

Inflation, deflation and monetary policy frameworks¹

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It is a great pleasure and honour to have been invited to give this lecture celebrating Otmar Issing's 90th birthday.

I have personally known Otmar since at least the mid-1990s. I have always looked up to him as a role model. I have admired his culture, intellectual and moral integrity, kindness, generosity, devotion to public service and openness to dialogue, even with his most fervent critics. He is what the English would call a true gentleman – and here in Germany, and I am going a bit out on a limb here – ein Grandseigneur. I consider myself privileged to have witnessed as a young economist his sparring sessions with Don Kohn, another towering figure in central banking, in BIS meetings – the closest intellectual equivalent I can think of to foil duels between masterful and gracious fencers!

It was not easy to decide what topic to broach in his honour. In the end, not without some trepidation, I decided to address an area close to his heart – arguably as close as it can get: inflation; its mirror image, deflation; and monetary policy frameworks.

At a time when the Federal Reserve has embarked on a fundamental review of its monetary policy, this is quite topical. In that context, I will also touch on issues such as communication and the central bank balance sheet. And – I am sure you will not be surprised – I will say something about financial cycles and financial instability, although this will *not* be at the core of my analysis.

In outlining my reflections, I will be drawing heavily on research done with colleagues over the years. To all of them, I am deeply grateful.

My central message is that there is room to improve current frameworks, based on a keener recognition of the nature of inflation and deflation and of what central banks can and cannot achieve with their tools.

This yields a framework that, compared with the centre of gravity of recent inflation targeting varieties, has several distinctive features. It eschews point targets, is more tolerant of lower inflation rates, is more attentive to longer-term financial stability considerations, pays more attention to quantitative aggregates, is more critical of so-called "unconventional" policies, and puts a greater premium on nimbleness generally. I suspect that Otmar would be broadly sympathetic with this direction of travel!

¹ I would like to thank Piti Disyatat, Boris Hofmann, Masaaki Shirakawa and Egon Zakrajšek for their comments.

The rest of my presentation is structured as follows. I will first highlight key features of the inflation and deflation process. I will then discuss the role of monetary policy. And finally turn to the implications for frameworks.

Inflation and deflation

Conceptually, the term “inflation” encapsulates the notion of an erosion of the purchasing power of money. It is equivalent to a change in the value of the numeraire vis-à-vis all goods and services. In its purest form, it implies a proportional and synchronous change in all prices.

In practice, inflation is measured by the change in some general price index and it will invariably come along with changes in relative prices as well. That said, conceptually, some measure of the common component of price changes would be closer to the theoretical notion.²

Inflation cannot be sustained unless wages and prices chase each other. Real unit labour costs and real unit profit margins cannot increase or decrease indefinitely. These so-called second-round effects are essential. Indeed, wages are, after all, the price of labour services, and pure inflation would shift them in proportion to all other prices. Thus, the wage–price nexus can be regarded as the “engine room” of the inflation process.

Deflation is just the mirror image of inflation: it is a negative change in the price level. And sustained deflation requires similar wage–price dynamics as inflation but operating in reverse.

Over the past 150 years or so, for which better data are available, and especially recently, the world has seen many more inflationary than deflationary phases.³ Deflationary ones have been infrequent outside the gold standard. And, it goes without saying, we have seen episodes of hyper-inflation but no episode of hyper-deflation – even purely mathematically, prices have a lower zero bound. There is a fundamental asymmetry between the two processes.

This historical record means that we know more about inflation than deflation. That said, in what follows I will argue we know *enough* about deflation to dispel some strongly held beliefs about it. This has important implications for monetary policy frameworks.

So, what are the key statistical properties of inflation and deflation? And what could explain them?

To my mind, the most important but badly underappreciated property is one we have recently investigated closely with colleagues and have folded into what we call “the two-regime view of inflation” (Borio, Lombardi, Yetman and Zakrajšek (2023)). The property is remarkably stable across countries and time.

Specifically, inflation behaves very differently at low and high levels.⁴ In a low-inflation regime, ie when inflation has settled at a low rate, measured inflation mostly reflects category-specific or

² For an attempt to capture “pure inflation based on dynamic factor models, see Reis and Watson (2010). See also below.

