

Box 3

REAL INTEREST RATES IN THE EURO AREA: A LONGER-TERM PERSPECTIVE

According to various measures, longer-term risk-free real interest rates in the euro area currently stand at much lower levels than before the crisis.¹

Chart A shows five-year forward real interest rates five years ahead for the euro area and the United States, calculated as the differences between nominal overnight index swap (OIS) rates

¹ Risk-free interest rates are the returns on ideal, perfectly liquid bonds carrying no credit risk. For a detailed discussion, see the article entitled “Euro area risk-free interest rates: measurement issues, recent developments and relevance to monetary policy” in this issue of the Monthly Bulletin.

and inflation-linked swap rates with five and ten years' maturities.² If taken at face value, the data suggest that markets currently expect the real interest rate in the euro area to be slightly below 0%, down from around 2% prior to the crisis.

A broad range of complementary, albeit different, explanations have been given to account for the decline in longer-term risk-free real interest rates. Some relate to the effects of a strongly accommodative monetary policy in an environment where short-term nominal policy rates are close to the lower bound. Others point to medium-term developments, such as balance sheet adjustments in the aftermath of the financial crisis and both domestic and global imbalances between investments and savings. Others still are related to changes in long-term determinants of real interest rates, reflecting features such as population dynamics and trend productivity growth.

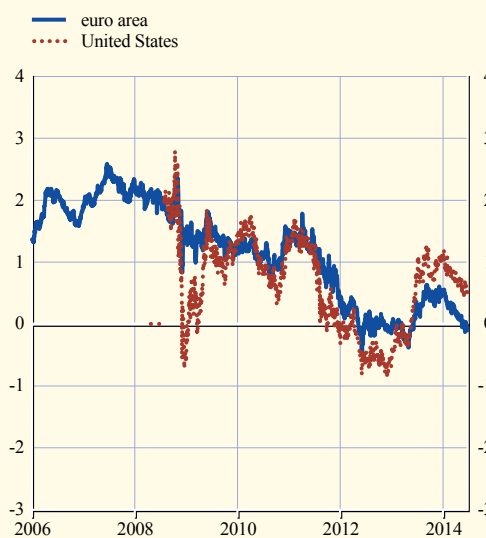
This box reviews some of the factors that weigh on risk-free real interest rates from a longer-term perspective. There cannot be such a review without reference to some notion of the equilibrium real interest rate.³ Although there is no consensus on its precise definition, this rate can be broadly explained as the level of the real interest rate consistent with output at its potential level and inflation at its objective.⁴

The simplest and most direct way of measuring the equilibrium real interest rate relies on market expectations of the real risk-free interest rate that will prevail in the distant future, as shown in Chart A. However, market-based measures, while being forward-looking and available on a daily basis, inevitably suffer from notable shortcomings. In particular, they are exposed to non-fundamental bouts of optimism or pessimism and tend to be distorted by time-varying premia. Currently, various measures of term premia over longer horizons are negative, reflecting the strongly accommodative stance of monetary policy. This helps to explain why longer-term real interest rates can be low despite the longer-term estimates of potential GDP growth for the period six to ten years ahead being about 1.5%, as indicated by the European Commission and the latest Consensus Forecast Survey.

From a conceptual perspective, a more informed discussion which attempts to explain the determinants of the equilibrium real interest rate from a general equilibrium perspective requires a taxonomy that relates to the time frame over which output and inflation stability is

Chart A Five-year forward real interest rates five years ahead

(percentages per annum)



Sources: Reuters, Bloomberg and ECB calculations. Daily data. Last observation is 23 June 2014.

Note: Real interest rates calculated as the differences between nominal overnight index swap (OIS) rates and inflation-linked swap rates with five and ten-year maturities.

² Nominal five-year forward rates five years ahead are calculated using five and ten-year OIS rates. Five-year forward inflation-linked swap rates five years ahead are calculated using five and ten-year inflation-linked swap rates.

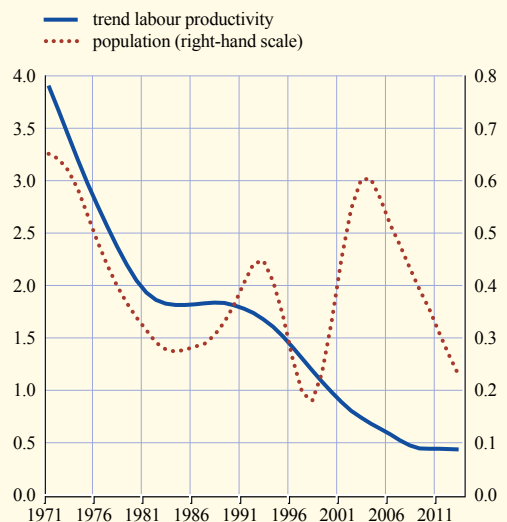
³ For an overview, see the article entitled "The natural real interest rate in the euro area", *Monthly Bulletin*, ECB, May 2004.

