EUROPEAN CENTRAL BANK

EUROSYSTEM

Prospects for inflation: sneezes and breezes

ECB-Cleveland Fed Conference on
“Inflation: Drivers and Dynamics”
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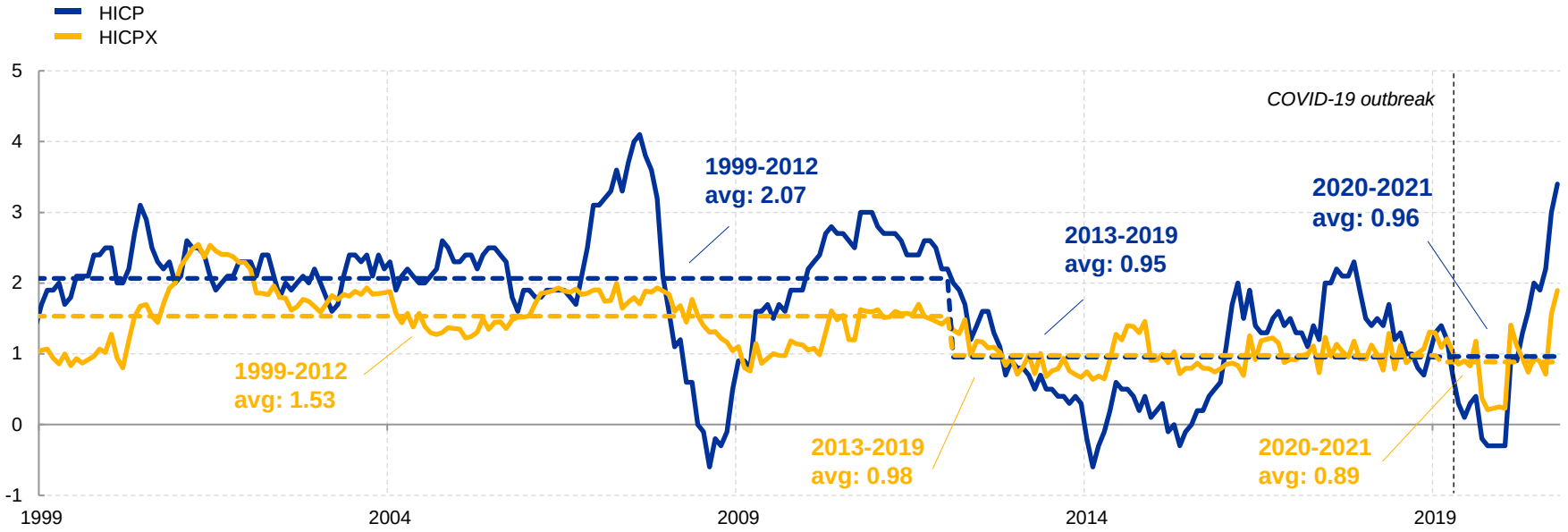
Inflation has persistently fallen short of ECB's inflation aim over the past decade

