On monetary policy inertia: causes and consequences

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CEPR-IMFS conference on 'Macroeconomic modeling, model comparison and policy analysis'
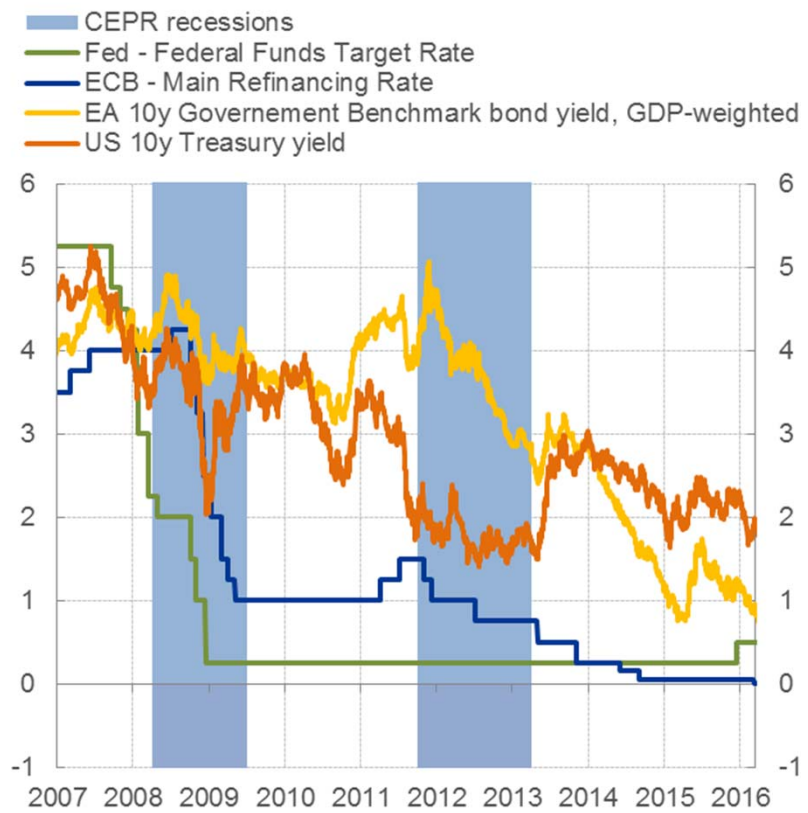Frankfurt, 06 April 2016

Too little, too late?

*"The ECB has been **slower to cut interest rates and to consider asset purchase programmes than the other major central banks** even though the euro area economy has performed worse than its comparators. This failure to act has not stemmed directly from the ECB's price stability mandate. Indeed, by not acting sufficiently strongly, the ECB is now failing to meet its own definition of price stability."* [Karl Whelan, June 2014]

*"Last week's decision by the European Central Bank to make **unlimited purchases of government bonds** in secondary markets was both necessary and bold. […] It is a pity that the ECB did not do this before the crisis in sovereign debt reached Spain and Italy. Yet this delay is not surprising: eurozone policy makers have, perhaps inevitably, done **too little, too late**."* [Martin Wolf, Financial Times, 18 September 2012]

*Aside from the Outright Monetary Transactions promise in July 2012 to bail out countries in distress, the ECB has been unable to inspire confidence. **Since late-2013, it has reacted to rather than led the fight against deflationary tendencies**."* [Ashoka Mody, Bruegel.org, 13 January 2016]

ECB and FED key interest rates and 10-year bond yields
(percent)

Legend:
- CEPR recessions
- Fed - Federal Funds Target Rate
- ECB - Main Refinancing Rate
- EA 10y Governement Benchmark bond yield, GDP-weighted
- US 10y Treasury yield