³ For a detailed documentation of the facts, see Borio and Filardo (2004), Bordo and Filardo (2004) and Borio, Erdem, Filardo and Hofmann (2015).

⁴ See also Borio, Disyatat, Xia and Zakrajšek (2021).

idiosyncratic price changes, which are only loosely correlated with each other – that is, the component of price changes that is common across different goods and services is small. And those price changes tend to leave only a temporary imprint on the inflation rate itself, ie inflation has little persistence. Equally important, and consistent with the temporary imprint, wages and prices are only loosely linked with each other. As a result – and this is key – inflation tends to be self-stabilising.

By contrast, a high-inflation regime has no such properties. The importance of the common component of price changes is much greater; inflation is much more persistent; wages and prices are more tightly linked; and inflation is especially sensitive to changes in salient prices, such as those of food and energy, as well as to fluctuations in the exchange rate.

Thus, while in a high-inflation regime the inflation rate is not self-stabilising, the regime itself tends to be self-entrenching.

The evidence also indicates that transitions from low- to high-inflation regimes are self-reinforcing. Why could this be? For one, inflation moves out of the zone of “rational inattention”,⁵ where it is hardly noticed by economic agents, and snaps into sharp focus. In addition, it becomes more representative of the change in the price indices that individual agents care about: as prices increase, price changes across different goods and services become more similar and synchronised. As a result, inflation plays more of a coordinating role in the behaviour of economic agents. In addition, as inflation increases, so do the costs of lagging profit margins or falling living standards, which heighten agents’ incentives to catch up. All this increases the likelihood of wage–price spirals – or, equivalently, price–wage spirals.

Of course, the very idea of two regimes is a simplification of what is a fuzzier and more gradual process. But it has the merit of putting the spotlight on that elusive region in which inflation begins to have a material impact on economic agents’ behaviour and can get out of hand. As a result, it sharpens the guidance for policy frameworks.

This view is fully consistent with Volcker’s (1983) and, subsequently, Greenspan’s (1996) perceptive definition of *price stability as a situation in which the inflation rate does not have a significant influence on behaviour*.⁶ Conceptually, we can regard this as a defining feature of the low-inflation regime.

While, owing to data limitations, we do not have similar disaggregated evidence about deflation, there is little reason to believe that its properties would be very different. For much the same reasons, deflation is also likely to tend to be self-stabilising at low rates. And just as inflation, it would evolve in a region of rational inattention.

⁵ For a discussion of the notion of “rational inattention” and its implications, see Sims (2010). For empirical evidence broadly consistent with the hypothesis in the context of inflation, see Bracha and Tang (2019 and 2025), Cavallo, Cruces and Perez-Truglia (2017), Coibion, Gorodnichenko, Kumar and Pedemonte (2020), Weber, Candia, Afrouzi, Ropele, Lluberas, Frache, Meyer, Kumar, Gorodnichenko, Georgarakos, Coibion, Kenny and Ponce (2025) and Goodspeed (2025),

⁶ This is, in effect, also the same definition Kevin Warsh, Chairman of the Federal Reserve, gave during his Congressional testimony in July 2026, ie “the change in prices is at such a level [that people] don’t have to think about it, they don’t have to talk about it”.

If so, the common belief that sees deflation as self-reinforcing because at the zero lower bound real interest rates would increase, weakening demand in a vicious cycle, is not convincing. After all, in the region of rational inattention the differences in measured inflation should have no material impact on behaviour, and as a result it is *nominal* interest rates, not real ones, that are key. Moreover, the same applies to the behaviour of wages and to their impact on employment: changes in prices within the inattention region would not materially influence perceived real wages.⁷ Indeed, Feldstein (2015) and Rajan (2015) refer to concerns about a costly self-reinforcing vicious spiral as “the deflation bogeyman” – the idea that zero marks a red line below which lies the abyss.

