

# The complexity of monetary policy

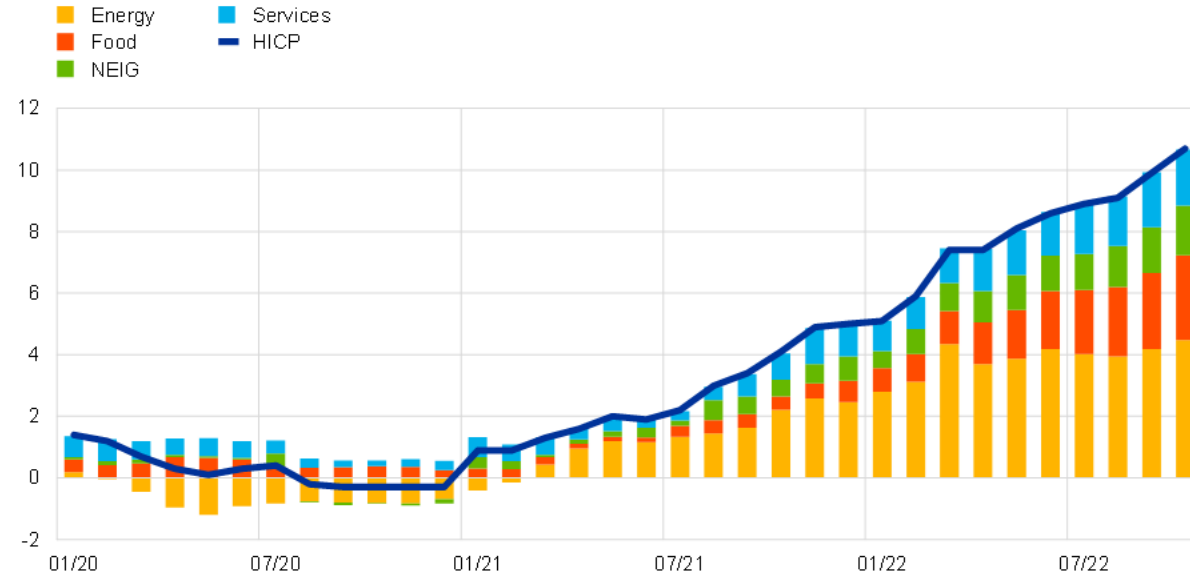
Fabio Panetta, Member of the Executive Board of the ECB

*Keynote speech at the CEPR-EABCN conference on “Finding the Gap: Output Gap Measurement in the Euro Area” held at the European University Institute  
Florence, 14 November 2022*

## Chart 1

### Contributions of components of euro area headline HICP inflation

(annual percentage changes and percentage points contributions)



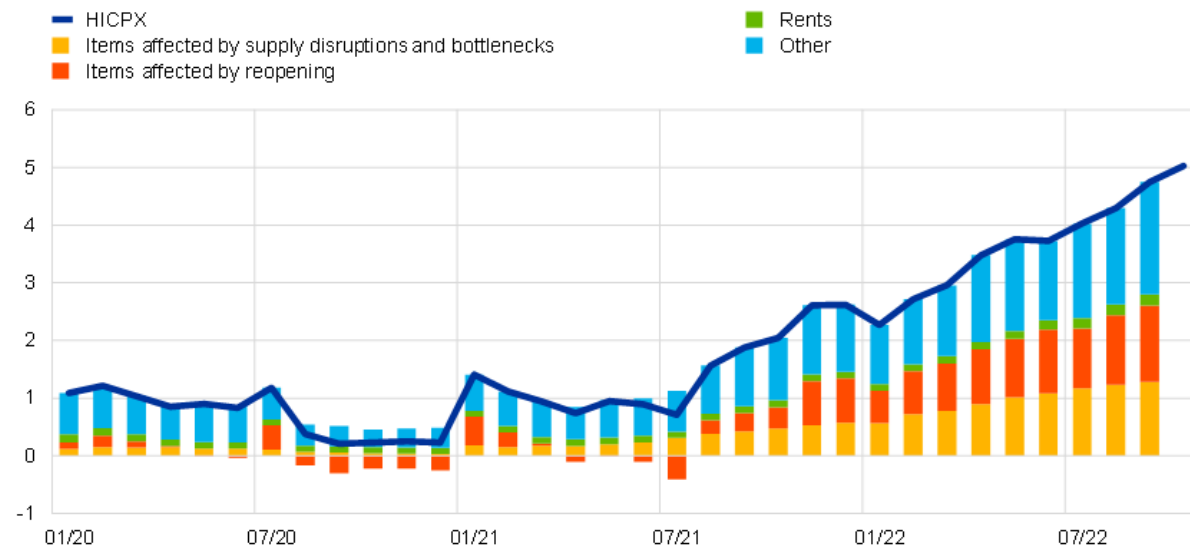
Sources: Eurostat and ECB calculations.