Source: ECB, Federal Reserve, Bank of England, Bank of Japan.
Notes: Main Refinancing Rate (ECB), Federal Funds Target Rate (Fed), Official Bank Rate (BoE), Uncollateralized Overnight Call Rate (BoJ)
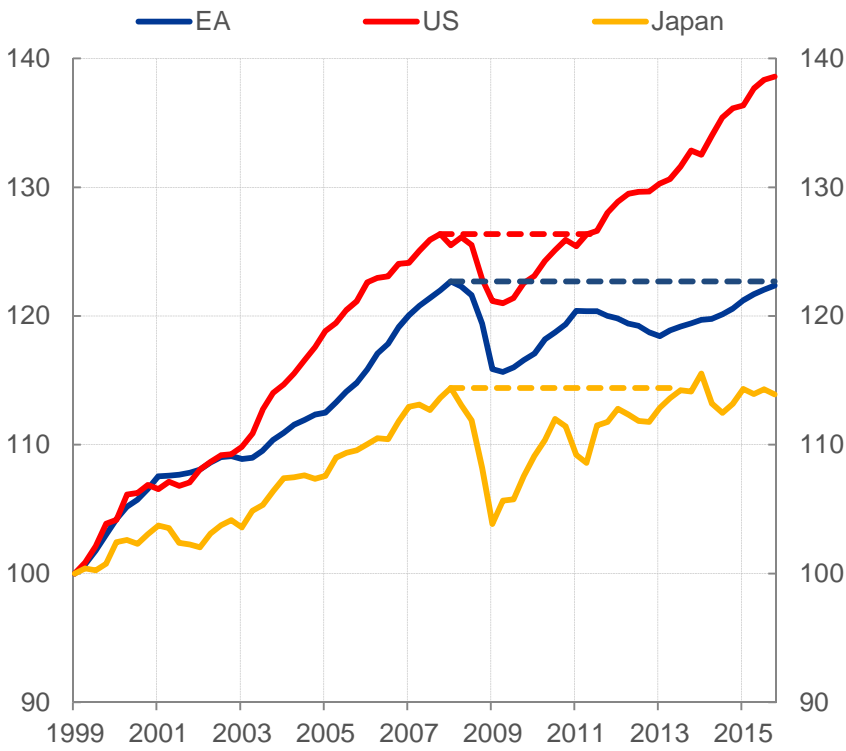
Central bank balance sheets
(percent of GDP)

Legend:
- CEPR Recessions
- Federal Reserve
- Bank of Japan (RHS)
- Bank of England
- Eurosystem
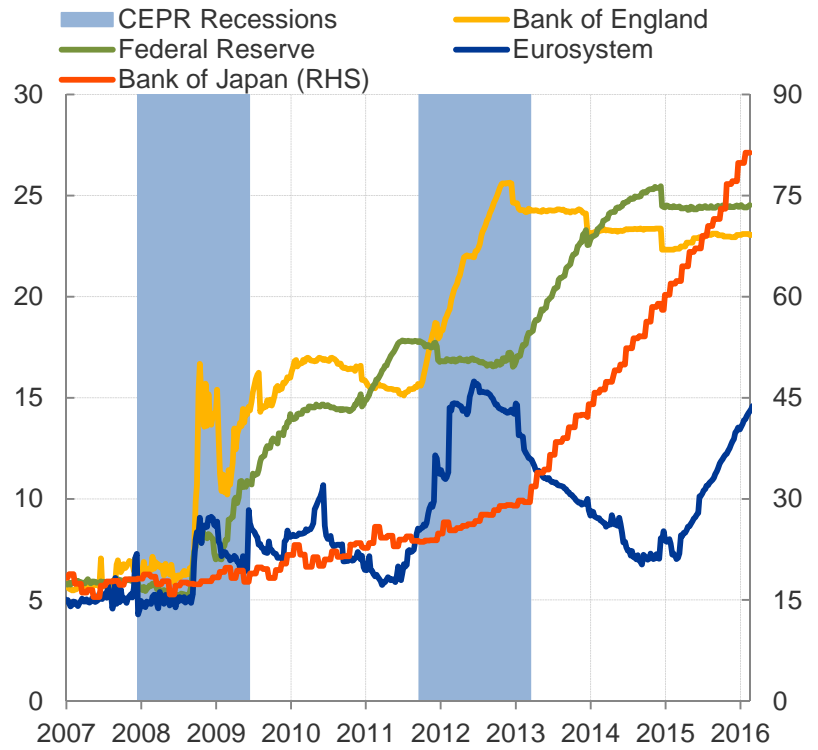
Source: ECB, Federal Reserve, Bank of England, Bank of Japan, Eurostat, BIS.
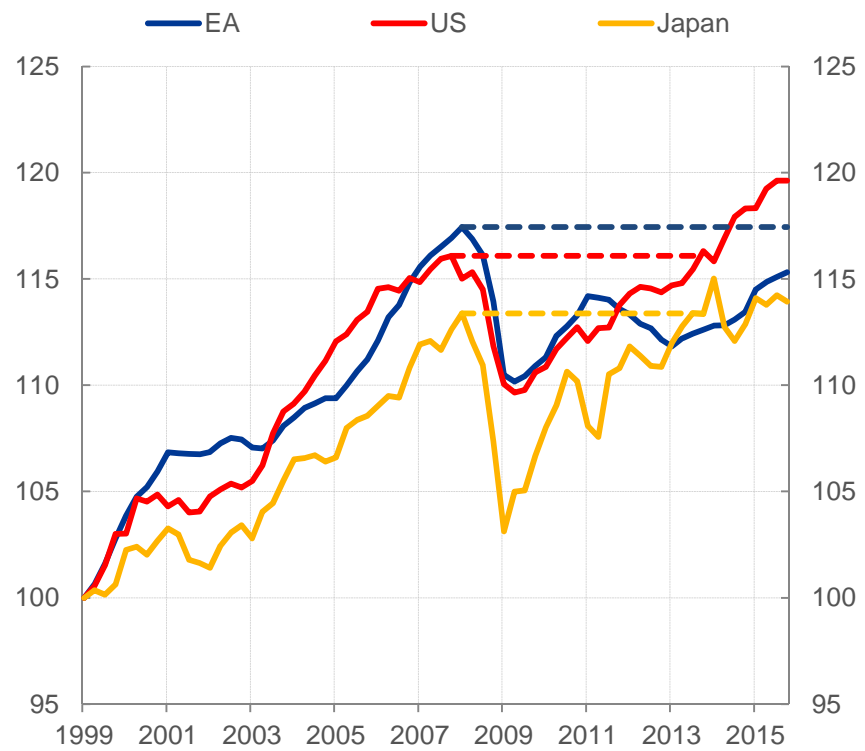Notes: The ECB balance sheet only comprises assets related to monetary policy.