The historical record is consistent with the view that concerns about deflation are overdone. Aggregate price data are sufficient to dispel the common and strongly held view that, *in general*, deflations have been costly for economic activity. Detailed cross-country work done with colleagues⁸ confirms the findings of other neglected studies: there is no systematic relationship between deflations and economic weakness. By contrast, there is a systematic relationship between *asset price* deflations and economic weakness.

The standard view that deflations are crippling has been fundamentally shaped by a single episode: the Great Depression. But even that episode was preceded by a major financial boom that ended in a banking crisis as asset prices collapsed (eg Eichengreen and Mitchener (2004) and Schularick and Taylor (2012)). Indeed, for typical fluctuation ranges, the interaction between asset prices and debt should have a substantially larger impact on balance sheets than that between the general price level and debt – Fisher’s (1933) canonical debt deflation. In fact, when asset prices are controlled for and based on the cross-country experience, a separate impact of the fall in the general price level is hard to detect even during the Great Depression.⁹

The post-WW2 experience is similar. Think, for instance, of the benign deflations that China and, closer to home, Switzerland experienced in the 2000s, notably against the backdrop of property price booms. True, Japan has typically been regarded as having endured three decades of debilitating deflation (eg Bernanke (2022) and Romer (2014)). But, arguably, the only “lost decade” coincided with the failure to address the consequences of the unwinding of the financial imbalances in the early 1990s, ie the failure to clean up balance sheets. Once this problem was finally tackled in the early 2000s, the subsequent mild deflation phase saw strong productivity growth measured in terms of working-age population. This indicates that, during this period, demographics were the factor behind lacklustre economic performance, not deflation per se.¹⁰

⁷ For a typical presentation of the standard arguments regarding the self-reinforcing nature of deflation in the presence of the zero lower bound and the role of wage rigidities, see Bernanke, Mishkin and Posen (1999).

⁸ For the most detailed study, see Borio, Erdem, Filardo and Hofmann (2015). Previous work reaching similar conclusions includes Atkeson and Kehoe (2004), Bordo and Redish (2004), Borio and Filardo (2004) and Bordo and Filardo (2005). This was also the conclusion that Friedman and Schwartz (1963) reached regarding the US experience in the 19th century.

⁹ See Borio, Erdem, Filardo and Hofmann (2015). Goodhart (2005) also stresses the importance of asset price declines, informed on the basis of previous analytical work (Goodhart and Hofmann (2006)).

¹⁰ For a detailed analysis, see Shirakawa (2021). Borio, Erdem, Filardo and Hofmann (2015) also provide some evidence. Shirakawa also notes that, throughout the deflationary phase, the gap between the inflation rate in Japan and other advanced economies remained remarkably stable.

This suggests to me that whether declines in the price level coincide with economic weakness *depends on the broader context* – context is key – and that most deflations may have been driven by expansions in aggregate supply rather than contractions in aggregate demand.

If so, the typical *gradual* deflation can best be seen as part of the physiology, rather than pathology, of an economy – not necessarily an illness, but a condition that can accompany a well-functioning organism.¹¹ Productivity growth can allow profits to be made and real wages to rise, with the gains taken at least in part through falling prices. Healthy real outcomes can in turn provide the necessary scope to keep nominal (and hence real) interest rates higher than otherwise. If this outcome seems so hard to imagine these days, it is because our¹² brains have been hardwired to associate the term “deflation” with “slump”, conjuring up the Great Depression and its deflation-focused interpretation. It has become a kind of Pavlovian reaction. This “deflation taboo” has important implications for monetary policy frameworks, as I shall discuss later.

Now, combining this evidence and the two-regime view of inflation sheds light on the limitations of the Phillips curve – the most standard framework to represent the inflation process. To recall, at its most basic, the Phillips curve sees inflation as a function of some measure of economic slack and inflation expectations (directly), plus possibly some so-called supply shocks, such as changes in energy prices.

First, this simplified lens is too coarse. Its aggregate character cannot capture the highly diverse dynamics of inflation at low and high levels. In its standard form, it ignores the fundamental *endogeneity* of the Phillips curve parameters with respect to inflation itself.¹³ A key underlying factor is how the “pricing power” of labour and firms varies with the rate of inflation and, therefore, how the strength of the link between wages and prices varies with it.