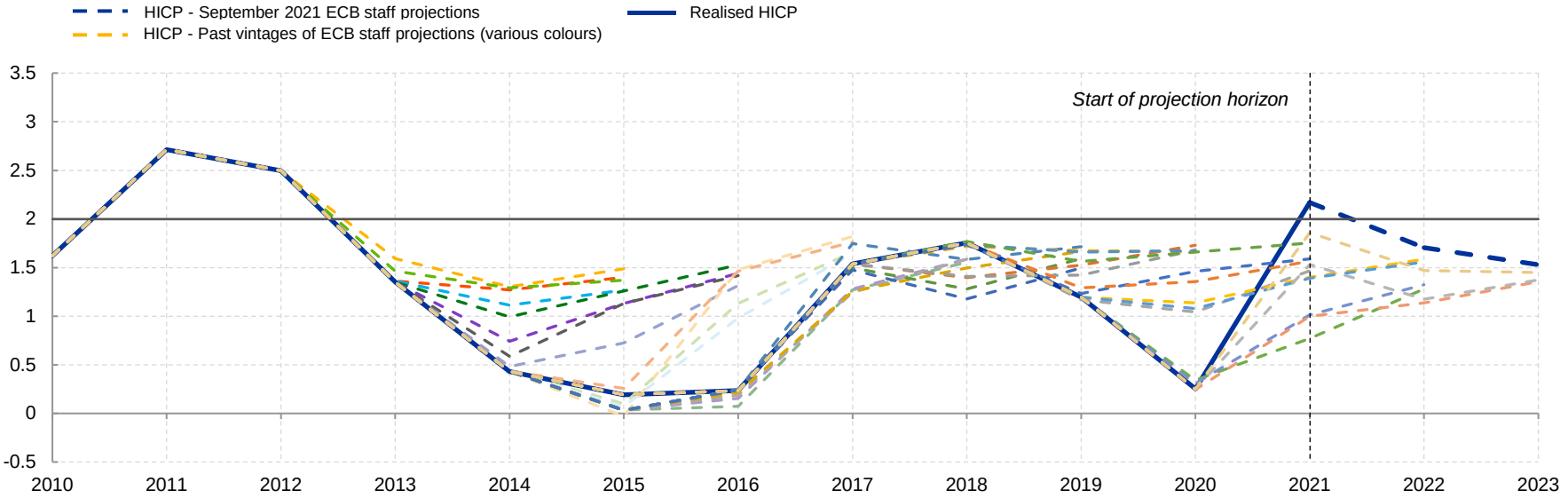
Euro area headline and core HICP inflation
(annual percentage changes)



Source: Eurostat and ECB calculations.
Latest observation: September 2021 (flash estimate).

Inflation repeatedly surprised on the downside relative to ECB staff projections before the pandemic

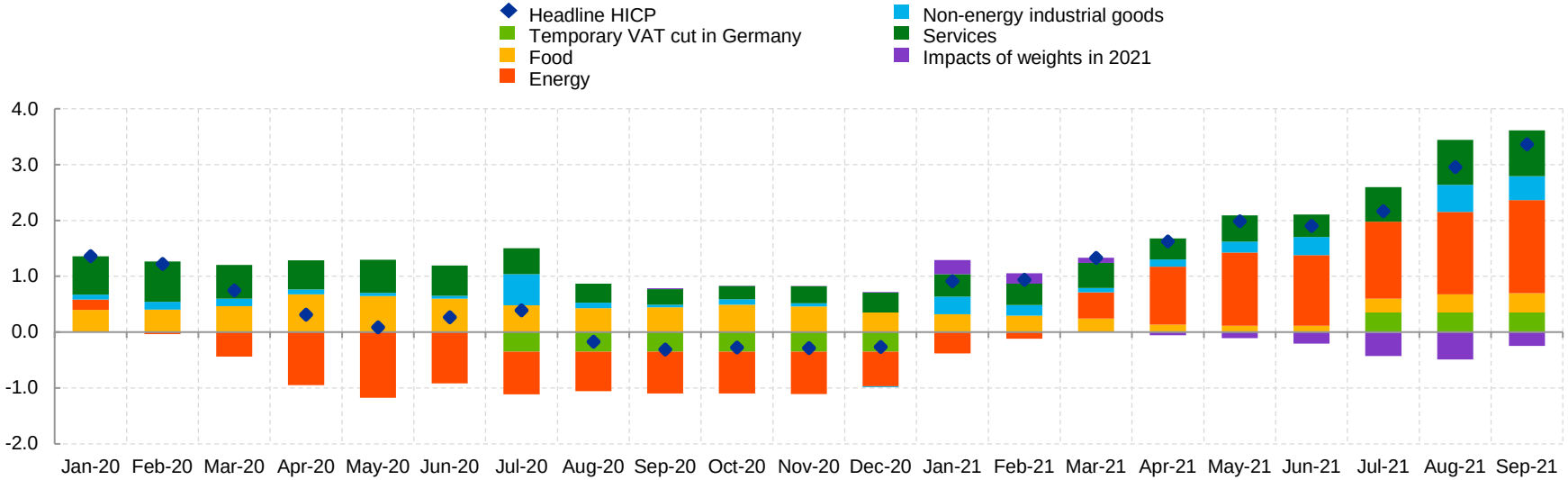
Eurosystem headline annual inflation projections over time
(annual percentage changes)



