SEC/GovC/20/507/07b

EUROPEAN CENTRAL BANK

EUROSYSTEM

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Market sensitive

Second Interim Report on Complementing the June-October Policy Package

Frankfurt am Main, 7 January 2015

Outline of 3 December presentation

- **Scaling the monetary impulse in lower-bound conditions**
  - The monetary impulse and the transmission table
  - Shortfall in monetary impulse
- **Addressing risk of shortfall in monetary impulse**
  - Composition matters
  - Quantities matter too
  - New measures: Financial transmission
  - New measures: Macroeconomic propagation
- **Interventions in sovereign bonds**
  - Option 1
  - Option 2
  - Time frame and communication
- **An alternative to balance sheet policy: IRS interventions**
- **Implementation**
  - IRS Interventions
  - An expanded asset purchase program

Outline of 3 December presentation, and updates

- **Scaling the monetary impulse in lower-bound conditions**
  - The monetary impulse and the transmission table
  - Shortfall in monetary impulse (Calibrating the envelope of new program)
- **Addressing risk of shortfall in monetary impulse**
  - Composition matters: An update on the pass-through of current measures
  - Quantities matter too: Implications of low TLTRO take-up
  - New measures: Financial transmission (Transmission through banks)
  - New measures: Macroeconomic propagation
- **Interventions in sovereign bonds**
  - Option 1
  - Option 2

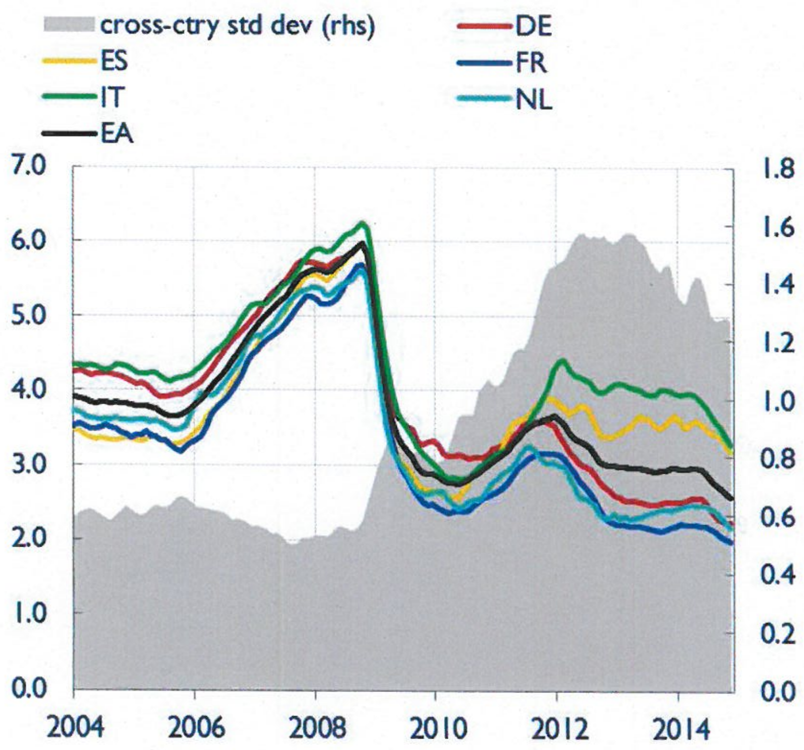
    Cost-benefit analysis
  - Time frame and communication: case for forward guidance on quantitative expansion
  - Risk sharing baseline / No risk-sharing as cost mitigant under Option 2
- **An alternative to balance sheet policy: IRS interventions**
- **Implementation**
  - IRS Interventions
  - An expanded asset purchase program
  - Universe of additional debt securities to be considered for purchases
  - Exclusion criteria as cost mitigant under Option 2

Composition matters: pass-through of current measures

- **Strong pass-through effect:** low long-term refinancing rate plus positive and negative incentives for lending is spurring competition, reduction in margins, lending rates, and loan net redemptions

Composite indicator of the nominal cost of bank borrowing for NFCs

(percentages per annum; 3-month moving averages)



