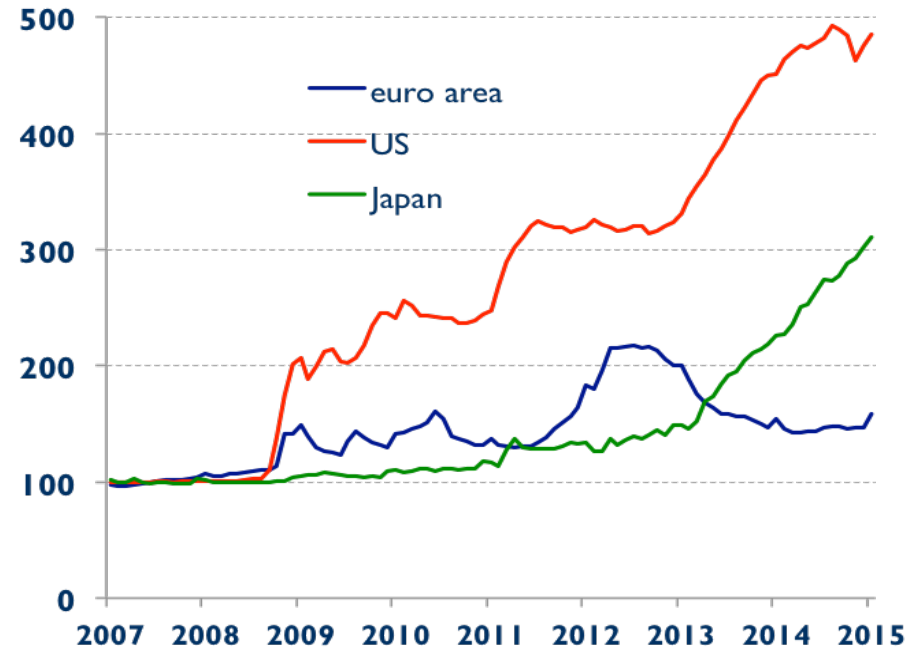
Central banks' balance sheets

(index 2007=100; quarterly data)



Monetary base

(index 2007=100; monthly data)



Sources: ECB, Federal Reserve Board, Bank of Japan and ECB staff calculations.

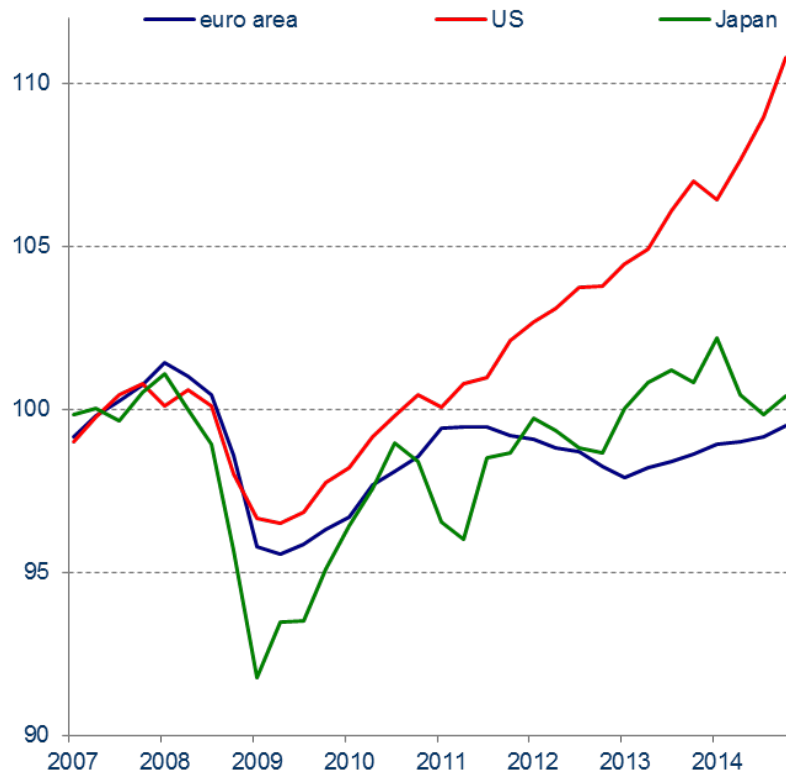
Note: Indices are based on quarterly averages of assets in national currencies. Data refer to the simplified balance sheet (methodology focusing on the monetary policy elements of the balance sheet). Last observation refers to December 2014.

1. Real GDP and inflation

Until 2011 the recovery in the EA was not much different from the one in the US. The difference came since the second half of 2013 (the double dip in the EA). The inflation rate started to really diverge only since 2013.

