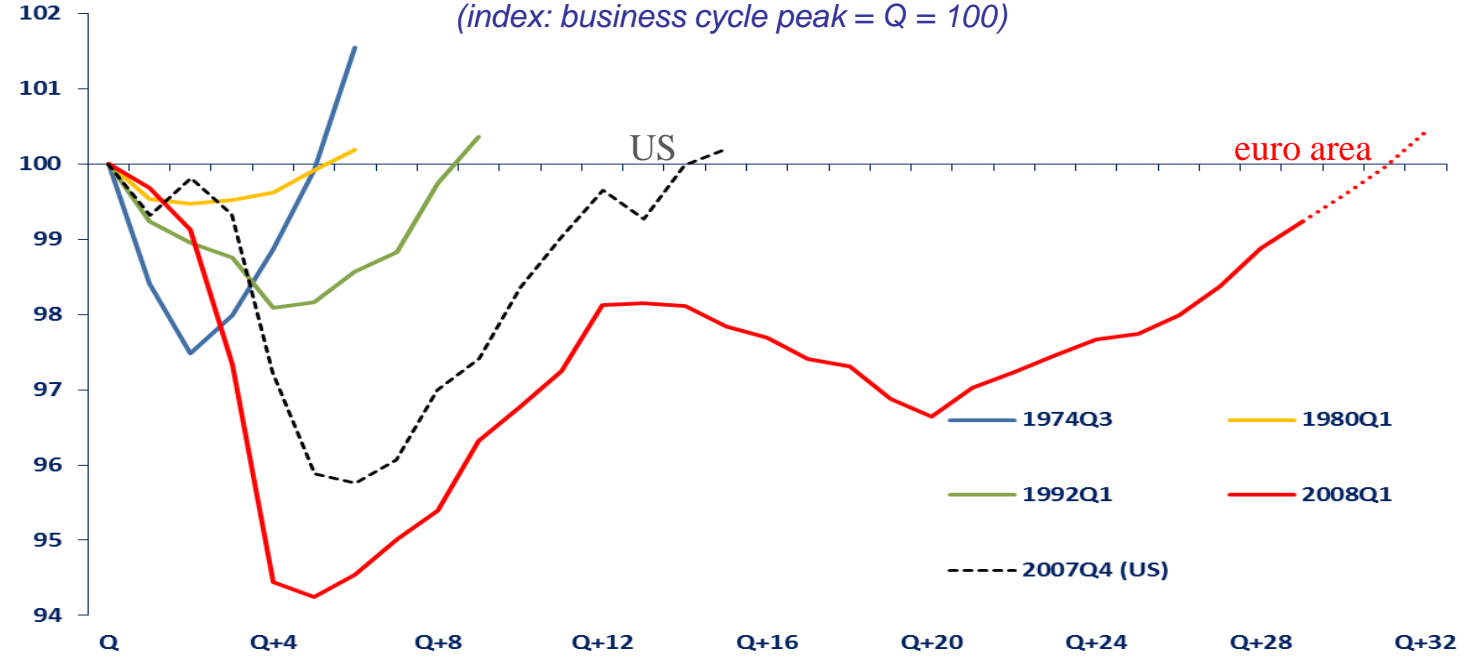**Peter Praet**

Monetary policy as information processing

Frankfurt, 6 November 2015

Euro area real GDP over various cycles and compared with the current US cycle

(index: business cycle peak = Q = 100)

US

euro area

1974Q3		1980Q1	
1992Q1		2008Q1	
2007Q4 (US)			

Sources: Eurostat, September 2015 MPE, United States Census Bureau and ECB calculations.

