

## Box 2

### Deriving long-term euro area inflation expectations from index-linked bonds issued by the French Treasury

Long-term bonds, whose coupons are indexed to an inflation rate, provide a tool for gauging market participants' long-term inflation expectations. From September 1998 to October 2001, the only such bond available in the euro area was a bond issued by the French government which was linked to the French Consumer Price Index (CPI) excluding tobacco.<sup>1</sup> On 1 November 2001, a new bond was issued by the French government which is linked to a measure of euro area inflation, namely to the preliminary estimate of the euro area Harmonised Index of Consumer Prices (HICP) excluding tobacco.<sup>2</sup> This bond represents a new financial instrument for providing more straightforward information on long-term inflation expectations in the euro area.

A measure of long-term inflation expectations derived from indexed-linked bonds is the difference between the nominal yield on a standard bond and the real yield on an inflation-indexed bond, issued by the same issuer and with similar maturity. This measure is commonly referred to as the break-even inflation rate because it provides an estimate of the level of expected inflation at which, under certain assumptions, an investor would be indifferent as to which of the two types of bond to hold. Since the launch of the new bond, the break-even inflation rate calculated from it has been around 1.8% on average,<sup>3</sup> which was about 50 basis points above the break-even inflation rate calculated from the bond linked to the French CPI excluding tobacco. This difference in break-even inflation rates would suggest that there is a difference between long-term inflation expectations for France and for the euro area as a whole.

Since 1995, the annualised inflation rate of the French CPI excluding tobacco has been 55 basis points lower than the inflation rate of the euro area HICP excluding tobacco.<sup>4</sup> The latest release of the long-term forecasts of Consensus Economics in October 2001 suggests that forecasters expect such a difference to last for a while. This survey shows that the difference between long-term inflation expectations in France and in the euro area as a whole may be about 30 basis points.<sup>5</sup>

It is important to bear in mind, however, that break-even inflation rates are not a completely reliable measure of market participants' inflation expectations since they are influenced by several premia. For example, the break-even inflation rate for the bonds linked to the euro area HICP and the French CPI not only reflect inflation expectations for the euro area and France respectively, but may also contain a positive premium related to inflation uncertainty and a negative premium related to the higher liquidity of the nominal bonds used to calculate the break-even inflation rate. In this respect, the aforementioned differences in the break-even inflation rates between the bond linked to the French CPI and the bond linked to the euro area HICP may also, to some extent, be related to differences in liquidity of the two index-linked bonds (but it is difficult to measure this difference precisely). Finally, part of the higher break-even inflation rate derived from the bond linked to the euro area HICP may relate to the longer maturity of this bond (2012) compared with the bond linked to the French CPI (2009).

<sup>1</sup> See the Box entitled "Deriving inflation expectations from inflation index-linked bonds" in the February 1999 issue of the *Monthly Bulletin* for a more detailed presentation of the French index-linked bonds and their information content.

<sup>2</sup> This estimate refers to the first official Eurostat release of the euro area HICP. It is thus to be distinguished from the "flash" estimate calculated by Eurostat. It is "preliminary" to the extent that for several euro area countries the HICP figure is only provisional at the date of the press release and thus subject to possible subsequent revision. The exclusion of tobacco is necessary to comply with the French law relating to the anti-smoking campaign.

<sup>3</sup> The nominal bond used in the calculation of the break-even inflation rate in this box is the *Obligation Assimilable du Trésor (OAT)* maturing in December 2012.

