# Perspectives on U.S. Monetary Policy and the Return to Price Stability

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> "Starting in mid-2021, as inflation started to rise globally, many central banks went through similar sequences of responses. First they looked through the shocks in the sense of not reacting to rising inflation. This inert response was typically defended by pointing to the supply-side origins of the inflation as well as the likelihood that high inflation would prove to be temporary. However, when inflation shocks kept materializing, central banks pivoted to a much more aggressive policy stance. Policymakers then spent considerable effort defending the pivot as being necessary to anchor expectations in order to avoid igniting a wage-price spiral."
>
> Beaudry, Carter, and Lahiri (2022)

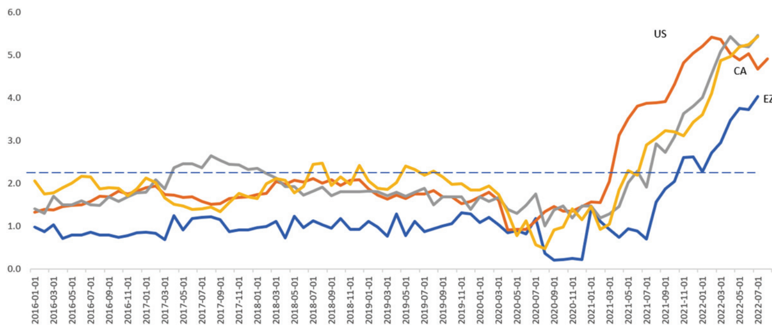
The COVID pandemic and the mitigation efforts put in place to contain it delivered the most severe blow to the U.S. and global economy since the Great Depression. In the United States more than 22 million jobs were lost in the two months of March and April of 2020, and in the second quarter of that year GDP collapsed at a 33 percent annualized rate, an even steeper pace of decline than recorded in the early months of the Great Depression. Monetary policy was all in—the Federal Reserve cut rates to zero and ramped up an unlimited quantitative easing program on Sunday,

March 15; launched the week of March 16 several facilities (similar to those developed and deployed by the Fed during the global financial crisis) to provide liquidity to the commercial paper market and to money market mutual funds; and then the very next week of March 23, announced plans to stand up temporary programs to support lending and market access in the corporate and municipal bond markets.[1] That same week, Congress passed the $2.5 trillion CARES Act, which would turn out to be the first of three major COVID relief fiscal packages totaling nearly $6 trillion that would be approved by two Congresses and signed into law by two Presidents over the next 12 months. Of note, the CARES Act included $450 billion in appropriations to fund first-loss equity investments in the aforementioned Fed credit facilities. These facilities were set up to be temporary backstops—and have long since been unwound after limited take-up—that were priced "out of the money" so as to encourage the resumption of private credit intermediation in the midst of an economic shutdown of unknown duration. In the event, just the existence of facilities with the potential to lend up to or purchase in the secondary market more than $4 trillion of corporate and municipal bonds was, in short order, enough to restore market functioning.

But if 2020 was the year of the pandemic, economic collapse, and the "all-in" policy response, then 2021 was the year of vaccines, re-opening, and a surge in inflation flowing in no small part from that "all-in" policy response; 2022 was the year of an unprecedented and global hawkish monetary policy pivot as central banks around the world scrambled to get ahead of an inflation curve steepened even further by the energy supply shock emanating from Russia's invasion of Ukraine (Figure 1); and 2023 is shaping up to be the year in which central banks calibrate at what level policy rates need to peak to put inflation on a credible trajectory to reach their inflation targets over the medium term. In 2021, the real side of the economic recovery in the United States was about as good as it gets, with the strongest GDP growth in nearly 40 years and robust gains in payroll employment that totaled nearly 7 million jobs for the year. And in

[1]See Clarida, Duygan-Bump, and Scotti (2021) for an overview of Fed monetary policy actions taken and facilities launched—and since unwound—in response to the 2020 global pandemic collapse.

**Figure 1. Core Inflation: United States, United Kingdom, Euro Zone, Canada**




the first half of the year—although this point is often forgotten—this rapid return to the economy's potential was accompanied by indicators of underlying inflation that remained broadly consistent with the Fed's 2 percent objective. But in the second half of 2021, and continuing since, a surge in inflation emerged that was and continues to be (almost) as bad as it gets, not only in the United States but also in many other countries.[2] It was certainly not moderate, nor was it foreseen initially in the Fed's SEP projections, and it is turning out to be distressingly persistent and remains broad based, as evidenced in both price and wage data.

