

# **BANK OF ENGLAND WATCHERS' CONFERENCE 2024**

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# BANK OF ENGLAND WATCHERS' CONFERENCE 2024

## KEYNOTE SPEECH



**Clare Lombardelli**  
Deputy Governor  
Bank of England



**Francine Lacqua**  
Bloomberg





**Bank of England**

# Managing the present, shaping the future

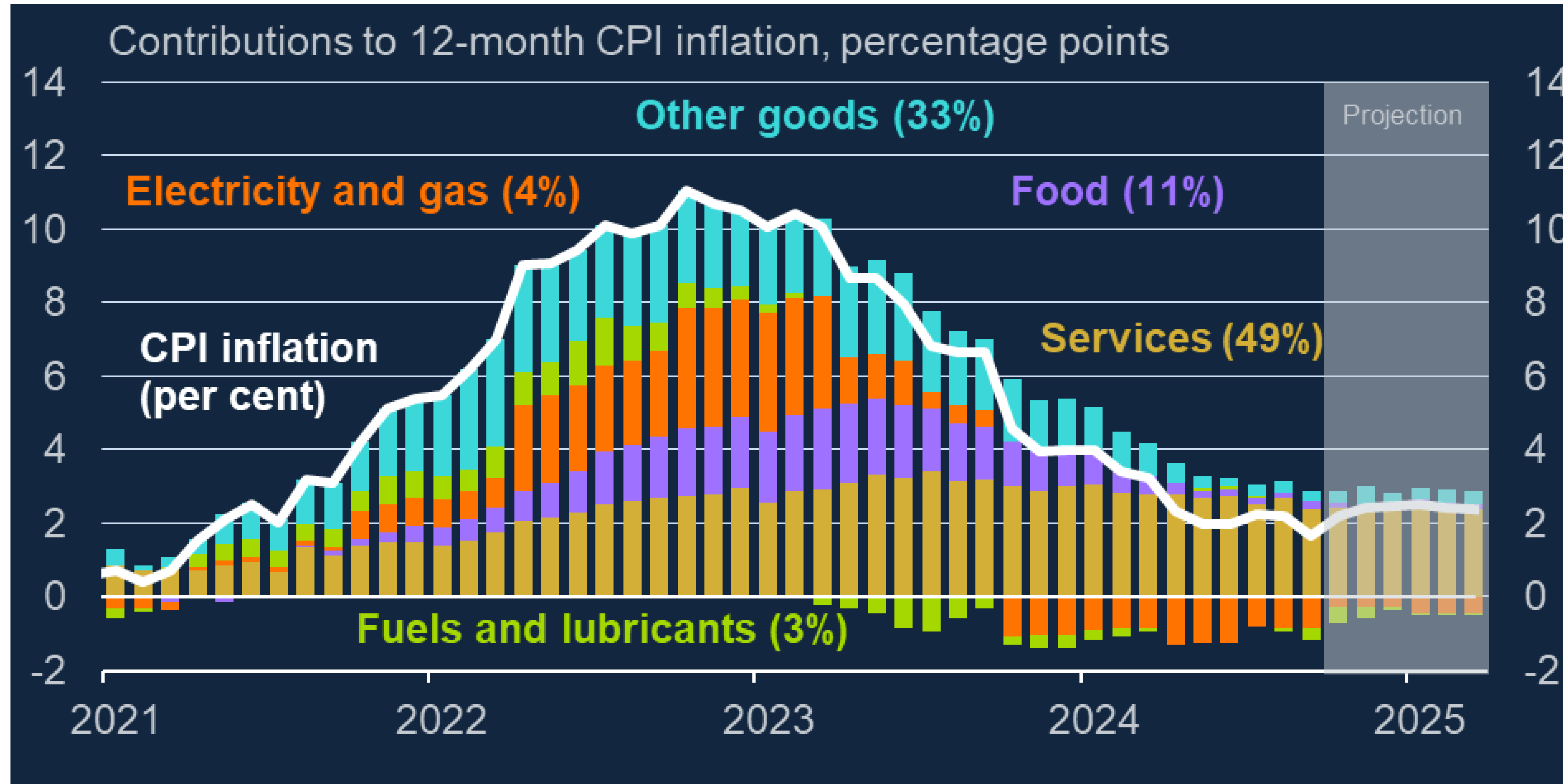
Speech by Clare Lombardelli

Deputy Governor for Monetary Policy

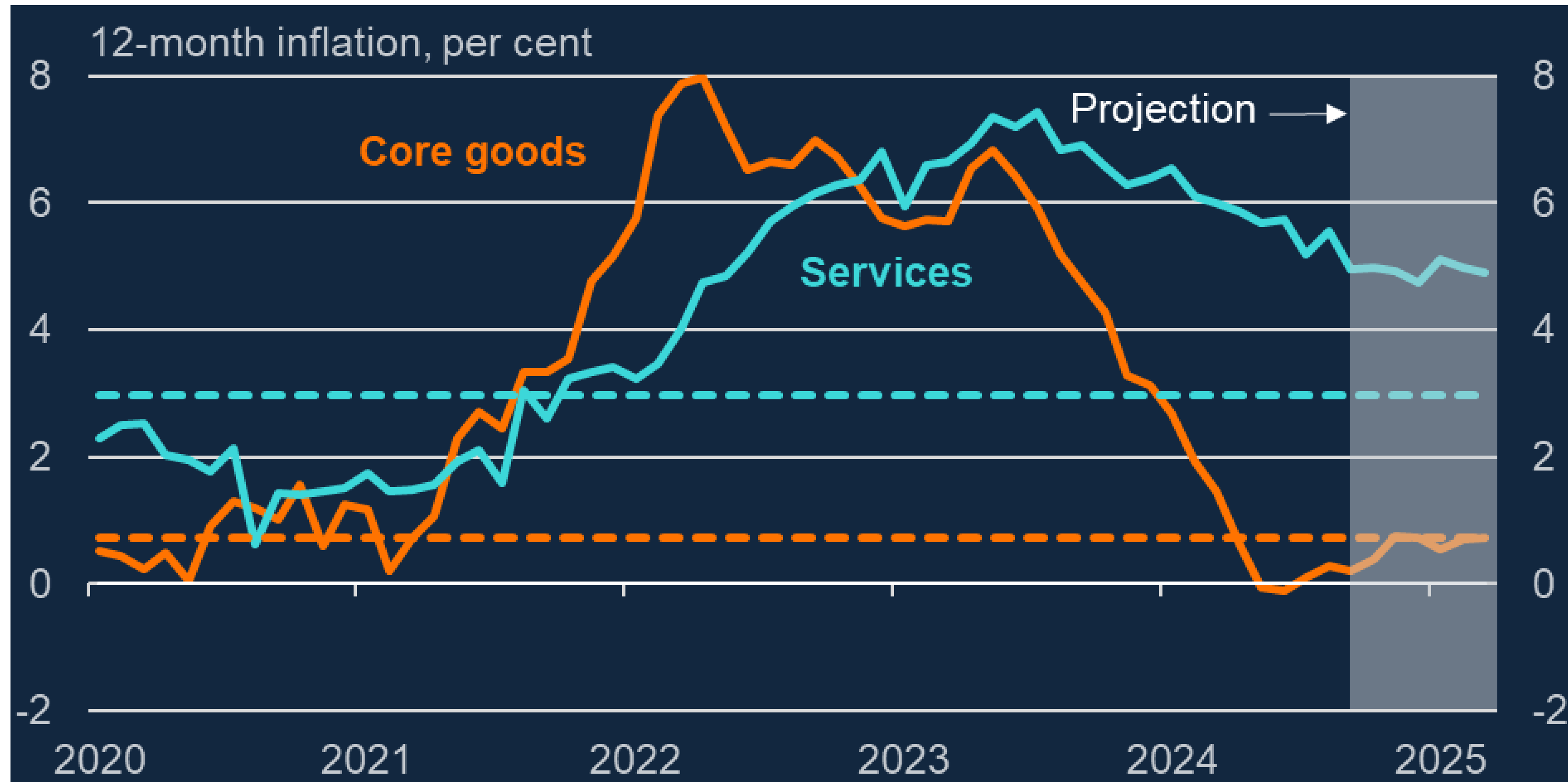
Bank of England Watchers Conference, London, 25 November 2024



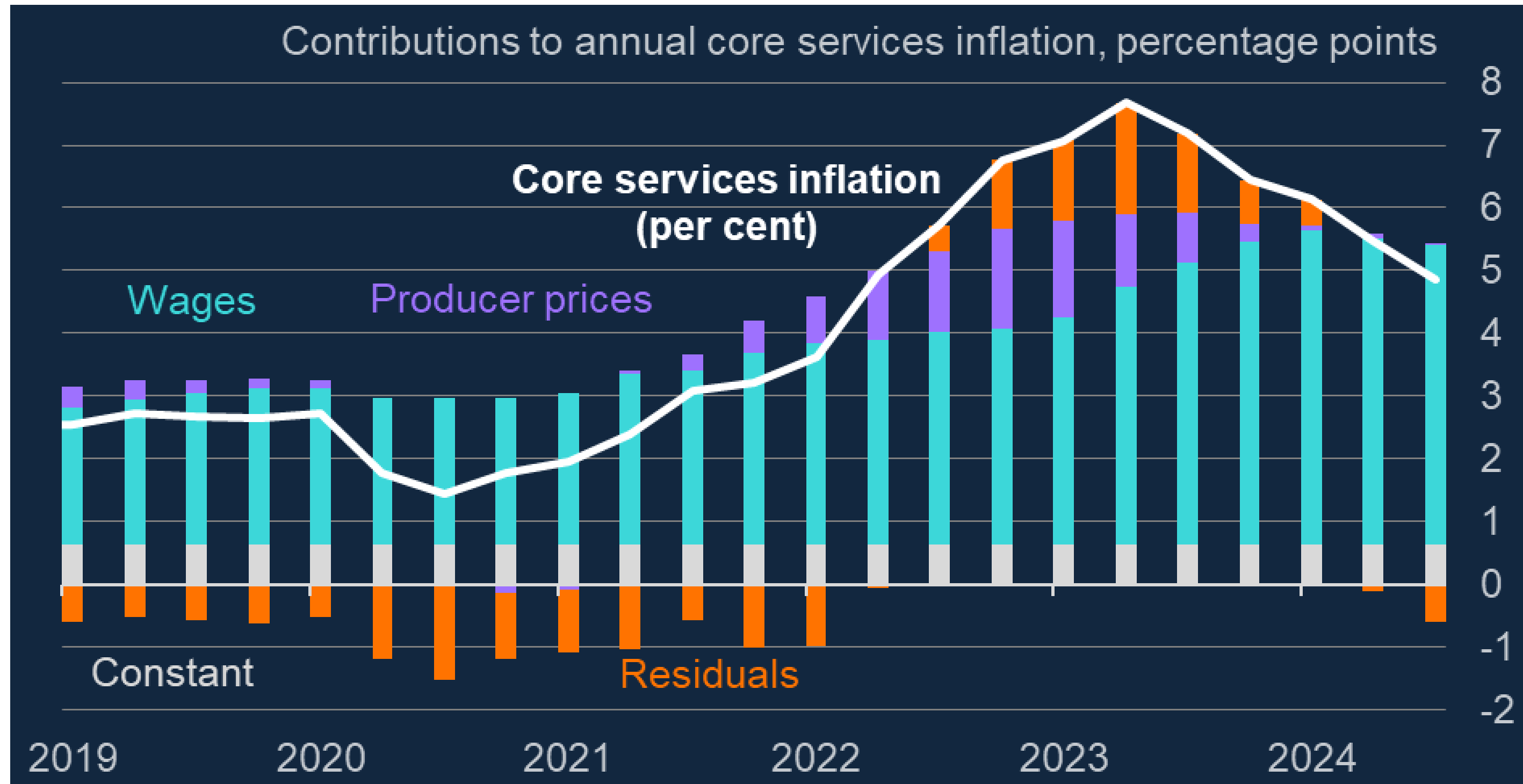
# 1. External shocks have driven the large rise and then fall in inflation



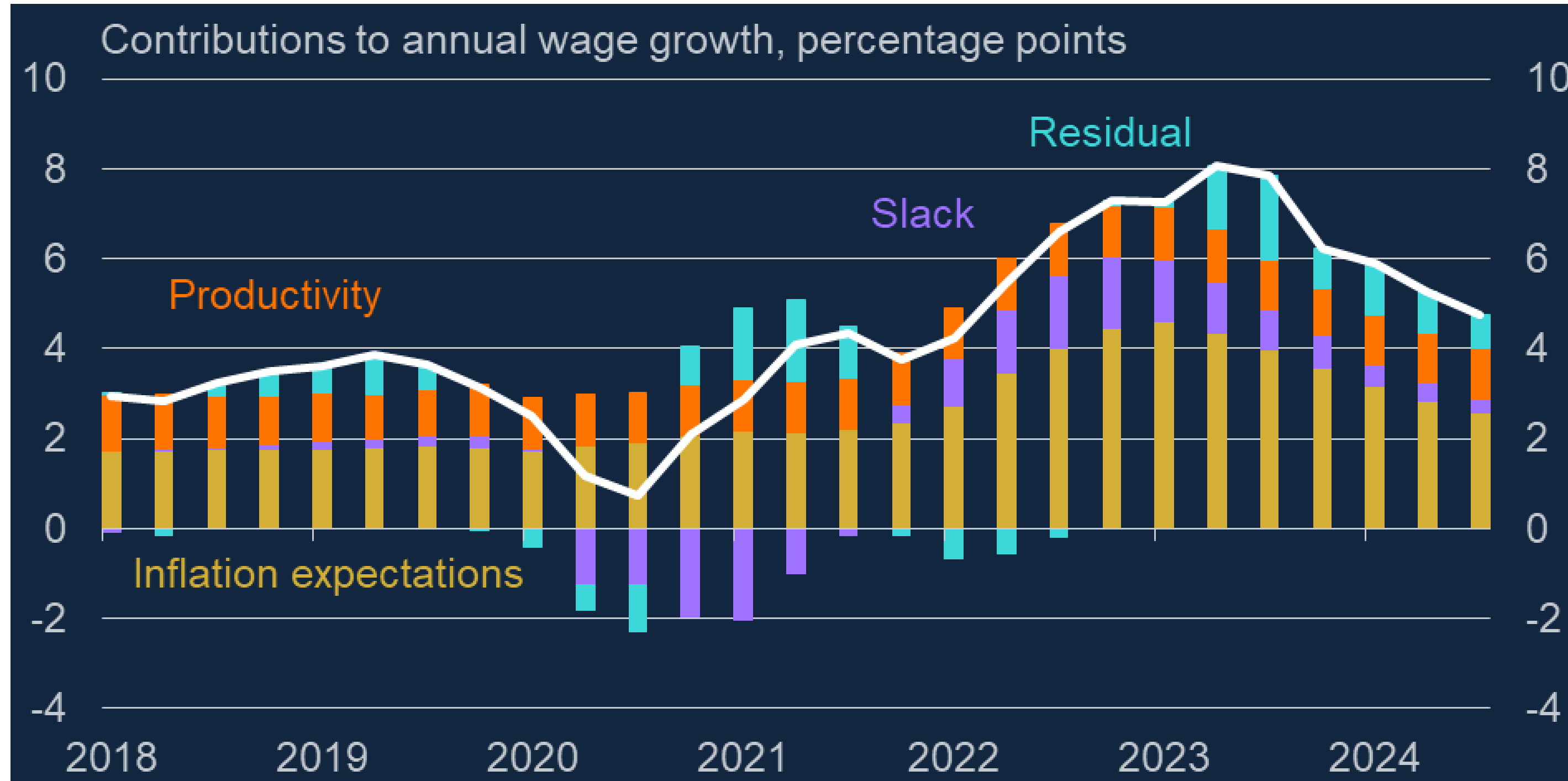
## 2. Services inflation is still above its pre-pandemic average



### 3. Wage growth is a material driver of services inflation



## 4. Wage growth has fallen back but is still above pre-pandemic rates



## 5. The DMP Survey suggests wage disinflation may be slowing





## 6. The MPC set out three “cases” for the UK economy

### Case 1

Disinflation is driven by unwind of external shocks, which continues to feed through to weaker pay and price-setting dynamics, without the need for a period of economic slack.

### Case 2

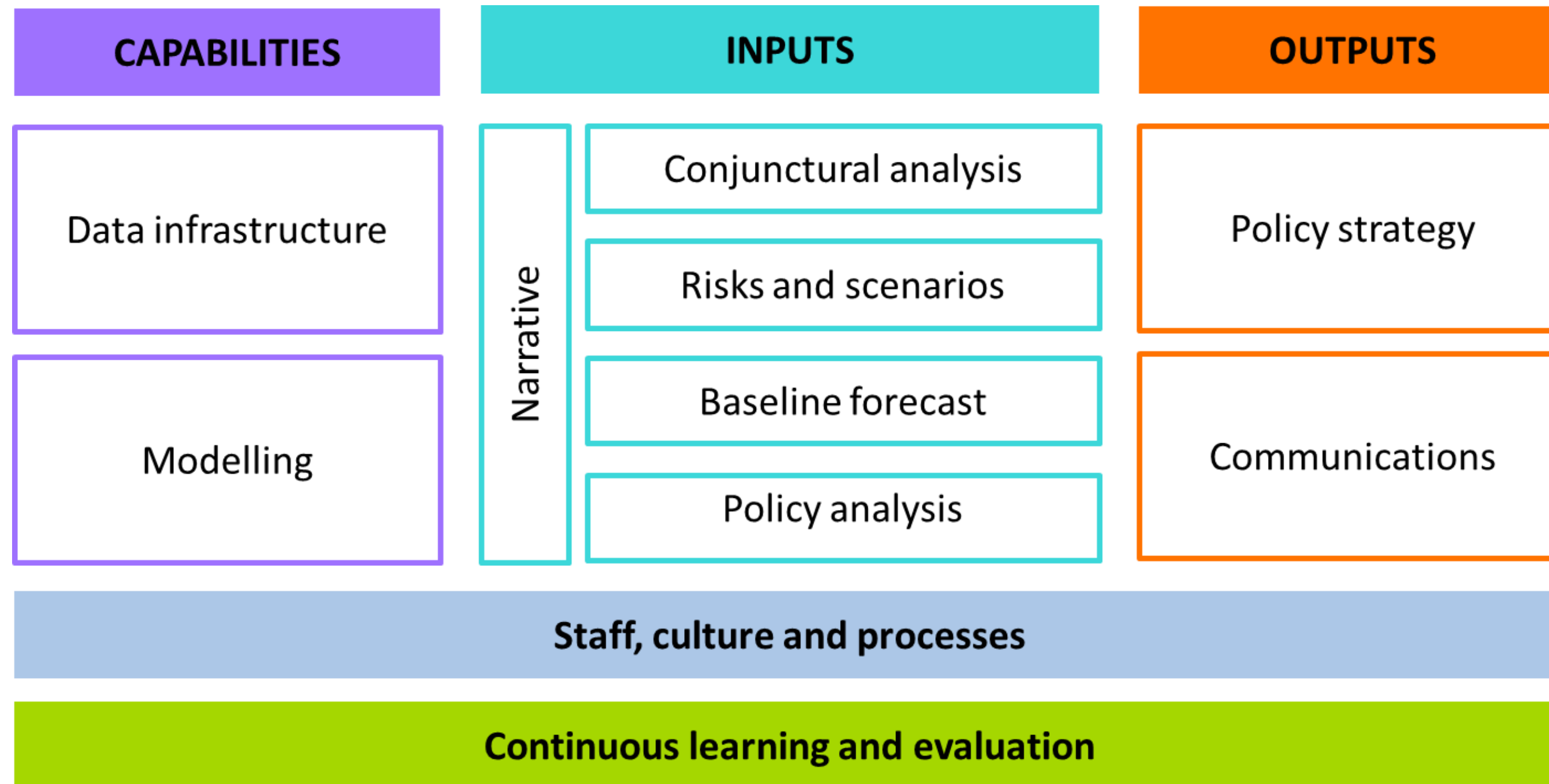
Disinflation is driven by unwind of external shocks, but a period of economic slack is needed for inflation to return to target on a sustainable basis.

### Case 3

Deeper structural changes in the UK economy threaten to impart a more lasting inflationary dynamic, if not met with an equally lasting restrictive monetary policy response.



# 7. The elements of our monetary policy transformation programme









# **BANK OF ENGLAND WATCHERS' CONFERENCE INFLATION DYNAMICS**

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# Inflation Dynamics

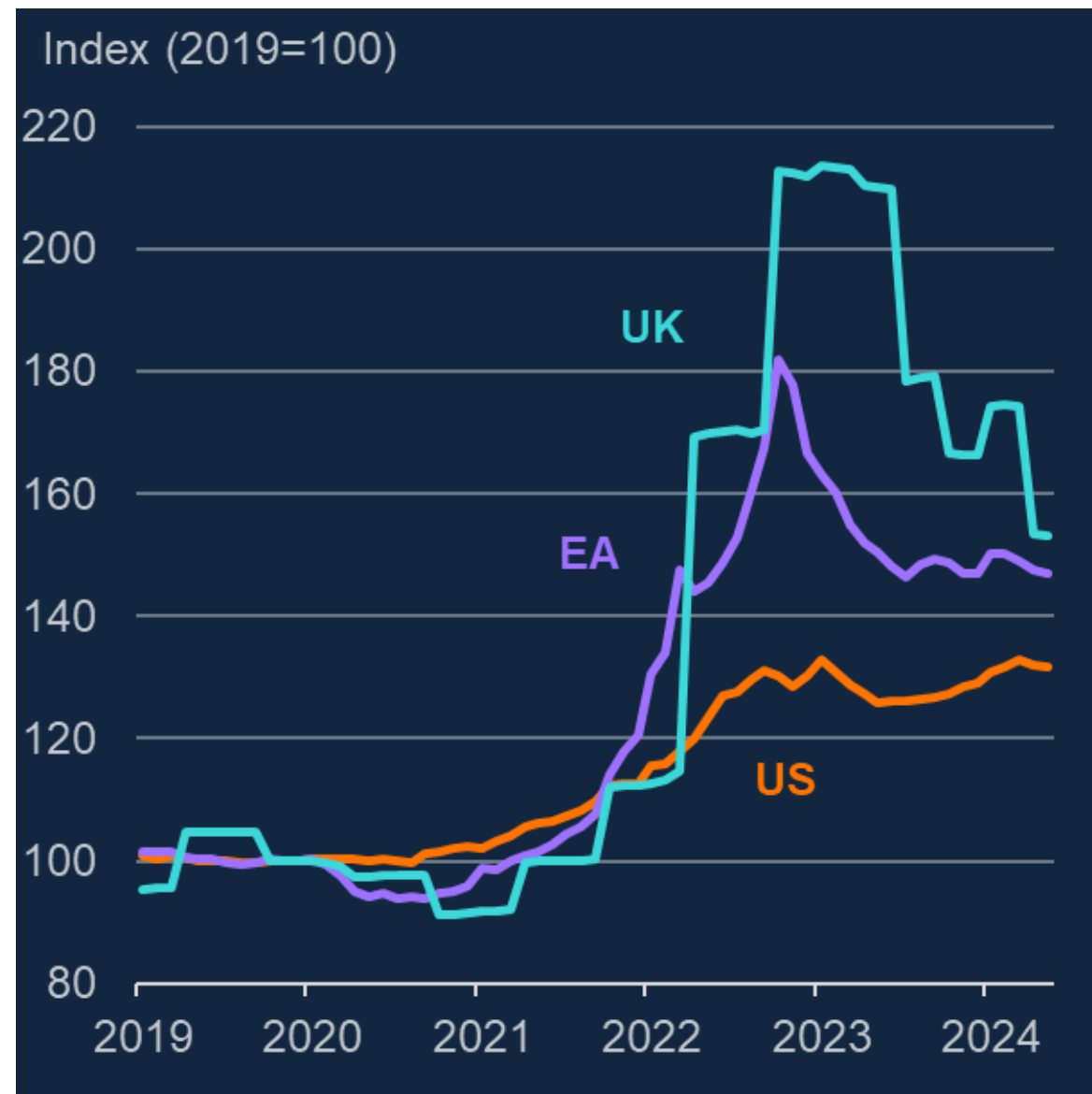
Bank of England Watchers Conference,  
25 November 2024

