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Monetary policy frameworks: lessons learned and challenges ahead

Speech by Agustín Carstens
General Manager, Bank for International Settlements

At the 2025 Homer Jones Memorial Lecture
St Louis, 3 February 2025

Thank you very much for the invitation to deliver this year's Homer Jones Memorial Lecture, President Musalem, and for the kind words. I am honoured to be here at the Federal Reserve Bank of St Louis, which is a centre of excellence in monetary economics, and to follow in the footsteps of many distinguished speakers in celebrating the legacy of Homer Jones.

As many major central banks, including the Federal Reserve, are conducting reviews of their monetary policy frameworks, it is a great opportunity to take stock of the lessons that they should draw from the events of the recent past. As I speak today, inflation rates are at last returning close to central bank targets.[1] Credible price stability objectives pursued by autonomous central banks – often in the form of inflation targeting – have been instrumental in achieving this. A key reason for the success and durability of inflation targeting regimes has been their adaptability to prevailing macro-financial circumstances. Therefore, regular reviews of monetary policy frameworks can provide practical guidance to help refine the implementation of inflation targeting in an ever-changing macro-financial environment.

In my remarks today, I will discuss the key features of modern monetary policy frameworks which helped central banks around the world curb inflation. I will touch on insights from the 2020–21 framework reviews and how the lessons learned from the recent inflation surge can be applied to the current round of reviews.

Key features of modern monetary policy frameworks

Central banks have made remarkable progress in curbing inflation over recent decades. During the Great Inflation in the 1970s, central banks' failure to combat emerging inflationary pressure saw a high-inflation regime take hold (Graph 1.A). Restoring price stability on that occasion required a strong commitment and forceful action by central banks and came at a considerable cost to output and employment. Starting in the 1980s, central banks adopted more robust and credible monetary policy frameworks. In the 1990s and 2000s, many central banks started

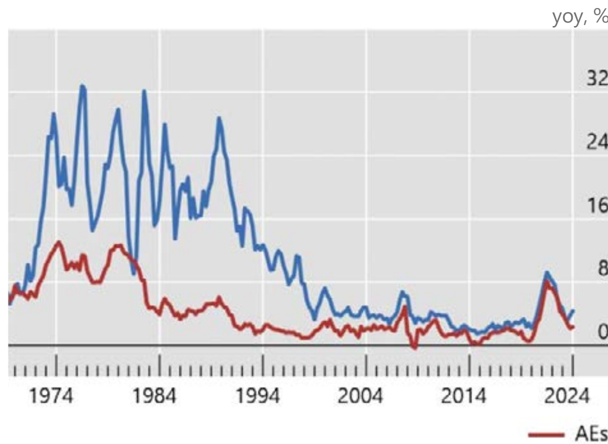
[1] See Hofmann et al (2025).

implementing some form of inflation targeting, which further helped cement the transition to low and stable inflation environments (Graph 1.B).

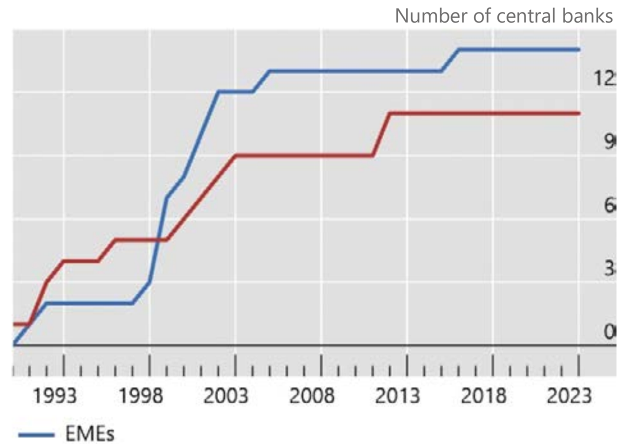
Inflation dynamics and inflation targeting adoption[1]

Graph 1

A. Consumer price inflation [2]



B. Central banks with inflation targeting regimes



AEs EMEs

[1] Eleven AEs and 14 EMEs; euro area countries count a single jurisdiction. [2] Median.

