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Abstract

The 2020 revisions to the Federal Reserve's monetary policy framework included a shift in the Fed's policy focus to "shortfalls" (rather than "deviations") from maximum employment and a commitment to "flexible average inflation targeting." The new framework, and the associated guidance and asset purchases with which it was implemented, were tested by the surge in inflation in 2021 and 2022. We consider the lessons learned from this experience. We conclude that the changes to the framework were too focused on the experience following the financial crisis and hence were not robust in the face of unexpected changes in economic circumstances. We also argue that the Fed made mistakes with the calibration and communication of the tools used to implement the framework—the forward guidance on the policy rate and the asset purchase program. We recommend a broad framework that would be appropriate in a wide range of policy environments, with the specific policy approach to be taken in any given circumstance to be communicated through forward guidance and asset purchase announcements. We suggest ways in which the Fed could implement these tools with better calibration and communication, in order to avoid having its policy commitments exacerbate costly economic outcomes.

* We thank Jon Steinsson and Janice Eberly for useful comments. All remaining errors are ours.

Introduction

In the fall of 2018, the Federal Reserve announced a review of its monetary policy tools, framework, and communications (Federal Reserve, 2018). The review included "Fed Listens" events arranged around the country to get input from the public, a conference held in 2019 at the Federal Reserve Bank of Chicago, a large number of staff research papers on a range of key issues, and discussion at five consecutive FOMC meetings in 2019 and 2020.[1] The results of the review were announced by Chair Powell at the Jackson Hole symposium in August 2020 (Powell, 2020).

At the end of the review process, the FOMC adopted a revised "Statement on Longer-run Goals and Monetary Policy Strategy," or framework document (FOMC, 2020). The original framework document had been published in 2012 and, among other things, had provided the Fed's first numerical inflation objective of 2 percent. The revised framework document made changes to reflect the lessons from the post-2012 period, which included the Fed's experience with a weak recovery and the constraints on conventional interest rate policy caused by the effective lower bound on the federal funds rate (the ELB). That experience led the FOMC to favor "make-up" strategies that would respond to periods of weak growth and low inflation caused by the ELB with periods of sustained accommodative policy and a temporary overshoot of the inflation target (See Bernanke et al, 2019, for a discussion of such strategies). In addition, the very slow recovery in the labor market and feedback from Fed Listens events on the benefits of a strong labor market led the FOMC to focus the framework on addressing weakness in the labor market. These shifts in focus were reflected in the two most consequential changes to the framework: an indication that policy should aim to mitigate "shortfalls" from maximum employment, rather than "deviations," and a move from traditional flexible inflation targeting to "flexible average inflation targeting" (FAIT). Under FAIT, the FOMC indicated that it would likely respond to a period of low inflation caused by the ELB by aiming for inflation "moderately above 2 percent for some time."

This new framework was announced soon after the economy had been rocked by the Covid pandemic, and the FOMC had already responded by cutting the federal funds rate to the

[1] For details on the process, see the Fed web page "Review of Monetary Policy Strategy, Tools, and Communications" at: https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications.htm. The process was also summarized in Powell (2020).

ELB and by undertaking very large purchases of Treasury and agency mortgage-backed securities, as well as taking other actions to support financial markets and the economy. In the fall of 2020, the Committee implemented the new framework with aggressive guidance on interest rate policy and with ongoing, sizable asset purchases.

The new framework, and the associated guidance and purchases, were tested by the unexpected surge in inflation in 2021 and 2022. In this paper, we focus on lessons learned from this experience about both the framework itself and the two tools that were used to implement it—forward guidance and asset purchases. We conclude that the changes to the framework were too focused on the experience following the financial crisis, and so were not robust in the face of unexpected changes in economic circumstances. In addition, there were significant problems with the design of the guidance and purchase programs that were used to implement it.