Second, the framework assigns too much weight to inflation expectations as such, obscuring the inflation dynamics.¹⁴ The narrative behind the two-regime view sees those expectations as derivative of perceptions of *individual* price changes and of their relevance for *individual* economic agents’ decisions. Thus, in a low-inflation regime, it treats inflation expectations of wage

¹¹ Interestingly, it is in fact possible to derive the optimality of deflation based on an argument consistent with New Keynesian reasoning. The prices of the goods for which productivity grows more slowly should fall relative to the rest. In the new Keynesian model, to minimise adjustment costs, it is necessary to stabilise the prices that are more rigid. But, empirically, the prices that are more rigid are also those of the products for which productivity grows relatively more slowly – think, in particular, of the prices of many services relative to those of manufacturing goods. As a result, keeping those prices stable means a reduction in the rest. Deflation follows.

¹² I use “our” deliberately here, to refer to professional economists and policymakers. In fact, survey evidence indicates that households strongly dislike inflation, which they tend to associate with *weak* economic activity, and do not see falling prices as necessarily harmful. On the link with economic activity, see Binetti, Nuzzi and Stantcheva (2024), Armantier, Koşar, Somerville, Topa, van der Klaau and Williams (2022) and Bank of Canada (2023).

¹³ Of course, there is a substantial theoretical literature examining the implications of inflation for the Phillips curve parameters: the argument refers to the standard approach. Many factors can be at play. For example, even in the New Keynesian framework, with nominal frictions the trend level of inflation should matter – an aspect neglected by the popular linearisation around zero inflation (Ascari and Sbordone (2014)). Similarly, menu costs imply endogeneity (Ball and Mankiw (1994)). Akerlof, Dickens and Perry (2000) appeal to rational inattention (strictly speaking, “near rationality”) to obtain a non-linear Phillips curve, although their policy conclusions are different from those here: they treat inattention as a form of “money illusion” that introduces a kind of nominal wage rigidity in a framework in which expectations are still key and monetary policy does not lose traction in a low-inflation regime (see below). For empirical studies examining the link between inflation and the Phillips curve, see eg Nalewaik (2016a), Forbes, Gagnon and Collins (2022) and IMF (2023).

¹⁴ For a critique of the excessive role that expectations play in the standard Phillips curve, see in particular Rudd (2021). And see also

and price setters as in effect *irrelevant*.¹⁵ Moreover, arguably, the first priority for economic agents is to catch up with the price level-induced erosion of purchasing power. It stands to reason that only once inflation becomes sufficiently salient or persistent would agents start caring about possible *future* erosions of purchasing power. Indeed, recall how public outrage is more often directed at higher *prices* than higher *inflation* itself.

The implication is that, as long as it is accommodated, inflation can flare up *even if*, for whatever reason, *it is not expected to persist in future*. Wages can chase prices and vice versa simply to recoup past losses. This heightens the risk of transitions when inflation exceeds a certain threshold. Moreover, the expectations that matter more directly here are those of wage earners and firms. Those of financial market participants matter mostly because they influence financial conditions and, in particular, the exchange rate. Focusing on seemingly stable long-term financial market inflation expectations as a signal of a transition can thus lull central banks into a false sense of security.¹⁶

Third, closely related and more general, in the standard Phillips curve bygone are bygone, ie any cumulative erosion in wages or profit margins has no impact on the inflation process itself – only the rate of change of prices matters. This underestimates the risk of shifting from a low- to a high-inflation regime following large bursts of prices or wage increases.

Finally, the two-regime view's focus on the behaviour of wages and prices across regimes invites a closer look at the *structural* influences on the inflation process as opposed to the purely cyclical ones that are at the core of the Phillips curve. Indeed, the notion that, all else equal, disinflation must reflect *economic slack* is one reason why it is so hard to see falling prices as something that, under the proper background circumstances, can be allowed as opposed to counteracted.