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Long-run macro performance

Real GDP
(Index, 1999Q1=100)

Real GDP per capita
(Index, 1999Q1=100)

Sources: Eurostat, BEA, Cabinet Office, authors' calculations.
Notes: horizontal dotted lines represent pre-crisis peak real GDP level.
Latest observation: 2015 Q4.

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Notes: horizontal dotted lines represent pre-crisis peak real GDP per capita level.
Forecasted figures for population are based on WEO September 2011.
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We (plan to):

❖ **quantify policy inertia by its implications for growth and inflation performance relative to a counterfactual frontloading of current policies**

❖ **ask what the source of observational extra policy inertia might be:**

- • **relative greater distaste for variability in the policy instruments?**

- • ***different cocktail and timing of macro-shocks?***

- • ***how the ECB defines its objective: price stability range instead of symmetric inflation target?***

The Models used in the analysis

Spanning three modelling traditions:

Time-series models
BVAR
- Variables: HICP, real GDP, loans to households, loans to non-financial corporations, lending rate to household, lending rate to non-financial corporations, Eonia, 5-year and 10-year interest rate, stock prices, Euro Dollar exchange rate, oil price
- Estimated in level as in Altavilla, Giannone, Lenza (2014). "The financial and macroeconomic effects of OMT announcements," ECB Working Paper 1707

Large semi-structural models
NiGEM
- Large-scale global macro model comprising OECD countries and regional blocks.
- Dynamic error-correction structure for the estimated equations
- Countries are linked through trade and competitiveness, and financial markets and international stocks of assets

DSGE models
CMR
- Financial frictions
- Including a large set of financial prices and quantity (short and long-term rates, risk premium, money, credit, equity, central bank liquidity)
- News shocks

Decomposition of growth and inflation during recoveries

Real GDP growth: Contributors to different euro area economic recovery episodes
(in percentage points)

Legend: ■ Monetary policy ■ Oil price ■ Other ■ External demand ◆ Real GDP growth
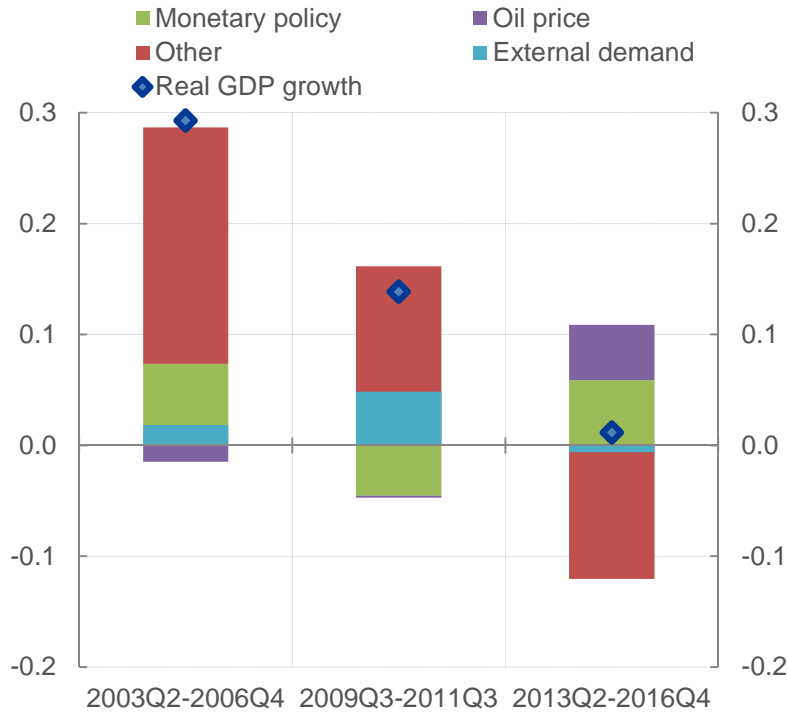
Inflation: Contributors to different euro area economic recovery episodes
(in percentage points)