Real GDP

(index 2007=100; seasonally adjusted; quarterly data)

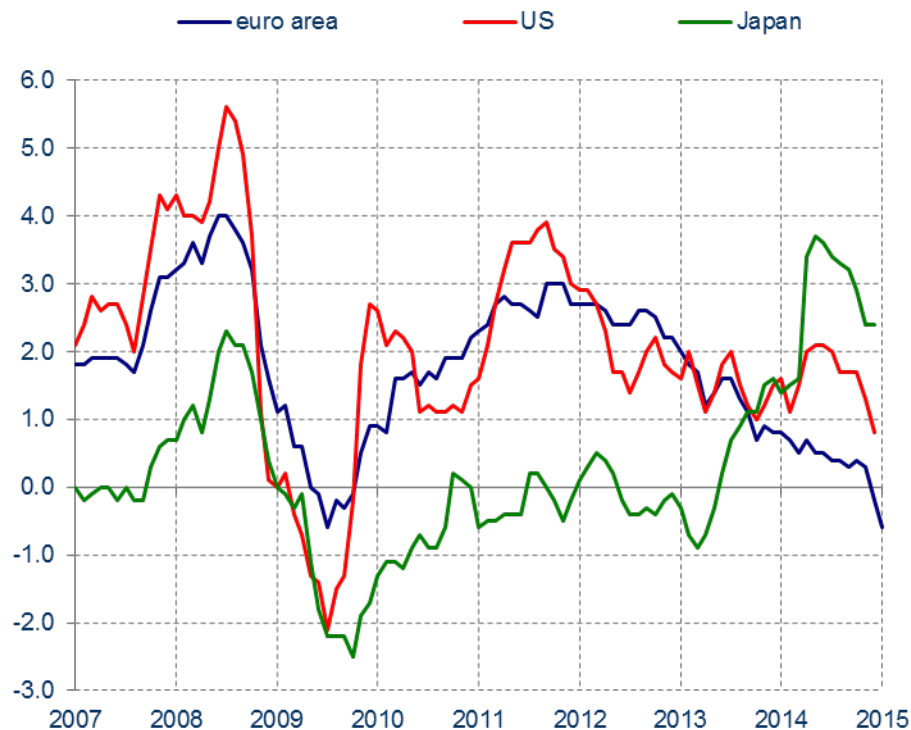


Sources: National sources and Haver Analytics.

Note: Last observation refers to 2014Q4.

CPI headline inflation

(annual percentage change; monthly data)



Sources: National sources and Haver Analytics.

Note: Last observation refers to 2014Q4.

1. Central banks' balance sheets and monetary base

Central banks' balance sheets: size and composition

	Dates	Total Assets (% GDP)	Monetary Base (% GDP)	Outright Purchases (% GDP)	Outright Purchases (% total assets)
ECB	Latest	17.6	11.9	2.2	12.1
	Peak (June 2012)	26.2	18.0		
	2007	9.9	8.8		
FED	Latest	24.5	23.4	24.4	99.5
	2007	5.8	5.5		
Japan	Latest	59.1	54.7	53.1	89.9
	2007	16.3	17.1		
UK	Latest	22.6	20.8	20.9	92.4
	2007	5.4	4.4		

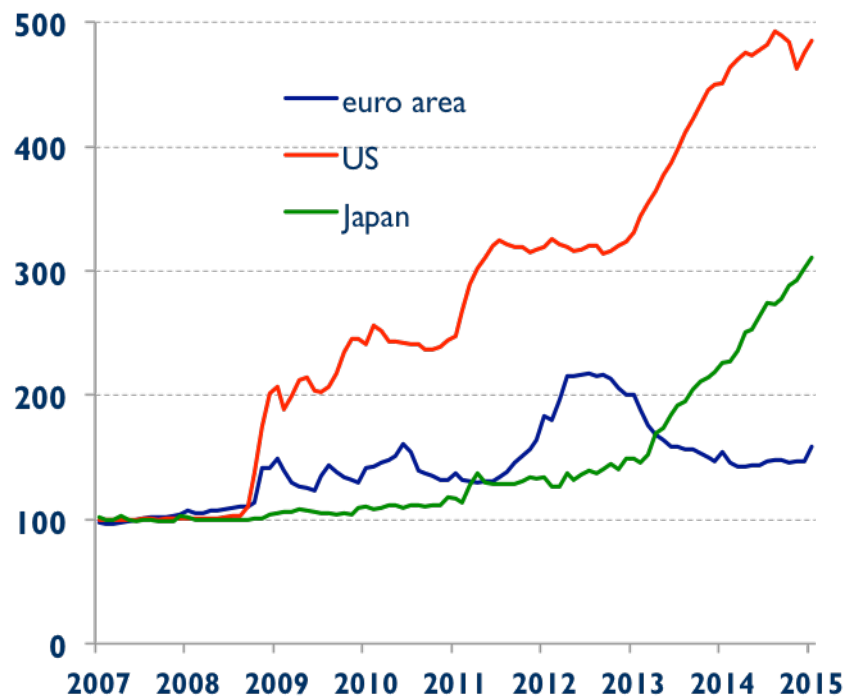
Sources: ECB, Federal Reserve, Bank of England, Bank of Japan.

Note: 2014 GDP based on *OECD November 2014 Economic Outlook forecast*. Figure for Federal Reserve *monetary base* refers to October 2014.

