

COMMENTARY

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The return of inflation

Ernst Baltensperger^{1*}

Abstract

For a quarter of a century, the western world has enjoyed a macroeconomic environment characterized by low and stable inflation. Over the last two years, this benign state has dramatically changed. In America and Europe, inflation has resurged with unexpected vigor. Treated at first by central banks and most of their observers as a mere temporary aberration, which would soon fade again without much need for action, it has since assumed a virulence which has forced central banks to tighten their policies much more forcefully than was initially expected. How did all this come about? How are central banks and their monetary policies to be judged?

Keywords Inflation, Central banks, Monetary policy, Price stability

1 Introduction

To an aged economist, who has experienced the great inflation of the 1960s and 70 s as a young professional in the USA and observed its poisonous effects on the world economy, seeing the negligence and disregard shown by a majority of economists, including many at central banks, vis-à-vis the rising risks of inflation in recent times has been quite painful, if not shocking. However, a quarter of a century of low and stable inflation, continuous growth and moderate unemployment has apparently been sufficient to lull economists and the public alike into believing that inflation, as we have seen it in the past, would never come back.

This time would really be different. Globalization and the beneficial effects of technology would see to it that inflation was a thing of the past. And if it should ever reappear, central banks would have the expertise and the instruments to swiftly put it under control again.

Unfortunately, as we have painfully learned over the last two years, reality did not stick to this script. Inflation has come back with a vengeance. This article offers a personal view of what happened and presents an attempt to evaluate the monetary policies of recent and current

times. Why the sudden burst of inflation, after inflation had stayed low for 25 years? What were the driving factors? What errors, if any, have central banks made? What can we learn from this experience?

2 The recent surge of inflation and central banks' response to it

Between 1995 and 2020, the rate of yearly consumer price inflation in the USA stayed in the range of 1 to 3 percent, with just a few minor deviations. In the EU, average inflation (over all member countries), with just a few exceptions, varied between 2 and 3 percent from 1995 to 2012 and between 0 and 2 percent over the last ten years. Swiss inflation over the same period oscillated between 0 and 1 percent, with occasional (minor) deviations on either side.

Why did inflation stay so low for such a long time? One major reason was the change in monetary policies which took place in the 1990s. At that time, after decades of high inflation, central banks around the world adopted strategies of inflation targeting reflecting a serious shift towards a credible regime aiming at low inflation. As a consequence, inflation expectations became firmly anchored at low levels. Beyond this, it was very helpful that structural developments over this period – globalization, technology, labor market developments – almost without exception had the effect to dampen price increases, rather than stimulating them. No wonder

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this phase became known as the period of the “Great Moderation”.

Actually, central banks, especially the Federal Reserve and the European Central Bank (ECB), as well as many academics were much more concerned in this period about inflation being too low, rather than too high. Occasionally, fears of an imminent deflation have fed this concern. More frequently, however, it rested on the fear that low inflation would permanently move nominal interest rates near their “zero-lower-bound” (ZLB), thereby constraining central banks’ interest rate policies in an undesirable way.

Not least for this reason, monetary policy in all major countries throughout this period stayed highly expansionary. Near zero interest rates became common, in the Eurozone and Switzerland rates became even negative, and huge programs of Quantitative Easing (QE) through massive purchases of assets by central banks were installed: purchases of government debt, but also of private debt instruments; in the case of the Swiss National Bank (SNB) mostly in the form of foreign currency assets.¹

This policy was initiated and driven by the US Federal Reserve. The ECB soon imitated and followed it. The SNB, somewhat reluctantly, was forced to respond to it with its foreign exchange market interventions through foreign currency asset acquisitions. Had it not done so, it would have exposed the Swiss economy to serious deflationary pressure, given the immense monetary expansion abroad and the upward pressure on the Swiss franc it implied.

All this changed dramatically over the last two years. In 2021, inflation rates began to exceed their target levels, first in the USA and somewhat later in Europe, in the beginning slowly, then suddenly at much higher speed. The outbreak of the war in the Ukraine in February 2022 has massively accelerated (but not initiated) this process. Central banks were very slow in responding to this change in economic environment. Far too long, they saw no need for adjusting their policies and continued to expect that economic conditions would soon return to their prior state, so that the rise of inflation would remain temporary and minor. Their inflation outlooks consistently underestimated the strength of the developing

¹ Some may argue that these policies were not really expansionary, but simply reflected an adjustment of central bank rates to a decline in the natural rate of interest. I do not share this view. The natural rate may have declined, but not to this extent. Neither did the central banks themselves take such a view. According to their own communication, they *meant* their policies to be highly expansionary, because they judged inflation to be far too low. Furthermore, even if they had held such a view, this would not explain their huge asset purchase operations. If it was market forces which kept interest rates so low, why would it have been necessary to acquire all these assets to ensure rates to stay low over the entire spectrum of maturities?

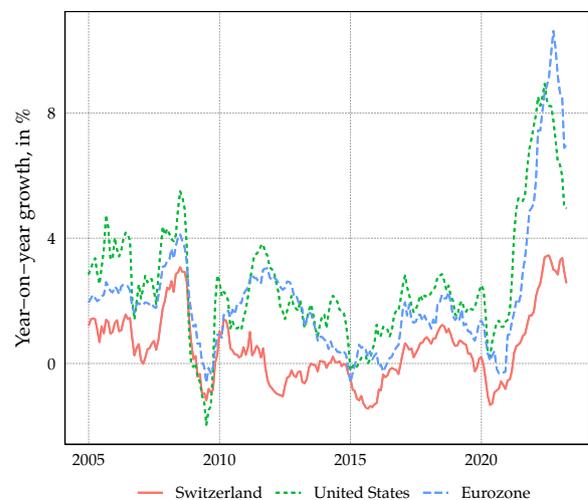


Fig. 1 Inflation. Notes: Swiss CPI (Federal Statistical Office), Eurozone Harmonized Index of Consumer Prices (Eurostat), and US Consumer Price Index for All Urban Consumers (Bureau of Labor Statistics)

inflation dynamics. Former ECB chief economist Otmar Issing has referred to this as one of the biggest inflation-forecast errors since the 1970s (Issing, 2022a).

Consider in more detail the developments in the USA, in the Eurozone and (providing in some regards an interesting contrast) in Switzerland.² Figures 1, 2 and 3 exhibit the course of inflation, policy interest rates and central bank assets relative to GDP for these three areas, respectively, from 2005 to the present.

2.1 The Federal Reserve

In the USA, year to year (headline) inflation, as measured by the Consumer Price Index (CPI), began to exceed the Federal Reserve’s 2 percent target in spring 2021, just slightly at first with 2.6% in March, rising to more than 4% and almost 5% in April and May. Over the rest of the year, inflation accelerated strongly, reaching rates above 6% in October and 7% in December. The first half of 2022 turned out to be even worse, with inflation rising above 8% in March and 9% in June, influenced not least by the outbreak of the Ukrainian war. Since then, headline inflation declined again slowly to rates of about 8% in September 2022, 6.5% in December 2022 and about 5% in March and April 2023. Core inflation (which excludes the particularly volatile prices for food and energy) rose slower, as usual, but also significantly, reaching 5.5% in December 2021, about 6% by mid-2022, and about 5.5% in March and April 2023.

² Naturally, other countries could provide interesting and informative examples as well, notably the United Kingdom. For reasons of space, however, I restrict myself to the areas mentioned above.

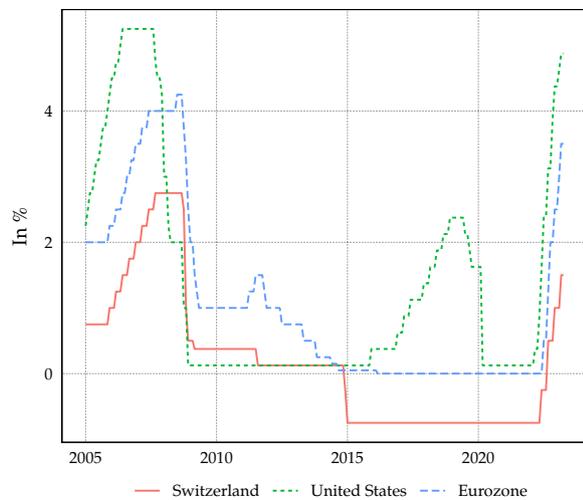


Fig. 2 Policy rates. Notes: SNB policy rate (from June 2019) or mid-point of 3-month Libor rate target range (SNB), main refinancing rate (ECB), and Federal Funds Rate target (until November 2008) or mid-point of Federal Funds Rate target range (Federal Reserve Board)

