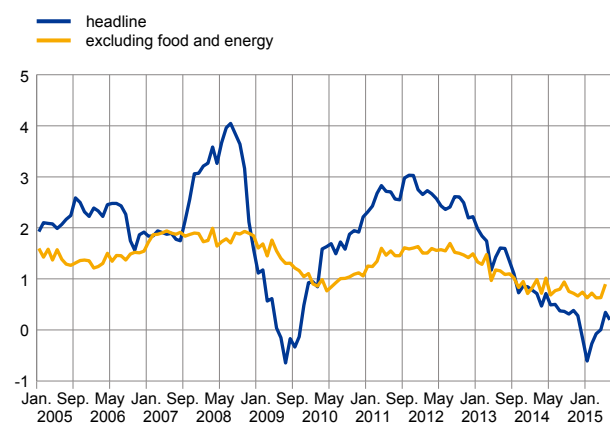


## Box 4

# Has underlying inflation reached a turning point?

**Chart A**  
Euro area HICP inflation

(annual percentage changes)



Sources: Eurostat and ECB calculations.

**The turnaround in headline HICP inflation since February 2015 has thus far been mainly due to energy and food prices, but more recently inflation excluding these components has also risen.** For HICP inflation excluding food and energy (HICPX), which is often used to gauge underlying developments in inflation, the turnaround is, however, less clear. HICPX stood at 0.8% in June, slightly down from 0.9% in May but up from its all-time low of 0.6% in March and April (see Chart A). This box looks at the recent uptick in HICPX and at a range of other indicators to assess whether they suggest an upturn in underlying inflation.

**The latest higher HICPX figures reflect a combination of persistent and temporary factors.** Persistent factors are those that determine a sustained change in inflation, while temporary ones are those that cause only a transient movement in inflation, for instance owing to

calendar effects. Reviewing the two types of factor is important in identifying evidence of a turning point. Some of these factors can be reviewed at the level of overall HICPX, while for others it is useful to look at the more granular data within HICPX, as different components tend to have different exposures to persistent and temporary factors.

**Strong oil price movements can blur the signal for HICPX owing to their indirect effects.** Such indirect effects along the production and pricing chains affect items in both the non-energy industrial goods component and the services component of HICPX. Strong swings in oil prices can then imply movements in HICPX that would not reflect a generalised and sustainable movement in underlying inflation. According to previous studies<sup>1</sup>, indirect effects on HICPX stemming from oil price changes typically peak only in the second year after a shock and so have a much more gradual impact than the direct effects. At the current juncture, it is therefore likely that the sharp decline in oil prices seen until January 2015 is still exerting a downward impact on HICPX; and unlikely that the partial reversal of this decline in recent months has already pushed up HICPX. This means that the slightly higher HICPX figures for May and June were not due to any potential temporary upward impacts stemming from oil prices.

**Non-energy industrial goods inflation has increased steadily over recent months, reflecting an upturn in its less volatile components.** Previously observed upticks in non-energy industrial goods inflation have often been driven