**Swati Dhingra**  
External Member of the Monetary Policy Committee

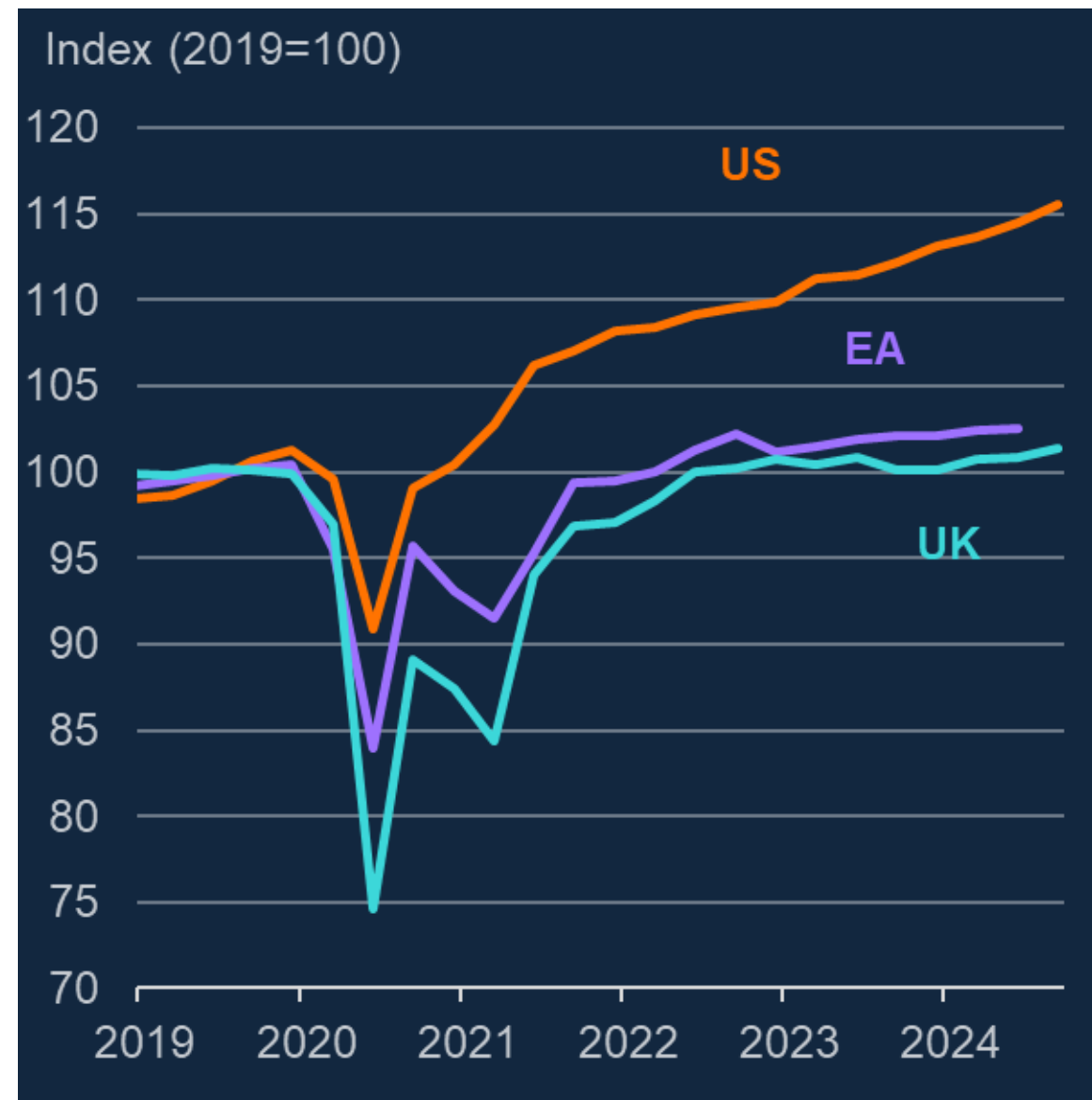


# Shocks and adjustment to the pandemic differed across regions

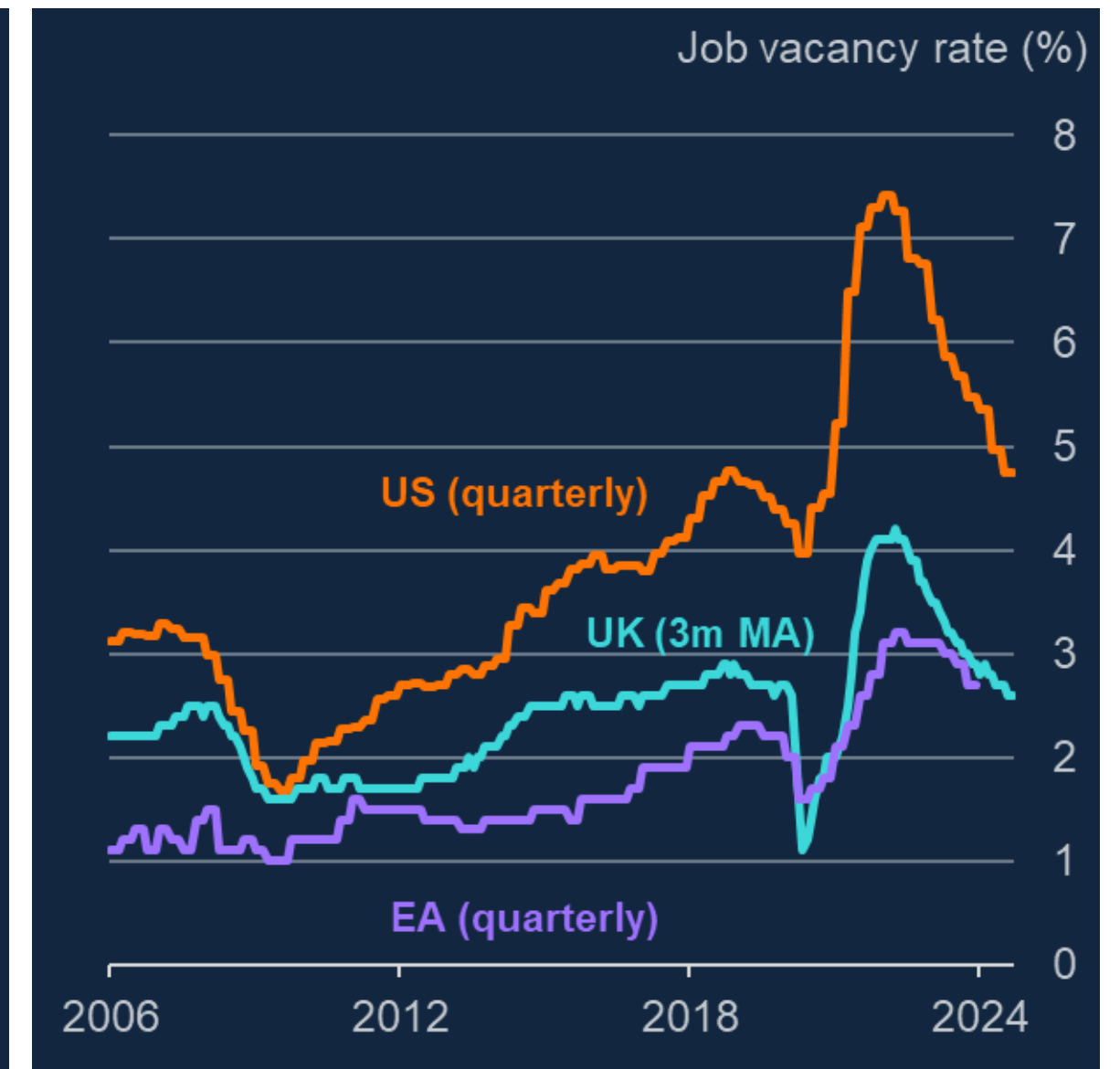
## Energy price shock



## Consumption trends



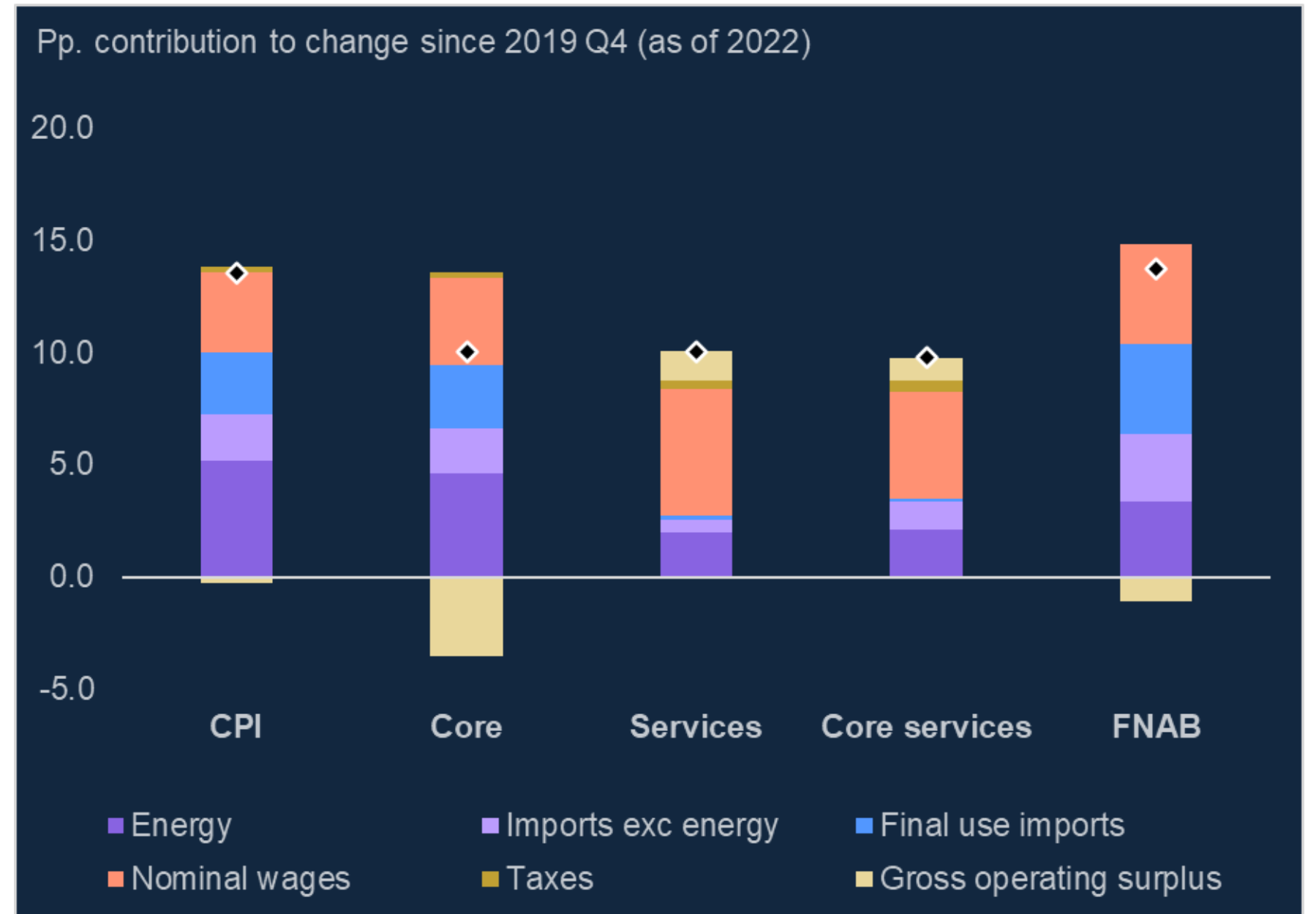
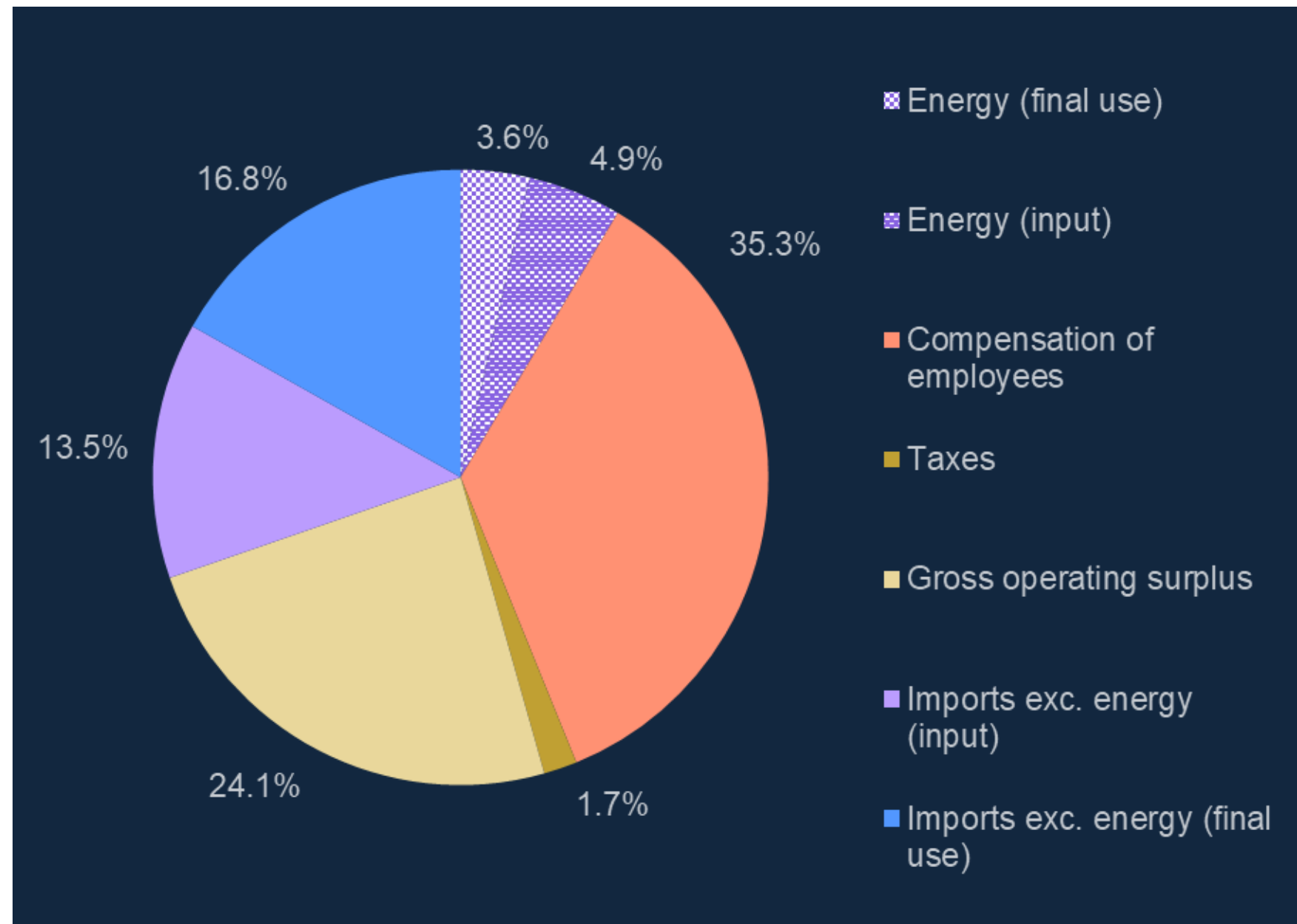
## Labour market dynamics





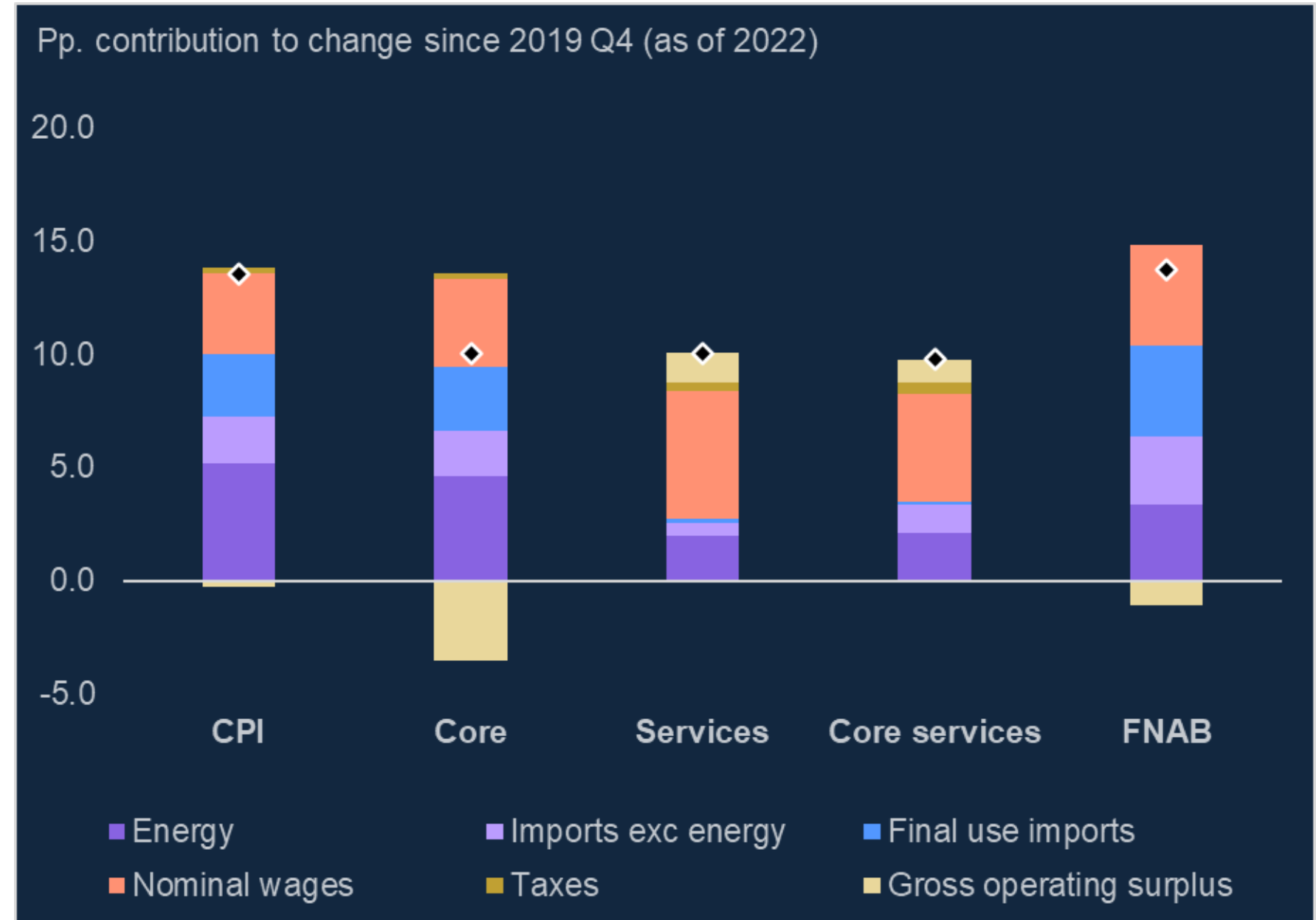
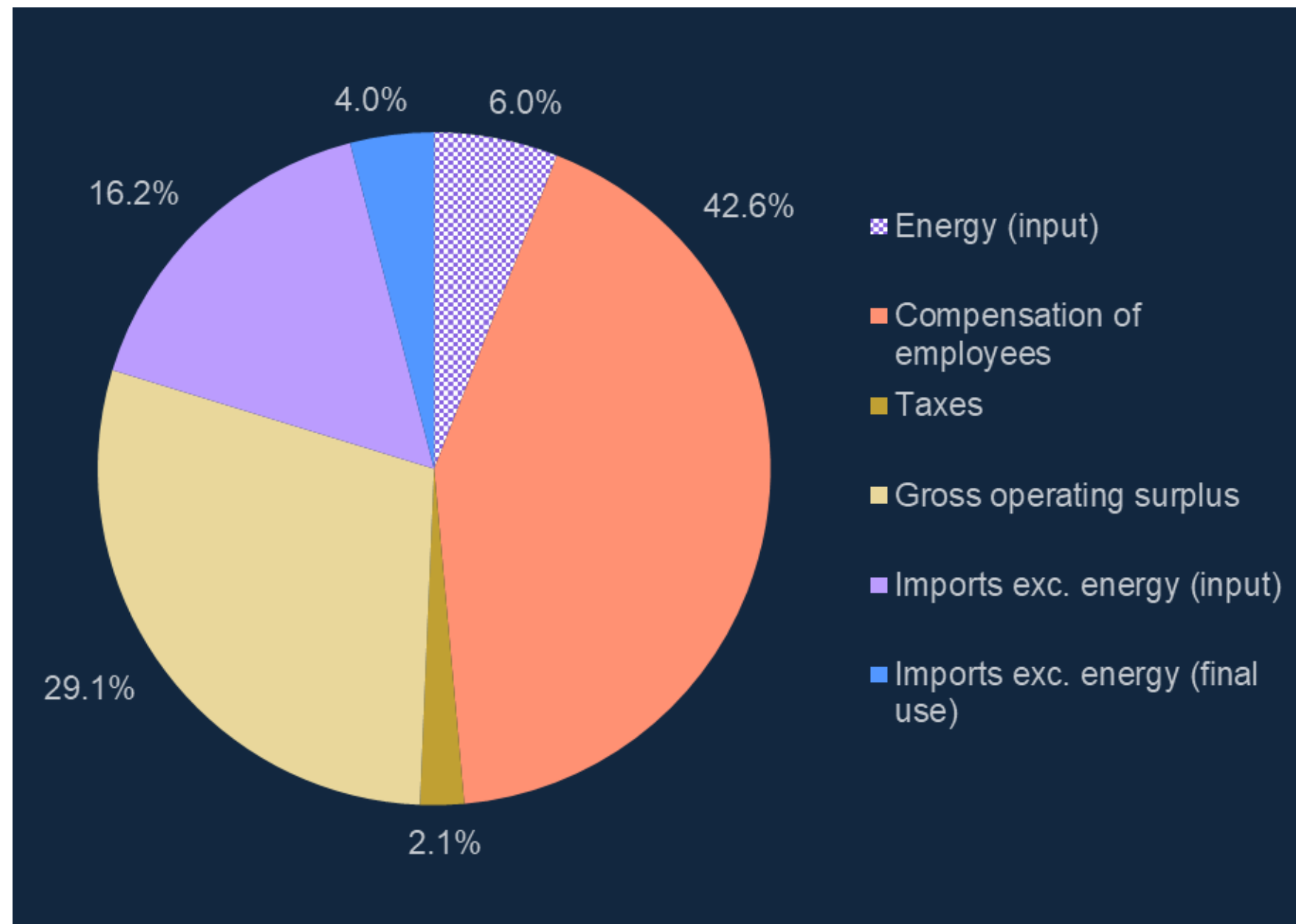
# Huge terms of trade shock, 2022

- Underlying cost components and residual gross operating surplus (GOS) shares of consumption basket
- Compare energy's 8.5% share with 5.1% in the Euro Area
- Decomposing consumer price inflation and narrower price growth measures in terms of cost components and GOS
- Energy and imports contributed 10 of 13.5pp to CPI



# Huge terms of trade shock, 2022 – even in services excluding rent

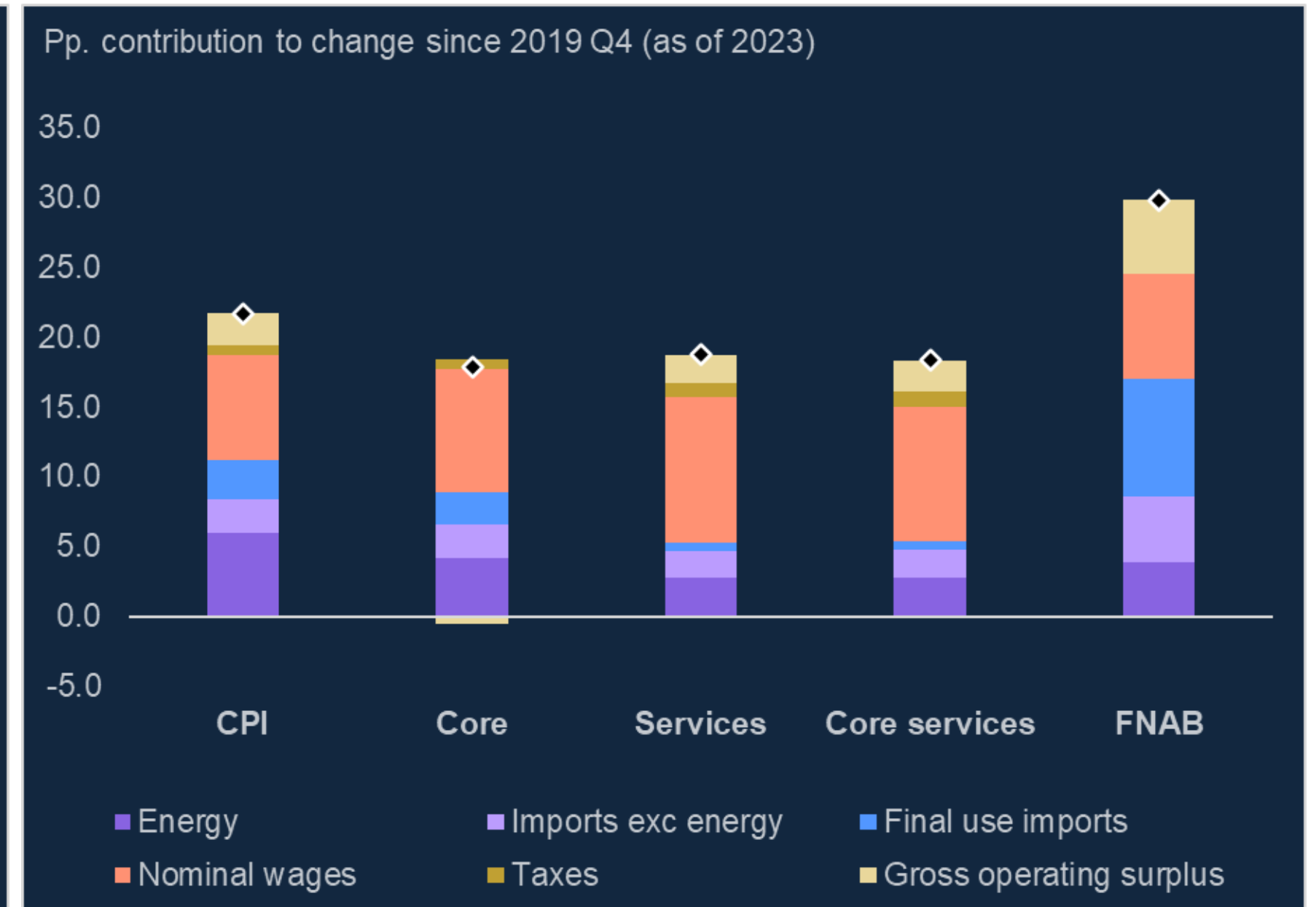
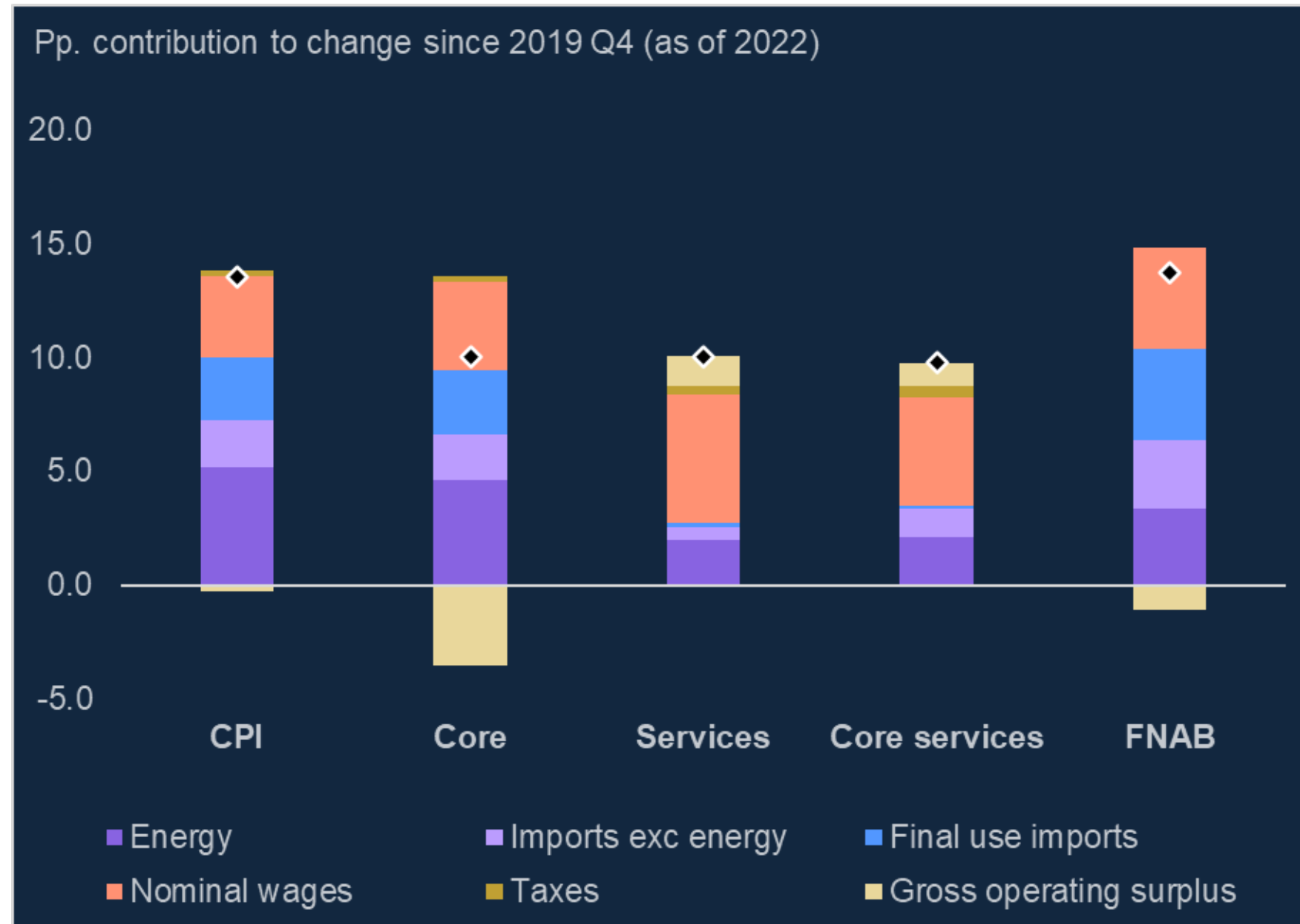
- Underlying cost components and residual gross operating surplus (GOS) shares of services inflation excluding rent
- Compare energy's 6.0% share with 4.5% in the Euro Area
- Decomposing consumer price inflation and narrower price growth measures in terms of cost components and GOS
- Energy and imports contributed 2.8 of 10.1pp to Services





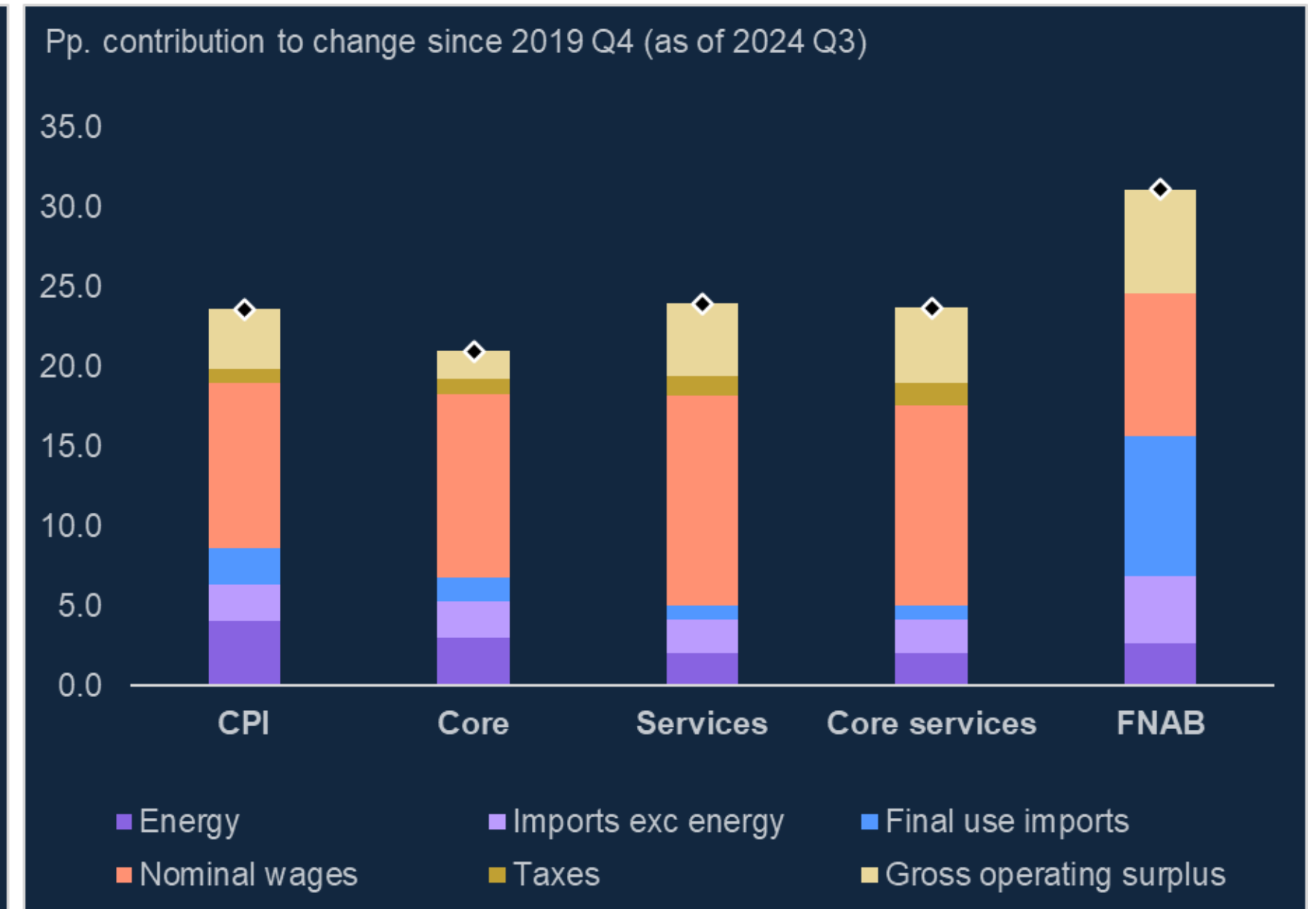
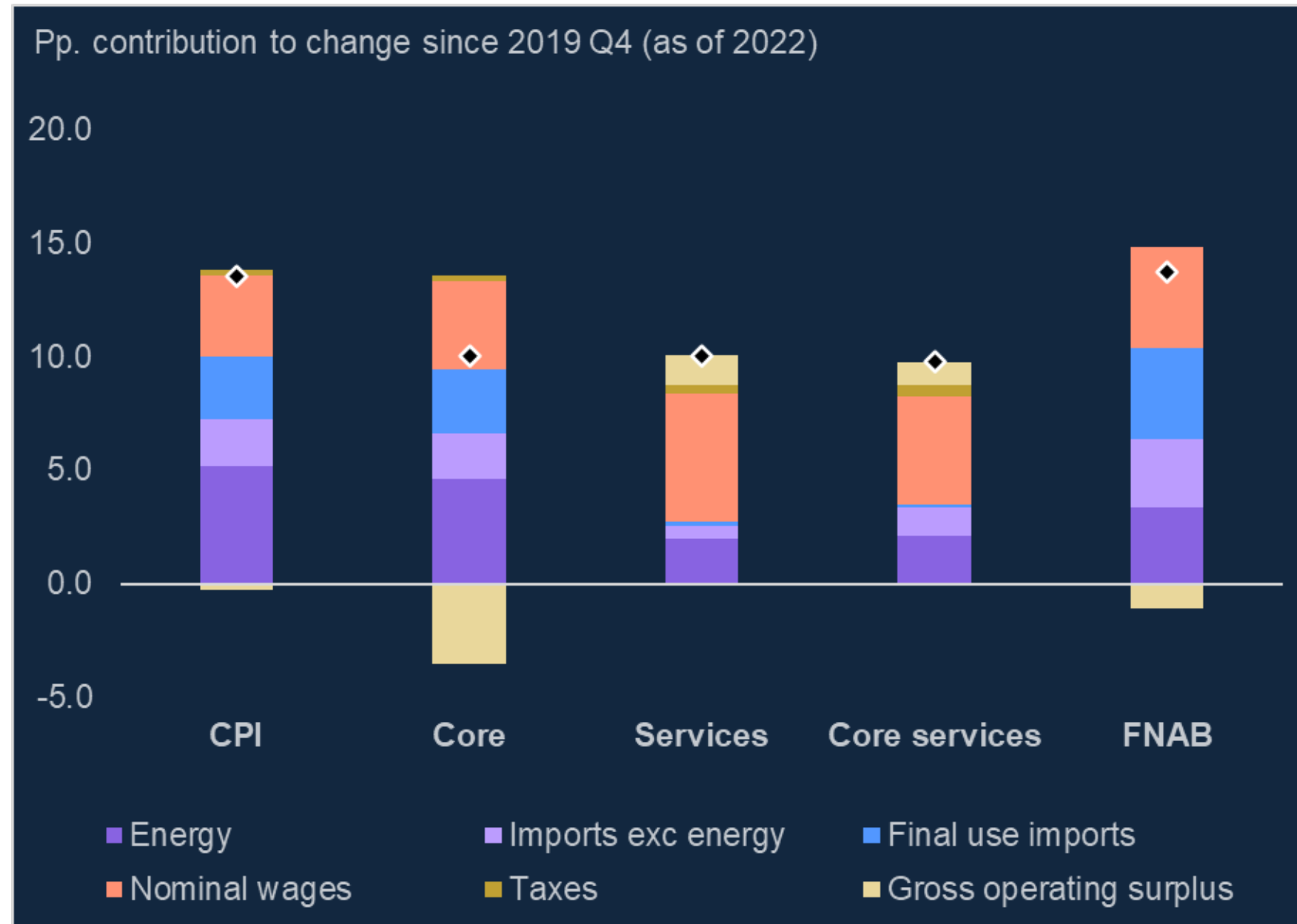
# Huge terms of trade shock, 2023

- Decomposing consumer price inflation and narrower price growth measures in terms of cost components and GOS
- 2022 to the left and 2023 to the right
- Energy and imports contributed 10 of 13.5pp to CPI in 2022 and 11.2 of 21.7pp in 2023