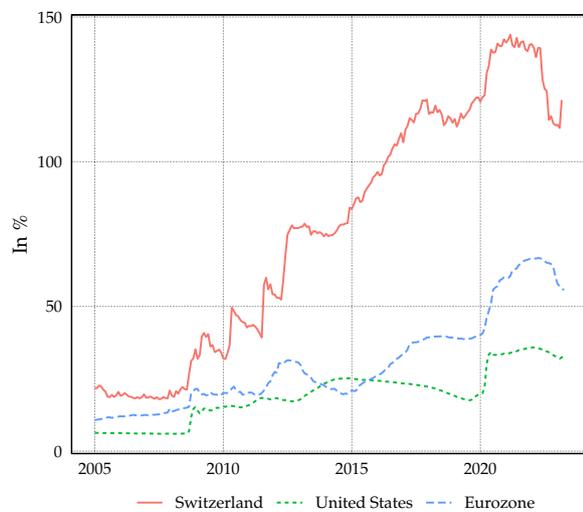


Fig. 3 Central bank assets to nominal GDP ratio. Notes: Switzerland (SNB, SECO), Eurozone (ECB, Eurostat), and United States (Federal Reserve Board, Bureau of Economic Analysis). Nominal GDP disaggregated to monthly values such that the average matches the annual value; the value for 2023 is based on a naïve forecast

Almost to the end of 2021, the Federal Reserve maintained that these increases in consumer prices reflected a temporary problem only and predicted a timely return to a monetary environment as it had existed before. In August of the previous year (2020), the Federal Reserve had announced a new “symmetric” implementation of its inflation targeting approach, such that an inflation below target over some years would be balanced by an

overshooting in other years. The 2 percent target should not anymore be understood as a goal for every single year, but as a goal for average inflation over a (not clearly specified) period. This new strategy should enable the Federal Reserve to continue its expansionary policy even if inflation exceeded its target over some time.³ In spring 2021, when inflation began to exceed the 2 percent target, the Federal Reserve’s Open Market Committee (FOMC) confirmed this approach and stressed its commitment to keeping its policy rate at an unchanged low level of 0 to 0.25 percent:

“The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. With inflation running persistently below this longer-run goal, the Committee will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. The Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved. The Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee’s assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time.” (FOMC statement of March 17 2021).

The Federal Reserve at the same time decided to continue its monthly purchases of Treasury securities and agency mortgage-backed securities at an unchanged pace (80 and 40 million USD per month, respectively).

In August 2021, in his speech at the Kansas City Federal Reserve’s annual Jackson Hole Symposium, referring to inflation having run above 4 percent in July, Chairman Jerome Powell told his audience: *“Inflation at these levels is, of course, a cause for concern. But that concern is tempered by a number of factors that suggest that these elevated readings are likely to prove temporary”* (Powell, 2021: 5). He emphasized that inflation was driven so far by a relatively narrow group of goods and services (mainly durable goods and energy) that had been directly affected by the pandemic and the reopening of the economy.

³ The author of this article has criticized this approach from the beginning for being symmetric in appearance only, with a deeply asymmetrical thinking behind it (Baltensperger 2021). Note that, given the inflation experience since 2021, the Federal Reserve and the ECB (which adopted a similar approach in summer 2021) would have to aim at inflation rates far below their 2% targets over a possibly extended period of time in the future, if they really meant to stick to their new strategies. Does anyone in the market believe that?

He added that he saw “*little evidence of wage increases that might threaten excessive inflation*” and expressed a strong belief that longer-run inflation expectations would remain firmly anchored (Powell, 2021:7–8). He went on to stress that earlier experiences with stabilization policy “*taught monetary policymakers not to attempt to offset what are likely to be temporary fluctuations in inflation*” and concluded: “*Today, with substantial slack remaining in the labor market and the pandemic continuing, such a mistake could be particularly harmful*” (Powell, 2021:11).

The FOMC maintained this position throughout 2021, with an unchanged wording in its statements of June 16, September 22, and November 3 – while inflation continued to rise and reached a rate of about 7 percent by the end of the year, three and a half times the target. While constantly revising its inflation forecasts upwards, but persistently underestimating the actual course of inflation, it took the Federal Reserve until the end of 2021 to hesitantly move away from its “transitory view” of inflation perspectives. In its policy statement of December 15 2021, the FOMC included a reference to “*inflation having exceeded 2 percent for some time*”, and on January 26 2022, it hinted at a future raise in the policy rate. But on March 16 2022 only, it finally began raising its policy rate:

“With appropriate firming in the stance of monetary policy, the Committee expects inflation to return to its 2 percent objective and the labor market to remain strong. In support of these goals, the Committee decided to raise the target range for the federal funds rate to 1/4 to 1/2 percent and anticipates that ongoing increases in the target range will be appropriate” (FOMC statement of March 16 2022).

In November 2021, while still continuing its asset purchase program, the Federal Reserve had started to reduce it in scale in several steps, to finally stop it in March 2022. In June 2022, it began to reduce the size of its securities holdings and balance sheet at a modest pace according to a defined and announced plan, essentially by not reinvesting the funds that it received from maturing securities.

Since spring 2022, the Federal Reserve has radically changed its monetary policy course. In view of the dynamics the process of inflation developed, it hiked its policy rate decisively in numerous steps, to levels far beyond of what it had initially foreseen: by 50 basis points in May 2022, 75 basis points in June 2022, 75 basis points in July 2022, 75 basis points in September 2022, 75 basis points in November 2022, 50 basis points in December 2022, 25 basis points in January 2023, 25 basis points in March 2023 and again 25 basis points in May 2023, yielding a federal funds rate of 5% to 5.25% at the time of this writing. In the course of 2022, the Federal Reserve began to realize that inflation dynamics had assumed a virulence

far more dangerous than it had initially expected, which required a decisive monetary policy response. After hesitating (far too long), it finally changed course, showing a strong commitment to defending price stability and making sure that inflation will return to low levels.

2.2 The European Central Bank

In the Eurozone, inflation remained low a bit longer than in the USA. After just slightly exceeding the ECB’s 2 percent target in July 2021, it rose to almost 3% in August and increased to about 5% in November and December 2021. In 2022, as a result of Russia’s war on the Ukraine and its consequences for the markets for energy and food, inflation accelerated to reach more than 7% in March and about 9% in June, exceeding the mark of 10% in October. Since then it declined again to about 9% in December, 8.5% in February 2023 and about 7% in March and April 2023. Meanwhile, core inflation kept rising, reaching a record level of 5.7% in March and 5.6% in April 2023.

The ECB, like the Federal Reserve before, argued painfully long that this increase in inflation would prove to be a transitory phenomenon only, predicting that inflation would return to previous low levels without much need for action on its part. The ECB was even much slower than the Federal Reserve to eventually understand that this position was mistaken. It took it until summer 2022 to grudgingly move away from it.

The ECB justified its slow response to the increasing pressure of inflation with essentially the same arguments the Federal Reserve had employed before: that inflation was a consequence of price increases for just a few selected goods and services only (mainly food and energy), that it was the result of temporary effects of supply disruptions related to the pandemic and the reopening of the economy which would soon disappear again, and that there was no sign to be seen of a broad pressure on wages as yet. The following quotes from speeches by ECB President Christine Lagarde bear witness to this attitude:

November 19, 2021: “.. to understand what monetary policy should do in the current circumstances, we have to identify the underlying drivers of inflation. Today, I will argue that those drivers are likely to fade over the medium term ... we must not rush into a premature tightening when faced with passing or supply-driven inflation shocks” (Lagarde, 2021).
February 7, 2022: “...we have to bear in mind that demand conditions in the euro area do not show the same signs of overheating that can be observed in other major economies. This increases the likelihood that the current price pressures will subside

before becoming entrenched, enabling us to deliver on our two per cent target over the medium term” (Lagarde, 2022a). April 21, 2022: “Inflation has increased markedly since the middle of 2021, reaching 7.5% in March ... This increase is largely driven by energy prices, which have been strongly affected by the war in Ukraine. Food prices also increased ... Further upward pressure arises from supply bottlenecks and the recovery in demand as the economy reopens. The impact of these factors should fade over time” ... “wage growth has remained muted – despite a strong labour market” (Lagarde, 2022b).

In summer 2021, after an extensive review of its monetary policy strategy, the ECB’s Governing Council had approved a symmetric 2% percent inflation target over the medium term similar in spirit to what the Federal Reserve had adopted in August 2020. On July 22 2021, the Council confirmed this view and stressed its conviction that the current stance of its policy (a main refinancing rate of 0%, a marginal lending rate of 0.25% and a deposit facility rate of minus 0.50%, respectively) was consistent with inflation stabilizing at two percent over the medium term. It added that this may imply a transitory period in which inflation is moderately above target. At the same time, it decided to continue its asset purchase program at an unchanged pace (net purchases of 20 billion Euro per month). Thus, the ECB continued its highly expansionary policy of the past, because it believed that the underlying trend characterizing the economy was still one of “deflationary pressure”.

The ECB upheld this position at its subsequent policy meetings in September 2021, October 2021, December 2021 and February 2022 – over a span of time which saw inflation rise continuously, forcing the ECB to revise its inflation expectations upwards again and again. On March 10 2022, with inflation above 7%, while still leaving policy rates unchanged and continuing its net asset purchases, the ECB hinted at possible rate increases in the future, adding that it would take such a step only after ending its asset purchase program, and that adjustments would be gradual.

In its June 9 2022 statement, the ECB admitted that inflation pressures had broadened and intensified, forcing it to once more revise its inflation projections up significantly. As a consequence, it decided to end net asset purchases under its asset purchase program as of July 1 2022 and announced its intention to raise key interest rates by 25 basis points at the July policy meeting. It still showed great confidence that this would be sufficient to bring inflation back to the 2 percent target over the next two years:

“ ... moderating energy costs, the easing of supply disruptions related to the pandemic and the normalisation of monetary policy are expected to lead to a decline in inflation. ... new staff projections foresee annual inflation at 6.8% in 2022, before it is projected to decline to 3.5% in 2023 and 2.1% in 2024” (European Central Bank, Monetary Policy Release of June 9 2022).