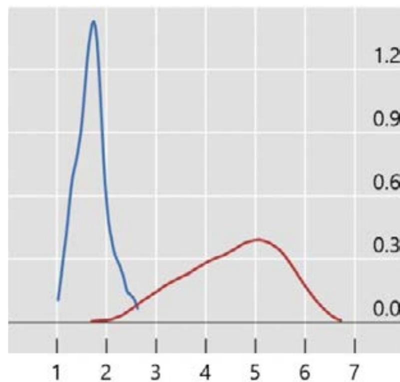
Sources: Borio and Chavaz (forthcoming); national data; BIS.

Inflation targeting helps anchor inflation expectations

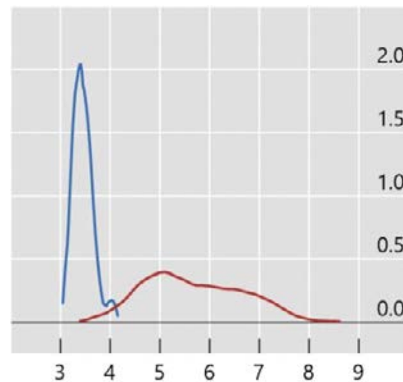
Probability density[1]

Graph 2

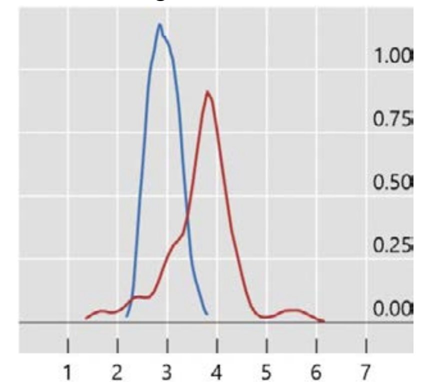
A. Canada



B. Mexico



C. United Kingdom



[1] Distribution of inflation expectations among professional forecasters calculated as the weighted average of the current and next year inflation expectations as provided by Consensus Economics.

Sources: Consensus Economics; BIS.

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Inflation targeting regimes share some important characteristics.[2] Setting clear numerical targets for inflation, backed by a credible commitment to achieve them, helps ground public expectations. Indeed, if sufficiently credible, the medium-run inflation expectations of households, businesses and investors are the inflation target (Graph 2). Central bank autonomy is also key, as it allows central banks to make monetary policy decisions based on economic considerations, free from political interference. This helps them to act swiftly and credibly in response to risks to price stability. Transparency and accountability further bolster central bank autonomy and contribute to low and stable inflation.

But there is no one size fits all when it comes to inflation targeting. Central banks differ in the level of the target they set. They also differ in the amount of flexibility central banks have to achieve these targets. Some central banks focus purely on inflation. Others also take other considerations into account, such as output stabilisation, full employment or financial stability. Similarly, some central banks tolerate deviations at a point in time, for example, through tolerance bands for the inflation rate. Others have longer horizons over which the inflation target is to be achieved.

Approaches differ across jurisdictions according to the prevailing macro-financial landscape. The experience of emerging market economies (EMEs) provides a case in point. While flexible exchange rates help absorb shocks, large and sudden swings in exchange rates could cause strains in domestic financial markets. Therefore, policy frameworks in EMEs often incorporate macro-financial stability considerations, including the use of foreign exchange intervention and macroprudential tools (Graph 3).[3] These frameworks helped EMEs to lower the frequency of financial crises.[4]

[2] See Bernanke et al (1998).

[3] See BIS (2019) and BIS (2022).

[4] See BIS (2024).

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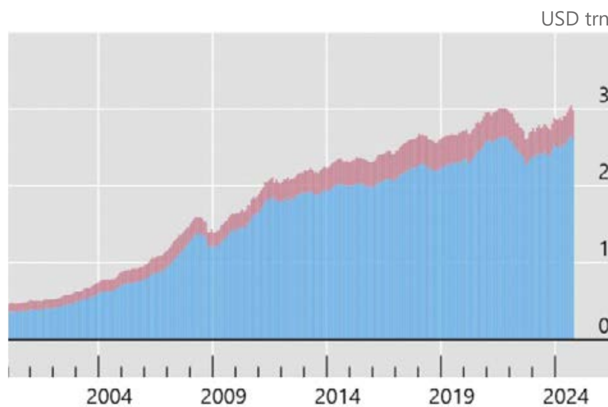
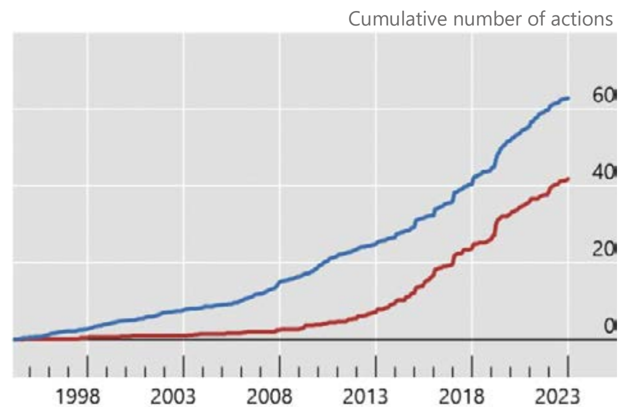
Macro-financial stability frameworks Graph 3