Notes: NEIG stands for "non-energy industrial goods". The latest observation is for October 2022.

## Chart 2

### Decomposition of HICP inflation excluding energy and food

(annual percentage changes and percentage points contributions)



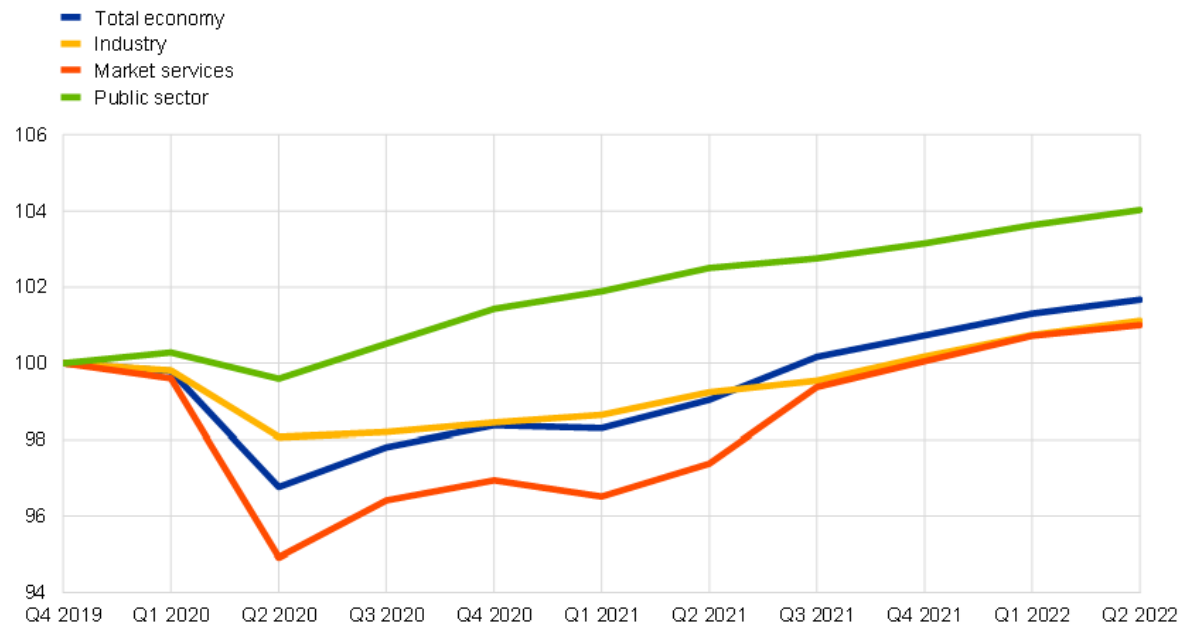
Sources: Eurostat and ECB calculations. See Gonçalves, E. and Koester, G. (2022), "The role of demand and supply in underlying inflation – decomposing HICPX inflation into components".

Notes: Items affected by supply disruptions and bottlenecks comprise new motor cars, second-hand motor cars, spare parts and accessories for personal transport equipment, and household furnishings and equipment (including major household appliances). Items affected by the reopening of the economy comprise clothing and footwear, recreation and culture, recreation services, hotels/motels, and domestic and international flights. The latest observations are for October 2022 (flash) for HICPX and September 2022 for the rest.

### Chart 3

#### Euro area employment across sectors

(index: Q4 2019 = 100)



Source: ECB staff calculations based on Eurostat data.