Legend: ■ Monetary policy ■ Oil price ■ Other ■ External demand ◆ GDP deflator
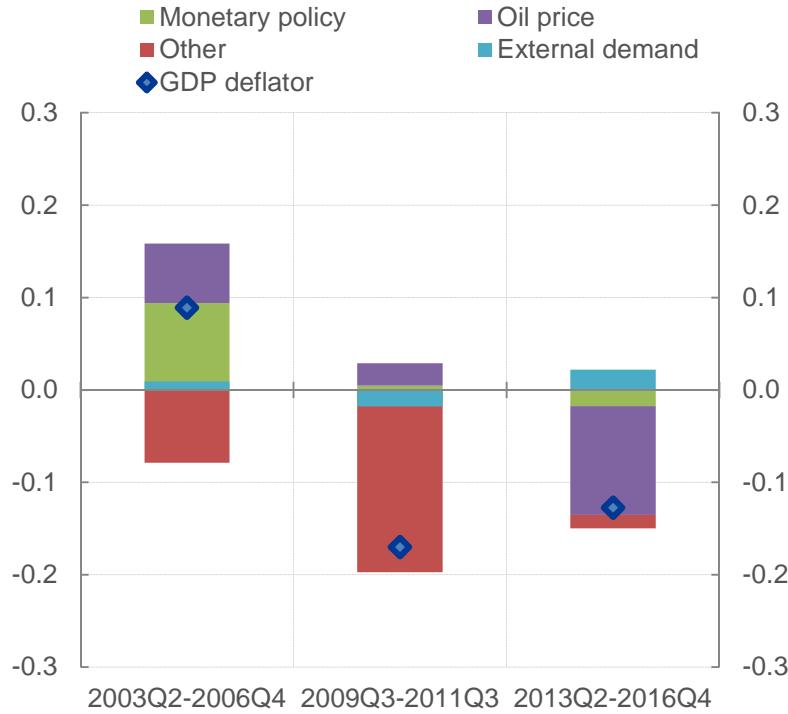
Source: ECB, authors' calculations
Note: Real GDP growth and the GDP deflator refer to average quarter-on-quarter growth rates over respective recovery episodes and across models, in deviation from sample mean. For real GDP growth, estimates are based on NiGEM, CMR and BVAR, except external demand for which BVAR estimates are not available. For the GDP deflator, estimates are based on CMR and BVAR, except from external demand for which BVAR estimates are not available
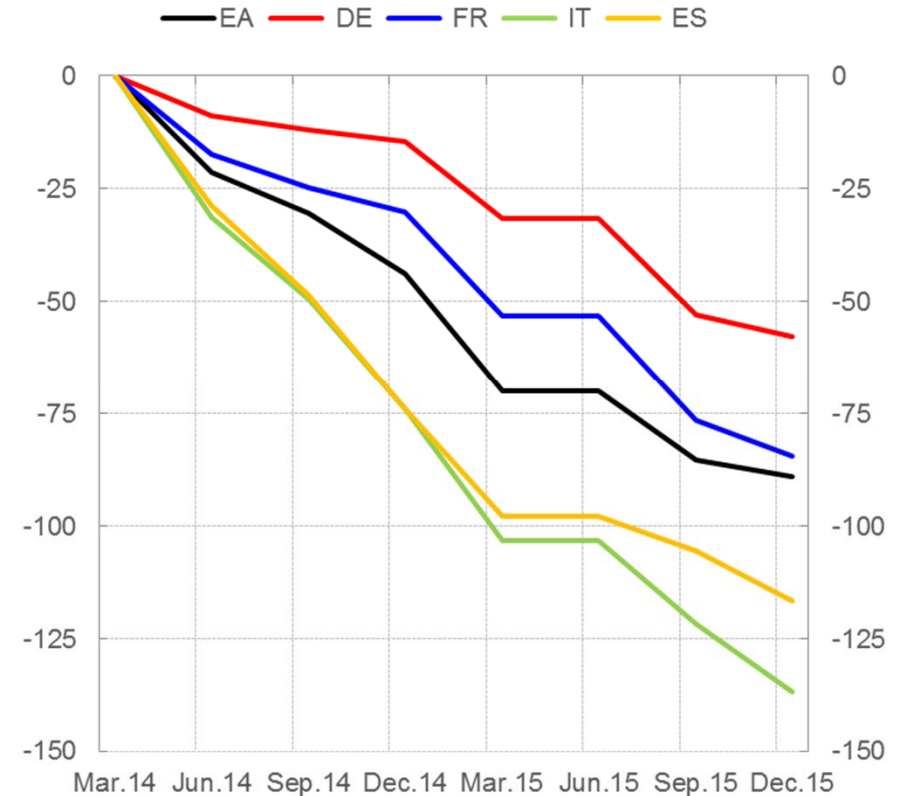
The impact of non-standard measure on yields