# Huge terms of trade shock, 2024

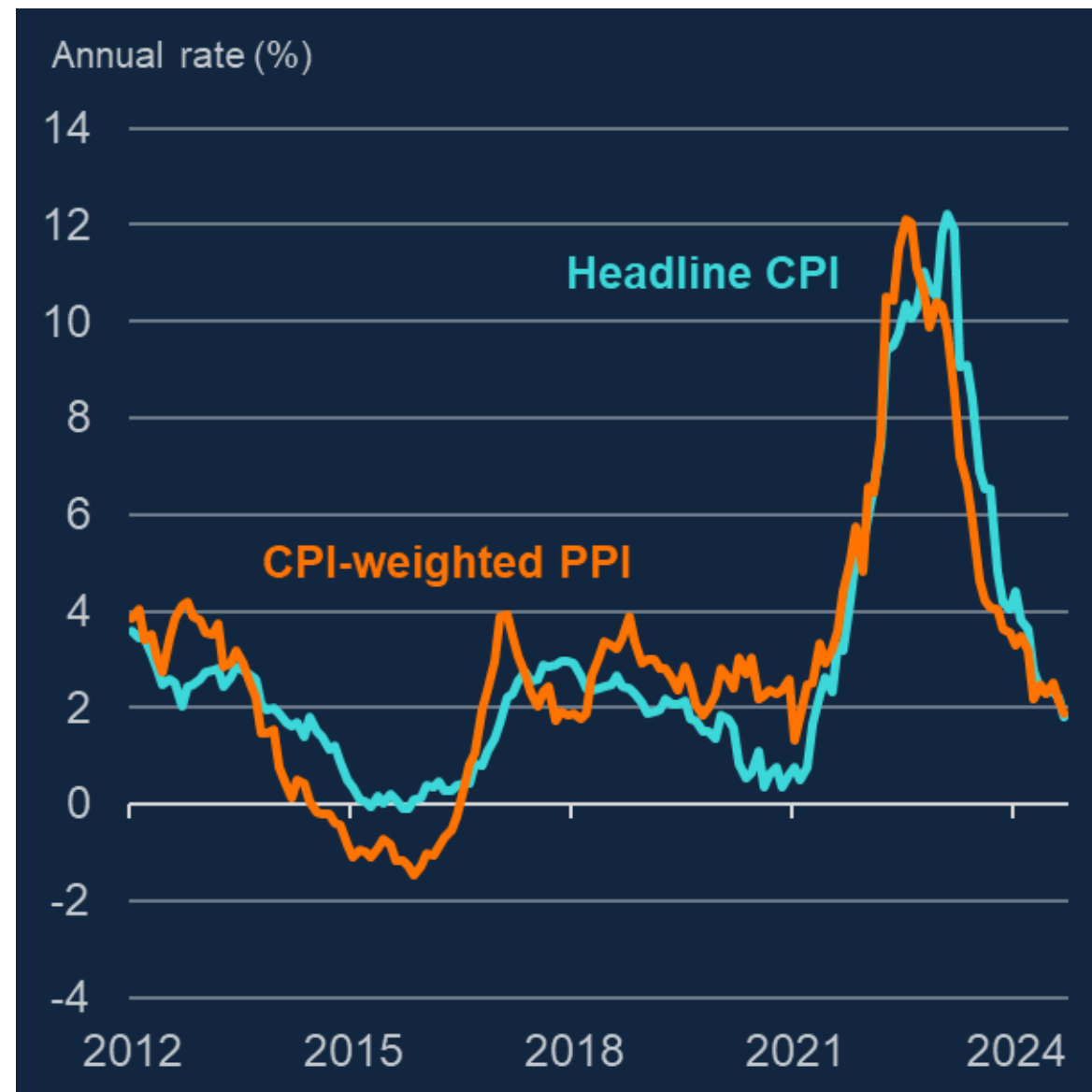
- Decomposing consumer price inflation and narrower price growth measures in terms of cost components and GOS
- 2022 to the left and 2024 to the right
- Energy and imports contributed 10 of 13.5pp to CPI in 2022 and 11.2 of 21.7pp in 2023 and 8.6 of 23.7pp by 2024Q3



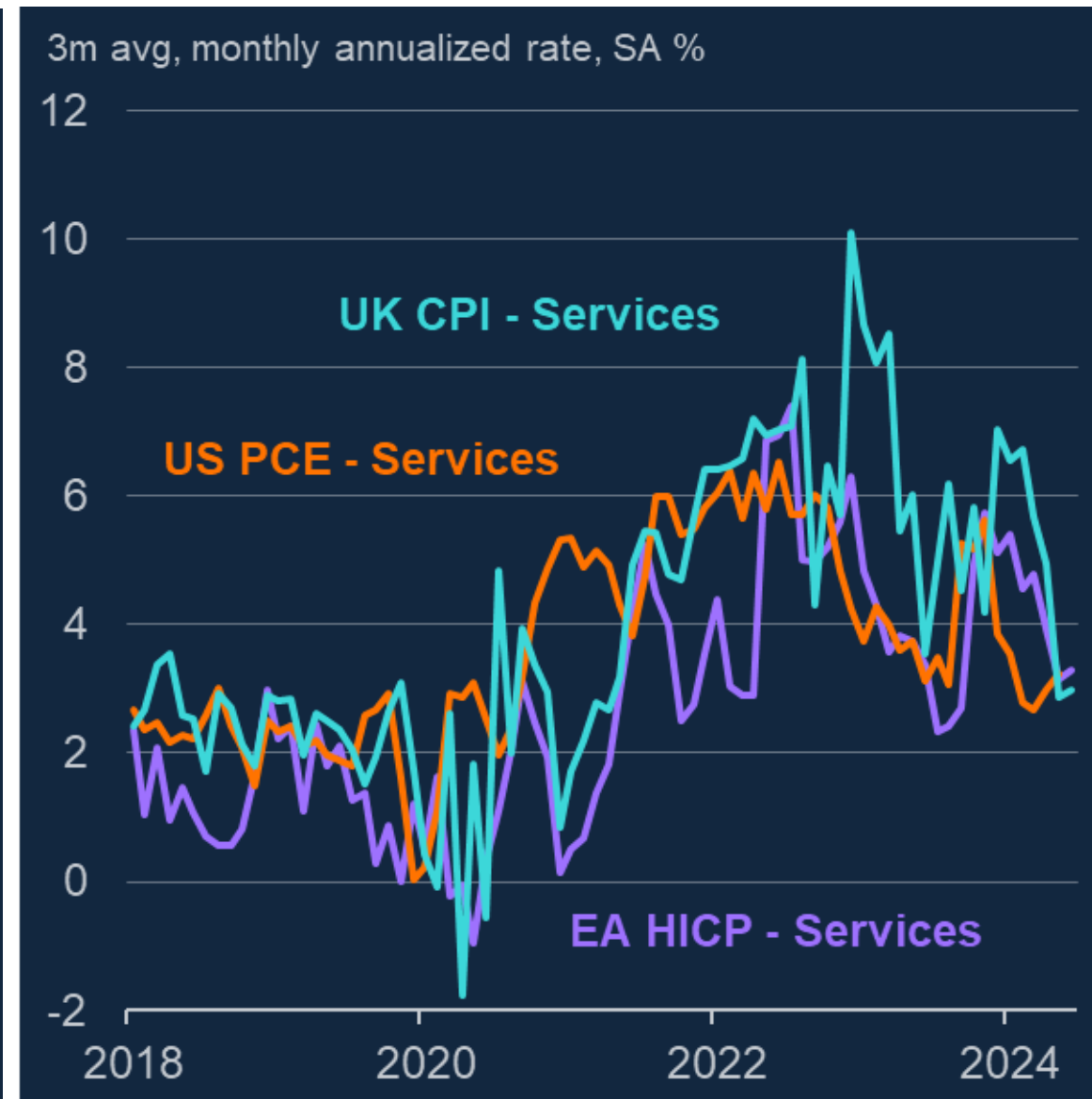


# Waning pipeline cost pressures have accompanied headline disinflation, and services inflation is normalising slowly

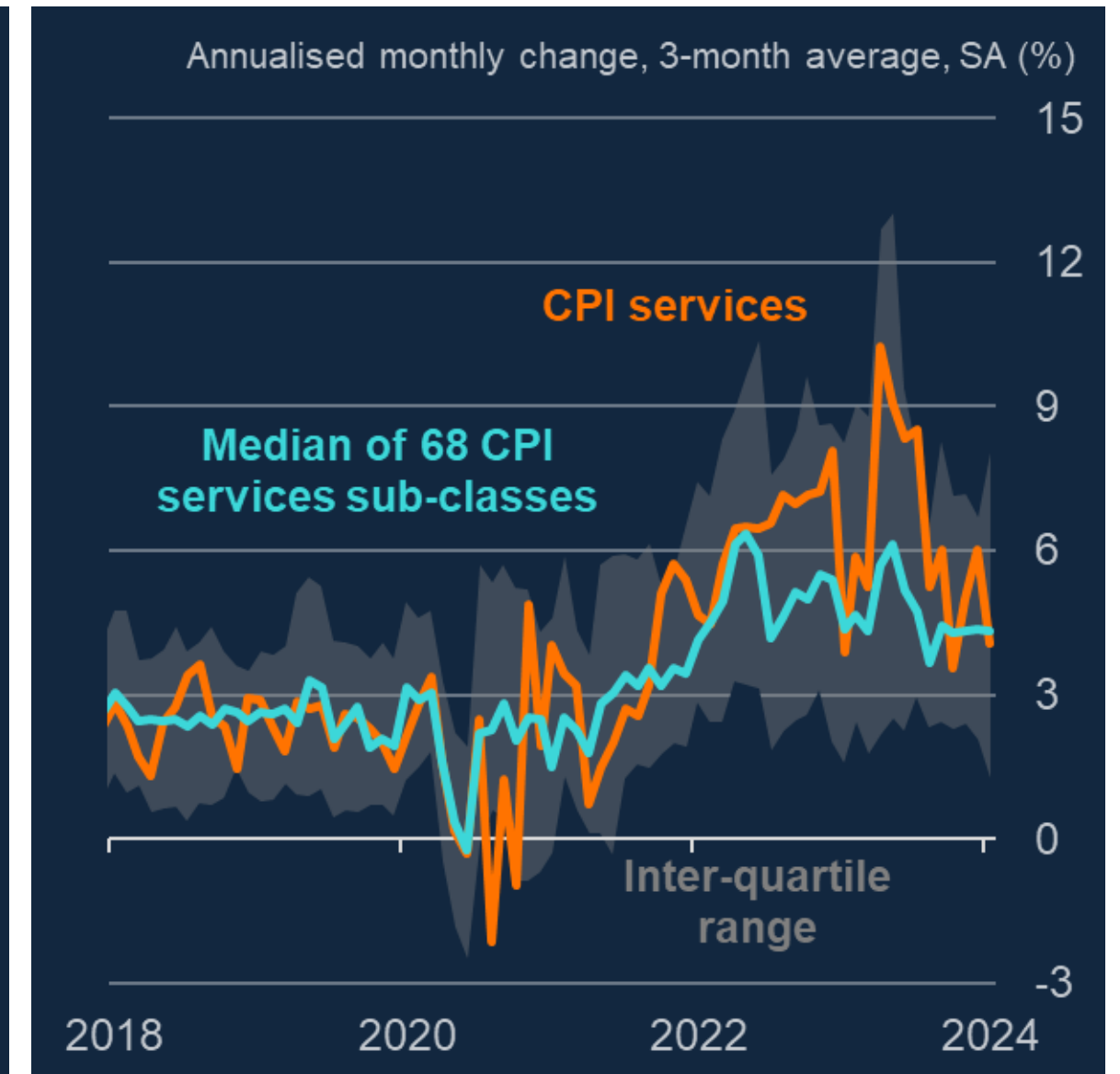
## Supply chains



## Services inflation



## Sub-class dispersion



# Risks to the outlook are uncertain and difficult to gauge



## **Restrictive policy**

Higher rates and waning effects of pandemic support weigh on investment and living standards.



## **Geopolitical tensions**

Escalating conflict or economic fragmentation could threaten to derail global disinflation.



## **Inadequate data**

Monitoring the state of the economy in real time has been complicated by a lack of reliable data.





November 2024

# UK Inflation

## Tough Last Mile or Benign Finale?

### [Disclosure Statement](#)

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#### **See Appendix A-1 for Analyst Certification, Important Disclosures and Research Analyst Affiliations**

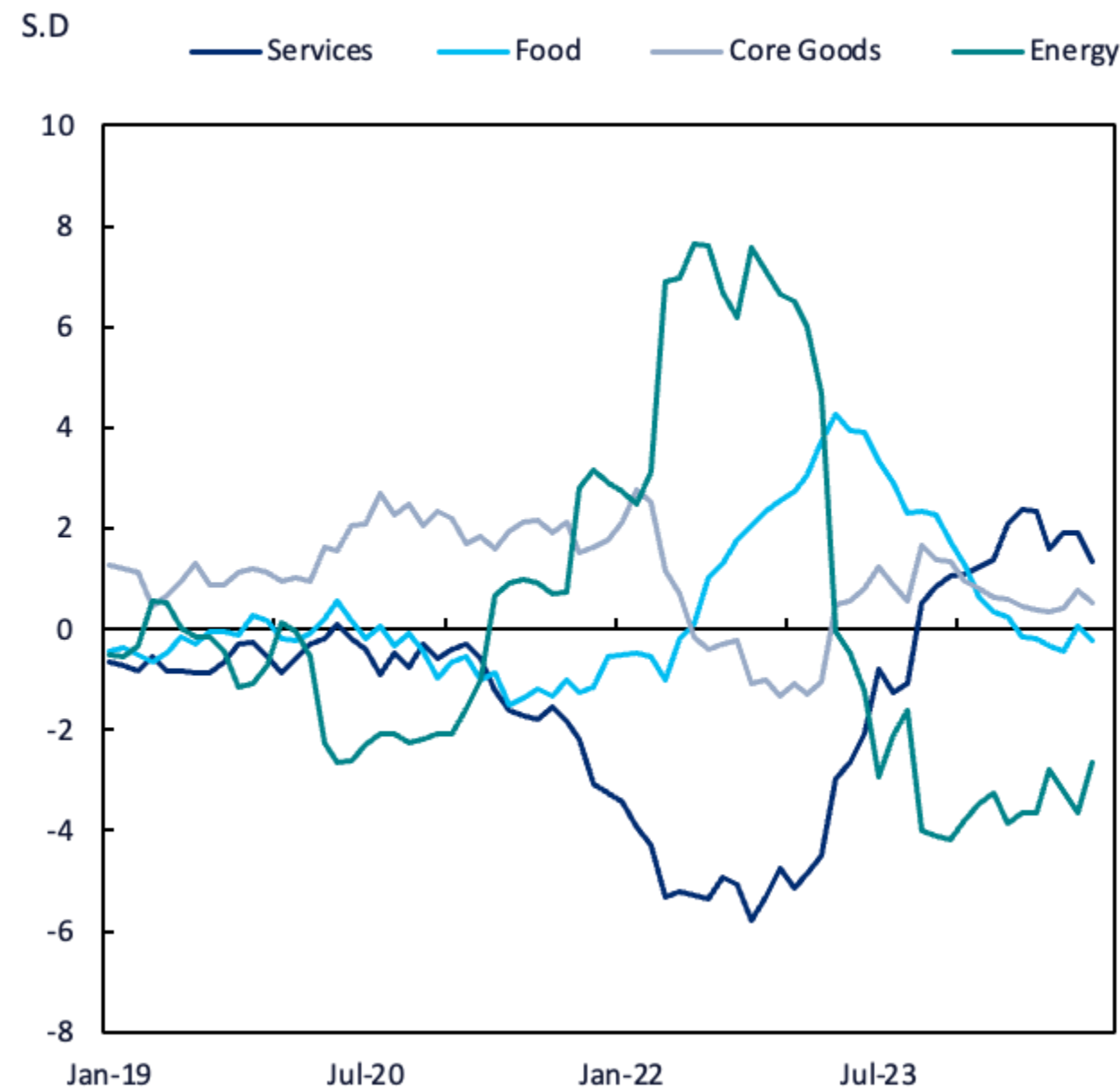
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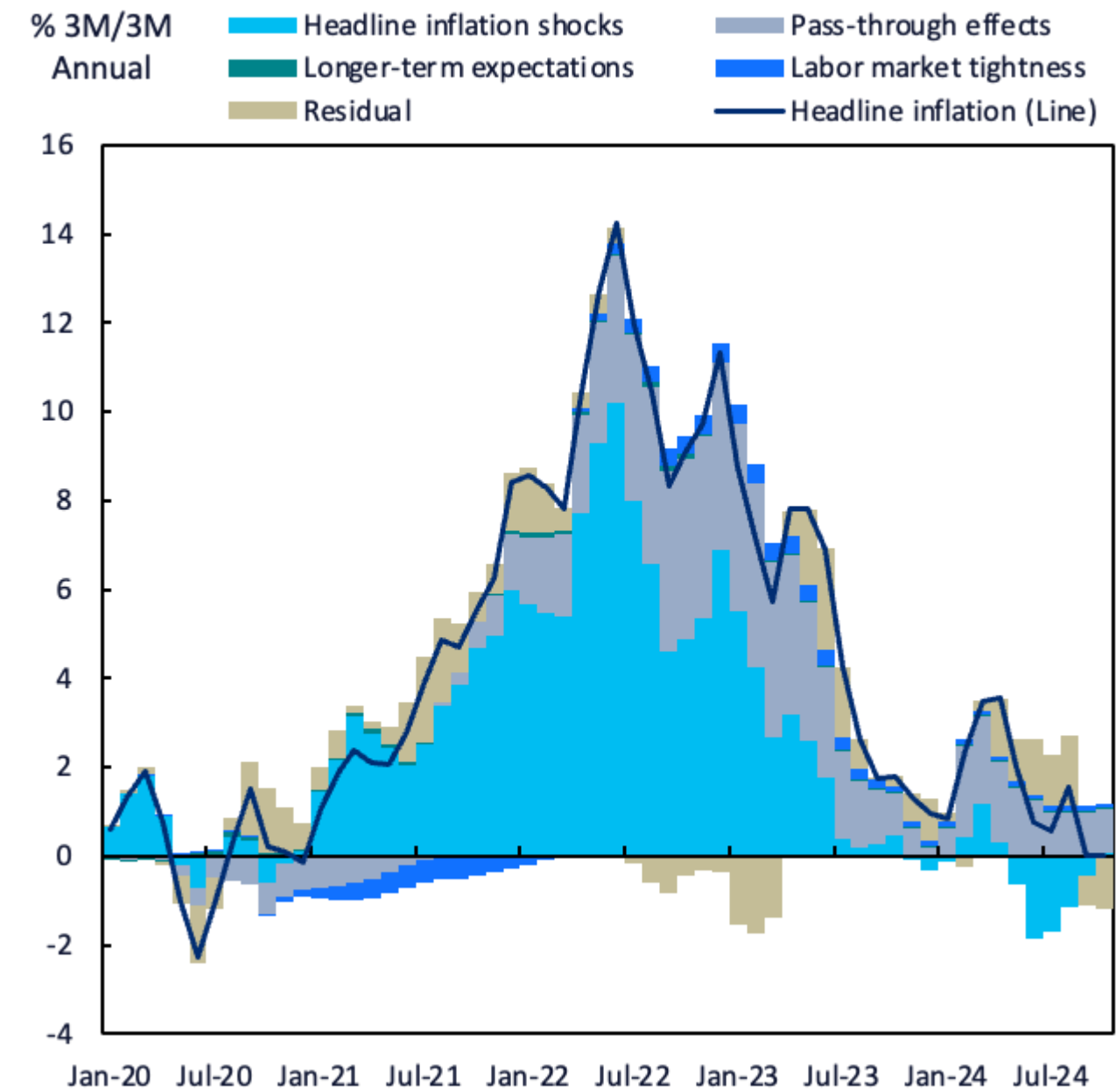
# Big Shocks, Big Aftershocks

The UK has been hit by a large sequence of cost shocks. On the real side, these effects have been compounded by a contorted real recovery and associated rotations in demand. The contribution of domestic labour market tightness has been comparatively modest.

Annual Relative Price Growth, Various CPI Subcomponents



Decomposition of 3M/3M Annualised Inflation

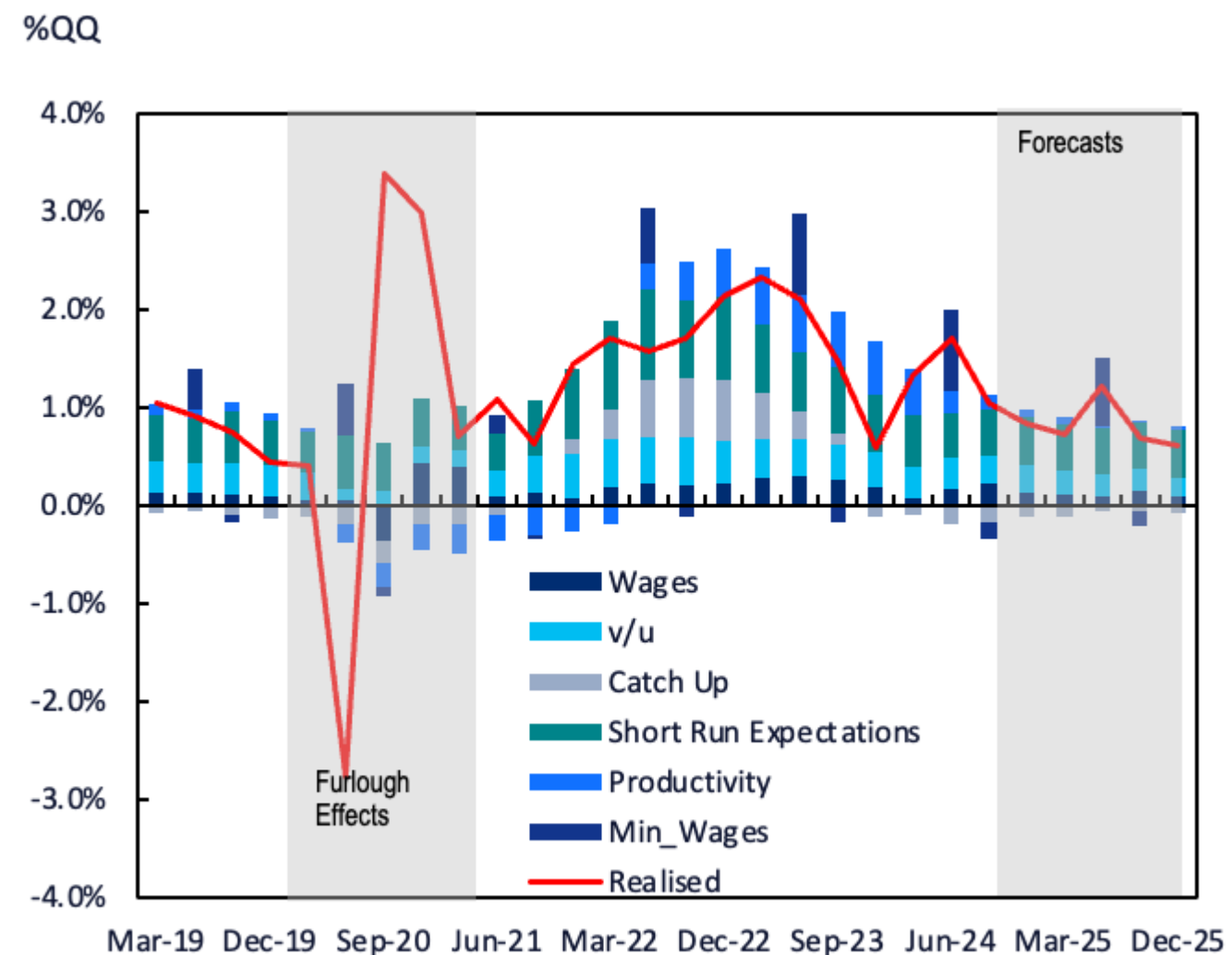


Notes: The left-hand chart here shows the growth rate of a given CPI component, relative to the overall index, relative to the same month in the prior year. The data are normalised over the 1996 to 2019 period. The right-hand side chart shows a decomposition of UK inflation based on the headline approach from Ball, Leigh and Mishra (2022) with headline inflation shocks distinguished from the core via the separation between headline and weighted median inflation. The latter is then decomposed using an equation of V/U, headline shocks and surveyed long term expectations where both V/U and headline shocks include a non-linear (quadratic) component. . This is estimated over the 2001-2019 period. See: [UK Economics and Rates: BoE: Taking back control](#); [UK Economics: Addressing the 'British Condition'](#)

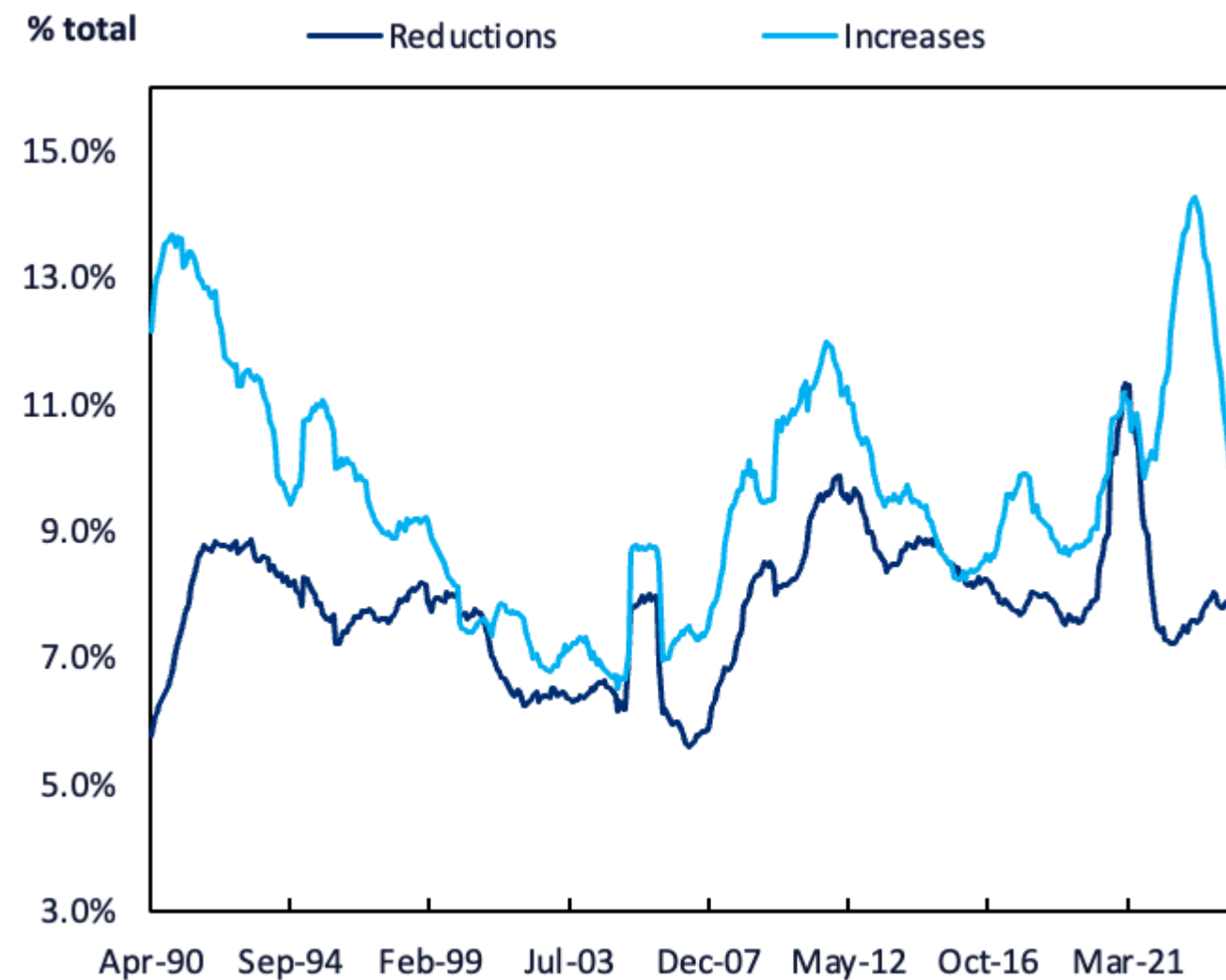
# Contained Conflictual Inflation

Such large shocks have generated various aftershocks. Subsequent price adjustment has been widespread. As both firms and households have sought to resist the associated (and inevitable) loss of real income, this has also generated a period of 'conflictual' inflation.

UK – Modelled vs Realised Private Sector Regular Pay Growth



Share of CPIX with Increasing and Falling Prices, 12 Month Moving Average



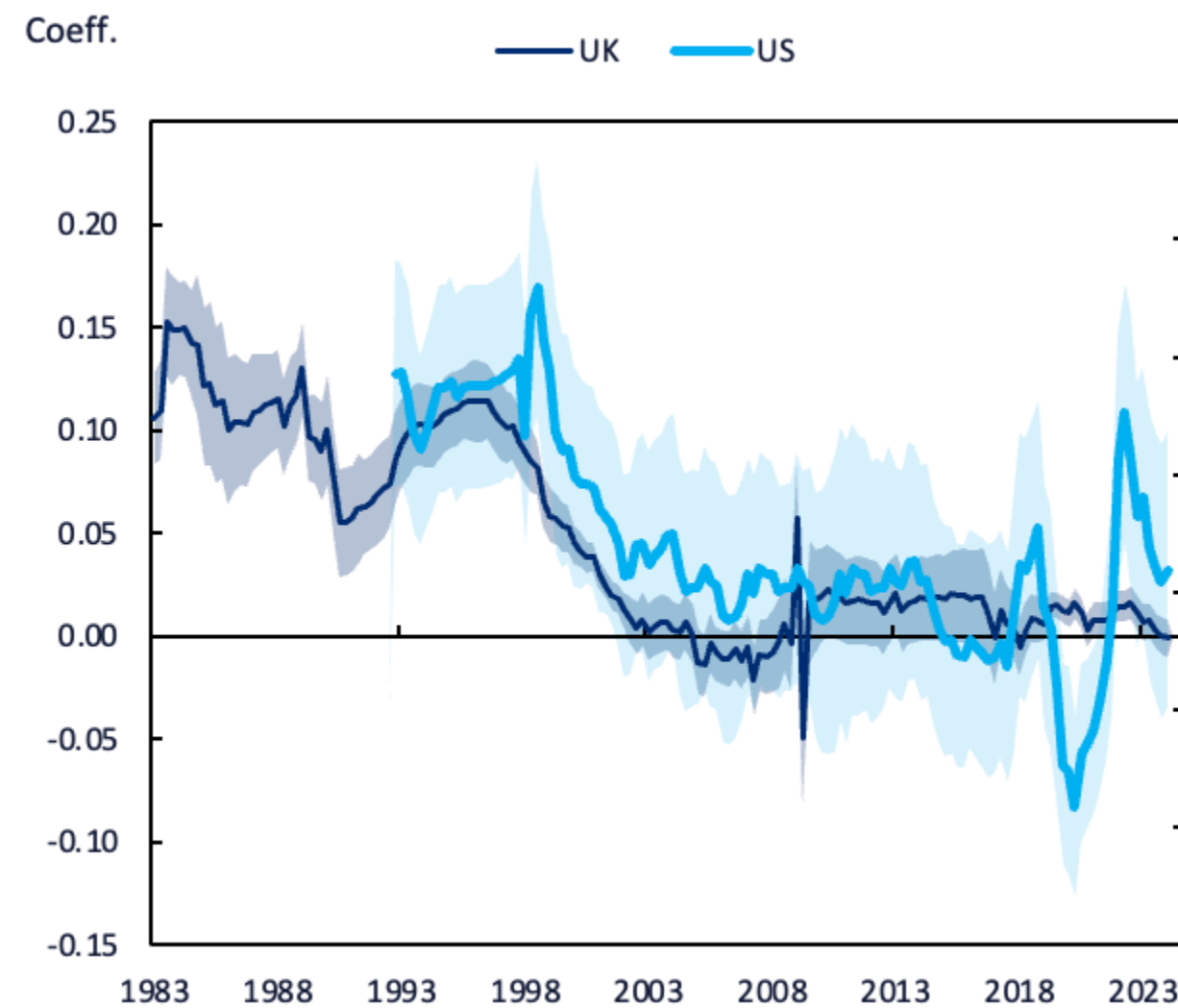
Notes: The left-hand side figure here shows a partial, static decomposition of UK wage growth, based on the wage equation from the Bernanke and Blanchard (2023). In this case, this is modelled as an auto distributed lag model of the vacancy to unemployment ratio, inflationary 'catch up', short run inflation expectations, productivity and changes in the minimum wage. In this case the model is estimated over the 1995-2019 period at a quarterly frequency. Short-run inflation expectations are taken as an average of the Citi/YouGov and Bank of England/ Ipsos Survey post-2005. Prior to this changes in the BoE/ Ipsos Survey are used alone, and then prior to this (pre-2000) changes in NIESR Professional Expectations are used. The wage index uses Average Weekly Earnings back to 2000. Prior to this we use the average earnings index (ex-bonuses). The right-hand side chart shows the proportion of price quotes changing across the CPI index, excluding energy utilities and liquid fuels. This shows the number of price changes in a given month as a proportion of total available across both the month in question and the month prior. These data have been adjusted to exclude months in which the VAT rate has changed, including January and March 1991, 2009, and 2001. The data are then weighted by the headline COICOP weightings in CPI. The data shown here are a twelve-month moving average. Sources: Bernanke and Blanchard (2023); Davies (2021); Thomas and Dimmesdale (2016).