Source: ECB.
Note: The chart is based on annual inflation data.
Latest observation: August 2021, September 2021 Macroeconomic Projections.

Current increase in inflation is to a large part attributable to pandemic-related, temporary factors

Contributions to annual HICP inflation in the euro area
(annual percentage changes; percentage point contributions)

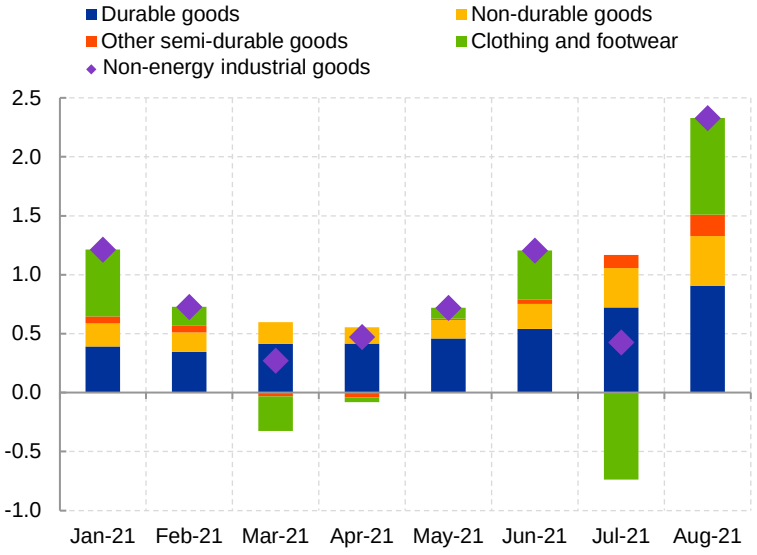


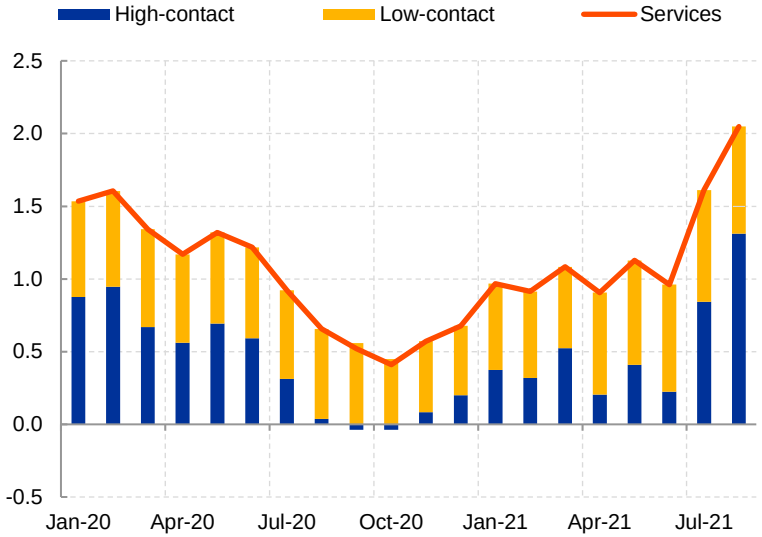
Source: Eurostat, Deutsche Bundesbank, September narrow inflation projection exercise (NIPE) and ECB calculations.
Notes: Contributions from main HICP components exclude the impact of changes in HICP weights and the VAT rate cut in Germany. The impact of weight changes is estimated by the ECB. The contribution made by the temporary VAT cut in Germany is based on estimates provided in the Deutsche Bundesbank's November 2020 Monthly Report.
Latest observation: September 2021 (flash estimate).