EONIA
(basis points)
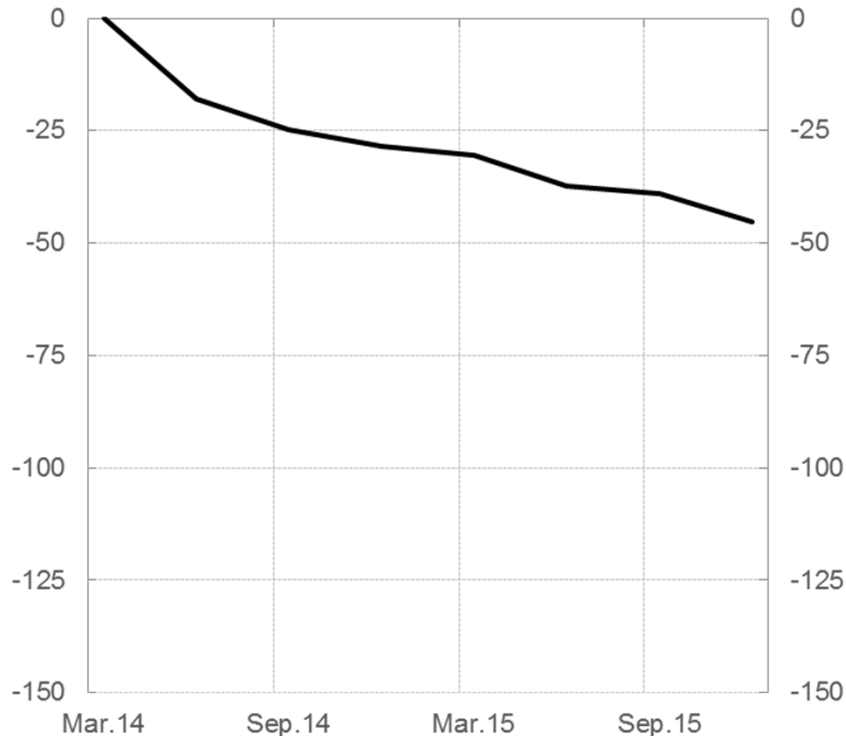
Note: The impact on EONIA is obtained by assuming that the actual change is entirely driven by the policy actions.

### 10-year government bonds
(basis points)

Note: The impact on long-term yields is estimated on the basis of an event-study methodology (see Altavilla, Carboni, and Motto (2015) "Asset purchase programmes and financial markets: lessons from the euro area" ECB WP No 1864)
by considering a broad set of events that, starting from May 2014, have affected market expectations about the programmes.
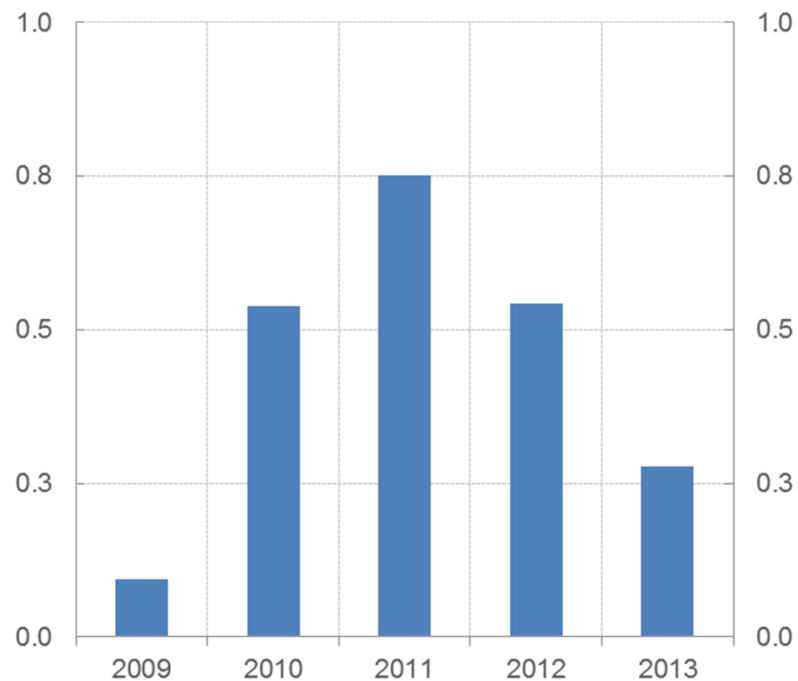
Impact on Inflation and GDP

