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The first inflation problem of the twenty-first century

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Inflation in the US after World War II peaked at 19.7 per cent in the 12 months to March 1947. The US economy reoriented itself from its wartime to its post-war structural configuration. The Federal Reserve did nothing at all. Inflation went negative in 1949 at the onset of a minor recession. Inflation revived in 1951, and was in some ways a reverse of 1947 – not a demobilization but a remobilization inflation. Again, the Federal Reserve did nothing. And, again, the inflation wave passed. Then came the long siege of moderate inflation that took place between 1966 and 1980, as the Federal Reserve dithered before the Volcker disinflation. What policy you think would have been and will be appropriate for the Biden Administration and the Yellen–Powell Fed depends on which of these past historical episodes provides the best model and analogy for the state of the US economy today. The odds right now seem to me to be on the first two, rather than the third.

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Perhaps there was progress in macroeconomics before 1940. Certainly by 1940 it was the consensus of economists that the claim of Josef Schumpeter and others that depressions were a necessary ‘functional’ part of capitalism – an inevitable concomitant of adjustment to change in the creative-destruction process of modern economic growth (Brown et al. 1934) – was dead as a doornail. It was 131 years since John Stuart Mill had first argued that ‘general gluts’ – excess supplies of pretty much every produced commodity and of labour – are the flip side of an excess demand for *money* (Mill 1844). It had taken 131 years to achieve this consensus. It was achieved only after the rude interruption of the discourse of economic theory by the Great Depression. There were unsettled questions about which aspects of *money* were key to the destructive excess demand. Liquidity? Safety? Collateralizable nominal value? Its use as a savings vehicle? And there were unsettled questions about whether central banks performing open-market and lender-of-last-resort operations could do the stabilization policy job, or whether a somewhat comprehensive socialization of investment would be required.

Since then, however, whether there has been significant progress is doubtful. Alan Blinder’s book *A Monetary and Fiscal History of the United States, 1961–2021* describes a game of constant musical chairs without the number of chairs ever decreasing, or perhaps a game of whack-a-mole:

> of wheels within wheels, spinning endlessly in time and space … [with] certain themes … waxing and waning … monetary versus fiscal … the intellectual realm … the world of practical policy making … the repeated ascendance and descendance of Keynesianism … (Blinder 2022)

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This is not a narrative of linear development in knowledge in figuring out how to manage modern economies in the interest of macroeconomic stability.

In my view a good deal of the problem is that of a premature move in macroeconomics to 'theory.' Truth be told, we do not know enough to build anything that could be called a theory. At most we see patterns. These patterns are the outcomes of complicated emergent processes arising from the millions of interactions that comprise the economy. Sometimes, it is true, economists distil and crystallize what they see as the patterns in history into something they call 'theory.' They can then write papers with little squiggles that look like γ, δ, β, σ and so on. But it is the history that is primary; then comes the patterns we see in them; then come not-very-successful attempts to systematize the patterns.

Back in 1985, Robert M. Solow worried that economists did not understand that their theories were contingent upon institutional and cultural backgrounds, and that the technical requirements imposed on theories to pass the bar for publication in the journals of the neoclassical synthesis greatly reduced their range – theory was a searchlight pointing in one and not necessarily the right direction. He called for attention to economic history to try to redress the balance. Perhaps today we suffer from a different malady: we have become too technically proficient at building theories so that we can model pretty much anything. If so, I would argue that we still need history to direct our attention to the theoretical models that are interesting considered as possible descriptions of reality (Solow 1985).

Thus, either way, in macroeconomics, what we call 'theory' is derivative from the events of history. It is distilled or crystallized. And we then mainline the crystallized product. After mainlining it, we can think we know something. But after mainlining crystal meth, we experience increased energy, elevated mood and extraordinary confidence. Then come the racing thoughts, muscle twitches, rapid breathing and the other symptoms.