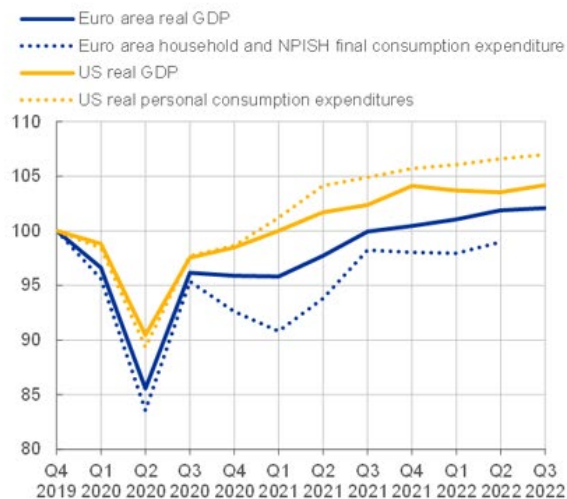
Note: The latest observations are for the first quarter of 2022.

## Chart 4

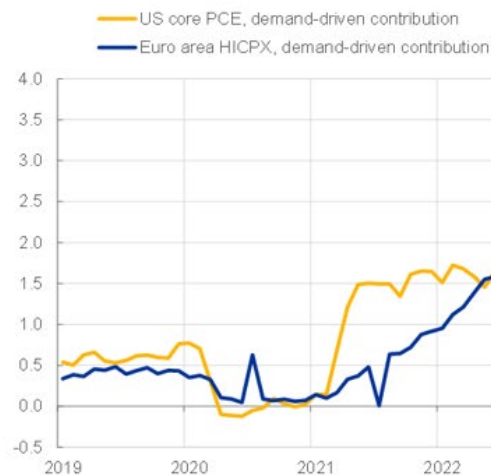
### Evolution of private consumption and demand-driven contributions to core inflation in the euro area and the United States

(percentage points contributions)

#### a) Real GDP and private consumption



#### b) Demand-driven contribution to core inflation

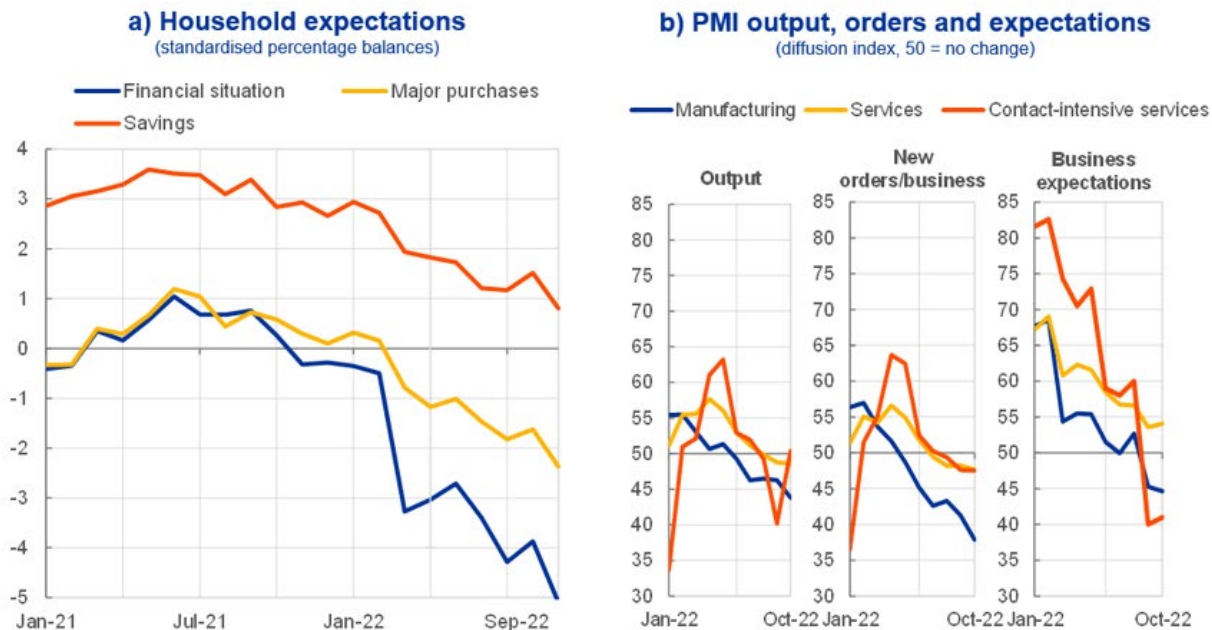


Sources: Panel a): Eurostat, FRED and ECB staff calculations. Panel b): FRBSF/Adam Shapiro, Eurostat and ECB staff calculations.