Central banks are confronted with three types of uncertainty (Bernanke, 2007)

1. Uncertainty about the current state of the economy

2. Uncertainty about the structure of the economy and in particular, the transmission mechanism of monetary policy instruments

3. Uncertainty over the way economic agents form expectations about future economic developments and economic policy actions

1. **Uncertainty about the current state of the economy**

2. **Uncertainty about the structure of the economy and in particular, the transmission mechanism of monetary policy instruments**

3. **Uncertainty over the way economic agents form expectations about future economic developments and economic policy actions**
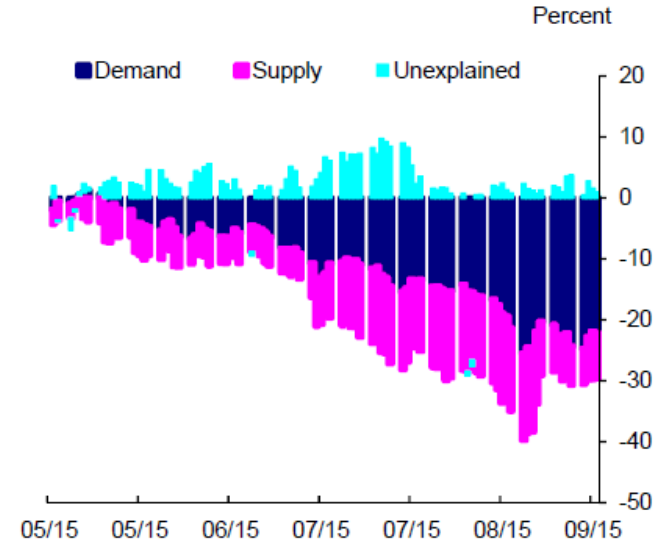
SVAR
*(cumulated contributions of the different oil shocks in pp)*
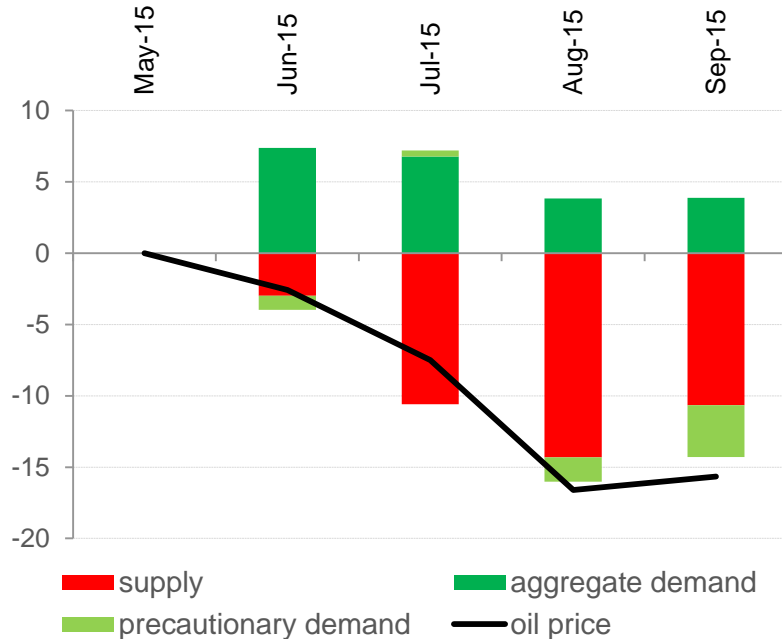
Source: ECB calculations