I came into the year 2021 as a Fed official with a Bayesian prior (yes, we did use that term and respected that concept in the halls of the Eccles building) that inflation expectations were well

[2]My focus in these remarks is on U.S. inflation since 2021 and the Fed's policy response. However, a persistent surge in underlying inflation in advanced economies is a distressing feature of the post-pandemic *global* economy. As discussed in detail in Clarida (2023), no advanced-economy central bank began to raise rates until headline inflation had exceeded target, and almost all AE central banks (except Norway and Switzerland) deferred lift-off until core inflation had moved above target. Thus if the persistent post-pandemic surge in AE inflation and the delayed monetary policy reaction represents a failure of monetary policy frameworks, it represents a failure of inflation targeting in most AE inflation-targeting countries, not simply a failure of flexible average inflation targeting in the United States. But I do not believe this is the case, as I argue in detail below and in Clarida (2023). Rather, these delayed policy reactions to what turned out to be persistent inflationary pressures I attribute to tactical misjudgments in the fog of war.

anchored, that in the aggregate there remained substantial slack in the economy—recall that inflation had fallen sharply in 2020 and the unemployment rate in December of that year remained elevated at 6.7 percent—and that also there were some significant sectoral imbalances between supply and demand that would likely require sizable relative price adjustments—for example, the relative prices of durable goods versus contact-intensive services. As a starting point, with well-anchored inflation expectations, the textbook monetary policy response would be to look through such relative price changes caused by supply shocks so long as inflation expectations stayed well anchored and economic slack remained available.[3] That was certainly my view in the spring of 2021; it was not inconsistent with the available data on price and wage inflation that we had at the time—for example, as is shown in Figures 2 and 3, the real-time data on trimmed mean measures of inflation and the employment costs—and it was also the view of virtually all private-sector forecasters. On this latter point, I suspect, future scholars may be interested to explore the extent to which what turned out to be an epic forecast miss can be attributed to "group think" among policymakers and professional forecasters, many of whom are former Fed staffers themselves.[4]

My Bayesian prior of course proved to be wrong, and beginning in the summer of 2021, my posterior distribution shifted up sharply as the incoming data began to reveal, certainly to me, that the inflation surge was becoming broad based in both goods and labor markets and that, moreover, the balance of risks to the inflation outlook were skewed decidedly to the upside.[5] Certainly by the fall of 2021, as is shown in Figures 4 and 5, time-series plots of the above-mentioned inflation indicators along with many other inflation readings "went parabolic," indicating clearly that, already

[3]For recent discussion of adverse supply shocks and optimal monetary policy, see Guerrieri et al. (2021) and Caballero and Simsek (2022).

[4]For example, in April 2021 after the American Rescue Plan had already passed, the *Wall Street Journal* surveyed 77 private-sector economists on their outlook for 2021. The panel's median projection for core PCE inflation in 2021 was 2.1 percent, and the most pessimistic forecaster in the sample projected core PCE inflation to reach 2.8 percent. Realized core PCE inflation in 2021 was 5 percent.

[5]And I indicated as much in remarks delivered at a Petersen Institute event in August of that year (Clarida 2021c).

**Figure 2. Federal Reserve Bank of Dallas Trimmed Mean PCE through July 2021**

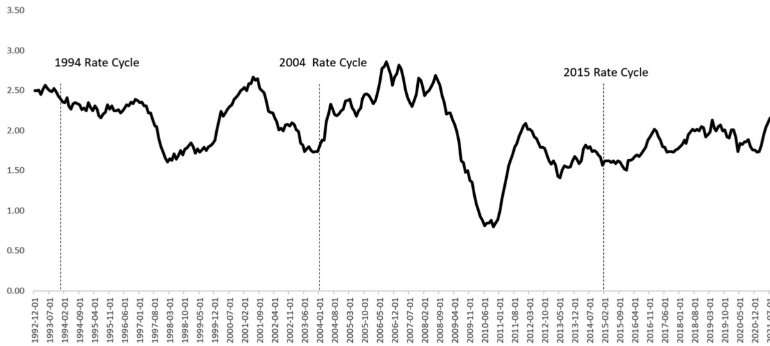
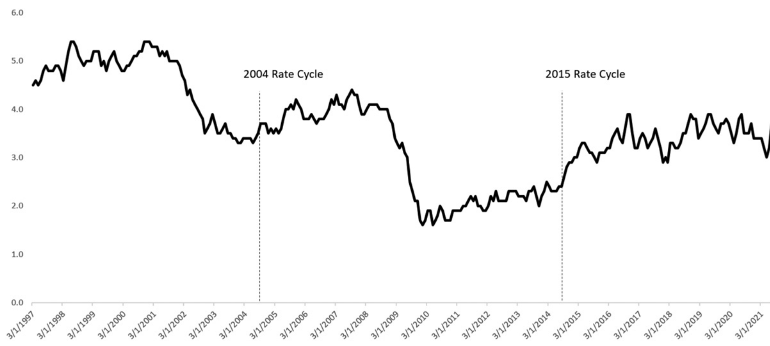



