

Monetary policy since 1970s

There and back again?

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CERGE Seminar

October 26, 2022

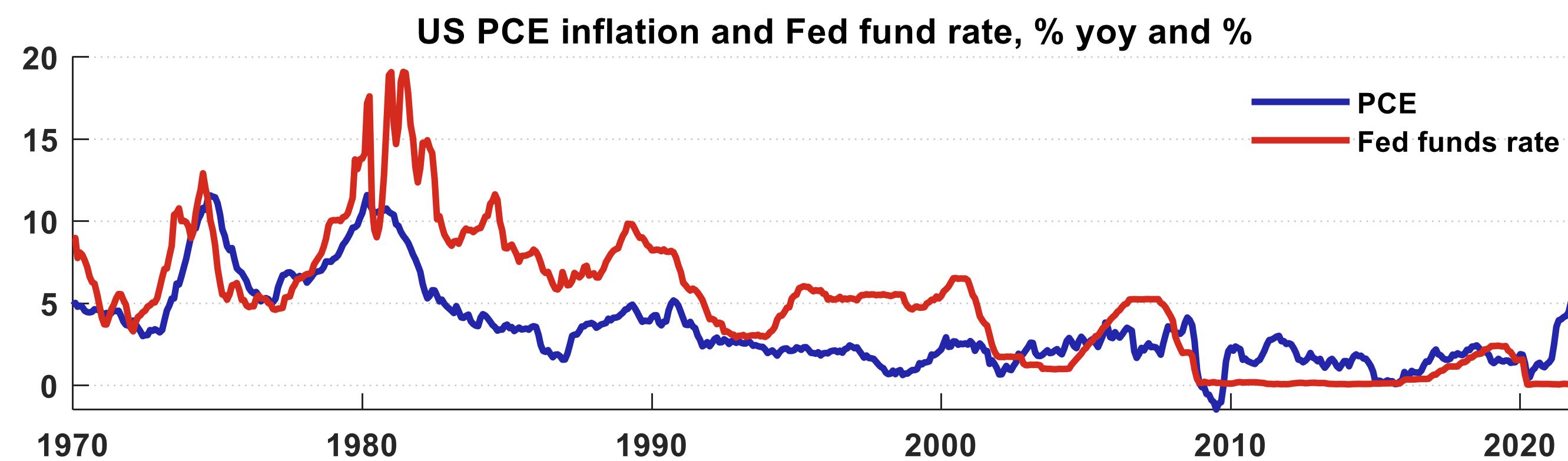




“Our monetary policy deliberations and decisions build on what we have learned about inflation dynamics both from the high and volatile inflation of the 1970s and 1980s, and from the low and stable inflation of the past quarter-century. . . . These lessons are guiding us as we use our tools to bring inflation down. . . . We will keep at it until we are confident the job is done.”

[Jerome Powell, 26 August 2022, Jackson Hole](#)

Monetary policy since 1970s



Great Inflation and Volcker disinflation in late 70s and early 80s

- High and volatile inflation
- Tightening of monetary policy brought inflation down – Volcker disinflation – but at real costs

Great Moderation in 90s and early 2000s

- Low and less volatile inflation and relatively stable real growth

Global financial crisis

- Unconventional policy measures

Covid shocks and current inflation surge

- Strong policy response to Covid and war in Ukraine raising uncertainty

Will high inflation turn into 2nd Great Inflation?

What lessons we can learn from 70s?

Outline

1. Great Inflation

- Characteristics and lessons learned

2. Great Moderation

- Reasons behind
- Institutional development of central banks

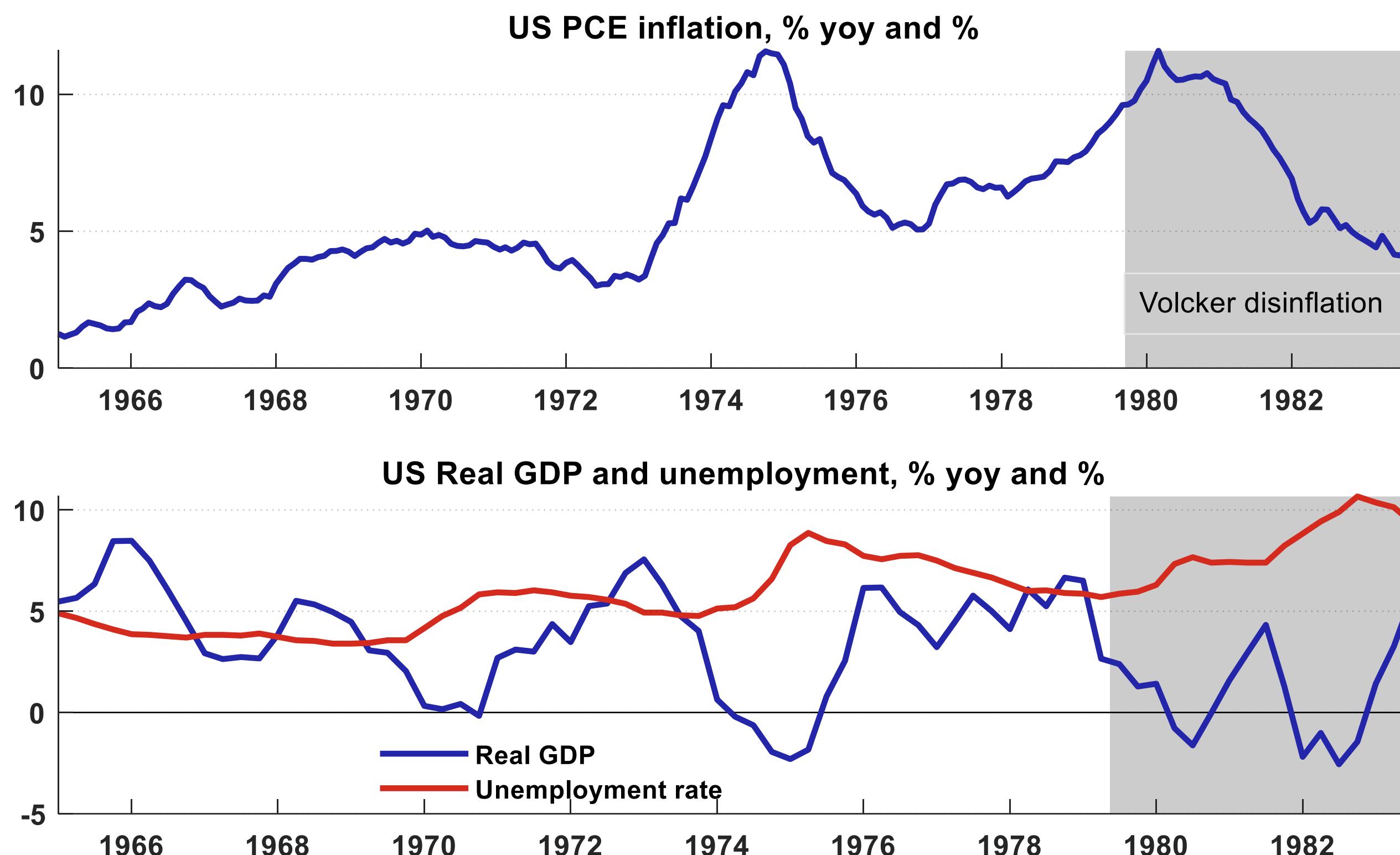
3. Current inflation surge

- Lessons to be learned



Great Inflation and Volcker's disinflation

Great Inflation



Source: FRED

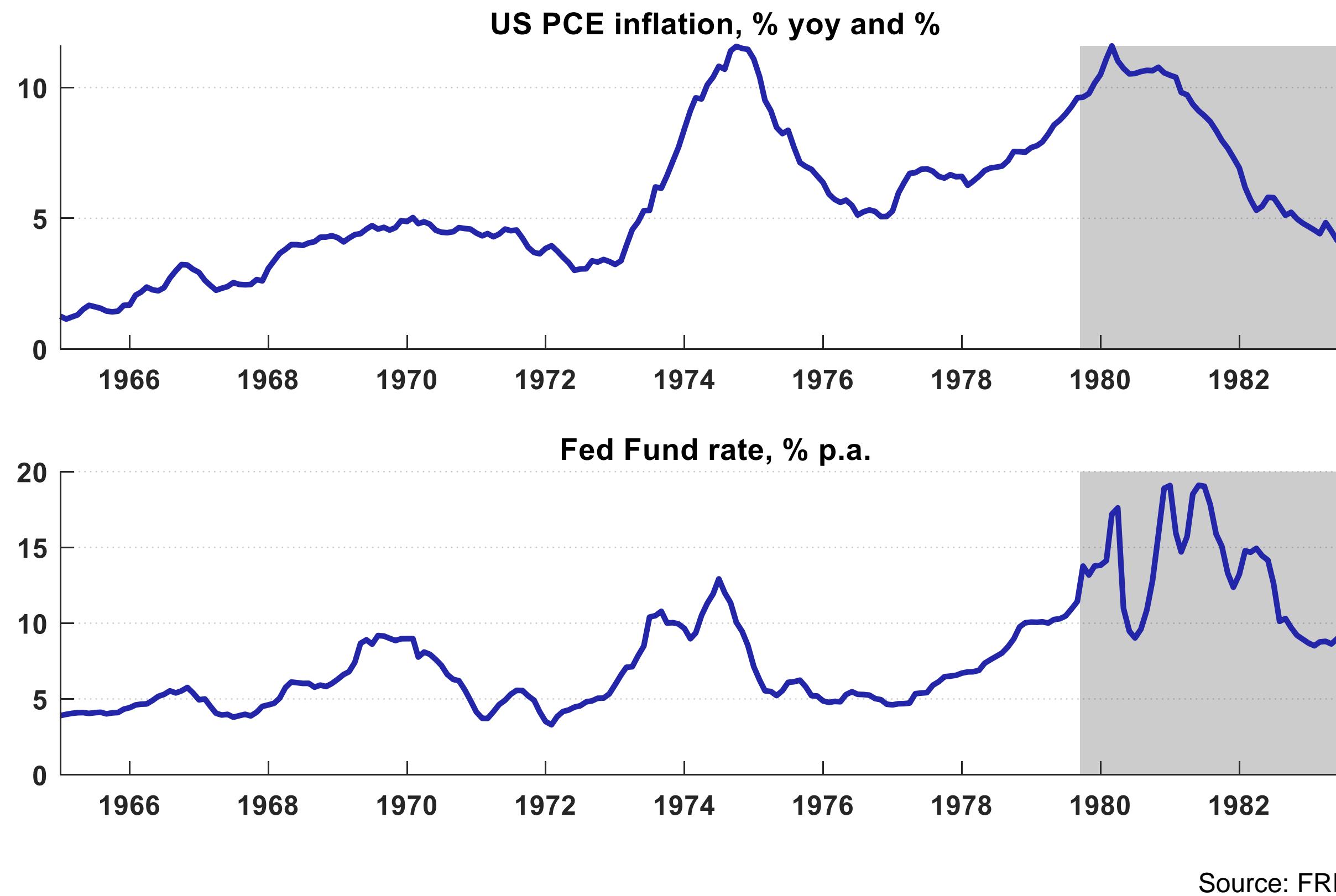
Inflation increased from 1% in 1965 to about 12% in 1980. Presidents Nixon and Carter started considering price controls.

Unemployment trended up from a low of 3.5% in 1969 to 10% in 1982.

Oil price shocks hit in 1973–74 and 1979–80 and a **wage-inflation spiral** probably developed in 1973–74.

Keynesian economists argued that the government could spend its way to full employment. Inflation was considered acceptable if it put more people to work.

Volcker disinflation



On October 6, 1979, Fed Chairman Paul Volcker tightened monetary policy radically.

Fed policy switched from interest rates to targeting the **money supply**.

The **Fed funds rate** reached almost 20% and became more volatile depending on liquidity conditions.

Unemployment reached double digits in some months. Volcker's tough policy led to recessions.

However, inflation returned below 5% after **3 years** of tight monetary policy.

Lessons from Great Inflation

Lessons probably helped to pave a road to the Great Moderation

- The Great Inflation resulted, at least in part, from overly expansionary fiscal policies accompanied by the Fed's hesitation to counterbalance them with contractionary monetary policy.

The primary objective of monetary policy should be price stability with almost no calls for excuse

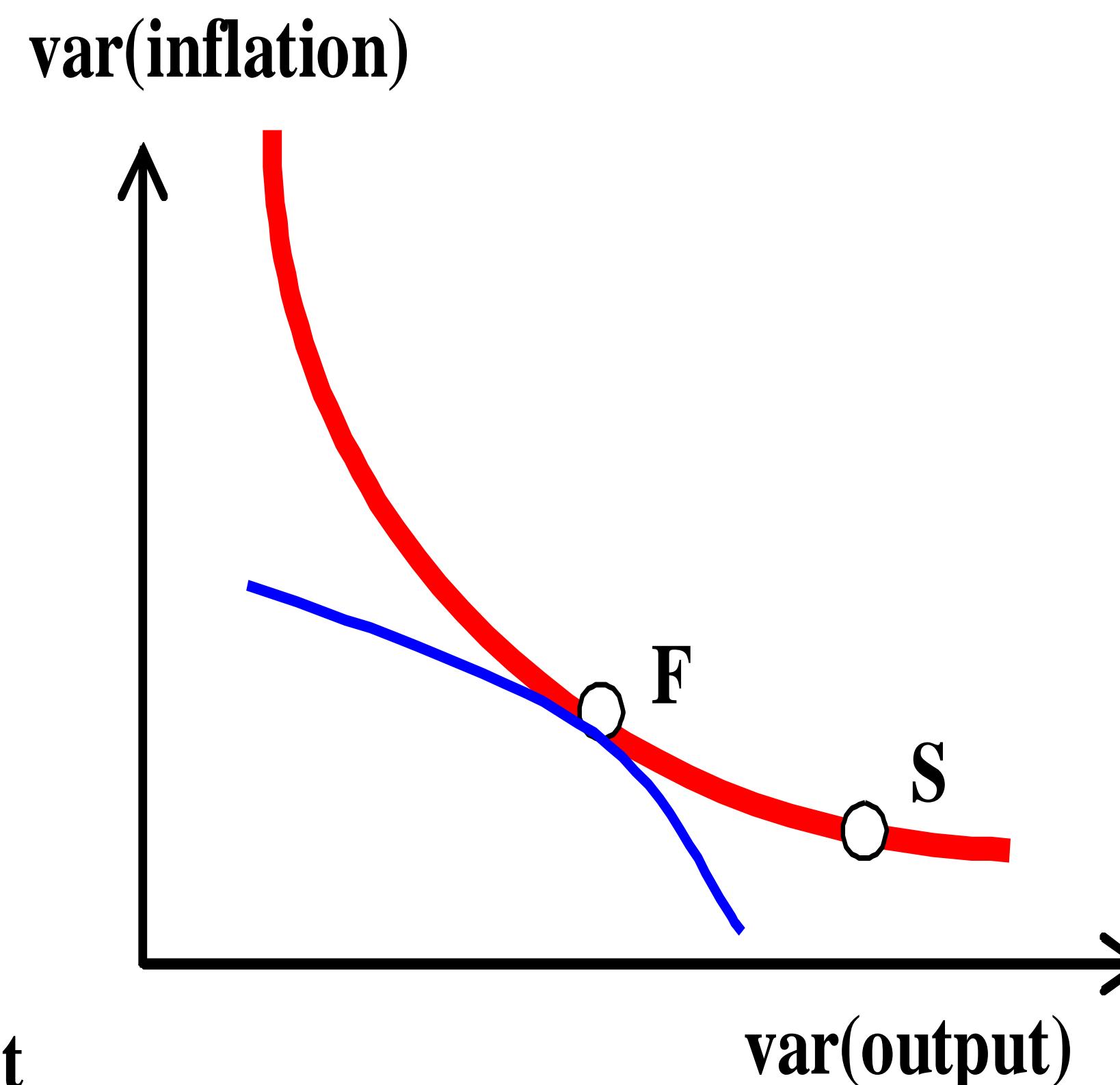
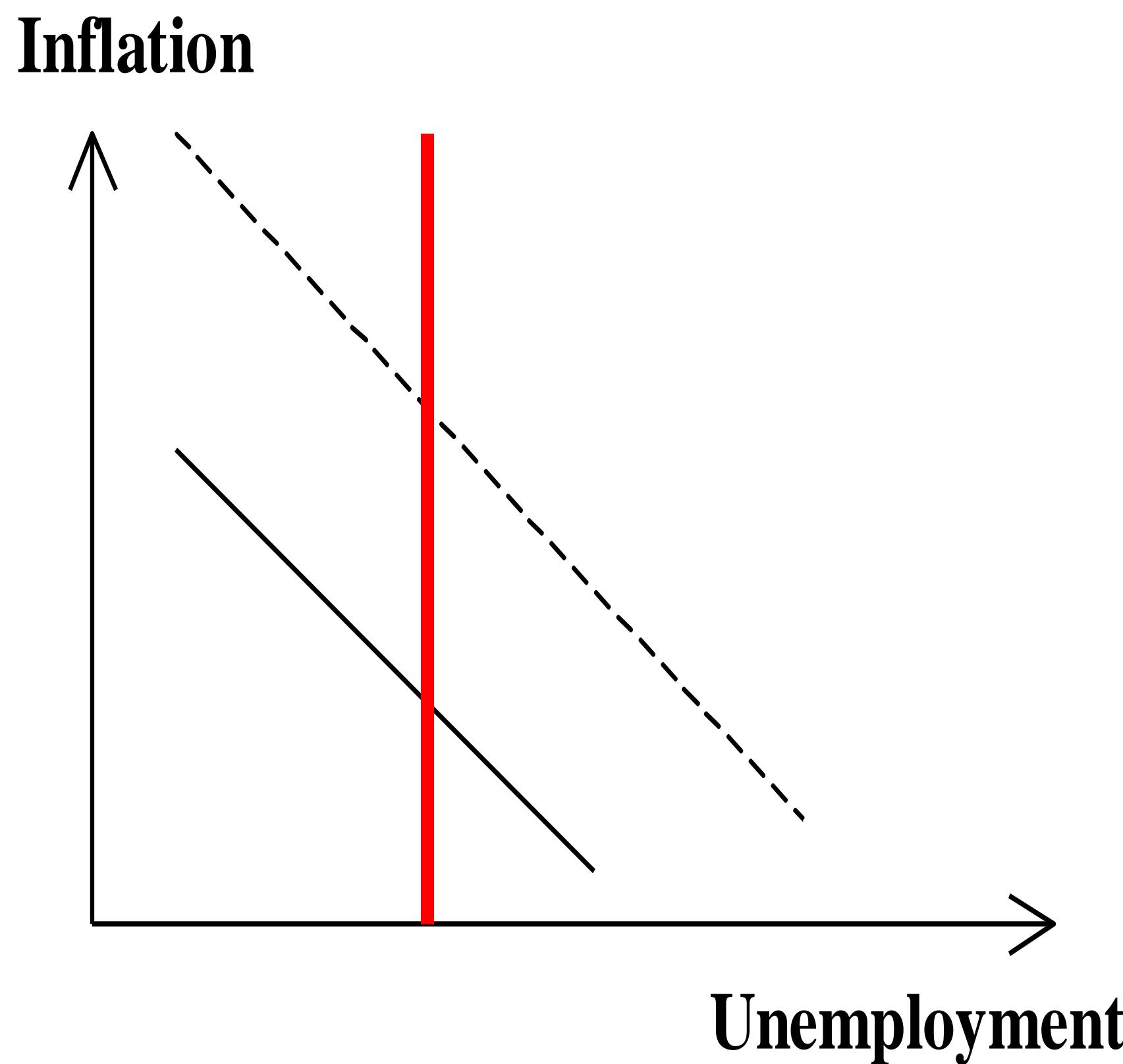
- As the Fed did not respond to surging inflation early enough, market participants began incorporating high inflation expectations into their future plans. Lowering inflation expectations requires much more aggressive and sustained monetary tightening.

Inflation expectations play an important role in determining inflation dynamics and inflation persistence

- Volcker withstood all the political and market pressures and blame for dragging the economy into recession and managed to beat the high inflation.

"Keep at it until the job is done."

Modern policy frameworks



$$\pi_t = \pi_t^e + \alpha y_t^{gap} + \varepsilon_t$$

Low inflation is the primary goal – it can be controlled by monetary policy in the long run, unlike real variables.

Management of inflation expectations.

Flexible policy rules – optimizing the trade-off between stabilization of inflation and the real economy in the presence of (often unforeseen) shocks.

Taylor principle – the policy rule needs to be sufficiently responsive to inflation.

$$i_t = a_t + b\pi_t^e + c y_t^{gap}$$

$$b > 1$$

Monetary Policy as Management of Expectations

“Because the key decision-makers in an economy are forward-looking, central banks affect the economy as much through their influence on expectations as through any direct, mechanical effects of central bank trading in the market for overnight cash...

For not only do expectations about policy matter, but, at least under current conditions, very little else matters.”

(M. Woodford, 2005)

There and back again?

Minutes of the CNB's Bank Board Meeting on 4 November 2021

Jiří Rusnok, Marek Mora, Vojtěch Benda and Tomáš Holub warned against a loss of anchoring of inflation expectations and said that monetary policy had to respond to that risk. ... Jiří Rusnok and Tomáš Holub noted that the CNB's primary mandate is to maintain price stability. Fulfilling that mandate in the present environment of elevated inflation expectations and an overheated labour market required a forceful increase in interest rates.

Minutes of the CNB's Bank Board Meeting on 5 May 2022

"Marek Mora noted that the best contribution the CNB could make to the economic prosperity of the Czech Republic would be to achieve low and stable inflation as soon as possible. He and Tomáš Holub said it was desirable to continue raising interest rates to ensure price stability, even at the cost of an economic downswing. In the present situation, it was important to realise and communicate that the objective of the CNB's forceful response was not to damage the economy but to protect it from a far worse outcome. This would occur if it became necessary to reduce inflation after it became embedded in the economy and expectations."