It took the ECB until July 2022 to finally stop its net asset purchases and start raising rates with a first step of 50 basis points. It became clear soon, however, that this would not be sufficient, as actual inflation developments once more ran ahead of the ECB’s projections. Further rate hikes followed in September 2022 (75 basis points), October 2022 (75 basis points), December 2022 (50 basis points), February 2023 (50 basis points), March 2023 (50 basis points) and May 2023 (25 basis points), to yield a main refinancing rate of 3.75%, a marginal lending rate of 4% and a deposit facility rate of 3.25% at the time of this writing. Additional future increases are likely to come.

2.3 The Swiss National Bank

Switzerland is an interesting contrasting case. In international comparison, Swiss inflation over recent times did rise very moderately only. Inflation did not exceed 2 percent until February 2022, when it reached 2.2%. It continued to rise to 3.3% in June and 3.5% in August, slightly declining again since then to 2.8% in December 2022. Increases in administered prices (especially electricity) temporarily raised it to 3.3% in January and 3.4% in February 2023, before it declined again to 2.9% in March and 2.6% in April 2023 (with core inflation at 2.2%).

In contrast to the Federal Reserve and the ECB, the SNB does not have a point target for inflation. It defines price stability as an increase of consumer prices of “less than 2%.” As deflation is explicitly excluded as undesirable, a reasonable interpretation of this formulation defines price stability as an inflation rate between 0 and 2%. In this sense, the SNB has pursued an inflation target a bit lower than that of other central banks.⁴ The SNB does not aim at a specific value in this range. Furthermore, it does focus on the medium-term outlook for inflation, which means that minor temporary deviations on both sides are tolerated, as long as the SNB remains convinced that they do not signal a persistent trend away from the target range. As SNB Chairman Thomas Jordan expressed it in his speech at the 2022 Jackson Hole Symposium, the objective is to have “a definition of price stability that anchors inflation expectations at a low level

⁴ Note, however, that the ECB originally had an inflation target quite similar to this.

while at the same time allowing a certain degree of flexibility with regard to the accepted inflation rates.” (Jordan, 2022: 7).

In the low interest rate era following the financial crisis, the SNB developed its own set of unconventional measures, lowering its policy rate to minus 0.75% and extensively intervening in the foreign exchange market by acquiring large amounts of foreign currency assets, its response to the other central banks' huge programs of Quantitative Easing. The aggressive monetary expansion of the big central banks of the world had led to an extreme tendency of the Swiss franc to appreciate. The SNB was practically forced to respond to this change in global environment with its foreign exchange intervention policy. Otherwise, it would have allowed deflationary pressure for Switzerland to develop. The strength of this need is documented by the fact that SNB asset purchases relative to Swiss GDP exceeded by far those of other central banks.

Swiss inflation has traditionally been somewhat below that of most other countries, and Swiss interest rates lower than abroad, the Swiss franc being a valued investment currency, reflecting Switzerland's long established fiscal, monetary and political stability. Thus, when inflation dynamics began to accelerate globally in 2021, Swiss inflation, starting from a lower level, took longer (until February 2022) to exceed the SNB's target range than was the case abroad. Beyond that, its rise since then has remained comparatively modest. A major reason for this is the strength of the Swiss currency. The fact that the Swiss economy is less dependent on cheap imported energy than the economies of many other countries also contributed to keep Swiss inflation in check.

In December 2021 already – with Swiss inflation still within target, but in view of developing global inflation dynamics – the SNB announced that it would allow the Swiss franc to appreciate in nominal terms to a certain degree, in order to reduce inflation pressure from abroad.

In June 2022 – even before the ECB started to reset its policy – the SNB raised its policy rate by half a percentage point to -0.25% , signaling at the same time that further rate increases may be necessary in the foreseeable future. In September, it hiked the policy rate by 75 basis points to 0.5% , in December 2022 by 50 basis points to 1% , and in March 2023 again by 50 basis points to 1.5% . At the same time, it confirmed its willingness to sell foreign currency assets, if market conditions make it advisable to do so.

In comparison with other central banks, the SNB thus was quick in adjusting its policy, once inflation actually began to exceed the upper end of its target range. Even before that happened, it had preventively tightened its policy course somewhat by allowing the franc to

appreciate. The ECB, in contrast, began to adjust its policy rates in July 2022 only, with inflation already running at about 10% (and the FED in March 2022 with inflation at 8%).

3 Review of inflation dynamics in the light of traditional concepts of inflation analysis

The last section has described what happened to inflation and to monetary policies over the last two years – in the USA, in the Eurozone and, reflecting this author's origin, in Switzerland. This section offers an attempt to analyze and explain the observed course of events in the light of standard concepts of inflation analysis.

3.1 Supply versus demand shocks

Prices can increase in response to shocks to demand or shocks to supply (costs). This is true for individual consumer prices, but also for their average, the general level of consumer prices, as measured by a consumer price index. Demand side effects can be due to expansionary fiscal shocks, expansionary monetary impulses, or a spontaneous rise in consumers' propensity to spend. A cost or supply induced increase of consumer prices results from an increase in the price of the resources used in production, such as energy or labor services. In an open economy, when resource prices are fixed in foreign currency, this can be due to a decline in the value of the domestic currency.

For short-run monetary or fiscal policy responses, the distinction between demand and supply shocks is important and thus often stressed. A positive shock to aggregate demand tends to increase not only prices, but also economic activity and employment, frequently signaling an overheated economy. A restrictive fiscal and/or monetary policy then is appropriate with respect to both prices and employment. A shock to aggregate supply, on the other hand, while increasing the price level, tends to coincide with a decline in economic activity and employment. A policy of monetary or fiscal restraint then would be beneficial by keeping prices low, but would dampen the economy even more. In consequence, it is much more controversial in this case than in the case of a demand driven increase in prices.

The drivers of the recent surge in consumer prices are not difficult to identify. They reflect partly shocks to supply and partly shocks to demand. The Corona pandemic with its lockdowns had thrown the world into a severe recession, artificially cutting down both supply and demand. When western governments (but not China) reopened their economies in 2021, demand saw a quick revival. Consumers wanted to make up for opportunities suppressed during the pandemic. The price of goods

which had declined during the lockdown, especially for energy and durables, rebounded.

Supply, on the other hand, had more difficulty to quickly readjust to pre-pandemic levels. Disruptions in supply and delivery chains, not least due to the Chinese economy still being closed, led to a scarcity in the availability of certain materials and intermediate products. A lack of qualified personnel in important sectors of the economy, as well as the insight that too much “just-in-time” and minimization of reserves in production had turned out to be problematic in crisis times, were also drivers of price increases. The outbreak of Russia’s war on the Ukraine in February 2022 reinforced these supply effects strongly, resulting in further large increases in the prices of energy and certain other goods, food in particular.

Nevertheless, recent inflation dynamics were not driven by supply and costs alone, demand effects were equally important. As a response to the pandemic, many countries did resort to a previously unknown fiscal expansion, and they maintained this course even in post-pandemic times. Central banks, by keeping interest rates near or even below zero and continuing their programs of asset acquisition, did their part to support an exuberant demand and allow an immense growth of private and public debt.

Central banks like to emphasize the supply related shocks to inflation, because they can rightfully point to the fact that it is not in their power to prevent them from occurring. Central banks do not have the means to create oil or food, it is true. Nevertheless, they are accountable for an emerging inflation process, regardless of whether its origin is driven by demand or by supply, as I will emphasize below.

3.2 Once-for-all effects on the price level versus enduring inflation – the crucial role of inflation expectations

More fundamental than the distinction between demand and cost driven inflation is the distinction between a once-for-all effect on prices and an enduring change in the rate of inflation. All of the shocks mentioned above, be they shocks to demand or to supply, in principle explain a onetime increase in the *level* of prices only, but not a sustained increase in its *rate of growth*, inflation. Even if their effect on the price level is permanent (i.e. the cost or demand effect behind them is enduring), their effect on inflation, in principle, is transitory. They may be relevant for the short- and medium-term dynamics of inflation, but not, by themselves, for the long-run level of inflation.

However, given the right conditions, the short-term dynamics of inflation can affect the dynamics of inflation expectations, wage negotiations and price setting by

firms. This is where the responsibility of the central bank and its monetary policy comes in – regardless of whether price increases are supply or demand driven. By setting the right conditions, it must ensure that short-term inflation dynamics do not result in a sequence of ever-increasing inflation expectations, wages and prices.

When inflation started its rise in 2021, central banks were quick to argue that this was the result of shocks whose effects on inflation would wash out over the future. Energy costs and supply conditions would normalize with time and, in any case, their effect on inflation would be merely transitory. Policy thus should stay put and “look through” these short-term disturbances. It would be a mistake to offset temporary fluctuations in inflation. Indeed, this was a sensible view to take – as long as the central banks had good reasons to believe that inflation expectations remained stable and reliably anchored. Ideally, monetary policy should pursue a steady course determined by its medium- and long-term aims.