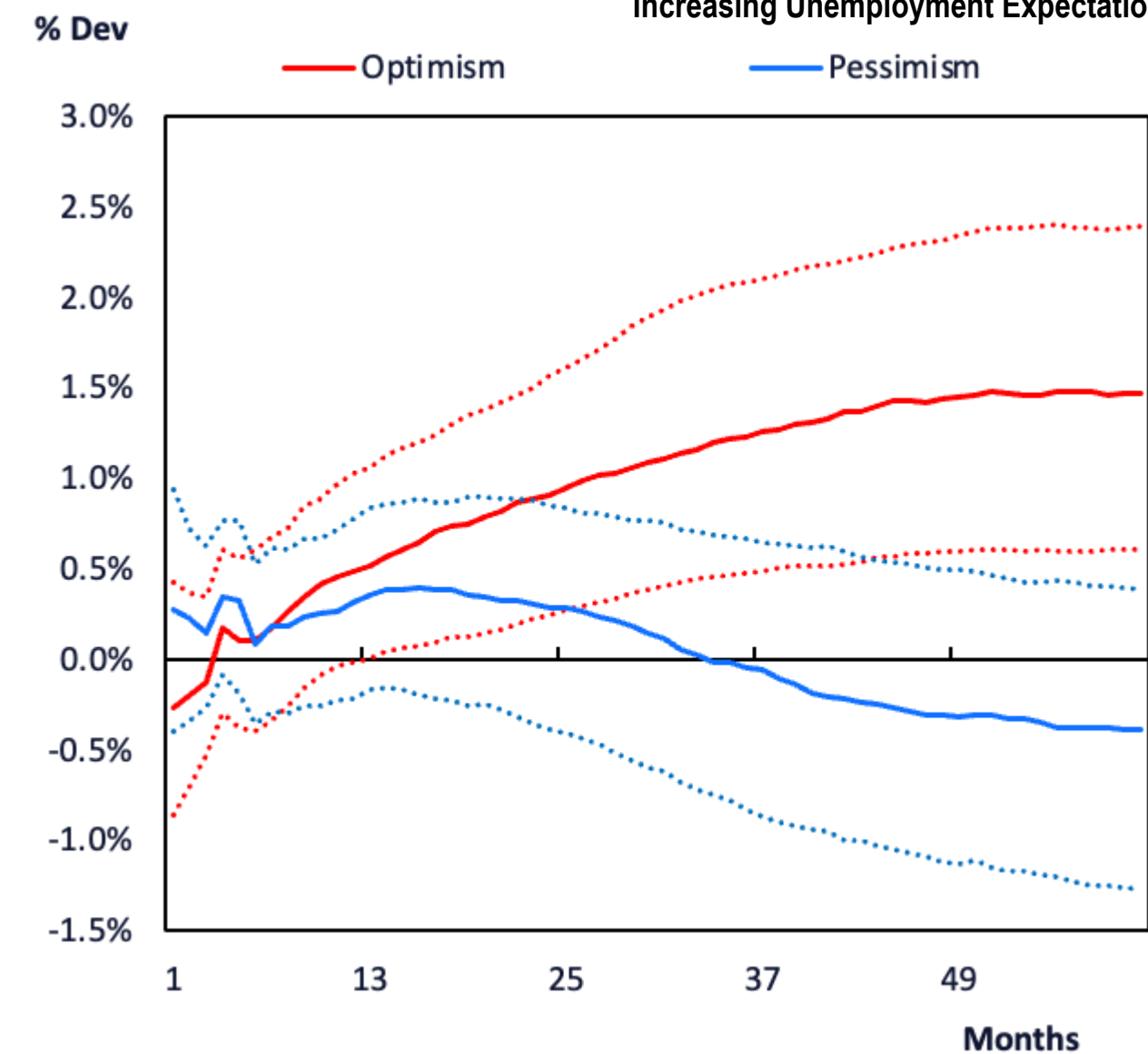
# Why Didn't the Philips Curve Steepen?

Despite severe tightness in labour and product markets, a steepening of the Philips curve is difficult to identify, in contrast to the United States. Here we think the drivers of slack, and the associated economic context, may have played an important role in attenuating transmission into wages.

US vs UK – Rolling Wage Philips Curve Coefficient



Impulse Response of Wage Growth to A Reduction in Slack, Falling Versus Increasing Unemployment Expectations

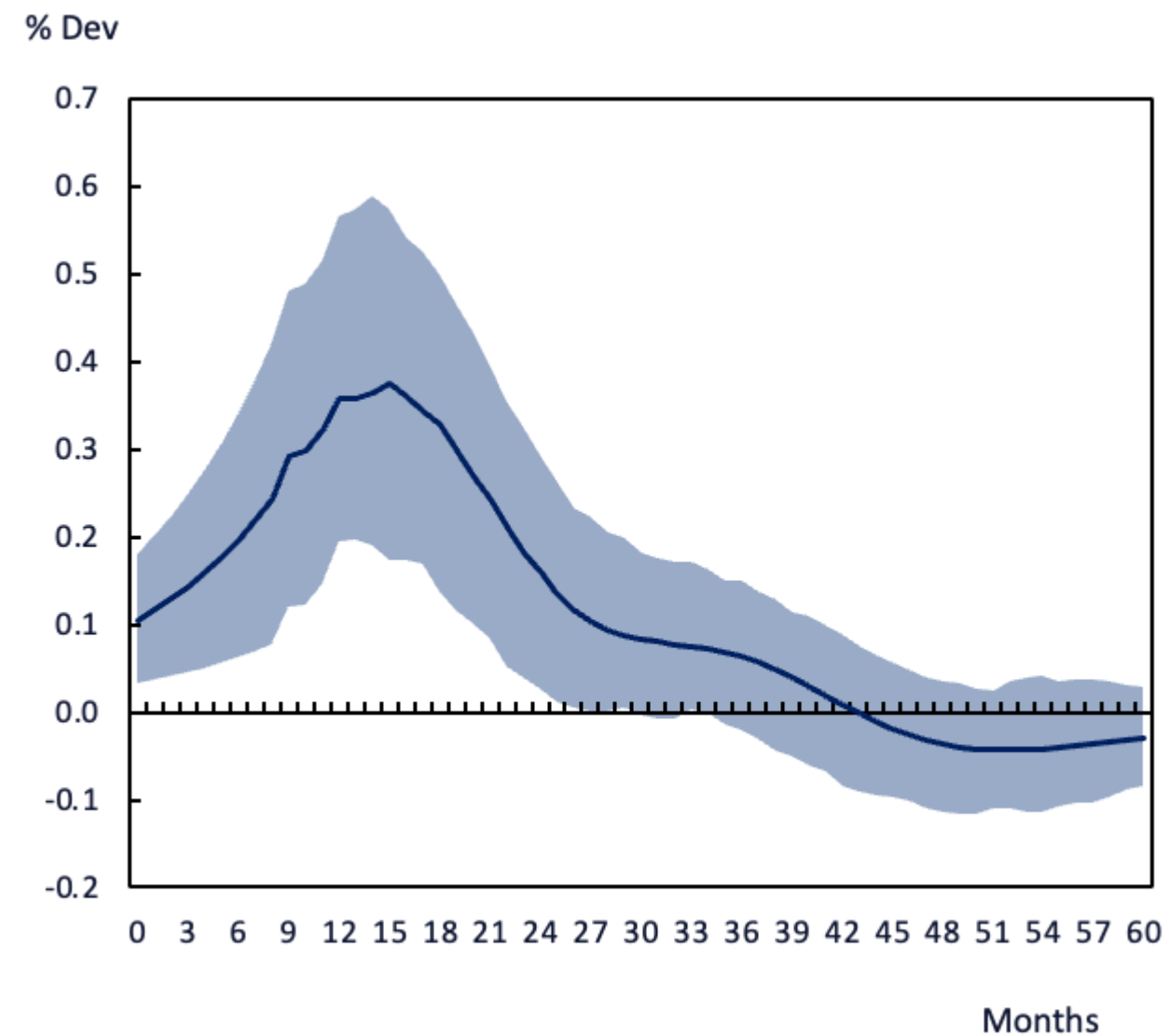


Notes: The left-hand side chart shows the rolling ten-year correlation between wage growth and the v/u ratio. In the US case, wage growth is measured via the Atlanta Fed Wage Tracker. The historic V/U ratio is taken from Barnichon (2011), as discussed in Benigno and Eggertson (2023). The construction of the Philips curve is identical in both cases, with wage growth regressed against the v/u ratio, a one lag increase in oil prices, CPI and the trade weighted exchange rate. The chart shows the ten year rolling coefficient, with the shaded areas denoting the +/- 1 standard error range. The right-hand side chart shows the impulse response of a 1-point reduction in the v/u ratio. This is employed as part of a monthly model including private sector regular pay growth (logged), CPI (Logged), short-term inflation expectations, GDP (logged) and GfK unemployment expectations. The model shows instances when a reduction in slack is associated with a commensurate drop in forward expectations ('optimistic') versus a scenario when unemployment expectations are increasing. In each case the model is restricted such that wage growth is expected to initially increase. The model is estimated from 1996-2019 and is estimated using the agnostic approach from Uhlig (2005). The dotted lines show the 90% confidence intervals. Source: ONS, BEA, GfK, Bank of England/ YouGov. See: [UK Economics: Addressing the 'British Condition'](#)

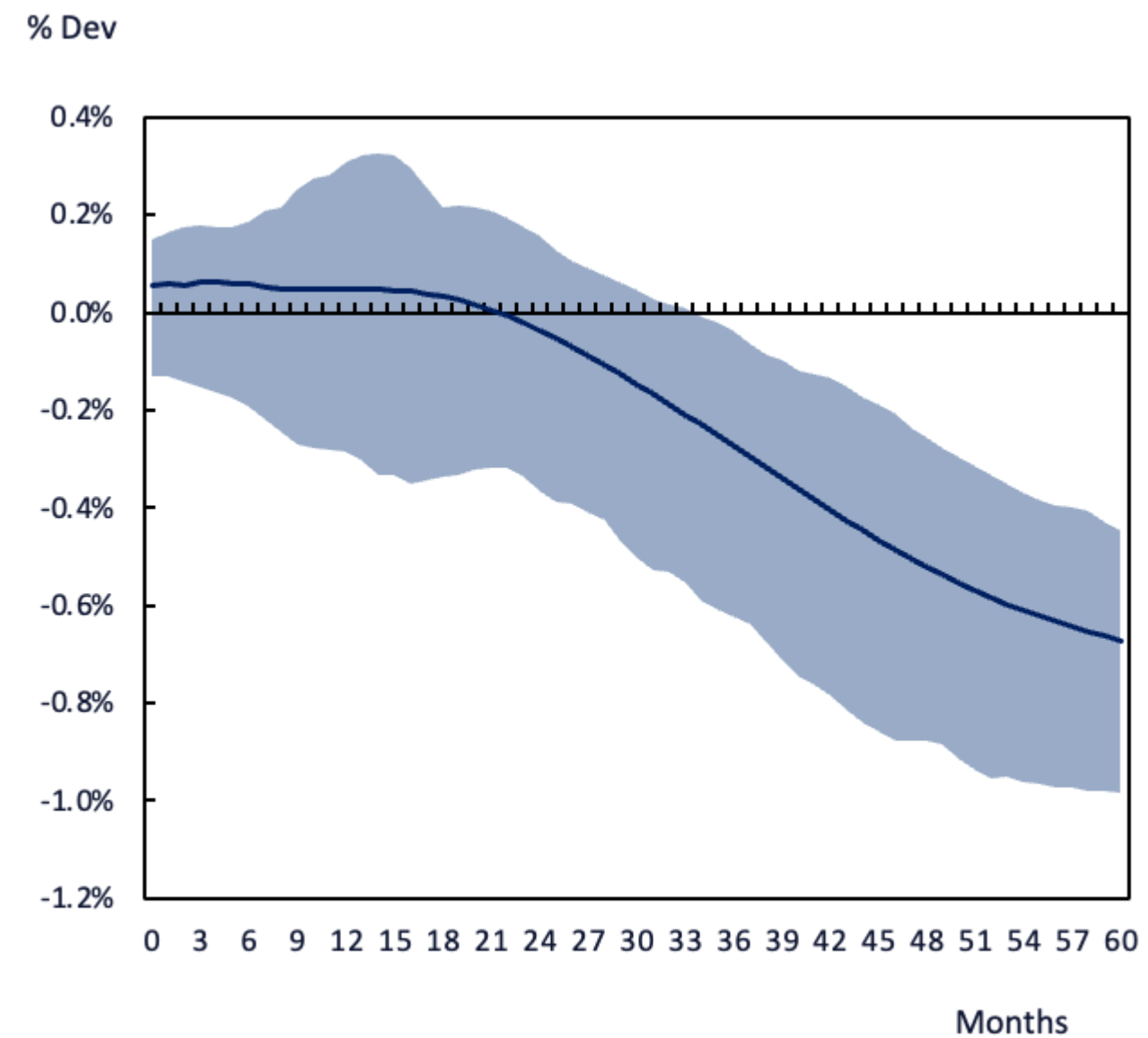
# Combating Conflictual Inflation

In combatting conflictual inflation, the aim should be to 1) secure a gradual fading of the associated economic process and 2) manage the associated trade-off between near term inflation and economic activity. Here policy rates face some difficulties.

UK – Impulse Response of Markups to a 100bps Contractionary Policy Surprise



UK – Impulse Response of the Cumulative CPI Price Level



Notes: The impulse responses above are derived through a Proxy-Svar estimated over the 1998 to 2019 pe3riod (see Stock and Watson, 2018). The model is estimated using a propriety series of monetary policy surprises based on market moves in the one-year gilt rate in the thirty-minute windows around monetary policy announcements as well as also published speeches. The surprise series is further orthogonalized against published data to control for the growing sensitivity of policy to data surprises over time (Bauer and Swanson, 2022). Markups are measured here simply as the inverse labour share ( $m = -\ln(s)$ ; where  $m$ =markup,  $s$ =labour share). We have conducted a separate exercise to try and directly distinguish between overhead and cyclical labour using an approach similar to Nekarda and Ramey (2013), using rates of overwork as a proxy for overtime. We have also conducted an effort to measure the markup assuming constant elasticity of substitution – in line with Nekarda and Ramey (2019). Both imply a marginally larger counter-cyclical response. The model is estimated at a monthly frequency between 1998 and 2019, and includes five-year rates, the trade weighted exchange rate, mortgage spreads, FTSE prices, credit growth, energy and food CPI, Fed-funds, oil price changes, logged CPI, logged GDP and margins. Source: Stock and Watson (2018), Bauer and Swanson (2022), Nekarda and Ramey (2013), ONS, Bloomberg LLP, Bank of England. See: [UK Economics: Addressing the 'British Condition'](#)

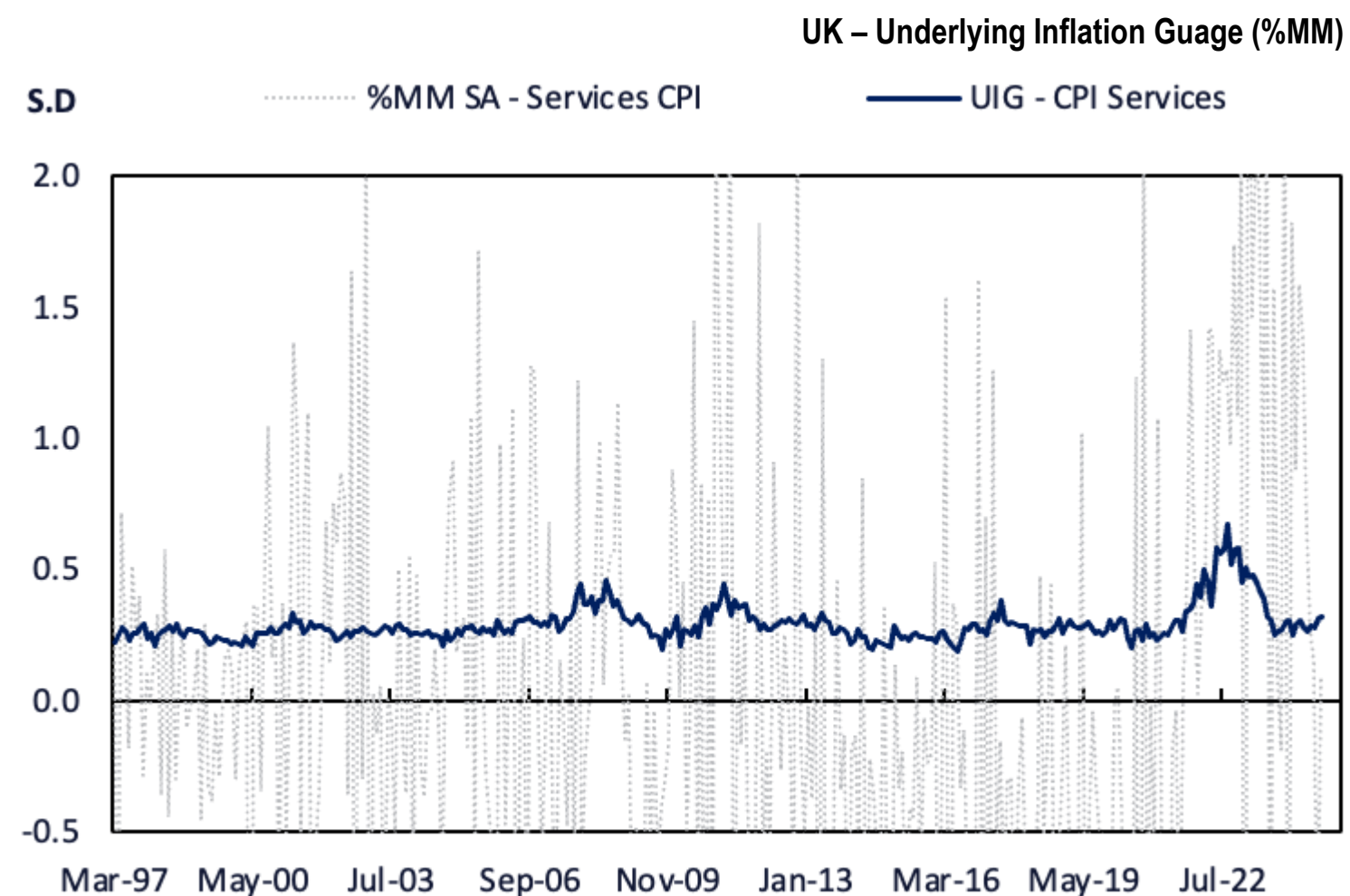


# Learning the Right Lessons

The UK's inflationary process has creaked, but not cracked. Increasingly, we think the risk of a persistent shift in inflationary dynamics is fading. But recent experience should provide some cause for caution regarding an overreliance on rates as the main instrument of macroeconomic control.

**Avoiding mission creep** – Recent data suggest significant **anti-inflationary insurance probably isn't necessary any longer**. With uncertainty elevated, a margin of inflationary aversion may linger, but should ideally be avoided.

**Horses for (new) courses?** – The institutionalisation of monetary dominance has done a lot to limit the economic damage. But as supply shocks plausibly grow more frequent, **overreliance on monetary policy instruments (particularly rates) may pose significant drawbacks**.



Notes: The chart here shows the common component of UK services inflation, measured via a dynamic factor model approach similar to the EA PCCI. Sources: ONS and Citi Research. See: [UK Economics: Addressing the 'British Condition'](#)

# INFLATION IN THE UK: WHAT LIES AHEAD?

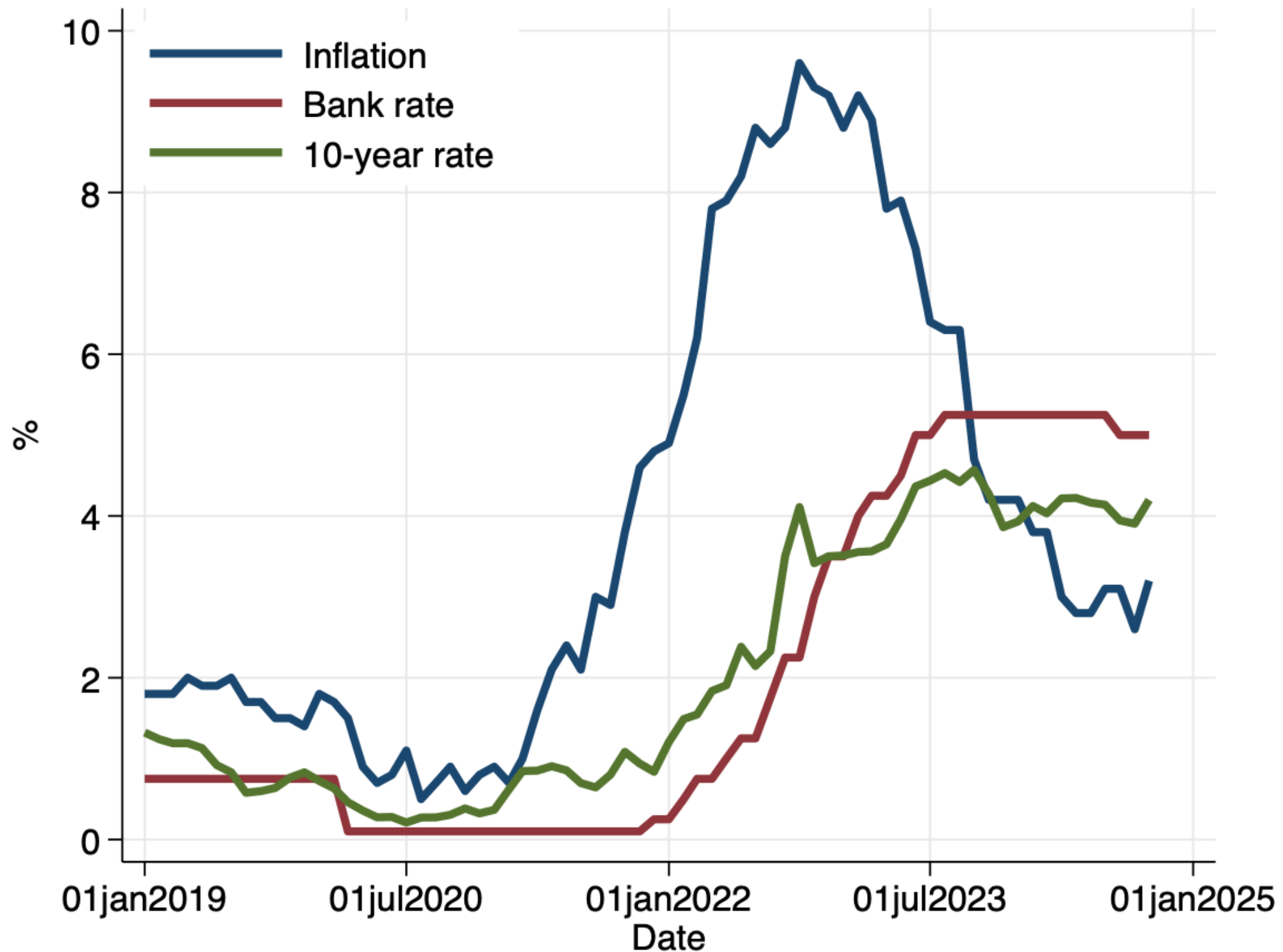
Ricardo Reis  
LSE

*25th of November  
Bank of England Watchers conference  
London*



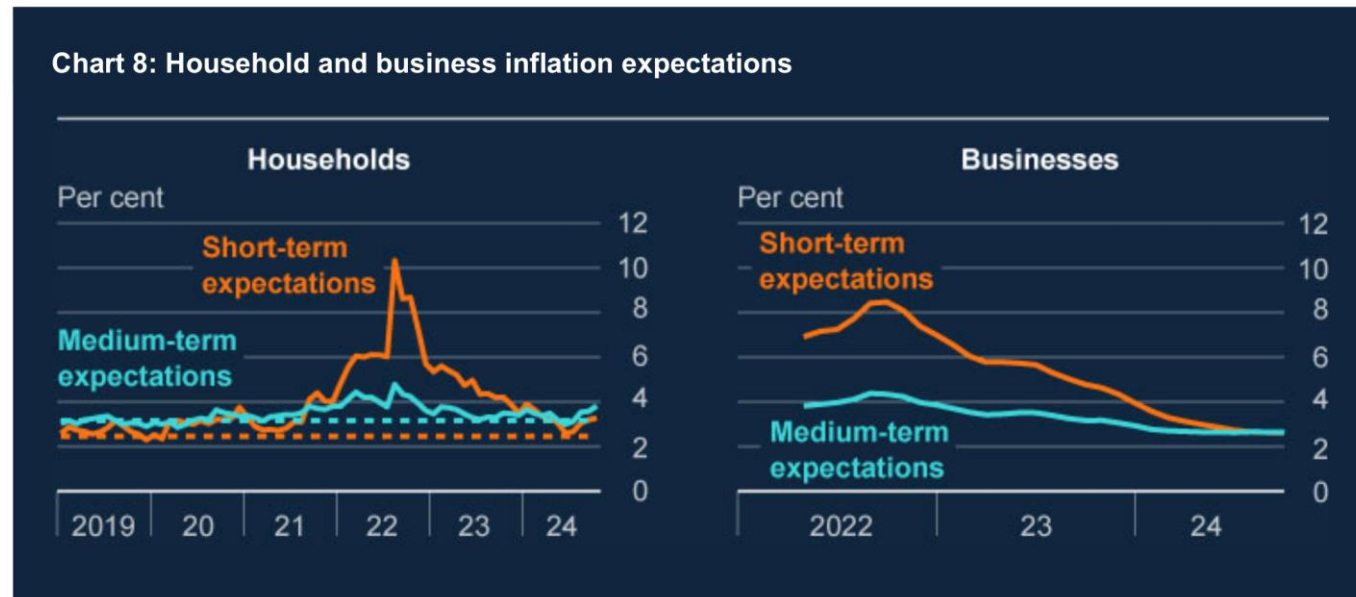
# The 2021-24 brief history

UK inflation and interest rates since 2019



- 2021 rise: pentup demand + reluctance to back to work + supply chains + fiscal stimulus + monetary stimulus.
- 2022 explosion: energy shocks + unanchoring of expectations + loose monetary policy
- 2023-4 decline: tightening of monetary policy, expectations re-anchoring, supply shocks dissipate

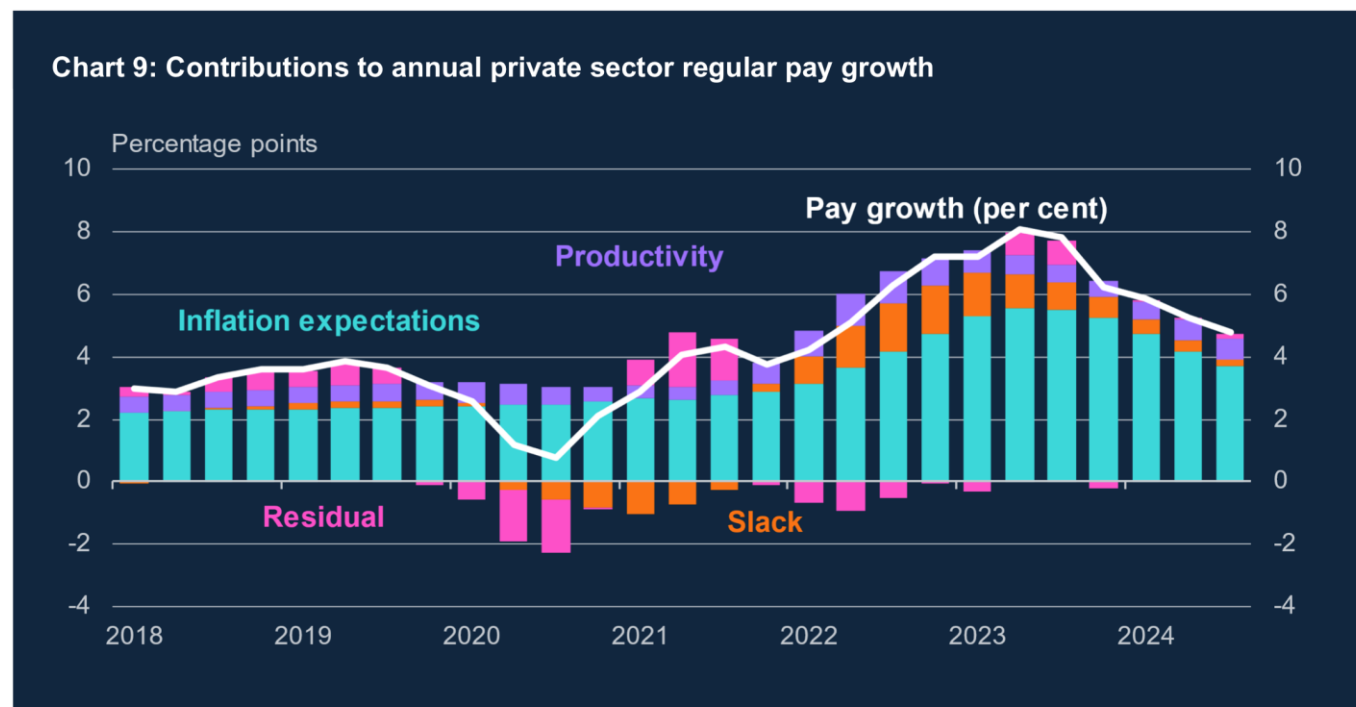
# Inflation is behind us, inflation may be ahead



Sources: Citigroup, DMP Survey, YouGov and Bank calculations.

(a) Left hand panel shows the 1 year and 5-10 year inflation expectations measures from Citi. Dashed lines represent the series averages over 2010-19. The latest data points are for October 2024.

(b) Right hand panel shows data from the DMP Survey and are based on three-month averages of responses to the question: 'What do you think the annual CPI inflation rate will be in the UK, one year from now and three years from now?'. The latest data points are for October 2024.



Sources: Barclays, Citigroup, ONS, YouGov and Bank calculations.

(a) Wage equation based on [Yellen \(2017\)](#). Pay growth is Bank staff's estimate of underlying pay growth between January 2020 and March 2022 and the ONS measure of private sector regular AWE growth otherwise. Short-term inflation expectations are based on the Barclays Basix Index and the YouGov/Citigroup one year ahead measure of household inflation expectations and projected forward based on a Bayesian VAR estimation. Slack is based on the MPC's estimates, informed by the vacancies to unemployment ratio. Productivity growth is based on long-run market sector productivity growth per head. The final data point is 2024 Q3.