**Figure 3. Federal Reserve Bank of Atlanta Wage Tracker through July 2021**




by that time, the level of nominal aggregate demand in the economy exceeded available aggregate supply forthcoming at the Fed's 2 percent inflation target, even though the data then available—as shown in Figures 6, 7, and 8—indicated that the level of real GDP remained some 2 percentage points below the Congressional Budget Office's contemporaneous estimate of potential,[6] that the unemployment rate, at 5.2 percent, remained well above contemporary estimates of NAIRU, and that the prime-age labor force participation

[6]Figure 6 presents the real GDP data as originally released and thus as available to the Fed in real time.

**Figure 4. Federal Reserve Bank of Dallas Trimmed Mean PCE Full Sample**

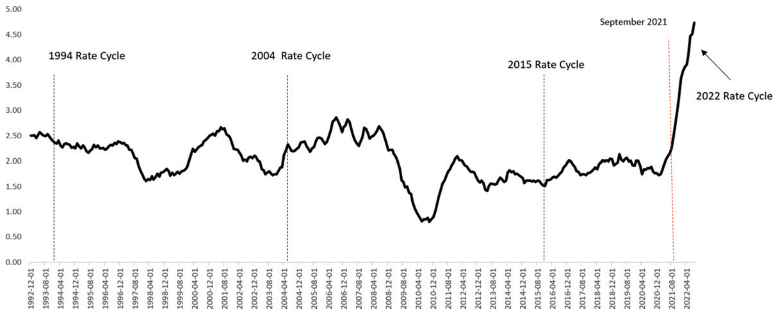
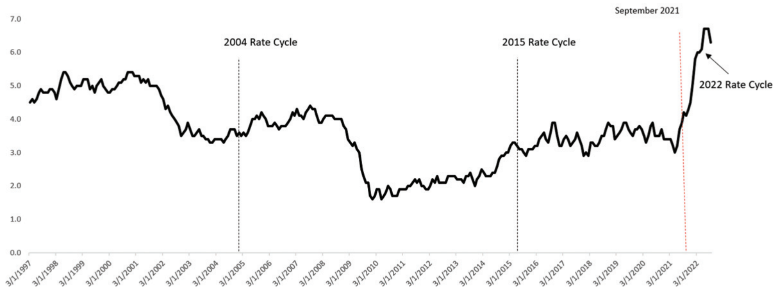



**Figure 5. Federal Reserve Bank of Atlanta Wage Tracker Full Sample**




remained 1.3 percentage points below its pre-pandemic peak. Simply put, the Fed in 2021 got aggregate supply wrong,[7] and, in so doing, it kept in place an exceptionally accommodative monetary policy longer than it would have had it not overestimated the economy's potential, especially given the robust demand support delivered by the December 2020 Consolidated Appropriations Act, the March

[7]Interestingly, the minutes to the September 2022 FOMC meeting state that (page 6) "the staff's estimate of potential output in recent history was revised down significantly in response to continued disappointing productivity growth and the sluggish gains in labor force participation seen so far this year; moreover, this lower trajectory for potential output was expected to persist throughout the forecast period. As a result, the staff's estimate of the output gap was revised up considerably this year."