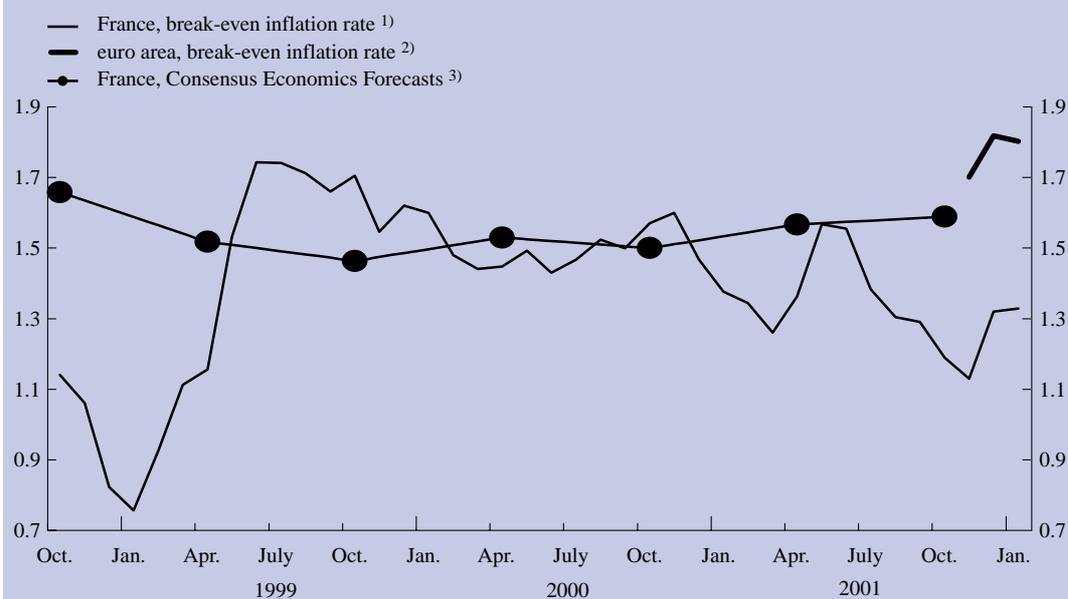
<sup>4</sup> Due to lack of data availability for the euro area HICP excluding tobacco, it is not possible to compare the price indexes before 1995.

<sup>5</sup> Consensus Economics does not publish a long-term inflation forecast for the euro area as a whole. The euro area figure referred to here was constructed using national CPI figures for Germany, Spain, France, Italy and the Netherlands. These countries represent around 85% of the euro area HICP.

In order to provide an indication of the relative importance of such premia, it is useful to compare break-even inflation rates with other measures of inflation expectations over a longer period. As the new bond was issued only three months ago, inferences can only be drawn from the old index-linked bond which was issued in September 1998. The chart below shows, from October 1998 onwards, the break-even inflation rate calculated from the old bond as well as long-term inflation expectations for France taken from Consensus Economics. It is worth noting that, except for a period around October 1998 and again in October 2001, the two measures were very close. Indeed, between April 1999 and April 2001, the average of the absolute difference between these two measures was around 20 basis points. Similarly, for the new bond linked to the euro area HICP excluding tobacco, the average break-even inflation rate calculated for January 2002 was around 10 basis points lower than the long-term euro area inflation expectation of Consensus Economics and was equal to the rate of euro area inflation expected five years ahead, as reported in the 2001 Q4 round of the ECB Survey of Professional Forecasters.

### Different indicators of long-term inflation expectations

(in percentage points)



Sources: French Treasury, Reuters and Consensus Economics.

1) The difference between the nominal yield of the French OAT maturing in April 2009 and the real yield of the French index-linked bond linked to the French CPI maturing in 2009.

2) The difference between the nominal yield of the French OAT maturing in December 2012 and the real yield of the French index-linked bond linked to the euro area HICP maturing in 2012.

3) Average inflation expectations for France over a period ending in 2009 taken from Consensus Economics.

The significant differences observed in late 1998 and late 2001 between the French break-even inflation rate and French long-term inflation expectations from Consensus Economics can for the most part probably be explained by liquidity considerations. On both occasions, financial markets endured periods of exceptional turbulence: in autumn 1998, owing to the consequences of the Asian crisis (namely, the Russian crisis and the bankruptcy of the LTCM hedge fund), and in autumn 2001 following the 11 September terrorist attacks. During these periods, risk-averse investors increasingly bought safe and liquid assets. As index-linked bonds tend to be less liquid than nominal bonds, the nominal interest rate tends to decline by more than the real interest rate in such episodes, pushing the break-even inflation rate downwards. In this respect, the V-shape of the break-even inflation rate observed after September 2001 seemed to mainly reflect the differential impact of “flight-to-safety” flows (and their reversal) on real and nominal yields, owing to differences in liquidity in the aforementioned markets, rather than changes in long-term inflation expectations. This is also suggested by

other measures of inflation expectations which changed little after 11 September 2001. Thus, particularly in periods of exceptional turbulence in financial markets, the liquidity premium can impose considerable biases on the break-even inflation rate. When markets are more tranquil, this premium may still have a downward bias on the break-even inflation rate. However, it is then likely to be smaller and less volatile over time.

There are two lessons to be drawn from this analysis: first, when monitoring developments in break-even inflation rates, it is always necessary to cross-check against other inflation measures and to carry out a thorough analysis of shocks that could cause sharp movements in break-even inflation rates. Second, given the existence of various premia affecting break-even inflation rates, it may be more informative to focus on changes in break-even inflation rates rather than on break-even inflation levels.