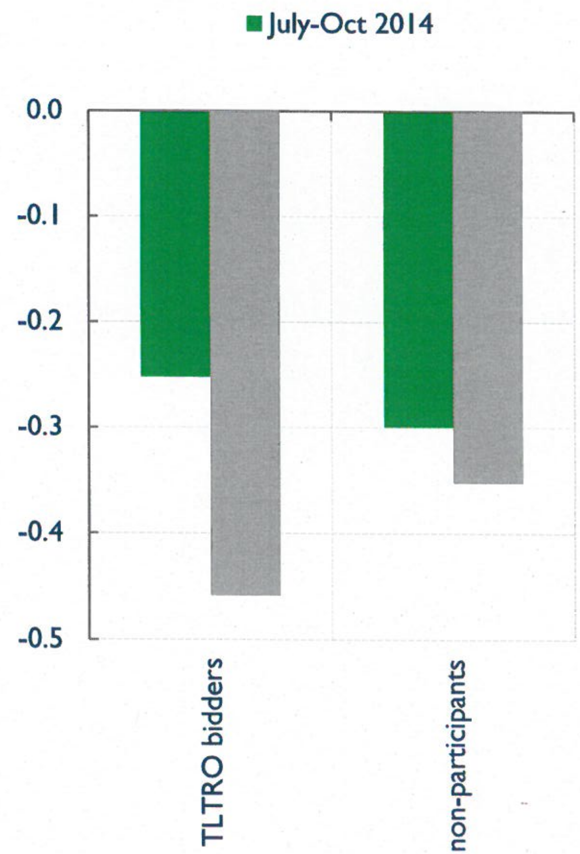
Source: ECB.

Notes: The composite indicator of the cost of borrowing is calculated by aggregating short- and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated over a fixed sample of 12 euro area countries.

Latest observation: November 2014 (preliminary data).

TLTROs: Loans to NFCs in stressed countries by TLTRO participation

(cross-sectional means of cumulated flows in percentage points of main assets)

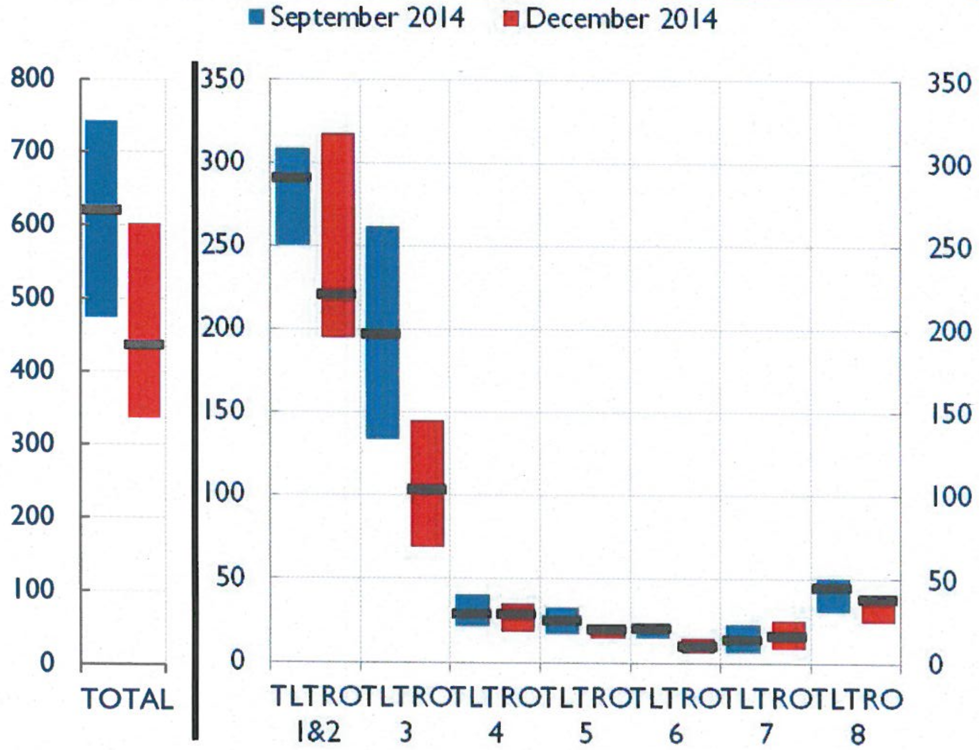


Source: ECB.

Quantities matter too: implications of low TLTRO take-up

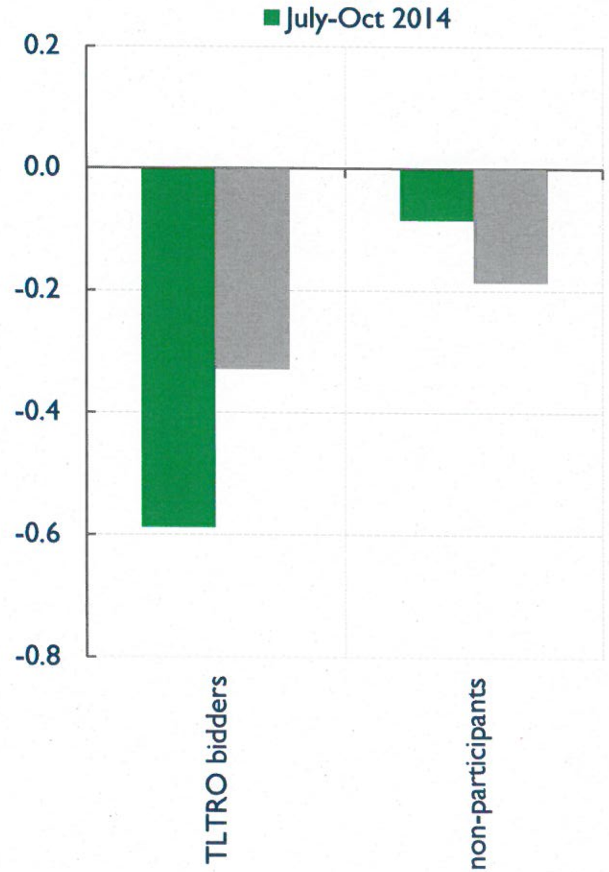
- **Low TLTRO take-up relative to estimates means less funding substitution for participants…**
- … Less funding substitution means **muted portfolio rebalancing and weaker monetary impulse**

