Monetary policy in a low interest rate environment

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Long-term government bond yields
(10-year yields; percentages per annum)

Source: ECB.
Latest observation: May 2018.
### Long term interest rate: components

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<td><strong>Expected real rate</strong></td>
<td><strong>Real term premium</strong></td>
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<td><strong>Expected inflation</strong></td>
<td><strong>Inflation risk premium</strong></td>
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5 years ahead growth expectations for the euro area
(percentages per annum)

Source: Consensus Economics.
Real GDP & pre-crisis expected path index, 2006 = 100

Source: Consensus and ECB calculations.
Note: Expected growth path as in Consensus October 2007.

Bank loans to private sector (annual percentage changes)

Source: ECB.
Notes: Adjusted loans (i.e. adjusted for sales, securitisation and cash pooling activities).
Latest observation: April 2018.
Share of euro area sovereign bonds with AAA-rating (percent)

- At least one AAA-rating
- At least two AAA-ratings

Share of short-term government debt with AAA-rating relative to GDP (percent)

- AAA short-term debt to GDP

Source: ECB calculations.
Notes: Ratings based on Moody’s, Fitch, Standard & Poor’s and DBRS. AAA-rating based on at least one of its ratings being AAA. Short-term debt refers to securities with a residual maturity of up to and including 2 years.
Last observation: 30 April 2018 for government debt, end 2016 for GDP.

Source: ECB.
Notes: Ratings based on Moody’s, Fitch, Standard & Poor’s and DBRS.
Last observation: 31 May 2018.
Long-term inflation expectations
(percentages per annum)

Source: Consensus Economics and SPF.

Euro area 5-year forward inflation-linked swap rate 5 years ahead
(percentages per annum)

Source: Thomson Reuters.
Option-implied probability density function of euro area inflation over the next two years

Survey-implied probability density function of euro area inflation in two years time

Sources: Bloomberg, Reuters, ECB calculations.
Notes: This chart shows the risk-neutral probability distribution function implied by two-year zero-coupon inflation options. These risk-neutral probabilities may differ significantly from physical, or true, probabilities. They are estimated on the basis of call ("caplets") and put options ("floorlets") with different strike rates on the (three-month lagged) euro area HICP\textsubscript{xT} (ex tobacco) index, assuming Black-Scholes option pricing and implied volatilities that vary across strike rates ("volatility smile").
Price of inflation and deflation protection
(basis points per annum)

Source: Bloomberg.
Note: The price of inflation (deflation) protection refers to the price of a year-on-year inflation option with a 4% cap (0% floor) for a horizon of five years.
Latest observation: 1 June 2018.
Monetary policy stance determined by combination & interaction of:

- our **policy rates**,  
- our **asset purchase programme**,  
- and our **forward guidance** on each of these tools

... complemented by:

- the **TLTROs**, which will remain outstanding for the next three years
The ECB’s forward guidance

Key ECB interest rates

• expected to remain at present levels for an extended period of time
• and well past horizon of net asset purchases

Asset Purchase Programme (APP)

• net asset purchases intended to continue at monthly pace of €30 billion, until end-Sep 2018
• or beyond, if necessary & in any case until GovC sees sustained adjustment in path of inflation (SAPI) consistent with inflation aim
• Eurosystem will reinvest principal payments from maturing securities for an extended period of time after end of net purchases, and in any case for as long as necessary
Criteria for sustained adjustment in the path of inflation (SAPI)

Convergence
- Headline inflation on course to reach levels below, but close to 2% in the medium term;

Confidence
- Sufficient confidence in durable stabilisation of inflation around these levels;

Resilience
- Resilience of inflation convergence even after the end of net asset purchases.
EONIA forward curve estimated from OIS
(percentages per annum)

Sources: Thomson Reuters and ECB calculations.
Latest observation: 4 June 2018 for realised EONIA, April 2018 for Bloomberg survey.