Real GDP growth
(deviation form the baseline, yoy growth)

HICP inflation
(deviation form the baseline, yoy growth)

Inflation in 2011 would have been 3.6%
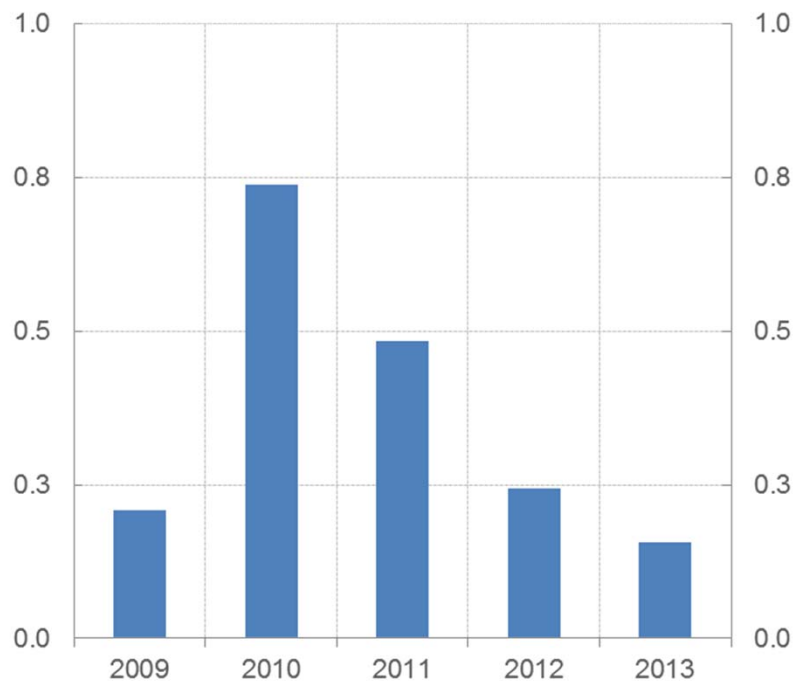
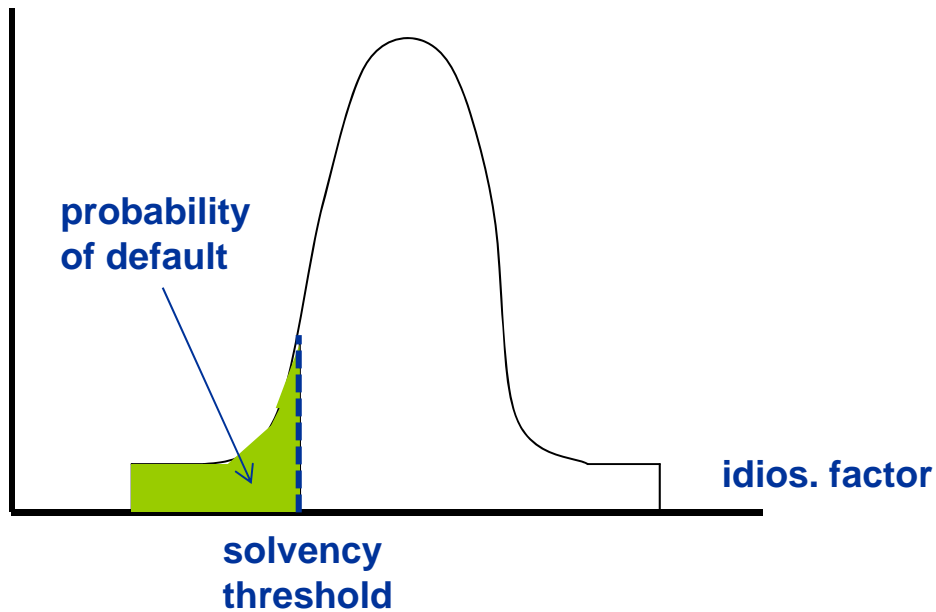*Note: The figure shows the impact on real GDP growth obtained by averaging the results from the BVAR and the CMR*

Note: The figure shows the impact on HICP inflation obtained by averaging the results from the BVAR and the CMR