It is from this perspective of scepticism and agnosticism about 'theory,' I think, that one should evaluate U.S. macroeconomic policy right now. Yet a great many commenters are relying heavily upon their theories. And one of the main themes I hear their theories telling them is that the Federal Reserve 'got behind the curve' on inflation control – never mind that, as Figure 1 shows, the recovery of employment from its nadir of the plague depression has been gratifyingly rapid, and an output- and employment-focused evaluation of macroeconomic policy would right now be suggesting the taking of a great many victory laps.

I read the very sharp Mohamed El-Erian saying: 'had they not fallen into this cognitive trap of inflation being transitory, had they acted earlier, they could have hiked into a growing economy. And they could have avoided what is one of the most front-loaded hiking cycles in history' (Ryssdal et al. 2022). On 4 January 2023, most of the speakers and participants at the Hoover Economic Policy Working Group agreed that the Federal Reserve was 'behind the curve,' and that more policy interest rate increases were needed (Taylor 2023). On 14 November 2022, I read Glenn Hubbard (2022) saying the 'arguably' the Federal Reserve had fallen and been behind the curve for two years, by not beginning its tightening cycle in late 2020. And I read Minneapolis Federal Reserve Bank President Neel Kashkari urging that the Federal Reserve keep raising interest rates not until it believes inflation is likely to be on the decline or even until it is confident that inflation is on the decline, but rather until it is sure inflation is on the decline.[1]

1. Neel Kashkari, quoted in Robb (2022).

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Source: Federal Reserve Economic Data.

Figure 1 U.S. employment–population ratio, 2000–2022

Such discussions seem to me to make the theoretical assumption that the Federal Reserve has an obligation to attempt to stabilize inflation year after year at whatever its target – now 2 per cent per year for the core-chain PCE inflation rate – happens to be. But why would this be the case?

One way to put it is this: there has been much discussion of the NAIRU, the 'non accelerating-inflation rate of unemployment' – the unemployment rate below which you should not try to push the economy. There has been little discussion of any counterpart on the inflation side, of a 'neutral rate of inflation' – the rate of inflation below which you should not try to push the economy. Akerlof, Dickens and Perry (1996) and Krugman (1998) were, in my view, important papers that ought to have started substantial literatures assessing and developing their arguments. But they did not do so. The result is that many of us do have a sense that there is an inflation rate below which the economy will be greatly harmed. If a substantial share of workers is put in a situation in which a flexible-market equilibrium could only match their market-clearing real wage to reality by cutting their nominal wage, there is a positive natural rate of inflation: we have high costs of nominal wage, and there would be extraordinary economic costs in terms of the destruction of worker–boss trust. In a world of sticky nominal debts, an inflation rate that drives productive firms into situations in which the nominal value of debtholders' claims to the firm exceeds its cash flow generates very high costs of bankruptcy workouts. And if the inflation rate is too low, the zero bound on interest rates may force the market real interest rate above the neutral real interest rate.

Given those institutional–structural features of the economy, a positive neutral rate of inflation to grease the gears of the labour, the corporate-control debt, and the money markets is an inescapable necessity. But how high is the natural rate of inflation in normal times? And how does it alter in times of supply shocks and of sectoral-rebalancing demand shocks? Not enough economists have spent not enough time on these issues.