1. Monetary base and broad money

Monetary base

(index 2007=100; monthly data)

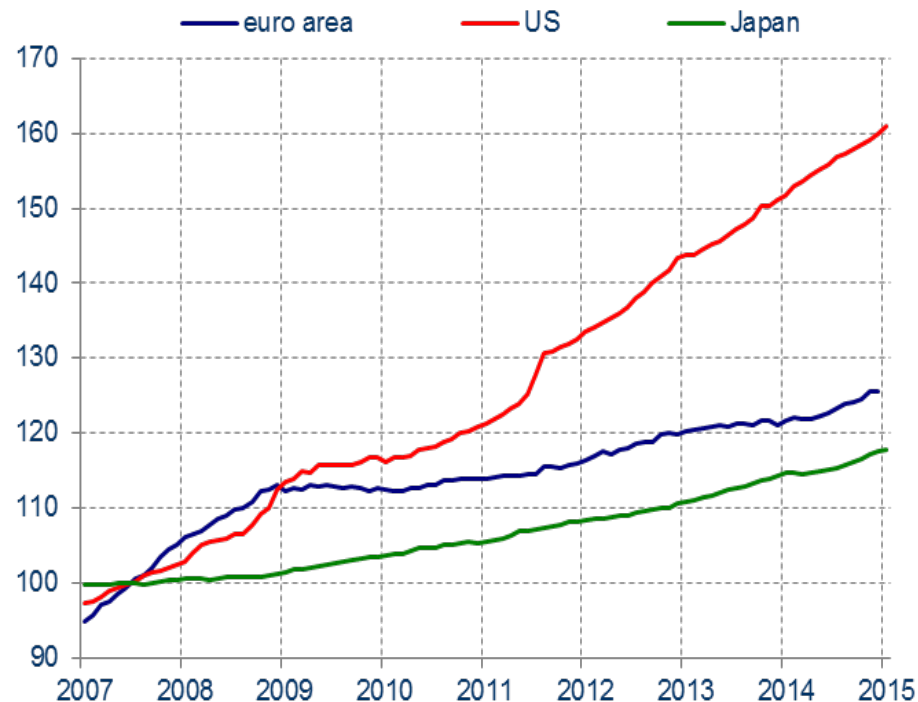


Sources: ECB, Federal Reserve Board, Bank of Japan, Haver Analytics and ECB staff calculations.

Note: Indices are based on quarterly averages of assets in national currencies. Data for the euro area are end of period and for US and Japan are monthly averages. Last observation refers to January 2015.

Broad money

(index 2007=100; seasonally adjusted; monthly data)



Sources: ECB, Federal Reserve Board, Bank of Japan and Haver Analytics.

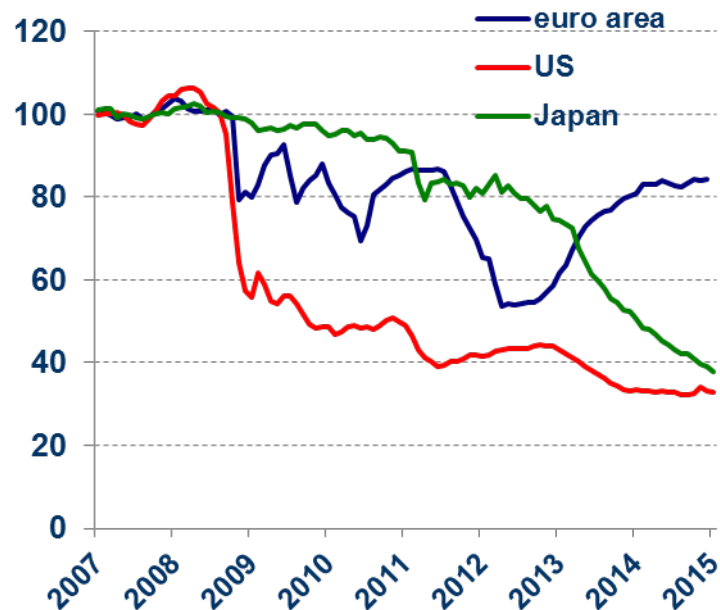
Note: Broad money concepts used are M3 for the euro area and Japan and M2 for US. Last observation refers to January 2015 for US and Japan and December 2014 for the euro area.

1. Monetary base, credit and broad money

Credit and broad money did not respond stably to developments in the monetary base in the US, Japan or the euro area. The increase in the ratios for the euro area after 2013 resulted from the contraction of the monetary base.