However, this was a very risky view to take in 2021, given that the monetary policy stance both the Federal Reserve and the ECB intended to maintain still was the highly expansionary policy stance reflecting the needs of the crisis years – a policy stance far removed from representing a “neutral”, long-run sustainable policy course. Both the Federal Reserve and the ECB had admitted for quite some time before that a normalization of their monetary policies was unavoidable and would have to come at some time in the future. It should have been clear in 2021, that continuing in the crisis mode of the preceding years in view of emerging inflation pressures would involve a great risk.

A bit perplexing was also that neither the Federal Reserve nor the ECB had used the same “looking through” logic when, only a short time back, inflation was deemed to be too low. The Federal Reserve, and even more so the ECB, had taken a very different position then. With inflation just slightly below target (by one percent or even less), they had expressed great fears that inflation expectations would lose their anchor and stressed the need for an aggressive monetary expansion in order to prevent a downward spiral of prices.

In any case, the “looking through” mode clearly lost its persuasiveness, once inflation had reached levels of 4% and more, exceeding the central banks’ target by a factor of 2 and more. That medium and long-term inflation expectations and the dynamics of wages and price setting would remain unaffected became more and more tenuous under these conditions, and the “looking through” script highly risky. In retrospect it is clear that both the Federal Reserve and the ECB took far too long to abandon it. Central banks should also have understood that

their technical inflation forecast models were of limited use in these times of severe structural change and shifts in underlying inflation trends (or “regimes”).⁵

3.3 The role of the central bank and its monetary policy

The central bank cannot prevent shocks to the price level (except for those caused by monetary policy itself), it is true. It is not in its power to undo an increase in energy prices resulting from a scarcity of supply. It cannot prevent the resulting increase in energy costs from spreading to the prices of other goods and services using energy as an input. It cannot prevent workers and employees asking for wage compensation to make up for their loss of purchasing power. Indeed, it does not need to smooth out each and every short-run deviation from target resulting from such shocks. Such deviations are not harmful, as long as they remain transitory and stay within bounds.

But the central bank must ensure that the resulting inflation dynamics do not get out of hand. If this is at risk, it must act quickly and decisively. If deviations get too big and enduring, they are likely to set into motion a rise in inflation expectations and wage-price dynamics which are difficult to keep under control. Preventing the occurrence of self-feeding processes of accelerating inflation (or deflation) is the primary task of central banks' monetary policy. The likelihood that the central bank is successful in this is the higher, the quicker it reacts in case of doubt.

The Federal Reserve, after erring initially, seems to have understood this at last. Since spring 2022, it did correct its course in a decisive way, raising rates rather aggressively and expressing a strong commitment to bring the economy back to an environment of low inflation. How far interest rate increases will go, and whether the Federal Reserve will stick to its guns when opposition from politics and the public becomes more intensive, only the future will tell. The ECB, on the other hand, has changed its course much more reluctantly and timidly since summer 2022. Its interest rate response up to now is probably far from enough to rein in inflation. The ECB gives the impression that it still clings to the hope that a rather moderate policy response will be sufficient to bring inflation back to target. This is likely to be wishful thinking. The SNB, finally, has handled the situation much better. It has reacted fast, when it became necessary, and inflation still is not that far beyond target.

In all cases, the last decade's monetary policy has created a great burden for central bank policies of the present and the future, in the following ways:

3.4 The burden of last decade's monetary policy

To begin with, it is obvious that the central banks' task since 2021 would have been much easier, had they been able to start their fight against rising inflation from a “neutral” policy stance, instead of having to normalize their interest rate and asset acquisition policies first. This would have increased their chances to successfully rein in inflation and inflation expectations with relatively minor policy adjustments. As things stood, they had to start raising rates stepwise from zero and below, leaving them for an extended time (partly up to the present) far below what would have been appropriate given the actual course of inflation. This is likely to extend the duration of their anti-inflation efforts and force them to ultimately increase rates beyond what would have been necessary otherwise.

Second, the immense growth of both private and public debt which was induced by the central banks' low interest rate and asset acquisition policies of the last ten years severely constrains what is politically feasible for them to do today and represents a (political) risk to their future monetary policies. A rise in interest rates lowers the valuation of assets. Real estate and bond prices, in particular, are depressed. Large valuation losses damage the portfolios of the holders of these assets. Interest rate increases, especially if they are large and abrupt, have the potential to lead to financial market disruption and turbulence. Given the immense volume of government and private debt in the market, this forces central banks to move very carefully today. The vulnerability of many actors, including banks and financial firms, is high.⁶ Central banks do not want to create a new financial crisis. In Europe, the risks linked to the common European currency elevate this danger to a further level. The high volumes of debt represent a threat to central banks' independence from politics and interest groups and to their ability to act freely and appropriately.

Normalizing policy by selling central bank owned assets does not solve this problem. It also induces interest rates to rise. If central bank asset acquisitions had the effect of keeping interest rates low (as claimed by both the Federal Reserve and the ECB), it stands to reason that selling assets will have the opposite effect. The SNB may be in a more fortunate situation here, as most of its assets are in foreign currencies. It can sell foreign currency assets, allowing the exchange rate to rise, without an outright increase in its policy rate – enjoying the benefit of an additional tool in its efforts to keep inflation low, so to speak. But it might be difficult to achieve this without

⁵ See Borio, Lombardi, Yetman and Zakrajsek (2023) for a discussion of the nexus between wages and prices in a high-inflation environment, as opposed to a “low-inflation regime”.

⁶ The new instruments of macroprudential policy developed after the financial crisis are helpful in this context. But they do not remove the problem.

realization of (possibly extensive) balance sheet losses and a corresponding damage in reputation.

Third, in the process of their policies of asset acquisition of the 2010s, central banks have created huge amounts of liquidity in the form of bank deposits at central banks (“bank reserves”). This liquidity has partly found its way into the markets for existing assets, such as real estate or stocks, resulting in an inflation of asset prices there. But most of these funds have stayed within the banking sector, without flowing into consumer and investment spending and creating commodity price inflation. With (near) zero interest rates, banks held on to these reserves voluntarily, as few attractive investment opportunities were available as an alternative. In the EU and Switzerland, they did this even when the central bank imposed a negative interest rate.

Today, with interest rates rising to more normal levels, this is not the case anymore. Central banks must immobilize these funds by paying interest at the market rate on bank reserves. In this way, they induce banks to continue to hold these funds voluntarily. Without interest on bank reserves, central banks would lose control over their interest rates. The Federal Reserve, the ECB and the SNB all pay interest at the market rate on bank reserves. Given the huge amounts of such reserves in existence today, this will be very costly for central banks, the more so, the higher interest rates move. Needless to say, large payments of interest from the central bank to commercial banks are likely to be highly controversial among politicians and the public, as they reduce central banks’ potential for revenue distributions to governments accordingly.

Alternatively, central banks could remove bank reserves from the market by selling assets, reducing their total assets and liabilities. Indeed, central banks have announced their intention to rescale their balance sheets. But they want to go about it very reluctantly. They see the longer-run desirability to move back to more “normal sized” balance sheets, but do not want to disrupt asset markets by moving too fast. The SNB, additionally, has the option to issue so called SNB bills, short-term interest-bearing central bank liabilities, to absorb bank reserves. It uses this instrument to a certain degree. But again, this implies an interest cost which increases with the market level of interest rates. A final alternative would be to simply declare existing bank reserves as required reserves. This would amount to a huge tax on the banks and their deposit business. Given today’s volumes of bank reserves, this would represent an extreme measure, politically highly difficult to push through.

3.5 Interactions between central bank and fiscal policy

Today, a majority of governments live under very strained fiscal conditions. A high level of debt, large fiscal deficits

and a strong dependence on the possibility of future borrowing is characteristic for many countries’ public sector. This makes the links between monetary policy and the fiscal state of governments crucially important. High interest rates threaten the fiscal credibility of these governments and the sustainability of their fiscal course. This is true for the USA, and even more so for many countries of the Eurozone. The Eurozone is particularly vulnerable, because the common currency links the fate of all of its member countries. More than ever under today’s conditions, there is a danger of pressure on central banks to raise rates only slowly and not too far. Some central banks may feel compelled without much external pressure to comply with such wishes, depending on their proximity to the government.⁷

It is true that some of the fiscally strained countries have issued large amounts of long-term debt at very low interest over the recent years, so that their total interest burden may not immediately jump in a dramatic way if rates increase. But this is not really reassuring. These countries will depend on *new* debt issues, their fiscal situation being very tense. They have not issued large volumes of long-term debt just as a precaution, without really needing the funds, permitting them to stay away from the debt market in coming years. On new debt they will have to pay the higher rates. Their financial situation will deteriorate further, rather than improve (as desired). Furthermore, and even more importantly: the period of higher rates is likely to last much longer than many believed at first (see Sect. 8). That we will soon return to a world of near zero interest looks more and more to be pure wishful thinking. As time goes on, the cheap credit of the past will help less and less.

Also, if strong interest rate increases and consequent valuation losses cause turbulence and disruption in financial markets, this can force governments to engage in bailout operations with severe fiscal costs. As we know from the financial crisis of 2008, private debt under these circumstances is easily turned (at least in part) into a public debt, in one form or another, especially if the safety and stability of banks is at risk.