Supply chain disruptions and services inflation may have a more durable impact on price dynamics

Non-energy goods and services inflation

(annual percentage changes; percentage point contributions)

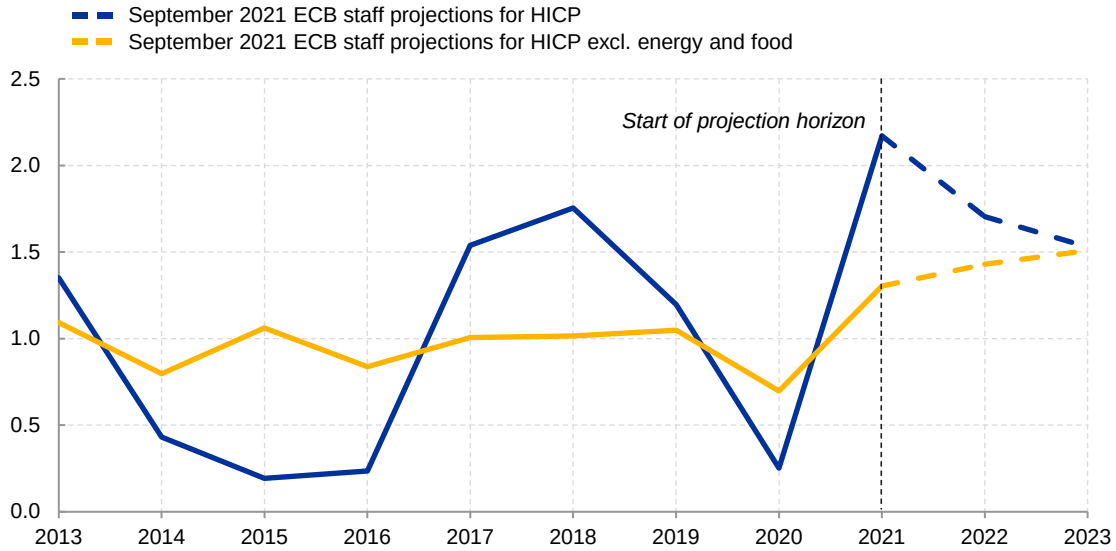




Sources: Eurostat and ECB staff calculations.
Note: Series are shown with constant 2020 weights.
Latest observations: August 2021.

Headline inflation is projected to fall back below 2% in the medium term

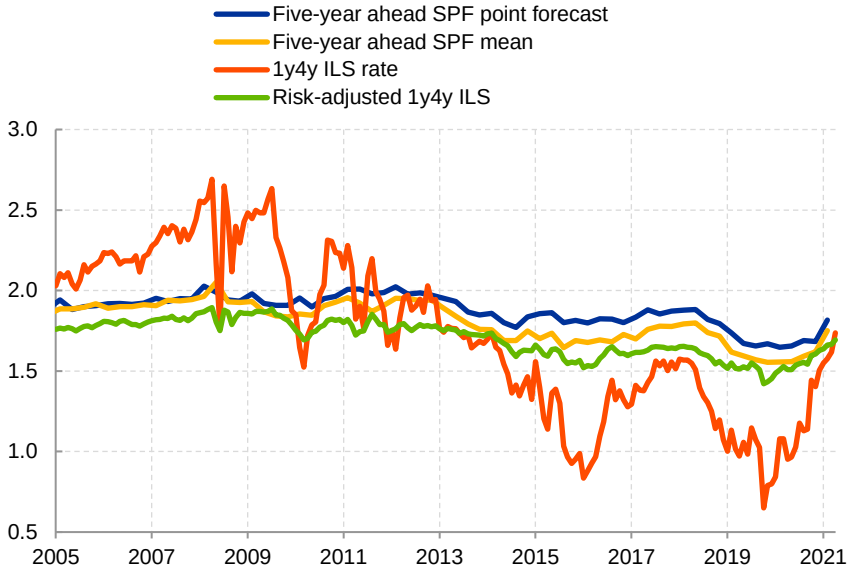
Eurosystem inflation projections
(annual percentage changes)



Source: ECB.
Note: The chart is based on annual inflation data.
Latest observation: August 2021, September 2021 Macroeconomic Projections.