Ratio of broad money to the monetary base

(index 2007=100; monthly data)

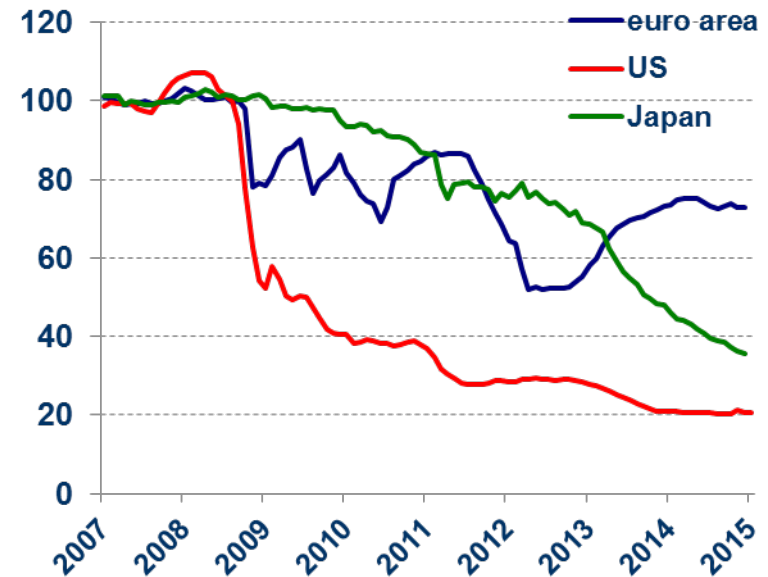


Sources: ECB, Federal Reserve Board, Bank of Japan, Haver Analytics and ECB staff calculations.

Note: Broad money concepts used are M3 for the euro area and Japan and M2 for US. Last observation refers to January 2015 for US and Japan and December 2014 for the euro area.

Ratio of credit to the monetary base

(index 2007=100; seasonally adj. monthly data)



Sources: ECB, Federal Reserve Board, Bank of Japan, Haver Analytics and ECB staff calculations.

Note: Credit data for Japan include only loans conceded by domestic banks. Last observation refers to January 2015 for US and December 2014 for the euro area and Japan.

1. Monetary policy in the crisis

Monetary policy did not contribute to the double dip in euro area growth

- The increase of the ECB (Eurosystem) balance sheet up until mid-2012 was not the result of outright purchases (as in the case of other central banks).
- The increase in the monetary base did not lead to proportionate increases in credit or broad money.
- Inflation started to decelerate since late 2011 and the economy started to enter into recession while the balance sheet was increasing. No technical traditional monetarist channels were operating.
- The same applies when the balance sheet started to decline steeply as a result of banks repaying their previous borrowing.
- Contrary to what some economists have maintained (Orphanides, 2014), the notion that by “letting” the balance sheet decrease, monetary policy contributed to the EA double dip and subsequent deflationary pressures is not founded.
- Credit and broad money did not decelerate.
- No technical traditional monetarist channels were operating. They did not work either in other cases. This implies that QE is not about the traditional monetarist channels but about new ones, namely signalling and portfolio rebalancing due to financial frictions (Williams, 2014).

1. The EA double dip had many causes, including the short term effect of fiscal consolidation

The beginning of the sovereign debt crisis had a negative expectations effect on consumption and investment. Fiscal consolidation had a short term restrictive impact.

Besides the EU COM paper quoted on the accompanied table, another recent paper by Rannenberg, Schoder and Strasky (2014) confirms the analysis. The paper also uses a variant of the models QUEST, the ECB NAWM (Chrisoffel, Coenen, Warne, 2008) and FiMod (Stähler, Thomas, 2012). Rannenberg, Schoder and Strasky (2014) find a cumulative loss of EA GDP in 2011- 2013 in relation to the baseline, of 14% with Quest, 15% with NAWM and 20% with FiMod.

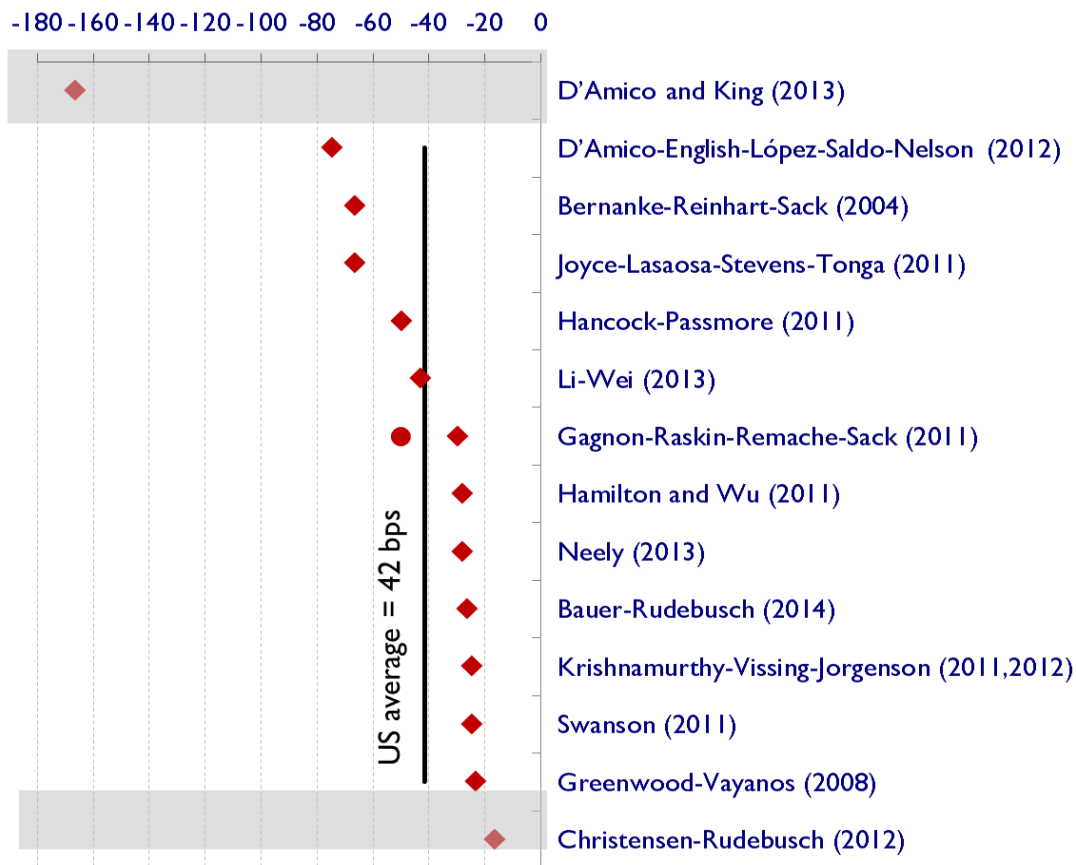
Fiscal policy: GDP losses in relation to baseline, resulting from simultaneous fiscal consolidations in seven euro area countries from 2011 to 2013 simulated by the EU Commission model QUEST