The role of favourable structural factors has been arguably very prominent since the 1990s. Most notably, as analysed elsewhere, the globalisation of the world economy has no doubt weakened the pricing power of labour and firms and exerted a powerful and pervasive disinflationary force.¹⁷ Advances in technology have probably played a similar role, including by reinforcing the globalisation wave itself, eg by facilitating the delocation of production.

¹⁵ Consistent with this analysis, Nalewaik (2016b) finds empirically that in a low-inflation regime measured inflation expectations lose their causal impact on inflation, consistent with the rational inattention hypothesis. That said, financial market participants' long-term inflation expectations are still likely to influence financial conditions, given markets' high sensitivity to any factor that might affect asset prices.

¹⁶ It goes without saying that lack of anti-inflation credibility with financial markets is a problem: uncontrolled depreciations of the exchange rate can generate inflation. This has been a concern for emerging market economies in particular. A history of high inflation generates an environment that makes an economy more inflation-prone and a low-inflation regime harder to achieve and more fragile. On this, see eg Salle, Gorodnichenko and Coibion (2026).

¹⁷ The entry into the global economy of the former Soviet bloc and China and the opening-up of other emerging market economies added something like 1.6 billion people to the effective labour force, drastically shrinking the share of advanced economies, and cut that share by about half by 2015. For a more detailed analysis, see Borio (2017). Goodhart and Pradhan (2020) stress the impact of China but seen mostly from a demographic angle rather than as a feature of the broader globalisation wave. For some evidence on the impact of globalisation and the delocation of production on inflation, see also Borio and Filardo (2003) and Auer, Borio and Filardo (2017).

The role of monetary policy

What about the role of monetary policy in the inflation and deflation processes?

A common monetarist dictum is that inflation is always and everywhere a monetary phenomenon (Friedman (1963)). There is a kernel of truth in this: surely inflation cannot persist unless there is some form of monetary accommodation. In monetary terms, this means that either the amount of means of payment (the money supply narrowly defined) or its transactions velocity must increase. It also stands to reason that, as long as policymakers are prepared to pay the price, a sufficiently tight monetary policy can tame inflation. An exception may be when the fiscal position is such that the public loses faith in the creditworthiness of the state and in money itself.

But this does not mean that monetary policy can fine-tune inflation within narrow margins. Far from it! The experience of efforts during low-inflation regimes confirms this hypothesis. In particular, even once the recovery from the Great Financial Crisis was effectively complete, major central bank attempts to push inflation back to the point target failed – although the shortfall was never greater than a handful of basis points.

One key reason for this failure reflects precisely the dynamics of inflation in a low-inflation regime. In such a regime, the common component of price changes is small, and movements in the aggregate price level reflect mainly idiosyncratic price changes. Critically, this small common component weakens the response of inflation to adjustments in the monetary policy stance. After all, intuitively, changes in the stance work precisely through the common component, which is more closely tied to aggregate demand and exchange rates.

Empirical evidence confirms this intuition. The impact of policy is much larger on the common component.¹⁸ In addition, in a low-inflation regime, changes in the stance operate through a remarkably narrow set of prices, largely in the more cyclically sensitive service sectors. This low responsiveness is also consistent with evidence indicating that the impact of monetary policy on activity becomes weaker at low levels of *nominal* interest rates.¹⁹

No wonder that, as they sought to boost inflation, rather than gaining the hoped-for room for policy manoeuvre, central banks lost it. Inflation failed to respond, and lower interest rates begot even lower rates.²⁰

¹⁸ Moreover, recent work, which breaks down the common component into a supply-driven and demand-driven factor, finds that monetary policy influences only the demand-driven factor. See Leiva-León, Sheremirov, Tang and Zakrajšek (2025).

¹⁹ For this second result, see Ahmed, Borio, Disyatat and Hofmann (2024). Many additional factors may explain the finding: at low rates, expectations of further cuts become commensurately smaller; investment may be driven by sticky hurdle rates; low rates may weaken incentives to address debt overhangs and sap the supply side of the economy (so-called zombie firms); they weaken intermediation and hence lending capacity; and to the extent that expansionary monetary policy acts by bringing expenditure forward from the future, there must surely be limits to this process. See also Summers and Stansbury (2019), who express similar views. The arguments extend also to the impact of large asset purchases.