A. FX reserves[1]



B. Use of macroprudential tools[2]



FX reserves: EMEs AEs

Macroprudential measures: EMEs AEs

[1] Sum of six AEs and 15 EMEs. [2] Cumulative number of loosening or tightening macroprudential actions per country. Average across six AEs and 15 EMEs. For more details on the measures, see the IMF's Integrated Macroprudential Policy Database, originally constructed by Alam et al (2019).

Sources: Alam et al (2019); IMF; LSEG Datastream; BIS.

In sum, there seems to be great value for central banks in having an inflation target. But within the contours of an inflation targeting regime, a range of design choices seem to be compatible with sound inflation outcomes. Of course, these design choices matter. However, the most appropriate design will vary across economy and could even evolve over time.

Accordingly, regular monetary policy framework reviews provide an opportunity to ensure that frameworks keep up with evolving circumstances. But here too, approaches vary across central banks. In advanced economies (AEs), reviews have become more frequent and have covered a wide range of issues, including objectives, the policy toolkit and analytical techniques such as forecasting. These trends in part reflect the fact that AEs were at the epicentre of the Great Financial Crisis (GFC). Many central banks in AEs enriched their policy toolkits to try to overcome the constraints posed by the effective lower bound (ELB).

EME central banks in contrast have been less likely to conduct policy framework reviews. Most did not face the specific challenges of extremely low inflation and policy rates, and their toolkits did not expand as much following the GFC. In addition, some EME central banks may have been more wary of putting the price stability objective at risk, especially if reviews opened the door to broader short-term political considerations.

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The 2020–21 framework reviews

Central banks in core AEs undertook major reviews of their monetary policy frameworks in 2020–21. These reviews took place under the shadow of lingering concerns about the extended period of low inflation after the GFC and the challenges posed by the ELB. The deflationary pressures at the start of the Covid-19 pandemic, alongside a perception that natural interest rates were trending downwards, added to these worries.[5] Although commissioned before 2020, many of the reviews were conducted at the height of the Covid-19 pandemic, as global economic activity came to a halt. At the time, it was hard to imagine that economies were on the cusp of the greatest inflation surge since the 1970s.

There was also a broad-based perception that the Phillips curve had flattened. The weakened relationship between economic activity and inflation even suggested substantial policy stimulus was unlikely to trigger significant inflationary pressures. Consequently, central banks were relatively unconcerned about the risks of inflation accelerating due to economic overheating.

The reviews aimed to provide central banks with stronger frameworks to overcome the concerns posed by the ELB. In this context, they highlighted two key aspects for the future conduct of monetary policy.

First, unconventional monetary policy tools, such as balance sheet policies, forward guidance and in some jurisdictions negative interest rates, became an integral part of the frameworks. Several reviews aimed to formalise the prompt deployment of these tools to overcome the limitations of the ELB.

Second, some of the reviews recommended greater tolerance for inflation overshooting. In particular, the Federal Reserve committed to allowing inflation to temporarily overshoot the target after periods of below-target inflation. It also adopted an asymmetric approach to labour market conditions, loosening policy in response to shortfalls from estimates of full employment, but not tightening when these estimates were exceeded unless this was accompanied by high inflation. For its part, the ECB moved from an asymmetric to a symmetric 2% inflation target, responding to undershooting as well as overshooting. In its forward guidance, it also clarified that the need for strong monetary accommodation to escape the ELB could push inflation temporarily above target.

The Covid-19 pandemic and the post-pandemic inflation surge

The Covid-19 pandemic unfolded as central banks were conducting reviews of their frameworks. As economies shut down in response to a once-in-a-century pandemic, economies initially faced deflationary pressures. This put a premium on large and swift action. Central banks activated their full arsenal to support the economy and fight deflation with support from fiscal authorities. The support remained in place for an extended period. In part, this reflected the uncertainty about the

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[5] See Benigno et al (2024).