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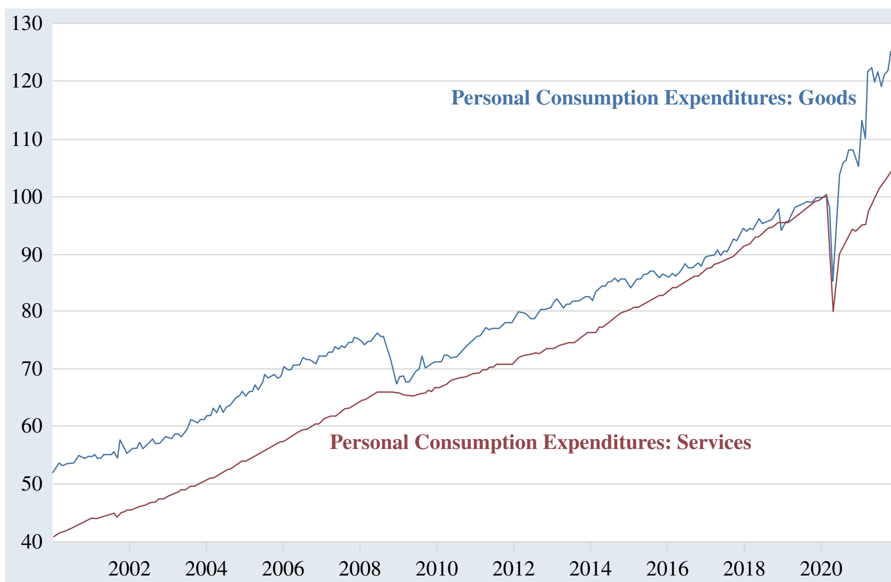
The incoming Biden Administration, and the Yellen–Powell Federal Reserve, had the task of managing the economy recovering from the COVID-19 plague in a way that got inflation to its proper 'neutral' rate for the time. And there was a general feeling that the neutral rate was going to be elevated: large structural shifts in employment and industry seemed likely in the post-plague economy, which would produce a greater-than-usual dispersion of wage and price changes.

As Figure 2 shows, the plague-time and the post-plague composition of desired demand is very different from what it was before. Thus the economy was undergoing a great wheel: 6 per cent less relative to trend in personal consumption expenditures on services, and 20 per cent more relative to trend in personal consumption expenditures on goods. Not all of that is going to stick into the post-plague economy, but a good deal of it will. We have an economy in which nominal wages and some nominal prices are really sticky downward. That means that if market prices are to do their job signals of where the value is, prices and wages in industries that need to expand must rise relative to prices and wages in industries that need the contract. With prices and wages in industries that need to contract sticky downward, that meant a greater average rate of nominal wage increase in a world in which nominal wages were very sticky downwards: that meant some inflation was 'natural.'

And, of course, the incoming Biden Administration and the Yellen–Powell Federal Reserve had to try to avoid three mistakes.

The first mistake was the trap into which the Obama Administration had fallen: failing to prioritize properly and to set up the game board for the rapid return of the economy to full employment. The Obama Administration had a plan for a first round of recovery measures. It had no plan for what it would do if Republicans and blue-dog Democrats proved obstreperous, and its first round failed to do the entire job. The



Source: Federal Reserve Economic Data.

Figure 2 The wheel of demand towards goods expenditure

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cost was a lost half-decade of growth, and a further widening of income inequalities. The Biden Administration was not going to make that mistake, but would rather prefer to make its own different mistakes.

The second mistake was falling into the trap of giving too large a boost to spending. Rapid and complete recovery would require the acceptance of some inflation: wages needed to rise in expanding industries to pull workers into them, because the post-plague configuration of the economy would be different than the pre-plague configuration; bottlenecks would emerge during reopening, and the prices of bottlenecked commodities needed to increase in order to signal the economy that here was a problem of finding substitutes and increasing supply that needed to be crowdsourced and sold quickly. How much inflation? Nobody could say. But if the re-opening inflation shock was too large, it could easily trigger a Federal Reserve overreaction, which would put us once again back into the semi-depressed or depressed state of secular stagnation with interest rates at their zero lower bound and little policy traction to promote recovery.

The third mistake was that too big a boost to spending would be followed by an insufficient reaction by the Federal Reserve, in which case the economy would fall into a configuration in which inflationary expectations were elevated, which would lead to a stagflation reminiscent of the 1970s.