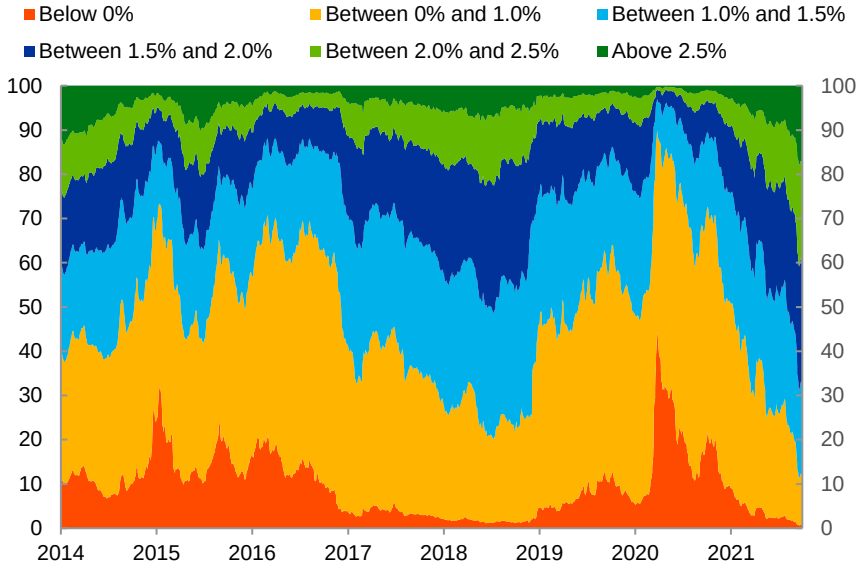
Notable upward movement in market-based and survey-based inflation expectations

Survey and market-based measures of inflation expectations *(percentage)*



Source: Bloomberg, Refinitiv and Eurosystem staff calculations.
Notes: SPF stands for Survey of Professional Forecasters. The risk adjustment is based on an affine term structure model and fitted to the euro area zero-coupon inflation-linked swaps (ILS) curve. The estimation method follows Joslin et al. (2011). For details, see Camba-Mendez and Werner (2017).