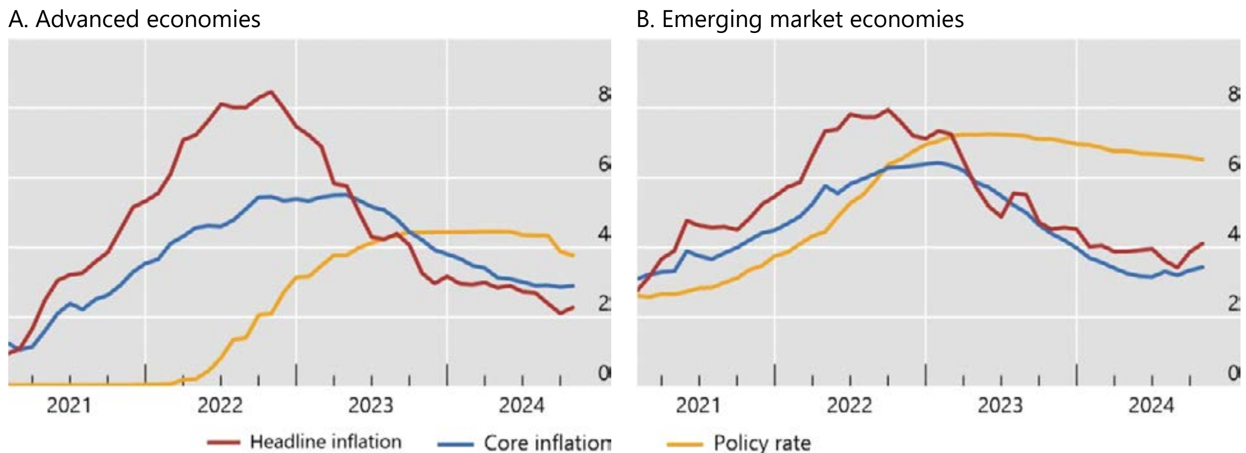
duration and impact of the pandemic. But it also reflected the spirit of the ongoing reviews that the risk of deflation at the ELB made a strong response necessary.

Soon, as economies were emerging out of lockdowns, the frameworks designed on the premise of persistently low inflation faced their first test in starkly different circumstances: the strongest inflation surge since the 1970s. Although the pace and the extent of the inflation rise varied across jurisdictions, it presented challenges to central banks around the world. While supply side factors certainly contributed to high inflation, and in some jurisdictions may have been the dominant factor, the extraordinary monetary and fiscal stimulus also clearly played a role. Most importantly, the surge showed that the challenges to price stability were much more symmetric than had previously been thought.

Initially, especially in AEs, central banks reacted with some delay. Inflation was perceived to be transitory, while risks to economic activity lingered. EMEs responded much faster than AEs in the face of similar inflation surges, reflecting higher risks of transitioning to a high-inflation regime due to less well anchored inflation expectations. Nonetheless, when inflationary pressures ultimately proved persistent, even central banks that had previously committed to keeping policy settings loose for an extended period pivoted and reacted forcefully (Graph 4).

The post-pandemic inflation surge and the monetary policy response

Year-on-year, in per cent | Graph 4



[1] GDP-PPP weighted averages of 11 AEs and 20 EMEs.

Sources: LSEG Datastream; national data; BIS.

The framework reviews probably also played a role in delaying the monetary response. Make-up strategies, whereby central banks allow inflation to temporarily overshoot its target to compensate for past shortfalls, reinforced the perception that the largest risks to price stability were on the downside. As such, they provided a rationale for central banks to maintain expansionary policy settings, even as inflation started to rise.

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But we should not overstate the contribution of the reviews to the inflation surge. They envisaged, at most, a brief period of modestly above-target inflation. Faced with a large inflation surge, all policy frameworks called for tighter policy.

Ultimately, central banks were somewhat slow to raise interest rates because inflation rose much faster and further than they had expected. The pandemic led to a unique combination of supply chain disruptions, changes in consumer behaviour, a massive increase in energy prices due to the Russian invasion of Ukraine, and substantial fiscal and monetary stimulus measures. The analytical models used by central banks – and other forecasters – underpredicted the inflationary effects of these forces. This raises worthwhile questions of whether we can improve the accuracy and reliability of inflation forecasts.[6] But it is not an indictment of monetary policy frameworks. Indeed, as soon as central banks realised the scale and persistence of the inflation surge, they tightened policy significantly.