Notes: Panel a): the latest observation is for the third quarter of 2022, except for euro area household and non-profit institutions serving households (NPISH) final consumption expenditure for which the latest observation is for the second quarter of 2022. Panel b): seasonally adjusted series; based on an application of Shapiro, A.H. (2022), "How Much Do Supply and Demand Drive Inflation?", FRBSF Economic Letter, No 2022-15, Federal Reserve Bank of San Francisco, 21 June; and Shapiro, A.H. (2022), "Decomposing Supply and Demand Driven Inflation", *Working Papers*, No 2022-18, Federal Reserve Bank of San Francisco, October. For euro area results see Gonçalves, E. and Koester, G. (2022): "The role of demand and supply in underlying inflation – decomposing HICPX inflation into components", *Economic Bulletin*, Issue 7, ECB. The latest observations are for August 2022 for the euro area and September 2022 for the United States.

## Chart 5

### Euro area household expectations and Purchasing Managers' Index



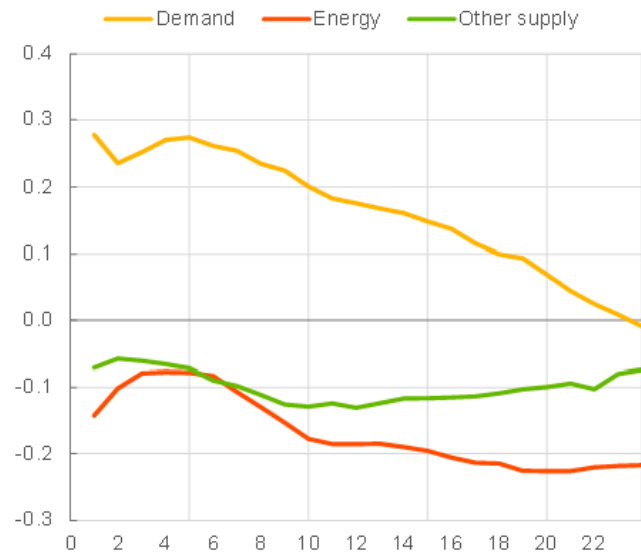
Sources: Panel a): DG-ECFIN and ECB staff calculations. Panel b): S&P Global.

Notes: Panel a): expectations for the next 12 months, standardised over the period January 1985 to December 2019. The latest observation is for September 2022. Panel b): the latest observation is for October 2022.

## Chart 6

### GDP response to demand and supply shocks

(y-axis: percentage change in response to one-standard deviation demand and supply shocks, x-axis: months)



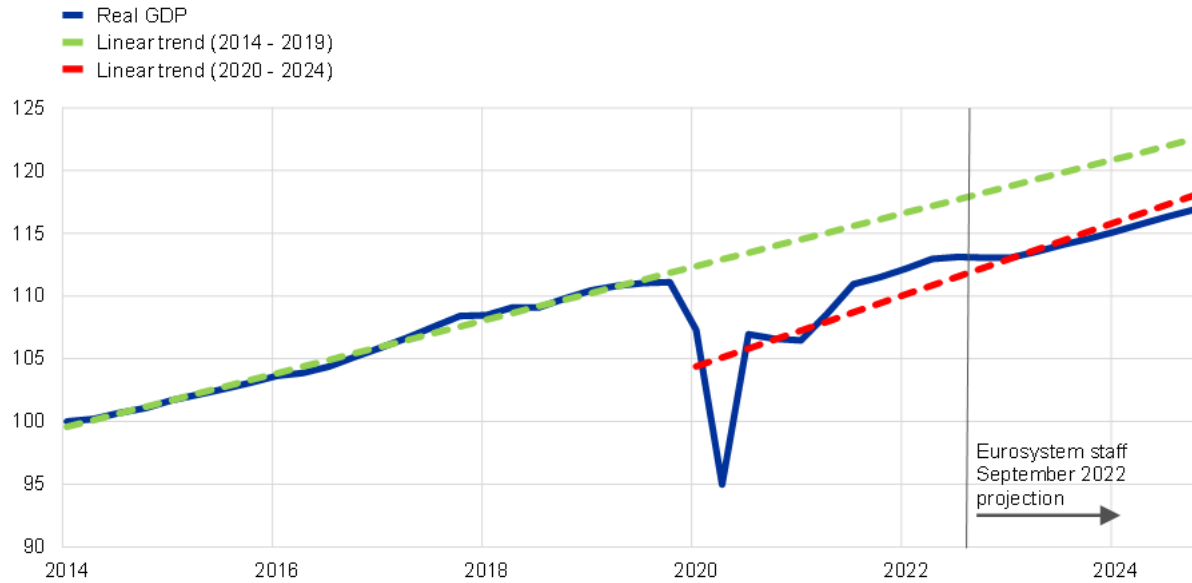
Sources: ECB staff calculations.