	Impact on GDP 2013, (%)	Cumulative impact 2011-13, (% of 2013 GDP)
Germany	3.9%	8.1%
France	4.8%	9.1%
Italy	4.9%	9.0%
Spain	5.4%	9.7%
Ireland	4.5%	8.4%
Portugal	6.9%	15.3%
Greece	8.1%	18.0%

Source: Veld, Jan (2013) EU Commission European Economy Economic Papers 506, October 2013, Table 5, pages 10 and 11.

2. Transmission channels and impact of LSAPs on bond yields

US: Impact of Asset Purchases on long-term yields, scaled to USD 1 tr. of purchase (basis points)



Source: ECB and Williams (2013).

Notes: The impacts provided in Williams (2013) have been rescaled to USD 1 tr. The vertical bar excludes the highest and lowest impact across studies.

The first transmission channel is the direct effect on the yields of purchased securities. Estimates are quite uncertain, with the chart showing too broad a range for the US with an average of 42 bp on 10y yields.

In the EA, in view of present levels, other channels will be more relevant:

signalling about future monetary policy; inflation expectation effects; portfolio rebalancing and other asset prices; wealth effects; improved credit channel

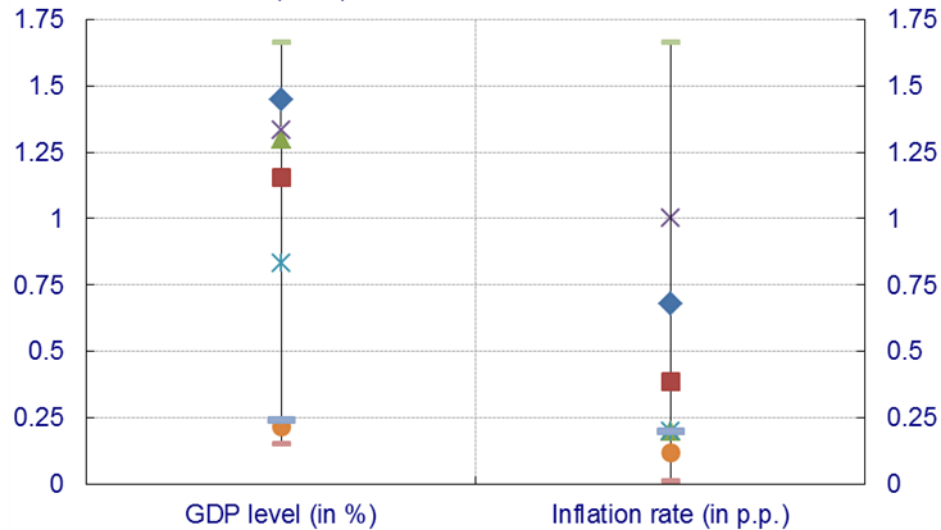
2. Transmission channels and impact of LSAPs on bond yields

United States

(scaled to USD 1 tr. purchases)

(peak impact on the level of output and inflation)

- Chung et al. (2011)
- × Deutsche Bank (2011)
- Chen et al. (2012)
- Moody's (2011)
- Gertler Karadi (2013)
- ▲ Fuhrer and Olivei (2011,max)
- × Fuhrer and Olivei (2011,min)
- IHS Global Insight (2011)
- ◆ Del Negro et al. (2011)



Source: Studies quoted in the chart and ECB staff.