The metaphor of steering, like Odysseus between Scylla and Charybdis, seems apposite. The first mistake is simply not steering through the strait at all, the second is sailing too close to the hydra monster, Scylla, of secular stagnation. The third is being dragged into the stagflation whirlpool of Charybdis.

Even a year ago, however, it still seemed that the task was not that difficult. There had been policy and political will to set the oars to work to drive the boat forward at speed. There seemed to be a wide middle path between secular stagnation and stagflation. You could argue – we did – about whether stagflation was the bigger danger to be avoided, or secular stagnation was. But both risks seemed relatively low and manageable with a Federal Reserve that understood the situation and was not prone to panic.

Then, early in 2022, came Vladimir Putin's attack on Ukraine; large, resulting supply shocks to energy and green markets; and the potential ending of the recovery process. And everything became unsure.

So what can we say about the likely proper stance of macroeconomic policy going forward?

As I said, I am very sceptical of relying on any theory. More fruitful, perhaps, would be a look at the history, direct and unmediated – rather than the crystal-meth-like concentration of history that is the raw material underpinning all the theories.

What is the history of inflation in America since the start of the twentieth century? Figure 3 shows that there were, before 2021, five episodes of an inflationary outbreak, if one counts the 1975 and 1979 inflation peaks as part of a single 1966–1984 episode:

The first episode is the inflation of the World War I (WWI) era, which was brought under control when the newly established Federal Reserve raised its discount rate from 3.75 per cent to 4.5 per cent between November 1917 and April 1918, and then again to 7 per cent between October 1919 and June 1920. This triggered a short but very deep recession accompanied by substantial deflation. Milton Friedman and Anna J. Schwartz (1963) judged that the interest rate rise was 'not only too late but also too much.' In their judgement, the Federal Reserve should have moved earlier to prevent excessive bank discounts from inappropriately boosting high-powered money. But the Federal Reserve did not do so. At that moment, the structure of credit became based on an expectation of continued Federal Reserve policy inaction. And so when the Federal Reserve did move to raise rates, that move generated 'one of the most rapid declines

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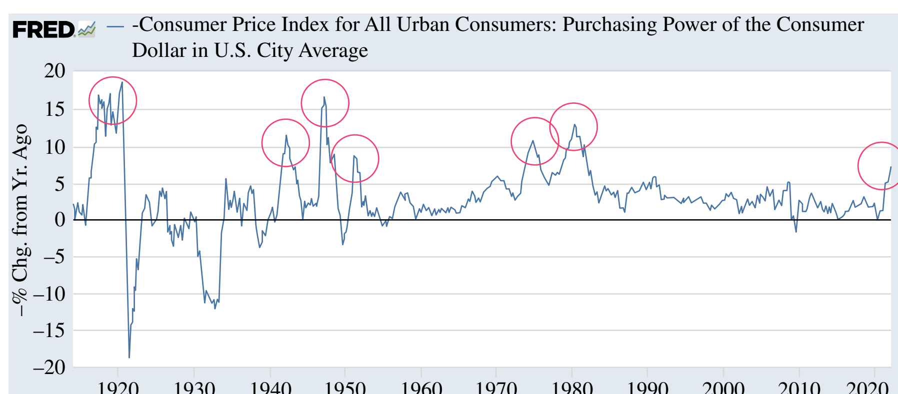

Source: Federal Reserve Economic Data.

Figure 3 Inflationary outbreaks in the U.S. since 1910

[in economic activity] on record.' Friedman and Schwartz's judgement was that an earlier increase of, say, 125 basis points to remove the incentive for banks to engage in excessive discounts would have brought the excessive growth of the high-powered money stock to an end, and stopped the inflation. A more moderated discount rate increase than the full jump to a 7 per cent was what was warranted.

The second episode was the WWII inflation, cut off by price controls. It is not relevant to our current policy dilemmas because it was fought using policy tools that are now definitively off the table.