**Figure 6. Real GDP vs. CBO Potential GDP**

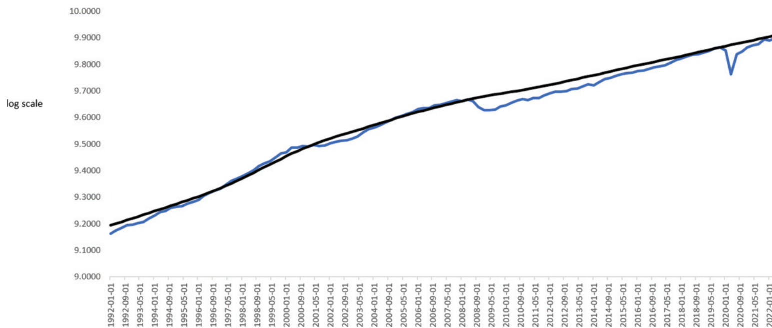
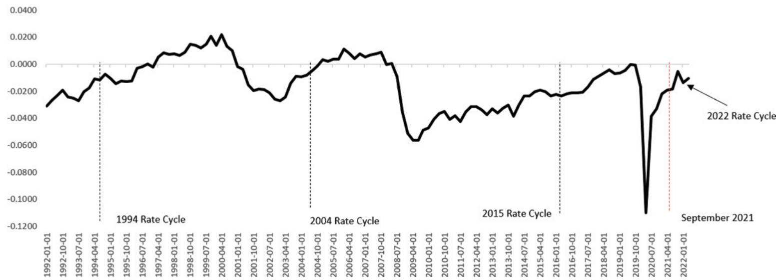


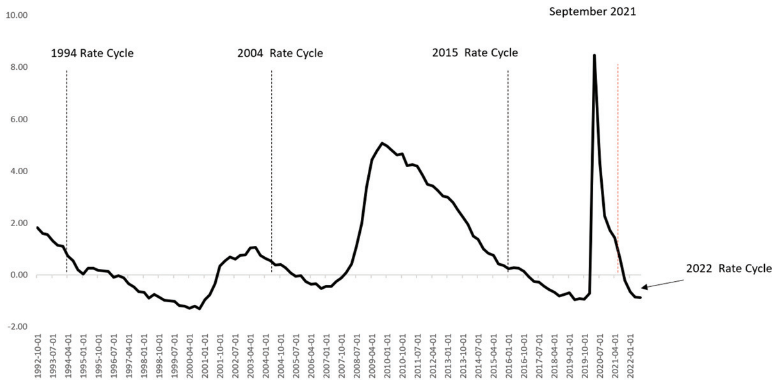

**Figure 7. Output Gap: Actual minus CBO Potential**




2021 American Rescue Plan, as well as the more than $1 trillion of accumulated "excess saving" then remaining from the March 2020 CARES Act transfers.[8] I also note that in its July 2021 "Update to the Budget and Economic Outlook"—with only six months remaining in the calendar year—the CBO projected that real GDP for 2021 on a fourth-over-fourth-quarter basis would grow at 7.4 percent, that nominal aggregate demand would rise by 10.7 percent, and that core PCE inflation would rise by 2.4 percent. In the event, real GDP grew by 5.7 percent in 2021, nominal GDP rose by 12.2

[8] As of this writing, there remains roughly $500 billion of accumulated household "excess saving" relative to the counterfactual accumulation that would have resulted with the pre-pandemic saving rate applied to actual household disposable income since March 2020. That said, the household saving rate has over the past two years declined substantially—and is now well below its pre-pandemic rate—as households have in aggregate cut back on saving to finance consumption growth notwithstanding absolute decline in real disposable income since July 2021.

**Figure 8. Unemployment Gap: Actual minus CBO NAIRU**

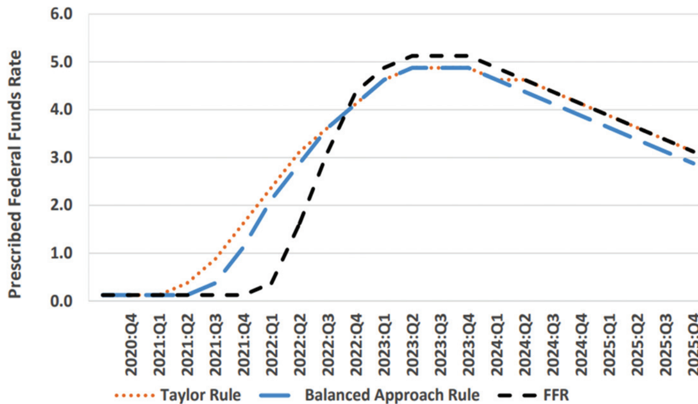



percent, and core PCE inflation rose by 5 percent. The Fed's June 2021 SEP projections were similar and, as with the CBO, indicate that not only did the Fed in 2021 get aggregate supply wrong, it also got nominal aggregate demand growth wrong (Furman 2022; Summers 2022). That said, the 1.7 percentage point undershoot of real GDP growth in 2021 relative to the CBO's mid-year forecast was not due to insufficient aggregate demand growth!