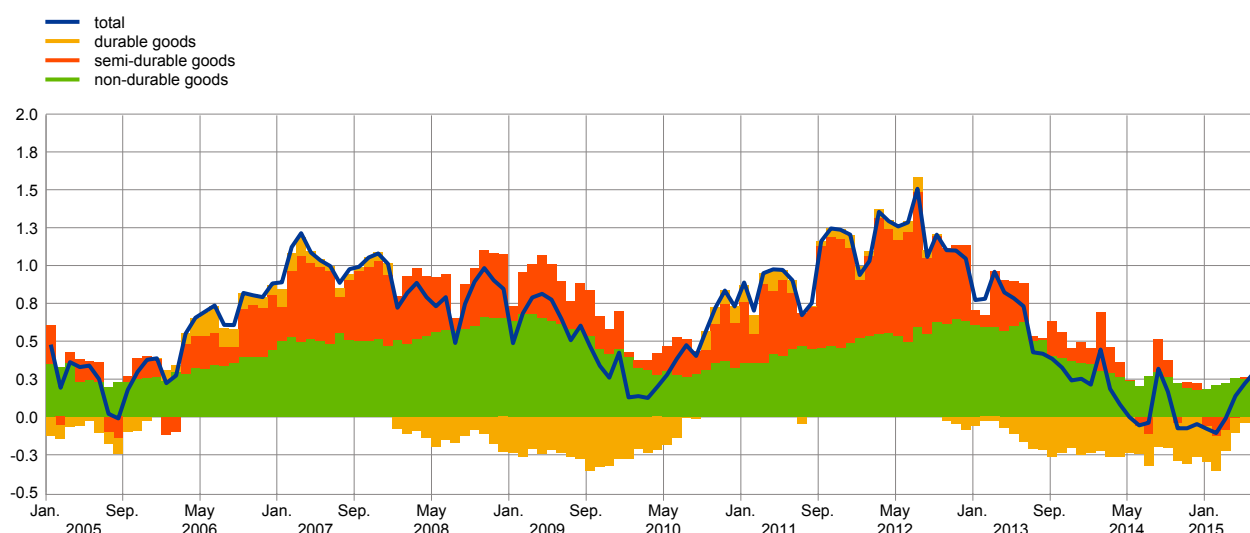
<sup>1</sup> See, for example, Task Force of the Monetary Policy Committee of the ESCB, "Energy Markets and the Euro Area Macroeconomy", *Occasional Paper Series*, No 113, ECB, Frankfurt am Main, June 2010.

by temporary movements in semi-durable goods prices related to changes in the timing or intensity of clothing sales periods from one year to the next (e.g. as in February and August 2014). However, the most recent upturn has seen increases in each of the past four months (from -0.1% in February 2015 to 0.3% in June) and has been relatively broad-based across the components of non-energy industrial goods inflation (see Chart B). The durable goods component has risen the most (by 1 percentage point since November 2014), driven in particular by items such as car and furniture prices. These increases are consistent with the rise in the consumption of durable goods observed over recent quarters and with the sharp increase in import prices for non-food consumer goods. The latter development has followed the depreciation of the euro over recent quarters and particularly since the start of the year, with further lagged upward effects anticipated.

## Chart B

### HICP non-energy industrial goods inflation and its components

(annual percentage changes; percentage points)



Sources: Eurostat and ECB calculations.

Note: Data are adjusted for statistical changes in the calculation of seasonal products introduced in 2010 and 2011.

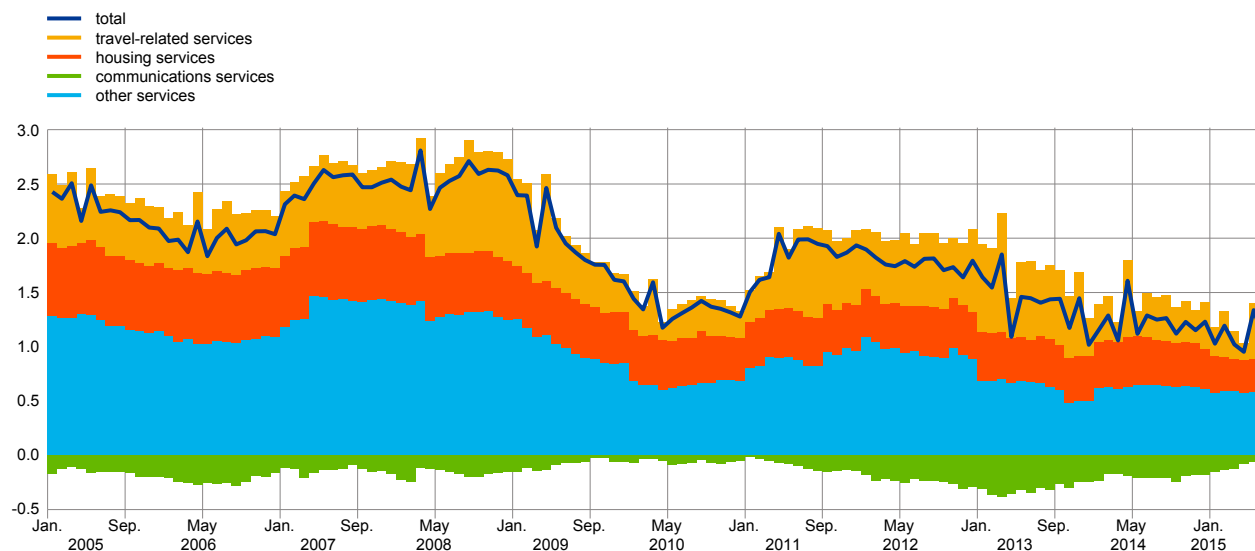
**By contrast, recent movements in services inflation have reflected only volatility, with no sign of a pick-up in the more persistent part.** This also reflects the fact that components with typically more persistent developments are showing diverging trends. Communication services inflation has become significantly less negative over the last three quarters, broadly offsetting a protracted downward trend in inflation related to housing services. A large block of remaining items bundled under the component “other” has remained broadly stable at low levels of inflation for the past 18 months. The more volatile items, i.e. those related to travel services, were behind the blip in services inflation in May 2015, as prices for services such as airfares and package holidays were strongly influenced by the different timing of the Whitsun holiday in 2015 compared with 2014 (see Chart C).