The third episode is the inflation which emerged after WWII. It peaked at 19.7 per cent in the 12 months to March 1947. America's economy reoriented itself from its wartime to its post-war structural configuration. Tank factories transformed back into car factories. Resources that had been devoted to building factories and equipping them with tools were released to make all the consumer goods that had been rationed during the war. The WWII military–industrial complex was substantially dismantled. Prices and wages went up in sectors where demand was high but supply constrained in order to pull resources to where they were wanted.

During this episode, the Federal Reserve did nothing at all. It was, properly, focused on propping up the value of all the Treasury bonds that had been issued to fight the war. Yet Federal Reserve inaction did not lead to entrenched inflation. Inflation averaged 8 per cent over the 12 months following March 1947, and then went negative in 1949, accompanied by a minor recession.

Once supply had shifted to match the sectoral pattern of post-WWII demand – and once the wheeling of the economy into the consumer-desired new sectoral balance pattern had been accomplished –the bottlenecks and the upward price pressure disappeared. Because few expected the inflationary trend to continue, it did not.

The fourth inflationary episode came in 1951 and was, in some ways, a reverse of 1947. Inflation peaked at 9.4 per cent in February 1951, America geared up to fight the Korean War and, probably more important, made the decision to restore military spending to 10 per cent of national product in order to generate sufficient military capabilities to aggressively wage the Cold War. The military–industrial complex was rebuilt for a nuclear and aerospace age.

Again, the Federal Reserve did nothing.

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And, again, the inflation wave passed. By March 1952, the previous 12 months had seen inflation average less than 2 per cent. Recession was limited to a minor one in late 1953.

Again, once supply had shifted to match the newly reoriented desired sectoral pattern of demand, the bottlenecks and the upward price pressure disappeared. Again, because few expected the inflation to continue, it did not.

The fifth and last episode is the long siege of moderate inflation that took place between 1966 and 1984. Inflation rose from 2 per cent at the start of 1966 to 4.4 per cent during Richard Nixon's inauguration in January 1969. It then rose and fell throughout the 1970s, before rising to a peak of 12.8 per cent in March 1980. The Federal Reserve dithered, in various ways. Arthur Burns, its chairman from 1970 to 1978, was too interested in maintaining a strong economy while his friend and patron Nixon ran for re-election in 1972. He did not believe that Congress would let him keep interest rates high enough for long enough to cure inflation through monetary policy. And Burns did not believe the average inflation numbers his staff brought to them: there was always, in his mind, some special factor that had elevated some component in a clearly transitory way that meant that the average was overstating the underlying inflation rate.

Thus the Nixon Administration and its Federal Reserve shifted from attempting to apply slight downward pressure on aggregate demand in 1969–1970 to a combination of wage and price controls – starting with a 90-day 'freeze' – accompanied by support for aggregate demand, in the hope that inflation expectations could be reset without requiring a deep recession of any sort. Then in 1973 came the OAPEC shock to oil prices following the Yom Kippur War. Tight monetary policy to control inflation was rapidly followed by loose policy to try to restore full employment. Then came the year when, as the late Charlie Schultze once told me, the Carter Administration's and the Fed's 'forecasts of nominal income growth were dead on, but inflation came in two percentage points high and real growth two percentage points low.'

G. William Miller was not in office long enough as Federal Reserve Chair to have a material impact – he was rapidly transferred to the Treasury.

It was only when Paul Volcker became Chair that fighting inflation became, for a while, the sole priority of the Fed. Policy rates were raised to a peak of 16.9 per cent in December 1980, and were not lowered below 10 per cent until August 1982. By that the point the tight money policy had bankrupted Mexico, and policy shifted to a more balanced posture as inflation fell and stayed below 5 per cent. The Volcker Federal Reserve decided to declare that fall in inflation to the 4–5 per cent/year range as complete victory. That 4–5 per cent inflation target lasted for a decade. It was followed by the opportunistic disinflation of the 1990s down to and Alan Greenspan's declaration of the 2 per cent/year inflation target as 'effective price stability.'