Ranges of estimated take up in TLTROs
(€ billions)



Source: ECB estimates.
Notes: The reported ranges are calculated by adding/subtracting one standard error from the respective point estimate, which is denoted by the black lines.

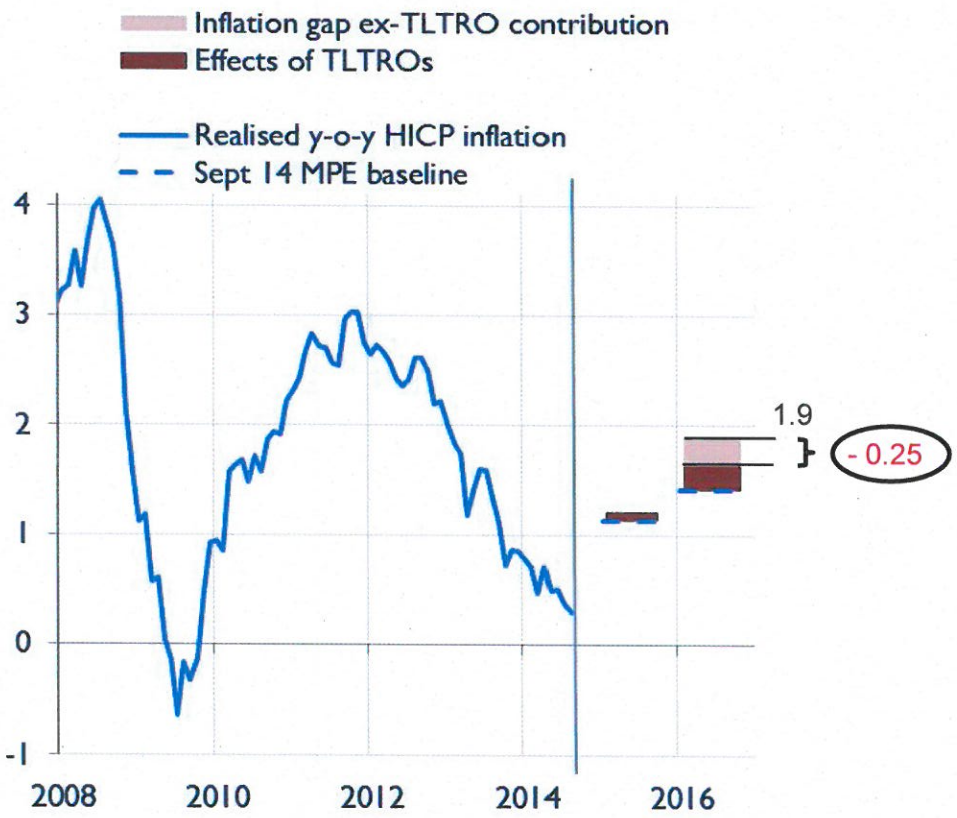
Net issuance of bank bonds by TLTRO participation
(cross-sectional means of cumulated flows in percentage points of main assets)



Source: ECB.

Quantities matter too: implications of low TLTRO take-up

Inflation gap in September
(percent per annum)