## Short-run shocks upside

- Fiscal expansion, supply shocks
- Confusing supply shocks for supply trends

## Short-run shocks downside

- Exchange rate, supply opportunities
- Being too gradual and present-looking

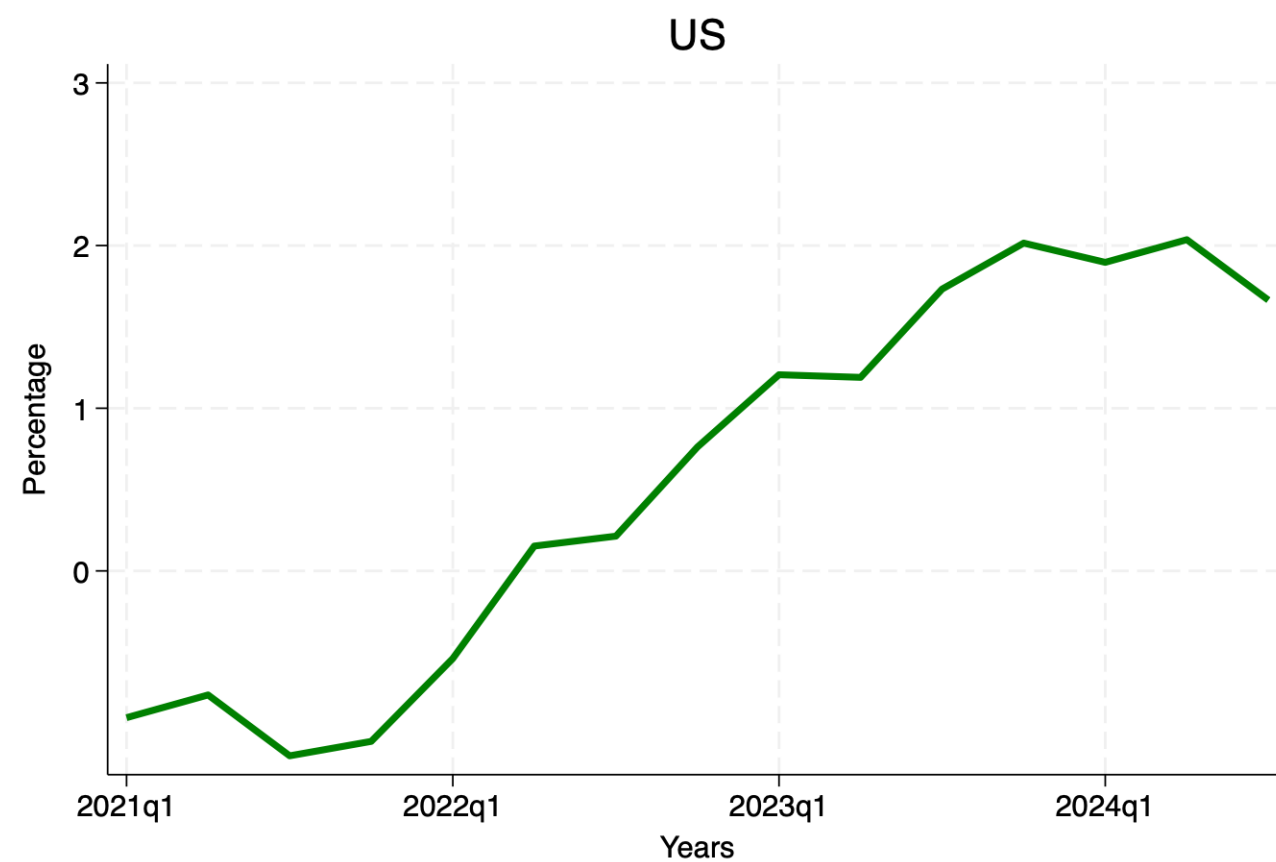
## Return to principles-based monetary policy

- Markets keep getting surprised and over-reacting to data, meetings, and speeches



# The new normal: biases versus traps

10-year yield on US Treasuries minus expected inflation



	m - y (%)
2019	5.6
2021	6.5
2022	4.7
2023	3.8

Conjecture: long-run gilts  $r^*$  persistently higher

One scenario: inflation bias is back

- Cut bank rate too fast and too far
- Pursue lower interest rate (Friedman '68)
- Pressure to inflate away the debt

Another scenario: a double deflation trap

- Higher term premium (QT, repression)
- Fiscal policy constrained by interest burden
- Monetary policy constrained by ZLB



# BANK OF ENGLAND WATCHERS' CONFERENCE

## LIQUIDITY RISK IN THE FINANCIAL SYSTEM

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# Lessons learned on liquidity from the 2023 banking turmoil

**Pablo Hernández de Cos**

## Distressed bank outflow rates

- US banks
  - Uninsured deposits were associated with deposit concentrations, idiosyncratic business models and unique balance sheet structures.
  - Impact of digitalisation and social media (outflows far exceeded levels assumed in LCR/NSFR).
- Credit Suisse:
  - Two episodes of exceptionally large and rapid deposit outflows, significantly exceeding the assumptions of the LCR and NSFR for retail clients, especially uninsured high-value deposits.
  - Not homogeneous stressed outflows across different locations or legal entities.
- Counterfactual scenario with no public intervention could imply even more acute outflow rates.
- **Common driver (negative media coverage, including social media) and wide access to digital bank accounts. Highly concentrated funding sources (including uninsured deposits).**



## Materiality of additional risk factors not covered in LCR/NSFR

- Credit Suisse - additional liquidity needs materialised depleting a large portion of the liquidity buffer:
  - Increased prepositioning and collateral quality requirements.
  - Increased regulatory and supervisory requirements and expectations in host jurisdictions as well as the banks own liquidity management requirements at the entity level.
  - Increased intraday requirements.
- The total increased liquidity needs is estimated to account for almost 100% of the LCR net outflows for the operating parent bank, Credit Suisse AG, during March 2023.
- Current treatment of increased liquidity needs in time of stress in Pillar 1 and Pillar 2.
- Importance of the management of liquidity risk at a legal entity level.

# Impact of the accounting treatment of HQLA

- Liquidity Coverage Ratio:
  - HQLA is based on market value regardless of the accounting treatment.
  - HQLA is subject to operational requirements (including monetization).
- Does not distinguish between outright sale and repo transactions as monetisation tools.
- Banks holding fixed-income securities at amortised cost (AC) with a substantial amount of unrealised losses may refrain from selling them in a liquidity stress (attempt to avoid negative impact on P&L and capital).
- Alternative is to use repo transactions, on an interbank basis and/or with the jurisdiction's central bank. But proved to not always be a reliable option (ie stress and negative carry trade).
- HQLA held at fair value (FV), with gains and losses immediately realised through regulatory capital, can in principle be more easily monetised through an outright sale without adversely impacting capital upon sale.
- The difference between HQLA held at AC and FV may be smaller if banks have appropriately managed the interest rate risk or have sufficient capital headroom to fully cover unrealised losses on securities held.



## Other impediments for liquidity buffer use

- Lack of preparedness and operational capacity at some banks. Lack of robust contingency plans.
- Negative market impact of disclosures, other than those foreseen by the LCR standard (eg market participants could have possibly inferred the Credit Suisse's usage of the facility with some delay).

## Supervisory monitoring tools

- Most of them have been implemented, with the granularity and frequency of implementation differing across jurisdictions.
- The assessment by regulators is that the tools are found to be useful in both business-as-usual (BAU) and during the banking turmoil.
- How to improve effectiveness?
  - higher reporting frequency during BAU for institutions with a structural high-risk liquidity profile;
  - additionally applied to individual entities of banking groups;
  - provide an overview of the accounting classification of HQLA and its monetisation;
  - granularity on the concentration of funding, especially by category of deposits or by business activity;
  - complement external market-related information and social media information.



## Conclusions (I)

- How much do we expect banks to self-insure against liquidity risk (and under what conditions are we willing to rely on the central bank to step-in).
- How should we think about policy options that increase access to liquidity ex-ante versus ex-post liquidity?.
- How does all this interact with central bank operating frameworks (and the reach of deposit insurance).
- Where do we draw the line in terms of liquidity assistance – should it be extended to non-banks.
- Need for a holistic and integrated approach to strengthen the management of liquidity risks: combine stronger supervision, greater emphasis on internal governance and liquidity management, with an improved system of central bank liquidity provision.

# Liquidity Risk in The Financial System

Prof. Victoria Ivashina

Bank of England Watchers' Conference 2024

November 25, 2024



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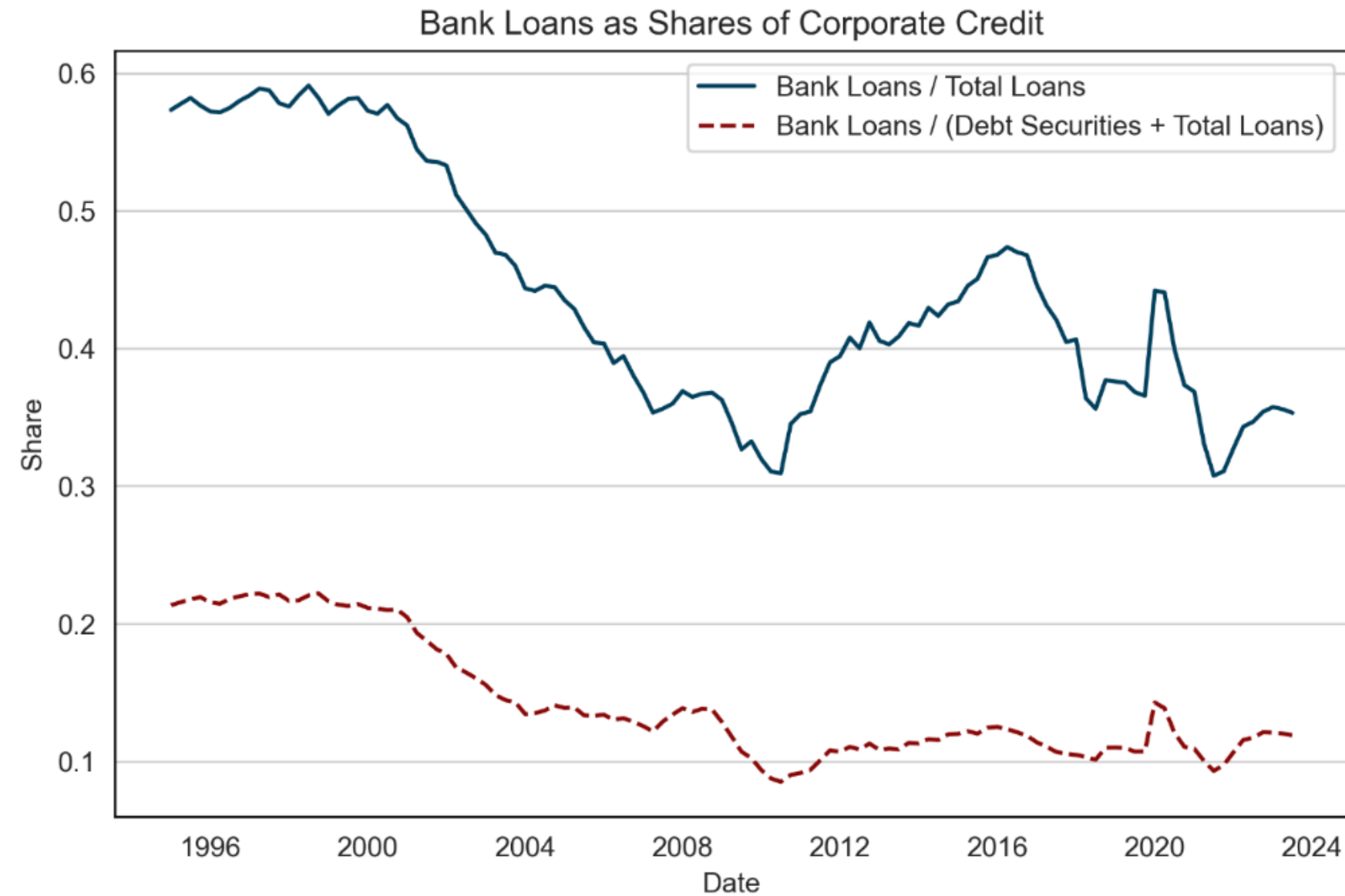
# 1. How to adapt regulation to address heightened run risk?

- Expand deposit insurance?
- Tighten liquidity regulation?
  - Requiring runny deposits to be backed with more liquid assets

“The Evolution of Banking in the 21<sup>st</sup> Century: Evidence and Regulatory Implications,”  
Hanson, S., V. Ivashina, L. Nicolae, J. Stein, A. Sunderam, D. Tarullo,  
*Brookings Papers on Economic Activity*, March 2024



# Bank Lending to Corporations (U.S. example)



In 2000, bank loans represent 57% of total loans and 23% of total credit to nonfinancial corporations

In 2023, represent 35% of total loans and 13% of total credit

- Given the rise in deposits → increasingly, banks take deposits and invest in securities where they have no special edge
  - Trend driven by larger banks (Assets > \$100 billion)
  - By contrast, balance sheet shares of smaller banks have been stable
- In cross-section of large banks, faster deposit growth is correlated with slower loan growth and faster cash+securities growth

## How to address vulnerability to uninsured depositor runs?

- Two options with similar benefits, but different costs
  1. Expand deposit insurance coverage:
    - Might create moral hazard distortions and expose taxpayers to losses
  2. Tighten liquidity regulations:
    - Forcing banks to hold more liquid assets might crowd out information-intensive lending
- Banks' declining role in lending inclines us towards option #2.

## Implementation: Modify “Liquidity Ratio Requirements”

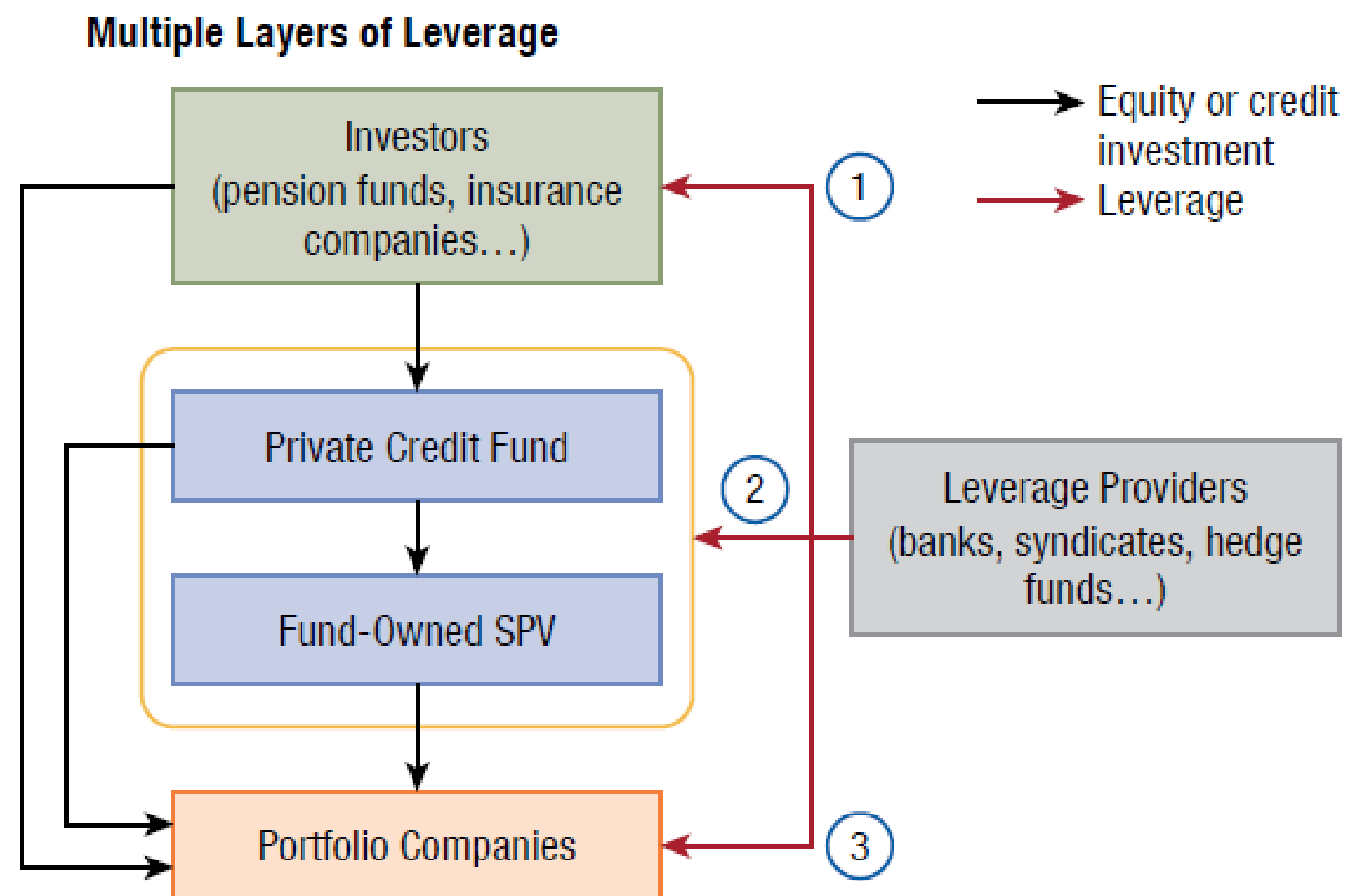
- Require large banks to “pre-position” enough collateral at Fed’s Window to ensure they can withstand an uninsured depositor run
- Collateral should largely be short-term government securities



## 2. Liquidity pressures originating outside of the banking sector due to raise in alternative investments (“Alts”)

## Figure 2.8. Leverage in Private Credit

Investors, funds, and borrowers extensively deploy leverage, forming a complex multilayers structure.

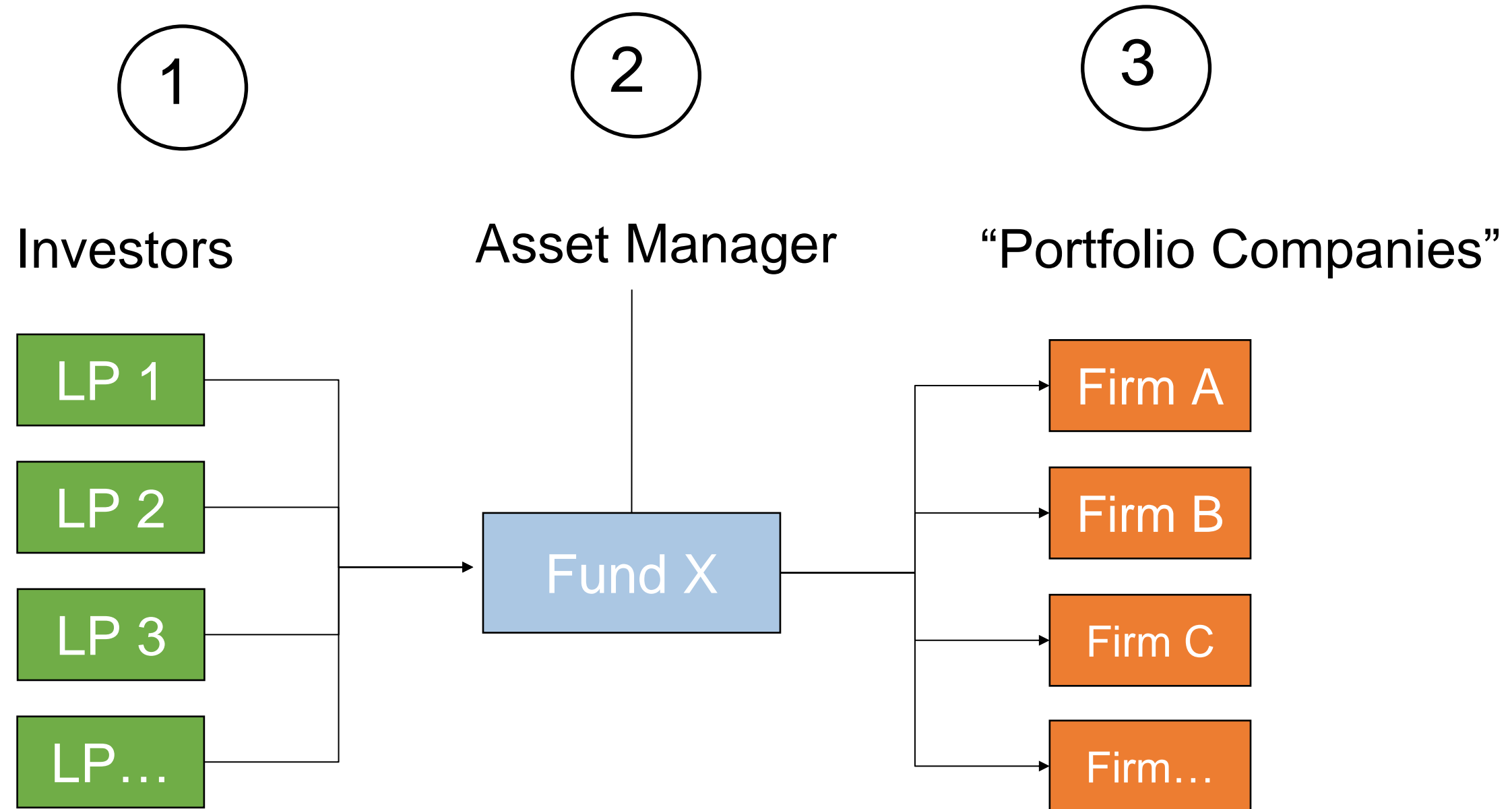


Sources: IOSCO 2023; and IMF staff.  
Note: SPV = special purpose vehicle.

Source: The Rise and Risks of Private Credit, IMF, 2024

- This representation and language surrounding it are misleading; it is not additive

# Leverage



“LPs” – Limited partners

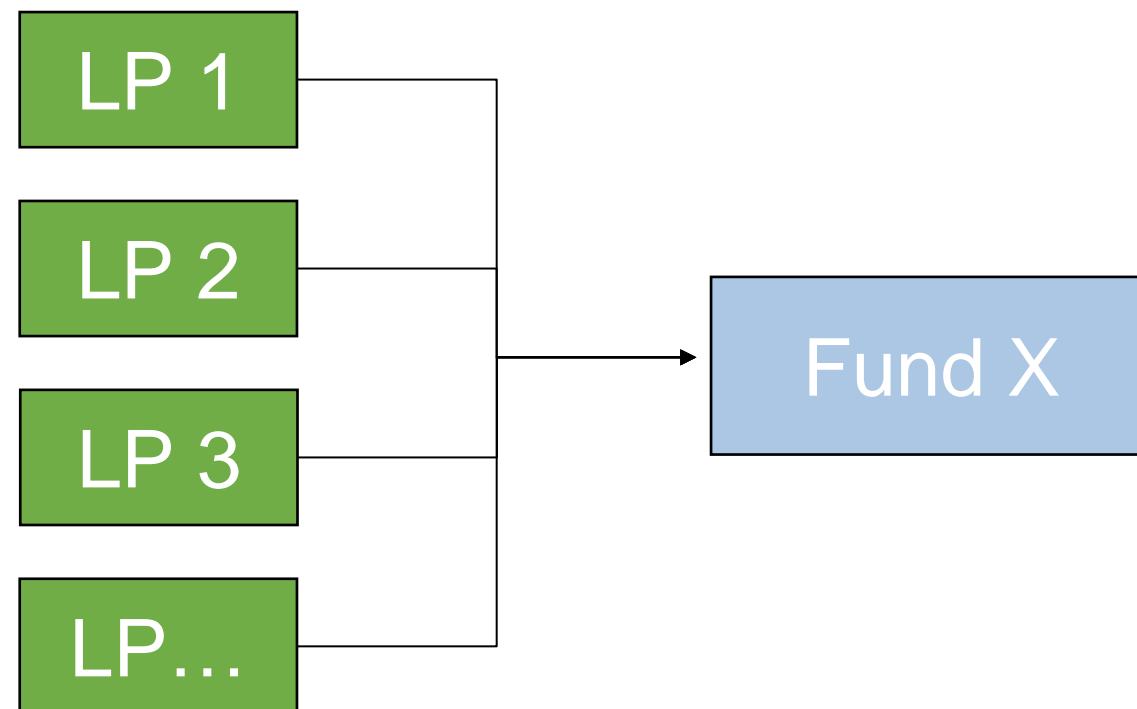


# Leverage

---

1

Investors



“LPs” – Limited partners

Borrowing base: Fund (LTV)

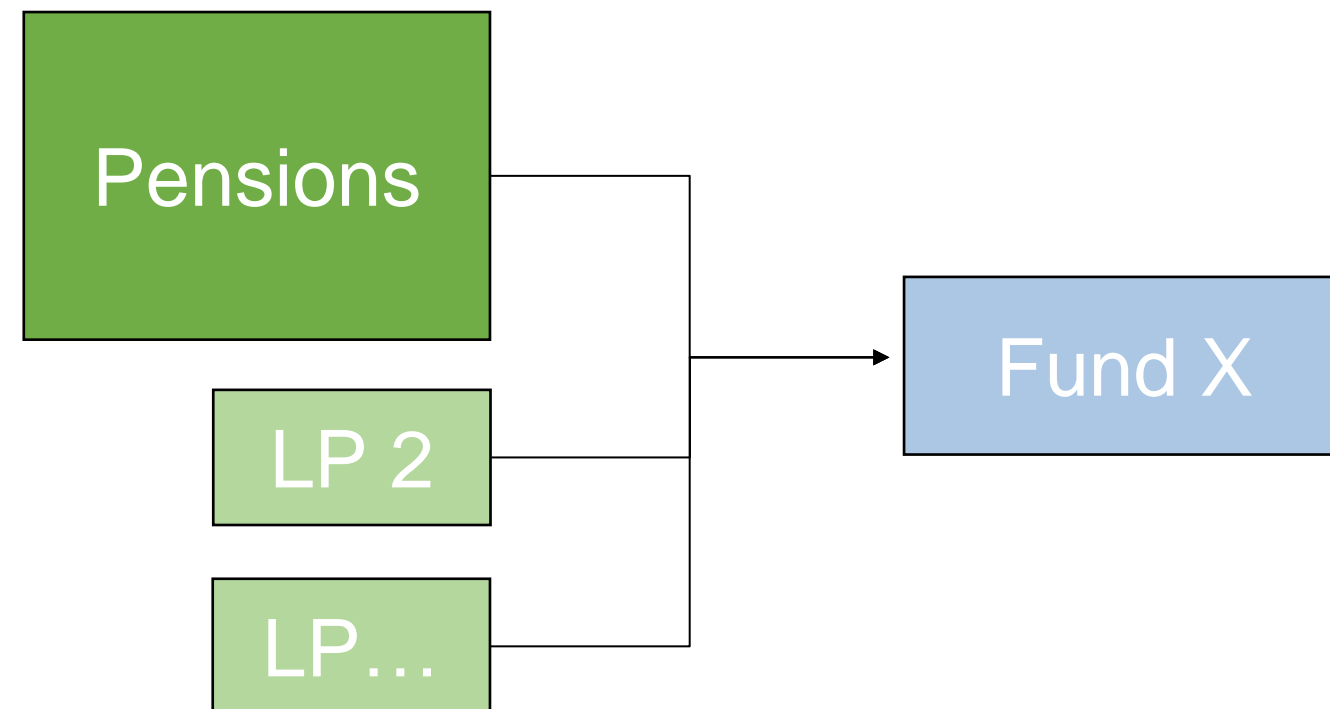
- “Subscription lines” – lending secured by the *pool* of unfunded commitments (leverage against pension funds assets)
- “NAV lending” – *pool* of equity in invested portfolio companies

# Leverage

---

1

Investors



“LPs” – Limited partners

- With the rise of allocation to Alts, there has been an increase in (indirect) short-term leverage among pension funds
- Is it moderated by pensions liquidity management?

Governance and resources necessary for management of Alts are often lagging at the pension fund

See *Patient Capital*, Victoria Ivashina and Josh Lerner, Princeton University Press, 2019

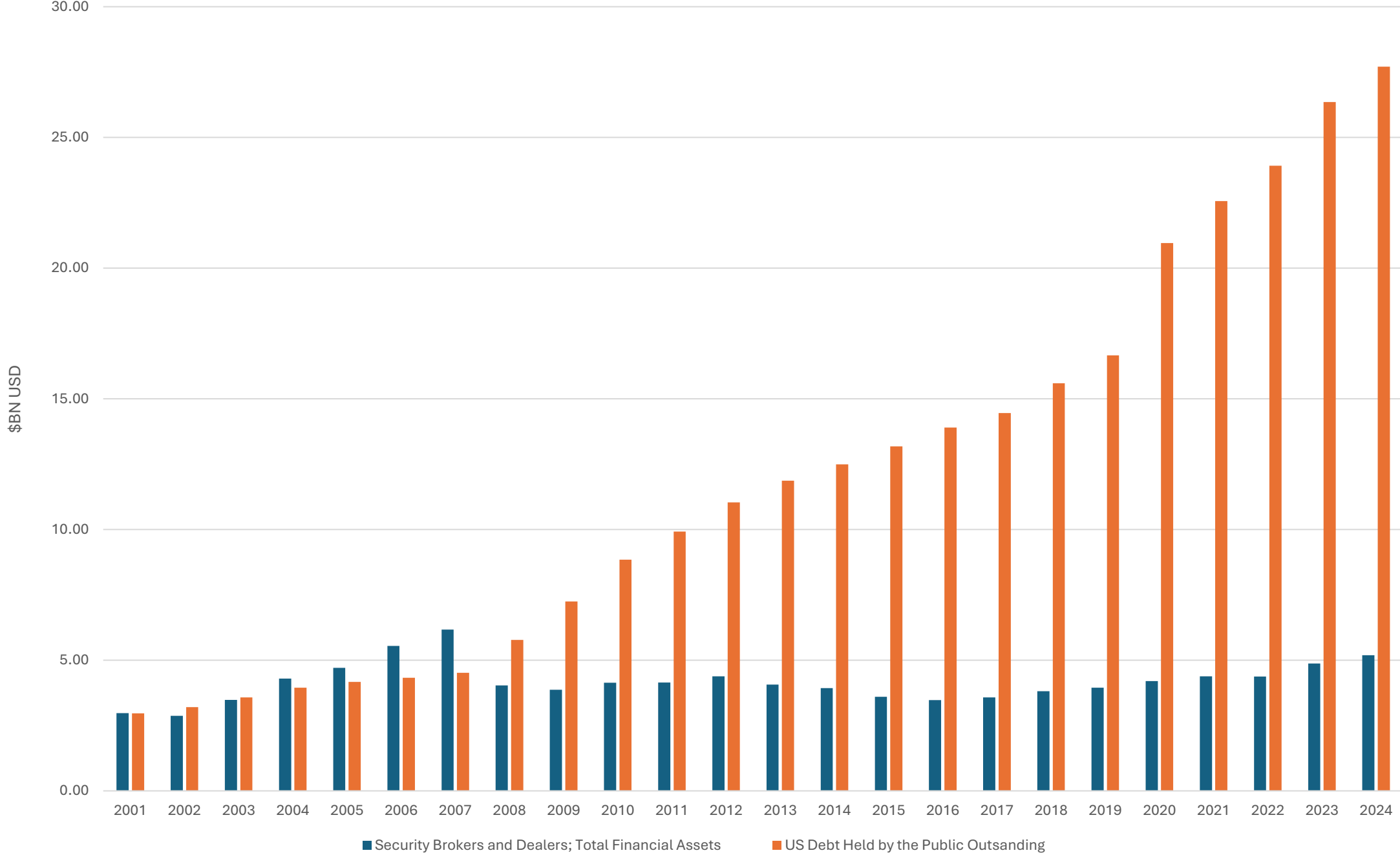
# Bank of England Watcher's Conference

## Liquidity Risk in the Financial System

Colin Teichholtz    25 November 2024



# Treasury Market Growth versus Dealer Balance Sheet Stagnation



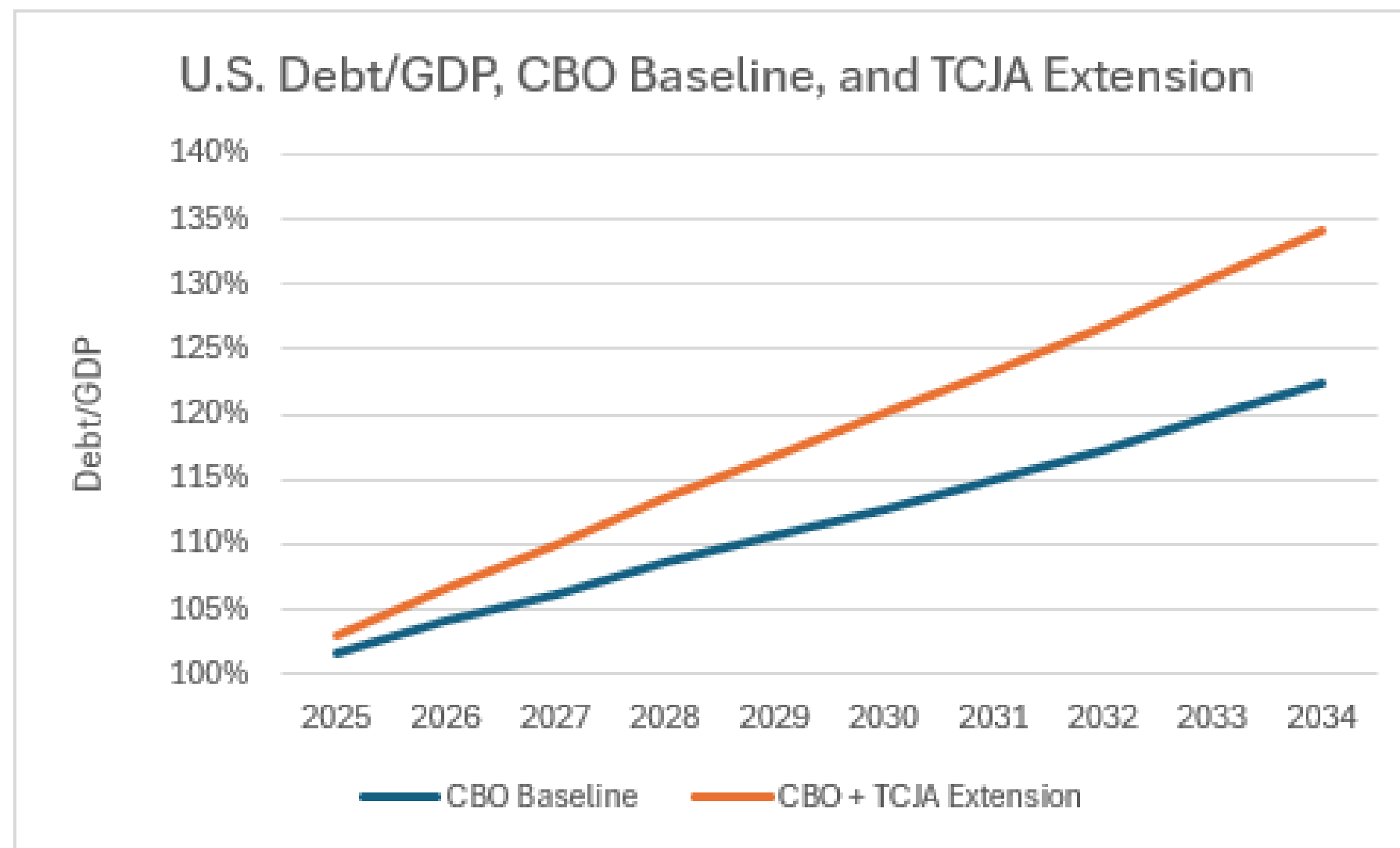
Ratio of Dealer Balance Sheet to UST Market Size:

2001: 1.00x  
 2007: 1.37x  
 2024: 0.19x

Sources: FRED; Board of Governors of the FRS, Z.1 Financial Accounts of the U.S.; Bloomberg; U.S. Treasury

# How much new Treasury debt will the market need to absorb?

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
CBO Baseline	6.5%	6.0%	5.5%	5.9%	5.7%	6.2%	6.2%	6.5%	7.1%	6.9%
TCJA Extension	1.3%	1.3%	1.3%	1.3%	1.4%	1.4%	1.4%	1.4%	1.5%	1.5%
Total Deficit/GDP:	7.8%	7.3%	6.8%	7.2%	7.1%	7.6%	7.6%	7.9%	8.6%	8.4%



- Regardless of who won the election, fiscal was expected to increase above the CBO baseline.
- There is enormous uncertainty about what President-elect Trump's tax and spending policies will ultimately be.
- Simple assumption: TCJA gets extended through 2034, at a cost of \$4.9T.
- For simplicity's sake, assume the cost is distributed proportionately as a function of nominal GDP over the 10y period.