Minutes of the CNB's Bank Board Meeting on 29 September 2022

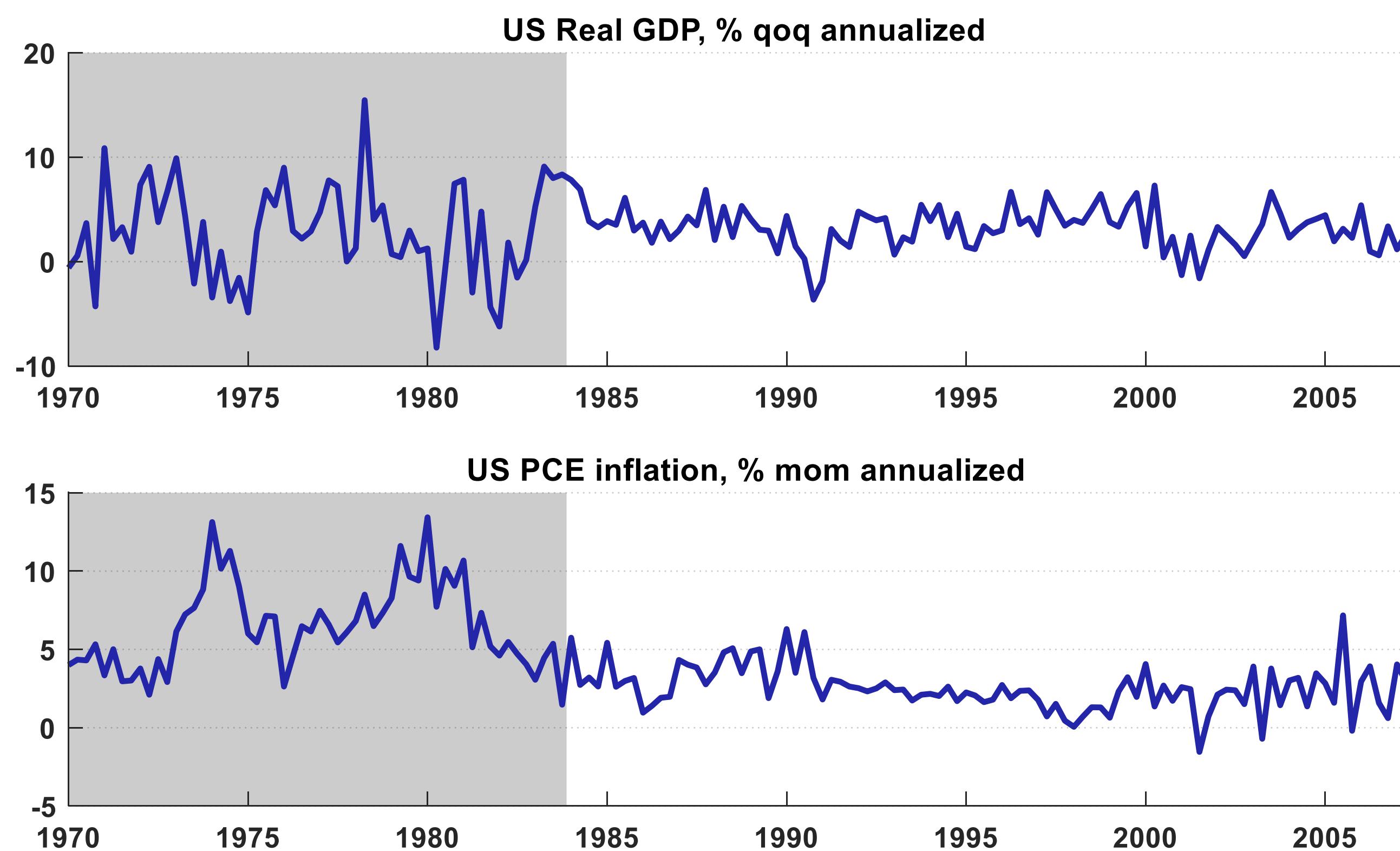
Part of the debate was devoted to the anchoring of inflation expectations. According to M. Mora, the economy had been in an environment of very high inflation ... for more than a year. This was having an effect on the central bank's credibility and on inflation expectations. Monetary policy should therefore anchor inflation expectations ..."



Great Moderation



Great Moderation



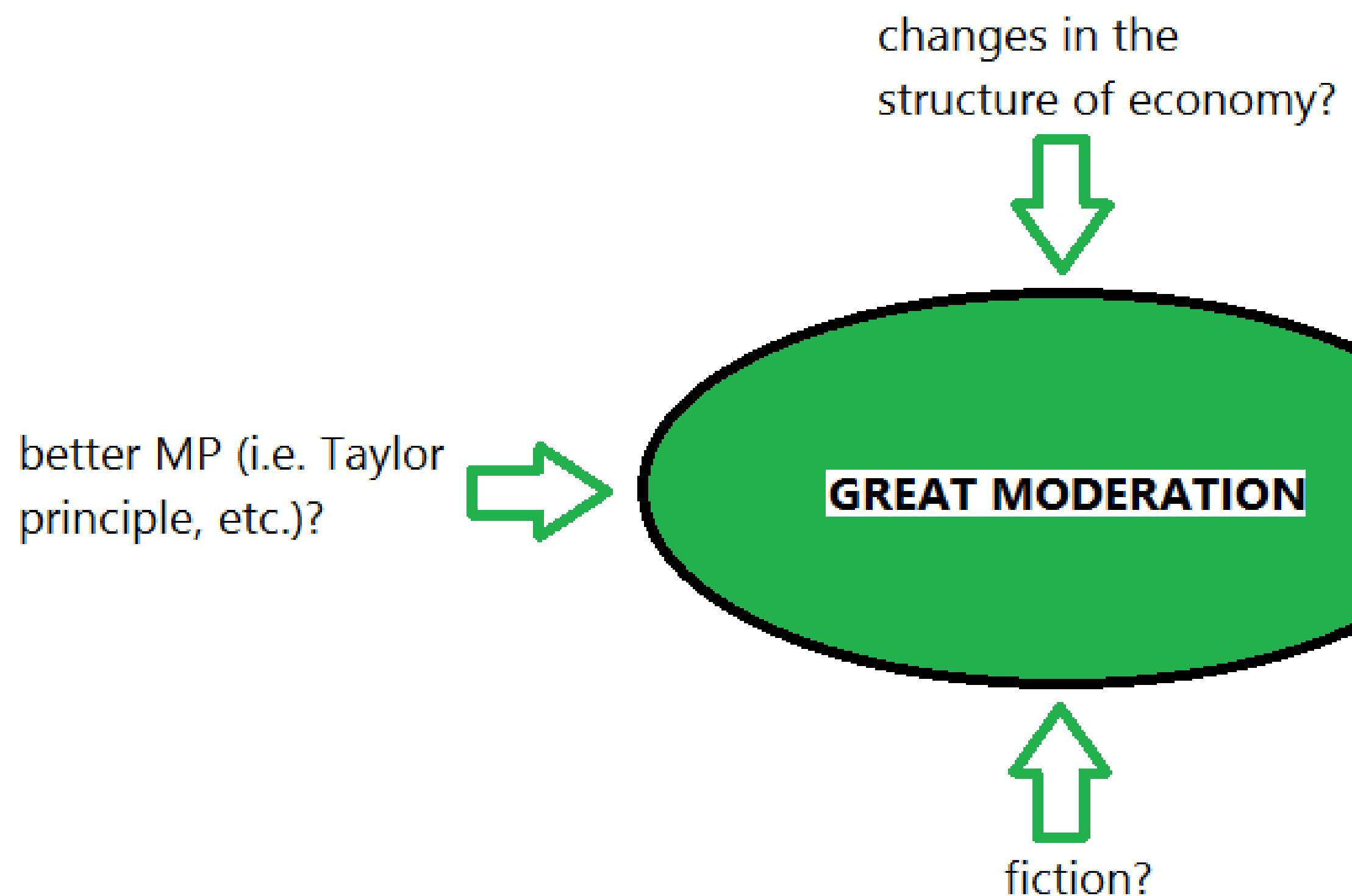
Great Moderation – a substantial decline in macroeconomic volatility.

Olivier Blanchard and John Simon (2001) documented that the variability of quarterly growth in **real output** (as measured by its standard deviation) declined by half since the mid-1980s, while the variability of quarterly inflation declined by about two thirds.

Several writers on the topic dubbed this remarkable decline in the variability of both output and inflation "**the Great Moderation**".

Source: FRED

Reasons for Great Moderation



- i) Structural changes**
 - Shift from manufacturing to services
 - Adoption of “just-in-time” inventory practices
 - Advances in information technology and communication
 - Deregulation
 - **improved ability of the economy to absorb shocks → reduced volatility**
- ii) Good luck**
 - Shocks hitting the economy during the Great Moderation were simply smaller
- iii) Improved performance of macroeconomic policies, i.e. good policy**

Improvements in monetary policy backing Great Moderation

- i) Rule-based monetary policy
- ii) Central bank independence
- iii) Communication, transparency, and accountability
- iv) Forecasting and Policy Analysis System – FPAS

All of the above as an integral part of the **inflation targeting framework**

Good and rule-based monetary policy

- Clarida et al (2000): estimation of forward-looking MP reaction function for pre- and post-1979

$$E\{[r_t - (1 - \rho) \alpha - (1 - \rho) \beta \pi_{t,k} - (1 - \rho) \gamma x_{t,q} - \rho r_{t-1}] z_t\} = 0$$

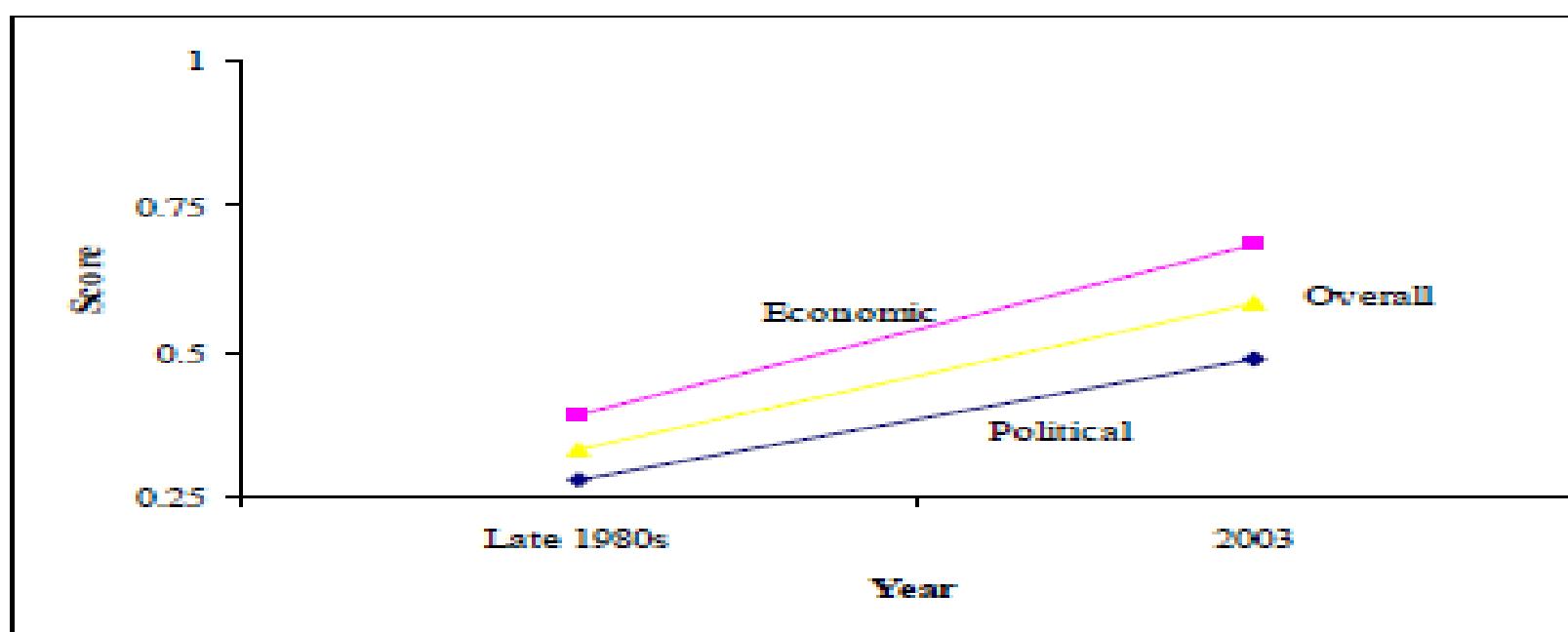
Target Horizons: $k = 1, q = 1$

	$\hat{\beta}$	$\hat{\gamma}$	$\hat{\rho}$	p
1960:1-1979:2				
GDP	0.80 (0.09)	0.44 (0.11)	0.75 (0.04)	0.16
Unemployment	0.73 (0.06)	0.78 (0.12)	0.62 (0.05)	0.23
1979:3-1996:4				
GDP	1.80 (0.19)	0.12 (0.13)	0.66 (0.04)	0.31
Unemployment	1.77 (0.17)	0.12 (0.24)	0.64 (0.03)	0.21

- i) Interest rate policy in the post-1979 era appears to have been much more sensitive to changes in **expected inflation** than before
- ii) Returning the **focus to price stability**

Central bank independence (i)

Figure 7. Global Trends in CBA

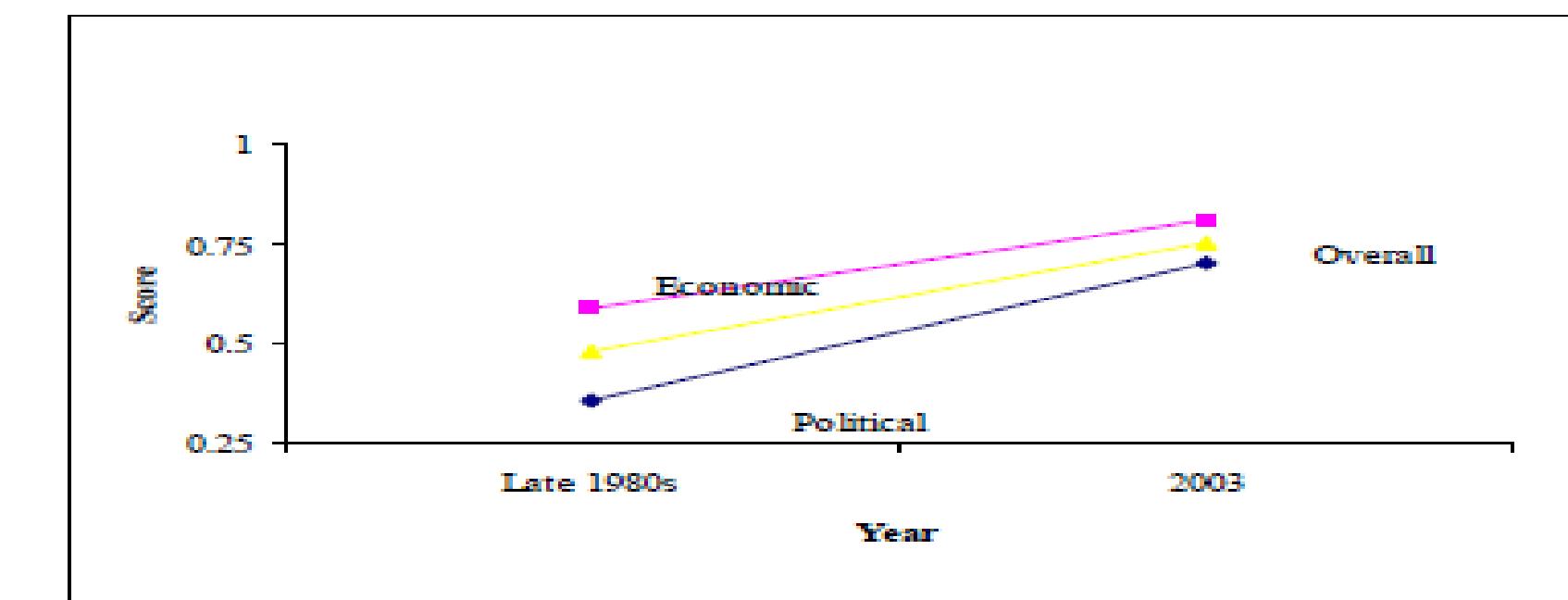


1980s: Cukierman sample narrow index.

2003: all countries full index.

Source: Cukierman (1992) and authors' estimates.

Figure 8. Trends in CBA for Advanced Economies

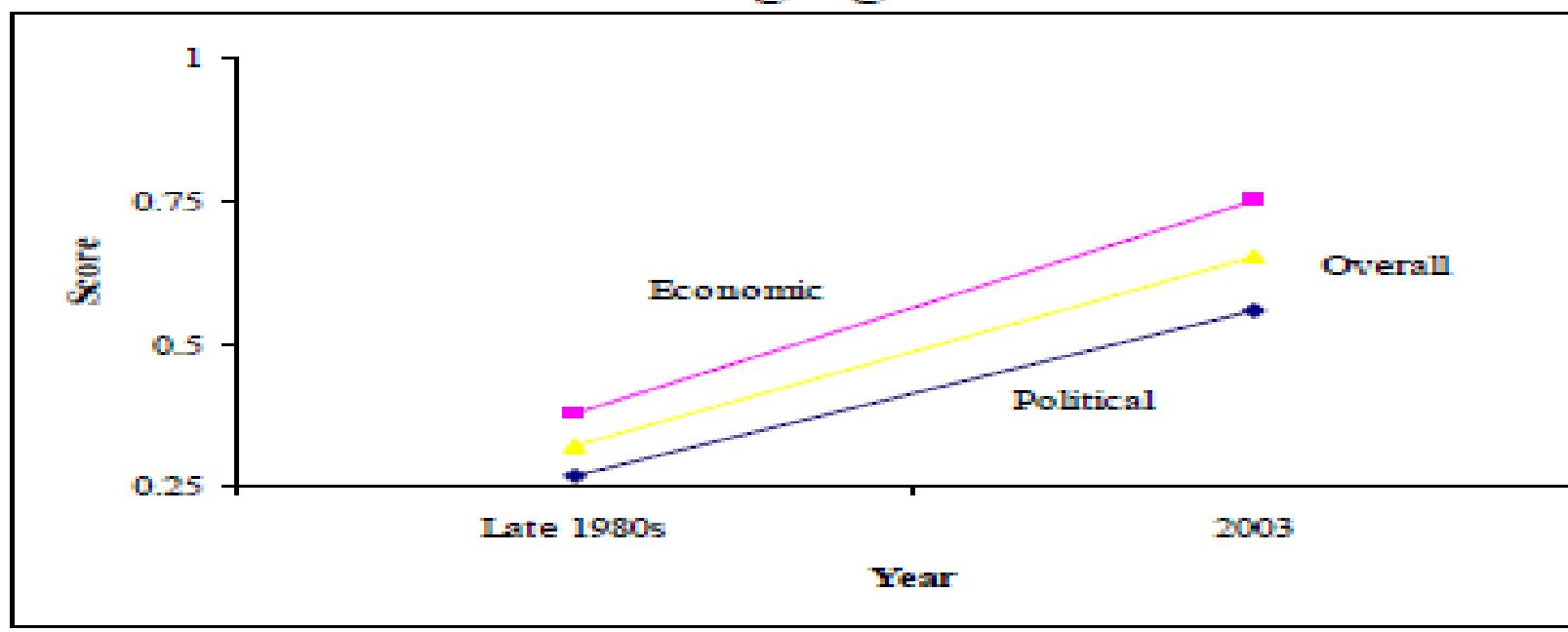


1980s: GMT sample full index.

2003: all countries full index

Source: GMT (1991) and authors' estimates.

Figure 9. Trends in CBA Autonomy for Emerging Markets

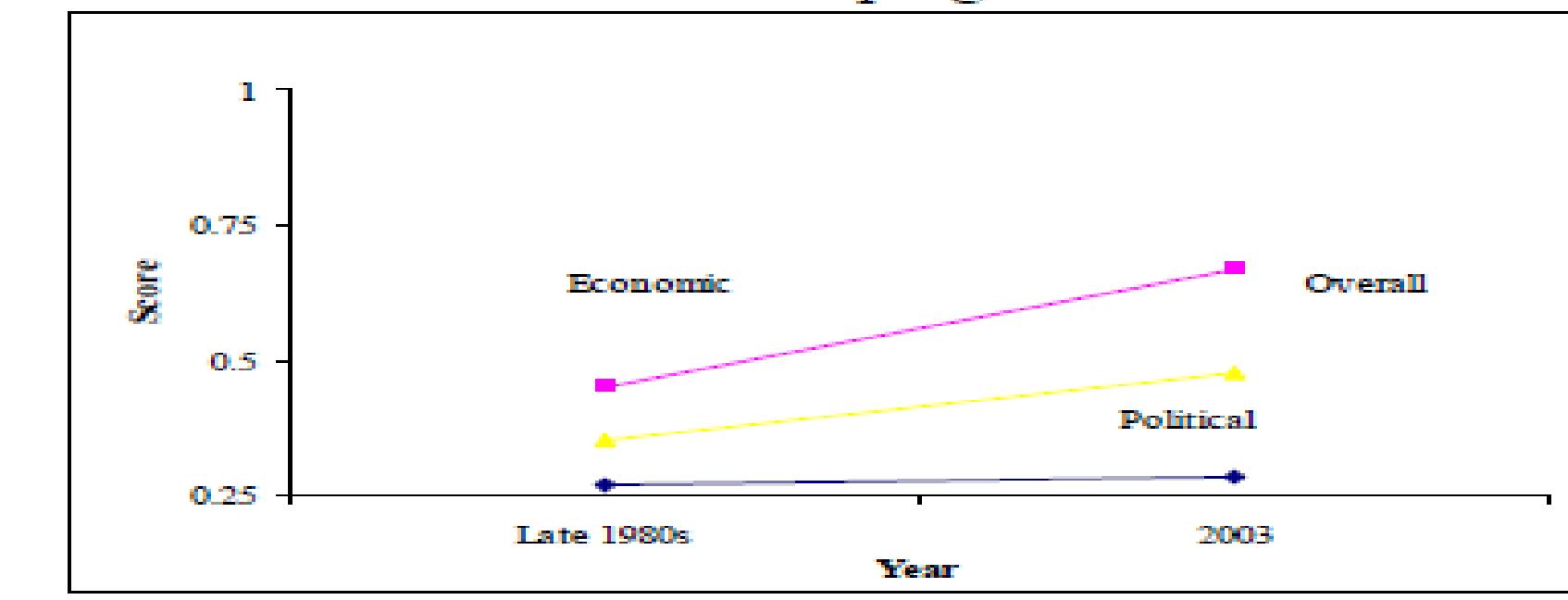


1980s: Cukierman sample narrow index.