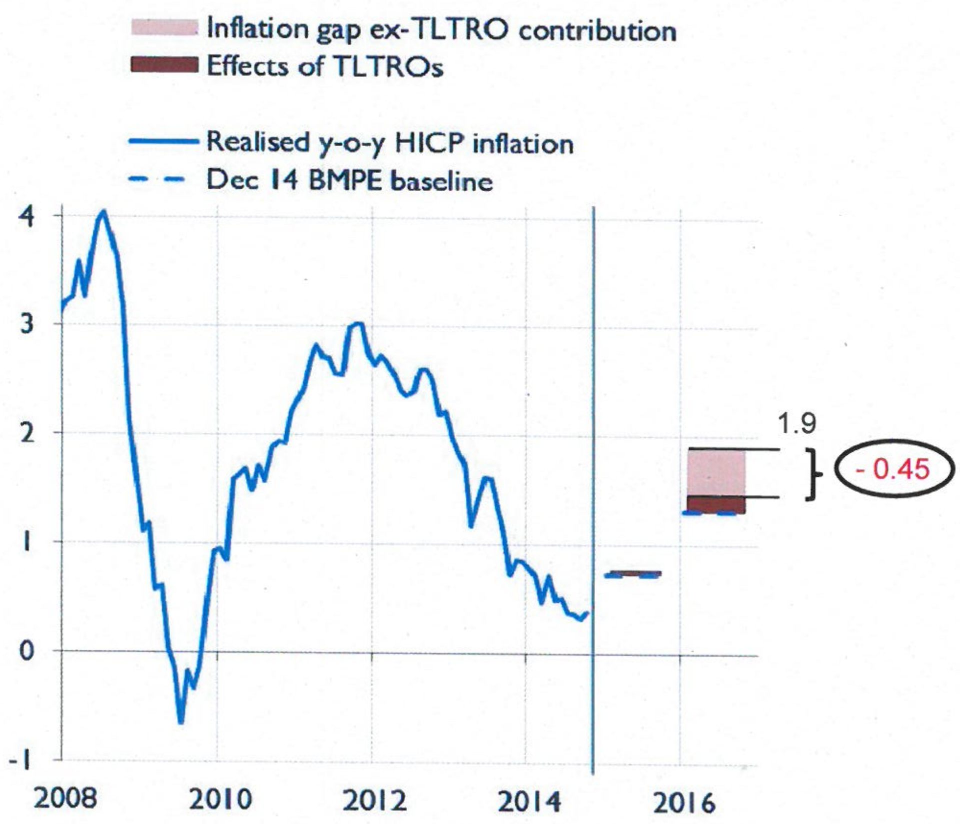
Source: ECB computations.
Notes: The impact on inflation is reported for a TLTRO average take-up estimate of €620bn available in September.

Inflation gap

- **The monetary impulse from TLTRO weakens at a time when more stimulus is needed**
- **The inflation gap excluding TLTRO** contribution was small in September

Quantities matter too: implications of low TLTRO take-up

Inflation gap in December
(percent per annum)



Source: ECB computations.
Notes: The impact on inflation is reported for a TLTRO take-up estimate of €436bn, corresponding to the latest of ECB-internal estimates.

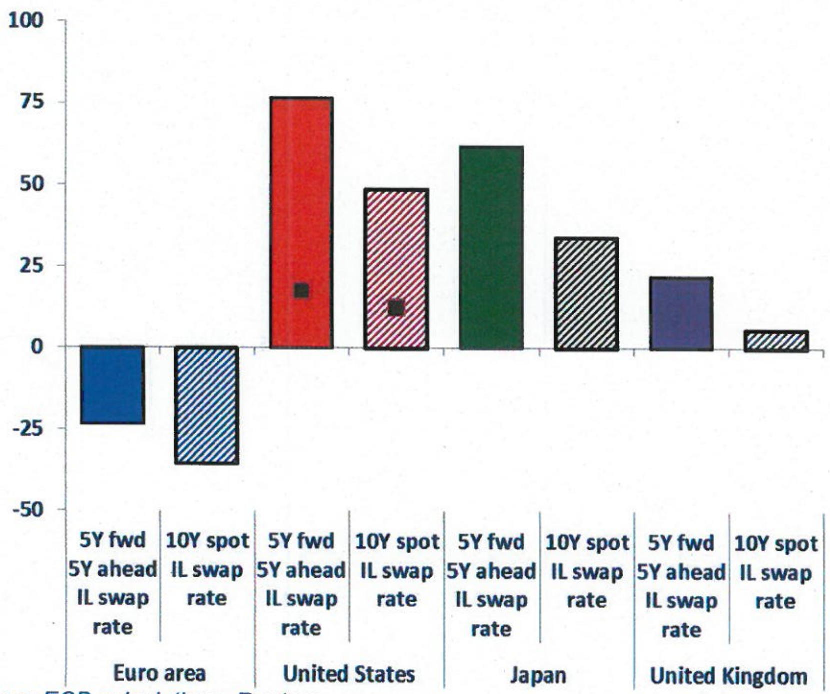
Inflation gap

- **The monetary impulse from TLTRO weakens at a time when more stimulus is needed**
- **The inflation gap excluding TLTRO contribution** was small in September
- **It has increased in December** also due to lower baseline inflation projection

Quantities matter too: implications of low TLTRO take-up

Response of inflation expectations to announcements of central bank balance sheet measures

(basis points)



Source: ECB calculations, Reuters.