The ongoing framework reviews

Having reflected on the past, let us now turn to the present. Several central banks are currently undertaking reviews of their monetary policy frameworks.[7] This is timely given the insights gained from the post-pandemic inflation surge.

Insights from the post-pandemic experience

The post-pandemic experience has shown that inflation risks are more two-sided than previously appreciated. Before the pandemic, the prolonged phase of low and stable inflation created the impression that strong inflationary pressures were a relic of the past, at least in AEs. Furthermore, there was high confidence in central banks' ability to pre-emptively head off emerging inflationary pressures by tightening monetary policy as needed. After all, while central banks' ability to ease monetary conditions is limited by the ELB, their ability to tighten monetary conditions is, in principle, boundless. The post-pandemic events served as a crucial wake-up call, demonstrating that inflation – even if dormant for extended periods – can suddenly resurface with vigour.

The post-pandemic inflation surge also highlighted the need to ensure that the financial system can withstand rapid monetary tightening. The collapse of Silicon Valley Bank, the liability-driven investment crisis in the United Kingdom and the unwinding of carry trades in August 2024 were stark reminders of the financial stability threats that can arise when monetary policy must respond to strong inflationary pressures. While higher capital requirements and improved supervisory practices since the GFC have strengthened the banking sector's resilience, vulnerabilities remain.

Another important insight from the post-pandemic developments is the public's profound dislike of inflation. Persistently high inflation has led to significant increases in price levels (Graph 5). For

[6] See Bernanke (2024).

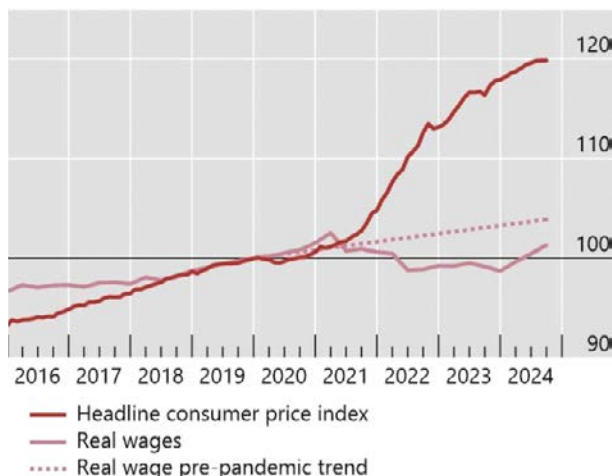
[7] These include the Federal Reserve, the European Central Bank and the Bank of Canada.

example, consumer prices in the United States rose by 14% over 2021 and 2022. Such an increase would have taken almost eight years at pre-pandemic inflation rates. Although wages have caught up with price increases in most countries, widespread social discontent remains.

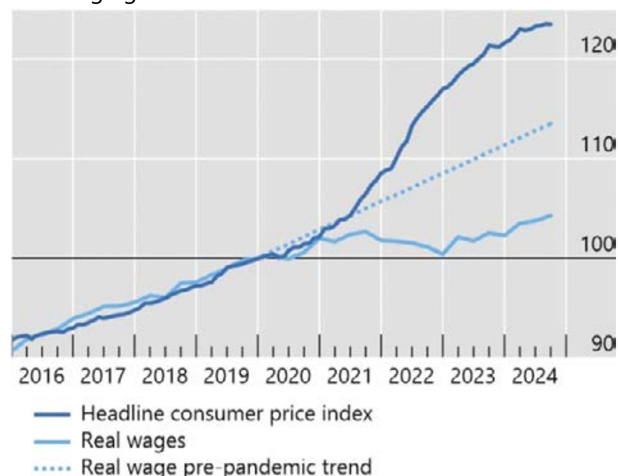
Consumer prices and wages before and after the Covid-19 pandemic[1]

End-2019 = 100 Graph 5

A. Advanced economies



B. Emerging market economies



[1] Median of 11 AEs and 17 EMEs. Real wages are constructed as nominal wages deflated by headline CPI; definitions and sectoral coverage differ among economies. The real wage pre-pandemic trend is based on 2015–19. Seasonally adjusted series.

Sources: CEIC; Eurostat; LSEG Datastream; national data; BIS.