2003: all countries full index.

Source: Cukierman (1992) and authors' estimates.

Figure 10. Trends in CBA for Selected Developing Countries



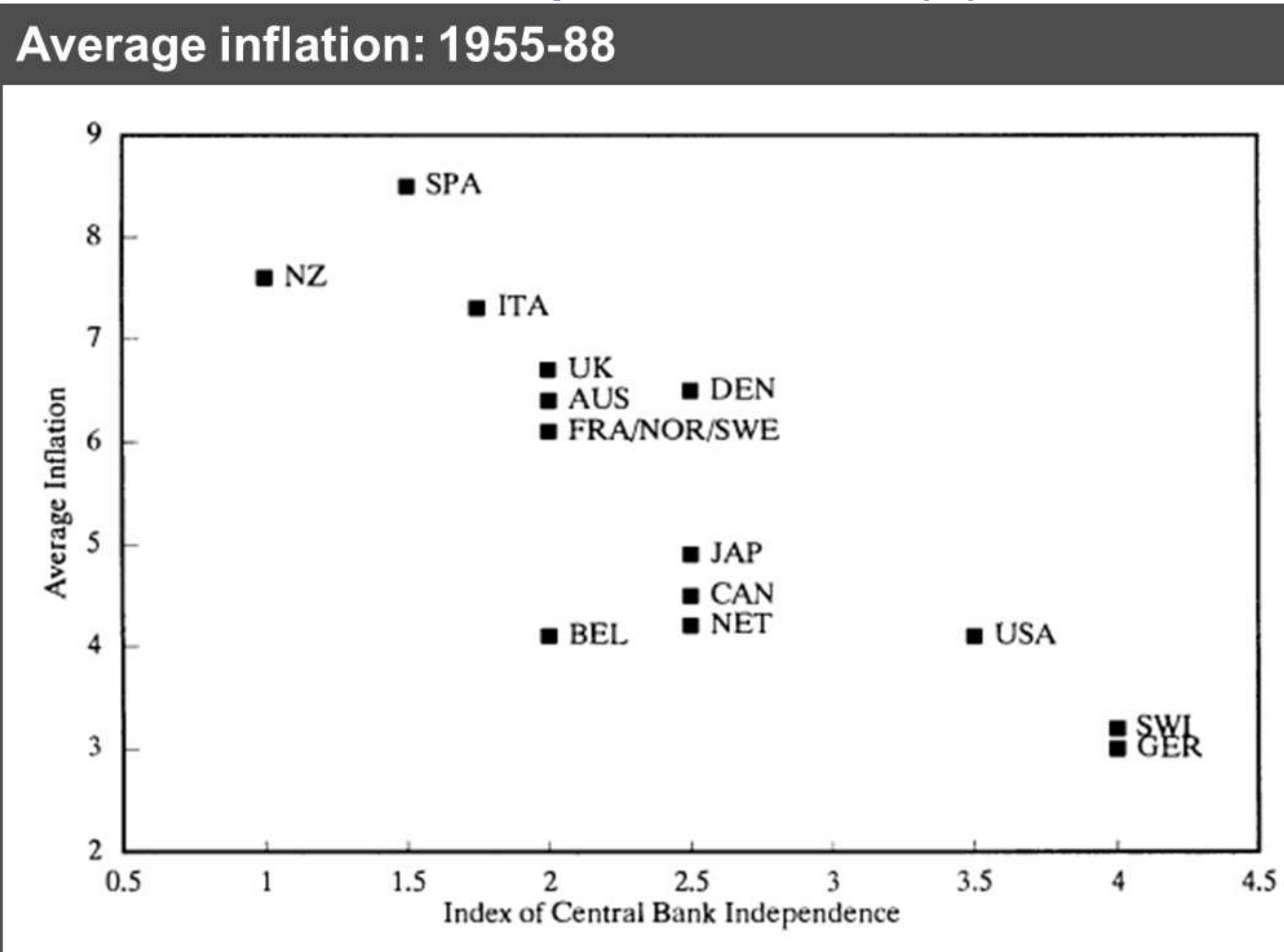
1980s: Cukierman sample narrow index.

2003: all countries full index.

Source: Cukierman (1992) and authors' estimates.

Increasing independence of central banks in the past, and increasing autonomy.

Central bank independence (ii)



Central bank independence helps to keep inflation low.

Are central banks still as independent as prior to the GFC?

Communication, transparency, and accountability

Figure 1. Transparency in Monetary Policy by Level of Economic Development (unweighted average)

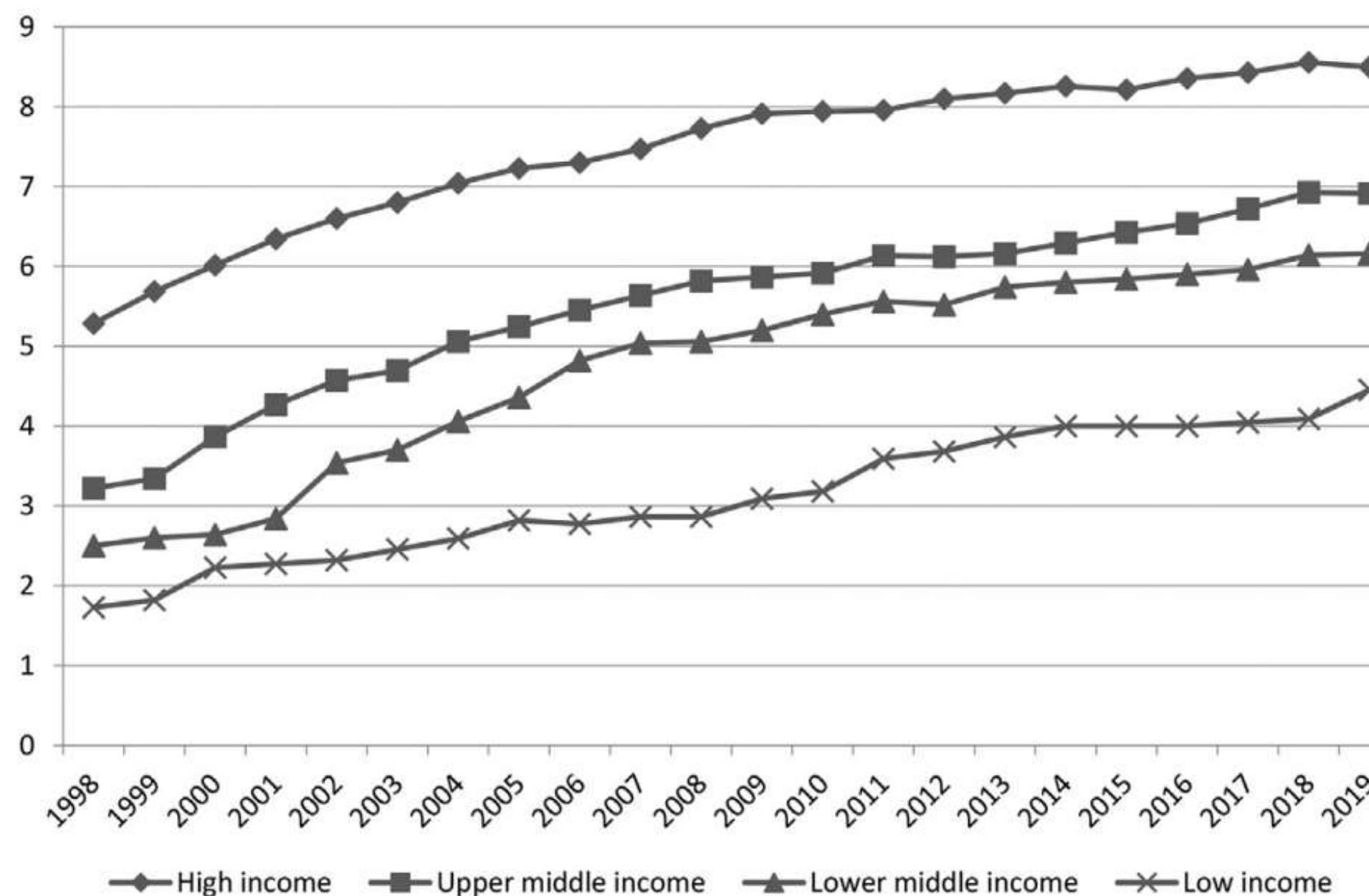
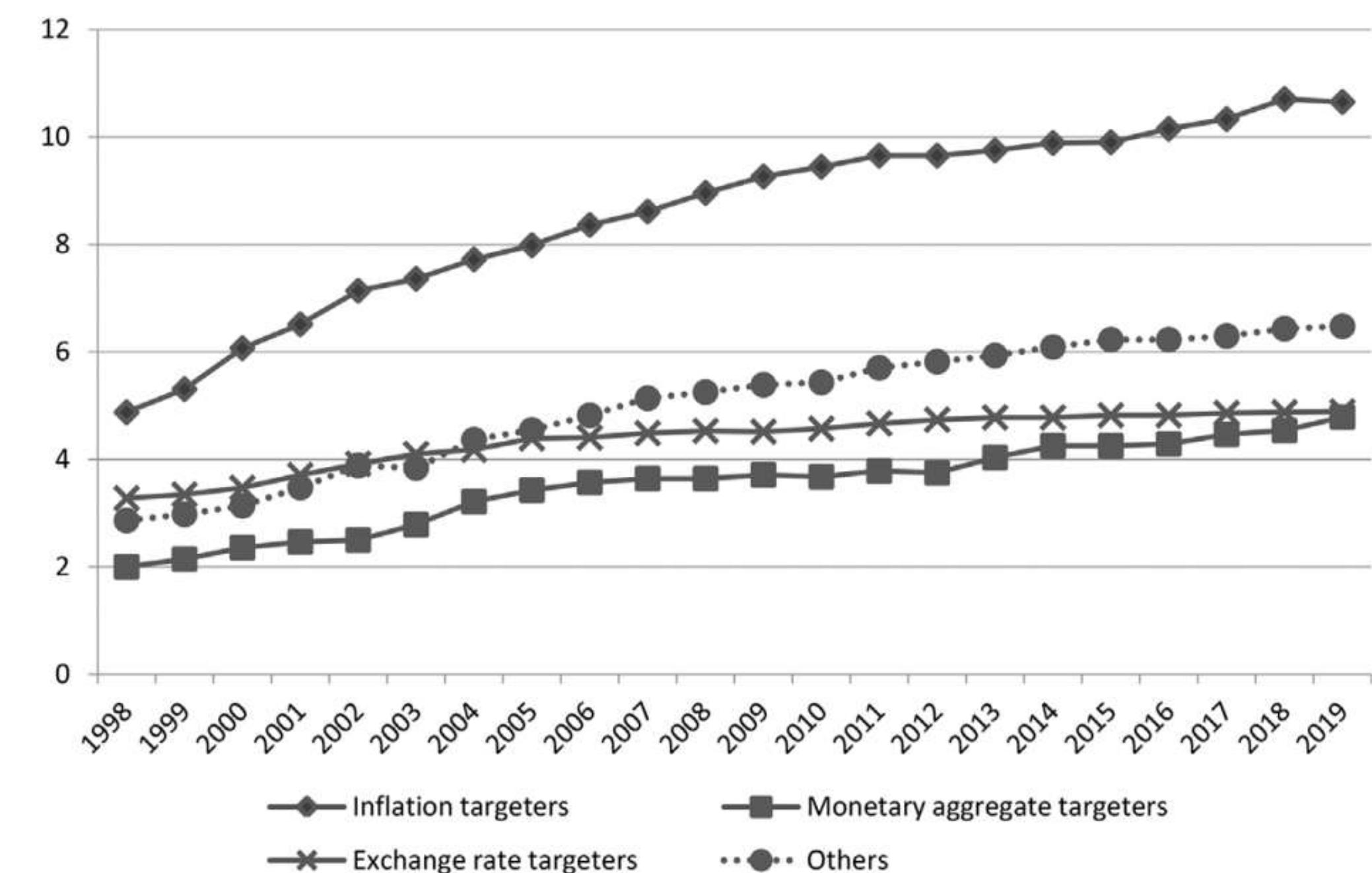
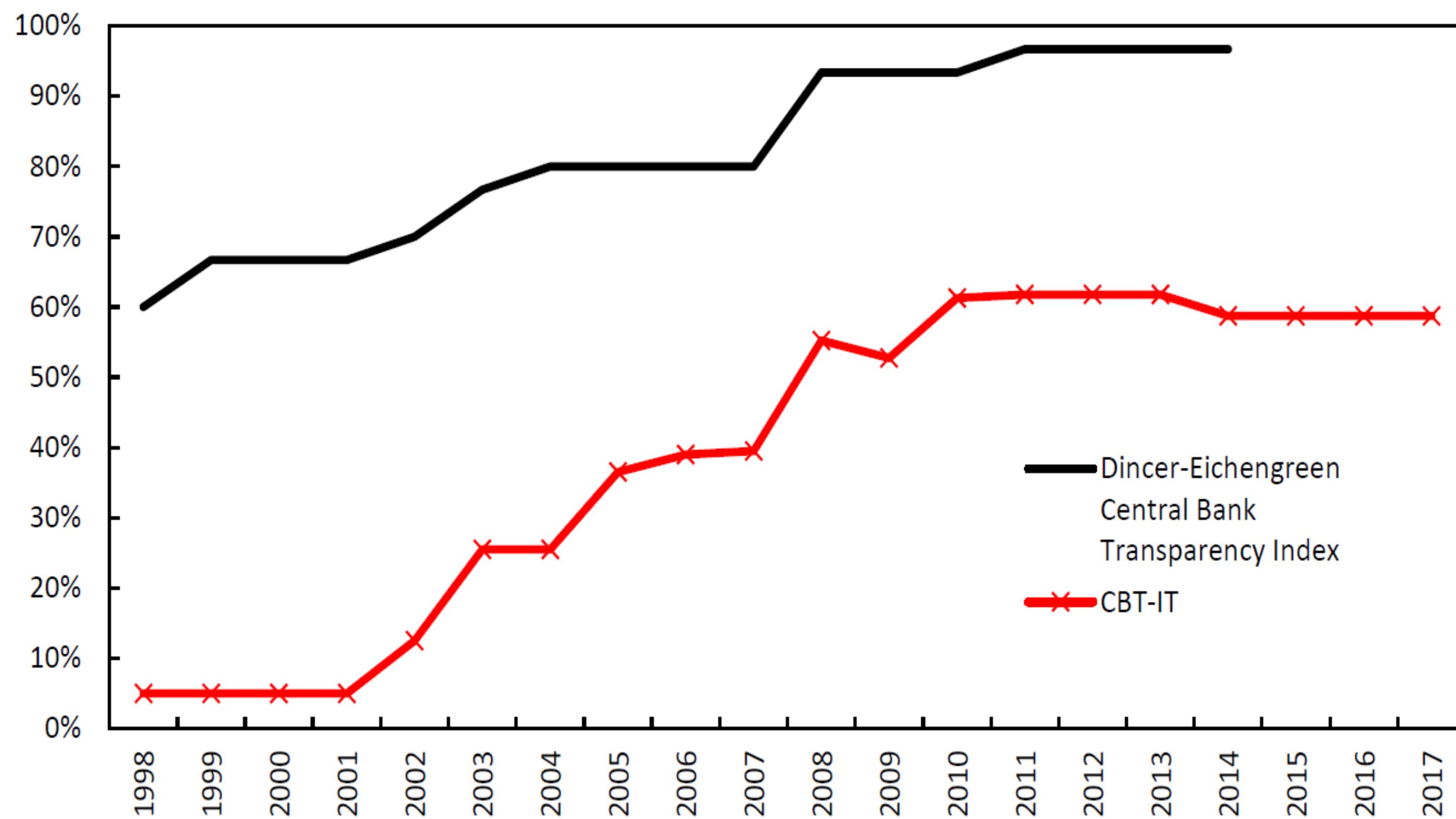


Figure 2. Transparency by Monetary Policy Framework (unweighted average)



Independence gives central banks insulation from political pressures, while **transparency** about their intentions and actions is a way of holding them accountable for their decisions in the court of public opinion.

Transparency – CNB case

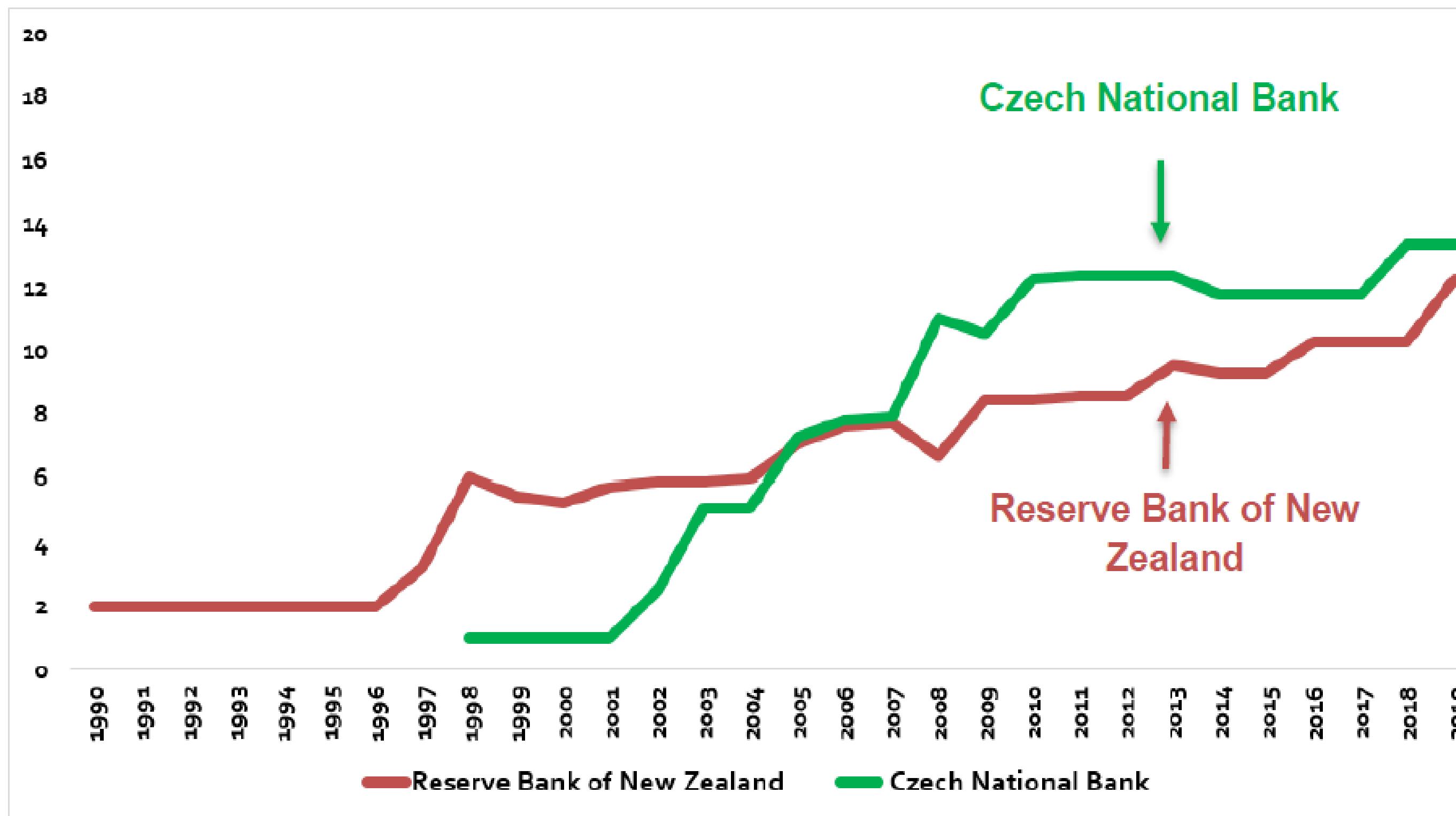


Source: Al-Mashat et al. (2018)

- The introduction of inflation targeting as such in 1998 led to a relatively small increase in monetary policy transparency (and only as measured by the less demanding D-E index).
- Advances in forecasting tools created a true starting point for much greater monetary policy transparency in 2002–2008.
- The exchange rate tool was associated with a small and temporary decline in communication openness (but in general it was designed in a very transparent way).

Transparency – CNB case (cont.)

Figure 8: Reserve Bank and Czech National Bank (CNB) CBT-IT index comparison



- The chart compares the first IT country globally (i.e. NZ) with the first EME/post-communist country (Czech Republic) that adopted the framework.
- Despite a much later start, the CNB has managed to be slightly ahead of the RBNZ since 2008.
- In the D-E index, RBNZ and CNB rank third and second, respectively, behind Sweden (i.e. the chart provides a tough benchmark).
- The chart confirms the temporary nature of slightly reduced transparency in 2014–2017.

Source: Haworth, Kostanyan and Laxton (2019)

FPAS

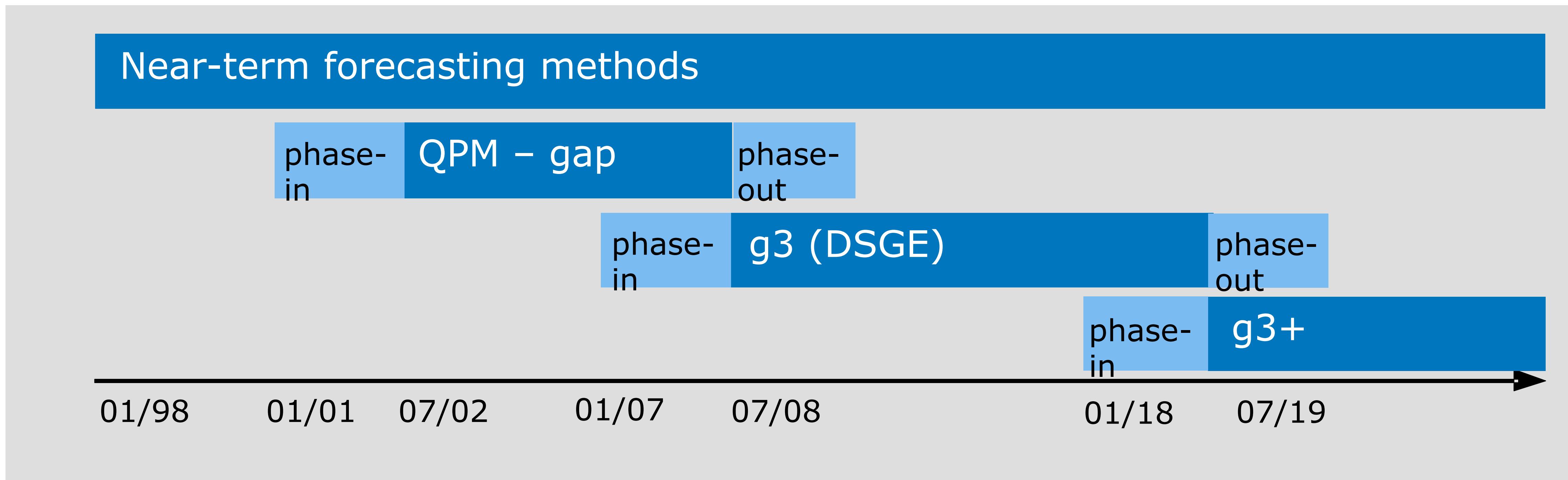
“FPAS is a system for organizing efficient and thorough provision of economic information to enable monetary policy committees to make good decisions.”