By the time of the September 2021 Federal Open Market Committee meeting, the monetary policy rules I consult, including those based on my research with Mark Gertler and Jordi Galí as well as the "shortfalls" version of the balanced-approach Taylor rule featured in the Fed's recent Monetary Policy Reports, were signaling that lift-off from the zero lower bound was by then warranted (Figure 9).[9] In

[9]Under the Fed's new framework ratified in August 2020, the FOMC's Statement on Longer-Run Goals and Monetary Policy Strategy has referred to "shortfalls of employment" from the Committee's assessment of its maximum level rather than the "deviations of employment" used in the previous statement. According to the March 2023 MPR, "the balanced-approach (shortfalls) rule reflects this change [in the framework] by responding asymmetrically to unemployment rates above or below their estimated longer-run value: When unemployment is above that value, the policy rates are identical to those prescribed by the balanced-approach rule, whereas when unemployment is below that value, policy rates do not rise because of further declines in the unemployment rate." Thus had the Fed chosen to implement its new framework with a framework-consistent balanced-approach policy rule, it would have lifted off in September 2021 just as would have been the case if it followed a traditional Taylor rule

**Figure 9. Inertial Policy Rules from Papell and Prodan (2023), "The Fed is Following a Taylor Rule"**




**Note:** Between September 2020 and December 2022, authors use real-time inflation and unemployment data that were available at the time of the FOMC meetings. Between March 2023 and December 2025, they use inflation, unemployment, and real FFR in the longer-run projections from the December 2022 SEP.

the event, the FOMC did begin to pivot in November 2021, first with the taper that would end quantitative easing earlier than had been expected, followed in March 2022 by the lift-off itself, followed in May 2022 by the announcement that a muscular quantitative tightening program would commence in the summer, and followed, beginning the next month, by a sharp increase in the pace of policy normalization to 75 basis points per meeting at each of the June, July, September, and November 2022 FOMC meetings. The pace of rate hikes downshifted to 50 basis points at the December 2021 meeting, at which time the SEP projections indicated that the median

(Figure 10). The Fed in its September 2020 FOMC statement (with two "hawkish" dissents) had offered more robust forward guidance than required by its August 2020 framework statement. It committed (subject to inflation expectations remaining well anchored) to delay lift-off until "labor market conditions have reached levels consistent with ... maximum employment and inflation has risen to 2 percent." While this stronger commitment was consistent with the new framework, it was not required by it, as is evidenced by the fact that Presidents Kaplan and Kashkari supported the new framework but did not support the September 2020 forward guidance.

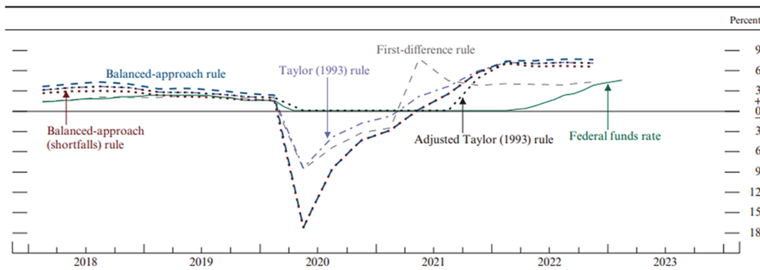
participant believed that a peak policy rate of 5.25 percent would be sufficiently restrictive, if maintained for some time, to eventually return inflation to the 2 percent longer-run goal, although not until 2025. Also of note, the December 2022 SEP projected a second consecutive year of below-trend GDP growth in 2023 accompanied by a 1 percentage point rise in the unemployment rate. Such a rise, historically, has never occurred outside of an NBER recession, although Fed officials, perhaps understandably, have been reluctant to predict a recession in their public remarks.[10,11]