The inflation surge has also underscored that adverse supply shocks can trigger strong and persistent inflationary pressures. Central banks in EMEs have long been aware of these risks. However, in AEs, there was an implicit presumption that large and sustained deviations of inflation from targets could only be driven by demand-side factors. Consequently, central banks became accustomed to accommodating contractions in aggregate supply, expecting their inflationary effects to dissipate rapidly.[8]

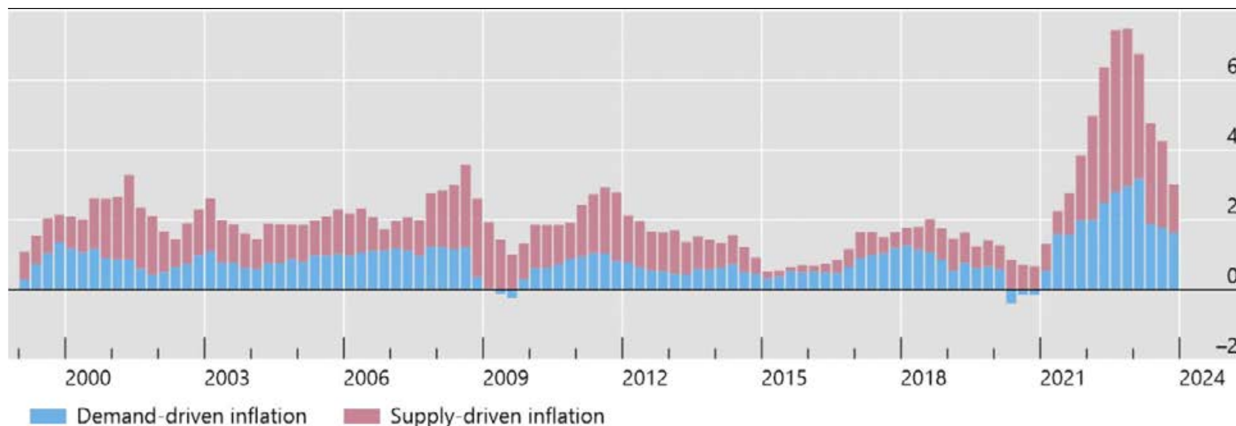
The recent inflation surge has upended these views. The sharp rises in commodity prices following the Russian invasion of Ukraine and the pandemic-induced supply bottlenecks were major drivers of inflation (Graph 6). Although these shocks were extreme, monetary policy frameworks should be robust to handle the potential recurrence of such shocks, especially given the challenges posed by climate change and geopolitical tensions.[9]

[8] See Hofmann et al (2024).

[9] See Maechler (2024) and Avalos et al (2025).

Decomposition of inflation in demand and supply factors[1]

Headline inflation, year-on-year, in per cent Graph 6



[1] Simple averages across AU, CA, EA, GB, KR, SE and US.

Source: Hofmann et al (2024).

The nature of the inflation surge has also demonstrated the significant influence of fiscal policy. Governments responded forcefully to the pandemic by providing critical support to households and firms. However, in several jurisdictions, the size and persistence of fiscal spending boosted demand excessively, contributing substantially to the inflation surge. A better appreciation among central banks and government authorities of the inflationary consequences of fiscal spending is essential to better calibrate policy responses.[10]

Finally, perhaps the most important insight from recent events is the highly unpredictable nature of economic developments. As previously discussed, before the pandemic there was broad-based agreement that the global economy would face strong deflationary pressures for the foreseeable future. Real rates were expected to remain at historic lows, raising the risk of persistent liquidity traps.

The post-pandemic inflation surge and the concomitant increase in real rates have shattered this consensus. Economic conditions – even on a global scale – changed much more rapidly and profoundly than most of us expected. Looking ahead, the potential for major turnarounds in the global economy remains very concrete, given the risks posed by geopolitical tensions, climate change and the unknowns related to the development of artificial intelligence.

Considerations for the ongoing framework reviews

The insights from post-pandemic developments provide important lessons for the ongoing framework reviews. At the same time, the reviews should not overlook the valuable lessons

[10] See Banerjee et al (2022) and BIS (2023).

learned beforehand and should avoid over-correcting frameworks that have generally been remarkably successful in guiding central banks' actions in recent decades.

