

Box 4

INFLATION RISK PREMIA IN MARKET-BASED MEASURES OF INFLATION EXPECTATIONS

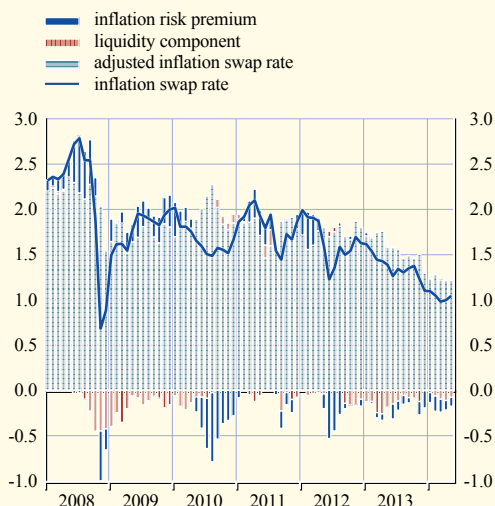
Since summer 2012, in line with movements in HICP inflation, a declining trend has been observed in shorter-term market-based measures of inflation expectations. At the current juncture, market-based inflation expectations suggest only a very gradual increase in inflation over the coming years, with a return to levels close to 2% not before 2020. Inflation expectations based on the ECB Survey of Professional Forecasters (SPF), however, suggest a somewhat faster adjustment towards levels close to 2% (see also Chart B of Box 5 in Section 3, where recent developments in survey-based measures are discussed in more detail). This box shows that risk components in inflation swap rates are partially behind the difference between market-based and survey-based inflation expectations.

Assessment of risk components in inflation swap rates

The measure of inflation expectations derived from swap rates can be influenced by liquidity effects and risk premia, which can be very significant in certain episodes. Estimating these components can help gain an understanding of market-based measures of inflation expectations.

Chart A Decomposition of one-year forward inflation-linked swap rates one year ahead

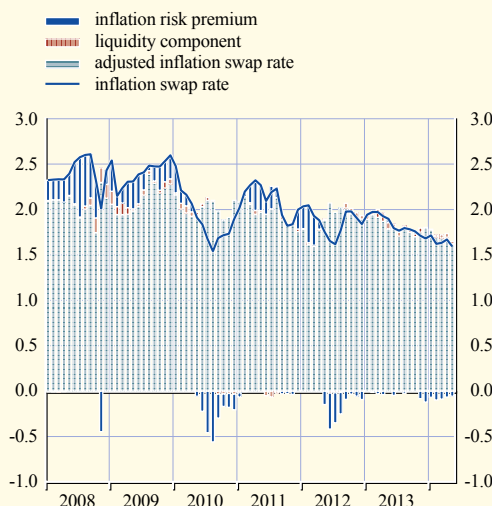
(percentage per annum)



Sources: Thomson Reuters data and ECB calculations.
Notes: The decomposition is based on the regression results of the difference between one-year forward inflation-linked swap rates one year ahead and two-year SPF inflation forecasts on a number of risk indicators (see main text). The latest observation corresponds to May 2014.

Chart B Decomposition of one-year forward inflation-linked swap rates four years ahead

(percentage per annum)



Sources: Thomson Reuters data and ECB calculations.
Notes: The decomposition is based on the regression results of the difference between one-year forward inflation-linked swap rates four years ahead and five-year SPF inflation forecasts on a number of risk indicators (see main text). The latest observation corresponds to May 2014.

The risk premia and liquidity effects are estimated by regressing the difference between inflation expectations derived from inflation swaps and those from the SPF on indicators of risk (e.g. prices from inflation options, inflation volatility, etc.) and liquidity (measured as the difference between bond-based break-even inflation rates and inflation swap rates at the corresponding horizon). The part that is explained by the risk-related regressors is considered a measure of the inflation risk premium. Charts A and B present the decomposition of the observed forward inflation-linked swap rates into adjusted inflation rates, inflation risk premia and a liquidity component.

The decomposition shows that although, on average, the inflation risk premium has been positive, it has become negative in recent months. The presence of a (somewhat) negative inflation risk premium implies that inflation expectations may currently be higher and therefore closer to the survey measures than what is implied by the inflation swaps taken at face value. This is most likely the case at the short-term horizon, while the effect is very small at the longer horizon. The role of liquidity effects appears to be limited, indicating that markets for inflation protection are currently functioning well, in contrast to the period immediately following the collapse of Lehman Brothers.

Interpretation of the inflation risk premium

The inflation risk premium is related to the hedging properties of nominal bonds versus those of inflation-linked bonds and swaps, which in turn depend on the nature of the most likely anticipated shocks to the economy.

If market participants consider a scenario of falling real output (and consumption) but increasing inflation to be very likely, a nominal bond cannot hedge well against such an event, as the return in real terms would deteriorate in times of low consumption (no consumption smoothing). However, if both output/consumption and inflation were to fall, nominal bonds would help hedge against falling consumption because their real return improves with falling inflation. A negative inflation risk premium can therefore be rational if the markets expect that a macroeconomic shock with falling consumption and falling inflation is more likely than a shock accompanied by increasing inflation.

To summarise, unlike in the period immediately following the collapse of Lehman Brothers, markets for inflation protection are currently functioning well and the role of liquidity effects appears limited. The downward risks to inflation can therefore be interpreted partly as a negative inflation risk premium. This is related to the properties of nominal bonds in hedging against falling inflation versus those of inflation-linked bonds and swaps. Overall, the currently low level of inflation swap rates may reflect a combination of low inflation expectations and low demand for hedging against high inflation outcomes.