²⁰ The view that there is a well-defined equilibrium real interest rate that is entirely exogenous to monetary policy (the natural rate of interest or r^*) encouraged such a policy. In that case, the only way to raise *nominal* interest rates sustainably would be to push inflation up. For a critique of the r^* concept as generally interpreted and its policy implications, see Borio (2021a); for a detailed historical empirical analysis stressing the lack of a systematic relationship between the “usual suspects” (real forces) and data-driven proxies for r^* , see Borio, Disyatat, Juselius and Rungcharoenkitkul (2022). That work also finds a

Monetary policy frameworks²¹

If this analysis is correct, what does it imply for monetary policy frameworks? Consider, in turn, the definition of the numerical target, the reaction function, and the role of specific tools.

The analysis suggests defining the *target* as a *range* rather than a point. Several considerations pertaining to the properties of a low-inflation regime work in this direction: the existence of a range over which inflation is not likely to influence behaviour materially; the limited, if any, role of inflation expectations of labour and firms within that range; and the accompanying limited impact of adjustments in the monetary policy stance on inflation. Not only does a range avoid false precision and limit the temptation to fine-tune, it also provides greater room for the central bank to adjust the policy stance depending on the context in which price developments occur.

The level of the inflation rate defining the range should be quite low and could incorporate modestly negative numbers.²² This would minimise the risk of inflation moving out of the self-equilibrating zone – ie it establishes a kind of prudent buffer against such an outcome. And it incorporates the conceptual reasoning and empirical evidence pointing to the benign nature and self-stabilising tendencies of gradually falling prices in the absence of financial crises. Regardless, I see no reason to exclude at least zero from that range.

Against this backdrop, I find arguments regarding the need to accommodate a “quality bias” unconvincing. One common reason to argue for a, say, 2% target is that, once quality improvements are considered, the “true” inflation rate is closer to 0%.²³ But quality adjustments should not influence monetary policy. For one, quality-adjusted prices are not those that agents observe in transactions and therefore are not what influences behaviour – they are purely inferred prices designed to capture living standards. By themselves, the adjustments have no influence on nominal incomes or employment or inflation (as conceptually defined). In addition, quality adjustments reflect real forces, and monetary policy should not react to them. If captured by inferred prices, quality adjustments are more akin to purely supply-driven *relative* price changes. Indeed, if one is interested in welfare, it might make more sense to adjust only *output*, not prices, to capture quality changes.²⁴ This would better reflect their real nature.

As regards the *reaction function*, it would make sense for central banks to react strongly to large positive deviations of inflation from the range, and less to negative ones, at least if gradual deflation is excluded from the range. This would have several advantages: it would mitigate the risk of self-reinforcing transitions from a low- to a high-inflation regime; it would be consistent with the evidence for the benign nature of mild, even if persistent, deflations; and it would allow the central bank to reduce the by-now well-documented long-term risks to financial stability

systematic relationship between those proxies and monetary policy regimes. If so, the room for manoeuvre central banks have in setting real interest rates appropriately is considerably greater than normally thought.

²¹ For a complementary discussion of these issues, see Borio (2024).

²² This is of course different from arguing that monetary policy should aim at a negative inflation rate in line with productivity growth to avoid generating inflation (Selgin (1997)).

²³ For the key quantification of the quality (and new goods) bias, see Boskin, Dullberger, Gordon, Griliches and Jorgenson (1996). For the influential argument that this bias is one reason justifying an inflation target above zero, see eg Bernanke, Mishkin and Posen (1999).

²⁴ Of course, this is not possible if one is working with deflators, which take nominal quantities as given.

linked with low-for-long interest rates as well as the economic and political economy costs of large and risky central bank balance sheets.²⁵

Indeed, going one step further, the central bank could use the greater room for policy manoeuvre associated with a low-inflation regime to adjust policy more systematically to tackle the build-up of financial imbalances which can damage the economy over the medium term.²⁶ For one, monetary policy has a first-order impact on risk-taking, leverage, credit and asset prices – the very mechanism through which it influences economic activity. In addition, the unwinding of financial imbalances can cripple the economy and generate balance-sheet recessions that are resistant to monetary policy, endangering also the inflation objective.²⁷ And as argued elsewhere, the power of the financial cycle is such that macroprudential policy alone cannot do the job (eg Borio (2014b)). It is not advisable to drive accelerating and braking at the same time. A more balanced approach is called for.