In the light of these considerations, I will highlight several issues that I believe deserve careful attention in the current reviews. These include rebalancing frameworks towards the risks of inflation surges, reducing the reliance on tools that are difficult to adjust, enhancing communication strategies, maintaining a realistic perspective on what central banks can and cannot achieve, and ensuring robustness to a broad range of possible economic developments. Let me elaborate on each of these points.[11]

The post-pandemic experience calls for rebalancing the frameworks towards the risks posed by inflation surges. Frameworks must still allow central banks to respond forcefully to ELB risks. But they should also allow for decisive monetary tightening when inflation rises above target, especially if it threatens to de-anchor expectations.

To this end, it seems particularly important to reconsider the merit of make-up strategies that commit central banks to compensate inflation undershooting with subsequent overshooting. The post-pandemic experience calls for greater caution in letting inflation rise above target, given that it may surge much more strongly and swiftly than warranted. The strong public resentment triggered by the inflation surge also suggests that letting inflation rise above target risks undermining public support for central banks and possibly even threatening their independence.

A rebalancing of the frameworks is also warranted given that inflation undershooting appears less damaging than previously feared. The Great Depression revealed the severe consequences of deflationary spirals. However, prolonged periods of below-target inflation before the pandemic, including in Japan, did not lead to strong deflationary dynamics. This can be partly credited to the monetary policy accommodation provided by central banks. More generally, inflation appears to be self-stabilising at low levels, as prices and wages rarely fall – in technical language, they are downwardly rigid. This rigidity has drawbacks, as it amplifies the adverse effects of aggregate demand shortfalls on activity. However, it also allows central banks to be more tolerant of modest shortfalls in inflation from target, especially when economic activity is resilient.

Another reason for central banks to tolerate inflation modestly below target is that prolonged policy accommodation tends to face diminishing returns in boosting inflation and stimulating the economy. Furthermore, it risks building financial imbalances by encouraging the build-up of private and public sector leverage – a particularly concerning side effect at this juncture, given historically high levels of debt in many countries.

Turning to the central banks' policy toolkit, framework reviews may want to underscore the importance of exit strategies and prioritise instruments that can be adjusted flexibly. The macroeconomic outlook can change abruptly, and monetary policy must be able to adjust.

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[11] See BIS (2024) for a more detailed discussion of these issues.

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The policy rate should thus remain the primary tool to conduct monetary policy. Outside of the ELB, it can be adjusted nimbly in both directions, strongly influencing financial conditions through well understood channels.

Central banks could use greater caution in deploying their balance sheets. While asset purchases are crucial during periods of acute financial distress to preserve financial stability and strengthen monetary policy transmission, their use outside of crisis episodes is less clear. Large-scale asset purchases face diminishing marginal returns in stimulating the economy, cannot be unwound rapidly without raising financial stability concerns and may expose central banks to large financial losses.[12]

The reviews may also want to emphasise the importance for forward guidance to be state contingent, making it clear that statements about the future policy path are dependent on economic developments. Forward guidance is helpful to clarify the central bank's policy reaction function. It also provides useful indications of how policy rates will evolve if economic conditions align with baseline forecasts. This is particularly important in an ELB context, where the central bank may want to underscore its intention to keep policy rates low until inflation moves towards target.

Admittedly, delivering state-contingent forward guidance can be difficult in practice. Markets often interpret signals about the likely evolution of policy rates as hard commitments, independent of economic developments. This may unduly constrain central banks' ability to change course if inflation picks up faster than expected.

This highlights the need to further improve communication by better conveying the intrinsic uncertainty surrounding policy decisions. Central banks have made remarkable progress over the past two decades in engaging with the public and clarifying the goals and conduct of monetary policy. This has greatly helped to anchor expectations and enhance monetary policy transmission.

However, attempts to clarify the stance of monetary policy and the central bank's assessment of the economic outlook may convey a false sense of certainty among market participants and the public. To avoid this, central banks should strive to better convey the uncertainty surrounding the economic outlook. These efforts may also enhance central banks' internal risk management approaches to policy decisions. To highlight the role of uncertainty, central banks could rely more on scenario analysis to illustrate how the economy, and hence monetary policy, could evolve if specific risks materialise. Yet, central banks must carefully assess the costs and benefits of alternative communication strategies, as scenarios about adverse events could spark public attention and potentially trigger self-fulfilling events.

More generally, ongoing framework reviews must remain grounded in realistic views of what monetary policy can and cannot achieve. Monetary policy should focus on objectives it is well equipped to achieve, such as price and financial stability. Expanding central banks' objectives without adequate tools raises reputational risks and can undermine credibility and independence.