Probability of average inflation over the next five years *(percentage)*

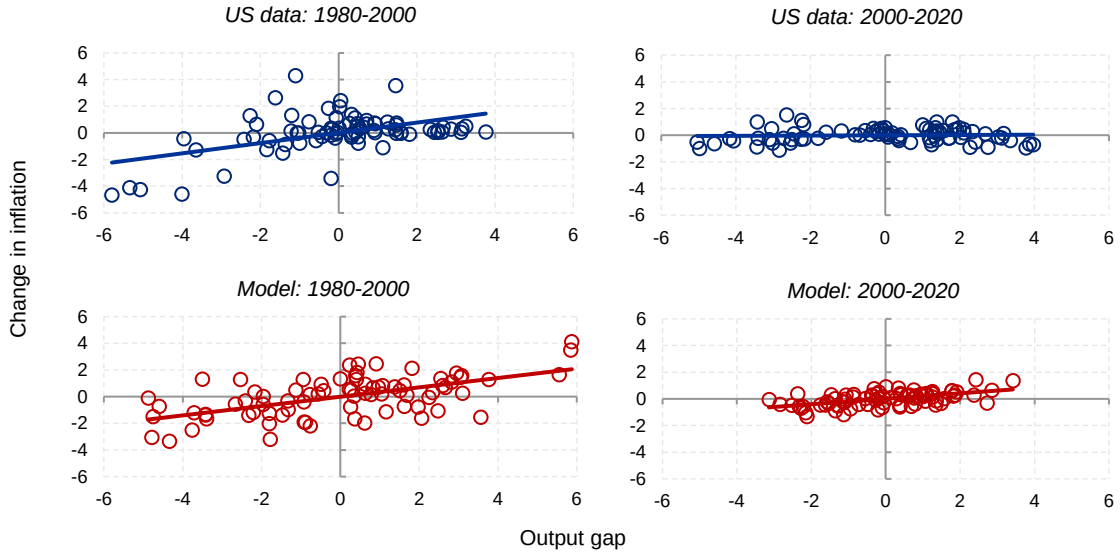


Source: Bloomberg, Refinitiv, ECB calculations.
Notes: Probabilities implied by five-year zero-coupon inflation options, smoothed over five business days. Risk-neutral probabilities may differ significantly from physical, or true, probabilities.

Phillips curve seems to have flattened considerably over recent decades

Change in the slope of the Phillips curve

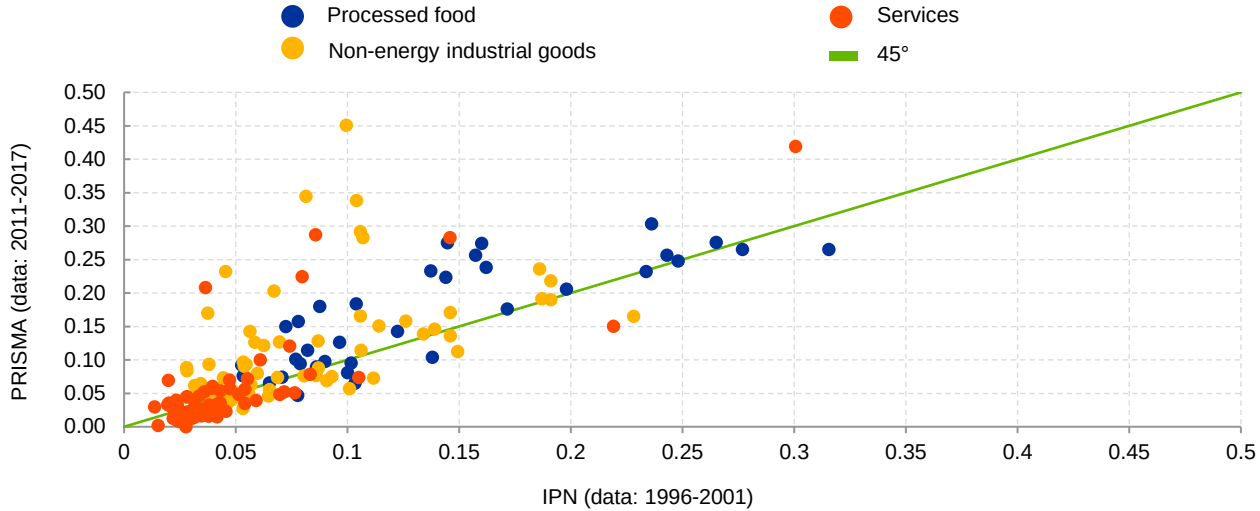
(x-axis: log percentage points, y-axis: percentage points)



Source: Costain, J., Nakov, A. and Petit, B. (2021), "Flattening of the Phillips Curve with State-Dependent Prices and Wages", *The Economic Journal*, July.
Note: The top panels show scatterplots of the change in inflation and the output gap in US data over the periods 1980-2000 and 2000-2020, respectively. The bottom panels illustrate simulated data generated by a model of state-dependent price and wage setting (Costain et al., 2021) for the same time periods. The analysis indicates that the model explains roughly half of the observed flattening of the Phillips curve. According to the model, lower inflation in the second period (2000-2020) has reduced the frequency of price changes, implying a reduced transmission of demand shocks to the aggregate price level.