**Short-term measures of HICPX have shown a more sustained increase, but given past volatility provide only weak evidence of a turning point.** Identifying turning points by looking at annual rates of change instead of month-on-month

## Chart C

### HICP services inflation and its components

(annual percentage changes; percentage points)

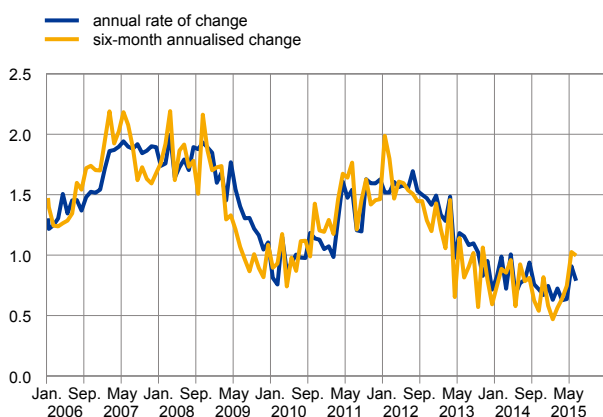


Sources: Eurostat and ECB calculations.

## Chart D

### Short-term measures of HICP inflation excluding food and energy

(annual percentage changes; six-month annualised percentage changes)



Sources: Eurostat and ECB calculations.

Note: Annualised growth rates are based on seasonally adjusted data.

changes in seasonally adjusted data carries the risk that an upturn in the price level may only become evident with a delay. However, as month-on-month changes tend to be very volatile and thus cannot provide clear signals, an intermediate measure, such as the six-month annualised change in HICPX, could provide both timely and clearer signals. This measure shows a relatively persistent increase since the start of the year, but still reveals considerable volatility, making it difficult to conclude that the recent upturn relates to a true cyclical turning point (see Chart D). One way to assess this more formally is to apply a measure typically used for assessing the business cycle, the “months for cyclical dominance” measure.<sup>2</sup> Applied to the six-month annualised changes in HICPX, this measure suggests that, on average, developments in a certain direction should be observed for seven to eight months in order for the signal from the cyclical component to dominate over the short-term noise in