What policy you think would have been and will be appropriate for the Biden Administration and the Yellen–Powell Federal Reserve to have followed and to follow going forward depends on which of these past historical episodes provides the best model and analogy for the state of the US economy today.

Start, however, with this observation: as of this writing – mid-January 2023 – as Figure 4 shows, the five-year forward breakeven on the trade between nominal U.S. Treasuries and inflation-protected TIPS is 2.16 per cent: the market, at least, is betting that the over-under on consumer price inflation between five and ten years from now will be more or less than 2.16 per cent is 50-50. The Federal Reserve's core-chain-PCE index target of 2 per cent per year corresponds to a CPI target of 2.4 per cent per year. Bond traders are thus betting that the Federal Reserve is going to undershoot its

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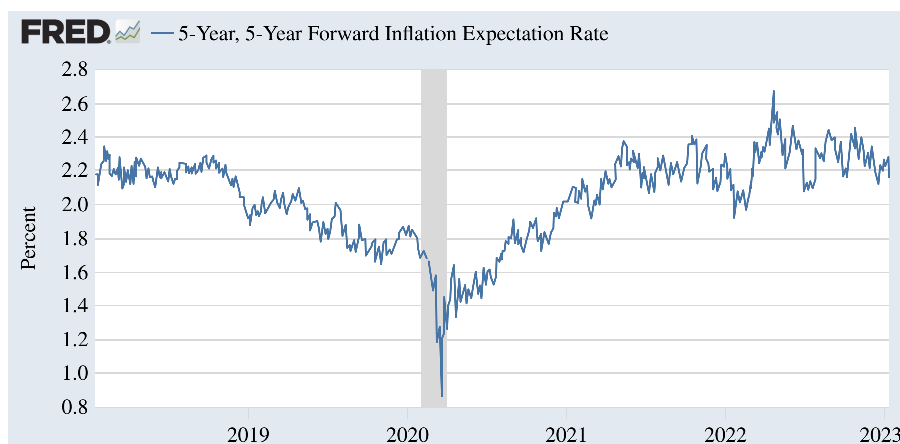

Source: Federal Reserve Economic Data.

Figure 4 Implicit bond market expectations of inflation from 5 to 10 years hence

inflation target between five and ten years from now by a cumulative total of one percentage point.

The extremely sharp Olivier Blanchard, in March of 2022, appeared certain that it was the 1966–1984 episode that was relevant:

> In early 1975, core inflation was running at 12 percent and the real policy rate was equal to about −6 percent, a gap of about 17 percent. Today, core inflation is running at 6 percent and the real policy rate is equal to −6 percent, a gap of 12 percent—smaller than in 1975, but still strikingly large … . It then took 8 years, from 1975 to 1983, to reduce inflation to 4 percent, with an increase in the real rate from bottom to peak of close to 1,300 basis points, and a peak increase in the unemployment rate of 600 basis points from the early 1970s.
>
> Today is obviously different in many ways … . [But even so,] it reasonable to think that a 200-basis-point increase in the policy rate, so only 1/6 of the rate increase from 1975 to 1981, will do the job this time when the gap between core inflation and the policy rate is 2/3 of what it was in 1975? And that unemployment will barely budge? I wish I could believe it … (Blanchard, 2022)[2]

The suggestion appears to be that, as of March 2022, we had two-thirds of the problem we had in 1975, and thus that, if the magnitude of the solution scaled linearly with the problem, the proper solution would be to raise interest rates by 800 basis points – but to apply some unspecified haircut to that 800 basis-point interest-rate rise because ‘today is obviously different in many ways.’