⁴ For details, see the articles entitled "Potential output, economic slack and the link to nominal developments since the start of the crisis" and "Trends in potential output", *Monthly Bulletin*, ECB, November 2013 and January 2011, respectively.

achieved and maintained. To identify longer-term determinants, a neutral stance concept is advisable that abstracts from business cycle dynamics. In line with this view, the equilibrium real interest rate is imagined to be given by the real interest rate that is expected to prevail in the distant future, when the effects of all shocks hitting the economy have faded away. Real GDP will thus be equal to its potential level and inflation will be in line with its objective. Accordingly, in the long run, the equilibrium real interest rate will be determined entirely by fundamental processes (of both a domestic and global nature) that are linked to technological progress, population dynamics and the time preference of consumers. Moreover, depending on the structural features of the particular analytical framework considered to be appropriate, trends in the fiscal stance, the design of social security systems and changes in the financial structure may also matter.⁵

Chart B Selective long-term determinants of the real equilibrium interest rate in the euro area

(percentages; year-on-year)



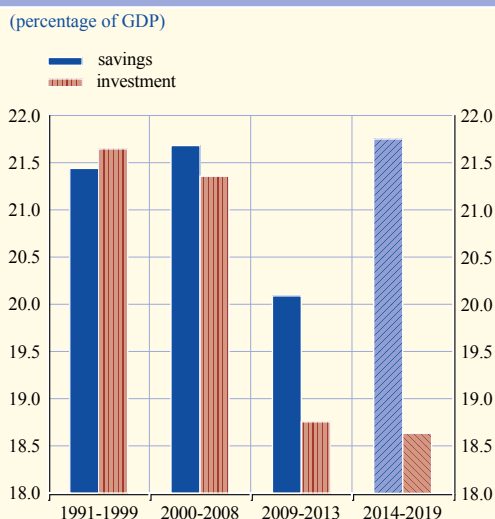
Sources: United Nations, Eurostat, AWM database and ECB calculations.
 Note: Trend labour productivity estimated using a Hodrick-Prescott filter. Last observation is 2013.

Some of the long-term determinants of the equilibrium real interest rate suggested by economic theory are conducive to a downward trend of this rate. Chart B shows the evolution of the long-term growth rate of technological progress (here measured simply as output per employed person) and population growth. It documents the presence of a declining trend in productivity since the early 1970s, which has stabilised at low levels in the last few years. Population growth, while somewhat more volatile over the past few decades, fell from around 0.7% in the early 1970s to below 0.3% in 2012. Moreover, it is expected to fall further in the coming years.

With regard to a more medium-term-oriented perspective, it should be stressed in particular that shifts in the relative supply of private savings and demand for loans tend to affect the equilibrium real interest rate. This implies that the ongoing rebalancing process in the euro area that has been triggered by the financial crisis exerts downward pressure on real interest rates primarily through two main channels: (i) public and private savings are expected to increase as public finances and private sector balance sheets are strengthened; (ii) as regards the demand for domestic funds, investment as a share of euro area GDP has fallen sizeably in recent years. In the years ahead a certain increase in this ratio can be expected, but there is a risk of a slow recovery. Taken together, the savings-investment gap in the euro area, which has risen sharply in the past five years, may widen further in the period 2014-19 (see Chart C, which uses IMF estimates). While the magnitude of this effect is highly uncertain, it is likely to exert downward pressure on real interest rates, as suggested by Chart D. This chart offers a simple scatterplot analysis between the real ex ante five-year euro area government bond yield and the savings-investment gap in the euro area, indicating a negative relationship. However, global developments – such as the projected narrowing in the savings-investment gap in emerging markets – may well mitigate such forces.

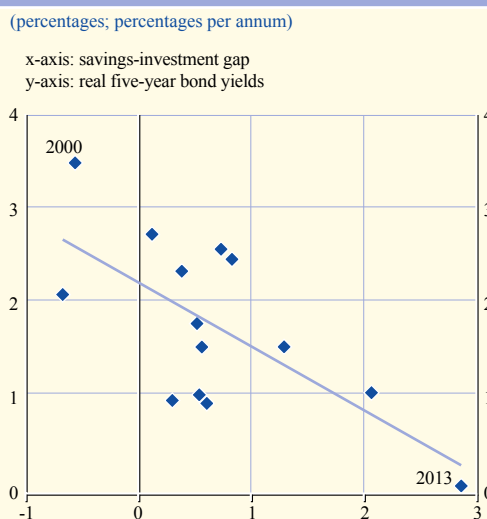
⁵ For a recent discussion from a general equilibrium perspective, see Kara, E. and v.Thadden, L. (2014), “Interest rate effects of demographic changes in a New-Keynesian life-cycle framework”, *Macroeconomics Dynamics*, forthcoming.

Chart C Gross national savings and investments in the euro area



Sources: IMF and ECB calculations.

Chart D Real five-year bond yields and the savings-investment gap in the euro area from 2000-13



Sources: IMF, Consensus Economics, Eurostat and ECB calculations.

Note: Nominal five-year government bond yields deflated using weighted five-year ahead inflation expectations from Consensus Economics for the four largest euro area member states.

Moreover, a full-fledged analysis needs to incorporate structural factors, for example the recently observed strong demand for risk-free assets from institutions such as pension funds and insurance companies, in the context of an ageing society and regulatory and accounting changes.