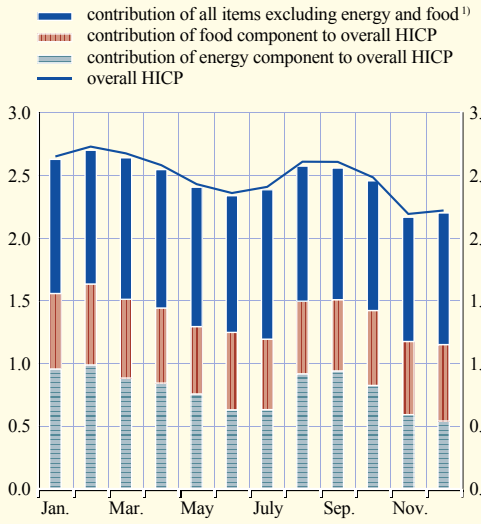
Box 5

BASE EFFECTS AND THEIR IMPACT ON HICP INFLATION IN 2013

The pattern of euro area inflation in 2012 largely reflected changes in the contributions of energy prices. In particular, the mid-year rebound in HICP inflation was caused principally by a strong increase in oil prices and, in turn, energy prices (see Chart A). On balance, food prices, the second volatile HICP component, had relatively little impact on the pattern of HICP inflation, as the upward movement in unprocessed food inflation was to some extent offset by the downward movement in processed food inflation. This box discusses how the changes in energy and food prices in 2012 may influence the path of the annual HICP inflation rate in 2013 through base effects.

Chart A Contributions to annual HICP inflation in 2012

(percentage points)



Sources: Eurostat and ECB calculations.
1) Comprises HICP services and non-energy industrial goods.

Base effects occur when variations in the annual growth rate of an economic indicator, in this case the HICP, are attributable to an atypical movement in the index 12 months earlier owing, for instance, to significant changes in commodity prices.[1] More specifically, they explain the extent to which the change from one month to the next in the year-on-year rate of inflation results from the "dropping out" of an unusual month-on-month change from the price index 12 months earlier. When analysing developments in the annual inflation rate, it is important to distinguish the effects of these unusual month-on-month changes that occurred 12 months earlier from those that occurred in the latest month (i.e. the actual monthly "news").

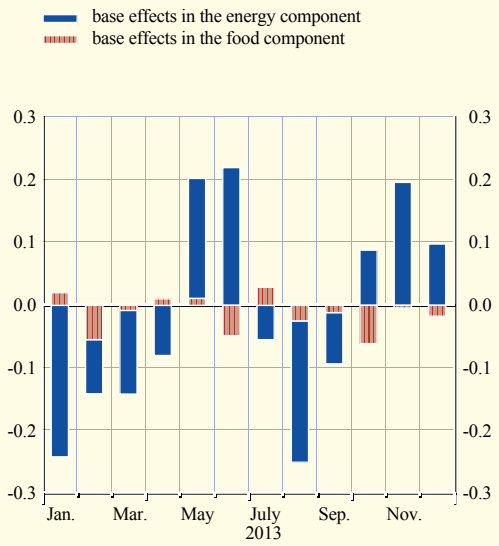
Chart B shows the estimated contribution of base effects from the energy and food components of the HICP to the change in the annual inflation rate from one month to the next over the period from January to December 2013.[2] Notably, it shows that the contribution of base effects stemming from energy prices is estimated to be negative in most months of the year and particularly large in the first three months and August, as the strong increases in energy prices recorded a year earlier drop out of the annual comparison. By contrast, base effects are estimated to have an upward impact on the month-on-month changes in inflation in May and June, as well as in the last few months of 2013, on account of the large drop in energy prices in the same months of 2012. Base effects

1 Technically, a base effect can be defined as the contribution to the change in the year-on-year inflation rate in a particular month that stems from a deviation in the month-on-month rate of change in the base month (i.e. the same month one year earlier) from its usual or normal pattern, taking into account seasonal fluctuations. For further details, see the box entitled "Accounting for recent and prospective movements in HICP inflation: the role of base effects" and the references therein, *Monthly Bulletin*, ECB, December 2008.

2 Identifying and estimating base effects is not a straightforward task. Defining a base effect as stemming from atypical influences affecting the price index 12 months earlier involves calculating the deviation in the month-on-month rate of change in the base period from its usual pattern. There is no commonly agreed way of identifying such atypical influences on inflation. For the purposes of this box, the usual pattern of month-on-month changes in the HICP is computed for each month by adding an estimated seasonal effect to the average month-on-month change observed since January 1995.

Chart B Contribution of base effects in the energy and food components to the monthly change in annual HICP inflation in 2013

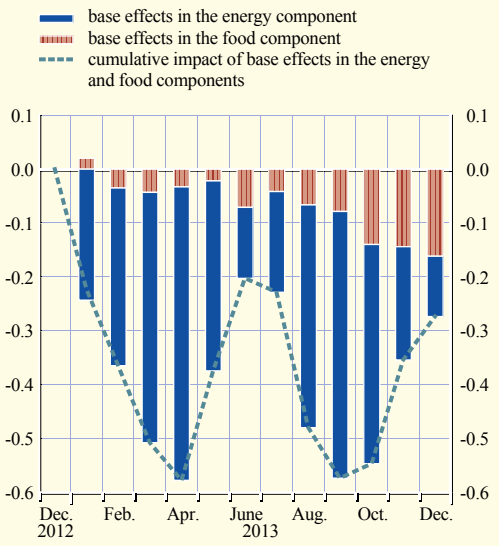
(percentage points)



Sources: Eurostat and ECB calculations.

Chart C Cumulative impact of base effects in the energy and food components of the HICP in 2013

(percentage points)



Sources: Eurostat and ECB calculations.

stemming from food prices are expected to be considerably more modest than those stemming from energy prices and also predominantly negative. These base effects are largely attributable to the unprocessed food component, and it is estimated that they will be comparatively larger in February, June and October 2013. The negative base effects from August 2013 onwards mostly reflect the strong increases in the prices of meat and vegetables in the same months of 2012. The hike in meat prices reflected the spike in animal feed prices brought about by rising food commodity prices over last summer.

Chart C cumulates the contribution of base effects to the changes in the annual growth rates of the HICP over the 12 months starting from December 2012. It is estimated that the cumulative impact of these base effects will have a downward impact of around 0.3 percentage point on annual HICP inflation over the period from December 2012 to December 2013. The contribution of the base effects stemming from food prices will remain modest in absolute terms over the year.

Overall, downward base effects stemming from past changes in energy prices are one factor that will influence the profile of HICP inflation over the coming months. Additional mechanical impacts are associated with developments in indirect tax rates. Assuming full and immediate pass-through, changes in indirect tax rates in some euro area countries over the course of 2012 had, on balance, an upward impact on HICP inflation amounting to 0.4 percentage point. Such mechanical impacts drop out of the annual inflation rate after 12 months and will thus exert a downward pressure on HICP inflation in 2013, similar to that of base effects in the energy and food components. However, it is likely that there will also be increases in indirect tax rates across euro area countries in 2013, so this downward pressure may not come fully to the fore. In any case, beyond such mechanical impacts, future inflation developments will, of course, also depend on developments in energy and food prices in 2013, as well as other factors, such as consumer demand and different cost pressures.