As Chair Powell indicated at Jackson Hole in August 2022, policies required to disinflate the U.S. economy and bring aggregate demand into balance with aggregate supply will almost certainly cause "some pain" as growth slows sharply and unemployment rises as much as or more than indicated in the SEP projections. But even if through some combination of good policy and good luck—and I suspect both will be required—inflation does return to 2 percent over the next several years, inflation will have averaged well north of 2 percent from March 2020 through the end of the Fed's customary three-year projection window. And that was a point I made in August 2021 remarks at the Peterson Institute: the conditions *on inflation* for lift-off that the FOMC set out in its September 2020 threshold guidance had already been met by the summer of 2021, and at almost exactly the same time that a conventional Taylor-type rule was also signaling lift-off (Figure 10). As I argued in presentations I delivered at a Brookings conference in November 2020 (Clarida 2020), at a Hoover Institution seminar in January 2021 (Clarida 2021a), and at a Shadow Open Market Committee meeting in April 2021 (Clarida 2021b), the Fed's August 2020 Revised Statement of Longer-Run Goals and Monetary Policy Strategy is, in my reading and interpretation, fully consistent with and could, if a future FOMC chose to, be implemented and communicated in a

[10]However, the minutes of the March 2023 FOMC meeting reported that the Fed staff was, as of that meeting, forecasting a recession would commence in 2023.

[11]The FOMC at the February, March, and May 2023 meetings raised the target range for the federal funds in 25 basis point increments to 5.25 percent, and it indicated in the March 2023 projections that the median participant thought at that time that this would represent the peak rate for this cycle.

**Figure 10. Historical Federal Funds Rate Prescriptions from Simple Policy Rules**




**Source:** Federal Reserve Bank of Philadelphia; Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board staff estimates.
**Note:** The rules use historical values of core personal consumption expenditures inflation, the unemployment rate, and, where applicable, historical values of the midpoint of the target range for the federal funds rate. Quarterly projections of longer-run values for the federal funds rate and the unemployment rate used in the computation of the rules' prescriptions are derived through interpolations of biannual projections from Blue Chip Economic Indicators. The longer-run value for inflation is set to 2 percent. The rules prescriptions are quarterly, and the federal funds rate data are the monthly average of the daily midpoint of the target range for the federal funds rate and extend through February 2023.

straightforward manner according to the temporary price-level targeting proposal outlined in Bernanke, Kiley, and Roberts (2019) and Bernanke (2020). Under TPLT, when finding itself at the effective lower bound with inflation running below 2 percent, the Fed would commit itself to delay lift-off until inflation over a trailing 12-month window had reached 2 percent. After lift-off, the policy would revert to traditional inflation targeting which could, for example, be implemented with an inertial Taylor-type reaction function as is in the simulations reported in Bernanke, Kiley, and Roberts (2019).

Thus it was not the goal that inflation average 2 percent over time, as was endorsed in the Fed's August 2020 framework revision that precluded the FOMC in 2021 from lifting off from the effective lower bound and beginning to shrink its balance sheet. It was instead the Committee's additional commitment to honor its September 2020 threshold guidance as well as its communication that it would follow a "taper–hike–shrink" sequence of policy normalization similar to the practice it implemented following the global

financial crisis, in tandem with a reluctance even to commence the taper until a majority of the Committee deemed that "substantial further progress" towards its maximum employment mandate had been achieved, the threshold standard for tapering quantitative easing the FOMC had laid out in its December 2020 FOMC statement. Let me be clear that committing—and honoring the commitment—to follow a "taper–hike–shrink" sequence and to the delay the taper itself until "considerable progress" had been made towards the maximum employment goal—decisions I did support in real time—were FOMC decisions with regards to how best to *execute* policy to achieve the Fed's dual mandate goals of maximum employment and inflation that averaged 2 percent over time, but were not, in my judgment, decisions compelled by (nor were they necessary to honor) either the spirit or the letter of the August 2020 framework statement. This also applies to the September 2020 threshold guidance on the conditions for lift-off: this stronger commitment was consistent with the new framework, but it was not required by it, as is evidenced by the fact that the shortfalls version of the balanced-approach policy rule did signal lift-off before those conditions were met.[12,13]

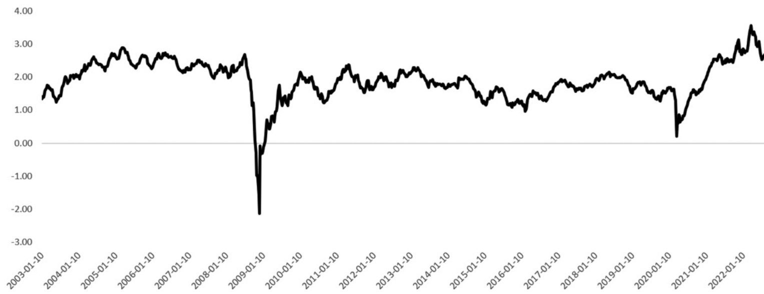
Engineering a soft or even a softish landing under present circumstances will be challenging: the Fed's instruments are blunt, the mission is complex, and difficult trade-offs lie ahead.[14] Underlying

[12]For a thoughtful discussion of this point, see Quarles (2022).