How large a haircut? If one thinks – as I do – that there is less than a one-in-two chance that it is 1966–1984 that is relevant, and that it is more likely than not that it is one of the episodes where inaction was the appropriate policy, we get to a 400 basis-point increase in the policy rate as appropriate. The Federal Reserve crossed that in early November. If one further thinks that many of the major factors that fuelled inflation persistence in the 1970s – strong unions, overlapping multi-year contracts,

2. Blanchard was commenting on Reifschneider and Wilcox (2022).

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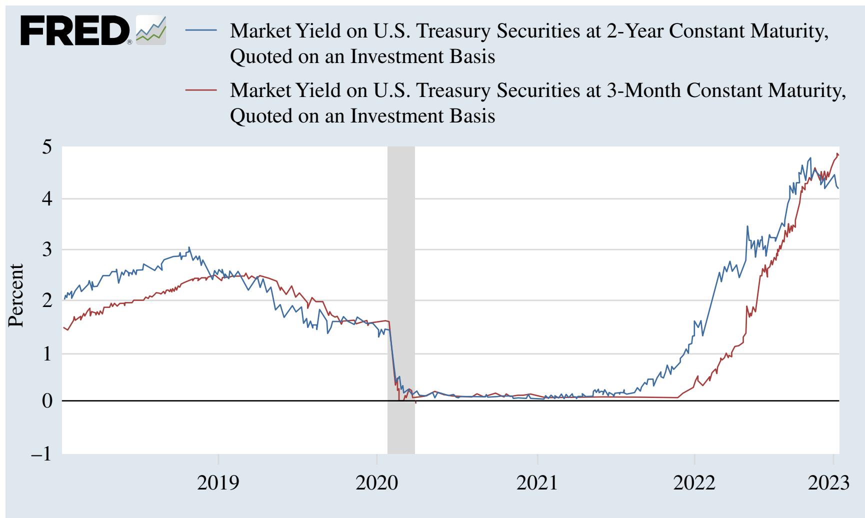

Source: Federal Reserve Economic Data.

Figure 5 The short-term treasury-security term structure

COLAs – are now absent. Perhaps those would knock the appropriate policy rate increase down to 300 basis points? The Federal Reserve crossed that in early September.

How could we determine whether the Federal Reserve has, as of now, already overreacted? We cannot, of course. But if we are willing to trust financial market prices – especially those of the U.S. Treasury's inflation-protected securities – as indexes of at least the expectations of the marginal bond traders, and if we are willing to trust that the expectations of the marginal bond trader are closely aligned with whatever 'expectations' variable belongs on the right-hand side of an expectational Phillips curve equation, and thus governs whether the process of inflation has persistent inertia, we can say something. Look back at Figure 4. That really does not look like the embedded, inertial expectations of continued moderate inflation that, in the standard story, drove the stubborn persistence of elevated inflation in the 1970s and that created the perceived need for the Volcker disinflation.

How then, looking at these bond prices, could one argue that the Federal Reserve has not now 'overdone it' as far as interest-rate increases are concerned?

I see three possibilities:

1. One could argue – as Larry Summers argued to me last September – that the bond market incorporates a substantial Federal Reserve overshoot in raising interest rates to a much higher level than they are now. The problem with that argument is that, as Figure 5 shows, the term structure strongly suggests that such bond market expectations must be of an overshoot of very short length indeed: right now the two-year nominal Treasury yields 50 basis points less than the three-month nominal Treasury.
2. One could argue that the 'expectations' variable closely linked to inflation inertia and persistence is not financier and bond trader but rather worker–boss–consumer sentiments, which are much closely tied to things like at-the-pump gasoline

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prices. But, as Figure 6 shows, gasoline prices peaked in June 2022, and are now back to their summer 2021 values.

3. One could argue that what the Federal Reserve needs to do with its policy right now is not to fight an inertial inflationary wage–price spiral, but rather to act to eliminate the possibility of such, recognizing that we are always at risk of having another substantial adverse supply shock ripping the inflation process away from its nominal anchor.