Notes: For the euro area, bars show the difference in end-of-day values of inflation expectations between 1 October 2014 and 02 January 2015. For all other regions, the response of inflation expectations to policy announcements is computed based on an event study methodology. Bars show difference between the end-of-day value on the day of the announcement and end-of-day value on the day preceding the announcement. Events considered for the US: 25 November 2008, 1 December 2008, 16 December 2008, 28 January 2009, 18 March 2009, 10 August 2010, 27 August 2010, 21 September 2010, 15 October 2010, 3 November 2010, 21 September 2011, 20 June 2012, 31 August 2012, 13 September 2012 and 12 December 2012; still for the US, the squares refer to the announcement effects of QE-2 and QE-3; for UK: 19 January 2009, 11 February 2009, 5 March 2009, 7 May 2009, 6 August 2009, 5 November 2009, 6 October 2011, 9 February 2012 and 5 July 2012. For Japan, the events considered are the Bank of Japan's announcements of decisions related to asset purchases over the period January 2009-December 2014. For all countries the impact shown in the chart is based on cumulating the impact over all events.

Inflation gap

- **The monetary impulse from TLTRO weakens at a time when more stimulus is needed**
- **The inflation gap excluding TLTRO contribution** was small in September
- **It has increased in December** also due to lower baseline inflation projection

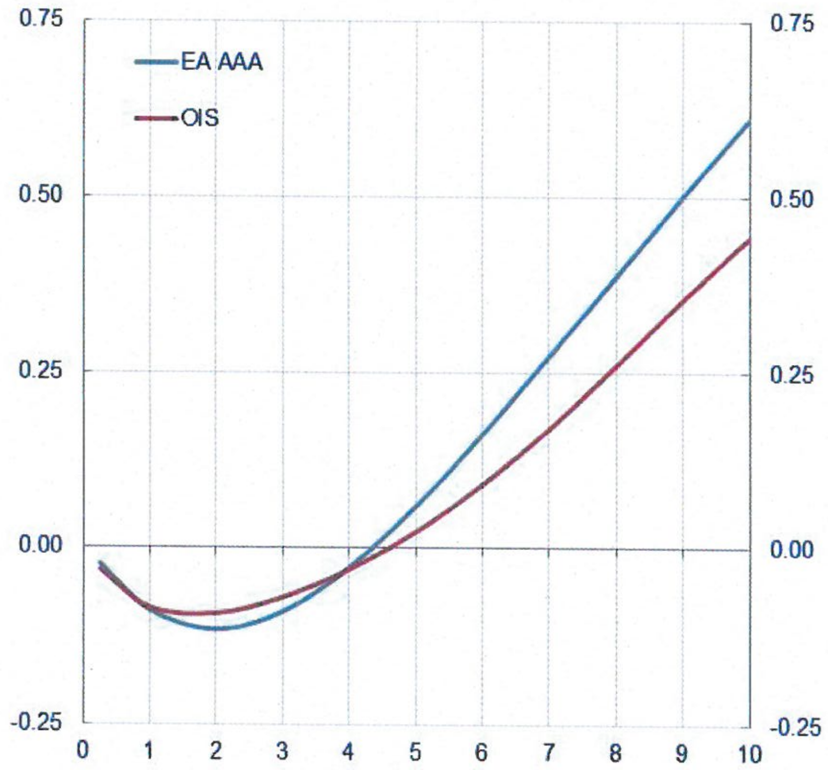
Inflation expectations

- **Summer measures did not cement perceptions** of sufficient additional monetary stimulus
- Partly as a consequence, **they failed to stop long-term inflation expectations from falling in tandem with headline figures**
- **Announcements of quantitative programs give powerful boosts** to inflation expectations: they address fears that monetary policy is out of action at the lower bound

Cost-benefit analysis: Option 1

Term structure: AAA sovereign yield curve and OIS curve

(percent per annum)



Sources: Reuters, data observed on 02/01/2015.
Notes: The y-axis show %-yields and the x-axis show maturity in years.

Option I

- Eurosystem intervenes in near-zero default sovereign securities only: **AAA portfolio**