More generally, the previous considerations suggest that policy should avoid fine-tuning and focus on *sustainable* price stability. At a minimum, this calls for a horizon that is longer than the often-standard two-year horizon tied to point forecasts.²⁸ Moreover, were it not for communication issues, price indices that better capture the common component of price changes would seem more desirable as targets – core inflation measures may go some way towards capturing this. If not used to define the target, such measures should play a key role when operating the framework. That said, such measures need to be complemented by close attention to the risk of transitions to high-inflation regimes, triggered by large and persistent increases in salient prices.

Turning to *specific tools*, they should be such as to ensure that policy remains nimble – able to respond to rapidly evolving conditions. This means avoiding forms of forward guidance that can hinder flexibility. It means putting a premium on exit strategies from extreme policy settings designed to stabilise the economy. And it means keeping balance sheets as small and riskless as possible, subject to effectively fulfilling mandates: central bank balance sheets should be elastic, not large (Borio (2023)). Given the economic and political economy costs of large balance sheets, size hinders nimbleness.

The considerations regarding the specification of the numerical target, the reaction function and tools can be summed up in a simple dictum: do not fine-tune the low-inflation regime; protect it.

²⁵ See also Volcker (2018), who expressed concern about the view that “lowflation” is a problem and about monetary frameworks where central banks seek to push inflation up to the target (eg 2%) regardless of circumstances.

²⁶ For an elaboration of the general arguments and evidence in support of this view, see eg Borio and Lowe (2002 and 2004), Borio and Zhu (2012), Borio (2014a). Borio (2021b) explores the intellectual challenges that stand in the way of the adoption of such a strategy. Juselius, Borio, Disyatat and Drehmann (2017), based on an empirical simulation on US data, find that a systematic response to financial imbalance proxies in a simple rule could improve economic outcomes. See also White (2006).

²⁷ Volcker (2018a) shared this view. In his autobiography he notes: “Ironically, the ‘easy money’ striving for a ‘little inflation’ as a means of forestalling deflation, could, in the end, be what brings it about.” See Volcker (2018b).

²⁸ Obviously, here I do not mean a *mechanical* model-based extension of the horizon of point forecast, which is not realistic, but a systematic assessment of the risks that financial imbalances can generate beyond the standard horizon, given the length of the financial cycle. It is here that indicators of financial imbalances, typically based on the combination of credit aggregates and asset prices, play a key role. See also Borio (2021b) for a discussion of the inherent limitations of current formal macroeconomic models when seeking to capture these phenomena and associated risks.

Now, to answer a question that I am sure is on Otmar's mind: what role, if any, could monetary aggregates play in such a framework? Here, too, the two-regime view of inflation is useful to structure our thinking.

Recent research with colleagues has confirmed an underappreciated stylised fact: the link between money growth and inflation is tight in high-inflation regimes but effectively non-existent in low-inflation ones (Borio, Hofmann and Zakrajšek (2023)).²⁹ The reason is probably the same that helps explain the weak impact of adjustments in the monetary policy stance in low-inflation regimes: the common component of price changes is small.

Beyond these stylised relationships, can money growth help identify *transitions* to a high-inflation regime? The experience with the post-Covid inflation flare-up suggests that it may. Research with colleagues³⁰ finds that an upsurge in money growth preceded the inflation surge in 2021/22, with countries with stronger money growth seeing markedly higher inflation. Even more telling, looking at money growth would have helped to improve post-pandemic inflation forecasts, indicating that its information value was neglected. That said, it is hard to draw definitive inferences from one episode. And while the decline in inflation rates since mid-2022 was generally preceded by a marked decline in money growth rates, we found no systematic link between inflation forecast errors and lagged money growth over this period across countries.³¹