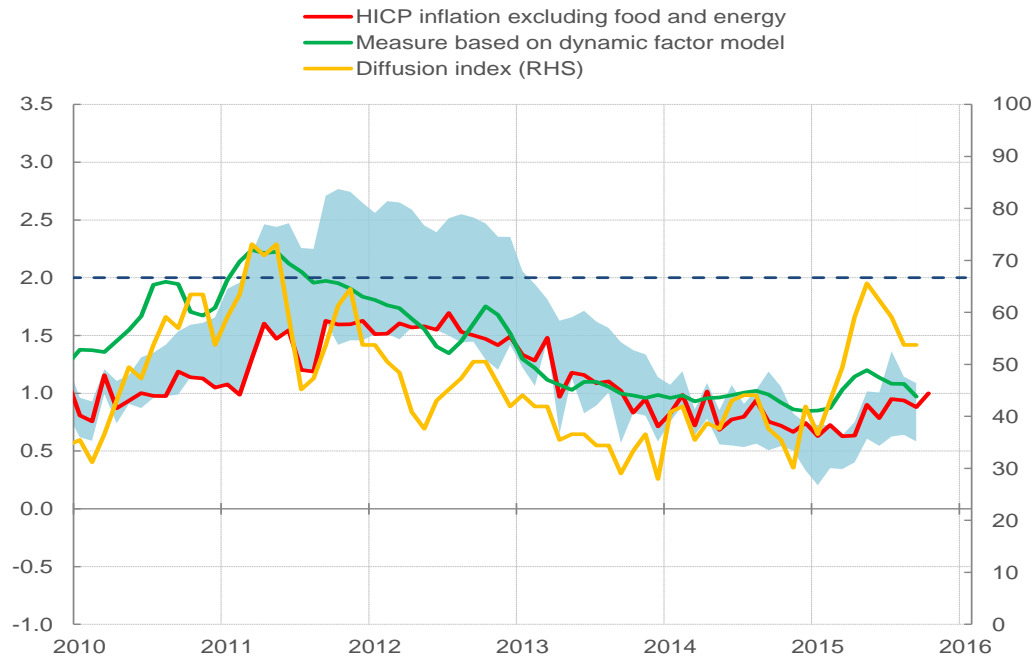## Decomposition of oil prices using financial data

Sources: Datastream, Bank of England calculations. Note: This decomposition of the Brent oil price is based on over 200 financial time series, mostly sector equity indices for major oil producing and consuming countries. The pattern of price movements is used to identify supply or demand shocks, e.g. if consumer and oil equities rise simultaneously this would be indicative of an increase in demand for oil.

Output gap
(in percent of potential output)

Range of estimates, 2007-2015 — Spring 2015
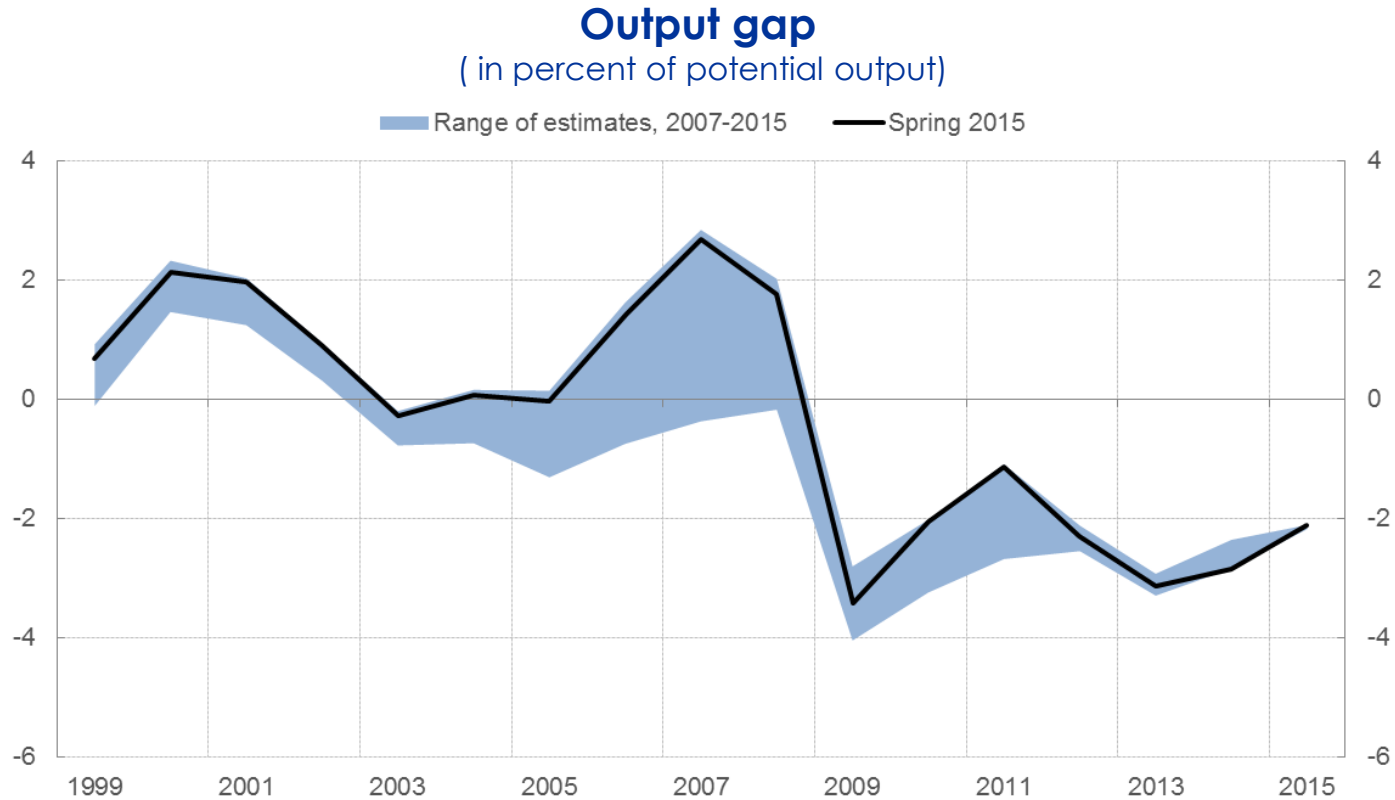
Sources: European Commission.