Benefits

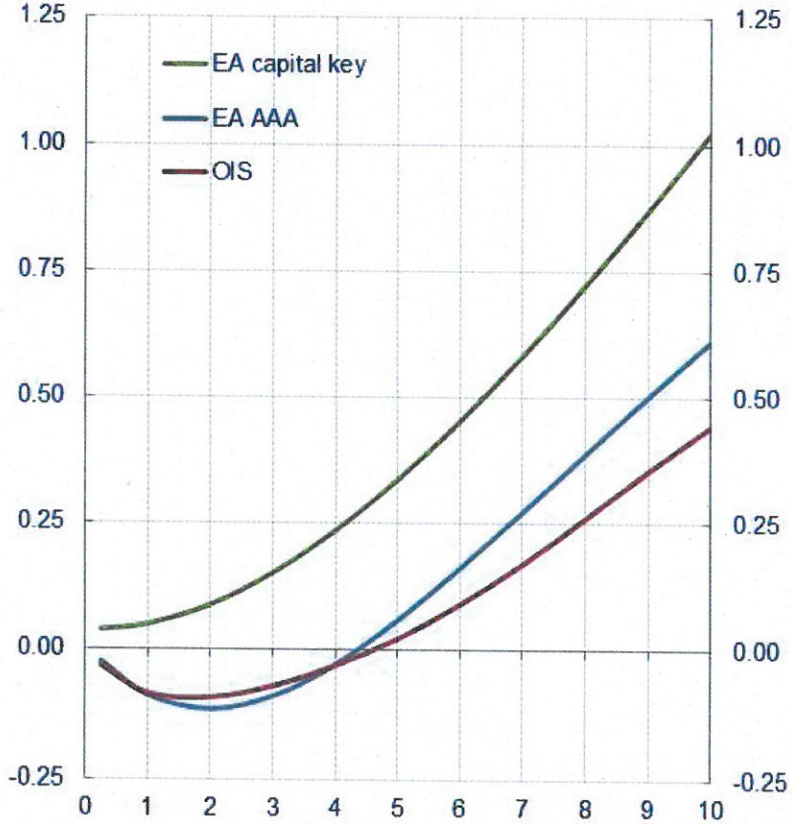
- **Signals low rates** for longer (flattens OIS curve)
- **Extracts unspecific duration risk** (compresses any remaining spread between sovereign and OIS curves)
- To the extent that AAA sovereign yields apply when discounting any long-term cash flow, this **inflates asset prices and wealth** across wide spectrum of assets and investors
- **Minimizes negative incentive** risks in strategic game with national authorities

Costs

- **Low efficiency per euro spent:**
  - **risk-free curve already super-flat**
  - **Ability to compress duration premium** diminishes at very low rates
  - **Tenuous portfolio rebalancing**: swaps one type of safe asset for perfect substitute
  - **Inflates safety premium** on scarce supply of super-safe securities

Cost-benefit analysis: Option 2

Term structure: Capital-keyed sovereign yield curve, AAA sovereign yield curve and OIS curve
(percent per annum)



Sources: Reuters and ECB calculations. Data are observed on 02/01/2015. Notes: The capital key weighted curve is interpolated and extrapolated using the Nelson-Siegel model. The y-axis show %-yields and the x-axis show maturity in years.

Option 2

- Eurosystem intervenes in **capital-keyed portfolio of investment grade sovereign bonds** (with exclusion criteria)

Benefits

- **Magnifies efficiency per euro spent:**
  - **Impact of quantitative interventions is found to be greatest when interventions address segmentation:** swaps of safe asset (cash) for very imperfect substitutes (below-AAA debt instruments) make riskier securities scarcer and safe assets more abundant
  - **To the extent the spread to AAA curve reflects macroeconomic risk premium paid by non-core issuers, it reinforces monetary policy impact** on economic slack and sources of disinflation

Costs

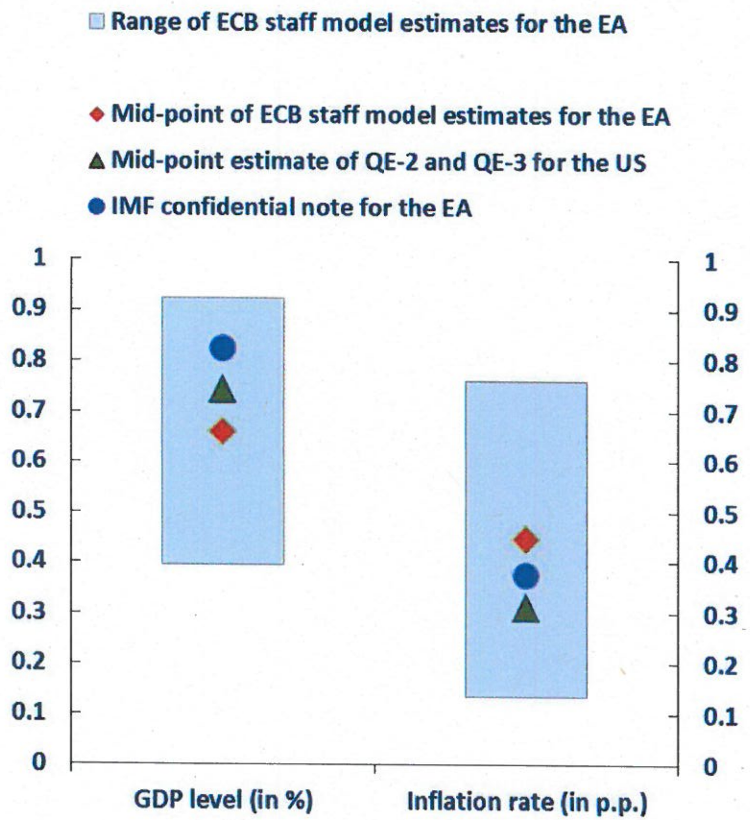
- **Loss mutualisation may undermine national incentives** for prudent fiscal and bold structural policies, and bring Art 125 challenges

Cost mitigants

- **Risk sharing** arrangements and **exclusion criteria** could serve as **cost mitigants**