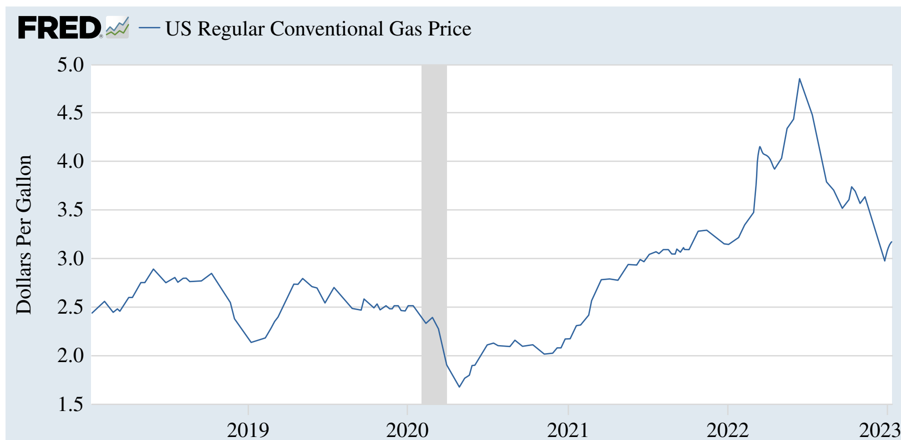
This third possible argument is difficult to argue against, because there is very little one can think of in terms of actually available data that is relevant to it. All one can say is that there does not appear to be any tail risk of a loss of the economy's nominal anchor in bond prices. As Figure 5 shows, there does not appear to be any belief that the Federal Reserve is going to act to eliminate such tail risk by raising interest rates sharply in the near term.

And we have not gotten that additional adverse supply shock yet.

So put me down on the side of my colleague and former CEA Chair Christina D. Romer. We have not yet felt any of the impacts on inflation of the interest-rate increases the Federal Reserve has embarked on since March: 'we are just now entering the window where the effects might start to be noticed.' The Federal Reserve needs to think hard about when and under what circumstances to start cutting its policy interest rate, for 'policymakers are going to need to dial back before the problem is completely solved if they want to get inflation down without causing more pain than necessary.'[3] It seems to me quite likely, given the month-to-month trajectory of inflation to date, as shown in Figure 7, before the interest rate increases undertaken by the Federal Reserve since March 2022 have had time to register significant effects, that that time may well be at or before mid-2023.

But time and chance happeneth to us all …

I do not, right now, envy the participants in the FOMC meetings.



Source: Federal Reserve Economic Data.

Figure 6 Prices at the gasoline pump

3. Christina Romer, quoted in Reuters (2023).

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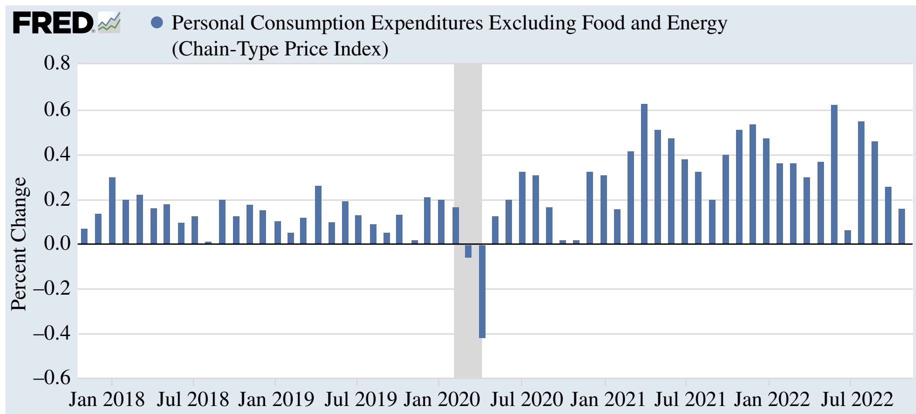

Source: Federal Reserve Economic Data.

Figure 7 Core inflation

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