Adrian, Laxton, and Obstfeld: Advancing the Frontiers of Monetary Policy, 2018

The key FPAS outcome is a forecast:

- Macroeconomic forecast is the key input for **forward-looking monetary policy decisions**
- Staff forecast but **models help**
- **Questions** that need to be answered by a macroeconomic forecast:
 - **Initial situation** (business cycle position) and current trends
 - Most likely **future developments**
 - What is the **path of the instrument** (interest rates) consistent with the goal
 - What are the implicit **risks** for forecasts (sources of risks)
- Regular need for forecasts = repeating exercise => **good to have a framework**

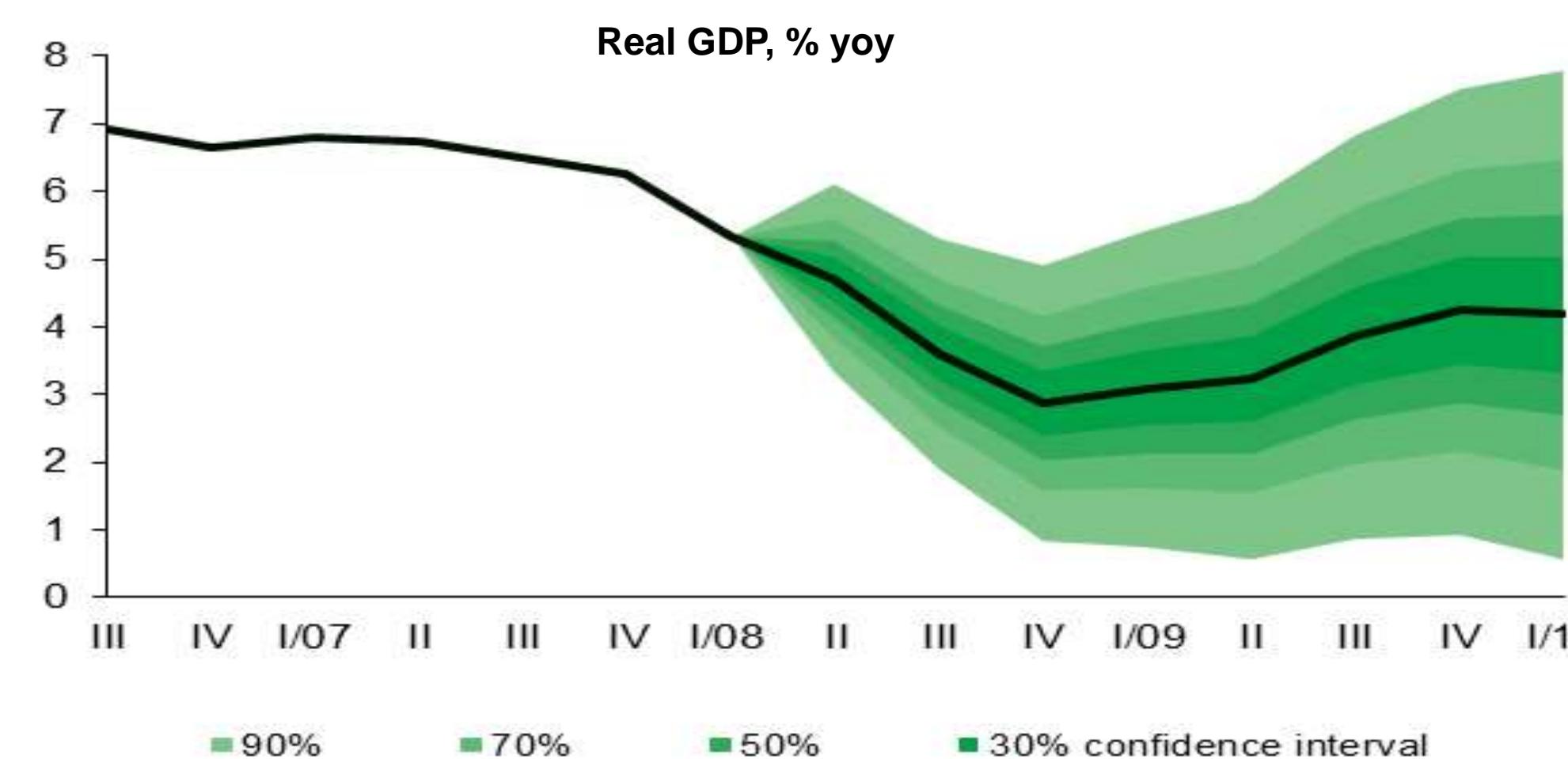
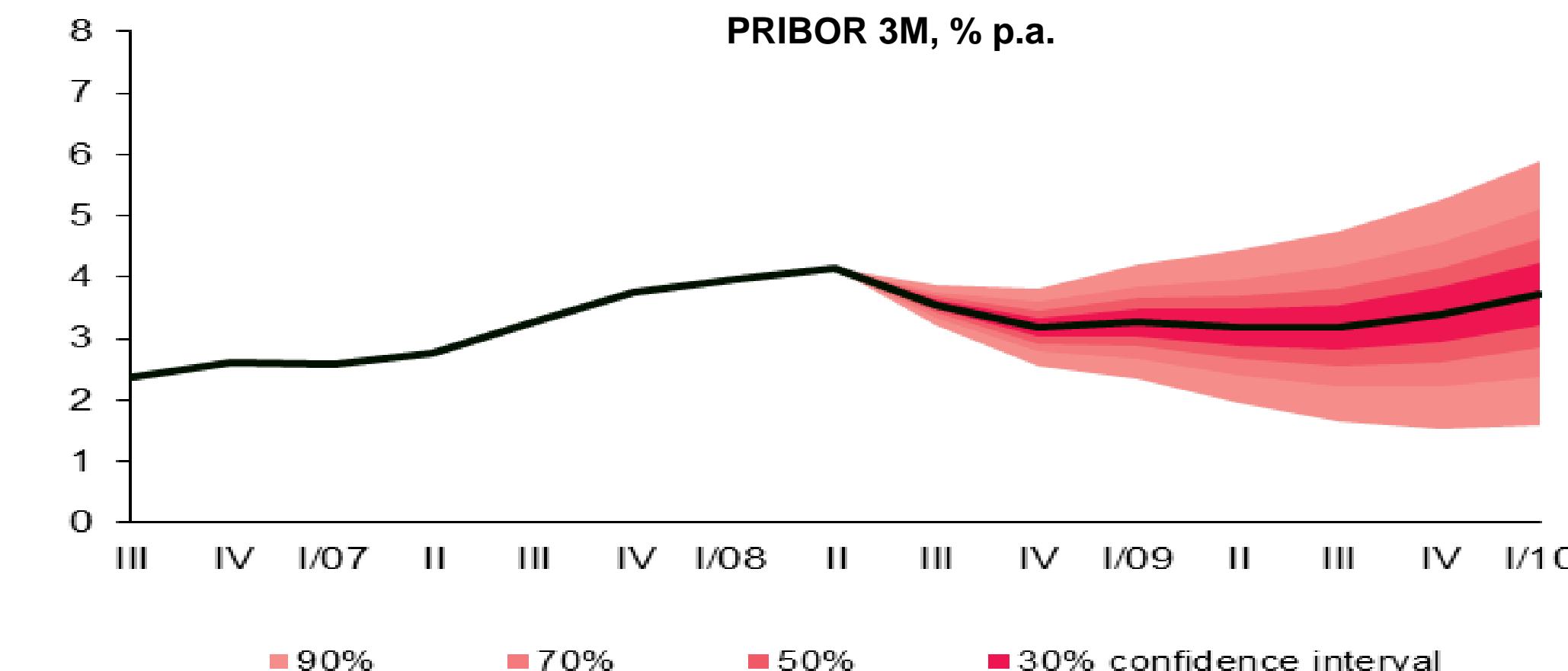
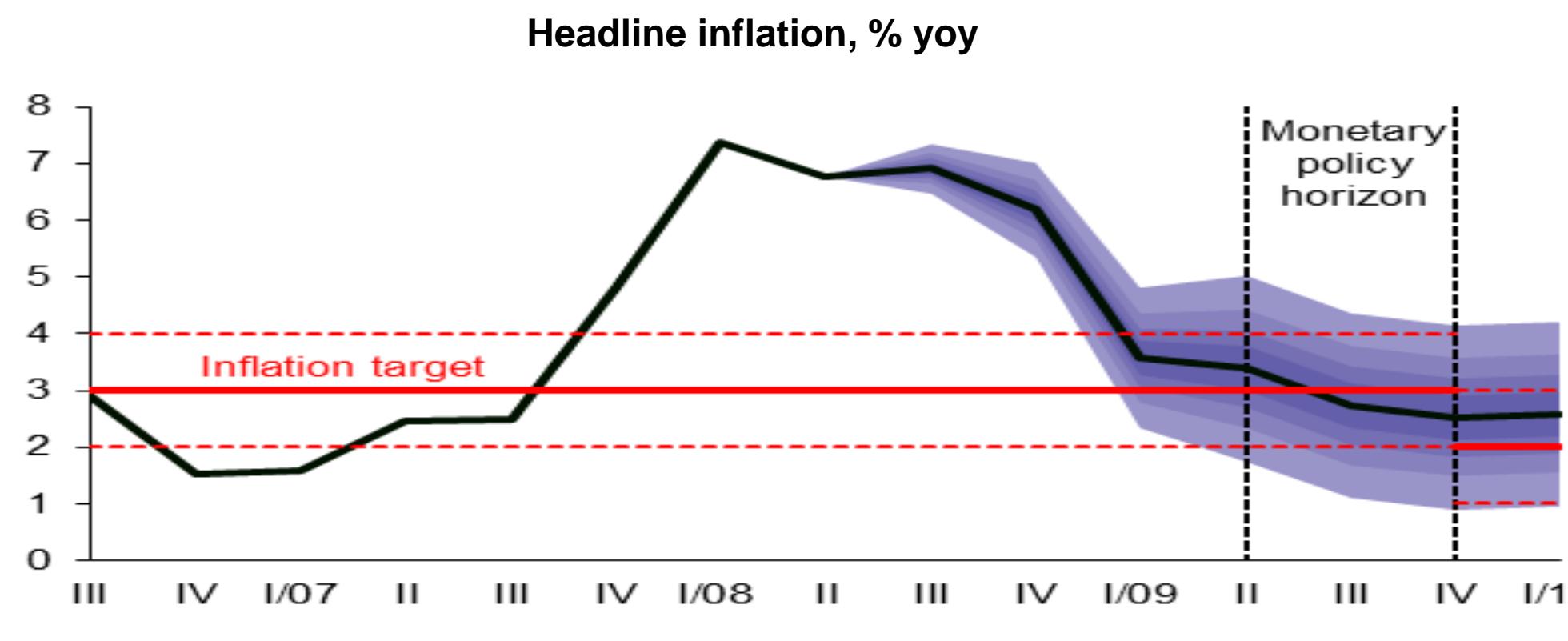
CNB – Evolution of Forecasting Tools (FPAS)



- The key improvement took place in mid-2002, when a QPM-gap (forward-looking, general-equilibrium) model with endogenous monetary policy, exchange rate and expectations became the core forecasting model.
- The g3-DSGE model brought even more flexibility in terms of incorporating judgment and dealing with ZLB issues. g3+ has recently incorporated accumulated experience with this type of model.
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Key Role of Forecasts with Endogenous Policy Rate

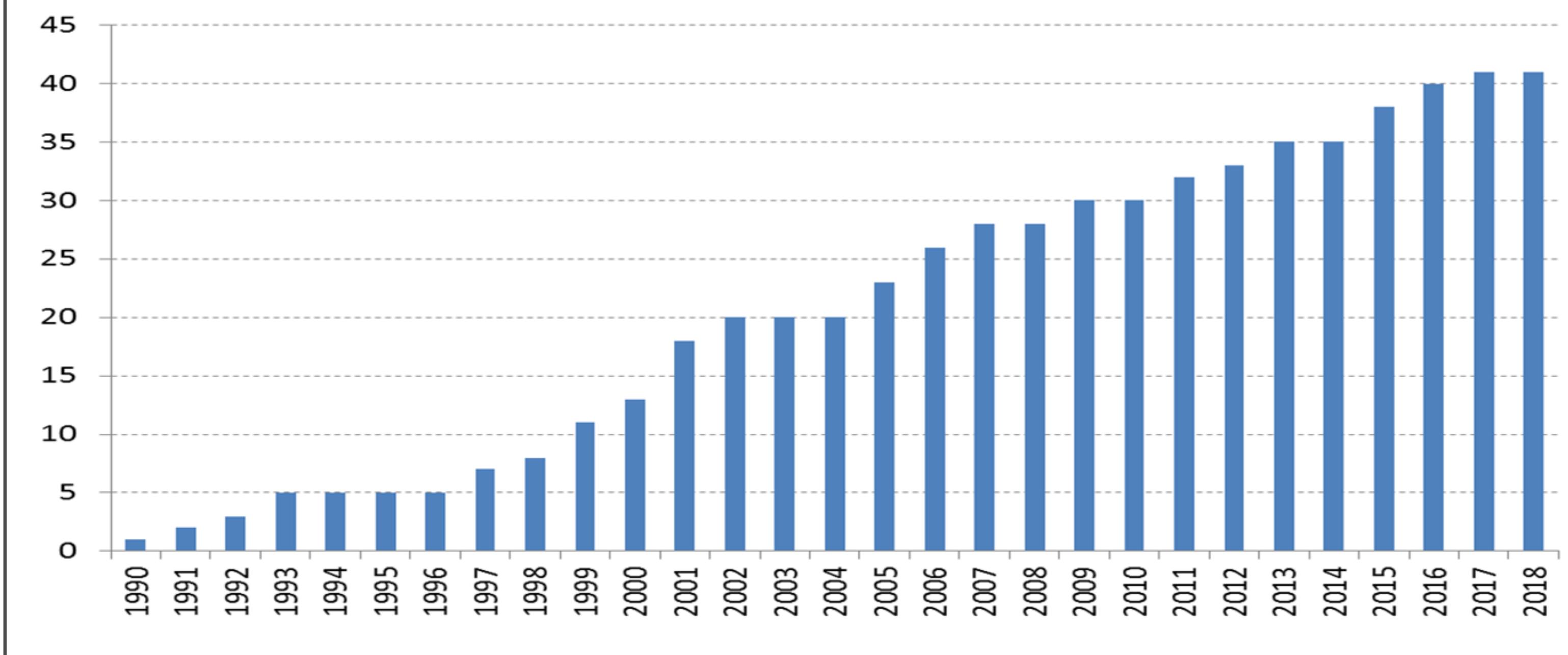
(August 2008 example)



- FPAS-based forecast tells a consistent, forward-looking story, providing guidance to the policy-makers in terms of direction and magnitude of rate changes.
- Forecasts often outperform a backward-looking, or purely "intuition-based", policy.
- A forecast with endogenous rates always goes back to the target, no matter what the starting point is. It thus helps to anchor inflation expectations.

Inflation targeting

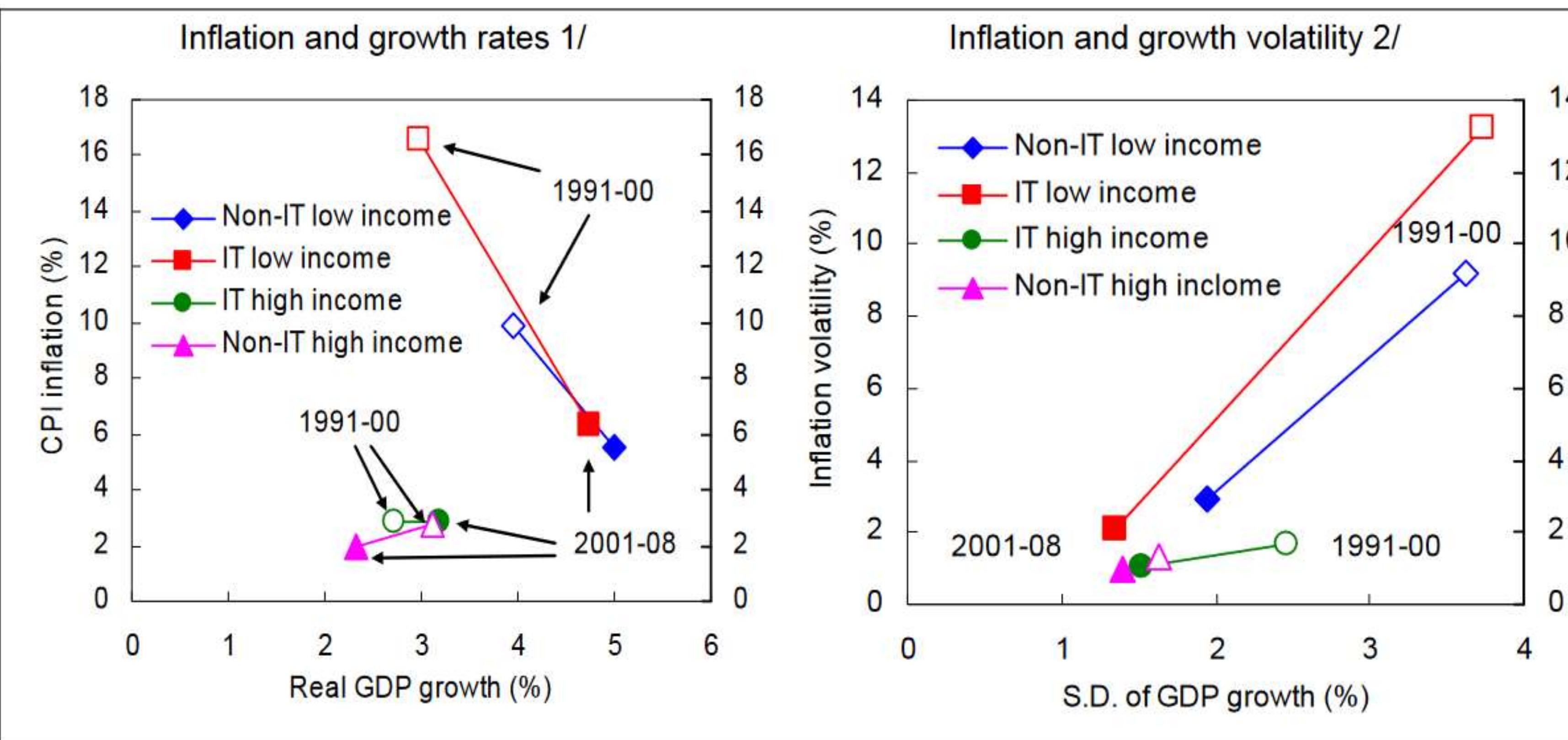
Number of inflation targeting countries (IMF classification)



Advantages of inflation targeting

- Embodies all the modern trends in central banking: independence, rules, transparency and accountability.
- Combines a policy rule with discretion (**flexible rule**).
- A direct emphasis is put on managing expectations.
- The target and the ultimate goal are identical.
- Does not rely on stable money demand.
- Takes into account all available information.
- De facto the only monetary policy framework available now under a floating exchange rate.
- No central bank has exited it so far.

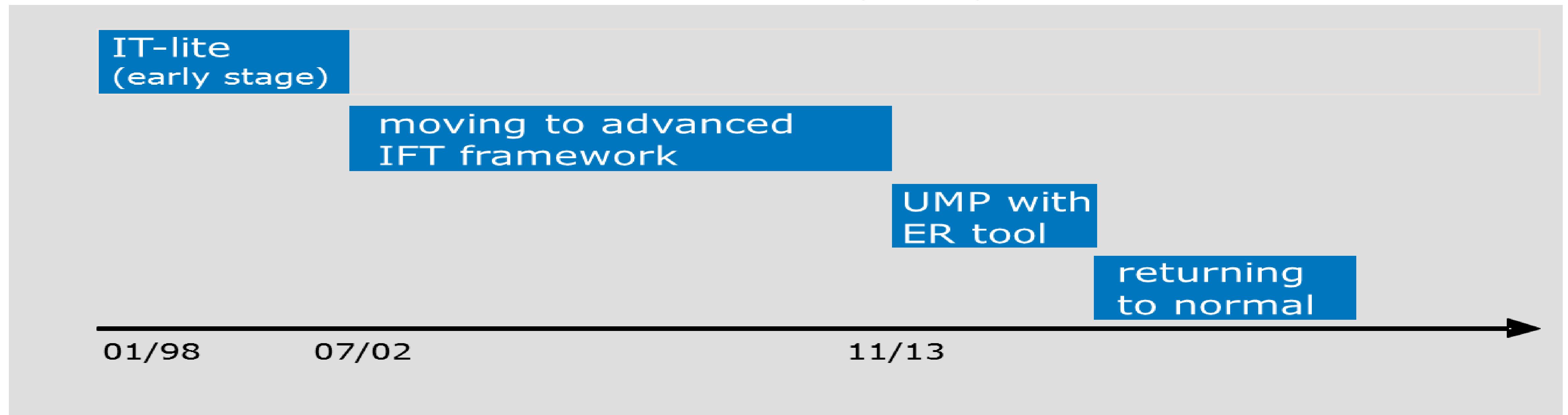
Performance of alternative policy frameworks



Both IT and non-IT low income countries saw major **reductions in inflation rates, together with improvements in growth rates**, but the countries adopting IT saw **larger improvements in both dimensions**.