My take is that, on balance and acknowledging fundamental model uncertainty, it would make sense to add money among the range of indicators central banks monitor when pursuing *price* stability. Otmar has of course been very vocal about this, including most recently (Issing (2005 and 2026)).³²

What about money as a leading indicator of *financial* instability, alongside credit? There is a justifiable possible role here, too, which the ECB implemented following its review of policy in 2003 (Issing (2005)). That said, the link with credit is generally stronger (Borio and Lowe (2004)). This helps explain why the ECB's broadening of the monetary analysis pillar, under Otmar's intellectual leadership, also paid close attention to credit. Conceptually, debt is more closely tied to leverage and instability. Empirically, credit's information content has proved greater. One reason is that the wedge between credit and money growth tends to widen during booms. Intuitively, not least because of the use of collateral, the link between credit and asset prices is monotonically positive, while that between money and asset prices hinges on offsetting wealth and substitution effects.

²⁹ Previous studies include, in particular, Laidler (2002) and Sargent and Surico (2011). For a recent analysis confirming these findings for the euro area, see Papadia and Cadamuro (2021).

³⁰ See Borio, Hofmann and Zakrajšek (2023).

³¹ See Borio, Hofmann and Zakrajšek (2024).

³² For other prominent exponents of the role of monetary aggregates, see Goodhart (2021) and King (2021). See also Iran, Miran and Roubini (2026). Interestingly, the Federal Reserve has recently reintroduced a paragraph on M2 developments in its Monetary Policy Report to Congress.

Conclusion

Since its inception, inflation targeting – now the de facto global monetary standard – has seen many reviews and fine-tuning.³³ If anything, however, except for a certain lengthening of policy horizons, the direction of travel has been opposite to the one I have suggested today: point targets have become more common, underpinned by a single-minded focus on inflation expectations and giving rise to a false sense of precision and even security; unconventional monetary policies have been deployed extensively, partly fuelled by the spectre of deflation and concerns with even moderate inflation shortfalls from target; forward guidance has gained ground, accommodating the insatiable markets' appetite for illusory certainty; and while the impact of monetary policy on financial stability has been increasingly recognised, somewhat ironically for an early proponent of the approach, the ascendancy of macroprudential frameworks has tempted monetary policymakers to find comfort in business-as-usual strategies.

Admittedly, the chequered experience with unconventional monetary policies³⁴ and the surprising post-Covid inflation flare-up has led to some re-evaluations. Central banks have been recognising some of the costs of unconventional policies and of the more constraining forms of forward guidance. Even so, these reassessments have been rather timid: witness, for instance, the strong reluctance to return to scarce reserves systems for the implementation of policy (Borio (2023)).

Otmar has become increasingly critical of the evolution of monetary policy frameworks (Issing (2005, 2012, 2014, 2017, 2019 and 2020)). He has highlighted the limitations of aggressively expansionary policies in the pursuit of point targets; of interpreting targets precisely; of responding to mildly declining prices regardless of the factors driving them; of unconventional policies, not least bloated central bank balance sheets; of overcommunication and of neglecting the build-up of financial imbalances by not assigning a role to quantitative aggregates. His concerns have extended, to my mind rightly, to the political economy implications of the direction of travel, including for central bank independence.³⁵ The risk that such policies have contributed to unrealistic expectations of what central banks can achieve is real – what I have elsewhere termed a dangerous “expectations gap” (eg Borio (2014 and 2024)), akin to Otmar's “communication trap” and “overburdening” concerns. I hope he will find that my analysis provides further justification for his views.

And I look forward to celebrating his 100th birthday... as time – the gentleman *par excellence* as we say in Italian (or Grandseigneur, if you will) – eventually issues its ultimate verdict on policies.

³³ See Borio and Chavaz (2025) for an empirical analysis of the evolution of the degree of flexibility with which inflation targeting frameworks have been pursuing price stability in advanced and emerging market economies.

³⁴ For a review of the literature on unconventional monetary policies and a critical assessment, see Borio and Zabai (2018).

³⁵ See also Borio (2019) for a discussion of the risks to central bank independence, including those arising from central banks' own policies, in a broader historical context.

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