

## What can recent developments in producer prices tell us about pipeline pressures?

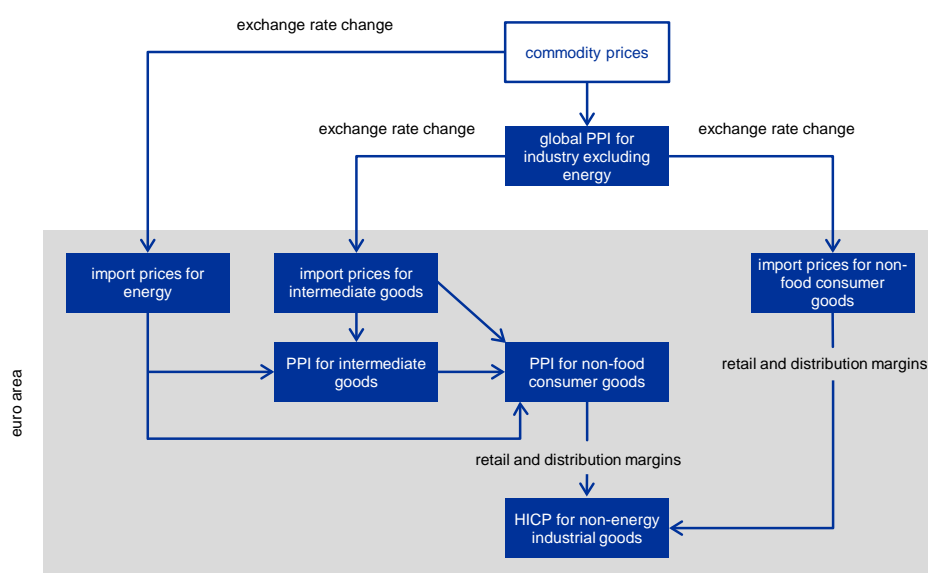
### Consumer price inflation of non-energy industrial goods in the euro area has remained subdued thus far.

The short-term outlook for this component of the Harmonised Index of Consumer Prices (HICP) can typically be informed by what are known as pipeline pressures. These pipeline pressures may have already emerged at early stages in the overall pricing chain. This box discusses recent developments in global and domestic producer prices, which are important indicators in the pricing chain.

**Pipeline pressures often have their origin at the global level.** In particular, commodity prices can pass through to euro area industrial producer prices via the cost of imported energy (see Chart A). This pass-through can also be more indirect if commodity prices have an impact on global non-energy producer prices. This may subsequently also have an impact on the price of imported goods, which form part of the supply chains used in domestic production. The annual rate of import prices for intermediate goods is continuing to increase rapidly. This is not only a reflection of the recovery in producer prices globally but also of the recent euro exchange rate depreciation. The recent upturn in euro area non-energy producer price inflation mirrors to a large extent that in global non-energy producer price inflation (see Chart B), reflecting the use of imported intermediate goods.

### Chart A

Stylised overview of the supply price chain for HICP non-energy industrial goods

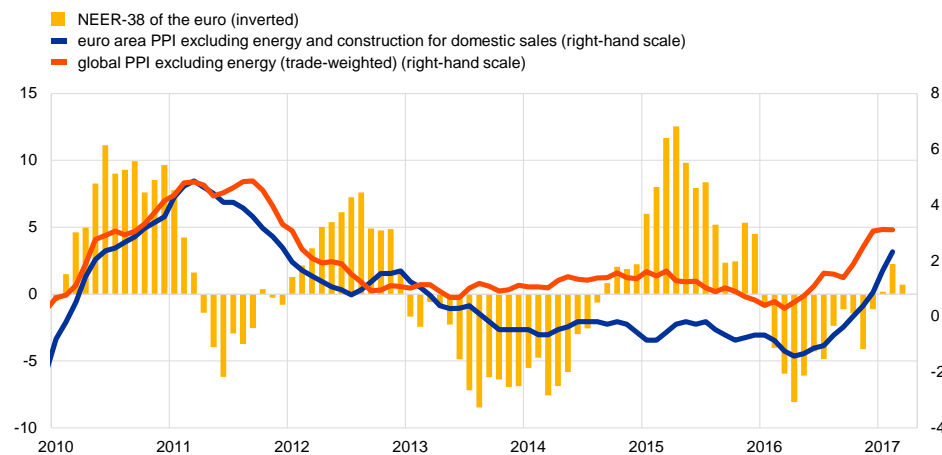


Source: ECB illustration.