Shortfall in monetary impulse: calibrating new envelope

Macro impact of an overall €900 billion purchase program *(percent)*



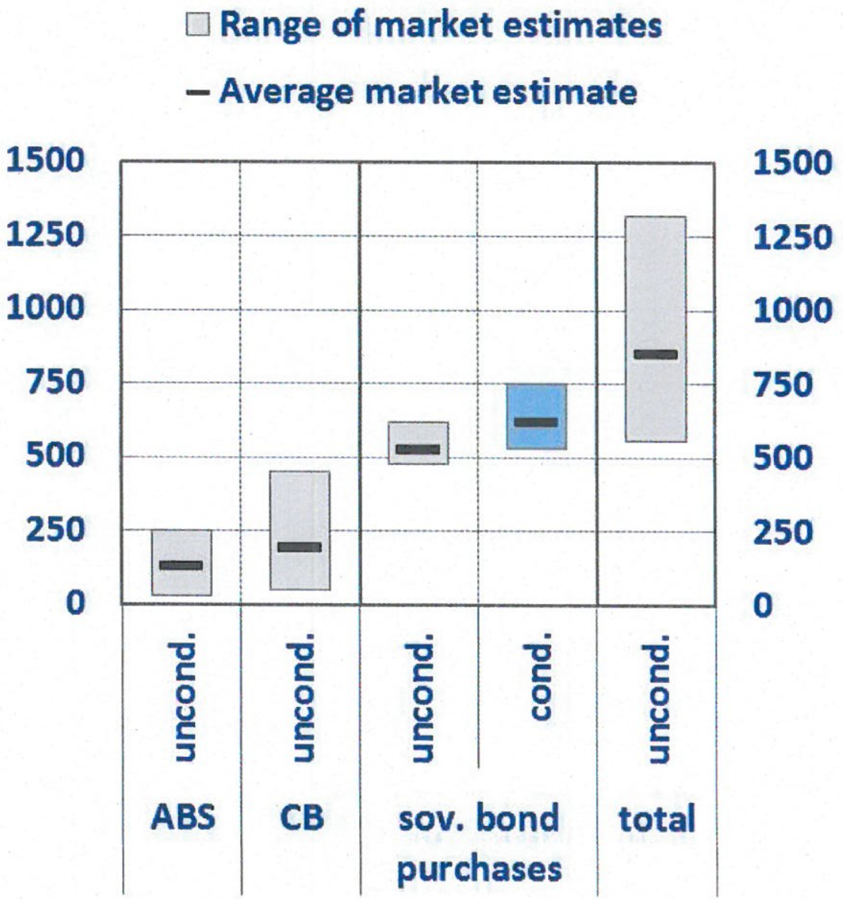
Sources: ECB computations.
Notes: Ranges for the macro impact of purchases on the euro area encompass the following models: (i.a) the DSGE model L. Christiano, R. Motto, and M. Rostagno (2014), (i.b) the DSGE model M. Darracq Pariès, C. Kok Sørensen and D. Rodriguez Palenzuela (2011), (ii) C. Altavilla, M. Darracq Pariès, and G. Nicoletti (2014); (iii) the PUEs. The range for the impact on the US encompasses various studies in the literature, where those impacts are scaled to $900bn of asset purchases to allow for comparison across studies.

Staff

- **An overall envelope of €900 billion including ABSPP, CBPP-3 and an Option-2 type sovereign bond** portfolio corresponds to what staff considers:
  - ***Minimum* additional quantitative impulse necessary under Option 2**-type program to provide material **support to the economic recovery**
  - and help **fill residual "inflation gap"** (difference from medium-term policy aim of "below but close to 2%" and December baseline inflation projections)

Shortfall in monetary impulse: calibrating new envelope

Expectations of overall purchase programs: Quantitative impact
(€ billions)



Sources: Goldman Sachs (12 Dec), Bank of America Merill Lynch (15 Dec), Nomura (18 Dec), ABN Amro (19 Dec); Bloomberg (14 Dec); ECB calculations.
Notes: The conditional market estimate of sovereign bond purchases reflects the expected envelope given such purchases are announced; the unconditional estimate of sovereign bond purchases is calculated as the expected envelope times the probability of such purchases .