Notes: The Bayesian SVAR includes monthly interpolated GDP, HICP, ten-year OIS rate, HICP energy and PMI suppliers' delivery times. The SVAR is estimated using the Minnesota prior with the dummy coefficient prior. Shocks are identified using sign and narrative restriction methods. Technical details on the method can be found in De Santis, R. A. and Van der Veken, W. (2022), "Deflationary Financial Shocks and Inflationary Uncertainty Shocks: An SVAR Investigation", *Working Paper Series*, No 2727, ECB.

## Chart 7

### Euro area real GDP

(index 2014 = 100)



Sources: ECB staff macroeconomic projections and calculations.

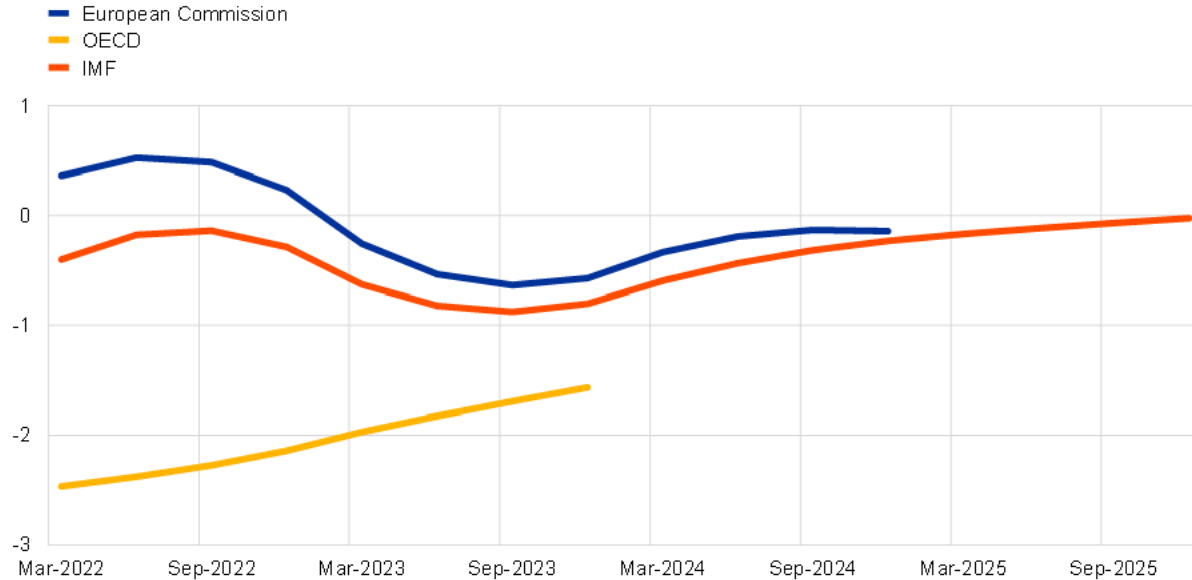


## Chart 8

### Euro area output gap

#### Measures of the euro area output gap across a suite of models

(percentage of potential output)



Sources: European Commission's Autumn 2022 European Economic Forecast, OECD's June 2022 Economic Outlook and IMF's November 2022 World Economic Outlook. Quarterly estimates are interpolated from annual data.

**Thank you for your attention!**