# Excluding Treasuries from SLR could create more capacity for Treasury liquidity provision

Primary Dealer	Treasury long pos. (\$ bn)	Treasury financing (\$ bn)	SLR	Total leverage exposure (\$ bn)	Headroom (\$ bn)	Headroom % of total leverage exposure	Headroom % of Treas. long & financing
J.P. Morgan Securities	154.44	472.32	6.09	4768.2	1039.47	21.8	165.85
Citigroup Global Markets	85.46	247.28	5.89	2949.53	525.02	17.8	157.79
Goldman Sachs	70.87	256.72	5.45	2078.74	187.09	9	57.11
BofA Securities	34.59	298.24	5.98	3756.53	736.28	19.6	221.22
Morgan Stanley	43.93	157.22	5.46	1473.39	135.55	9.2	67.39
Wells Fargo Securities	15.79	43.36	6.67	2258.52	754.35	33.4	1275.32
All SLR primary dealers	450.63	1863.26	6.971	18535.42	7306.66	39.42	315.77
Non-SLR primary dealers	119.1	726.36					

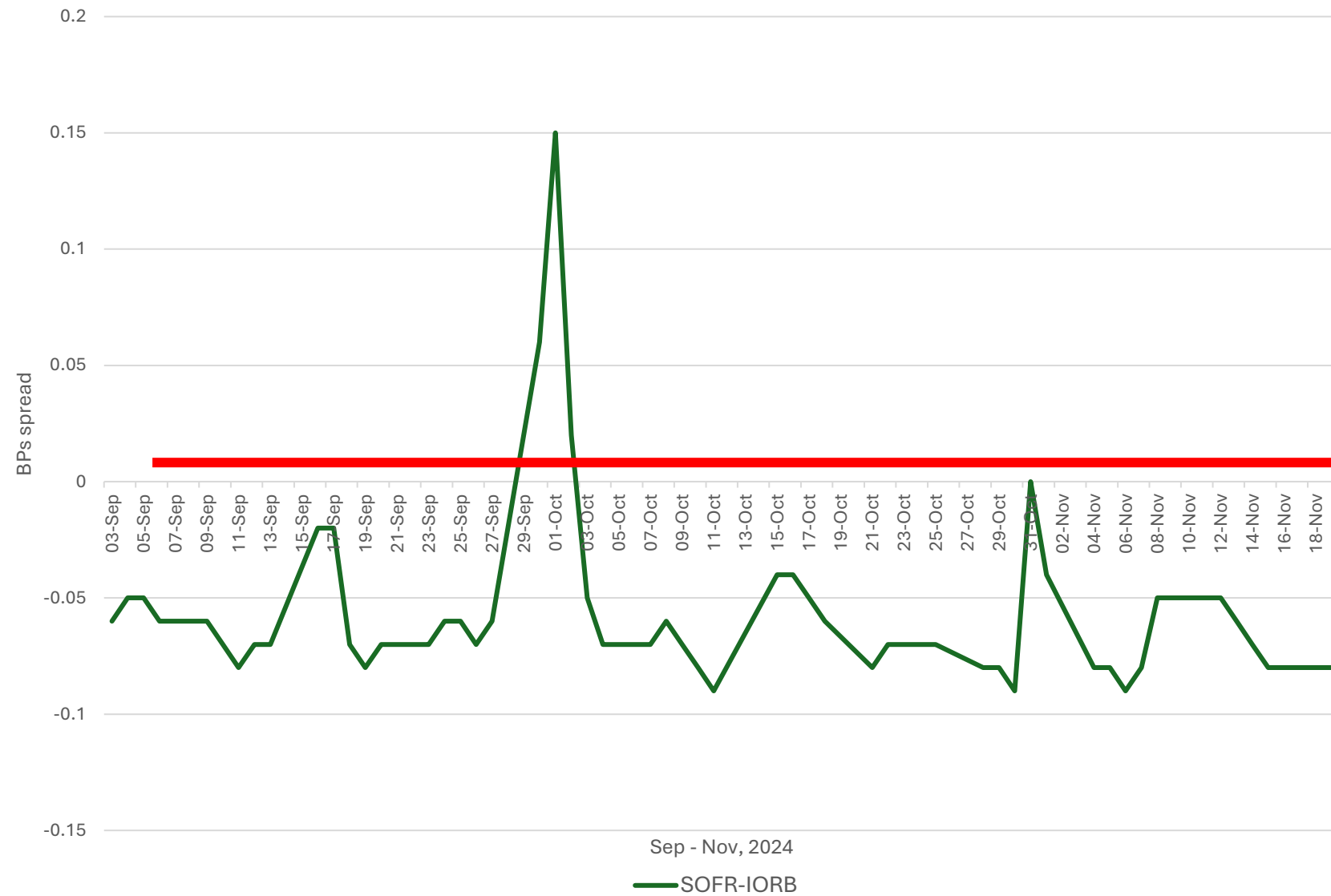
- “It is possible that the SLR could still affect dealer Treasury intermediation:
  - First, there is considerable variation in headroom under the SLR among dealers, and dealers may not be comfortable with using up their spare capacity, potentially moderating their intermediation activity before their headroom is completely consumed.
  - Moreover, activities other than dealer Treasury intermediation may put demands on spare capacity at the BHC level at the same time as demand for dealer intermediation rises, as was the case in March 2020 when BHC balance sheets expanded due to bank credit line drawdowns and loan increases.”

Source: FEDS Notes: Assessment of Dealer Capacity to Interpolate in Treasury and Agency MBS Markets, Paul Cochran, Lubomir Petrsek, Zack Saravay, Mary Tian, Edward Wu, October 22, 2024.

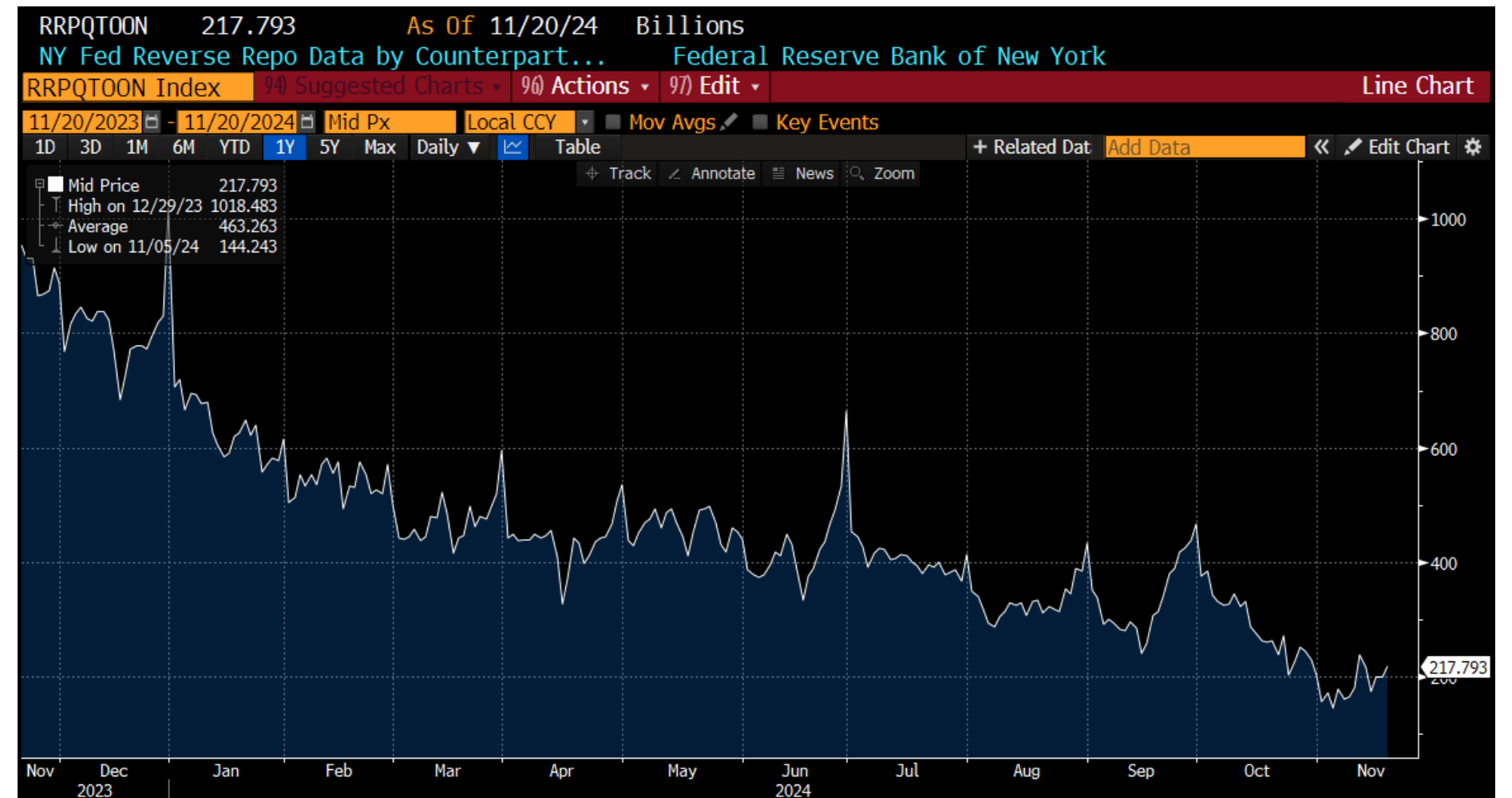


# Are we approaching an “ample” reserve level, or still abundant?

SOFR-IORB spread, Sep-Nov 2024



Fed Overnight-RRP gradually declining



Sources: Bloomberg, Federal Reserve Bank of NY, Board of Governors of the Federal Reserve System



# BANK OF ENGLAND WATCHERS' CONFERENCE

## REACTIONS TO THE BERNANKE REVIEW

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Bernanke Review of Bank of England  
forecasting for monetary policy making  
and communication in times of high uncertainty

Petra Geraats  
University of Cambridge

Bank of England Watchers' Conference  
25 November 2024  
London



# Bernanke Review Recommendations

- ❖ Build and maintain high-quality infrastructure for forecasting and analysis, including much improved data management, software and forecasting framework with revamped/replaced COMPASS.
- ❖ Provide forecast process that better supports MPC decision-making, including learning from past forecast errors and expanding use of scenario analysis to identify & quantify risks to forecasts.
- ❖ Better communicate MPC outlook and policy rationale, with less emphasis on central forecast, more alternative scenarios, **no fan charts**.
- ▶ Many changes overdue, esp. after big structural shocks to UK economy (Brexit & Covid-19). Need for regular *rigorous, public* evaluation of MPC forecasts, leading to annual assessment & update of forecasting models. Need to *improve* communications, rather than make them more fuzzy.

# Scenario Analysis and Conditioning Assumptions

Scenario analysis (comparing projections with different conditioning assumptions) could greatly improve both internal decision-making and external communications, and is a vital tool in times of high uncertainty.

Full benefits require being transparent about conditioning assumptions.

MPC forecast uses (*inconsistent*) conditioning assumptions based on

- market (vs MPC's) expectations of monetary policy path
- announced (vs anticipated) fiscal policy measures

Monetary policy path based on current market expectations likely to be inconsistent with alternative scenarios, so need to adjust policy path (and asset prices) for proper scenario analysis.

Instead of using some monetary policy rule for adjustment, much better to use and publish MPC's projected policy path, also for central forecast.

# Projected Policy Path with Scenario Analysis

Publishing projected policy path for central forecast provides comprehensive time-dependent forward guidance, but it could be misinterpreted as commitment, so use fan chart to prevent this.

Fan charts very effective to convey and illustrate underlying uncertainty.

Scenario analysis highlights possible policy paths within fan and provides useful state-contingent forward guidance for public to learn monetary policy reaction, enhancing predictability and effectiveness of monetary policy.

Combining publication of projected policy path with scenario analysis yields comprehensive time-dependent and state-contingent forward guidance.

Even in time of high uncertainty with large forecast errors, publication of MPC projections still very useful for understanding monetary policy decisions.

Use regular evaluation to learn from forecast errors to update forecasting model and improve quality of monetary policy making.



# BANK OF ENGLAND WATCHERS' CONFERENCE 2024

## KEYNOTE SPEECH



**Philip R. Lane**  
Executive Board  
European Central  
Bank



**Stephen Cecchetti**  
Brandeis







EUROPEAN CENTRAL BANK

EUROSYSTEM

# Monetary policy under uncertainty

  
Bank of England Watchers' Conference  
2024

London

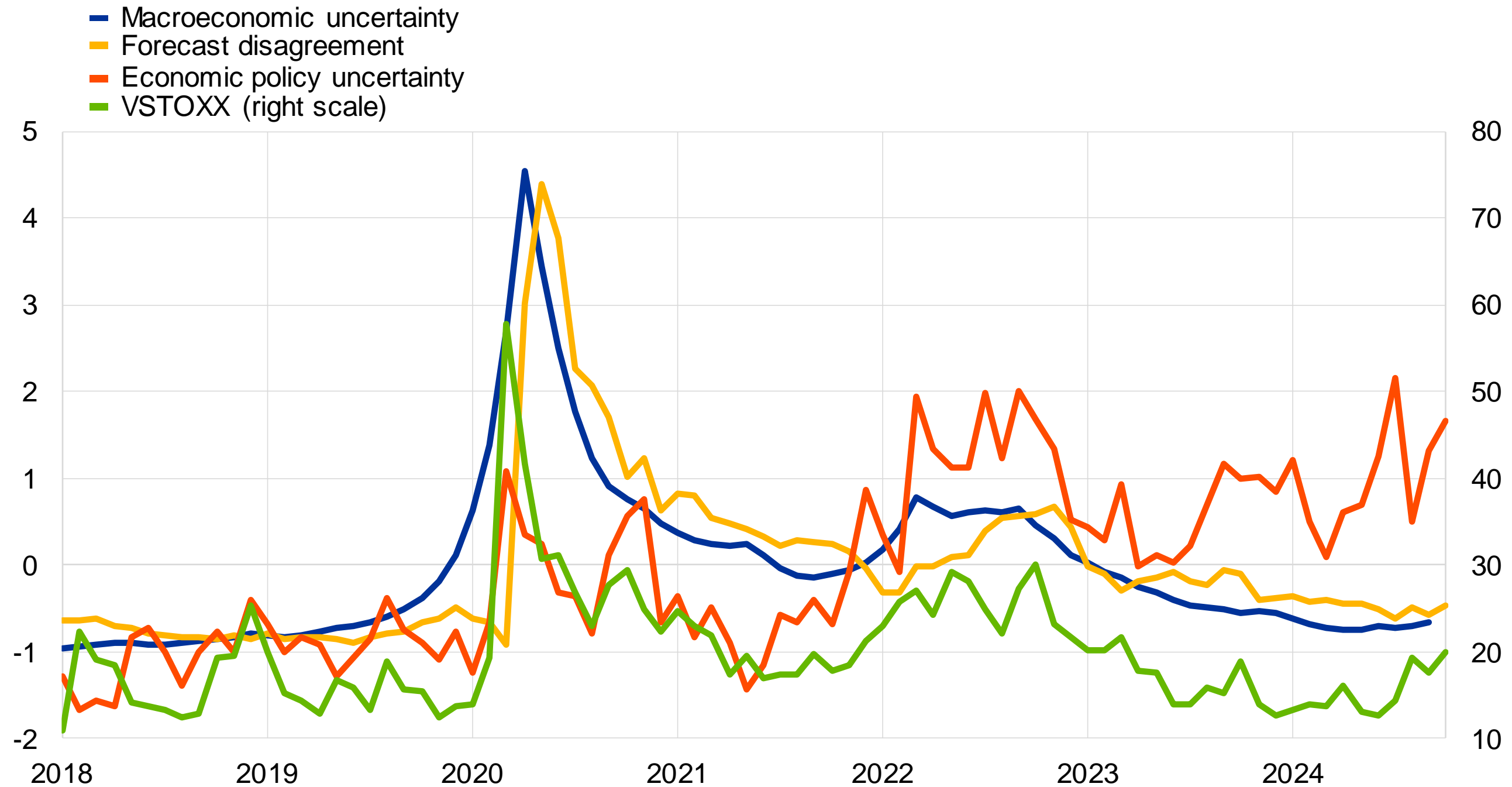
**25 November 2024**



**Philip R. Lane**  
Member of the Executive Board

# Chart 1

## Macroeconomic uncertainty, forecast disagreement, economic policy uncertainty and VSTOXX (left scale: macroeconomic uncertainty, forecast disagreement and economic policy uncertainty, all standardised indices; right scale: VSTOXX, index)

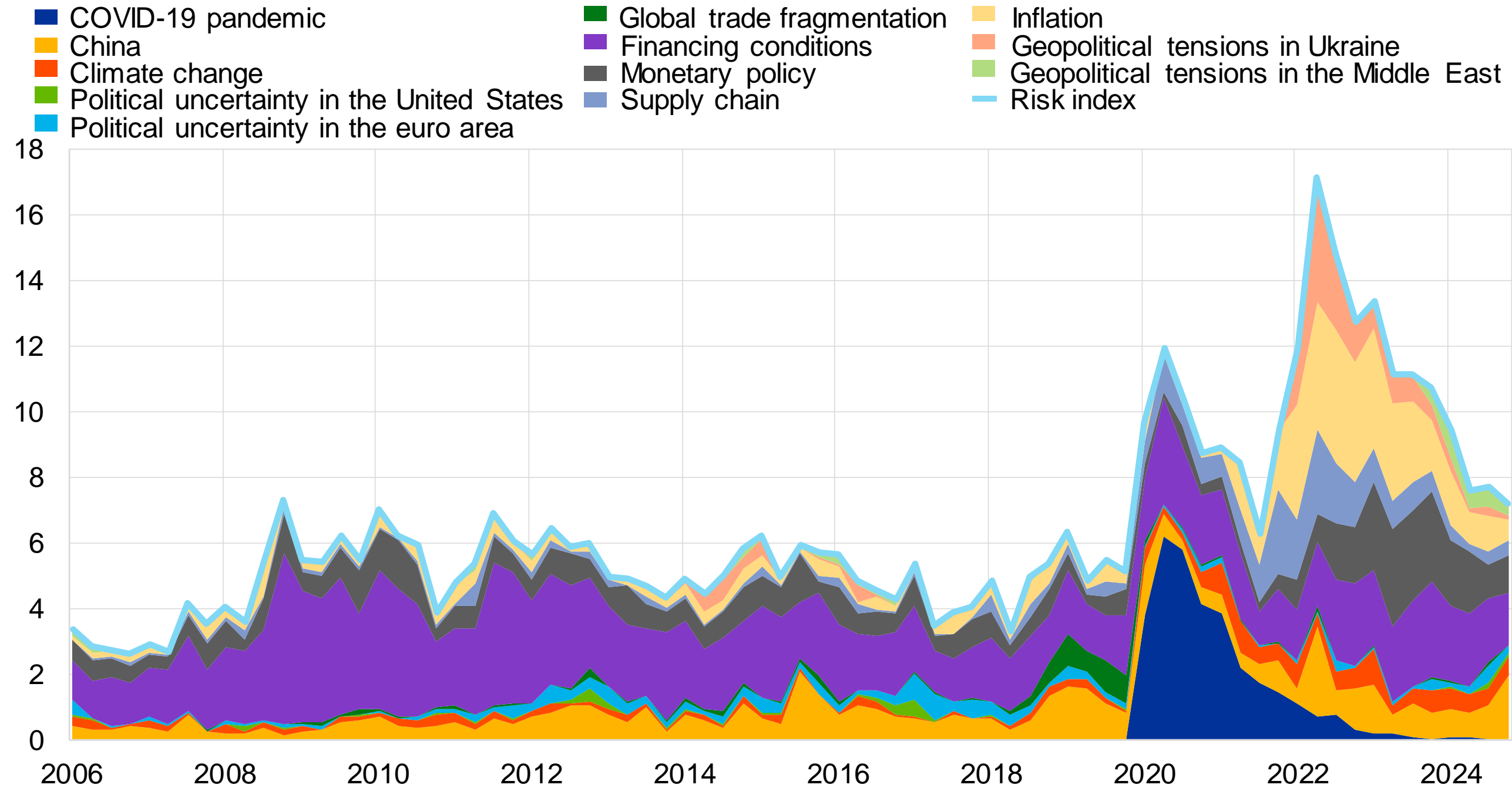


Sources: Jurado et al. for macroeconomic uncertainty, Consensus Forecast and ECB calculations for forecast disagreement, Baker et al. for economic policy uncertainty, LSEG, Bloomberg, and ECB calculations for VSTOXX.

Notes: The chart shows the monthly average for VSTOXX. The latest observations are for September 2024 for macroeconomic uncertainty and October 2024 for the rest.



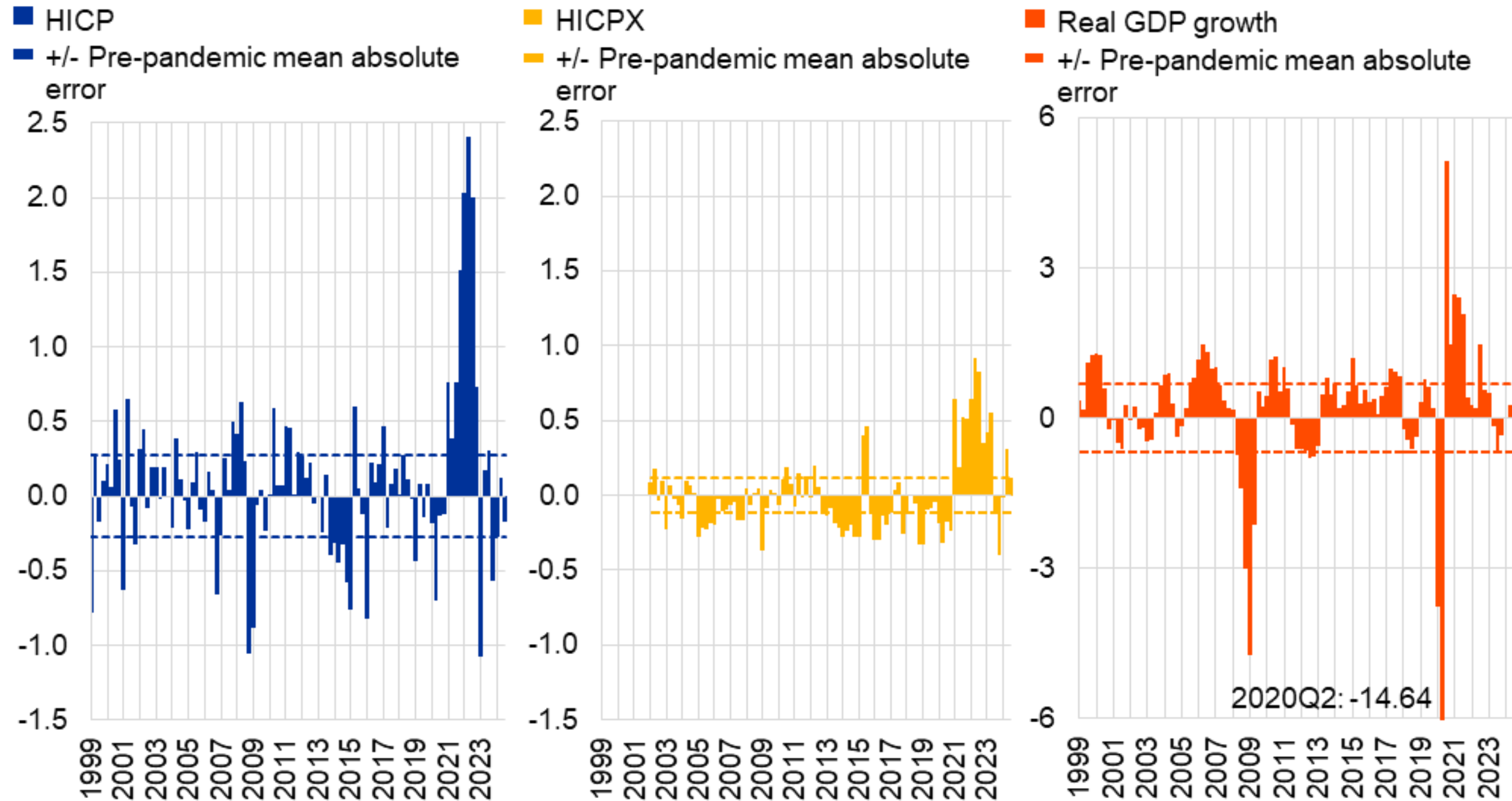
## Risk index (percentage of all risk sentences)



Sources: NL Analytics and ECB calculations.

Notes: The series are based on textual analysis of earnings calls for euro area firms up to the third quarter of 2024 for a number of macro risks, reflecting searches for words associated with the respective risks. See Andersson, M., Guillotin, J. and Neves, P. (2024), "Insights from earnings calls – what can we learn from corporate risk perceptions and sentiment?", Economic Bulletin, Issue 4, ECB.

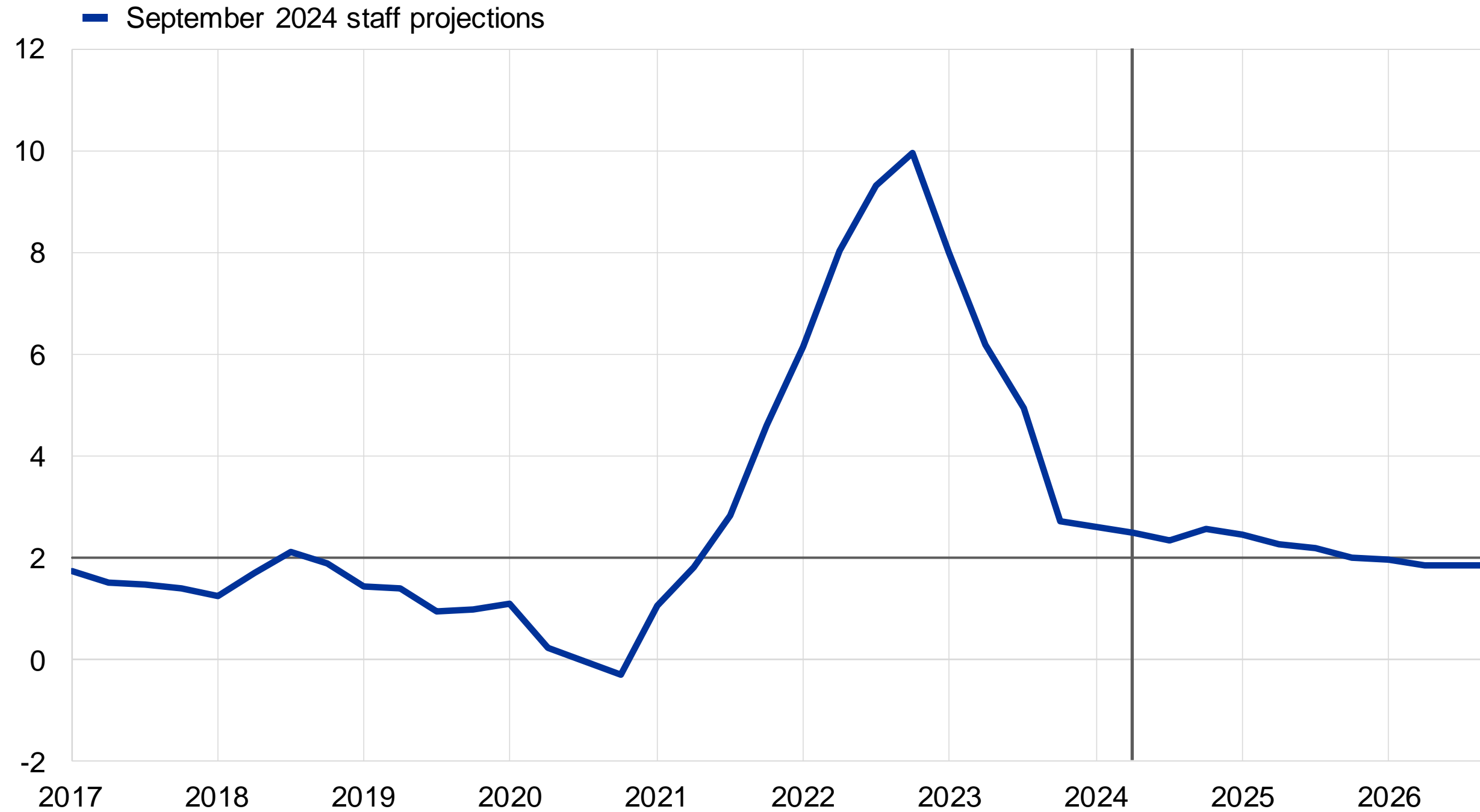
## One-quarter-ahead errors in the inflation projections of Eurosystem/ECB staff (annual percentage changes)



Sources: Eurostat and Eurosystem/ECB staff macroeconomic projections for the euro area.

Notes: An error is defined as the outturn for a given quarter minus the projection made for that quarter in the previous quarter (for example, the outturn for the fourth quarter of 2022 minus the figure projected for that quarter in the September 2022 ECB staff macroeconomic projections). The latest observations are for the September 2024 ECB staff macroeconomic projections.