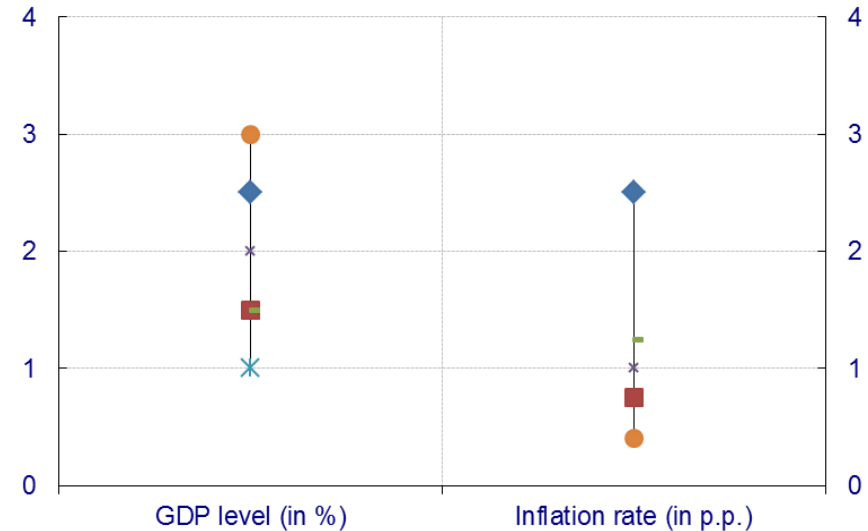
Note: The macroeconomic impacts are scaled to USD 1 tr. of asset purchases to allow for comparison across studies. Some of the studies provide the impact only for real GDP.

United Kingdom

(GBP 200 bn purchases)

(peak impact on the level of output and inflation)

- ◆ Joyce, Tong and Woods (2011, max)
- Joyce, Tong and Woods (2011, min)
- Kapetanios et al. (2012)
- × Bridges and Thomas (2012)
- × Pesaran and Smith (2012)
- Ashworth and Goodhart (2012)



Source: Studies quoted in the chart and Quarterly Bulletin 2011Q3, Bank of England.

Note: The macroeconomic impacts are computed for asset purchases of GBP 200 bn to allow for comparison across studies.

3. Developments in the euro area

In June 2014, the ECB initiated a new phase of monetary policy, explicitly referring to the use of an active management of the balance sheet size through outright purchases. The measures were extended in September and in January 2015 by including government bonds in a LSAP.

Expanded asset purchase programme:

Composition: expanded to include also sovereign bonds

Volume: combined monthly asset purchases of €60 billion

Maturity: minimum remaining maturity of 2 years to maximum of 30 years

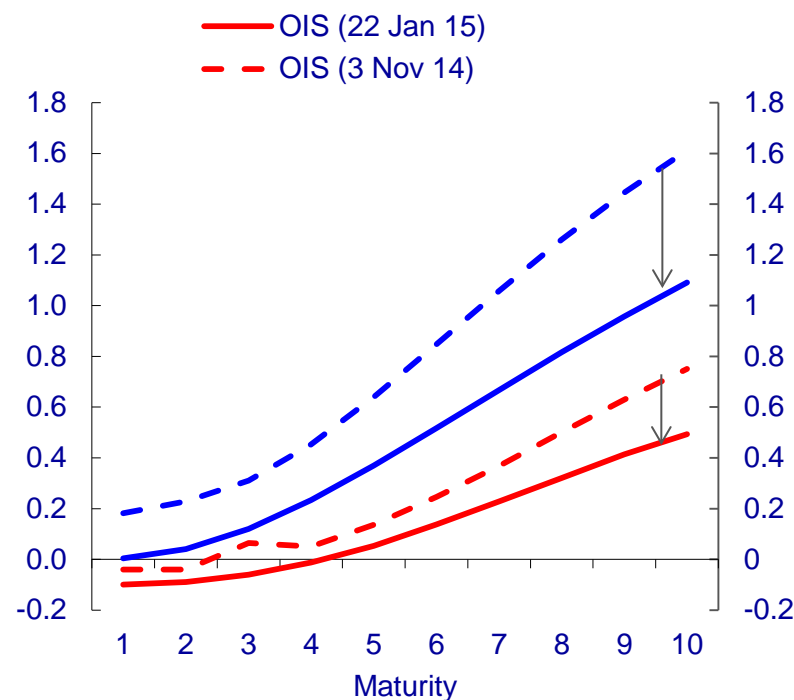
Security lending: yes

Transparency: weekly and monthly reporting

Reflecting euro area institutional

specificities: capital key, waiver for countries under adjustment programme, issue and issuer limit, loss sharing

Term structure: Sovereign yield curve (GDP-weighted) and OIS curve
(percentages per annum)