Better policy frameworks might have helped via **stabilizing inflation expectations, reducing and stabilizing the risk premia, facilitating investment decisions, avoiding currency crises etc.**

Evolution of Inflation(-Forecast-)Targeting Framework



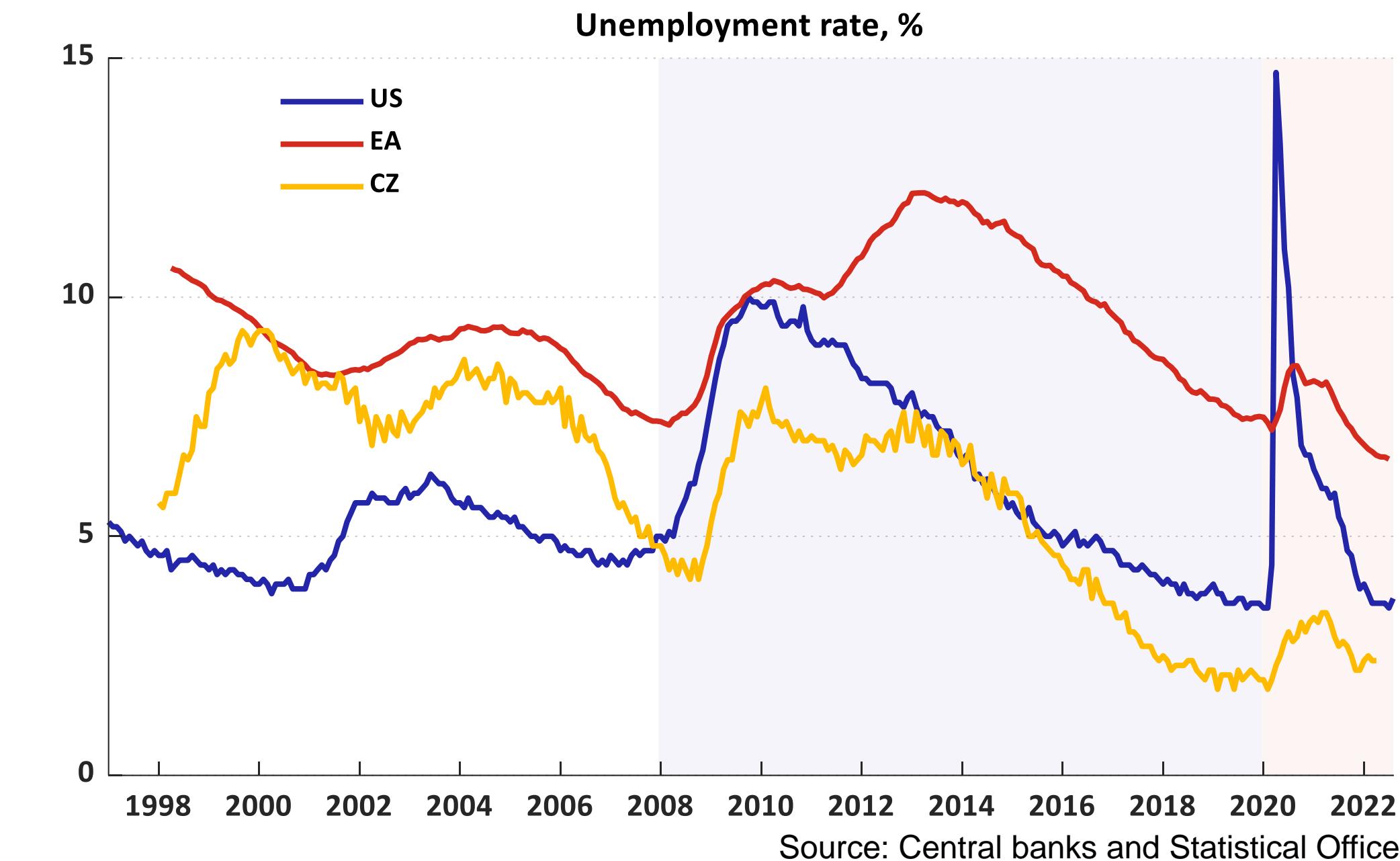
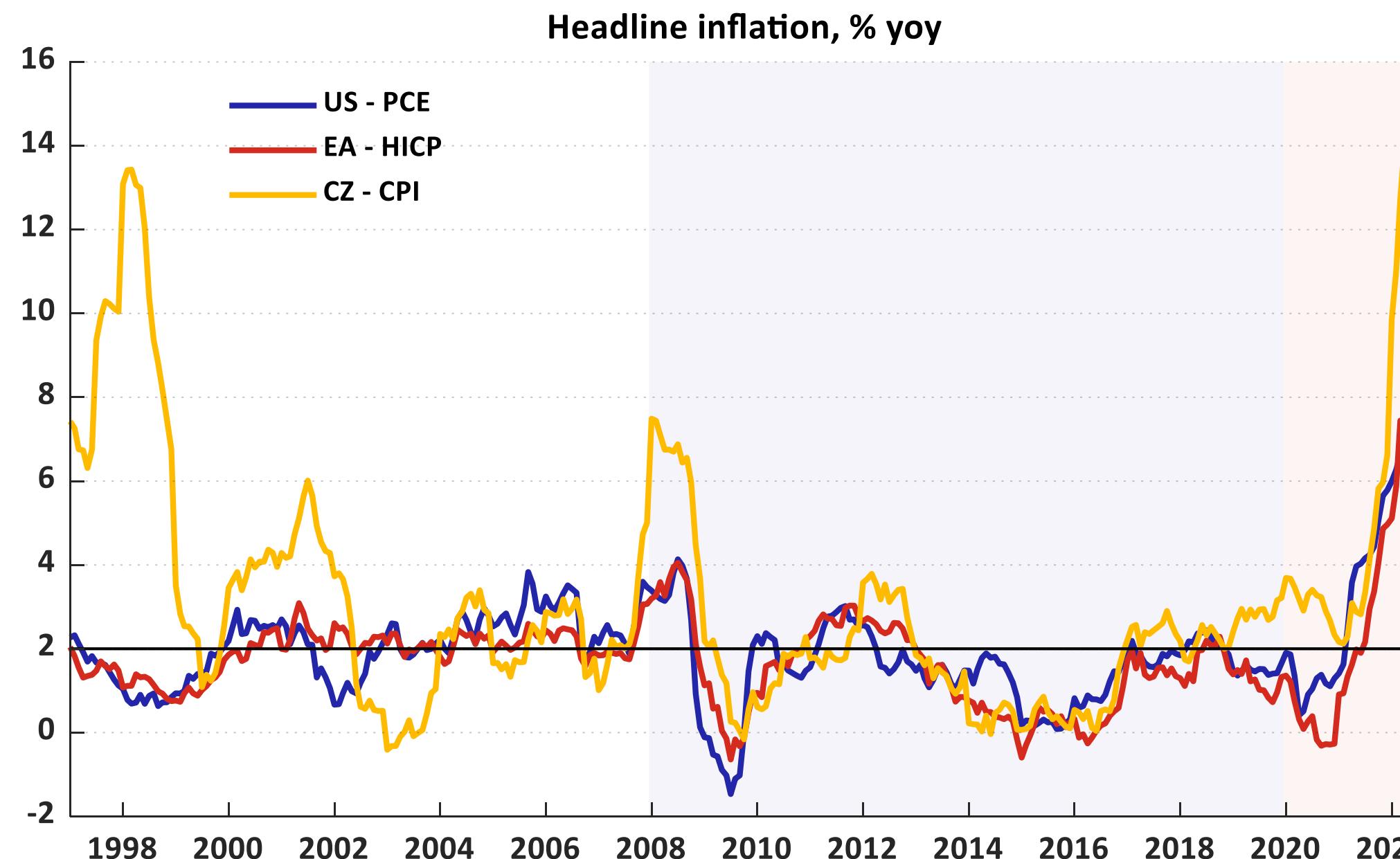
In January 1998, inflation targeting was introduced in a “lite” version, but this period was relatively brief. Advanced IFT framework, backed by a modern FPAS, was built in 2002–2008, i.e. before the GFC. This advanced framework provided analytical foundations for conducting monetary policy at the ZLB, using the exchange rate as an UMP instrument, from November 2013 until April 2017, and subsequent policy normalisation.



Current inflation surge



Stylized facts

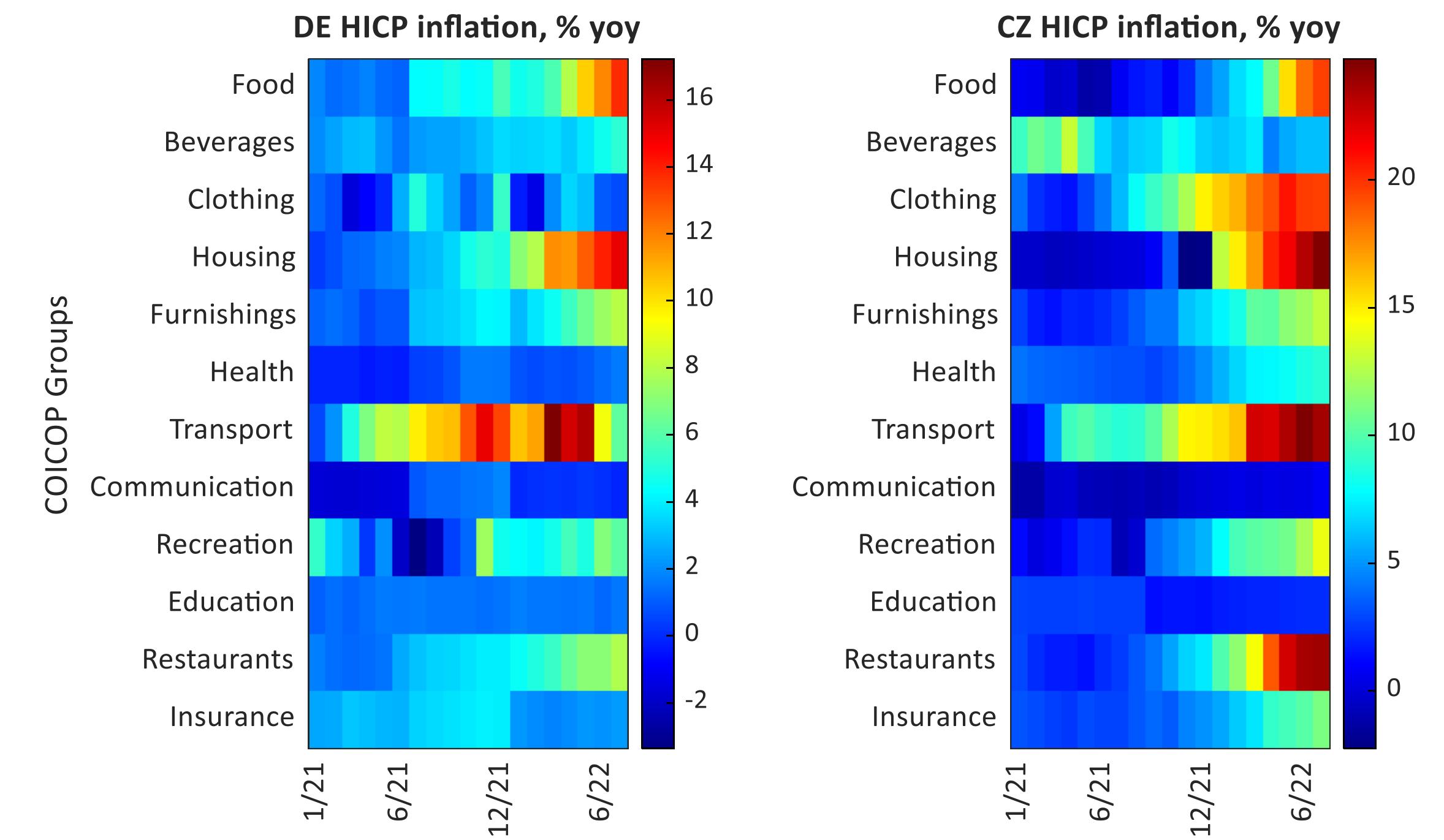
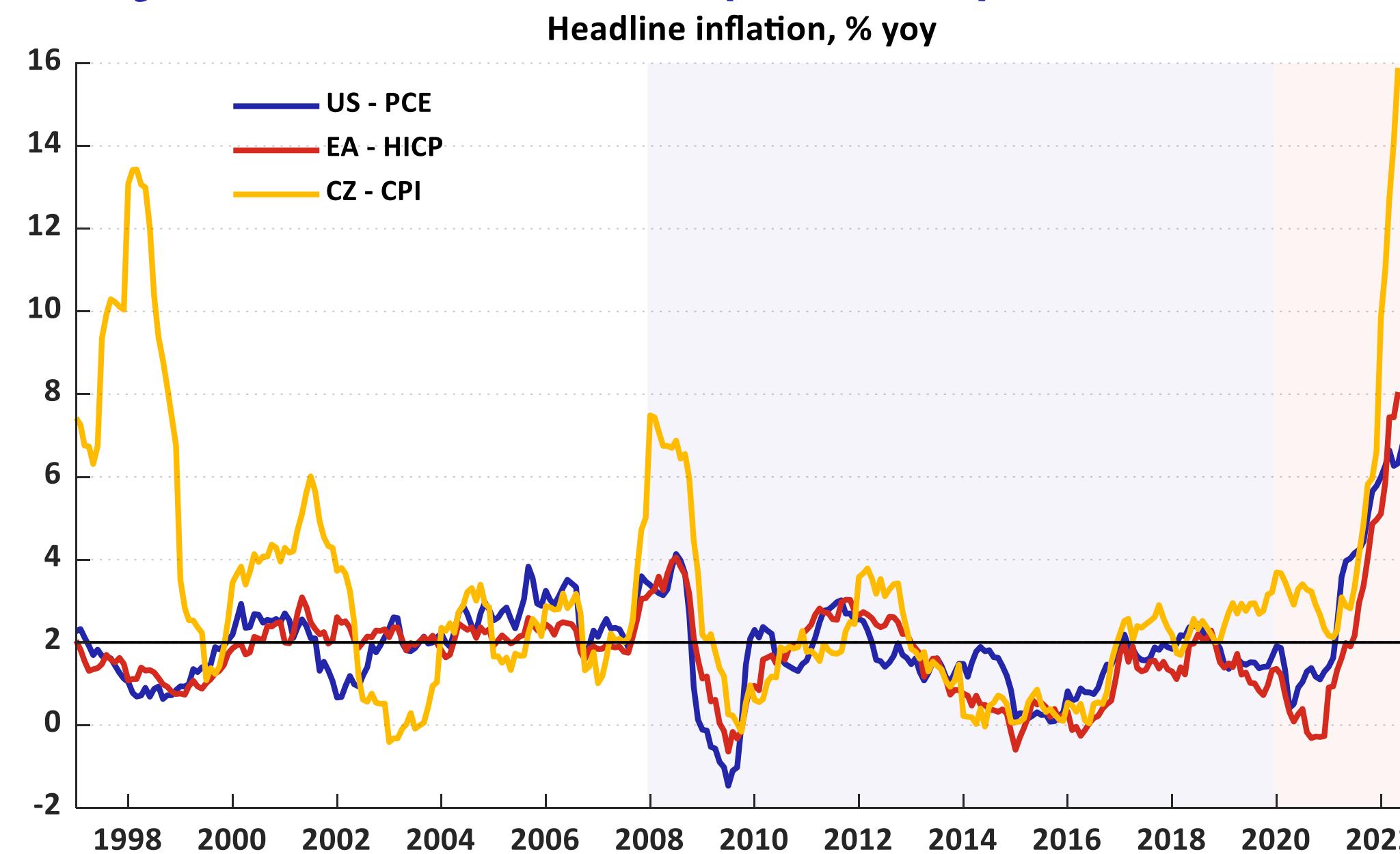


In the wake of the GFC, **inflation remained subdued** despite a **real recovery** and **unemployment rates** declining to historically lowest levels.

Advanced countries' central banks resorted to **unconventional measures** after reaching the effective lower bound of policy interest rates.

“Keep it hot” strategy did not bring inflation => studies on **flattening of Phillips curves**, risks of **deflation**, and fear of **re-introduction of unconventional measures**.

Stylized facts (cont.)



Source: Central banks and Statistical Offices

After the Covid shock, **real growth** and **unemployment rates** have returned to pre-Covid heights but **inflation has risen** to levels not seen for decades.

Inflation has been driven by **supply** (supply disruptions and bottlenecks) and **demand factors** (strong recovery of demand after lockdowns and shifts of demand from services to goods) along with a **commodity price** increase due to rising global uncertainty.

The **inflation surge is widespread** across countries as well as across HICP subcomponents.