## Euro area HICP inflation: data and baseline forecast (annual percentage changes)



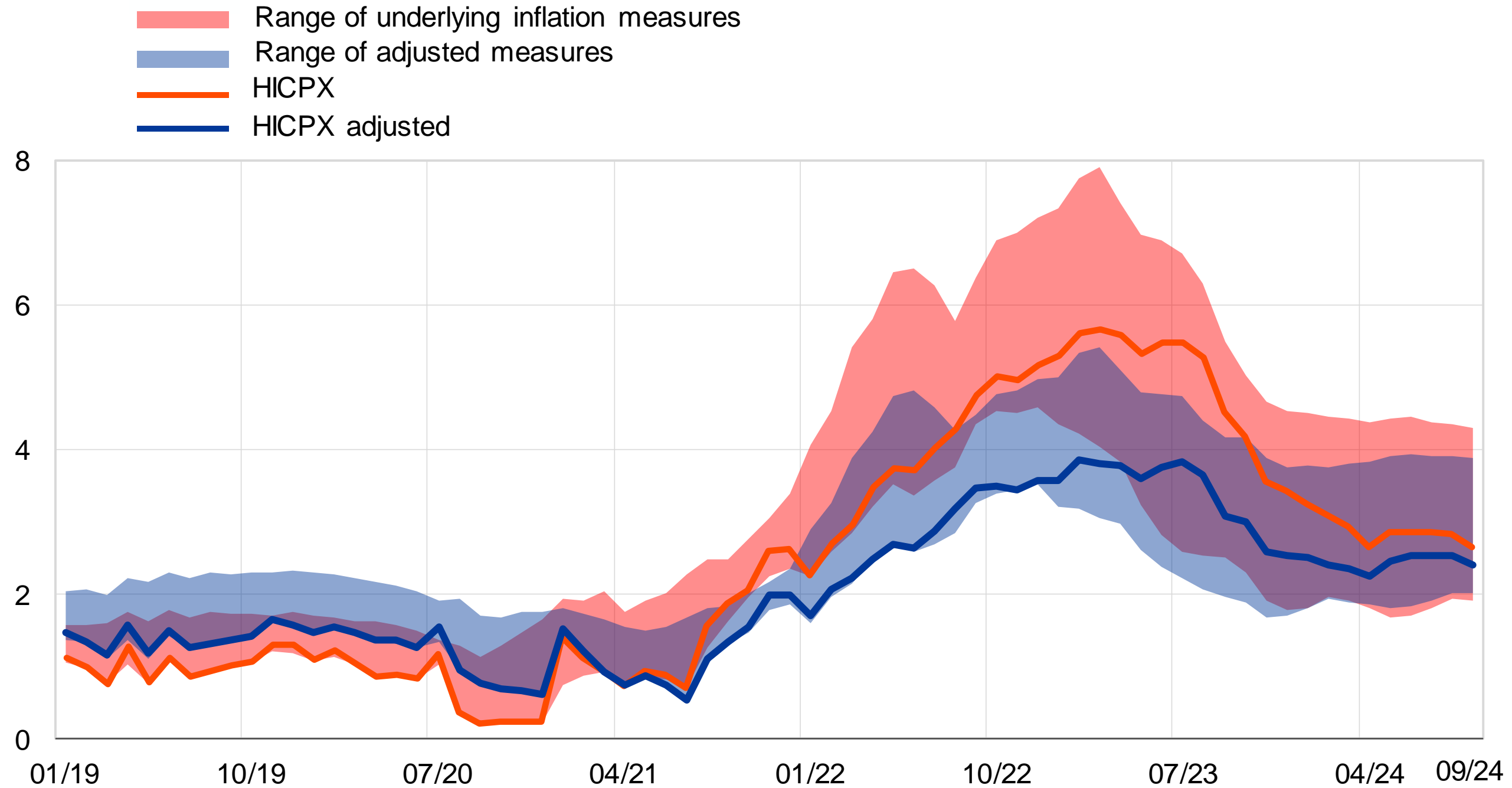
Sources: ECB calculations.

Notes: The vertical line indicates the start of the current projection horizon. Inflation before this vertical line indicates data. The horizontal line indicates the 2% inflation target.



## Range of underlying inflation measures and measures adjusted for the impact of supply bottleneck and energy shocks

(annual percentage changes)

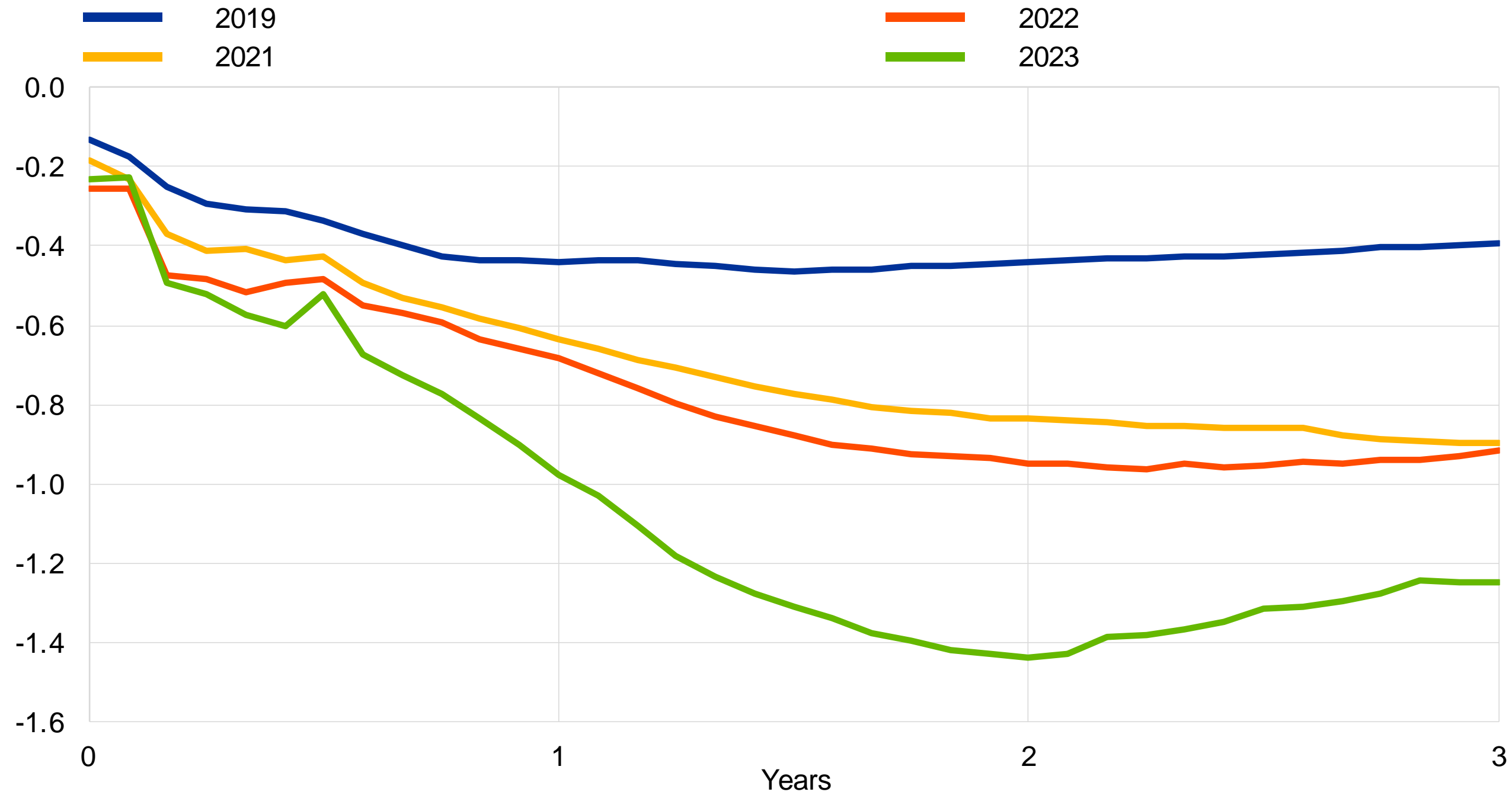


Sources: Eurostat and ECB staff calculations.

Notes: Range of underlying inflation measures include: HICP excluding energy, HICP excluding unprocessed food and energy, HICP excluding energy and food (HICPX), HICP excluding energy, food, travel-related items and clothing (HICPXX), PCCI, PCCI excluding energy, Supercore and domestic inflation. The “adjusted” measures abstract from energy and supply bottleneck shocks using a large SVAR (see Bańbura, M., Bobeica, E. and Martínez Hernández, C. (2023), “What drives core inflation? The role of supply shocks”, Working Paper Series, No 2875, ECB), subtracted mechanically from each measure. The latest observations are for September 2024.

# Chart 6

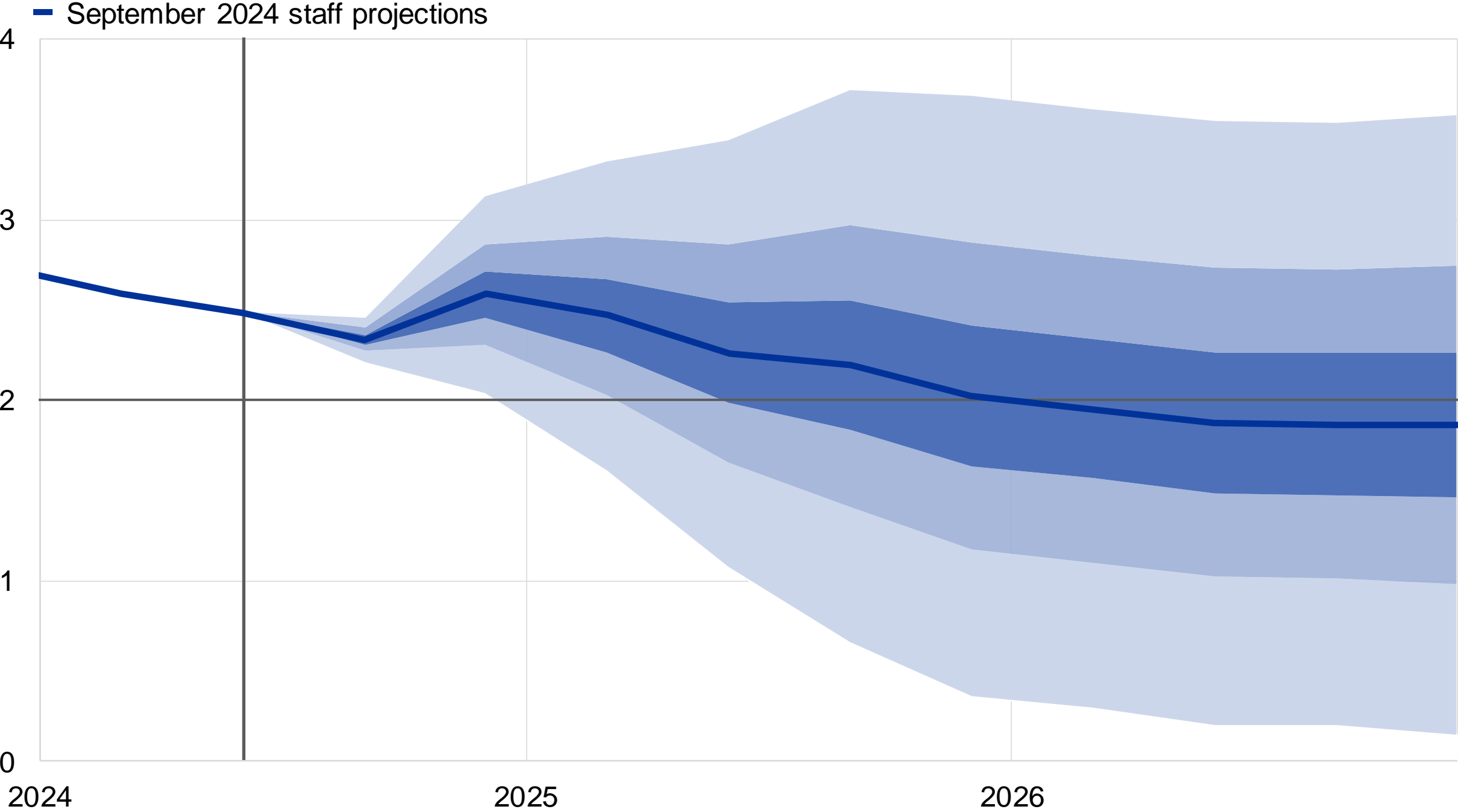
## Impulse responses of highly sensitive components of core inflation across selected samples (cumulative percentage changes)



Source: ECB staff calculations based on Allayioti, Górnicka, Holton and Martínez-Hernández (2024).

Notes: The figure shows the responses of highly sensitive core HICP to a tightening monetary policy shock normalised to a 25 basis points increase in the 1Y German Bund, across selected samples. The highly sensitive category corresponds to the aggregation of more sensitive COICOP-4 HICPX items based on their weights in the core HICP basket. The classification of items is based on the selection of impulse responses that are negative and significant for three consecutive periods. Highly sensitive items are those with a larger response than the median across selected items fulfilling the previous criterion. The blue, yellow and red lines correspond to the pre-COVID, COVID, and post-COVID period, respectively, while the green line highlights the IRF including the last period in the sample. Reference refers to Allayioti, A., Górnicka, L., Holton, S., and Martínez-Hernández, C. (2024), "Monetary Policy Pass-Through to Consumer Prices: Evidence from Granular Price Data", *Working Paper Series*, forthcoming, ECB.

## Euro area HICP inflation: baseline and projection error-based fan chart (annual percentage changes; seasonally and working day-adjusted quarterly data)

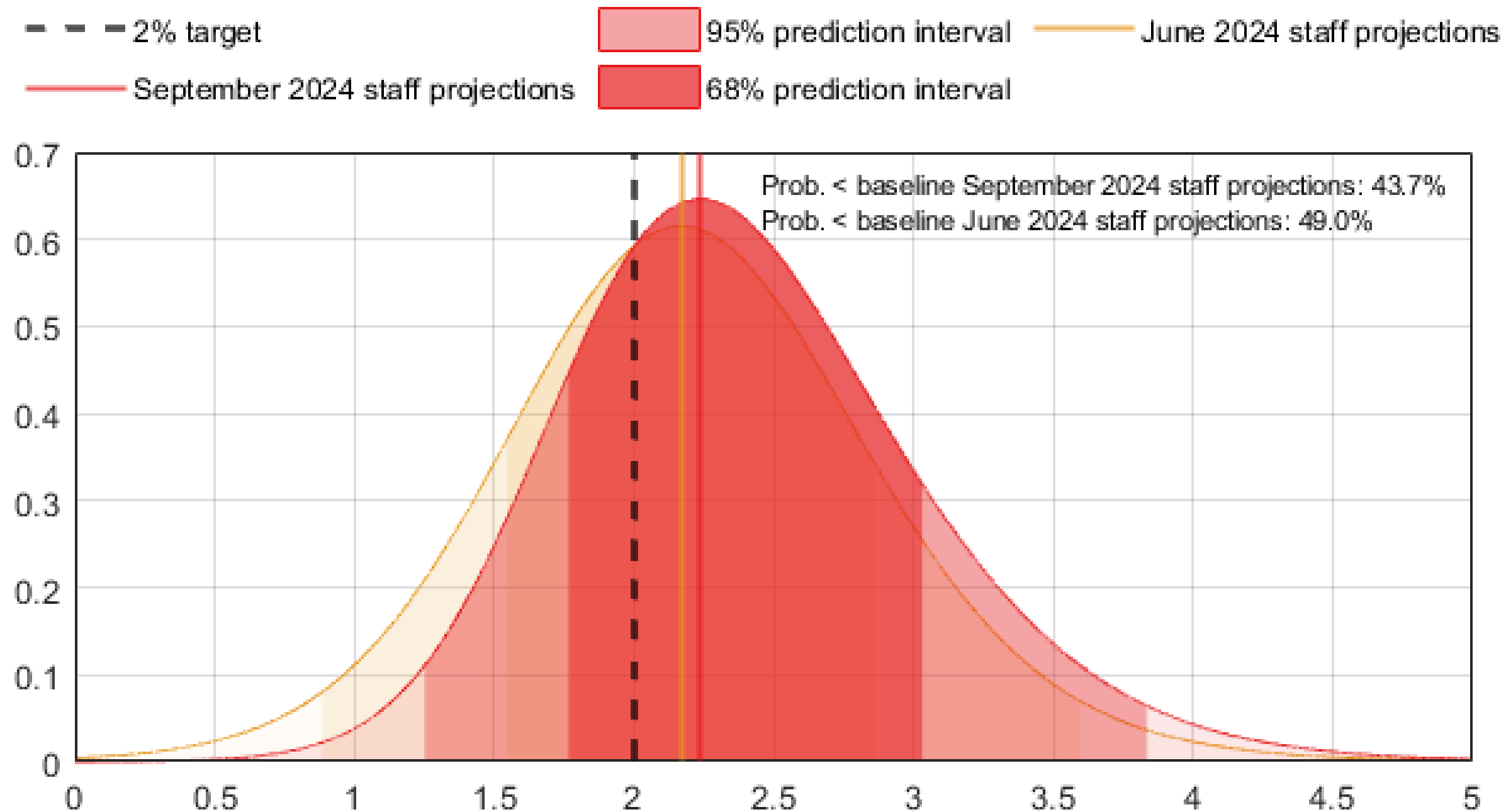


Source: ECB calculations.

Notes: The vertical line indicates the start of the current projection horizon. Inflation before this vertical line indicates data. The horizontal line indicates the 2% inflation target. The ranges shown around the central projections provide a measure of the degree of uncertainty and are symmetric by construction. The ranges are based on past projection errors, after adjustment for outliers. The bands, from darkest to lightest, depict the 30%, 60% and 90% probabilities that the outcome of HICP inflation will fall within the respective intervals.



## Probability distributions of HICP inflation projections for 2025 based on inflation-at-risk models (annual percentage changes)



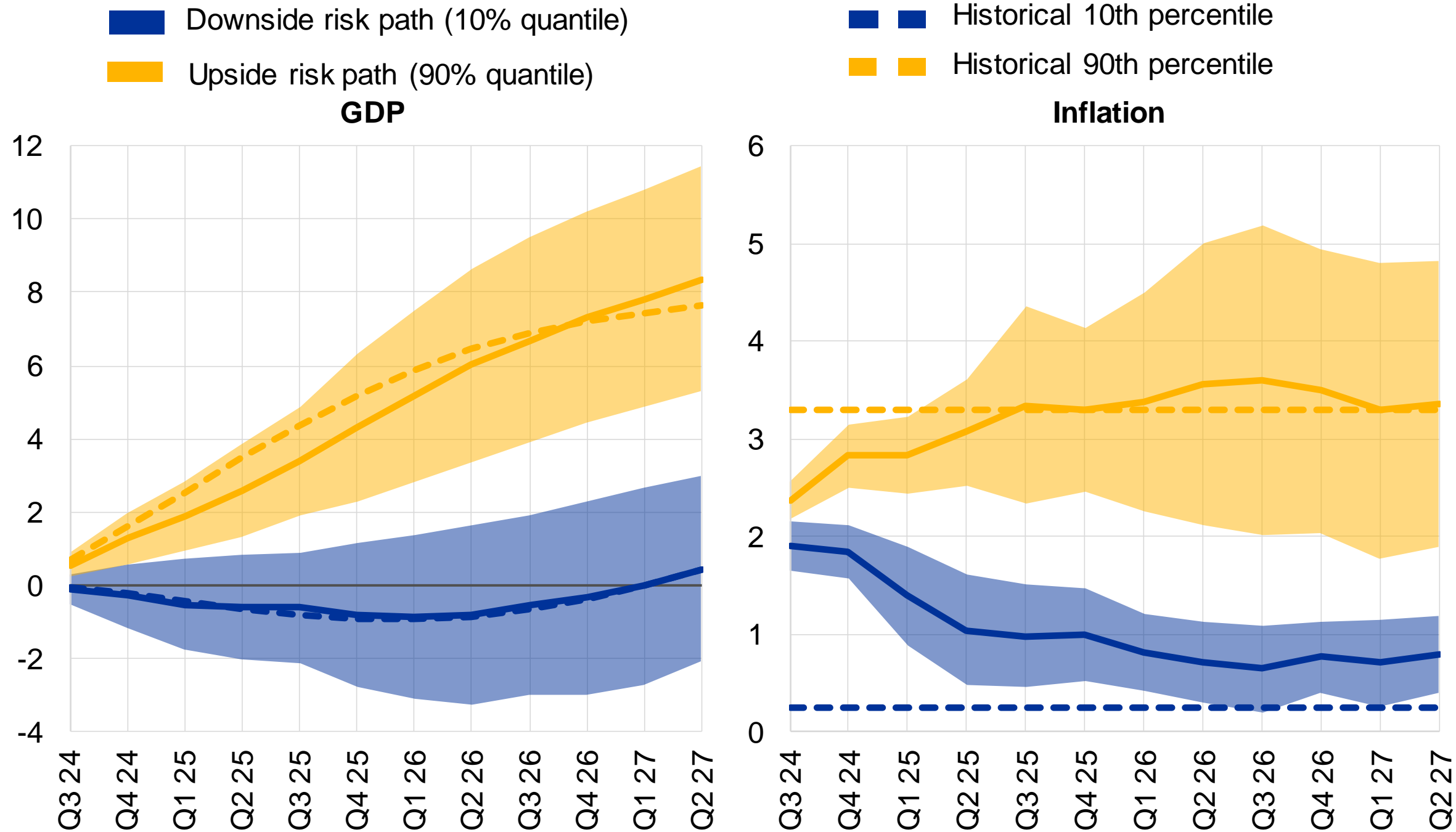
Sources: ECB calculations.

Notes: The chart depicts the predictive distributions of headline HICP and HICP excluding food and energy inflation for the year 2025 from a combination of best-performing inflation-at-risk models. The combined density follows the quantile aggregation approach weighting the individual densities based on their corresponding (inverse of) average continuous ranked probability score. All distributions are assumed to follow skew-t distributions whose modes are tilted towards the September 2024 baseline projections.

# Chart 9

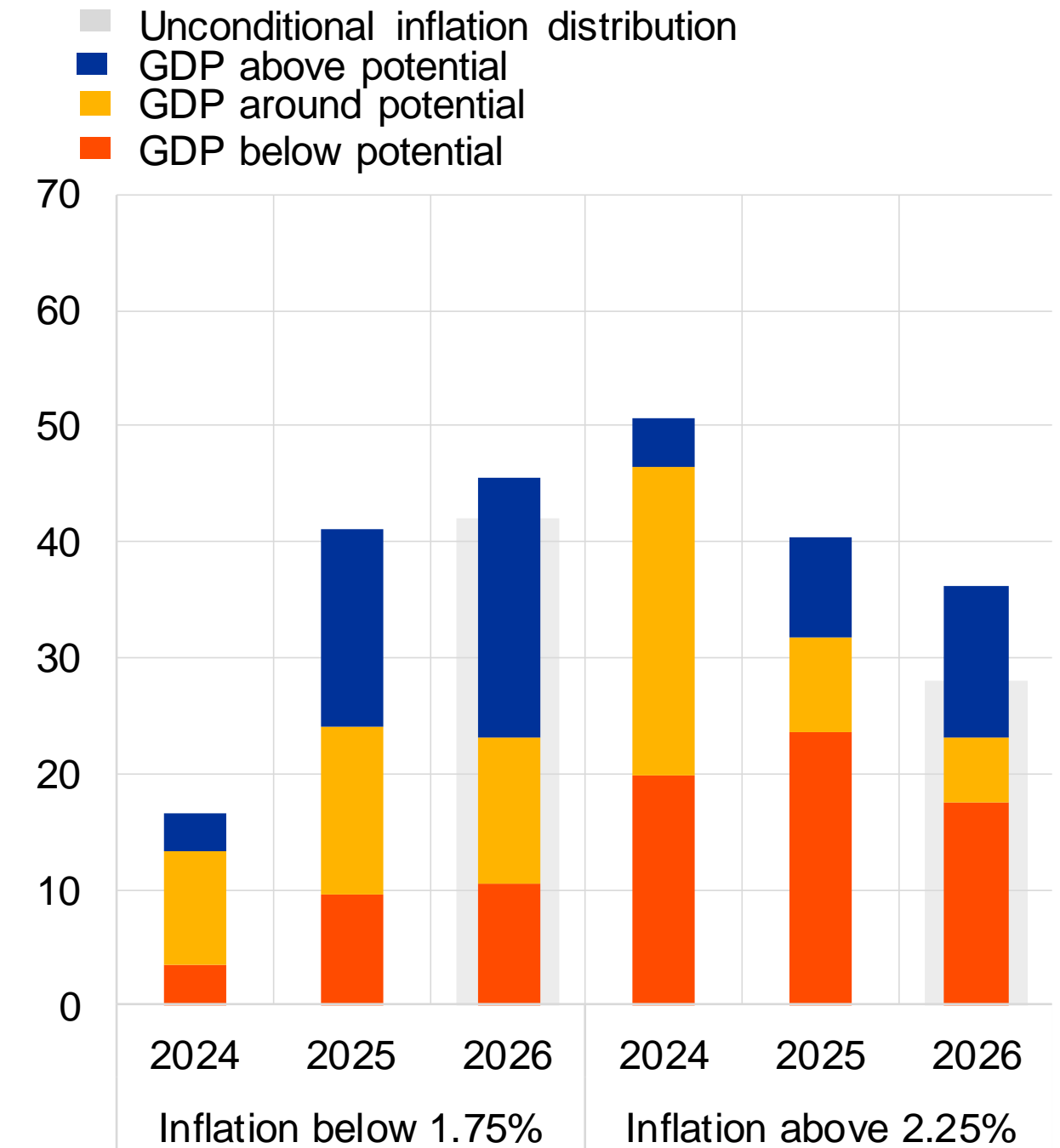
## Paths of downside and upside tail risks for real GDP and inflation

(GDP: percentage deviation relative to 2024 Q2; inflation: year-on-year inflation, percentages)



## Joint growth – inflation risks

(probabilities in percentages)



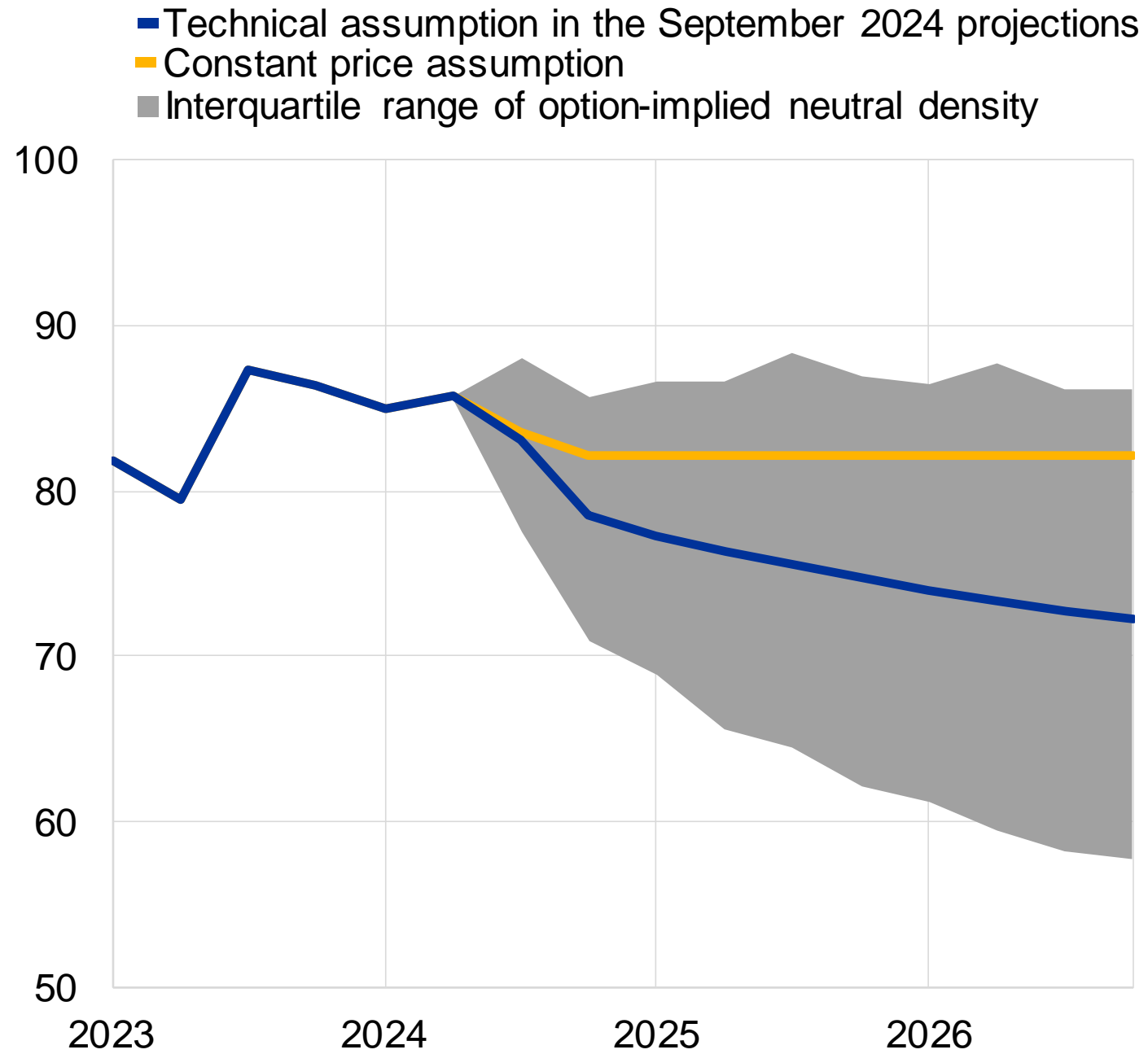
Sources: ECB and ECB calculations.

for each model, the paths are ranked based on the cumulative output (for GDP) and average inflation (for inflation) over the next 12 quarters. To get the downside (upside) paths, paths that fall between the 9th and 11th (89th and the 91st) quantile of the relevant distribution are selected and averaged model by model. The panels present the average paths across the models, and two standard deviations of the path distribution computed across models as model uncertainty. Historical paths are computed by applying the same procedure to historical data for GDP and by selecting the relevant percentiles of the distribution for inflation. The latest observations are for the second quarter of 2024.

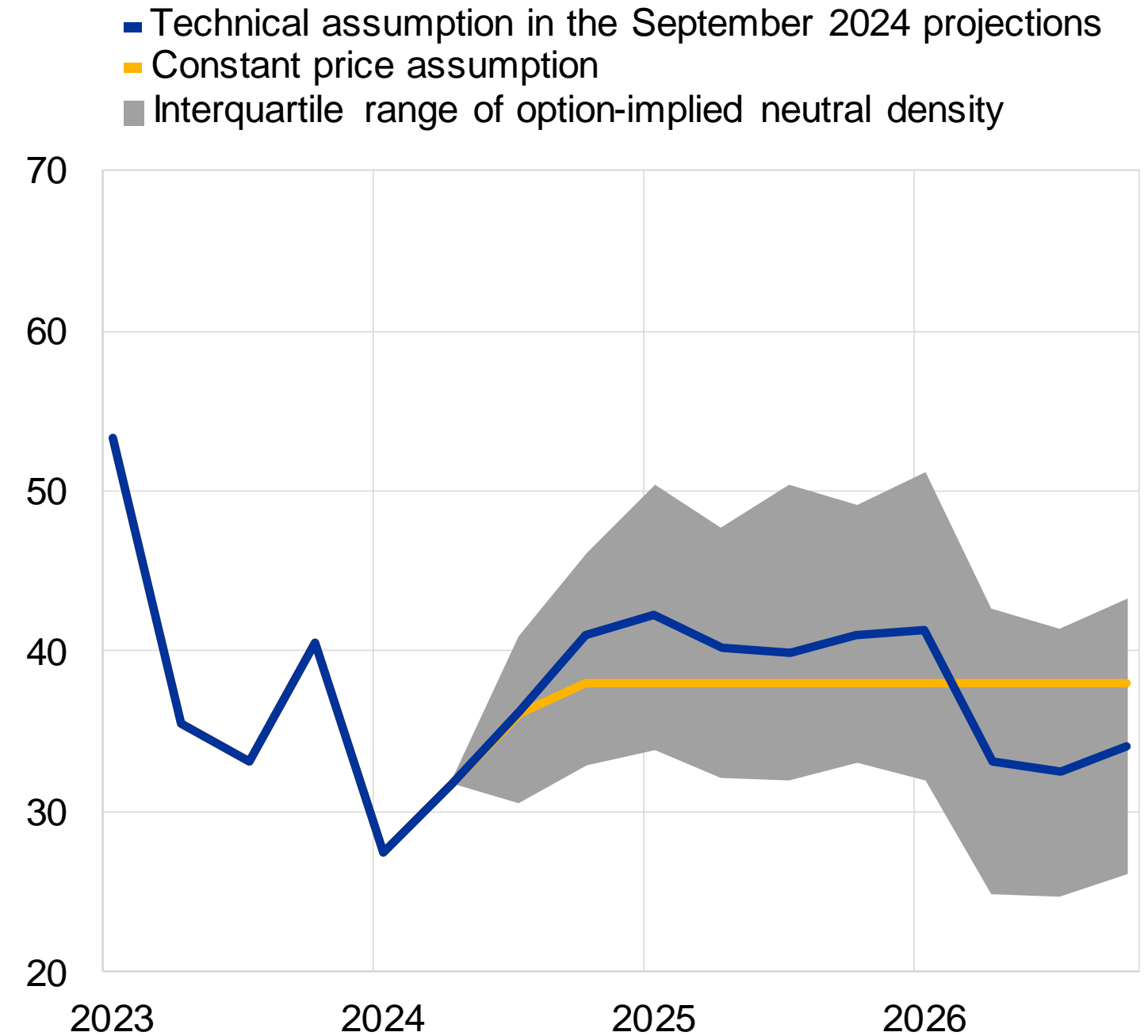
Sources: ECB and ECB calculations.