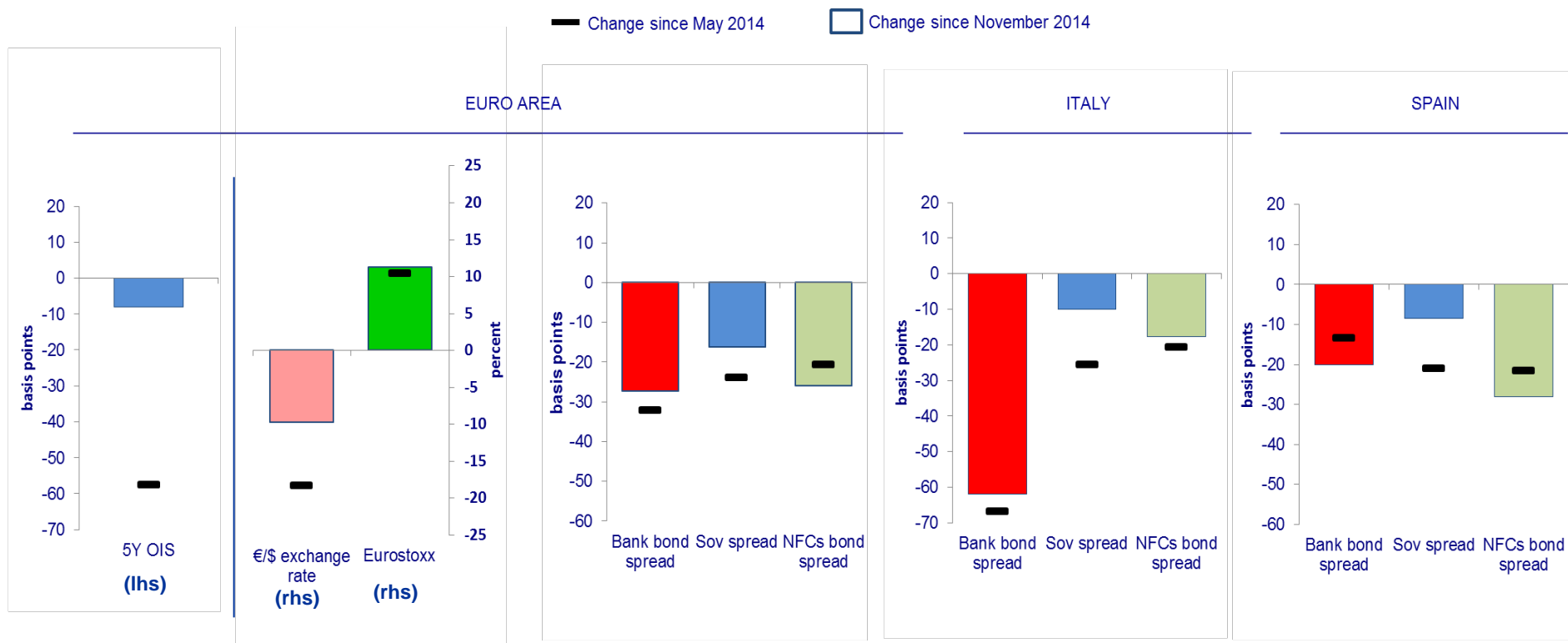
Sources: Reuters and ECB calculations.

Notes: The GDP-weighted curve is interpolated using the Nelson-Siegel model. The x-axis shows maturity in years.

3. Developments in the euro area

Broad-based boost to asset prices

Changes in yields and financial prices since May/November 2014 (exchange rate and Eurostoxx in percentage points; else in basis points)



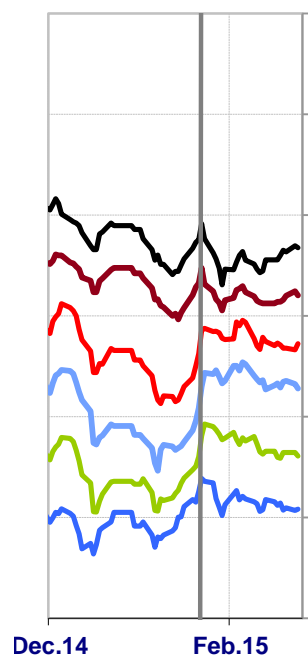
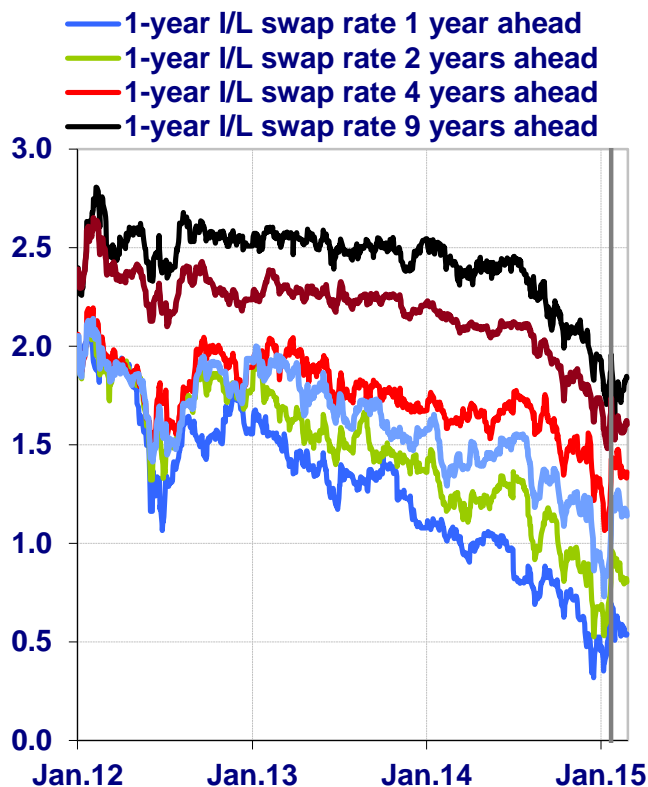
Source: Bloomberg, ECB, ECB calculations. Last observation: 18 February 2015.

