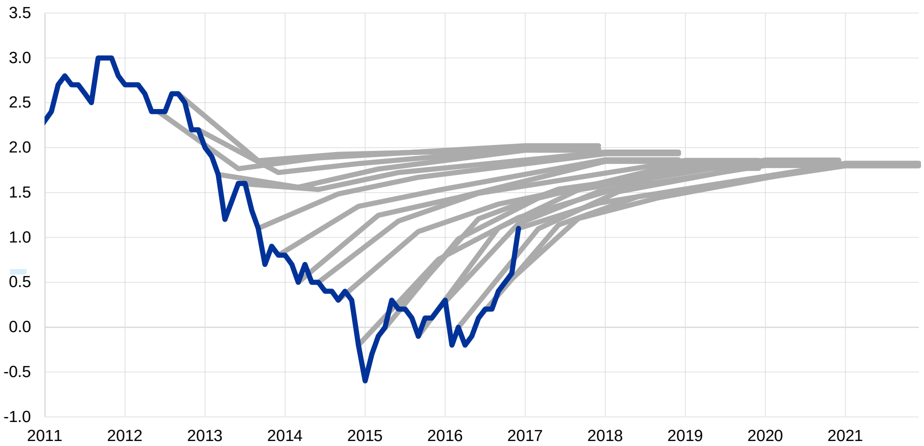
5 What has been driving developments in professional forecasters' inflation expectations?

The period after 2012 was characterised by a fall in HICP inflation that was both marked and largely unexpected. HICP inflation fell more or less continuously from rates of above 2% to around -0.5% in early 2015, and remained at very low rates until mid-2016 (see Chart A). The magnitude and sustained nature of this fall led to successive errors in projections for the inflation outlook across the forecasting community, including in Eurosystem and ECB staff macroeconomic projections. This box looks at the nature and possible sources of the revisions to the aggregate inflation expectations in the ECB's Survey of Professional Forecasters (SPF).[30]

Chart A

HICP inflation and various vintages of SPF HICP inflation expectations

(annual percentage changes; grey lines: 12-month, 24-month and five-year expectations from successive SPF rounds; blue line: actual HICP inflation)



Sources: Eurostat and ECB calculations based on SPF results.

The fall in HICP inflation has been accompanied by successive downward revisions to SPF inflation expectations. These downward revisions were greatest for near-term inflation expectations, implying at first a steepening in the profile for expected inflation (see Chart A). From 2015 onwards, the expected path of inflation stopped steepening, and instead started shifting further out, as inflation remained low. Longer-term expectations (five years ahead) also fell, but more modestly, standing at 1.8% on average since the first quarter of 2016, compared to an average of 2.0% in 2012. The factors driving changes in near-term and longer-term inflation expectations are likely to be different, and other data from the SPF can shed light on these different drivers. These data, collected since the early 2000s, include forecasters' assumptions regarding the oil price and the euro/dollar exchange rate, and their wage growth expectations.

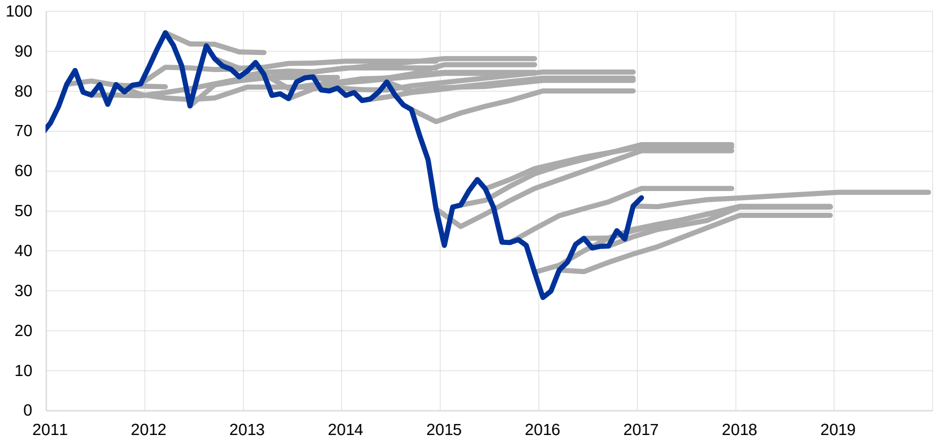
30 More information about the Survey of Professional Forecasters can be found at http://www.ecb.europa.eu/stats/prices/indic/forecast/html/index.en.html