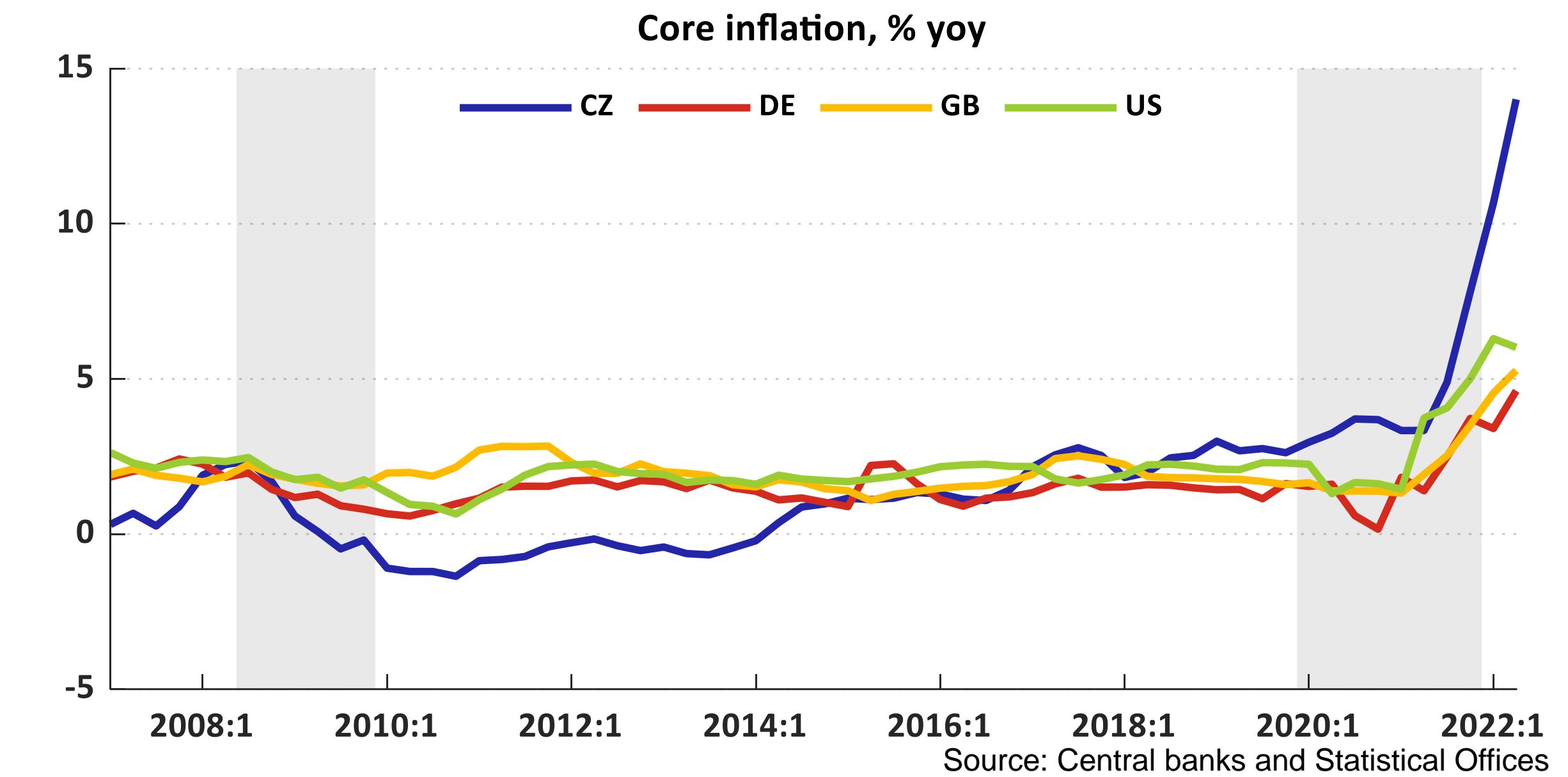
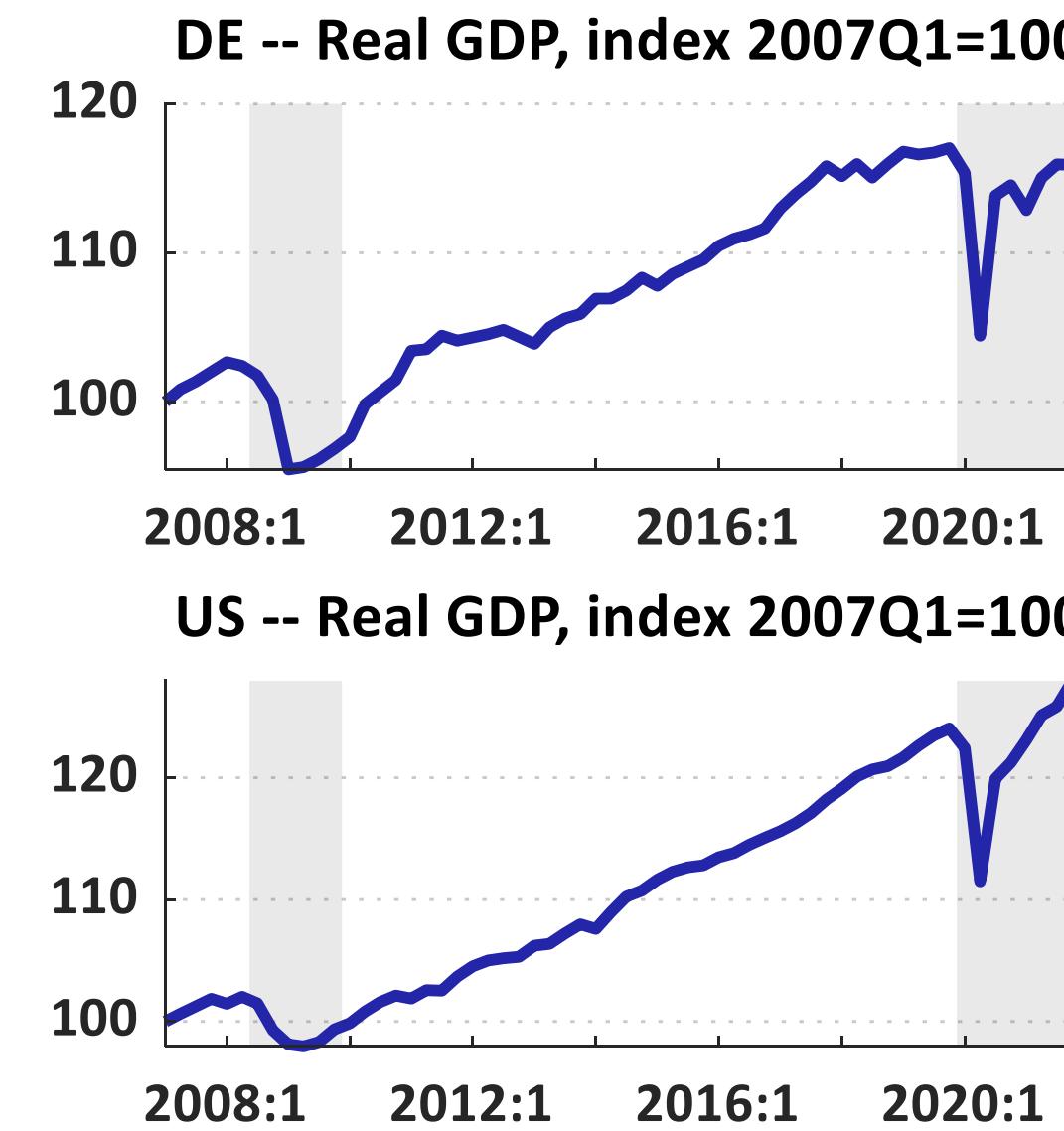
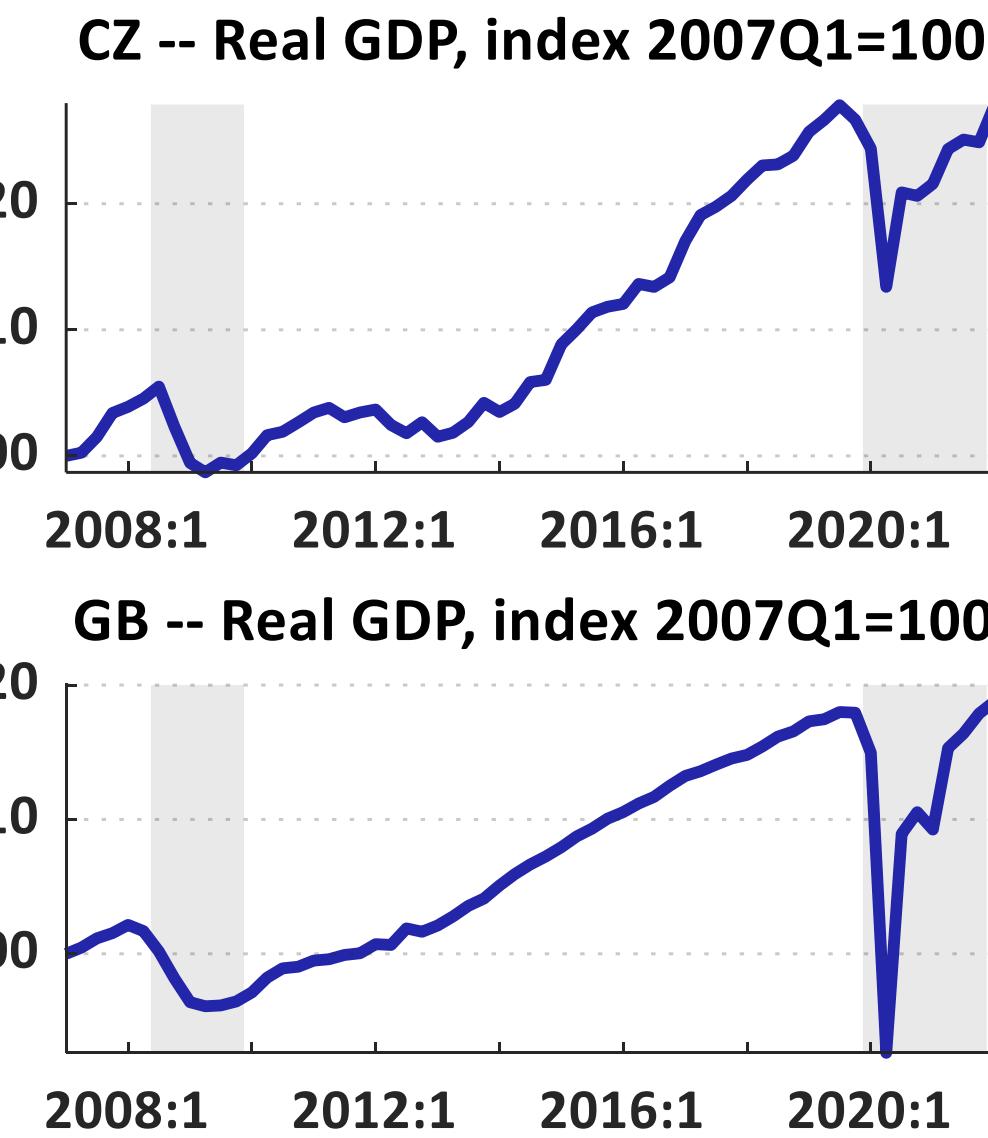
Questions

What is behind the change of inflation dynamics and the recent inflation surge besides the commonly articulated factors?

- i) **Too much stimulus** – monetary and fiscal policy synergy
- ii) **False belief in PCs flattening**
- iii) **Loss of central bank focus on price stability**

What lessons can be drawn for central bankers?

Too much stimulus – stylized facts

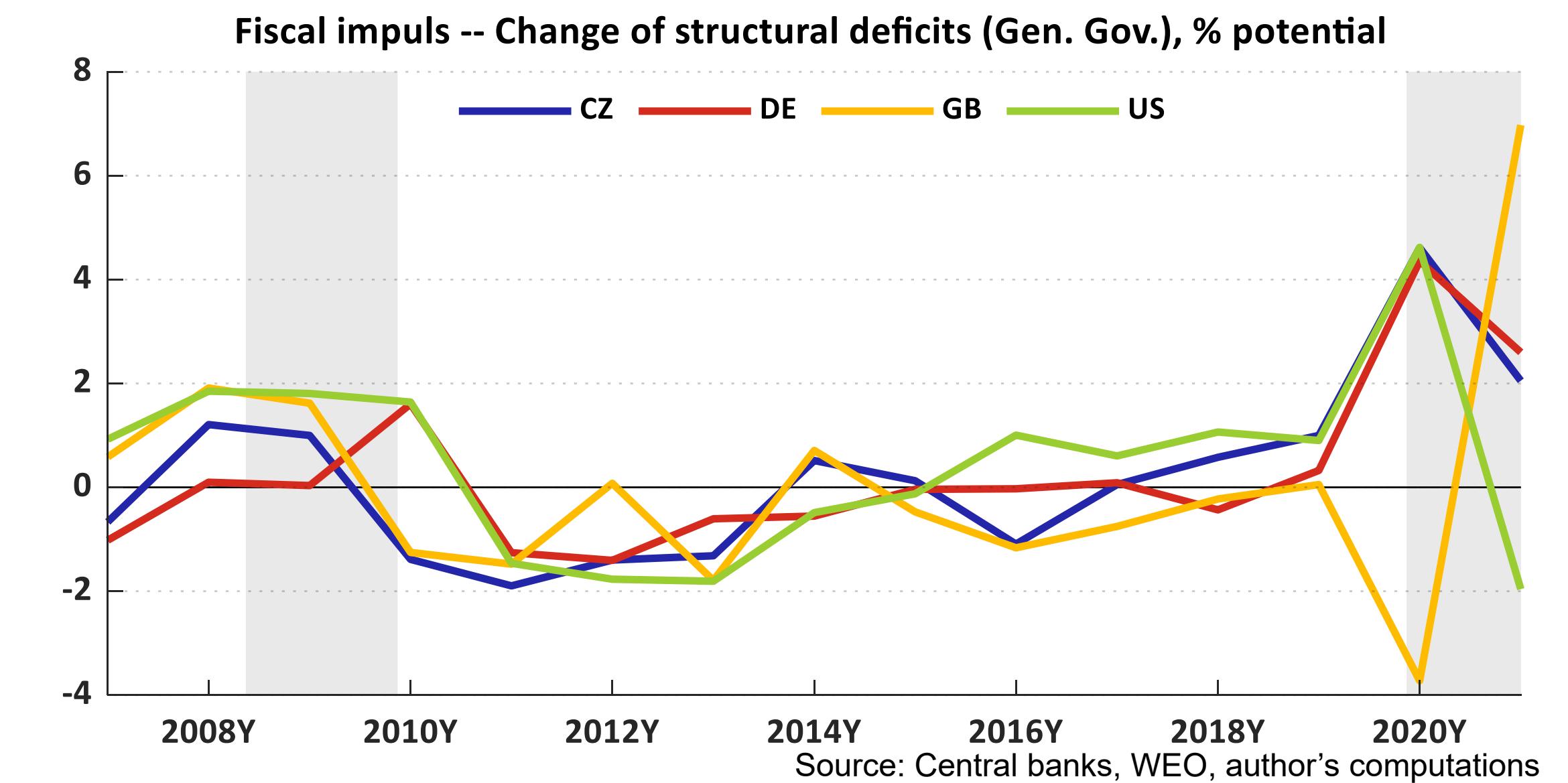
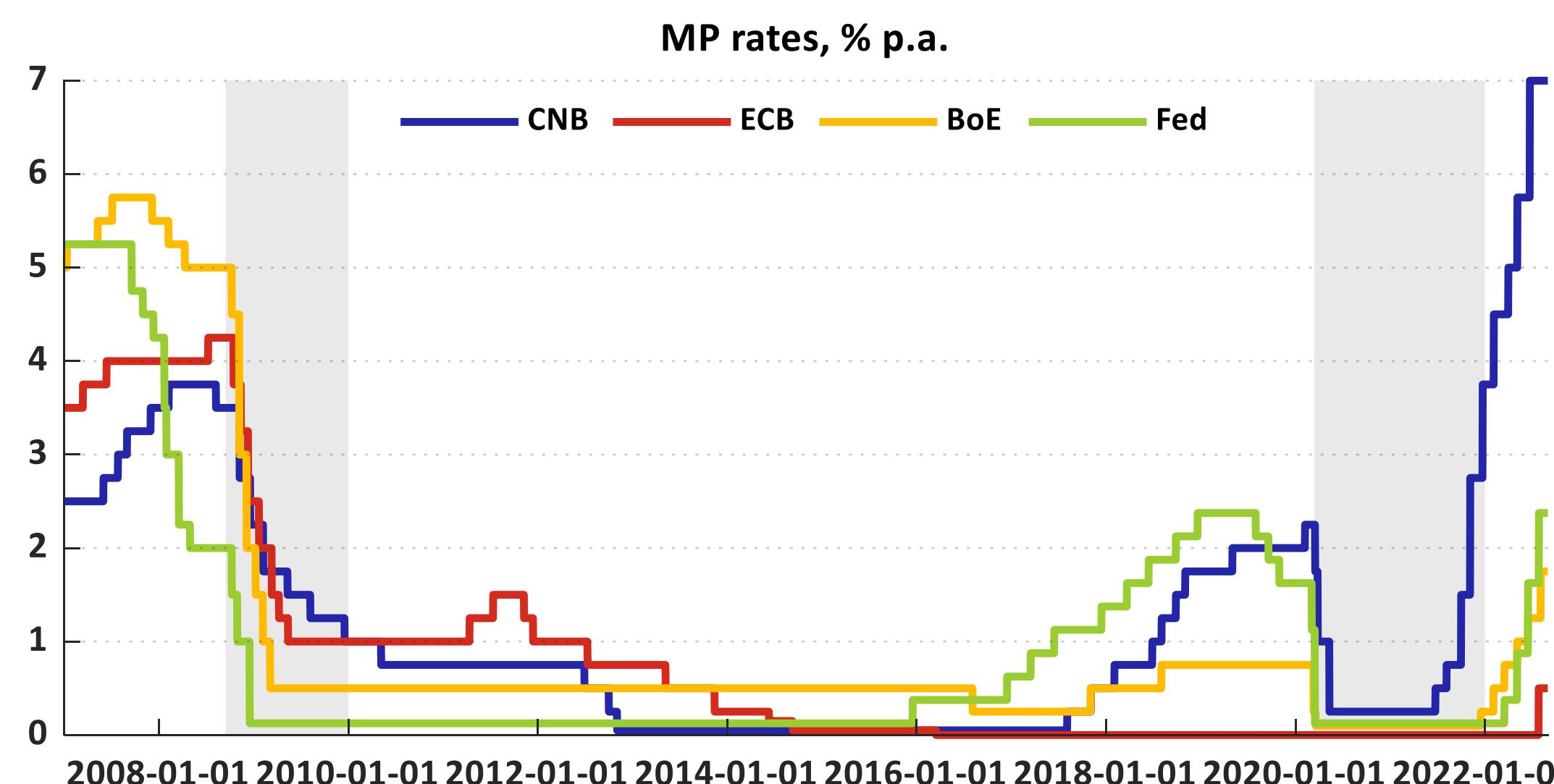


The GFC led to an **L-shaped recession**, while the Covid shock was characterized by a **V-shaped recession** with a rapid return of real GDP to the pre-pandemic levels.

Real economic activity shaped the dynamics of core inflation on top of other factors – **inflation fell** in response to **the GFC** but **has risen** after **the Covid shock**.

The different dynamics of GDP and inflation also reflect a **quick and simultaneous easing of monetary and fiscal policy** (too much of a good thing).

Too much stimulus – policy synergy

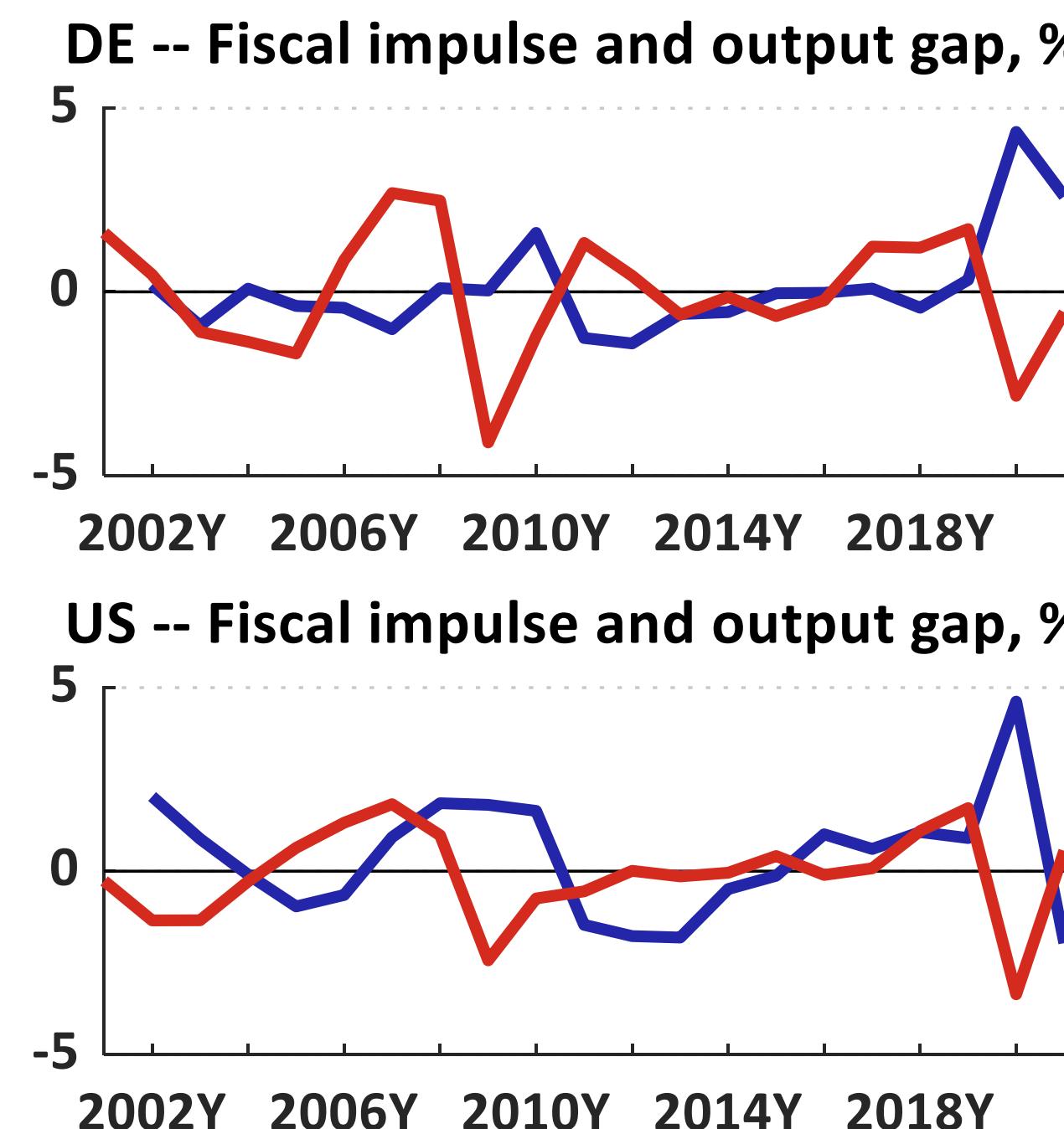
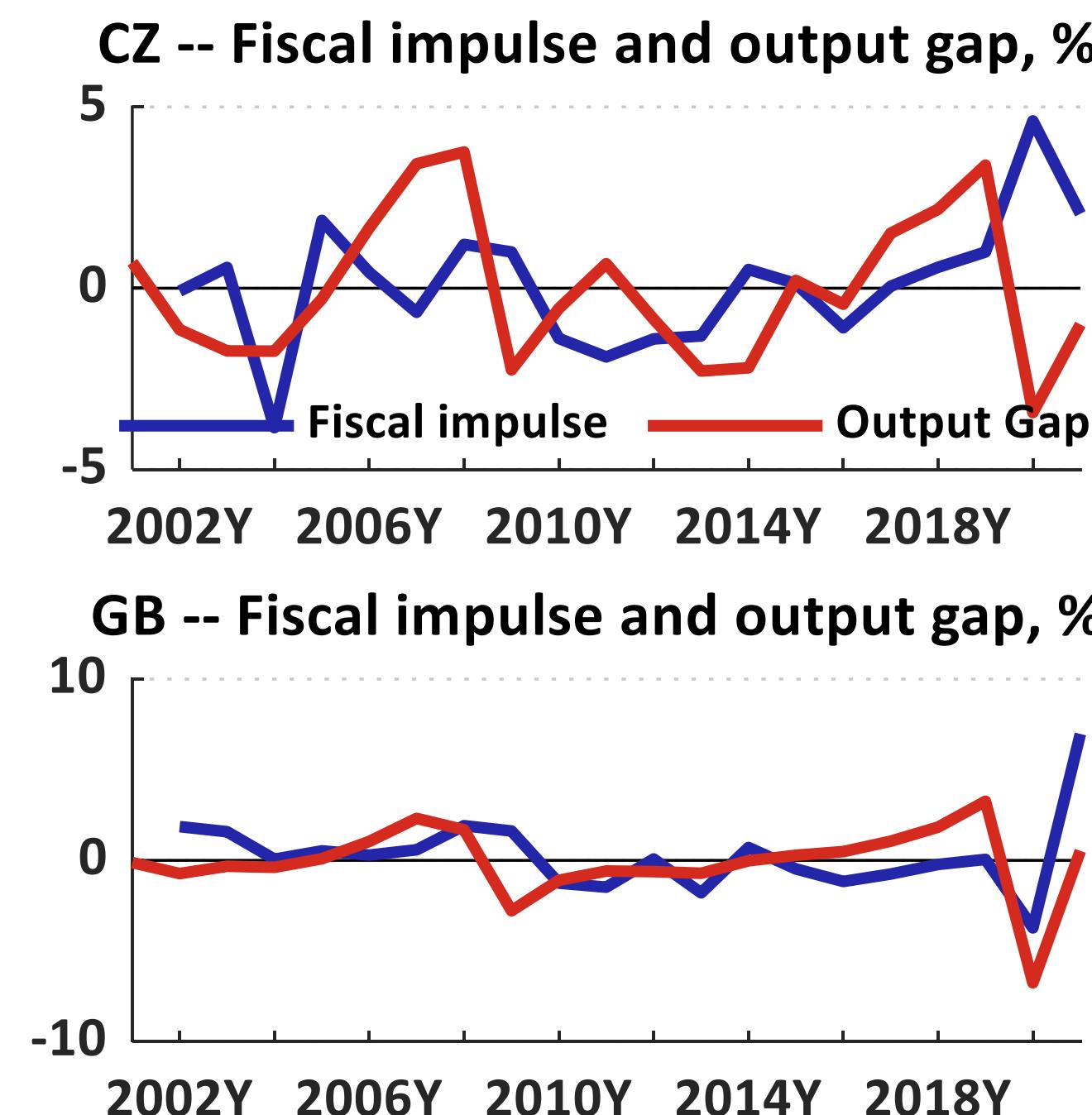


Monetary policy – almost immediate return to zero rate levels in response to Covid

Fiscal policy – more prompt and stronger fiscal response compared to GFC

The Covid shock shows that both policies have learned lessons from the GFC and demonstrates the **power of synergy between monetary and fiscal policies**.

Too much stimulus – lessons



Source: Central banks, WEO, author's computations

Note: Fiscal impulse approximated by changes in structural deficits. Output gaps estimated using HP filter.