3. Inflation expectations

Market-based inflation expectations had an up-tick and stabilised after the announcement of QE. Consensus forecast foresees a quicker normalisation of inflation than IL swap rates in a market without great demand for inflation protection.

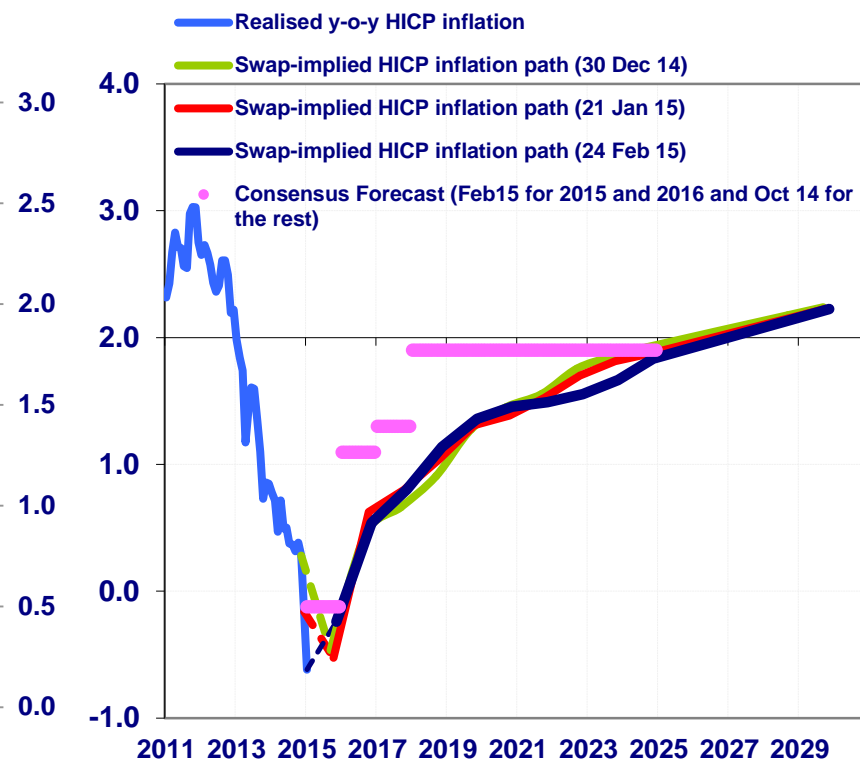
Implied forward inflation-linked swap rates

(% p.a., daily)



Implied inflation paths calculated from IL swap rates

(% p.a.)



Source: Reuters data and ECB calculations.
 Latest observation: 24 February 2015.
 Note: Vertical line denotes 22 January 2015.

Source: Reuters data and ECB calculations.
 Latest observation: 24 February 2015.

4. Risks and potential costs of LSAPs

- **Medium-term inflation risks:** unlikely, and central banks have enough instruments to deal with them.
- **Exit strategy and the possibility of losses incurred by the central bank:** as Bernanke said, this is a possibility but measured against the gains from a stronger economy and the previous budget contributions, such a risk is “not a true social economic risk” (in David Wessel (ed), 2014.)
- **Financial stability risks, stemming from search for yield and higher leverage:** these risks are real but monetary policy cannot be inhibited in line with its priority goals. These risks must be addressed by macro-prudential policies of a regulatory and administrative nature. The corresponding toolkit given to central banks has to be enlarged.
- **Potential laxity of credit risk management by financial institutions in a climate of low rates:** supervision, proper risk management governance and regulation of provisions, should deal with this problem.
- **Wealth effects and increased inequality:** a stronger economy and lower unemployment can mitigate but not eliminate this possible side effect.

5. Future of LSAPs as part of the monetary policy toolkit

- It is now acknowledged in the literature that advanced economies are more prone to face the zero lower bound (ZLB) problem more frequently, (Chung et al, 2011; Williams, 2014).
- This is partially connected with the secular stagnation hypothesis, according to which advanced economies face a protracted period of relatively low growth. This is accompanied by a lowering of the real equilibrium interest rate.
- The real rate depends on many other factors besides trend productivity growth: increased savings linked with ageing and consumption smoothing; increased savings and growing inequality; lower real investment prospects, including the effect of a growing service technologic sector with smaller physical capital requirements; structural protracted situation of lack of safe assets, etc...
- These developments imply that LSAPs may be needed more often near liquidity traps. However, they are not an instrument for normal times in view of their side effects that touch fiscal and distributional issues. In normal times, interest rates should remain the basic instruments used by central banks. Repos or open market operations (outright purchases) should be used mostly for that purpose and not for LSAPs.

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