## Chart B

### Producer prices for industry excluding energy for the euro area and globally

(annual percentage changes)



Sources: Eurostat and ECB calculations.

Notes: The global Producer Price Index (PPI) excluding the energy sector is an ECB estimate, compiled as a weighted average for 20 euro area trading partners, using their share in the extra-euro area export of goods. To the extent possible, the series uses PPI excluding the energy sector. For countries where this measure is not available, PPI inflation of the energy sector was subtracted from the total PPI inflation using the energy sector's weight in the respective economy. For a small number of countries, the contribution of the energy sector to the overall PPI was estimated.

The latest observations are for March 2017 for the nominal effective exchange rate of the euro against the currencies of 38 of the euro area's main trading partners (NEER-38) and February 2017 for the PPI.

#### **Recent producer price developments early in the pricing chain point to evidence of some pipeline pressures.**

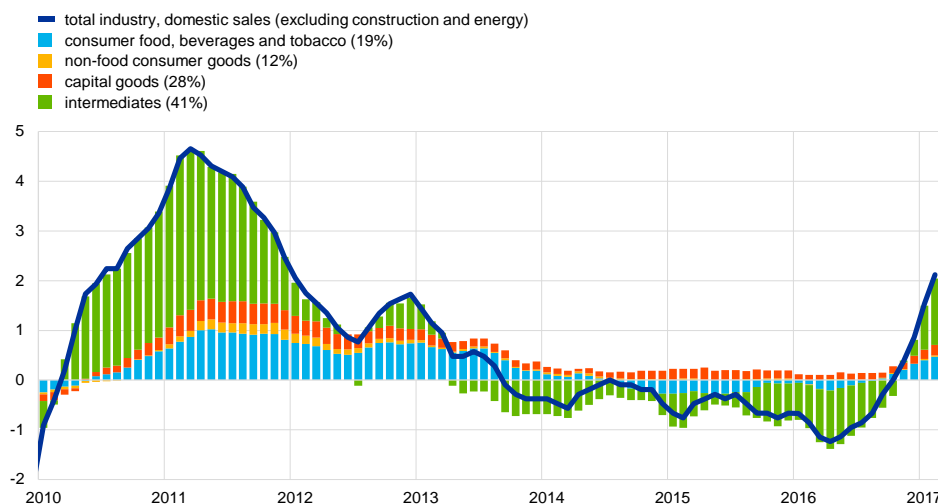
Movements in headline producer price inflation (industry excluding construction and the energy sector) are typically dominated by those for the intermediate goods sector, reflecting both their high weight and amplitude (see Chart C). Headline producer prices can therefore not be taken as a direct indicator of price pressures for final consumer price inflation. However, the stronger and more sustained producer price developments are in intermediate goods industries that are further upstream in the production and pricing chain, the greater the likelihood is that they may be passed through to producer prices in non-food consumer goods industries. Correlation analysis suggests that producer price inflation in intermediate goods industries generally has its strongest co-movement (at 0.7 on average) with producer price inflation in non-food consumer goods industries with a lag of somewhat more than half a year<sup>31</sup>; however, there have been episodes where this co-movement lapses. The recent upturn in producer prices for intermediate goods could hence tentatively point to some pipeline pressures emerging at later stages over the coming months.

<sup>31</sup> The maximum correlation may be with a lag of more than half a year. However, the impact that a change in producer prices for intermediate goods has in a given month on producer prices for non-food consumer goods may begin to show as early as in the initial months thereafter. A more rigorous pass-through analysis would usefully draw on impulse responses derived from a dedicated model, but this is beyond the scope of this box.

## Chart C

### Producer prices for total industry and components

(annual percentage changes, percentage point contributions)



Sources: Eurostat and ECB calculations.

Note: The latest observations are for February 2017.