Strong synergy of monetary and fiscal coordination

Significant negative shocks to real economic activity lead to the alignment of monetary and fiscal policy and the use of synergies – **“natural” coordination**

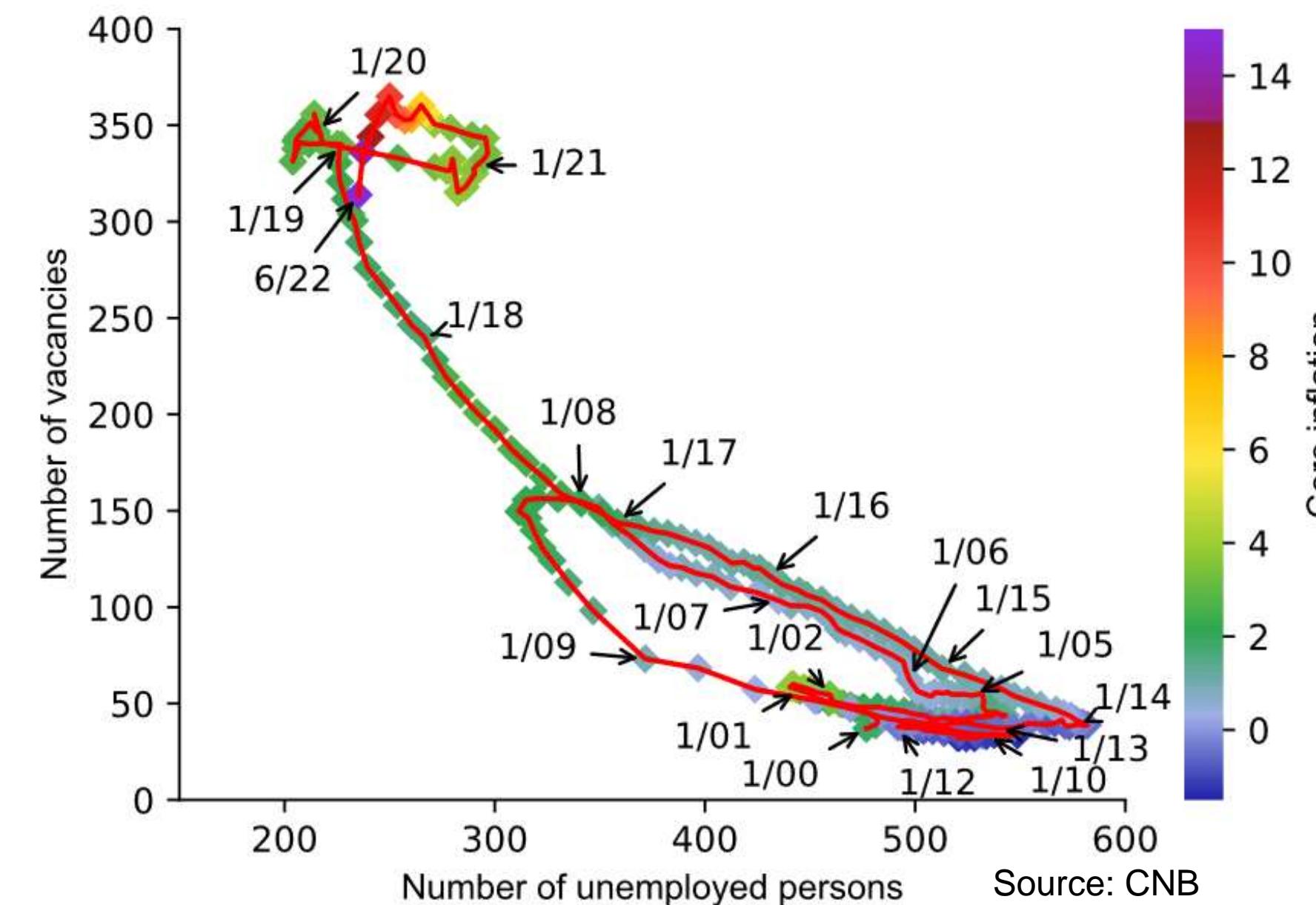
Coherence of policies during a standard business cycle and in periods of policy normalization as shocks subside – **is fiscal policy always countercyclical?**

The primary goal of **monetary policy** should be **ensuring price stability**

False belief in PCs flattening

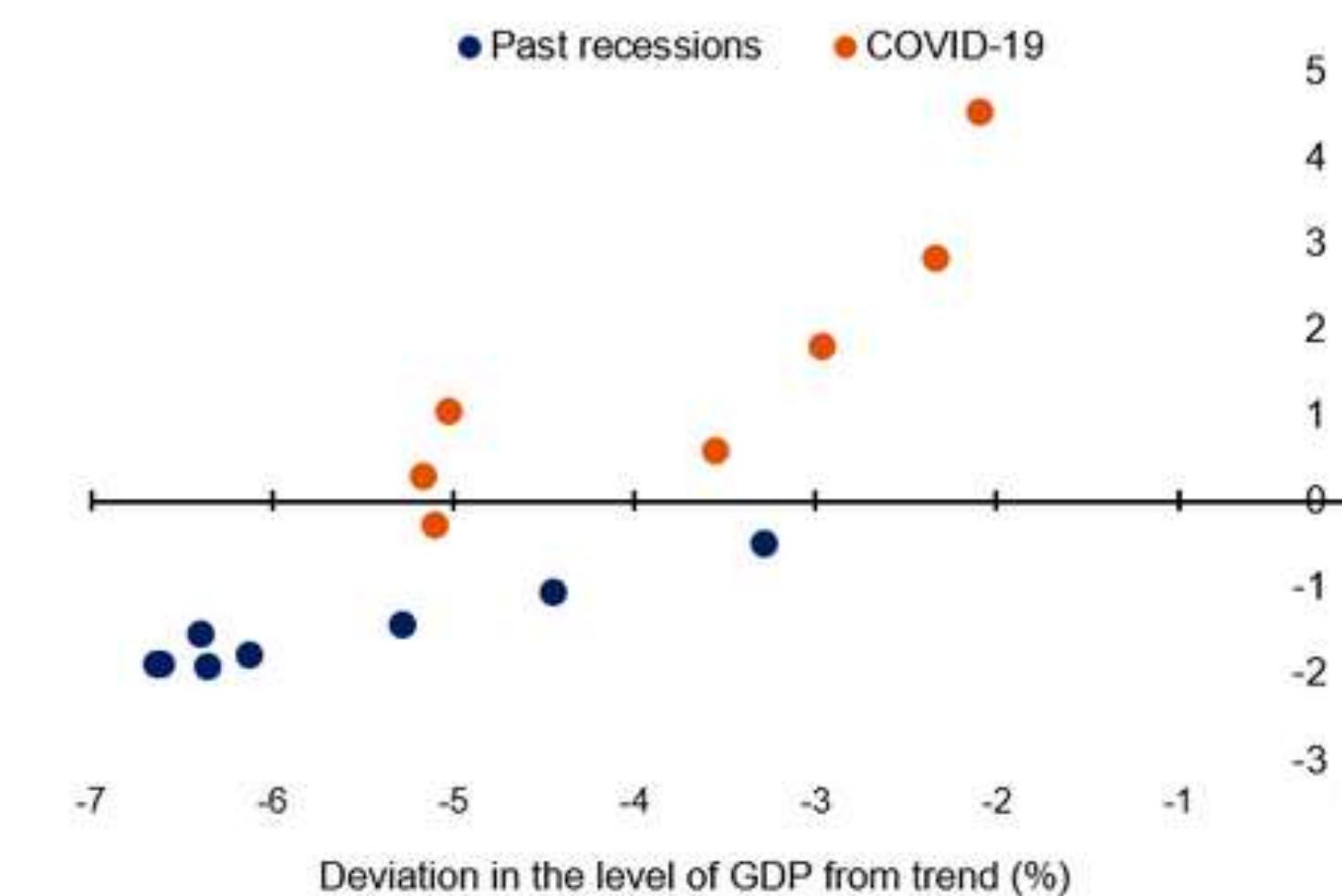
Beveridge curve -- CZ

numbers in thousands; seas. adjusted; core inflation: year on year in %



Core Inflation: Deviation from Trend

(Percent, quarter-on-quarter, annual rate)

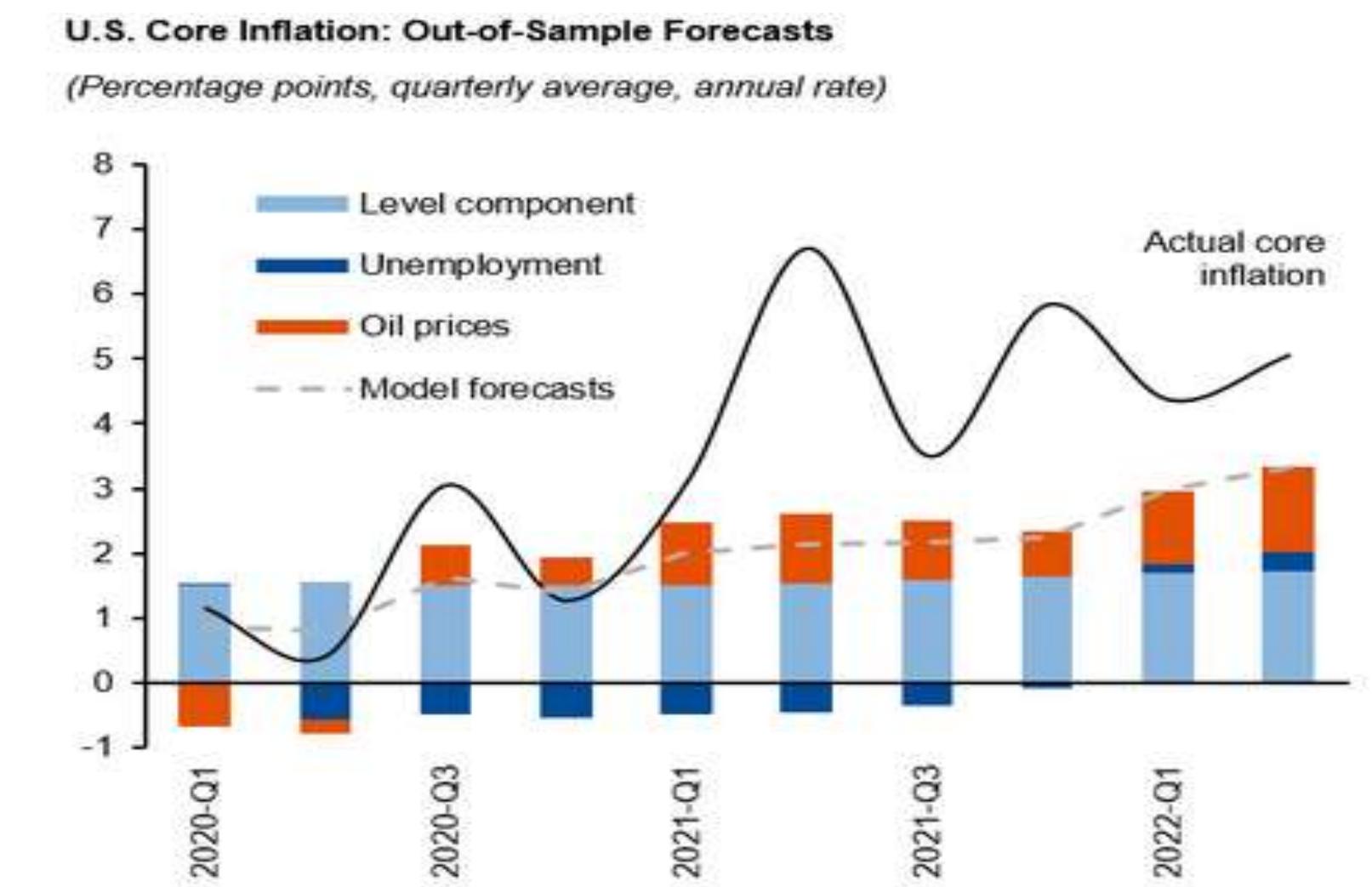
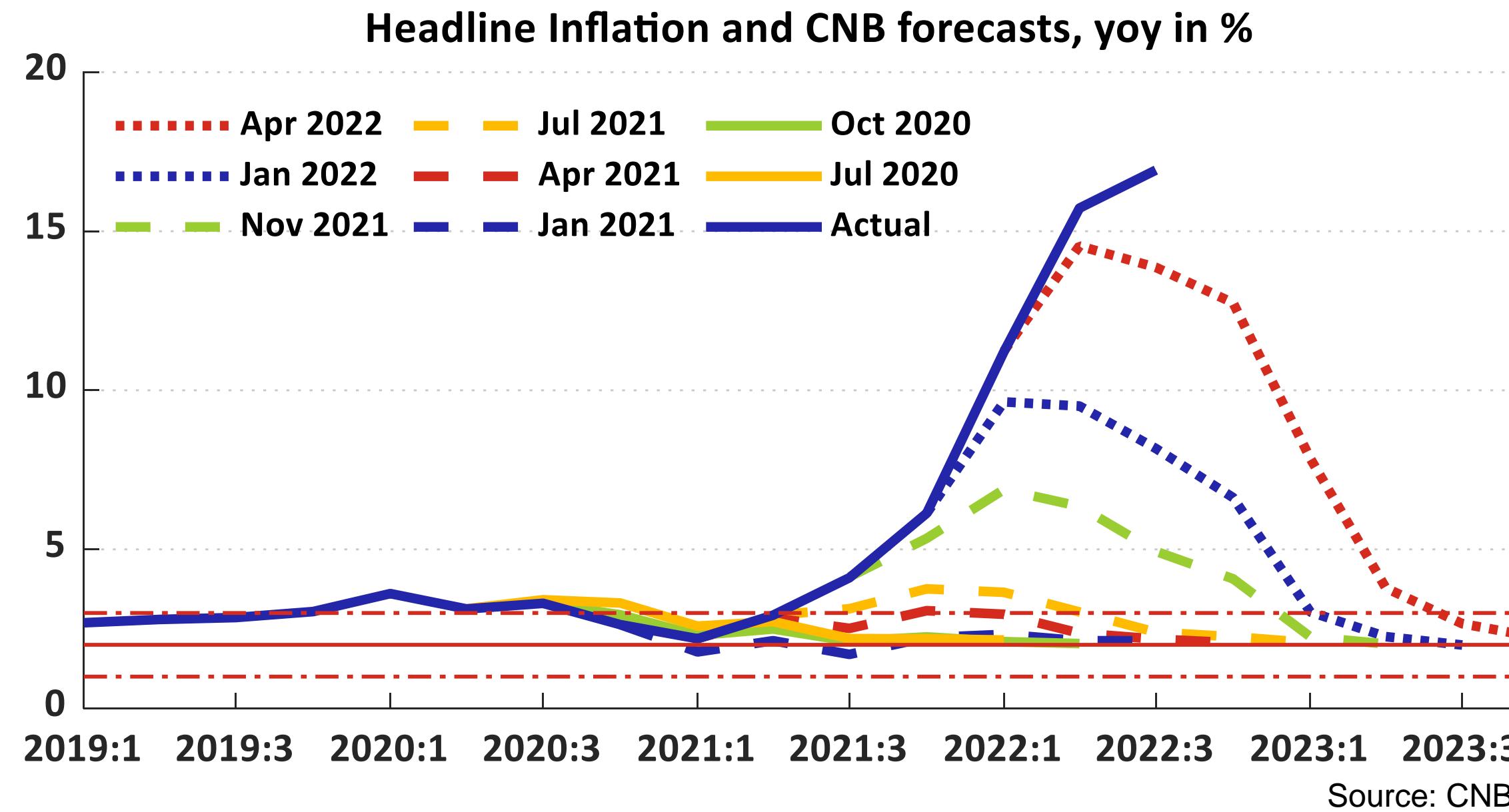


Sources: Gudmundsson and others (forthcoming), Haver Analytics, IMF staff estimates.
Note: Average response of core inflation and level of GDP to past recessions between 1990 and 2022Q1 estimated using local projections on a panel of 30 advanced economies. The chart shows the average estimated responses in the first seven quarters after the start of past recessions. For COVID-19, it shows the estimated responses from 2020Q3 to 2022Q1.

The **inflation surge** has been **surprising** given past experience – the same north-west position of the labour market **Beveridge curve** but with high inflation nowadays.

False belief that Phillips curves are extremely flat based on experience after the GFC and supported by some empirical findings – **flat PCs do not explain the recent inflation surge.**

False belief in PCs flattening (cont.)