The policy framework was aimed too narrowly at a specific set of economic circumstances

The 2020 revisions to the Federal Reserve's monetary policy framework were intended to respond to changes in the economic environment and to the policy lessons learned during the post-crisis period (Powell, 2020). In particular, the decline in the neutral real interest rate (r*) meant that the effective lower bound on the policy interest rate was more likely to bind in recessions and constrain policymakers. The result was likely to be insufficient monetary accommodation in those periods, resulting in persistent periods of weak economic activity and low inflation. The Fed had faced these circumstances over the period since the global financial crisis (GFC) in 2008. In response to the economic weakness that had resulted from financial market stress and a severe tightening of financial conditions, the FOMC had used unconventional tools, notably forward guidance and large-scale asset purchases, to support economic activity. It had also maintained a relatively accommodative monetary policy late into the recovery, which allowed the economy to expand faster than its potential, even as it neared and then surpassed estimates of the natural rate of unemployment. With inflation remaining quiescent, the Committee gradually revised up its estimate of maximum employment, allowing the economy to grow more than had been expected. This approach was seen as successful, and the revised framework was intended in part to reflect "the way we have been conducting policy in recent years" (Powell, 2020).

While continuity of its approach was part of the FOMC's intention, the new framework sought to go beyond what had been implemented in the wake of the GFC. The FOMC had not previously sought to achieve an overshooting of its inflation objective in the way intended under the new FAIT framework. By indicating that the Fed will follow a make-up strategy after getting caught at the effective lower bound, the framework could reduce longer-term interest rates during the recession and so support a faster recovery (Bernanke et al, 2019). Similarly, by indicating that the Committee would be slower to tighten policy in a strong economy, the framework could discourage expectations of a strong policy response as the unemployment rate falls, thereby easing financial conditions and supporting an extended recovery.

Without these changes, policymakers feared a dynamic where monetary policy would be significantly constrained by the ELB after substantial negative shocks to the economy. As a consequence, recessions would be deeper and longer than would be the case without the lower bound. While inflation would ultimately rise back to target, it would run below target following recessions for longer and by more than it would run above target in periods of economic strength. The result would be that inflation would average below 2 percent over time, which would ultimately pull expected inflation below target, and so make it harder to achieve inflation near target on a consistent basis. The case for proactively addressing this risk seemed compelling.

The most important changes to the framework document were the introduction of two asymmetries to counter the asymmetry caused by the ELB (see Clarida, 2020). The first of these was the indication that monetary policy would respond to "shortfalls" from maximum employment rather than to "deviations" from maximum employment. Specifically, the new statement reads, "In setting monetary policy, the Committee seeks over time to mitigate shortfalls of employment from the Committee's assessment of it maximum level." This language was intended to signal that the FOMC would avoid premature or excessive tightening that could cut off an expansion unless high levels of employment were "accompanied by signs of unwanted increases in inflation…" (Powell, 2020). Vice Chair Clarida justified this approach with the argument that "a decision to tighten monetary policy based solely on a model without any other evidence of excessive cost-push pressure that puts the price-stability mandate at risk is difficult to justify, given the significant cost to the economy if the model turns out to be wrong

and given the ability of monetary policy to respond if the model were eventually to turn out to be right." (Clarida, 2020)

But the situation the Committee faced in the decade following the financial crisis was very specific – inflation persistently below target and an economy that was growing only a bit faster than potential despite considerable monetary accommodation. With inflation expectations anchored at a low level and the Phillips curve flat, risks to inflation were very modest, and it was reasonable to let the expansion continue for a time and probe the level of the natural rate of unemployment, as the Committee did with evident success. In other situations, however, not responding to actual or expected labor market tightness could be problematic. As noted by Clarida, lags in the effects of policy mean that policymakers must be forward looking (Clarida, 2020). And if inflation expectations are not well anchored and output is growing quickly, waiting for signs of cost-push inflation before tightening could allow high inflation to get entrenched. Kiley (2024) shows that, in a model with a broader set of economic risks, poor economic performance can result if policymakers only respond to employment shortfalls.

That said, an emphasis on shortfalls from maximum employment could be appropriate if the statement were about the preferences of policymakers.[2] In that case, policy would still be affected by projected levels of employment above assessments of its maximum level. However, in their discussions of the framework provisions, policymakers emphasized that the asymmetry applied to the reaction function. For example, Chair Powell stated that, "This means that we will not tighten monetary policy solely in response to a strong labor market." (Powell, 2021). Moreover, the framework document itself indicates that "the Committee's *policy decisions* must be informed by assessments of the shortfalls of employment from its maximum level" (emphasis ours).