The main source of revisions to the near-term inflation outlook is likely to have been the decline in oil prices. For much of the period of recurring inflation over-predictions, aggregate SPF oil price expectations, in euro terms, consistently turned out to be too high (see Chart B). Information from a special questionnaire suggests that professional forecasters' oil price expectations are, to a reasonable extent, informed by futures prices.[31] This is also the technical assumption in the Eurosystem/ECB macroeconomic projections, and accounted for a large part of the Eurosystem/ECB HICP projection error in recent years.

Chart B

Brent oil price and various vintages of SPF oil price expectations

(EUR per barrel; grey lines: forecasters' assumptions from successive SPF vintages for the following four quarters and, where available, the calendar-year averages for one and two years after the survey; blue line: actual oil price)



Sources: Bloomberg, BIS and ECB calculations based on SPF results.
Note: The latter part of each SPF forecast is plotted assuming that the value reported for the final year, as a whole, applies to each quarter of that year.

Shocks to oil price expectations have typically had a significant bearing on near-term inflation expectations, but little influence further out. Oil prices can affect inflation both directly, through the energy components of HICP, and indirectly, through the effect on production costs more generally. However, unless oil price developments trigger second-round effects, their direct and indirect effects should fade within a horizon of five years.[32] The panels in Chart C show that the strength of the relationship between changes in SPF expectations for oil prices and for inflation decreases as the forecast horizon increases. On average, a 10% increase in the one-year-ahead euro oil price expectation has been associated with a 0.1 percentage point increase in the one-year-ahead HICP inflation expectation, but there is no meaningful relationship between oil price expectations and five-year-ahead inflation expectations.

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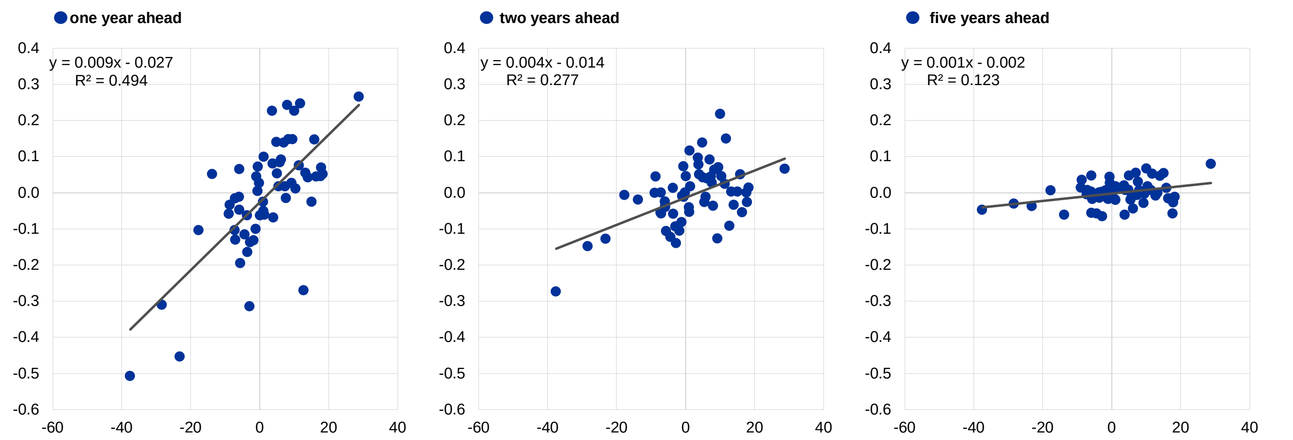
[31] See "Results of the second special questionnaire for participants in the ECB Survey of Professional Forecasters", ECB, January 2014.