[13]In retrospect, the take-off in broad-based wage inflation depicted in Figure 5 is consistent with an assessment that, in fact, the level of "maximum employment" in the 2021 U.S. labor market consistent with price stability had already been attained by the third quarter of 2021. At that time, not only did wage inflation "go parabolic," but the vacancy/unemployment ratio as well as the Federal Reserve Bank of Kansas City's broad Labor Market Conditions Index had by then returned to their respective pre-pandemic peaks, even though at the time of the September FOMC meeting, the unemployment rate, at 5.2 percent, was more than a percentage point above the Committee's estimate of full employment.

[14]In March and April 2023, four commercial banks—Silvergate, Silicon Valley Bank (SVB), Signature, and First Republic—collapsed in part because of substantial unrealized losses on their security and mortgage holdings that triggered sizable deposit outflows. In response to the SVB and Signature failures, the Fed launched a Bank Term Funding Program on March 12, 2023 to provide term liquidity against Treasury and MBS collateral on favorable terms. The March and May 2023 rate hikes were approved by the FOMC after the SVB and Signature failures, and reflected the Fed's desire to meet its monetary policy goals

**Figure 11. Five-Year Breakeven Inflation**



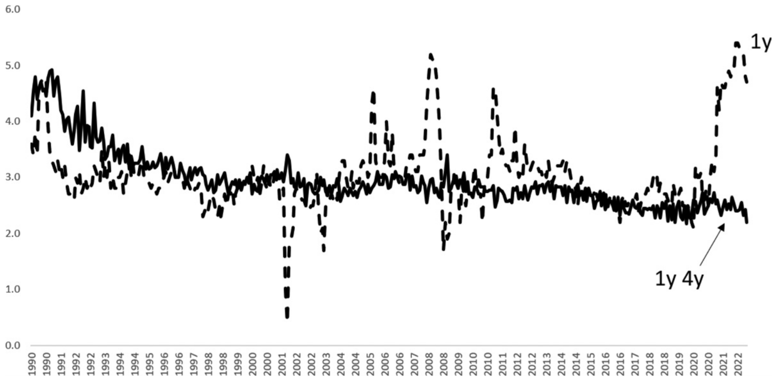

inflation appears to be running at least 1 percentage point faster than its pre-pandemic pace, and compensation gains, unit labor costs pressures, and the recently popularized "jobs–workers" gap metric are all indicative of a labor market in which the rate of unemployment consistent with price stability may now and for some time to come be higher than the Fed's current median longer-run projection of 4 percent indicates.[15] That said, it does appear to be the case that medium- and longer-term inflation expectations—measured either by household surveys or from breakeven inflation rates implied by TIPS yields—remain well anchored at levels consistent with the Fed's 2 percent inflation target (Figures 11 and 12). Thus the FOMC's task, while daunting, is less onerous than it would be were it aiming also to reduce medium-term inflation expectations, a challenge that confronted Paul Volcker in 1979 and Alan Greenspan in 1987. But of course inflation expectations—whether they are formed rationally, adaptively, or diagnostically—are endogenous, and the longer inflation remains above 2 percent, the greater is the risk that inflation expectations eventually ratchet up to levels inconsistent with the FOMC's price stability objective.

As Chair Powell indicated at Jackson Hole in 2022, he and the FOMC are determined to insure that the hard-won battles under Paul Volcker and Alan Greenspan to achieve price stability are not

using the federal funds rate tool, and to support financial stability objectives using other macroprudential tools, including in this case liquidity facilities.

[15]Please see Ball, Leigh, and Mishra (2022) and Clarida (2023) for an econometric analysis that models the 2021–22 inflation surge as a function of the V/U ratio and the pass-through from headline to core inflation.

**Figure 12. Michigan Inflation Survey**




squandered, and in that speech he stated—twice—that the Fed will "keep at it until the job is done." I have every confidence that they will indeed keep at it until the job is done, although I am under no illusion that "the job" will be easy. Thank you very much for your time and attention and the invitation to address this esteemed group. I look forward to the question-and-answer session.

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