No noticeable slowdown in the rate of price resets in times of low inflation

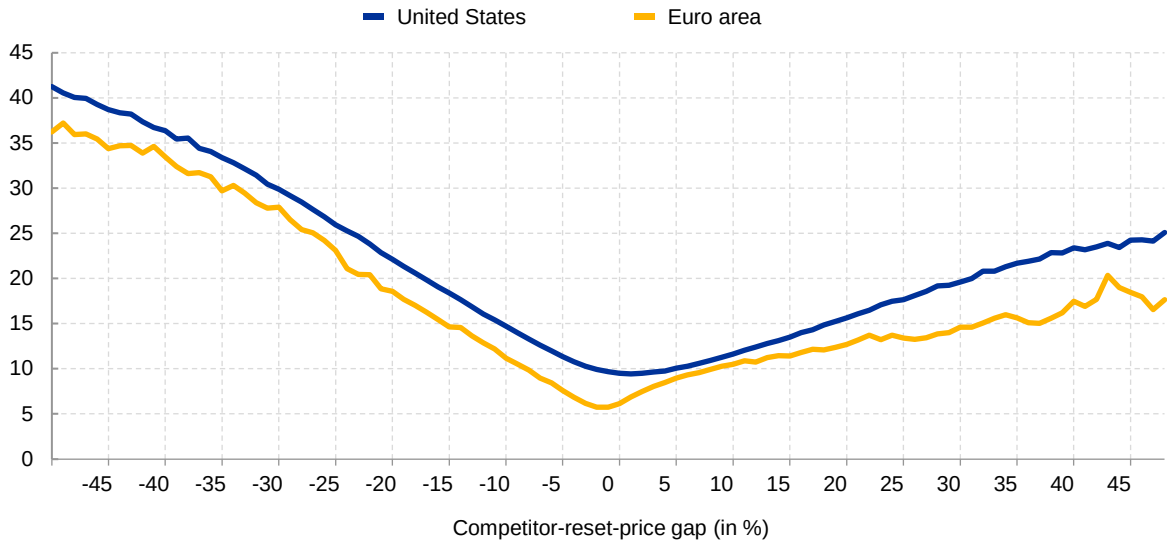
Frequency of price changes: a comparison of IPN (data: 1996-2001) and PRISMA (data: 2011-2017) results
(percentages)



Source: Gautier et al. (2021), "New Facts on Consumer Price Rigidity in the Euro Area", *Working Paper Series*, ECB (forthcoming).
Note: The chart shows the frequency of price changes documented by the Eurosystem Inflation Persistence Network (IPN) and the Price-Setting Microdata Analysis (PRISMA) network for a set of 50 product categories covered by both studies. From 2003, the IPN conducted an in-depth study of inflation persistence and price rigidity in the euro area by analysing a broad set of macro and micro data covering the period from 1996 until 2001. The IPN has concluded its work. The PRISMA network was set up in 2018 to deepen the understanding of price-setting behaviour and inflation dynamics in the EU by collecting and studying various types of microdata, including data underlying official price indices such as the Consumer Price Index (CPI) and the Producer Price Index (PPI), scanner data and online prices, covering the period from 2011 until 2017. The frequency of price changes displayed in the chart is measured as the fraction of all prices for each of the 50 product categories in the sample that change on a monthly basis.

Probability of price changes depends on extent of mispricing but little evidence of selection

Evidence of state-dependence: repricing probability as a function of the price gap
(percentage)



Source: Karadi, P., Schoenle, R. and Wursten, J. (2021), "Measuring Price Selection in Microdata: It's Not There", *Working Paper Series*, No 2566, ECB.
Note: The figure shows the probability of a price change as a function of mispricing in the euro area and the United States. The V-shape of the curve is consistent with state-dependent price setting: the probability of adjustment steadily increases with the extent of mispricing. The extent of mispricing is proxied as a distance from the average price of the same product among those competitors that reset their prices in the same month. The measure also controls for the persistent heterogeneity among products and stores by eliminating the impact of product-store fixed effects. Additional details on the methodology are available in ECB Working Paper No 2566.

Thank you for your attention!