Measures of underlying inflation

(annual percentage change)

— HICP inflation excluding food and energy
— Measure based on dynamic factor model
— Diffusion index (RHS)

Sources: Eurostat and ECB calculations.
Note: The latest observation for HICP excluding food and energy is October 2015, for the other measures September 2015. The diffusion index is the unweighted share of the 93 HICP items that have seen an increase in their annual rate of change over three months. The measure based on a dynamic factor model makes use of the 93 HICP items from 12 countries. The range includes exclusion based measures, trimmed means and a weighted median.

1. Uncertainty about the current state of the economy

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3. Uncertainty over the way economic agents form expectations about future economic developments and economic policy actions
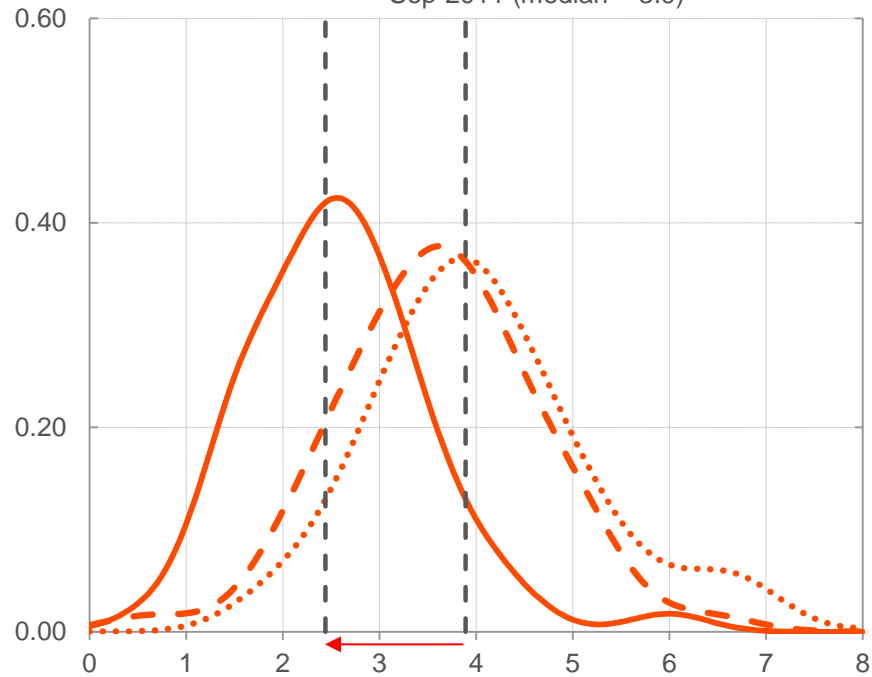
Composite lending rates for NFCs: distribution of individual MFIs