[32] An example of a second-round effect would be if the higher inflation brought about by higher oil prices led to higher wage demands and these, in turn, lead to higher prices. For more information on how energy prices affect inflation, see "Energy markets and the euro area macro economy", *Structural Issues Report*, ECB, 2010.

Chart C

Changes in SPF expectations for the euro oil price and for HICP inflation

(percentage points; x-axis: quarter-on-quarter change in the one-year-ahead expected oil price; y-axis: quarter-on-quarter change in expected inflation at three different horizons)



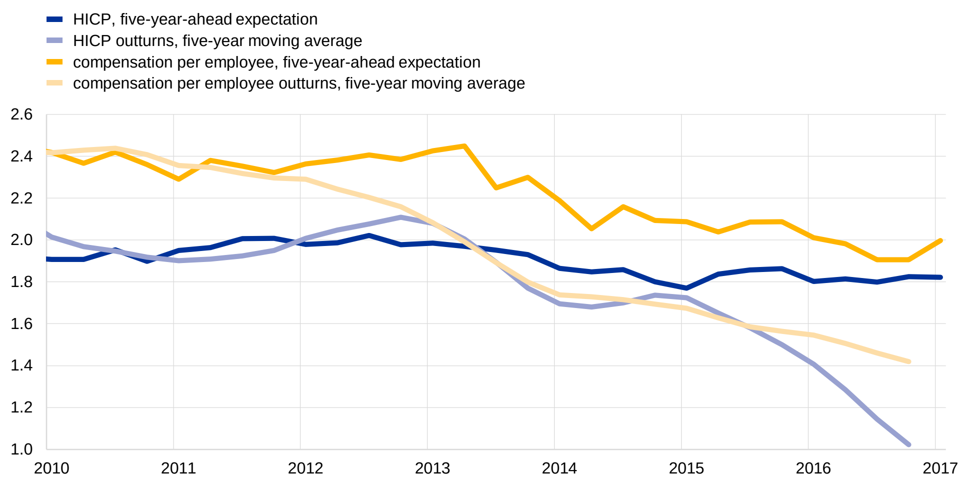
Sources: ECB calculations based on SPF results.
Note: Based on a sample period from 2002 to 2016.

In the last few years, there has also been little relation between longer-term inflation expectations and actual inflation trends. Longer-term inflation expectations fell from around 2.0% to around 1.8% in the course of 2013 and 2014. Since the start of 2015, however, longer-term inflation expectations have been stable, despite a significant decline in five-year average HICP inflation (see Chart D).

Chart D

Five-year-ahead SPF expectations for inflation and wage growth

(annual percentage changes)



Sources: Eurostat and ECB calculations, based on SPF results.

Similarly, the decline in longer-term expectations for growth in compensation per employee was much less than the fall in the corresponding five-year average. Furthermore, growth in compensation per employee turned out weaker than expected in either the SPF or the Eurosystem/ECB macroeconomic projections. It is likely that the SPF and Eurosystem/ECB forecast errors were both driven by a similar set of factors, such as: underestimation of labour market slack; higher wage flexibility, in view of the depth of the crisis and following structural reforms in labour markets; a larger increase in low productivity jobs; and effects of the low inflation environment.[33]

Overall, the SPF continues to show that longer-term HICP inflation expectations remain anchored. In the survey for the first quarter of 2017, longer-term HICP inflation expectations remained at 1.8%, continuing the sideways movement seen since early 2015. This indicates that most SPF respondents expected that the past declines in inflation would probably be only temporary in nature. In turn, this may point to a perception among forecasters that the forceful monetary policy response of the ECB to low inflation has helped stabilise the outlook for price stability in the longer term.

[33] See the box entitled "Recent wage trends in the euro area", *Economic Bulletin*, Issue 3, ECB, 2016.