Not to forget in this context is the international dimension. Emerging and developing countries in many cases are highly indebted in foreign currency, especially in US

⁷ I am speaking here of incentives and risks. I do not claim that such concerns have actually guided the Federal Reserve’s and the ECB’s policies of the last two years – although their retarded (and in the case of the ECB very timid) response to the rising risks of inflation is fully consistent with such a view. So is the fact that the ECB, before it actually began to raise rates, first felt it necessary to install a new and highly controversial *transmission protection instrument (TPI)* designed to ensure that interest rate spreads for its peripheral crisis members would stay within narrow bounds (for a critical discussion, see Issing 2022b).

dollars. Restrictive monetary policy measures in the USA then can cause balance of payments crises in these countries and create panic in international financial markets.

Finally, as noted above, under existing institutional arrangements, central banks must pay interest on bank reserves at the market rate to banks. With today's huge volumes of bank reserves, this implies very substantial streams of payments, reducing what remains available for disbursements to the public sector. All these factors are likely to increase political interference with the central bank.

4 Monetarist versus Keynesian views of inflation?

Opinions on inflation and central bank policies differ, today as much as in earlier times. There are those who agree with most of what central bank did over the last ten years. There are those who criticize central banks for almost anything they do. And there are many with positions in between.

It is a frequent reflex to relate these divergences of opinions to the great debate which had marked the last period when inflation was a major theme of public policy, the 1970s (to be more precise: the years between the mid-1960s and early 1980s). An intense debate between the *Monetarists* and the *Keynesians* (also referred to as *Fiscalists* at that time) governed the intellectual debate of this era.

In my opinion, this is wrong and misleading. The distinction between monetarism and Keynesianism, in the sense these terms were used and discussed in the 1960s and 1970s, is not very relevant anymore in our days. The predominant view today, *New Keynesianism*, is a synthesis view, which owes as much to old monetarism as it owes do old time Keynesianism. A vast majority of modern economists and central banks base their analysis and policy recommendations on some variant of this approach. Of course, New Keynesianism is not untested. The financial crisis has made clear, e.g., that New Keynesian macroeconomics does not adequately capture the interactions between the financial sector (banking), monetary policy and the real economy. There is a widespread desire to develop models which are capable of doing so.⁸ However, I know of no alternative model as yet which could seriously challenge or even replace traditional New Keynesianism as the mainstream approach.

Monetarism was an intellectual movement which emerged in the 1960s and 70 s as a response to what represented state-of-the-art, mainstream macroeconomics at that time. I have discussed its contribution to the

development of monetary theory and policy in my chapter of the Karl Brunner Centennial volume published by the Swiss National Bank (see Baltensperger, 2022). Monetarism itself evolved over time, and its challenge was taken up by the Keynesian economists it addressed. This produced an extremely lively and fruitful intellectual interchange with a lasting imprint on macroeconomic theory and policy.

It is a recurring error to simply reduce monetarism to the idea of money-growth targeting. It is true, of course, that this was a central piece of monetarist thinking. It happens that with this recommendation monetarists did not succeed in the long-run. While monetary targeting was used successfully as an instrument of disinflation policy in the high-inflation world of the 1970s and 80 s, especially in Germany and Switzerland, it gave way to policies that were aimed at interest rates and direct inflation targets in the course of the 1990s and 2000s, as a consequence of instabilities in the demand for money (or its velocity).⁹

However, monetarism was not just about money-growth targeting. It contributed heavily to important other developments which have influenced economic thinking ever since: To begin with, monetarists played a decisive role in *restoring money and monetary policy* as a central element of macroeconomic analysis and policy in the 1950s and 60 s. At that time, a majority of Keynesians held monetary policy to be largely powerless as a tool for macroeconomic stabilization. They relied on fiscal policy alone. Beyond that, monetarists introduced and championed the *role of policy rules*. With their critique of the short-term policy activism favored by Keynesians in the 1960s and 70 s, and their emphasis on policy rules and their implications, they exerted a powerful influence on economic theory and policy up to the present. Most importantly, they played a central role in *bringing back inflation and inflation expectations* into macroeconomic analysis. Frequently used Keynesian textbook models of the 1950s and 60 s did not take account of inflation at all. They typically assumed a fixed price level and made no distinction between nominal and real magnitudes. Even the so-called neoclassical synthesis model, which included a monetary sector and the distinction between nominal and real, and became the Keynesian mainstream model in the 1960s and 70 s, was unsuitable for analyzing inflation in an adequate way. It lacked a *tool for analyzing expectations* and failed to *distinguish between actual and*

⁸ See, e.g., Akinci and Queralto (2018), Boissay, Collard, Gali, and Manea (2022) and Gertler and Karadi (2013) for important contributions.

⁹ Still, it is somewhat ironic that the programs of quantitative easing initiated and used in grand style by central banks in more recent times have brought back a strong quantitative element of monetary control, which is entirely foreign to the New Keynesian models that have dominated central bank thinking otherwise.

expected inflation (and between nominal and real interest). The monetarists played a central role in overcoming these deficiencies.¹⁰

In all of these ways, monetarists, along with the efforts of their Keynesian contemporaries, have shaped the economic thinking of their time and of generations to follow. As a result, much of their work has become mainstream economics over time. For a more detailed discussion, see Baltensperger, 2022.

For these reasons, it is not sensible to discuss contemporaneous differences in attitudes to inflation and monetary policy in terms of the old concepts of monetarism and Keynesianism. These differences must be explained by other aspects of economic structure and policy making. In some cases, they may be vaguely related to the old debate, but in general I find it difficult to connect them to particular “schools” of thought. The following aspects come to mind:

- *Different views on the feasibility of policy fine-tuning.* Some observers were not concerned about the seemingly endless continuation of an extremely expansive monetary policy, because they believed that central banks have the ability to smoothly manage inflation and keep it under tight control at all times. If it should rise too much above target, they could swiftly bring it back to course again, they thought. Others (this author included) were always skeptical about this.
- *Different views on the importance of political constraints* on economic policy. Some observers were not concerned about the massive growth of central bank money and balance sheets over the last decade, because they believed that today’s independent central banks would always be able to swiftly re-absorb or immobilize this liquidity whenever conditions required this. Others (including this writer) argued that with today’s levels of (public and private) debt, for political reasons, this would prove to be very difficult.
- *Different views on the importance of monetary policy for inflation in today’s globalized world.* Some observers were not concerned about the super expansive monetary policies of the past, because they believed that worldwide competition in commodity and labor

markets imply a deflationary trend for commodity prices, regardless of what central banks do. Globalization had created conditions which would exclude a possible return of worldwide inflation, they thought.

- *Different views on inflation (and deflation) costs.* Some observers were not worried about future inflation, because they believe that inflation is not as costly as is usually claimed.
- *Different views on the resilience and stability of the underlying political structures.* Some are concerned about future inflation and the stability of our monetary system, regardless of what current central banks do, because they believe that, sooner or later, governments are bound to misuse their monopoly to issue money, resulting in quality loss, money debasement and a breakdown of our current monetary standard.
- *Different views on the equilibrium real rate of interest,* used as a benchmark for central banks’ interest rate policy. Some observers believe that this rate has declined so much that last decade’s monetary policy was not as expansionary as is commonly thought, maybe not expansionary at all, but more or less neutral. This points to an interesting parallel to the old strategy of monetary targeting: uncertainty about the equilibrium real rate presents a challenge for inflation targeting quite similar to that faced by monetary targeting in preceding decades. While monetary targeting suffered from shifting money demand, inflation targeting suffers from finding its appropriate interest rate benchmark.¹¹

5 Fiscal theory of price level determination – the role of public debt

One serious approach which differs from standard inflation analysis is the fiscal theory of price level determination and inflation. It centers on the role of public debt and the government’s budget constraint (see Sims, 1994, Woodford, 1995 or Cochrane, 2023).

5.1 The government’s budget constraint and the coordination of monetary and fiscal policy

The government’s budget constraint, for the consolidated government sector including the central bank, states that government expenditures, including debt service (repayment of principal plus interest), must be financed by either tax revenue or by revenue from new issues of government debt or of government money (“seigniorage”). In its *intertemporal version*, the constraint is expressed in

¹⁰ Furthermore, monetarists have stressed the importance of explicitly differentiating between alternative assets and their rates of return, including real capital, for analyzing the propagation of monetary policy impulses. In this endeavor, they met in spirit with Tobin, who also favored an approach taking account of more financial market details. These efforts have been largely ignored by the following generations. Only recently, as a response to the financial crisis of 2008, has interest in financial market details and in models paying attention to them been revived.

¹¹ On the difficulty to find an appropriate measure of the equilibrium real rate of interest, see Taylor and Wieland 2016.

present value terms and states that the discounted value of present and future government expenditures on goods and services must equal the discounted values of government's present and future tax and seigniorage revenues minus the value of outstanding government debt.

The government's budget constraint involves instruments of both fiscal and monetary policy. As government debt and government (central bank) money are instruments expressed in nominal terms, it also involves the price level. Thus, the constraint represents a linkage between monetary and fiscal policies and implies that their interaction can have price level and inflation effects.