Vulnerable countries
% p.a.

— Jul-2015 (median = 2.5)
– – Jun-2014 (median = 3.6)
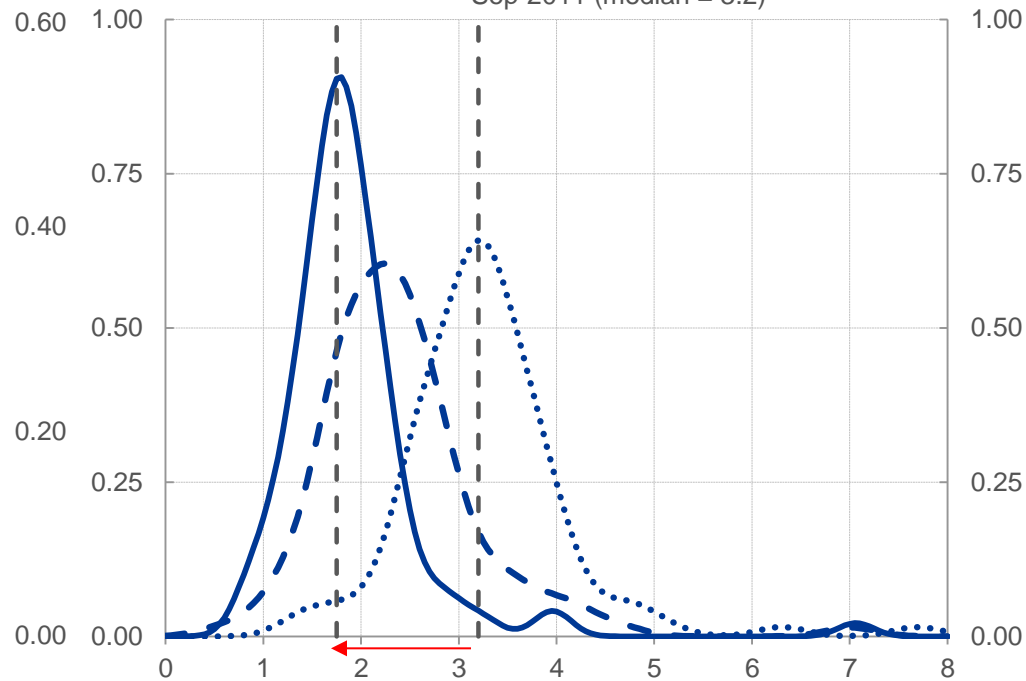······ Sep-2011 (median = 3.9)

2.44 ΔMRO 3.89

Less vulnerable countries
% p.a.