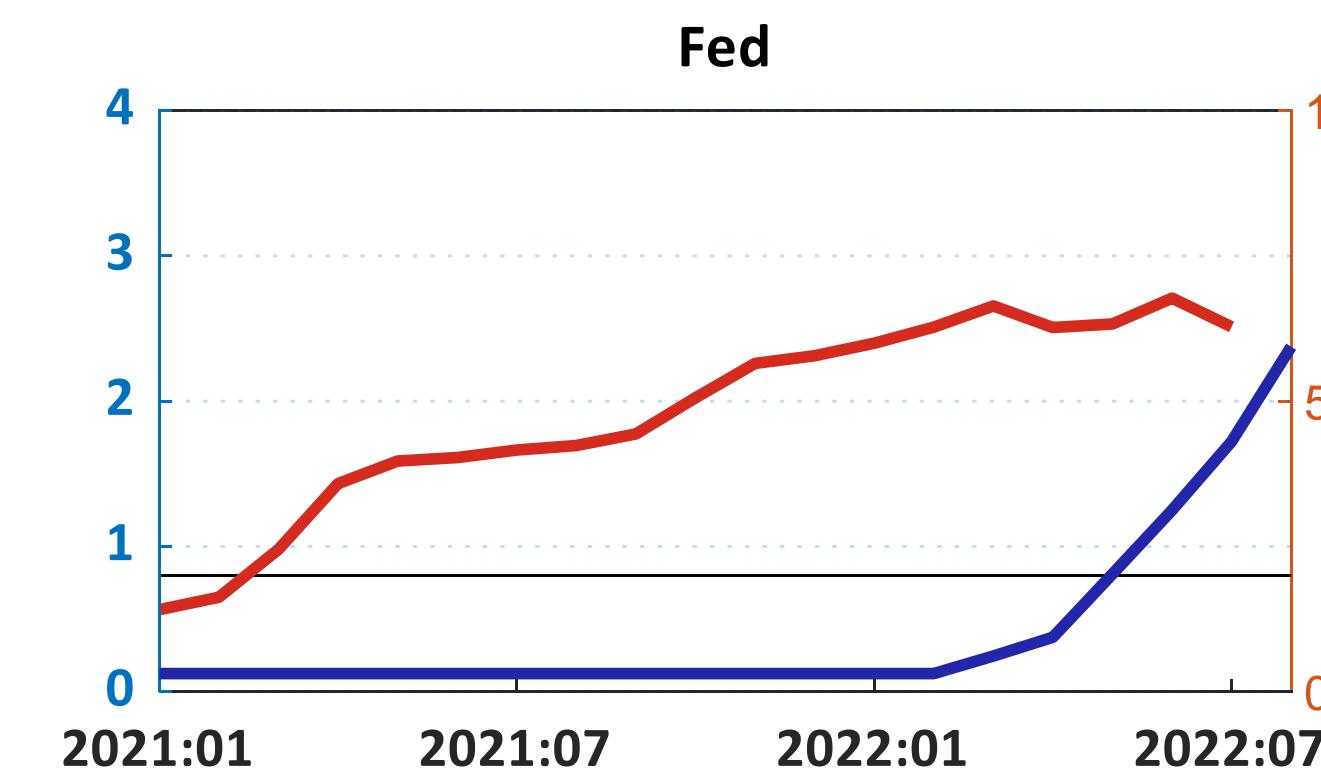
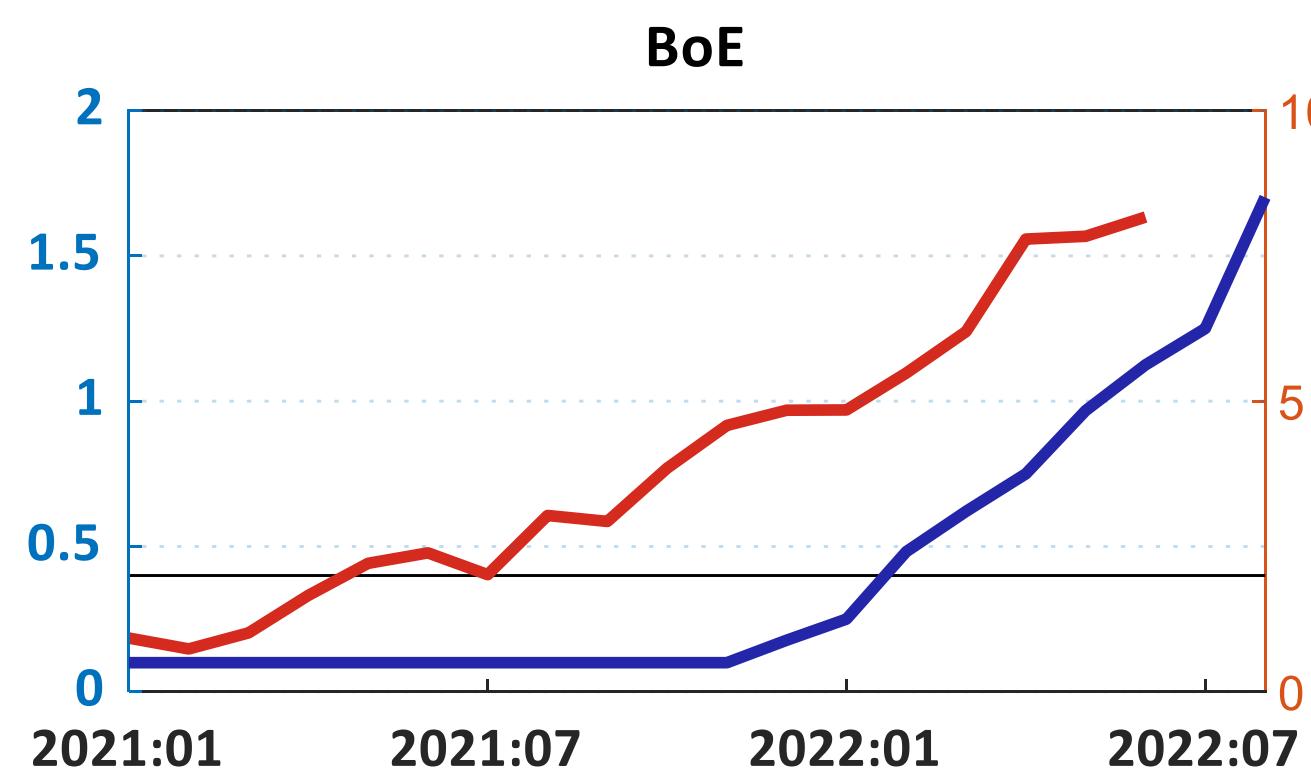
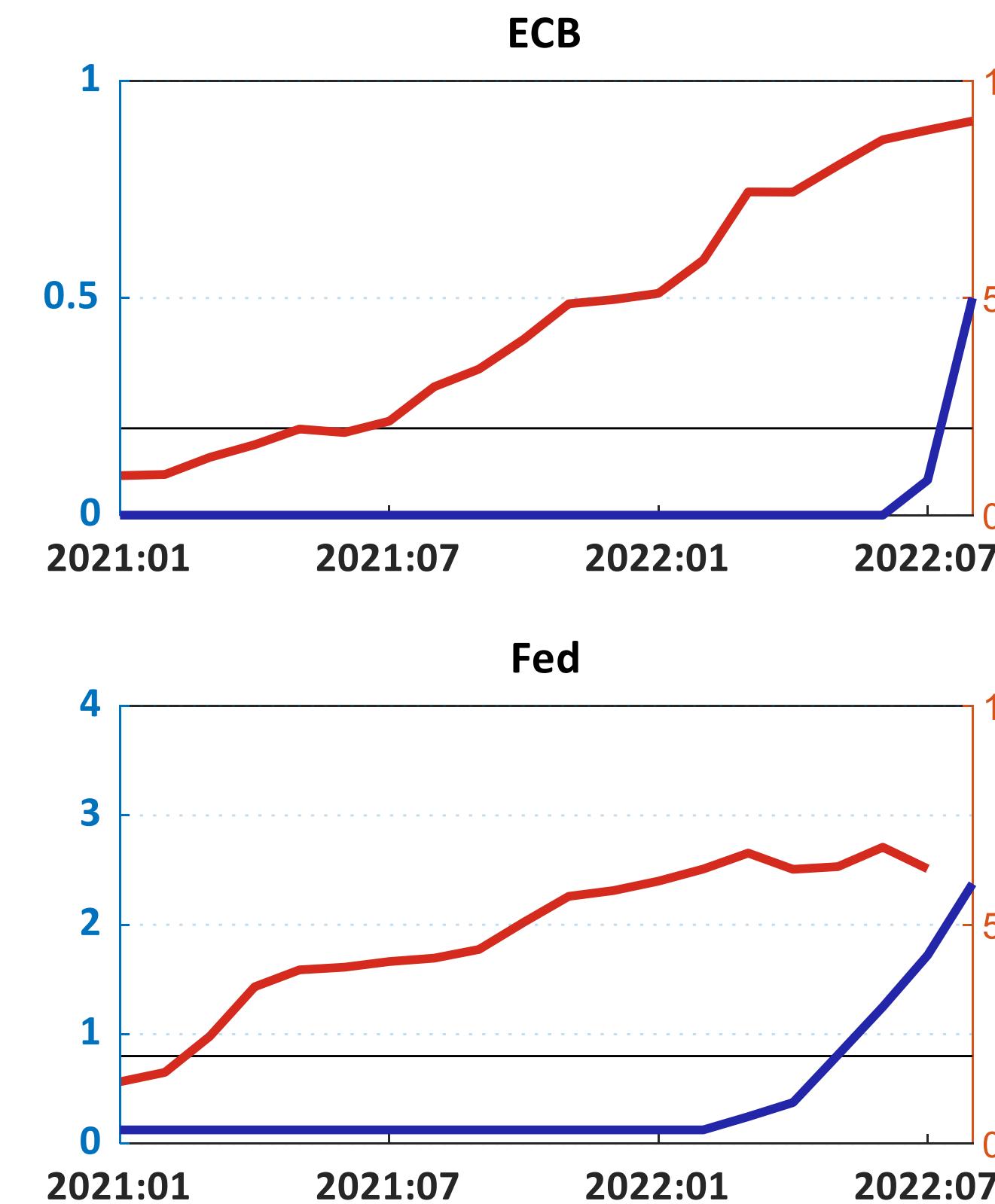
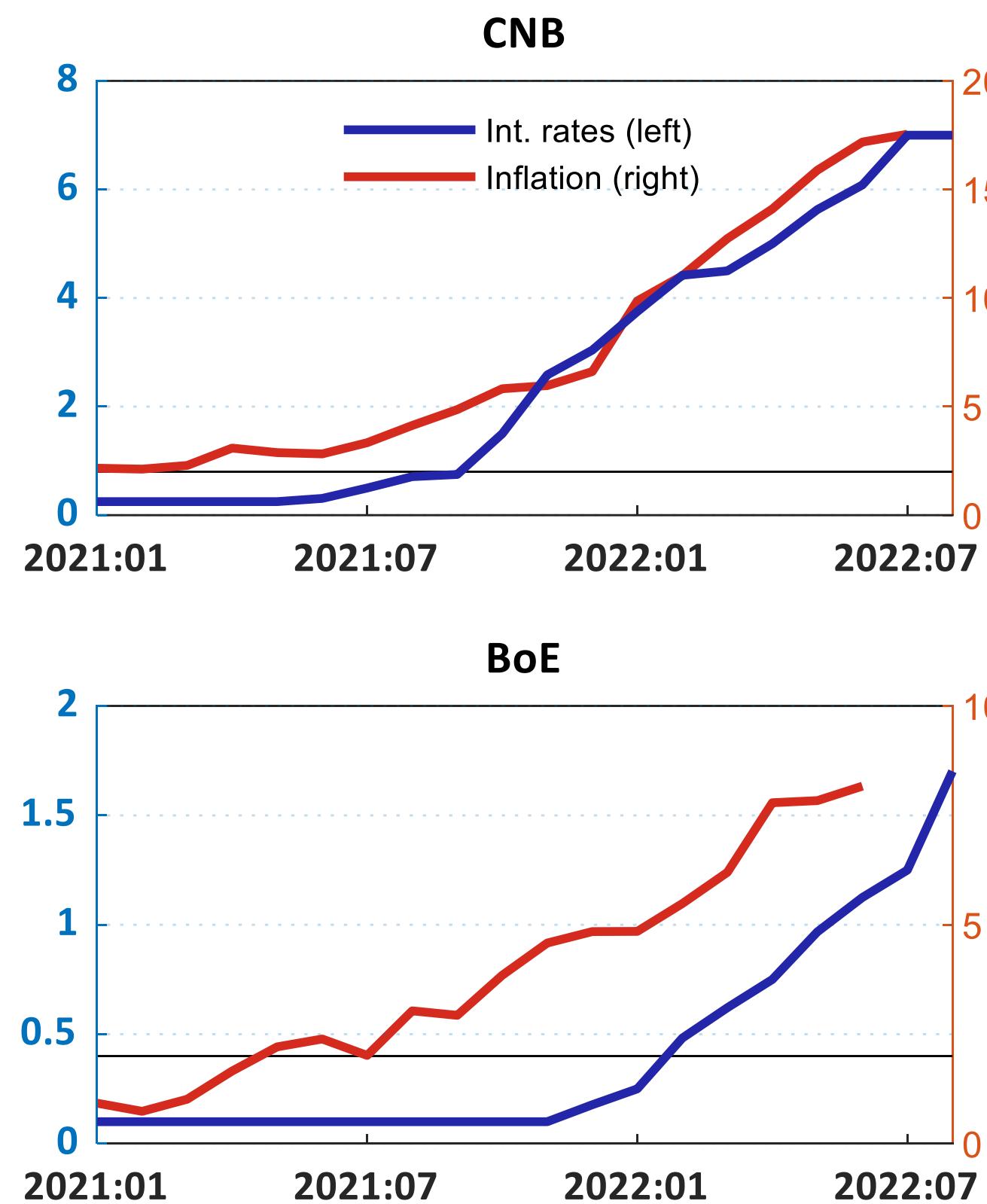
Source: IMF staff estimates based on model of Hooper, Mishkin, and Sufi (2020).
Note: Forecast based on 1960-2019 estimates. The 'Level component' includes the effects of lagged inflation, long-run expectations, and deterministic model components on the forecast.

Flat PCs led to **lower inflation forecasts** compared to the actual data with implications for monetary policy actions.

Too low inflation forecasts can be explained only partly by bias in the external assumptions and by rising expectations, ex-post evaluation suggests that **nonlinearities** might have been omitted along with the **false assumption about PCs flattening**.

BIS Annual Report 2022 – “... *in high inflation environments, price changes tend to exert a bigger and more persistent effect on overall inflation than they do when inflation is low ...*”

Loss of central bank focus on price stability



Initially, **supply shocks were** considered as **short-lived**, raising inflation only temporarily.

“**Running the economy hot**”, “**looking through**” shocks, or arguing that shocks are “**out of MP scope**” was considered as **desirable and benign** with respect to inflation based on the past experience.

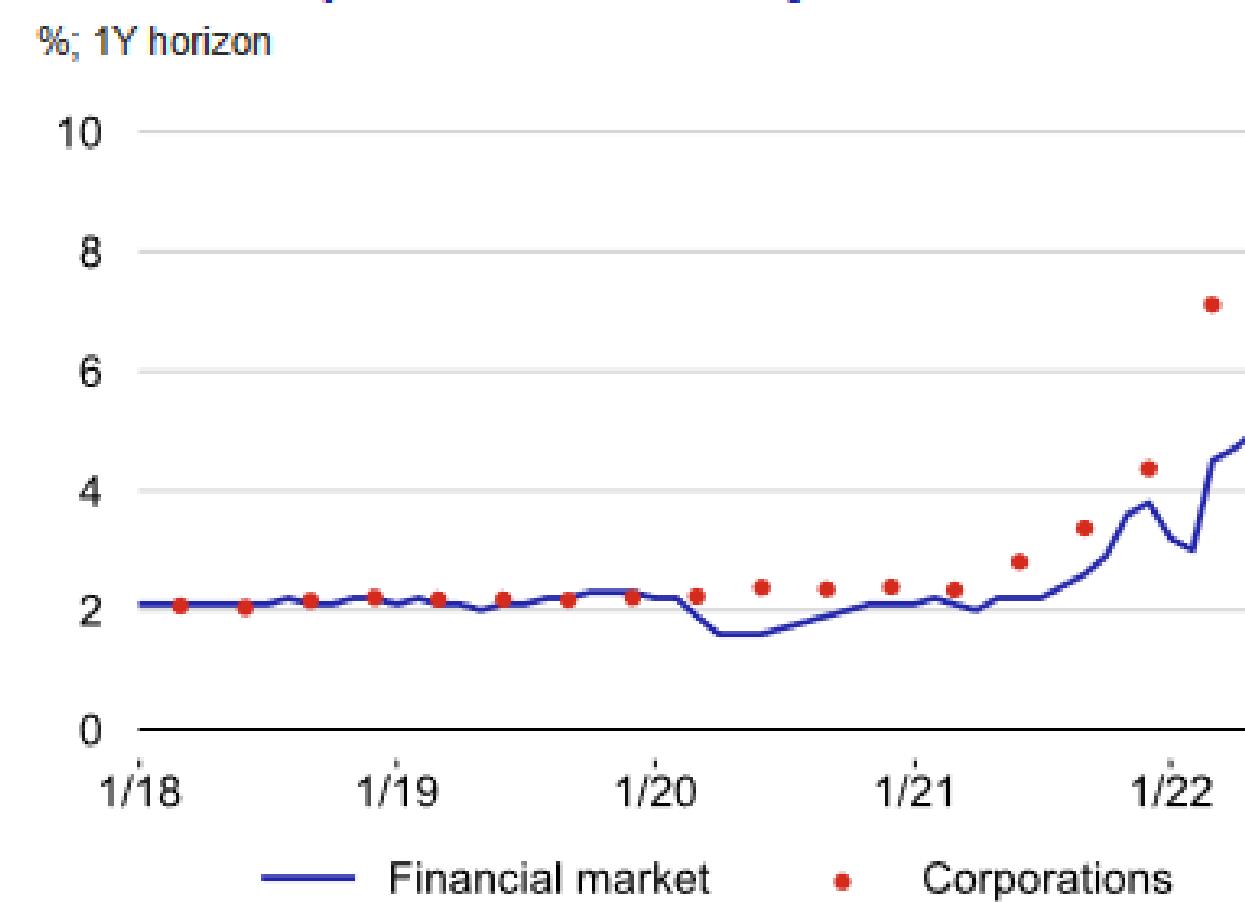
No more “**whatever it takes**” statements as in 1990s during the Great Moderation.

Using the ex-post view, **central banks fell behind the curve**, allowing a further decline in real interest rates.

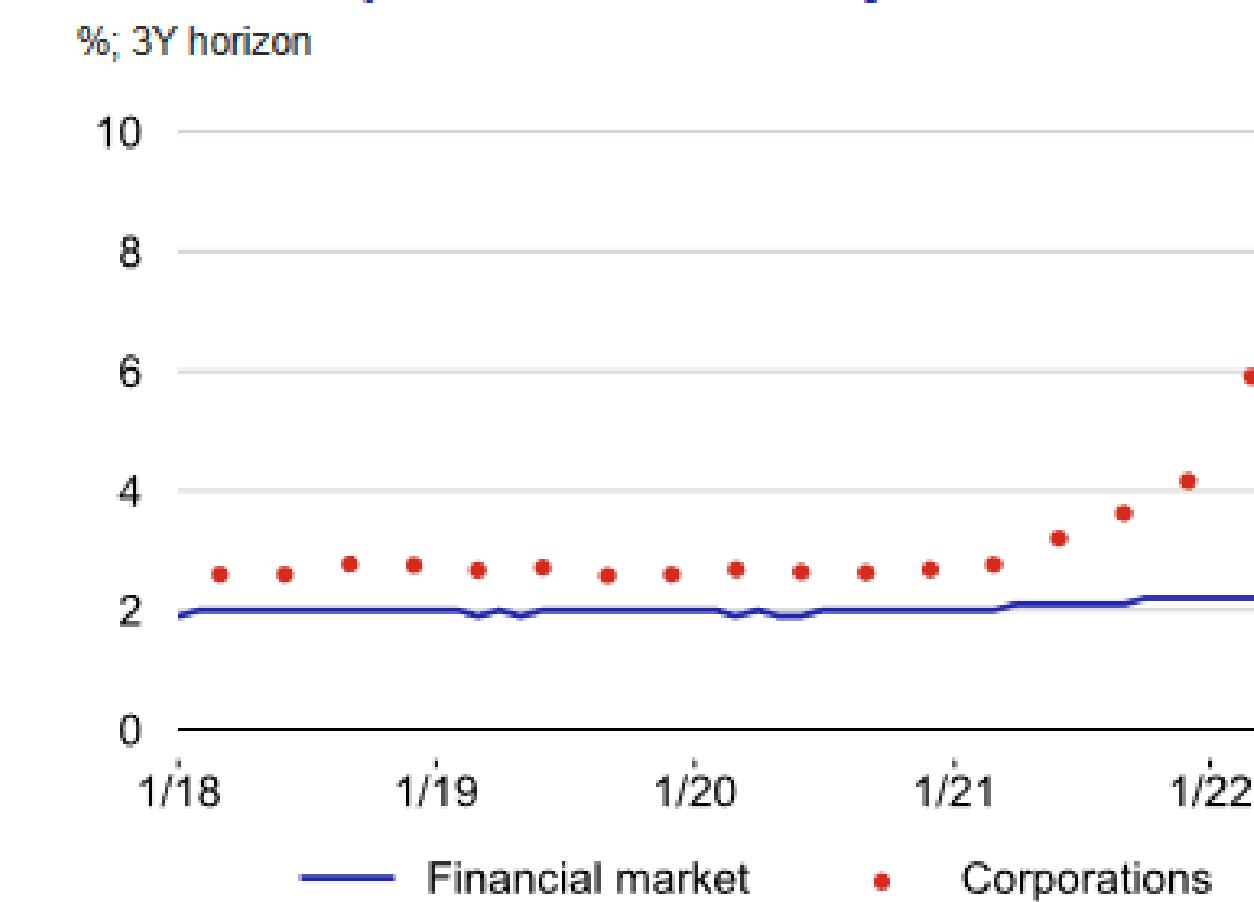
Source: Central banks and statistical offices

Loss of central bank focus on price stability (cont.)

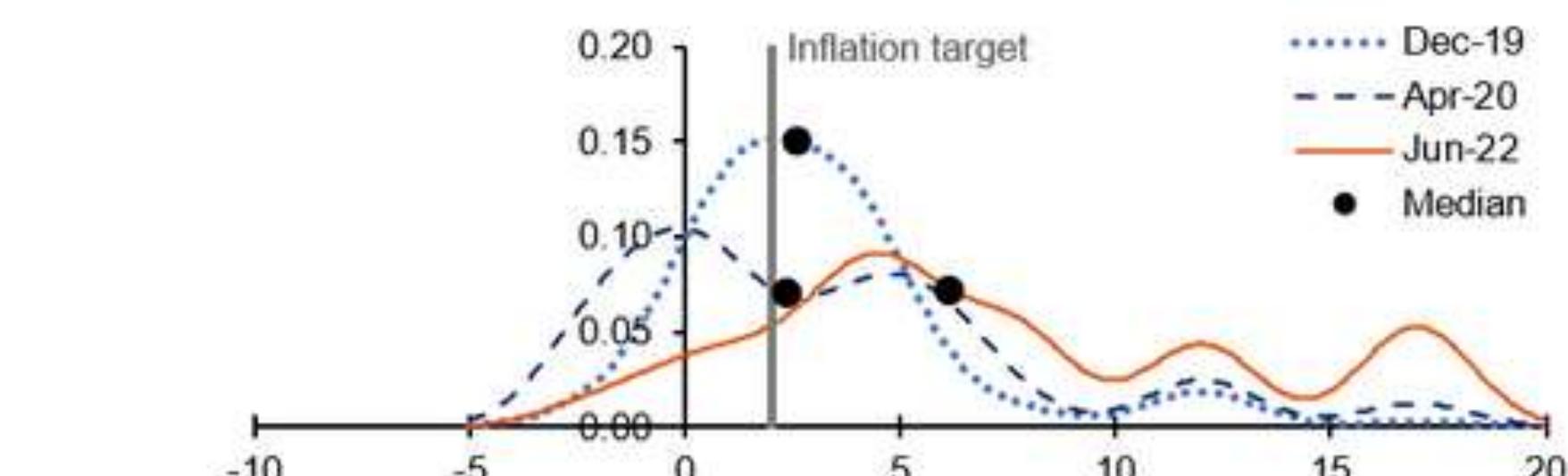
Inflation expectations at one-year horizon



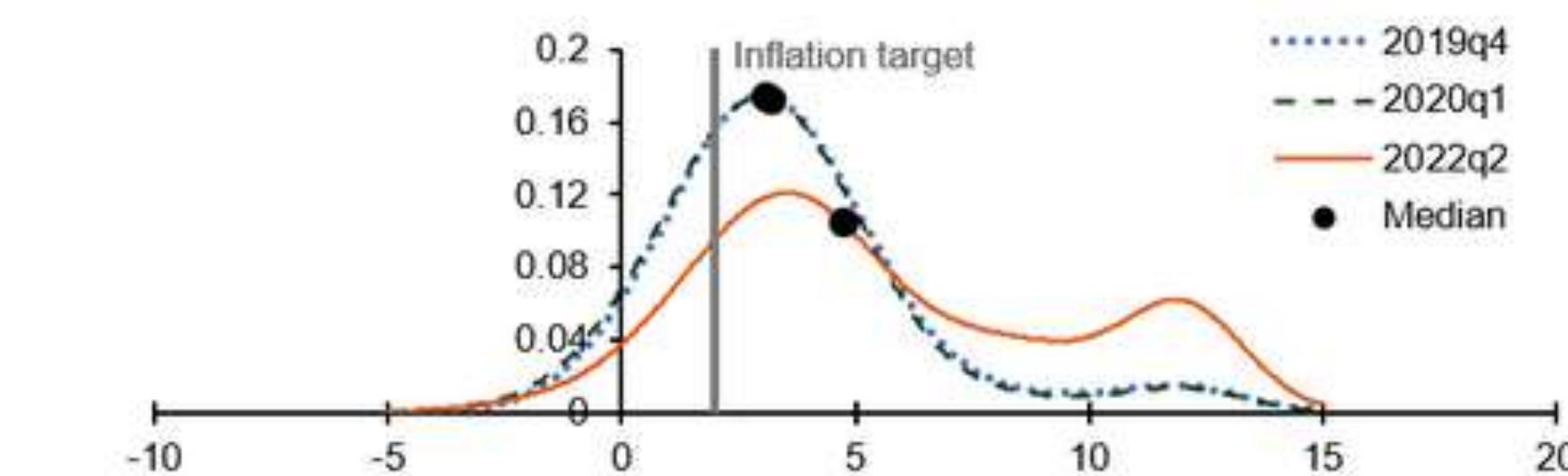
Inflation expectations at three-year horizon



U.S.: 1-Year Household Inflation Expectations



U. K.: 1-Year Household Inflation Expectations



Most central banks in advanced countries admit that **inflation will be back** – or at least close to – their targets in 2024, not next year.

Prolonging the policy **horizon** at which inflation will be back to the target might **undermine the credibility** of central banks, raising risks of inflation expectations becoming unanchored and consequent costly disinflation.

Source: Gelos and others (forthcoming).

Note: The charts fit kernel densities to households' inflation forecasts, using methodology similar to Reis (2021).

There and back again? Lessons learned

Although the Covid shock and the war are sort of tail events, they have **tested our monetary policy frameworks**.

The strategy of “**running the economy hot**” should be revisited based on the current experience of large and long-lasting deviations from targets as **costs might be higher than benefits**.

Disinflation is costly and the costs are rising with an unanchoring of inflation expectations.

Back to basics and past experience of the 1970s and 1980s – successful disinflation during the great moderation period – **mistakes leading to the Great Inflation and the success during the Great Moderation**.

High uncertainty about future developments calls for a **prudential approach** to monetary policy (but prudential does not always mean less decisive actions; sometimes it is quite on the contrary).

Thank you for your attention

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