Simulating QE with a recursive yield curve: the risk shock

Idiosyncratic risk to return of investment projects
(probability density function)

probability of default
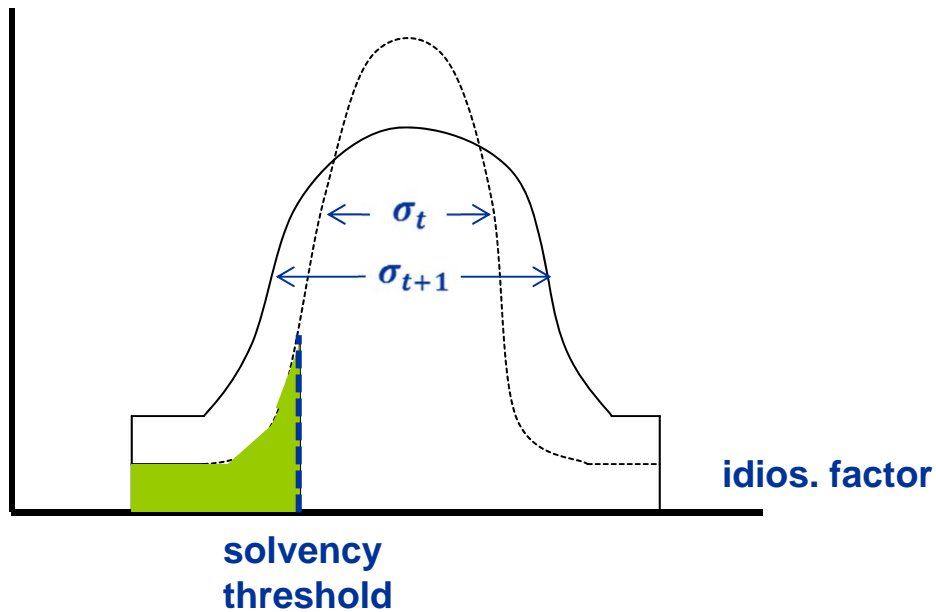
solvency threshold

idios. factor

Source: Christiano et al. (2012) and authors' calculations.

What is the risk shock and how does it propagate?

➢ Returns on investment are subject to idiosyncratic risk, giving rise to bankruptcies and default on bank loans; banks demand a premium to hedge against such credit risks

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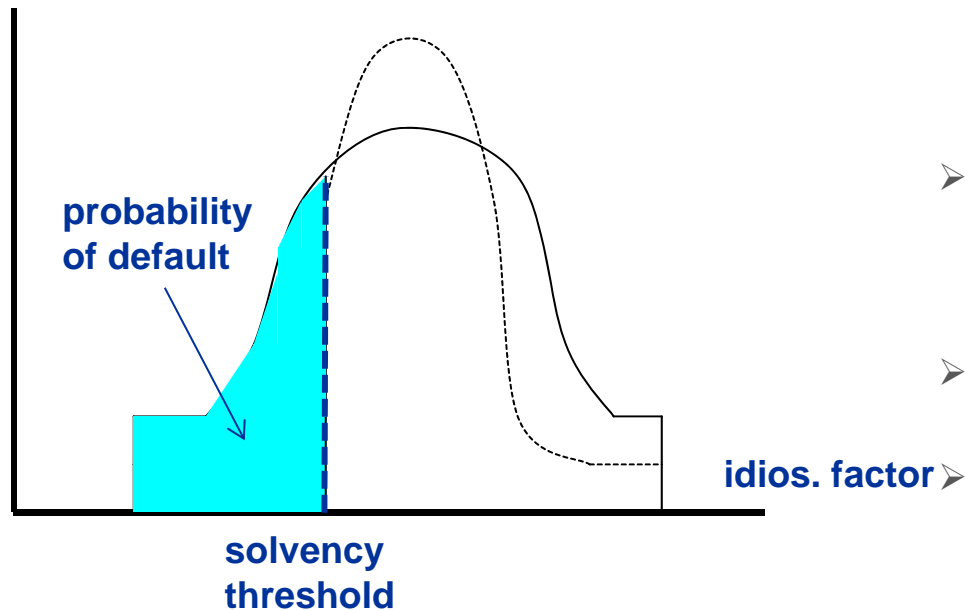

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➢ The variance of the distributions of returns varies stochastically over time – the stochastic process that governs this dispersion of returns is the 'risk shock'

➢ Current realisations of the risk shock also provide a signal for the future risk-environment

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➢ Current realisations of the risk shock also provide a signal for the future risk-environment

➢ Adverse risk shocks increase the current insolvency rate and compress future expected returns, inducing banks to charge a higher external finance premium

➢ With a rising credit risk premium, investment-financing becomes more expensive; the resulting contraction in lending and investment propagates the risk shock to the real economy