The government's budget constraint is traditionally understood as a constraint on either fiscal or monetary policy. It highlights the need for a "fundamental", long-term coordination between the two, especially if they are managed by separate, independent authorities (Sargent & Wallace, 1981). The preferred order in most modern monetary constitutions is that monetary policy acts independently first, by choosing a policy course which ensures fulfillment of its mandate for (long-term) price stability. By doing so, it implicitly determines the amount of net income (seigniorage) it can disburse to the government as a fiscal revenue. Given this, it is the fiscal authority's task to balance its budget by appropriately setting its fiscal instruments.

Alternatively, if the fiscal authority decides first, by setting the pattern of taxes and government expenditures autonomously without regard to balancing the government's budget, a regime of fiscal dominance results. The responsibility to establish such balance then is shifted to the central bank. It is forced to pursue a monetary policy course which generates sufficient seigniorage revenue to finance the fiscal decisions chosen by the fiscal authority. A monetary policy aiming at price stability and low inflation may be rendered impossible by such a regime of fiscal domination.

5.2 The fiscal theory of the price level

The fiscal theory of the price level, rather than understanding the government's budget constraint as a restriction on fiscal or monetary policy, interprets it as an equilibrium condition determining the price level. With nominal government debt outstanding, the government's budget may not only be balanced by appropriate settings of fiscal or monetary parameters, but also by a revaluation of government debt through an adjustment of the price level.

Government's intertemporal budget constraint can be expressed as stating that the value of outstanding government debt equals the discounted sum of present and future primary surpluses of government, including

seigniorage revenue. Suppose that the central bank pursues a policy aimed at a constant price level P^* . Now suppose that the fiscal authority decides on a fiscal course which is not consistent with this monetary course in the long-run, in other words, is not sustainable at the price level P^* . Then the price level adjusts in a way which enforces the budget constraint through a revaluation of outstanding government debt, according to the fiscal theory. Future fiscal conditions, rather than monetary policy, determine the current price level.

The fiscal theory of the price level addresses situations where the public distrusts the government's ability or willingness to honor its real obligations, where it doubts the government's commitment to fully repay its debt. It stresses that investors hold government debt to the extent that they expect the intertemporal government budget constraint to hold. The valuation of the government's outstanding debt thus reflects investors' expectation to be repaid in the future by government revenue net of expenditures.

In today's environment, with the sustainability of governments' fiscal course seriously in doubt in many countries, including the USA and numerous Eurozone members, this is a concern not to be taken lightly. The fiscal theory suggests that such conditions can set into motion a process of expectational dynamics and rising inflation which is nourished by doubts about the sustainability of fiscal policies, rather than by what monetary authorities do. Nevertheless, a linkage to monetary policy is necessary, in my view, to initiate a process of rising prices.

The immediate effect of such doubts will be a decline in the value of government debt and an increase in its rate of return. In extreme cases, this could involve financial market disruption and turbulence. This in itself is likely to be deflationary, rather than inflationary. It is conceivable, however, that this would induce the central bank to change to a more inflationary course. It is also conceivable that the government in such a situation would exert pressure on the central bank to accommodate its fiscal desires. Parliament could change the central bank's mandate and force it to support the government's fiscal policy by pursuing a more inflationary course. But with these linkages, we are back to the traditional arguments of fiscal dominance, and the cause of inflation becomes monetary again, not fiscal. Without a linkage to monetary policy of one sort or another, I find it difficult to understand how the equilibrating increase in prices would come about. What remains true, however, is that an excessive volume of government debt and persistent deficits are a threat to a stable monetary policy and stable prices. Monetary stability depends not only on a stable

monetary framework. It is equally dependent on a stable and reliable fiscal environment.¹²

6 The central bank's responsibility for price stability: what does it mean?

Price stability is almost universally stated as a major central bank mandate, either alone or jointly with other objectives. The Federal Reserve's mandate, commonly known as its "dual mandate", requires it to pursue the goals of price stability and maximum sustainable employment. The ECB's primary mandate is to maintain price stability in the Eurozone. As a secondary (subsidiary) objective, the ECB is asked to support the general economic policies in the Union. The SNB's mandate is to ensure price stability, while taking account of economic developments.

At the same time, common sense tells us that central banks have no power to prevent certain types of price increases, e.g. increases in the prices of energy or food due to a scarcity of supply. The central bank cannot resolve this by creating additional supply. It is not in the business of producing electricity or food. This has been emphasized by many in recent times. US senator Elizabeth Warren, e.g., has strongly criticized the Federal Reserve on numerous occasions for raising interest rates, given that today's high inflation is due mainly to the combination of continued supply chain disruptions and Russia's invasion of the Ukraine, and taking account of the fact that the Federal Reserve has no instruments to deal directly with those.

So, what does the central bank's responsibility to ensure price stability mean under these conditions? Have we assigned an impossible task to central banks? Should central bank mandates be rewritten? The answer is clearly: no. The price stability mandate is as important as ever. But it must be interpreted in a realistic and sensible way.

It is a primary task of any monetary order to provide a nominal anchor for the economy's system of prices and valuations. In the metallic money systems which have ruled the world for centuries, this was achieved by fixing the price of a particular metal in terms of the monetary unit (the dollar, franc, or whatever it is named). In the gold standard, this meant fixing the money price of gold, and making money redeemable in gold at this fixed price. By doing so, the monetary unit was identified with a particular (physical) quantity of gold. Through this, the quantity of payment instruments (money) was linked to the quantity of a scarce commodity available to the economy. While this did not prevent the price level

to rise or to decline over certain phases, it did constrain such movements and prevent the development of inflationary (or deflationary) spirals without bound. All prices relative to that of gold could rise or decline, depending on demand and supply conditions in their markets. But the fixed money price of gold did limit how far the money prices of other goods and services could depart from this anchor.

The transition to today's fiat money standard has removed this constraint. The central bank has no obligation to the holders of its money anymore, other than accepting it in exchange as a means of payment. There is no convertibility requirement of any sort. In consequence, there is no systemic limit to the amount of its own money a central bank can issue. In such a system, the quest for price stability becomes the first and most important task of central banks. The authors of central bank constitutions around the world were well aware of this. For good reason, they have specified ensuring price stability as a primary mandate of the central bank. Modern central banks pursue this goal by setting a nominal interest rate, usually a very short-term rate, accordingly. In the zero-lower-bound world of the post-financial crisis era, they have supplemented their interest rate policies to a considerable extent by quantitative monetary measures in their policies of Quantitative Easing. An alternative, of course, would be to peg the (nominal) exchange rate to another currency which is deemed to be stable.

It is clear that central banks cannot control all individual prices and their relations to each other. This would be beyond their power. Neither would it be desirable. Relative prices must be able to move in accordance with real economic conditions governing individual markets. The central banks' task is only to stabilize *the average, general level of prices*. The gold standard achieved this by credibly fixing the price of just one individual commodity, that of gold. Modern monetary systems instead aim at the price level and its rate of growth (inflation) directly. If inflation exceeds the level they identify with price stability, central banks tighten their monetary policies – they increase their interest rate or apply other tightening measures – and vice versa. The transmission of these impulses to economic activity and prices runs through three channels:

First, through changes in the relative price of present and future consumption and the financing costs of investment (the interest rate channel). Second, through influences on the valuation of assets and the net wealth position of households and firms (the wealth effect channel). Third, through their influence on expectations, in particular expectations of future inflation (the expectations channel). These expectational effects are very important to modern monetary thinking. A credible commitment to a policy ensuring medium-to long-term

¹² For a critique of the fiscal theory of the price level, see Buiter 2002 and Niepelt 2004.

price stability anchors inflation expectations and allows central banks a short-term flexibility in their policy they otherwise would not possess. With their successful low-inflation policies of the 1990s and 2000s, central banks have gained high credibility, an extremely valuable asset to them. Without this credibility capital, they would never have been able to maintain their extremely loose policy stance of the last ten years. Recent developments, however, may have severely damaged this reputational capital.

Through these channels, monetary policy exerts powerful effects on economic activity and prices. It is well known, however, that the transmission of monetary policy takes time. The effects of policy impulses are often fully felt after one or two years only. Therefore, monetary policy must be forward looking: it must gear its actions not to the present or the past, but to its anticipations of the future.

The lags in the transmission of monetary policy alone make clear that central banks cannot enforce price level stability at all times and at all costs. Short-term fluctuations in inflation are unavoidable. Indeed, it is not even desirable to prevent them in all cases, especially if they are driven by supply shocks, such as the energy price shock of current times. If an electricity price increase is *transitory* in nature, its effect on the price level will be transitory, too, and disappear again once electricity prices return to their earlier level. If the electricity price increase is *permanent* instead, it will lead to a once-for-all increase in the price level which persists. But even then, its effect on inflation, the rate of growth of prices, will be transitory only (unless the electricity price rises again and again). It is usually considered to be less costly to live with a merely temporary hike in inflation than trying to fight it through monetary restriction which hurts economic activity and employment. In this sense, the Federal Reserve's and ECB's policies of "seeing through" the initial increases in inflation in 2021 were understandable indeed.

However, there is one big reservation to such a policy reaction. It can be justified only as long as inflation expectations and longer-term price and wage dynamics are not affected. High inflation leads to a distortion of price signals and misdirected resource allocation, as well as to arbitrary effects on income and wealth distribution. In consequence, it is not socially acceptable in well-functioning societies.