#### Pipeline price pressures tend to be gradually dampened along the production chain.

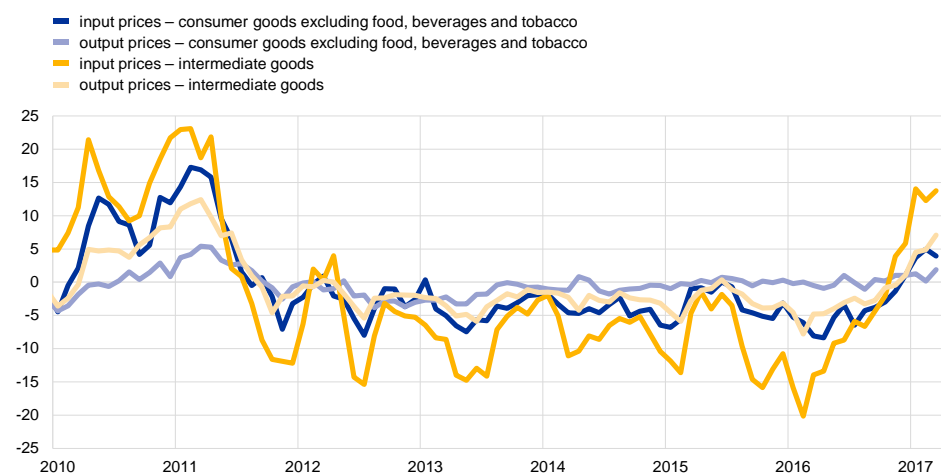
It is likely that the degree of dampening depends on the number of production stages (from crude materials to final consumption goods) and the timing of the respective pricing decisions. One explanation is that each stage may have some degree of manoeuvre to adjust margins and that there may be sufficient leeway in the timing of pricing to gauge the persistence of cost shocks from upstream stages. In this regard, firms may be making use of hedging instruments to protect themselves against the risk of, for example, exchange rate volatility. Moreover supply contracts can sometimes be fixed for several months ahead, thus offering a temporary buffer against cost shocks. The relative movements in Purchasing Managers' Index (PMI) input and output prices in the industrial sector suggest that there may generally be stronger variation in margins in the intermediate goods sector than in the non-food consumer goods sector – where the latter would be at the later stages of the pricing chain for consumer prices for non-energy industrial goods (see Chart D).<sup>32</sup> At the same time the upward movement in PMI input prices has been relatively stronger than in output prices in the non-food consumer goods sector, which according to correlation analysis could herald a pick-up in producer price inflation in that sector around half a year later.

<sup>32</sup> Input costs in the PMI survey do not include labour costs and so cannot be taken as an encompassing measure of production costs. Assessing the need and scope for adjusting margins is also difficult, since the data provide no reliable benchmark in terms of the level of margins.

## Chart D

### PMI survey data for intermediate goods and non-food consumer goods

(diffusion index, deviation from long-term average index value)



Sources: IHS Markit and ECB calculations.

Notes: Long-term averages are calculated over the period October 2002 to March 2017. The latest observations are for March 2017.

#### **Producer prices of non-food consumer goods industries have continued to increase very moderately so far.**

Over the 12 months to February 2017, the year-on-year growth rate of prices charged in domestic sales hovered just above zero, while that of prices charged in sales in other euro area countries has often even been negative (see Chart E)<sup>33</sup>. Upward pipeline pressures for the corresponding prices at the consumer level have recently mainly come from import prices for non-food consumer goods, which have picked up to 0.6% year on year in February, the first positive reading in a year. Correlation analysis suggests that producer price inflation in non-food consumer goods industries has its strongest co-movement (at almost 0.7) with consumer price inflation in non-energy industrial goods with a lag of more than half a year.<sup>34</sup>