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[12] There is also a need to better differentiate asset purchases to preserve market functioning from those to provide monetary stimulus, as also emphasised in the recent *Review of the Bank of Canada's Exceptional Policy Actions During the Pandemic*.

In particular, monetary policy should not be tasked with acting as a de facto engine of growth or pursue objectives that may pose trade-offs with price and financial stability, such as inequality or overly ambitious climate change agendas. Additionally, it is essential to resist pressures to use monetary policy to stabilise financial markets. Central banks have a critical role to play in protecting financial stability at times of acute crisis. But they should not be tasked to systematically prevent asset price declines since these are essential to ensure price discovery and the efficient allocation of financial resources.

Finally, I would like to stress the importance of ensuring robust monetary policy frameworks. The reviews should obviously be informed by the challenges of the post-pandemic inflation surge and the low inflation era that preceded it. But the future will undoubtedly bring new economic circumstances. We must avoid “fighting the last war”. Frameworks should provide general principles to help central banks navigate the extremely uncertain landscape ahead. In this context, strategies that create and preserve monetary space are critical to deal with the unavoidable occurrence of large and unforeseen shocks.

In sum, the agenda for the ongoing framework reviews is rich and challenging. These reviews will grapple with complex issues, and the specific conclusions will naturally depend on country-specific conditions, notably the macroeconomic landscape and institutional features. However, I am confident that central banks will seize this opportunity to make further refinements to their frameworks. As I mentioned before, this is the perfect time to engage in such critical discussions.

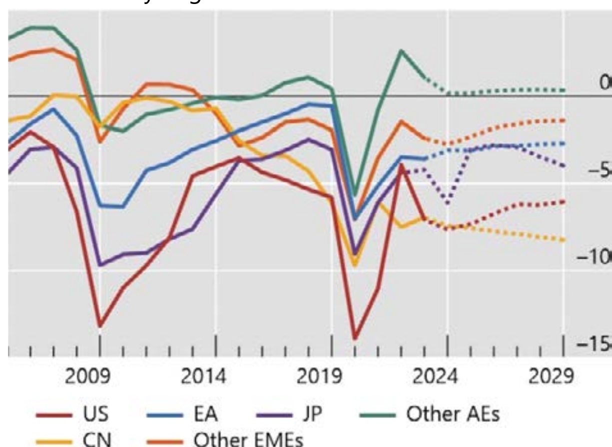
Lastly, I would like to underscore that the success of monetary policy does not rest solely in the hands of central banks.[13] For central banks to achieve low inflation and financial stability, it is essential that fiscal policy ensures public debt sustainability. The sharp increase in public debt levels in recent years, coupled with large and persistent fiscal deficits in many jurisdictions, poses significant concerns (Graph 7). Growing fiscal needs linked to population ageing, the green transition and geopolitical tensions add to the challenges. Correcting fiscal imbalances is of critical importance for central banks to continue delivering on their mandates.

[13] See BIS (2023).

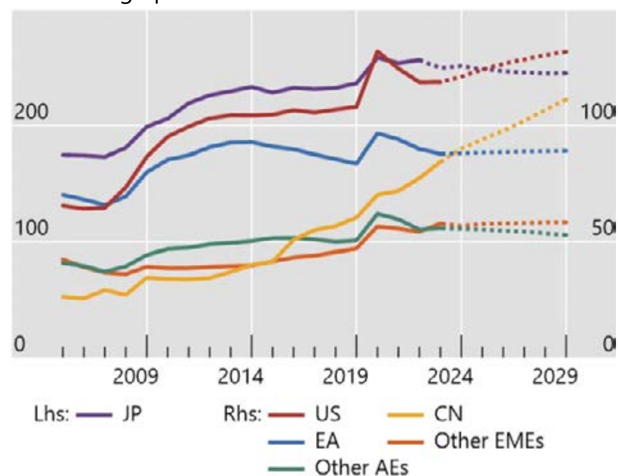
Fiscal imbalances[1]

As a percentage of GDP — Graph 7

A. Persistently large fiscal deficits...[2]



B. ...and high public debt[3]



[1] IMF definitions and estimates; estimates start in 2024 or earlier, as indicated by the dotted lines. For the regions, simple averages of eight other AEs and 27 other EMEs. [2] General government fiscal balance. [3] General government gross debt.

Sources: IMF, World Economic Outlook; BIS.

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