— Jul-2015 (median = 1.8)
– – Jun-2014 (median = 2.3)
······ Sep-2011 (median = 3.2)

1.75 ΔMRO 3.2

Source: ECB

Intended use of additional liquidity arising from the APP
(percentages of respondents)

■ next six months

	increased liquidity from sales of marketable assets			increased liquidity from increased customers' deposits		
	refinancing	granting loans	purchasing assets	refinancing	granting loans	purchasing assets
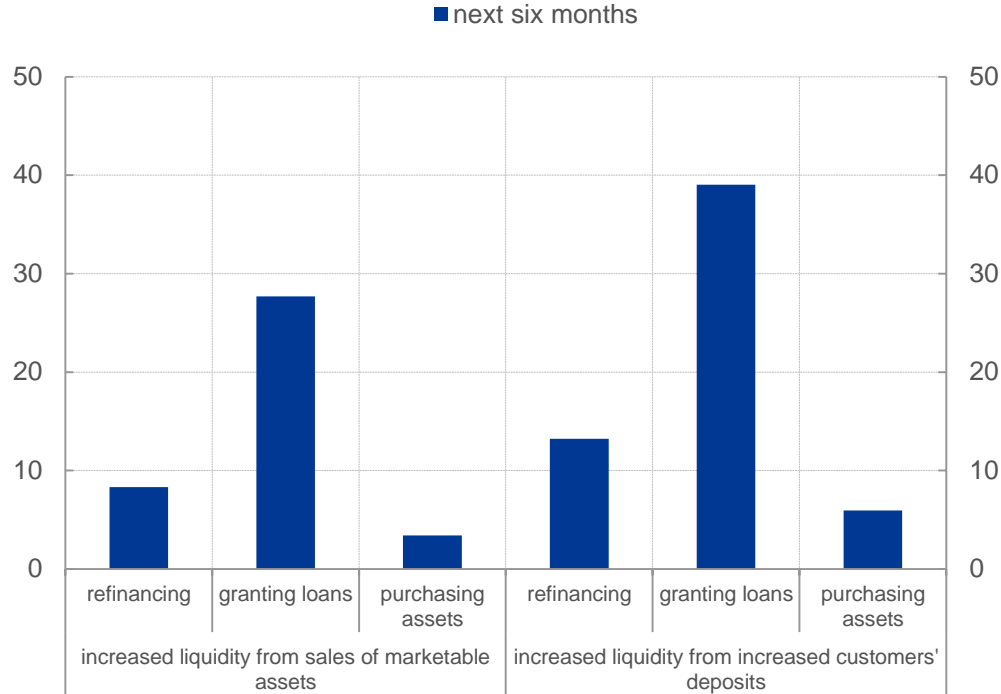
Source: ECB Bank Lending Survey

Euro area: Out-of-sample conditional Phillips curve forecast for the post-crisis period
### *(annual percentage changes)*
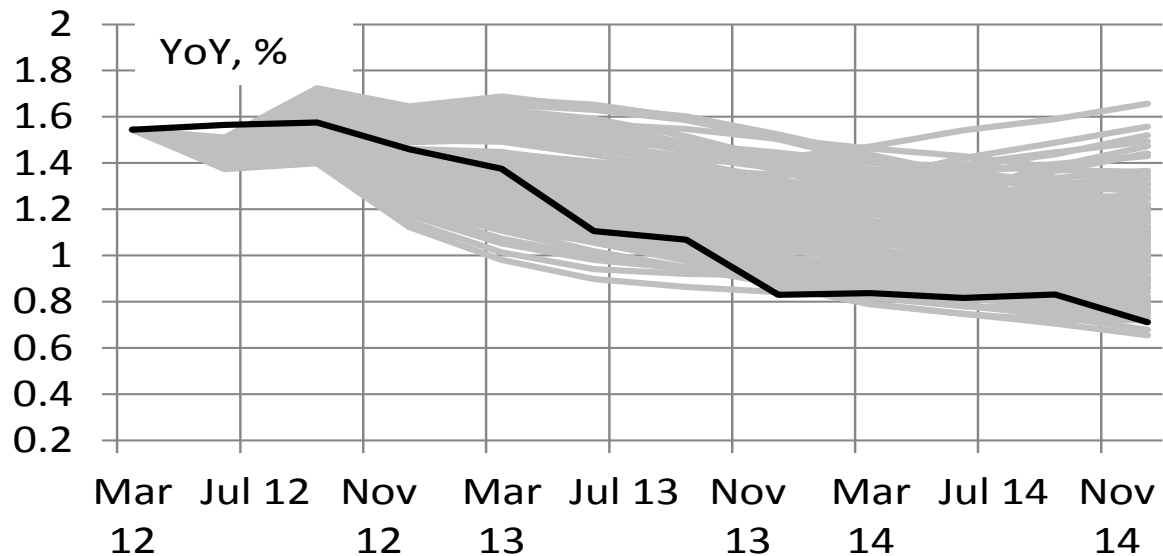
Source: ECB staff.
Note: The starting point of the forecast is Q2 2012.
Each line is the conditional projection of inflation excluding energy and food on its lag, lagged import prices, a measure of slack (lagged) and a measure of inflation expectations.