A developing inflation spiral is best stopped in the bud, before inflation expectations lose their anchor and central bank credibility is hurt too much. If the period of elevated inflation lasts too long, or if inflation rises too fast and strongly and is not restricted to just a few selected prices anymore, such as energy or food, but spreads to

core inflation, this is a signal of great danger. A process of inflation and expectational dynamics can easily set in under such circumstances which becomes difficult to control. This can be reinforced by different types of adverse shocks occurring simultaneously, or by a repetition of such shocks over time.¹³ The more this is the case, the greater is the risk that efforts to bring inflation back to target will trigger a recession.

In such situations, a very cautious monetary policy is advisable, regardless of the origin of the initial shocks. The central bank must employ all its means to prevent a temporary increase of inflation from spreading to more and more prices and wages and feed a process of expectational dynamics which later can be stopped at much greater costs only. This is the sense, in which central banks are responsible for the emergence or non-emergence of inflation, and for its control over the medium- and long-run, even if they cannot, and must not, prevent all short-term fluctuations in the price level and inflation.

7 Monetary policy of the last 15 years: well done or mistaken?

Central banks, and many central bank observers, consider the monetary policies of the 2010s largely appropriate and a success. They point to a record of low inflation, moderate unemployment and adequate growth to substantiate this view. They emphasize also the development of new policy tools, especially Quantitative Easing and "forward guidance" (see, e.g., Bernanke, 2020). Indeed, these instruments, if used wisely and with restraint, can greatly contribute to the success of monetary policy, especially in situations where interest rates are close to their "zero lower bound".

Nevertheless, my personal judgement is much more critical. It is based on the fact that the 2010s represent only the easy part of the relevant policy cycle. Easy money has always been popular and not difficult to sell. However, a decade of extreme monetary expansion has left a legacy for the present and the future which is highly problematic. That this would be the case should not come as a surprise. This author belongs to those who have pointed to these risks on numerous occasions for years and years (see, e.g., Baltensperger, 2015, 2018, 2020). In America, long-time critics include John Cochrane and John Taylor (see Cochrane, 2023; Taylor, 2023), in Europe Hans-Werner Sinn and Volker Wieland (see Sinn, 2021; Taylor & Wieland, 2016).

In the aftermath of the financial crisis, central banks have aggressively lowered their interest rates. The "zero

¹³ Demographic developments and their effects on the labor market or the movement to a "greener" economy, e.g., could imply such a sequence of adverse shocks.

lower bound” on nominal rates of interest led them in addition to an extensive use of other, nonconventional instruments, in particular the implementation of huge programs of Quantitative Easing. In my opinion, this policy was fully justified during the financial crisis of 2008/09 and the following debt crisis of 2009/10 in Europe. But it was maintained far too long afterwards, with a strong imbalance between benefits and risks. Remember that up to 2021, central banks did all they could to convince market participants that interest rates would stay low for a long time to come, inducing them to ignore interest change risk – in my view an exemplary case of misdirected “forward guidance”. I am convinced that we would be much better off today, if central banks had normalized their monetary policies at a considerably earlier time.

My critique of the last decade’s monetary policies is based on the following observations in particular:

7.1 Disregard of established policy rules

In the USA, as well as in Europe, inflation throughout the 2010s was roughly where it should be under a policy aiming at price stability. A bit below the 2 percent target of the Federal Reserve and the ECB, it is true, but not by much. Judged by reasonable and historical standards, price stability was more or less achieved over this period. The pace of economic activity also had become fairly steady. This means that the stance of monetary policy should have been much closer to “neutral” than it actually was – maybe still somewhat expansionary, in view of persisting risks, but only slightly so.

Established economic policy rules, such as the Taylor rule, as well as common sense, demand that the distance between the actual setting of a policy instrument and its neutral position (which would affect the economy neither in a stimulating nor in a retarding way) must reflect the distance between the actual (or expected) state of the objective variable and its target value. The Federal Reserve and the ECB did not adhere to this principle throughout the 2010s. Instead, they seemed to follow a rule which says that, as long as inflation stayed below its 2 percent target, even if only by “epsilon”, and slight risks to employment and growth persisted, monetary policy must go ahead with full power, regardless of how far away we are from target. If the central banks had adhered to a Taylor rule (e.g.), they should have raised their policy rates long ago (see Taylor, 2021, 2023).

In the early 2010s, the Federal Reserve and the ECB justified this course of monetary super-expansion by fears of an imminent deflation – probably unfounded to begin with, but soon not even maintained by the central banks themselves. It is difficult to understand, therefore,

that they were not ready to moderate their course in due time. The benefits of this policy were vague and difficult to demonstrate. At the same time, it allowed large risks to the economy to build up.

7.2 Risks to financial and monetary stability

The long extension of this policy of extremely low interest rates and enormous central bank balance sheet expansion led to an immense growth of private and public debt, which could not have occurred otherwise. It should always have been clear that this would represent a great risk to financial stability, as well as to monetary stability, once central banks were asked to switch back to a more restrictive monetary policy stance:

A risk to financial stability, because the asset valuation losses resulting from monetary policy restriction have the potential to impair commercial banks’ balance sheets and threaten their solvency, either directly, if assets they hold in their books are exposed to such losses, or indirectly, by impairing the balance sheets of their credit customers. The recent financial market turmoil with the collapse of Silicon Valley Bank and other regional banking institutes in America (and the crisis around Credit Suisse following it) bear witness to this.

A risk to monetary stability, because political pressure on central banks to restrain their monetary policy tightening would be hard to avoid under such conditions. Fears of financial market turbulence and a weakening economy would see to this. Important *fiscal implications* of monetary restriction would have the same effect. An interest rate increase makes new government debt more expensive. It also lowers the market value of central bank assets, reducing the central bank’s net worth position and the potential for central bank revenue disbursements to the government. This is reinforced by the fact that central banks must remunerate bank reserves at market rates, if they want to retain control over interest rates. The payment of large streams of interest to banks, unavoidable with today’s large volumes of bank reserves, is obviously politically highly delicate.

7.3 Non-sustainable policy course

It should always have been clear that the central banks’ policies of the 2010s were not sustainable. They had to end at one point or another. By staying in their crisis mode too long, without addressing how and when they intended to get out of it, central banks did not act in a confidence-building way. Rather, they injected uncertainty and doubt into the economy – poison for investment and consumption. It is no wonder, therefore, that the pace of economic activity remained subdued

for years, an enormous degree of monetary support notwithstanding.

In spite of all the talk about forward guidance and the need for monetary policy to act in a forward looking way, both the Federal Reserve and the ECB forgot all about this when it counted. When inflation rates rose and rose in 2021/22, instead of adjusting their policies in time and preparing markets accordingly, they did stick far too long to their policies of the past and made markets believe that these policies would continue far into the future. Their commitment to forward guidance apparently was just a device for extending their course of unlimited monetary expansion into a future with (seemingly) no end.

7.4 Loss of reserve capacity for future action

A sound policy must be conservative in the sense that it maintains capacity for future action in cases of need. A new crisis can occur at any time, as we all know, even if we do not expect it. By practically exhausting all their available means in times when this was not really necessary, central banks have disregarded this principle in the 2010s. Today's central banks owe much of their reputation to the fact that, when the financial crisis broke out in 2008, they were able to act swiftly and decisively – in contrast to most countries' fiscal authorities, whose scope of action was seriously limited at that time by previous overextension. With their policies of the 2010s, central banks have gambled away much of this advantage.

One aspect of this is that, when central banks in 2022 finally realized the need for policy restriction in view of accelerating inflation, they had to begin first with a process of policy normalization, slowly guiding interest rates back to levels a bit closer to neutral and turning around their asset purchase programs. As a result, for an extended period of time, interest rates were still below “neutral” and central banks still added liquidity to the markets (even if to a lesser degree than before). Their policies were still stimulating, when they should have been restrictive.

7.5 Illusions of control

In the 2010s, many central banks became more and more obsessed by the desire to reach a 2 percent inflation target with almost exact precision. As described above, the SNB is an exception. The ECB originally had used a target range for inflation, similar to what the SNB still employs today, defining price stability as an inflation rate “below 2 percent” (interpreted as meaning “between 0 and 2 percent”). At a later point only, it changed this to “close to, but below 2 percent”. Even then, it emphasized that this was a medium-term target, allowing temporary deviations on both sides. Over time, however, its objective

assumed more and more the character of a point target, to be controlled as tightly as is possible at all times.

Historical knowledge, along with their painful experience in the 2010s, should have told central banks that trying to manage inflation with this kind of precision is a futile endeavor. Year after year they announced that they would raise inflation to their 2 percent targets, without success. Inflation is a sticky process which central banks have never been able to control exactly. Monetary policy can control its long-run course, but not its short-run dynamics. We are not even able to measure inflation with a precision which would justify such an attempt.

7.6 Policy asymmetry and credibility

Related to this, central banks' views on inflation have become increasingly asymmetric. While very strongly responding to any downward deviation of inflation from target, central banks made it increasingly clear that their response to deviations on the upper side would be very moderate and slow. Indeed, in 2020/21, both the Federal Reserve and the ECB explicitly announced that they would not only tolerate, but even encourage within certain limits an inflation above the 2 percent target. In my view, this was a dangerous course implying considerable risks to the credibility of central banks.¹⁴ Credibility requires swift and decisive action in both cases.