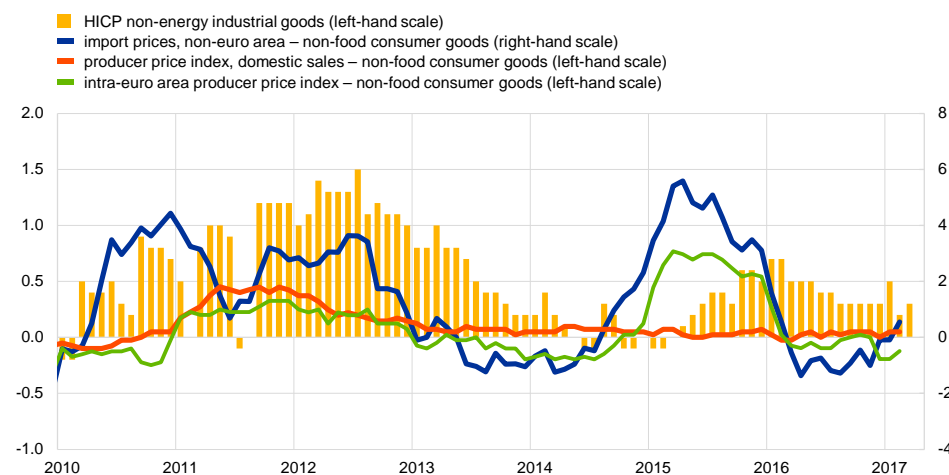
<sup>33</sup> Of the total non-food consumer goods produced in the euro area, about 72% are produced and sold in the same euro area country (domestic sales) while 28% are produced in one euro area country and sold in another euro area country (intra-euro area sales).

<sup>34</sup> While producer and import prices for consumer goods are indicators that refer to later stages of the pricing chain, any pressure emerging at these stages can still be enhanced or dampened by pricing behaviour at the distribution and retailing levels. The PMI for margins in non-food retailing, one of the few indicators available for these final stages, has hovered in a relatively narrow range in recent months and hence does not suggest that the latest indications from producer prices for consumer prices have been significantly blurred by any shifts in margins.

## Chart E

### Non-energy industrial goods consumer prices and producer price and import price inflation for non-food consumer goods for the euro area

(annual percentage change)



Sources: Eurostat and ECB calculations.

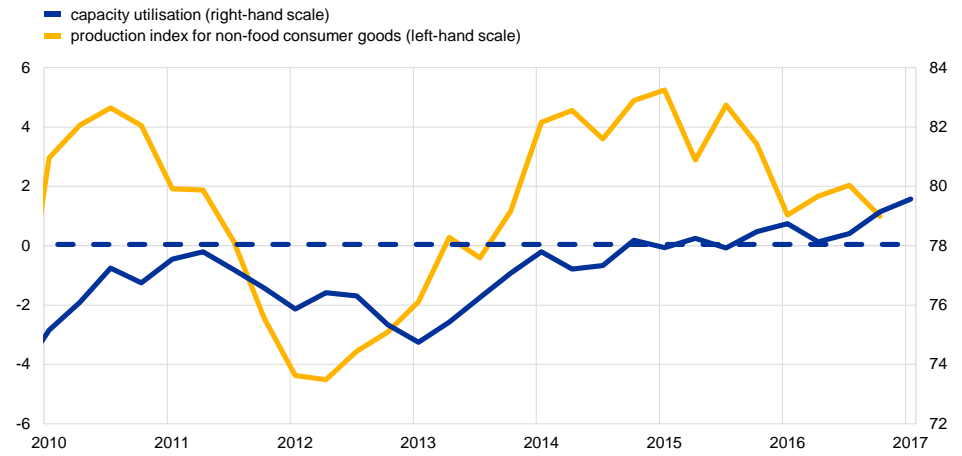
Note: The latest observations are for March 2017 for HICP non-energy industrial goods and February 2017 for the rest.

**In summary, producer price data currently provide mixed signals regarding pipeline pressures for HICP non-energy industrial goods prices.** While it is likely that some upward pressure has emerged at the early stages, it may take some more time for this to filter through to the later stages of the pricing chain. It is also likely that this upward pressure would be dampened through margin or other adjustments along the production chain unless firms could suspend such adjustment in an environment of strongly increasing demand. In this regard, annual growth in production volumes remains positive despite softening somewhat in recent quarters (see Chart F). Moreover, survey data on capacity utilisation in the non-food consumer goods industries, to the extent that they reflect the evolution of demand relative to supply, may point to some strengthening in pricing power.

## Chart F

### Capacity utilisation and production in the non-food consumer goods sector

(annual percentage changes; percentages)



Sources: Eurostat and ECB calculations.

Notes: The latest observations are for the fourth quarter of 2016 for production and the first quarter of 2017 for capacity utilisation. The broken blue line refers to the long-term average for capacity utilisation, which has been calculated using data from the first quarter of 1999 to the first quarter of 2017.