Staff

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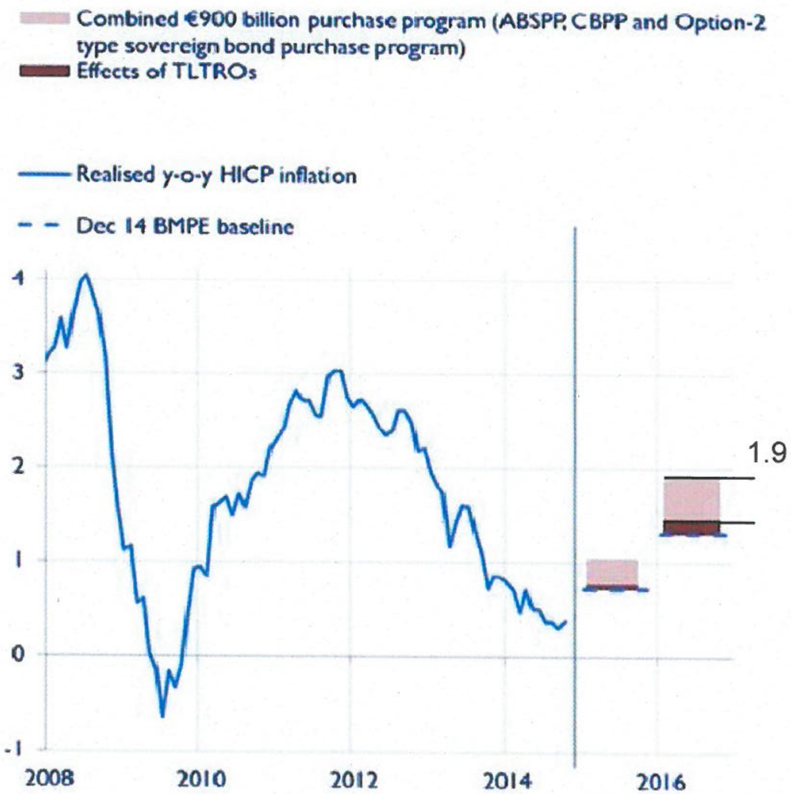
Investor expectations

- **Markets presently expect** on average outright interventions of **similar size:**
  - **Around 350 billion** under ABSPP/CBPP-3
  - **600 billion** under Option 2-type program

Communication: the case for forward guidance

Impact of an overall €900 billion purchase program on projected inflation *(percent)*



Source: ECB computations.
Notes: The impact on inflation is reported for a TLTRO take-up estimate of €436bn, corresponding to the latest of ECB-internal estimates.

Communication

- **Announce *overall* program, including large contingent of private securities** under ABSPP and CBPP-3
- but **remain non-committal about internal composition** of private/sovereign contingents due to uncertainties around market size of ABS and covered bonds

Forward guidance

- **Advantages of monthly-flow formulation that describe the state** which will determine continuation and cessation of purchases in terms of price stability objective:
  - Quantitative programs address the prices of long-term assets, and these **prices are very sensitive to information about "policy rule"**
  - **State contingency strengthens perceptions of commitment** to the 2003 strategic quantification of a **policy aim of "below but close to 2%"**
- **State contingency** could be articulated to suggest **dependence of continuation on national reform programmes**

Communication: the case for forward guidance

Hybrid stock-flow formulation

- **Case for combining contingent monthly-flow announcement with an ex ante "intended" date of completion, subject to an "ongoing" re-evaluation** of the monetary policy case for executing or extending the program,
    - **To defuse concerns about "unlimitedness" of intervention commitment**
    - **And facilitate market actualization of the overall size intended *ex ante***

Communication: the case for forward guidance

Hybrid stock-flow formulation

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"Under its expanded asset purchase programme (EAPP), the Governing Council will [continue] / [step up] its purchases of simple and transparent asset-backed securities (ABSs) with underlying assets consisting of claims against the euro area non-financial private sector and of euro-denominated covered bonds issued by MFIs domiciled in the euro area.

In addition, starting in [March] 2015, the Governing Council will purchase euro-denominated [securities issued by European Institutions and] investment-grade securities issued by euro area governments in proportions reflecting the shares of their respective national central banks (NCBs) in the ECB's capital key, and respecting some additional eligibility criteria.

***The combined monthly purchases under EAPP will amount to [€50] billion and are intended to be carried out until [August 2016]. The Governing Council will re-evaluate the monetary policy case for continuing the purchases [on an on-going basis] / [in August 2016]** taking into account its judgement about the likelihood for inflation to return to [and stabilise at] levels below but close to 2% over the [policy-relevant] medium-term horizon and will also base its decisions considering Member States' progress toward fiscal sustainability and structural reform"*

No risk-sharing as cost mitigant under Option 2

Risk sharing

- **Consistent with most Eurosystem credit operations** (except CBPP1 & 2 and ACC)
- **Decisions on policy programmes are taken jointly,** so consequences in terms of income and risks should be shared
- **Signals cohesion,** which empowers impact of monetary policy initiatives
- **But, loss mutualisation may encourage moral hazard under Option 2 and further undermine national incentives** for reform as the costs of default can be partially externalised

Overall

- **Financial buffers at local NCBs and possibility to retain monetary income** for some time can absorb losses from a default event …
- … **and cushion private investors from additional haircuts** under a non-risk sharing regime.
- **But:** other considerations (e.g. perceptions of weak Eurosystem cohesion) may well underwhelm markets and create a backlash that would undermine the program

Source: ECB calculations.