7.7 Real economic problems cannot be solved by monetary policy

It is well known that the ECB is burdened by specific Eurozone problems, due to structural issues resulting from the European common currency. The ECB has always justified its policies of low interest rates and government securities purchases to a considerable extent by pointing to disruptions in the transmission of its monetary policy to the real economy in its peripheral member countries. The Eurozone and these countries have many unresolved economic problems, this is true. But they are not of a kind which can really be solved by monetary policy, except seemingly and temporarily.

8 What about the future?

8.1 The near-term future

The near-term future of inflation depends on the policy course chosen by central banks now, as well as on exogenous developments which monetary policy cannot control. Given the central banks' current measures of restriction, and barring new price-driving shocks of importance, it is likely that inflation will further recede from its current levels in the near future. Not as quickly

¹⁴ See footnote 3 above.

as was believed by many until very recently, however, and hardly all the way back to the central banks' 2 percent target.

In my view there is considerable danger that central banks will relax too soon, so that inflation will decline from its present high levels, but gets stuck at some rate still significantly exceeding the central banks' targets. The high level of public and private debt in particular makes such a development rather likely. The financial market turmoil created by the breakdown of several regional banks in America and the crisis around Credit Suisse in March 2023 has reinforced this danger.

It is laudable that, in view of inflation still running far too fast, the Federal Reserve, the ECB and the Swiss National Bank have all raised their policy rates in in March 2023, in spite of strong pressure from financial market circles calling for at least a temporary halt. In the USA, the rate increase of 25 basis points was smaller than expected (and previously envisaged), though, and was interpreted by many as a signal that the rate hiking cycle will slow and may soon come to an end, and possibly be reverted. This would seem rather risky, given the evidence of a strong growth of wages in many parts of the US economy.¹⁵ In Europe, with inflation still exceeding the ECB's interest rates by a large distance, monetary policy is not even close yet to a stance which can seriously be called restrictive. In Switzerland, the outlook is considerably better, since inflation, while too high, is still not that far away from the SNB's target range.

8.2 Longer-term perspectives

The last 25 years have been demanding years for central banks, no doubt. They had to face a major financial crisis of international dimension, the European debt crisis, the Corona crisis, and all the disruptions which followed from them. In addition, they did not get much support from governments' fiscal authorities in most countries. Nevertheless, from an inflation control point of view, this was a period which was rather easy for central banks. On the one hand, they inherited a culture of low inflation and inflation expectations well anchored at low levels, established by the efforts of their predecessors in the 1990s. Beyond that, most structural trends characterizing the real economy in this period were benign with regard to inflation. The globalization of product and labor service markets, technological growth, digitalization, an increasing inclination to rely on outsourcing and "just-in-time" procedures in production: they all had the effect to dampen costs and constrain firms' power to raise prices. This benign environment (with regard to inflation) gave

central banks much leeway and allowed them to pursue monetary policies without much restriction, while inflation still remained low.

The future looks to be rather different. Longer-run perspectives suggest that many of these trends will be reversed:

- Demographic developments and ageing populations will make labor services scarce and costlier, introducing a "wage push trend" instead of wage restraint, not just in Europe and the USA, but also in China (Goodhart and Pradhan 2020).
- Experience related to Corona, reinforced by the war in the Ukraine, has exposed the vulnerability which may result from too strong a dependence on complex, tightly managed delivery chains and non-diversified sources of supply. An increasing desire for security and resilience resulting from this experience makes likely a temporary pause, or even a regress, of globalization trends, accompanied by a rise in some forms of protectionism.
- The ambition to establish a "green economy" may lead to a trend of rising prices for energy and energy intensive products.
- High financial needs of governments are very likely to persist and to be characteristic for the future, as much as for the present.

All these developments imply, that structural change and shocks over the next decade will be quite different from what we experienced over the last 25 years. They will mostly not be benign with regard to inflation, as they were in the past, but quite the opposite, price-driving rather than price-dampening. This will create a much more challenging environment for central banks in their quest for price stability, increasing the likelihood that we will have to live with an elevated inflation for a considerable time to come.

Abbreviations

CPI	Consumer price index
ECB	European central bank
EU	European union
FOMC	Federal open market committee
QE	Quantitative easing
SECO	State secretariat for economic affairs
SNB	Swiss national bank
USA	United States of America
US	United States
ZLB	Zero lower bound

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References

- Akinci, O. and Queralto A. (2018). Balance sheets, exchange rates, and international monetary spillovers. Federal Reserve Bank of New York staff report 849. https://www.newyorkfed.org/research/staff_reports/sr849.
- Baltensperger, E. (2015). Zentralbanken jagen ein Phantom. *Neue Zürcher Zeitung*, 5 June 2015.
- Baltensperger, E. (2018). Die Zentralbanken müssen zusammenarbeiten. *Neue Zürcher Zeitung*, 22 Feb 2018.
- Baltensperger, E. (2020). Warum die Geldpolitik der Gegenwart nicht erfolgreich ist. *Neue Zürcher Zeitung*, 17 Sept 2020.
- Baltensperger, E. (2021). Die seltsame symmetrie der neuen Geldpolitik. *Neue Zürcher Zeitung*, 5 Jul 2021.
- Baltensperger, E. (2022). Karl Brunner and the heritage of monetarism. In T. Moser & M. Savioz (Eds.), *Karl Brunner and monetarism* (pp. 47–64). Cambridge, Massachusetts and London, England: The MIT Press.
- Bernanke, B. (2020). The new tools of monetary policy. *American Economic Review*, 110, 943–983.
- Boissay, F., F. Collard, J. Gali, and C. Manea (2022). Monetary policy and endogenous financial crises. BIS working paper 991 <https://www.bis.org/publ/work991.htm>.
- Borio, C., L. Lombardi, J. Yetman and E. Zakrajsek (2023). The two-regime view of inflation. *Bank of International Settlement*, Paper No. 133.
- Butler, W. H. (2002). The fiscal theory of the price level: A critique. *Economic Journal*, 112(481), 459–480.
- Cochrane, J. H. (2023). *The fiscal theory of the price level*. Princeton University Press.
- Gertler, M., & Karadi, P. (2013). QE 1 vs. 2 vs. 3. A framework for analyzing large-scale asset purchases as a monetary policy tool. *International Journal of Central Banking*, 9(1), 5–53.
- Goodhart, Ch., & Pradhan, M. (2020). *The great demographic reversal. Ageing societies, waning inequality, and an inflation revival*. Germany: Springer.
- Issing, O. (2022a). The European Central Bank – still waiting for Godot? *Politico*, May 24, 2022a.
- Issing, O. (2022b). The ECB's political overreach. *Project Syndicate*, Jul 27, 2022b.
- Jordan, T. J. (2022). Monetary policy under new constraints: challenges for the Swiss National Bank. Jackson Hole Economic Policy Symposium: *Reassessing Constraints on the Economy and Policy*, 27 Aug 2022.
- Lagarde, Ch. (2021). Keynote speech at the 31st Frankfurt European Banking Congress 2021 "From Recovery to Strength", Nov 19.
- Lagarde, Ch. (2022b). Statement at the forty-fifth meeting of the International Monetary and Financial Committee. *IMF spring Meetings*, Apr 21S
- Lagarde, Ch. (2022a). Introductory statement, *Hearing of the Committee on Economic and Monetary Affairs of the European Parliament*, Feb 7.
- European Central Bank. (2022). *Monetary policy decisions*, June 9.
- Niepelt, D. (2004). The fiscal myth of the price level. *Quarterly Journal of Economics*, 119(1), 277–300.

- Powell, J. H. (2021). Opening remarks: Monetary policy in the time of COVID. In: Federal Reserve Bank of Kansas City, *Macroeconomic Policy in an Uneven Economy*, Symposium: 1–15.
- Federal Reserve. (2021). *FOMC statement*, Mar 17.
- Federal Reserve (2022). *FOMC statement*, Mar 16
- Sargent, T. J., & Wallace, N. (1981). Some unpleasant monetarist arithmetic. *Federal Reserve Bank of Minneapolis Quarterly Review*, 5(3), 1–17.
- Sims, C. A. (1994). A simple model for the study of the determination of the price level and the interaction of monetary and fiscal policy. *Economic Theory*, 4(3), 381–399.
- Sinn, H.-W. (2021). *Die wundersame Geldvermehrung – Staatsverschuldung, Negativzinsen, Inflation*. Herder, Freiburg, Basel und Wien.
- Taylor, J.B. (2021). The Fed's State of Exception. *Project Syndicate*, The World's Opinion Page, 12 Aug 2021.
- Taylor, J.B. (2023). There's still time to get back to rules-based monetary policy. Testimony before the Subcommittee on Health Care and Financial Services, *U.S. House of Representatives*, 9 Mar 2023.
- Taylor, J. B., & Wieland, V. (2016). Finding the equilibrium real rate in a fog of policy deviations. *Business Economics*, 51(3), 147–154.
- Woodford, M. (1995). Price level determinacy without control of a monetary aggregate. *Carnegie-Rochester Conference Series on Public Policy*, 43, 1–46.

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