GDP around potential output is defined as within 0.5 percentage points of potential output. Grey bars denote the unconditional inflation distribution between the first quarter of 1999 and the fourth quarter of 2023. The latest observations are for the second quarter of 2024.

## Alternative paths for oil price assumptions (USD/barrel)



## Alternative paths for gas price assumptions (EUR/MWh)



Sources: Morningstar and ECB calculations.

Notes: The options-implied densities of gas and oil prices are extracted from 16 August 2024 market quotes of options on ICE Brent crude oil and Dutch TTF natural gas futures with fixed quarterly expiry dates. The technical assumption refers to the paths of commodity prices implied by futures markets in the ten working days ending on the cut-off date, which was 16 August 2024 for the September projections.



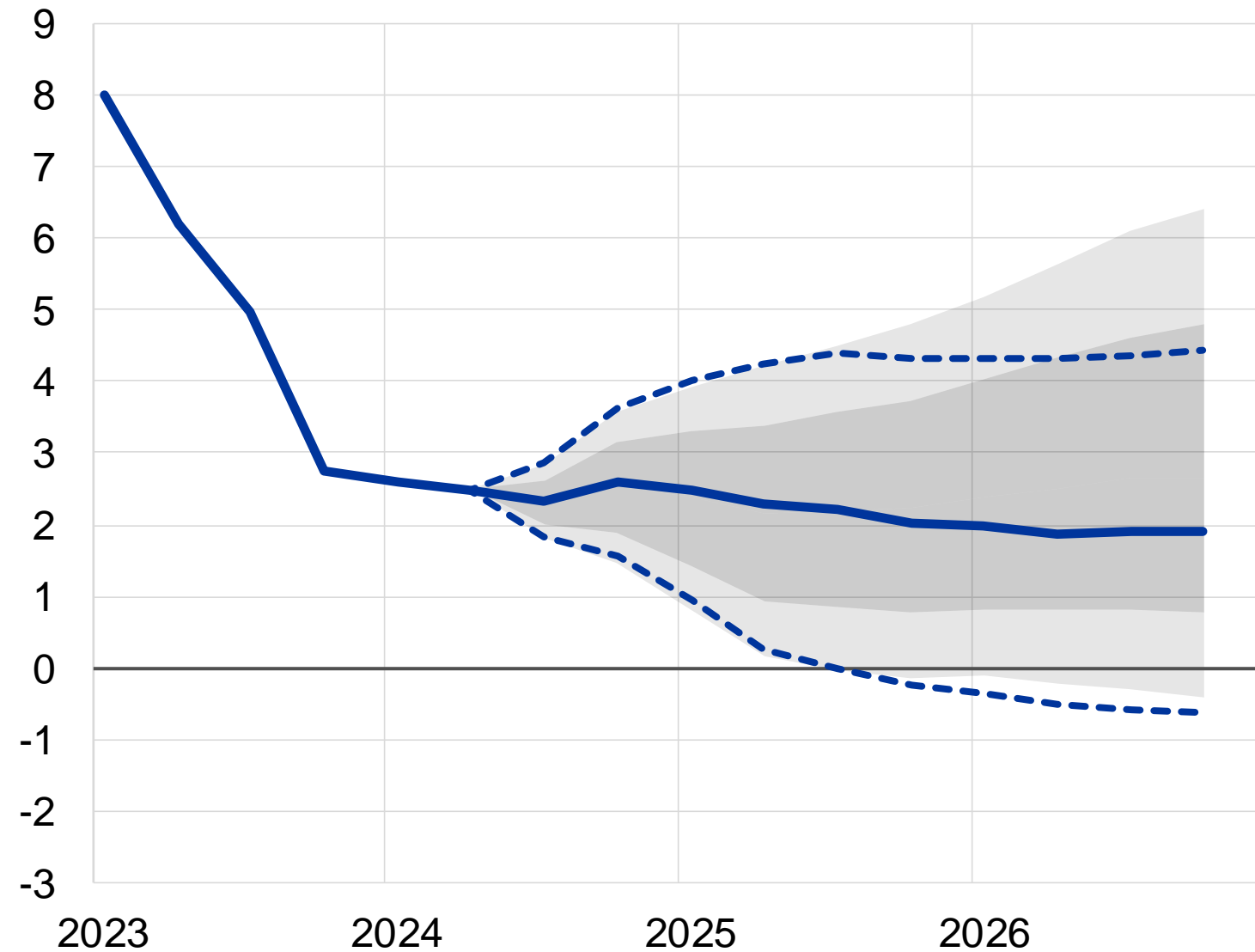
## Effects of alternative energy price paths on real GDP growth and HICP inflation in the September 2024 projections

	Path 1: 25th percentile			Path 2: 75th percentile			Path 3: constant prices		
	2024	2025	2026	2024	2025	2026	2024	2025	2026
(deviation from baseline levels, percentages)									
<b>Oil prices</b>	-4.0	-14.1	-19.1	3.6	14.8	18.5	1.2	8.1	12.3
<b>Gas prices</b>	-10.2	-19.8	-23.8	7.2	21.1	26.6	-2.4	-6.9	7.9
<b>Synthetic energy price index</b>	-7.3	-16.8	-20.0	6.7	19.3	24.3	0.0	2.1	10.6
(deviations from baseline growth rates, percentage points)									
<b>Real GDP growth</b>	0.0	0.1	0.1	0.1	-0.1	-0.1	0.0	0.0	0.0
<b>HICP inflation</b>	-0.2	-0.6	-0.3	0.3	0.8	0.4	0.0	0.1	0.3

Notes: In this sensitivity analysis, a synthetic energy price index that combines oil and gas futures prices is used. The 25th and 75th percentiles refer to the option-implied neutral densities for the oil and gas prices on 16 August 2024. The constant oil and gas prices take the respective value as at the same date. The macroeconomic impacts are reported as averages of a number of ECB and Eurosystem staff macroeconomic models.

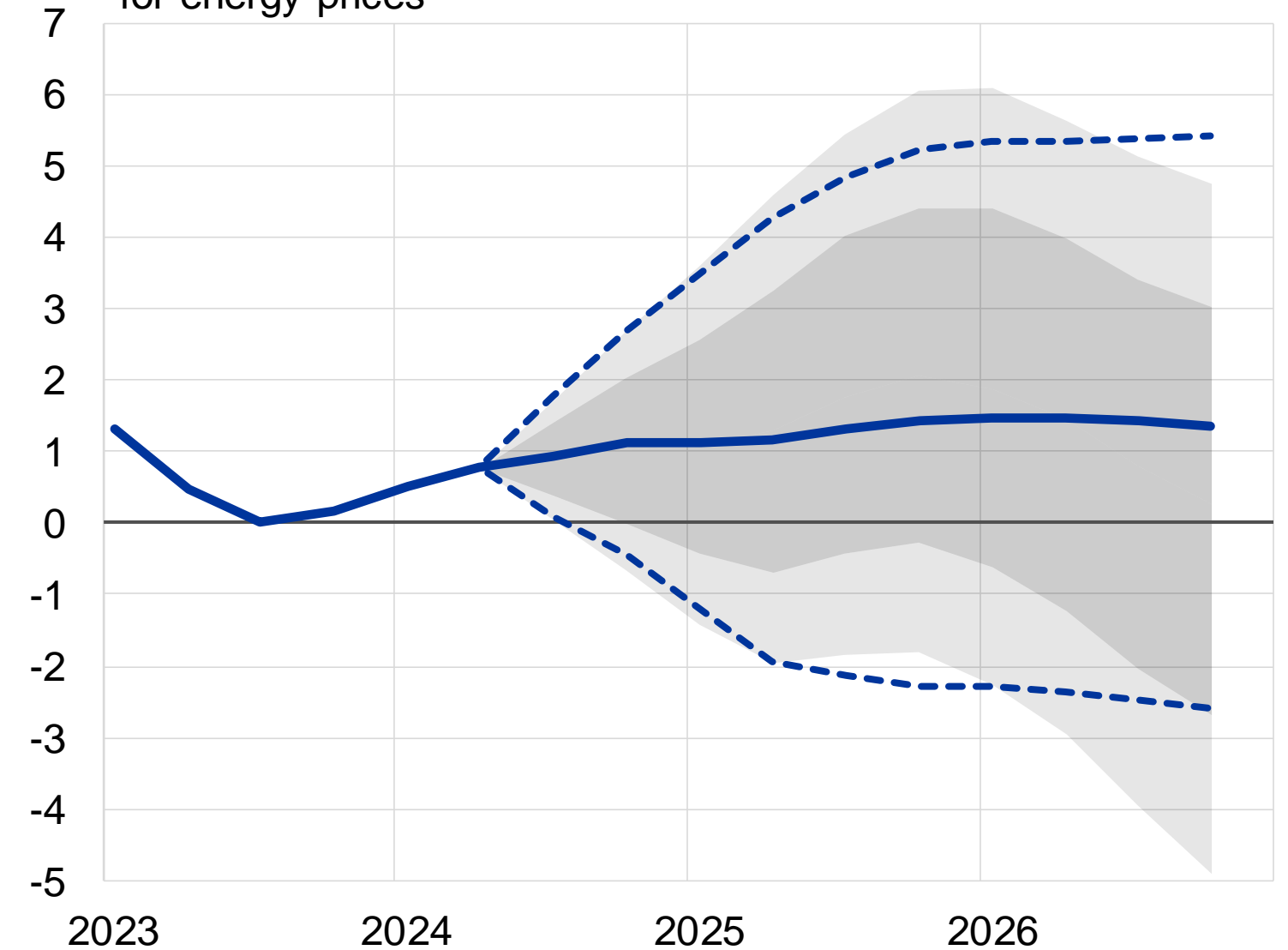
## Conditional forecasts of headline inflation with option-implied densities (annual percentage changes)

- September 2024 staff projections
- ▤ Model-based densities conditional on staff projections
- Model-based densities conditional on option-implied densities for energy prices



## Conditional forecasts of real GDP growth with option-implied densities (annual percentage changes)

- September 2024 staff projections
- ▤ Model-based densities conditional on staff projections
- Model-based densities conditional on option-implied densities for energy prices



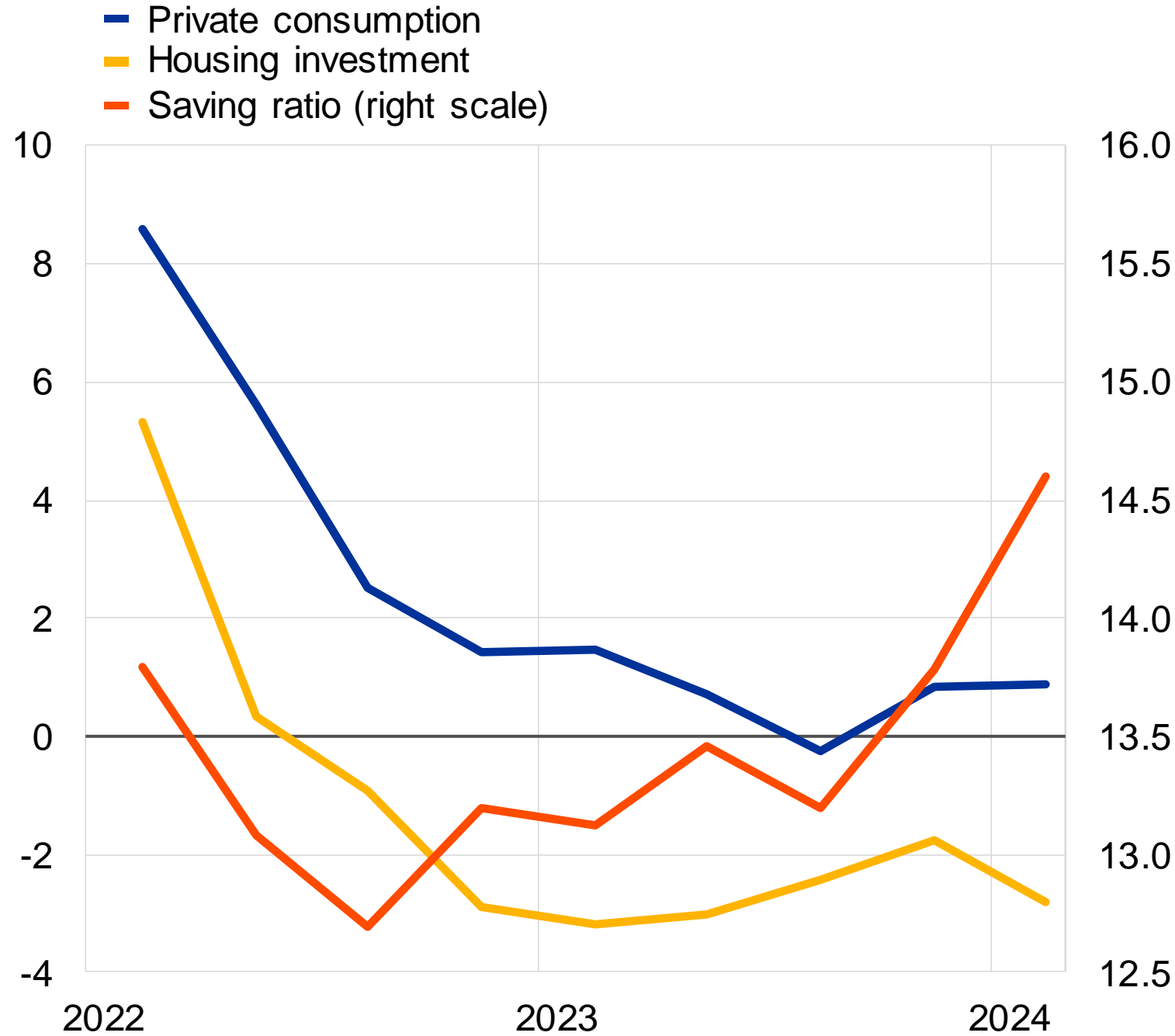
Sources: ECB staff calculations, based on the September 2024 projections baseline and Morningstar data.

Notes: The chart shows model-based densities using a NAWM II version with an enhanced transmission of energy prices. The dashed blue lines show the 5% and 95% quantiles of the model-based densities centred around the baseline. The grey densities show the result of a conditional density forecasting exercise in which the forecasting densities of energy prices (oil and gas) are imposed to be those that come from options (see Montes-Galdón, Paredes and Wolf, 2022). The densities show the 5%, 16%, 84% and 95% quantiles of the forecasting distributions. The transmission of energy prices in the model is enhanced by assuming a faster pass-through from energy prices to import prices. Oil and gas prices are drawn jointly to generate densities for the synthetic energy index with a correlation coefficient  $\rho=0.9$  using Gaussian copulas.

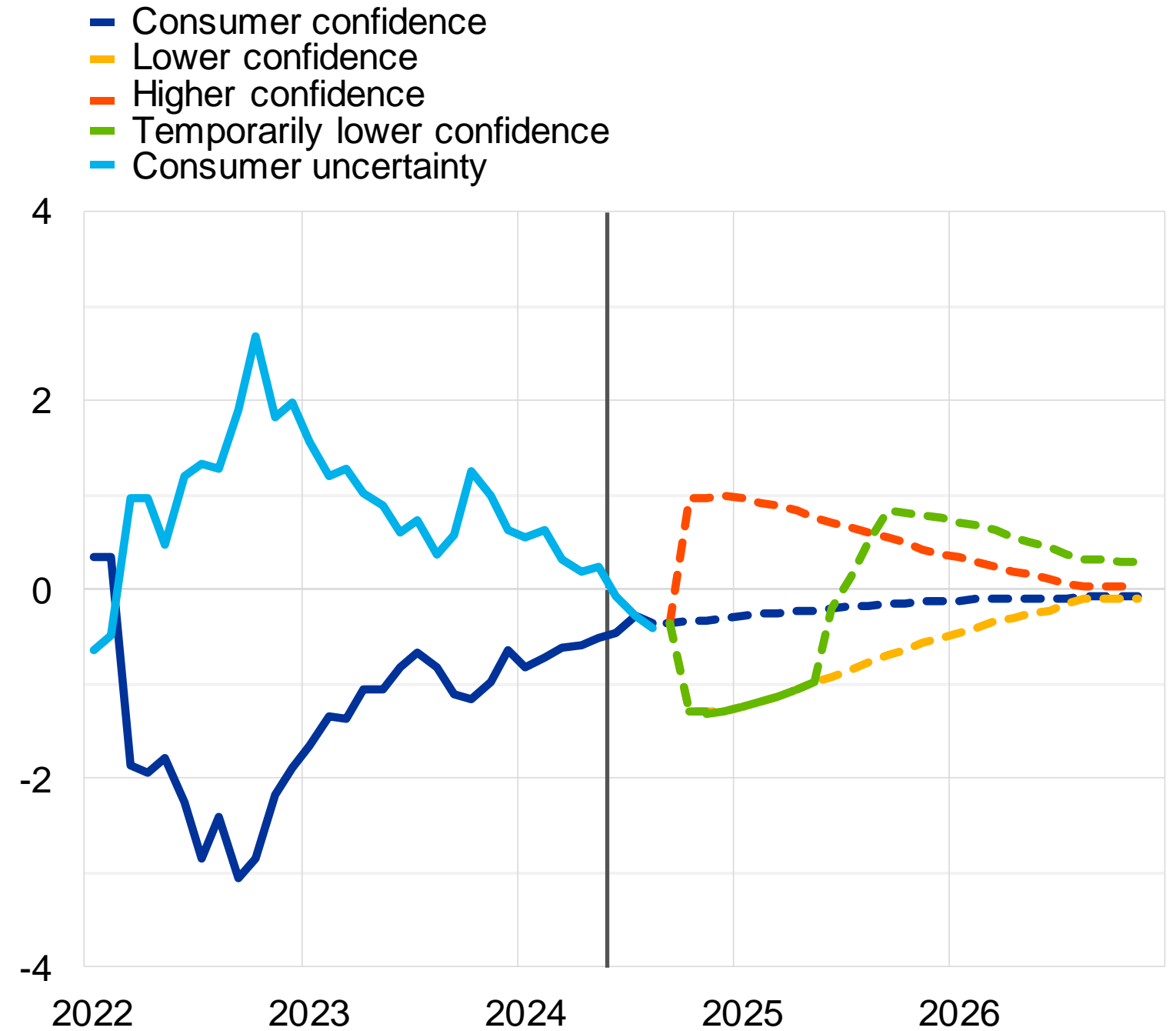
# Chart 12

## Private consumption, housing investment and the saving ratio

(left scale: annual percentage changes; right scale: share of gross disposable income, percentage)



## Consumer confidence and uncertainty (standardized level)



Sources: Eurostat, European Commission (Directorate General for Economic and Financial Affairs) and ECB staff calculations.

Sources: Eurostat, European Commission (Directorate General for Economic and Financial Affairs) and ECB staff calculations. Notes: The data are standardised for the entire available sample – from January 1999 to August 2024 for confidence and from April 2019 to July 2024 for uncertainty. The dashed blue line refers to a projection of consumer confidence consistent with the baseline projections through the lens of an empirical model. The vertical line marks the start of the current projection horizon. “Lower confidence”, is constructed by imposing responses of housing investment and the saving ratio consistent with a positive one-standard-deviation shock to consumer confidence, while Scenario 2, “Higher confidence”, imposes the paths consistent with a negative one-standard-deviation shock. Scenario 3, “Temporarily lower confidence”, imposes the responses of housing investment and the saving ratio consistent with a negative one-standard-deviation shock followed by a positive shock of the same magnitude after four quarters. The latest observations are for August 2024.



## Effects of consumer confidence scenarios on real GDP growth, HICP inflation and private consumption

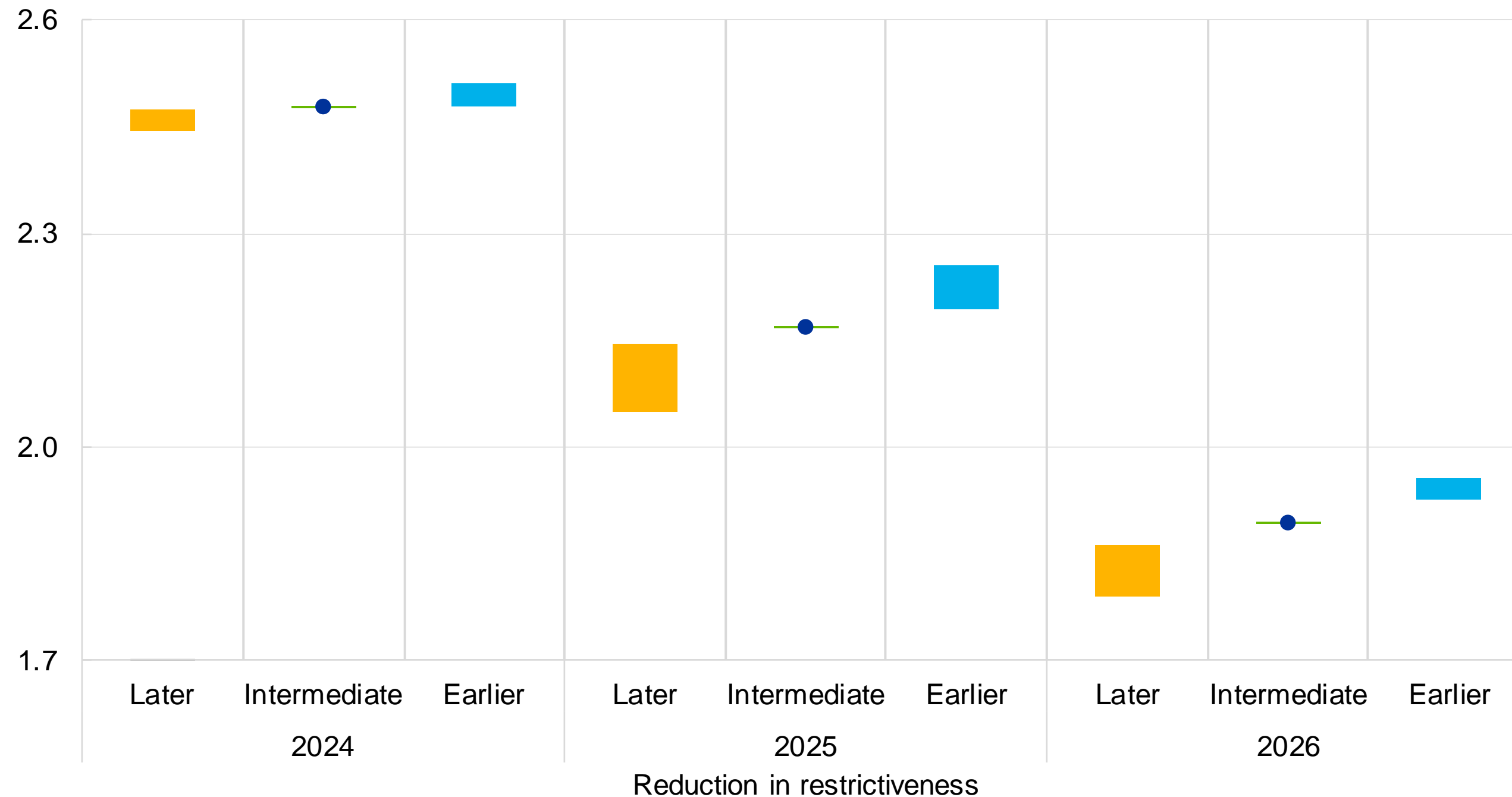
(percentage point deviation from baseline)

	Real GDP growth				Private consumption growth				HICP inflation			
	2024	2025	2026	Cum.	2024	2025	2026	Cum.	2024	2025	2026	Cum.
<b>Scenario 1: Lower confidence</b>	0.0	-0.3	-0.6	-0.9	0.0	-0.4	-0.9	-1.4	0.0	0.0	-0.1	-0.1
<b>Scenario 2: Higher confidence</b>	0.0	0.3	0.5	0.9	0.0	0.4	0.9	1.4	0.0	0.0	0.1	0.1
<b>Scenario 3: Temporarily lower confidence</b>	0.0	-0.3	0.1	-0.1	0.0	-0.4	0.1	-0.3	0.0	0.0	0.0	0.0

Sources: The ECB-BASE model and ECB staff calculations.

Notes: ECB-BASE simulation using the “projection update modality” with exogenous exchange rate and monetary and fiscal policies. Additionally, other channels that could amplify the effects of consumer confidence shocks, such as a corresponding international environment scenario or direct effects through expectations, are excluded. The response of private consumption is consistent with the ECB-BASE-implied response. All numbers are reported in percentage point deviations from the baseline and are rounded to one decimal place.

## Annual euro area inflation in the projections and under alternative policy paths based on information from June 2024 (annual percentage changes)



Sources: Eurosystem staff macroeconomic projections for the euro area, June 2024; ECB calculations using the New Area-Wide Model (Coenen, Karadi, Schmidt and Warne, 2019), the MMR model (Mazelis, Motto and Ristinieni, 2023), and the BASE model (Angelini, Bokan, Christoffel, Ciccarelli and Zimic, 2019).

Notes: Circles represent the annual inflation forecasts from the June 2024 projections. Ranges are constructed from the minimum and maximum of annual inflation rates across the three different models.

## Robust control (percentage losses)

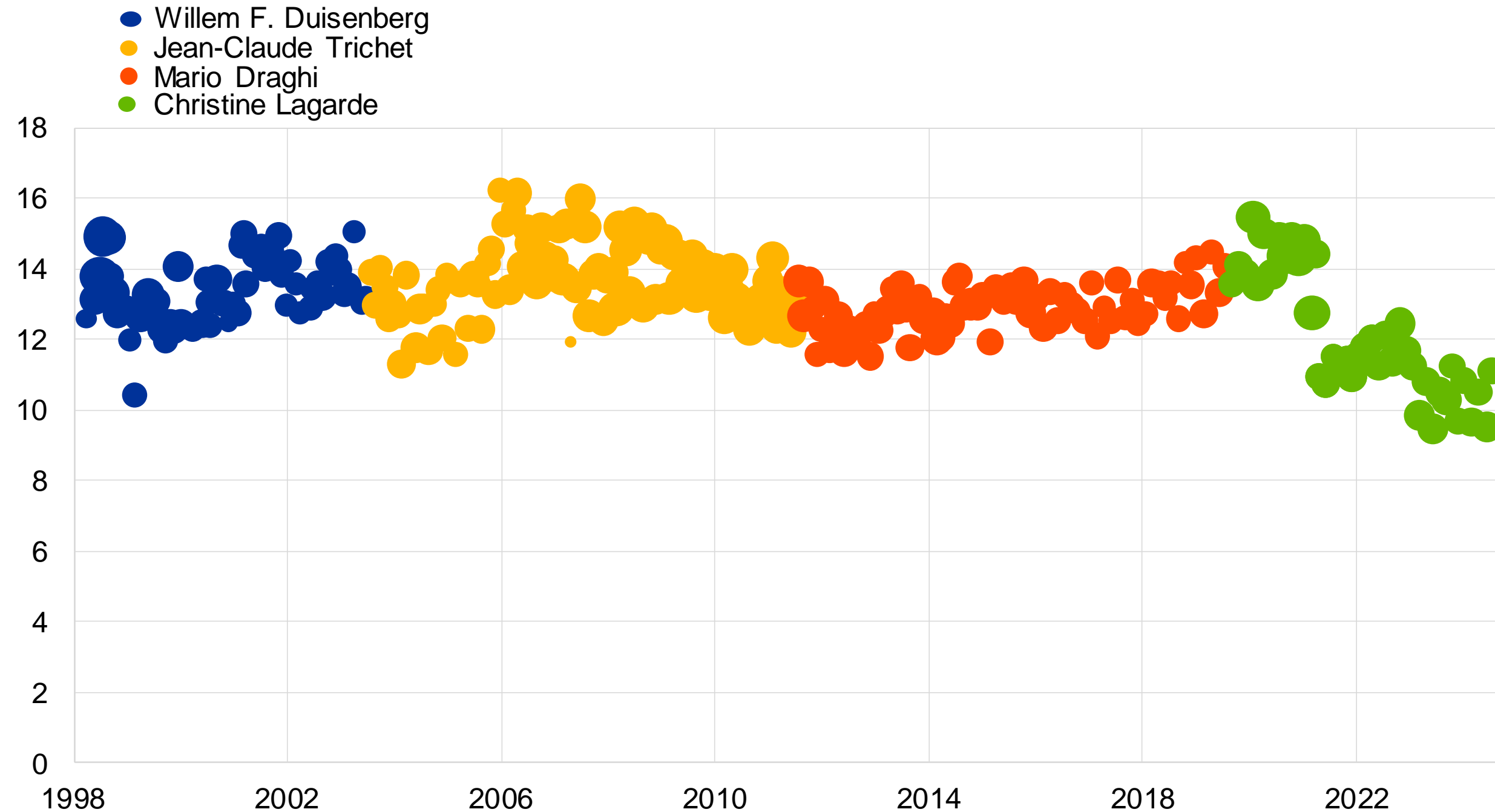
		Environment		
		Baseline	Persistent inflation	Amplification effects
<b>Optimal policy</b>	<b>Baseline</b>	0%	94%	86%
	<b>Persistent inflation</b>	6%	81%	135%
	<b>Persistent risk-premia and amplification effects</b>	5%	96%	77%

Sources: ECB calculations using the MMR model (Mazelis, Motto, Ristinemi, 2023) with the exercises documented in the Handbook on Inflation (Coenen, Mazelis, Motto, Ristinemi, Smets, Warne, Wouters (forthcoming)).

Notes: The persistent inflation environment is modelled via more persistent price mark-up shocks. The persistent risk premia and amplification effects environment is modelled via more persistent risk premium shocks and an amplification effect of policy on consumption, investment and more persistent risk premium shocks. Losses refer to the percentage increase in central bank losses relative to the baseline case. The loss function is given by  $\sum((\pi_t - \pi^*)^2 + \lambda_y y^2)$  with  $\pi_t$  measuring inflation,  $\pi^*$  the inflation target,  $y$  the output gap, and the weight  $\lambda_y = 0.2$ . The rows contain losses for policy rules that are chosen ex ante. The columns display the environments that materialise ex post. Each cell therefore displays the loss (in percent deviation from baseline) for a policy rule that was set based on expectations for the contingency presented in a row, while instead the contingency presented in the column materialises. The two cells with darker shades indicate the two highest losses incurred under two different optimal policies.



## Complexity of ECB monetary policy statements (complexity score)



Source: Updated data (October 2024) from analysis in Coenen et al. (2017).

Notes: The chart depicts the length and the complexity of the ECB's monetary policy statements (known as the "introductory statement" until June 2021). The length is measured by the number of words (indicated by circle size). The difficulty of the language employed is measured using the Flesch-Kincaid Grade Level score, which indicates how many years of formal training are required to understand the text, based on the length of its sentences and words. Coenen et al. refers to Coenen, G., Ehrmann, M., Gaballo, G., Hoffmann, P., Nakov, A., Nardelli, S., Persson, E., and Strasser, G. (2017), "Communication of Monetary Policy in Unconventional Times," Working Paper Series, No. 2080, ECB.