1.   **Uncertainty about the current state of the economy**

2.   **Uncertainty about the structure of the economy and in particular, the transmission mechanism of monetary policy instruments**

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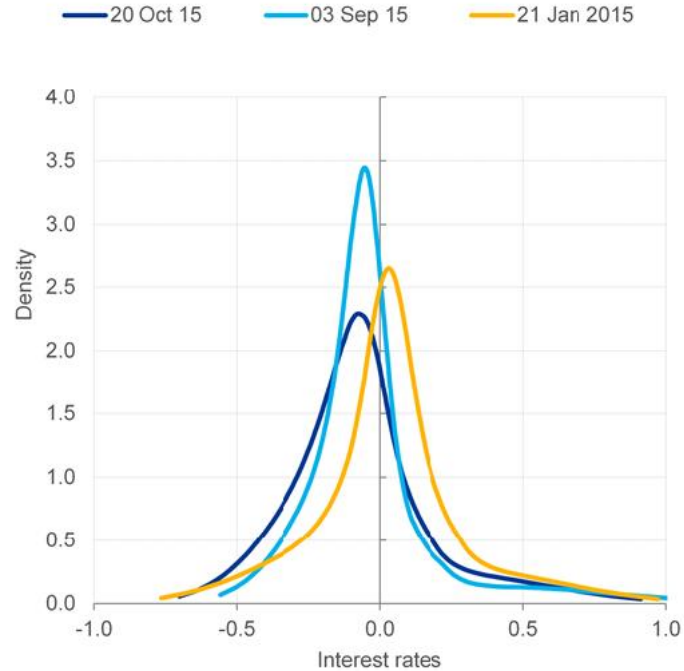
Price of inflation/deflation protection
(basis points)
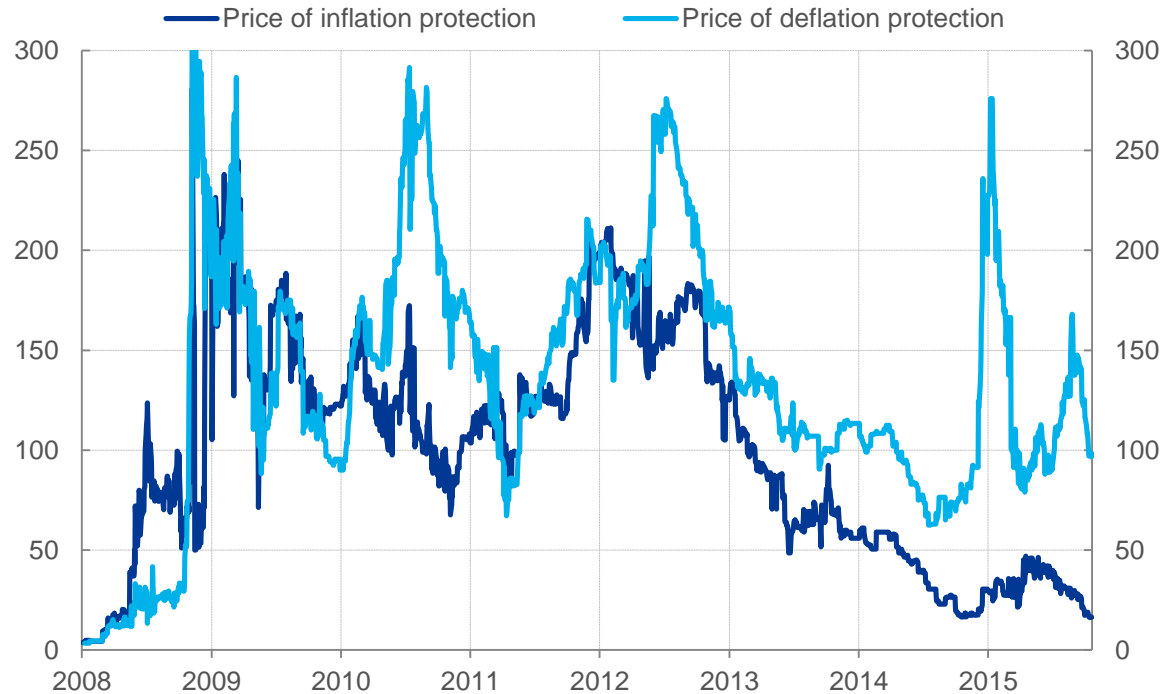
Sources: Bloomberg.
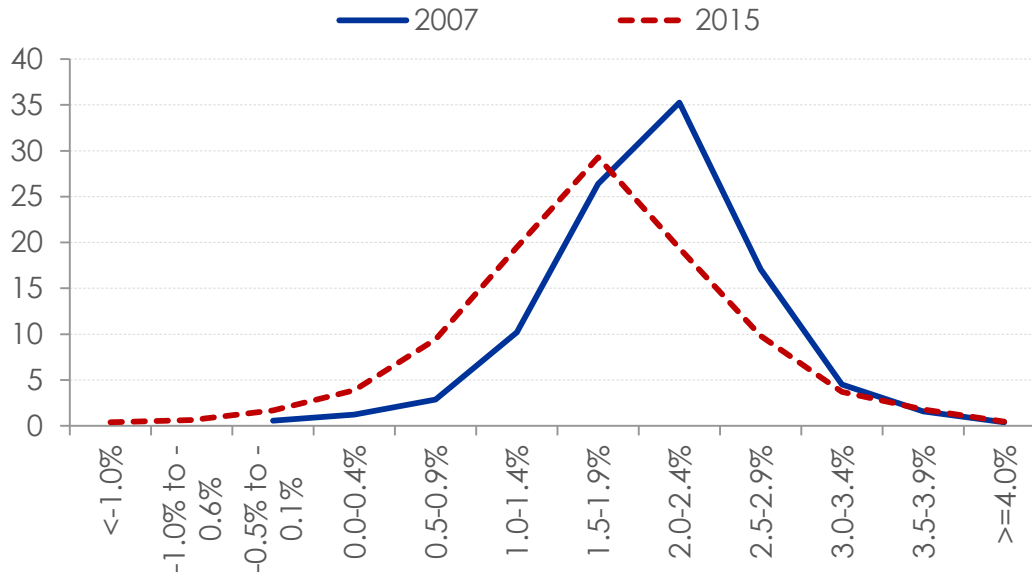Latest observation: 20 October 2015.

3-month Euribor in 1 year

— 20 Oct 15　— 03 Sep 15　— 21 Jan 2015

Sources: NYSE and ECB calculations.
Notes: Option-implied Probability Density Function of the 3-month Euribor
in 1-year. Latest observation: 20 October 2015.

Aggregated probability distribution of longer-term (5 years ahead) GDP growth expectations

% p.a.

Source: The ECB Survey of Professional Forecasters

5 years ahead growth expectations for the euro area
% p.a.

Source: Consensus.

2015-06-11 Frankfurt

www.ecb.europa.eu