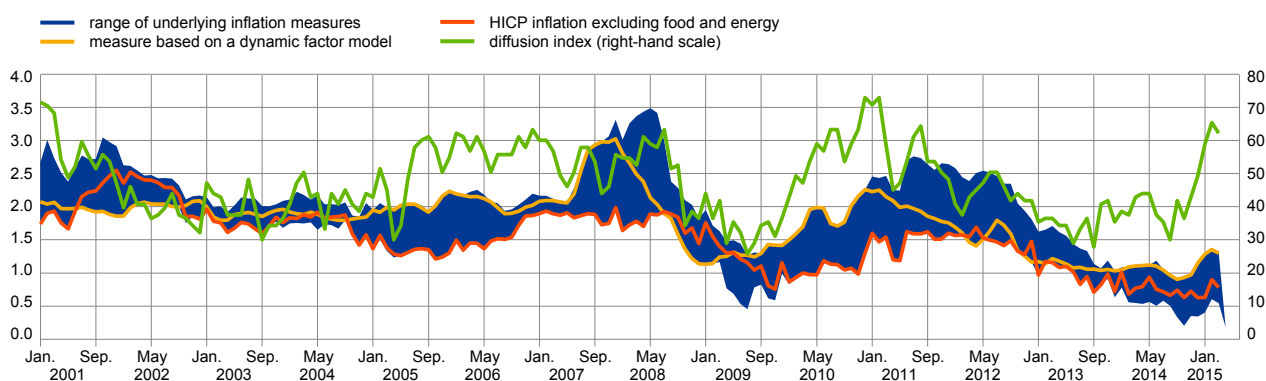
the series. This implies that the recent upturn needs to be viewed with some caution, especially given the recent above-mentioned calendar effects.

**Other measures of underlying inflation have also increased in line with HICPX and some have shown significant increases over recent months.** HICPX still includes volatile components, such as package holidays, which make it difficult to

<sup>2</sup> For a more detailed explanation of how “months for cyclical dominance” measures are calculated, see the box entitled “Identifying cyclical signals from euro area economic indicators”, *Monthly Bulletin*, ECB, May 2012.

## Chart E Measures of underlying inflation

(annual percentage changes; share)



Sources: Eurostat and ECB calculations.

Note: The diffusion index is calculated as the share of individual HICP items which have seen an increase in their annual rate of change over the past three months.

identify the signal at a certain point in time. To see whether the upturn in HICPX is more generalised, it is important to cross-check against developments in other measures of underlying inflation. In addition to measures which permanently exclude the same items, some other measures exclude items based on statistical criteria (i.e. trimmed means which take out the impact of individual items with the highest and lowest inflation rates) or make use of econometric techniques to extract the common component across the set of individual price series. Looking at a broad set of such measures, all indicators<sup>3</sup> stood at higher levels in June 2015 than in March 2015 (see Chart E). Furthermore, two other measures increased significantly from their levels at the start of the year. The first is based on a dynamic factor model, which captures the common and persistent factors in inflation rates across countries and HICP items<sup>4</sup> and has historically shown leading properties for HICPX. Another measure is a diffusion index, which tries to capture the extent to which changes in the inflation rate are broad-based rather than due to a limited number of items. This indicator shows that, compared with January 2015, there has been a significant increase in the unweighted share of HICP items that have seen an increase in their annual rate of change over the previous three months.

**Overall, available measures and indicators for underlying inflation have risen from their low levels, in line with the path of HICPX envisaged in the latest Eurosystem staff macroeconomic projections.** These projections foresee a gradual strengthening in HICPX during the course of 2015, reflecting the impact of the declining slack in the economy on wages and profits, together with the lower euro exchange rate and indirect effects from the assumed increases in commodity prices. Nevertheless, on the basis of the out-turns observed so far, it remains too early to identify a turning point in underlying inflation from a statistical point of view. More data are required for the signal for such a turning point to become strong enough.

<sup>3</sup> Permanent exclusion-based measures comprise: HICP inflation excluding energy, HICP inflation excluding unprocessed food and energy, HICP inflation excluding food and energy; statistical exclusion-based measures comprise: 10%, 30% trimmed means and the median (100% trimmed mean).

<sup>4</sup> This indicator is derived from the methodology introduced in Cristadoro, R., Forni, M., Reichlin, L. and Veronese, G., "A Core Inflation Indicator for the Euro Area", *Journal of Money, Credit and Banking*, No 37, 2005, pp. 539-560.