➢ *In sum, the risk shock measures the current and anticipated state of investment risk in the economy, and influences investors' propensity to invest and banks' propensity to lend*
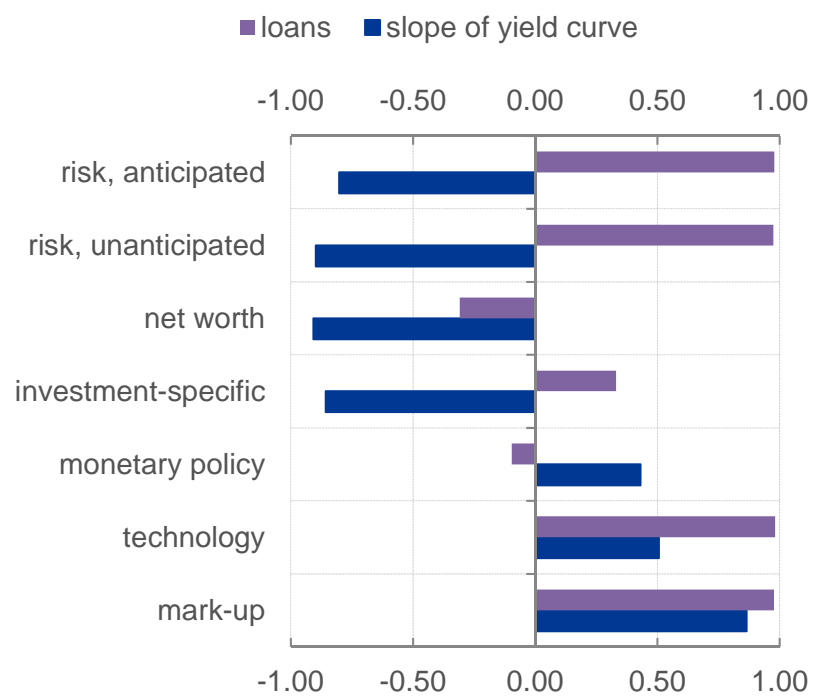
Risk shock captures macro-financial cross-correlations

Cross-corr. of the slope of the yield curve at *t - k* with contemporaneous output: model and data
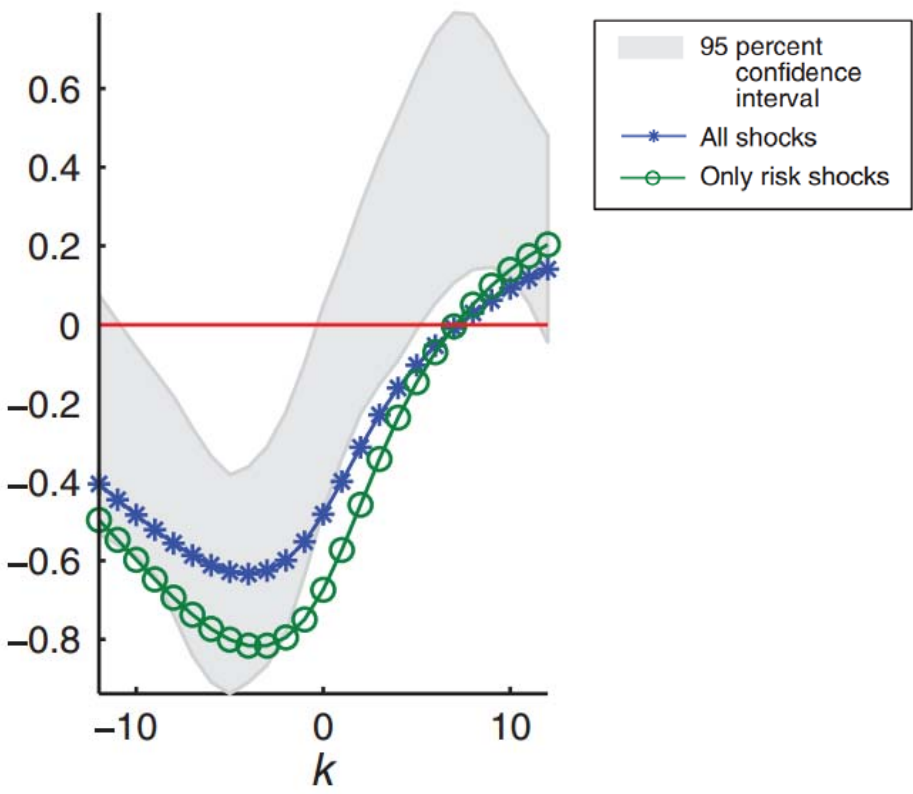
Source: Christiano et al. (2014).

Contemporaneous cross-correlations with output conditional on various shocks

Source: Christiano et al. (2014), authors' calculations.
Notes: Contemporaneous cross-correlation of impulse responses of loans, equity and the slope of the yield curve with output over 20 quarters after shock impact.

Contribution to Spread (10 year):.