The second asymmetry in the new framework was a shift from inflation targeting to "flexible average inflation targeting" or FAIT. Specifically, the new framework stated: "In order to anchor longer-term inflation expectations at this level [2 percent], the Committee seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time." (FOMC, 2020)

[2] There are good reasons – e.g., distortionary effects of taxes and monopoly power – for thinking that the maximum sustainable level of employment is below the social optimum (see Barro and Gordon 1983).

As emphasized by both Chair Powell and Vice Chair Clarida, the new framework did not tie the Committee to a particular rule or formula. That is, it did not say over what period inflation should average 2 percent, or how quickly the Committee would aim to offset a period of low inflation with high inflation. This lack of specificity was the "flexible" part of flexible average inflation targeting. The concern was that a specific formula or rule could prove impractical. For example, a strict average inflation target could require the Committee to maintain highly accommodative policy for too long, allowing inflation to rise well above target and risking the Fed's inflation credibility. Alternatively, the Committee might find it difficult to achieve the promised overshoot (as was the case in Japan for many years), which could also harm its credibility.

Another complication is that the new language did not explicitly state that the Committee would be asymmetrical in the application of the flexible average inflation targeting. While it explicitly refers to overshooting after periods of below-target inflation, that comes after a broad statement of seeking a 2 percent average over time. An important clarification came in a subsequent speech by Vice Chair Clarida, who emphasized that the asymmetry of the ELB would lead to inflation that averaged below two percent, and so "to achieve symmetric outcomes for inflation …requires an asymmetric monetary policy reaction function in a low r* world with binding ELB constraints in economic downturns." In January 2022, in response to the spike in inflation over the previous year, Chair Powell was asked at his press conference "Do you want to go [bring inflation] below 2 percent so that, on average, you get a 2 percent inflation rate?" Chair Powell clarified that "there's nothing in our framework about having inflation run below 2 percent so that we would…try to achieve that outcome." In short, the FAIT part of the framework was asymmetric, aimed at the experience over the previous decade with constrained monetary policy at the ELB, a weak and halting recovery, and persistent low inflation.

By focusing the changes to the framework on the experience of the previous decade, the Fed implicitly assumed that it would continue to face soft aggregate demand and inflation that was below target. That assumption created a potential for confusion when, following the pandemic, the monetary policy challenges instead involved supply disruptions and high inflation. In our view, the framework document should be "constitutional" – providing a flexible and robust structure for policymaking that applies in a wide range of circumstances. The framework revisions of 2020 were not robust in this way, as the events following the pandemic made clear.

Indeed, at the December 2021 press conference, Chair Powell was asked how the Committee could judge maximum employment based on inflation, as the framework document seemed to indicate. He replied by backing away from the document, saying that "[t]he inflation that we got was not at all the inflation we were looking for or talking about in the framework…It's nothing to do with our framework. And…the way we've approached it is really nothing to do with our framework" (Federal Reserve, 2021). This response suggests that the framework was not helping the public form appropriate policy expectations in a period of high inflation.

The policy framework needed to be implemented with more careful calibration and communication

In addition to the shortcomings of the overall framework, we see significant problems with the manner in which it was implemented, particularly regarding the use of forward guidance and quantitative easing.

Policy guidance needed to be appropriately conditioned on economic outcomes

Policy guidance can be a powerful tool. Previous studies have demonstrated that guidance on the path of the policy rate can have substantial effects on broad financial conditions and the path of the economy (see, e.g., Campbell et al, 2012; Swanson, 2021). Thus, policy guidance has the potential to facilitate the central bank's efforts to achieve its economic mandate. However, the power of this tool also means that it could have damaging effects on the economy if not deployed in an effective manner.

The use of this tool by central banks can take two different forms. First, if the central bank's policy reaction function is not well understood and the policy path priced into markets is not aligned with that function, then communications can be used to achieve better alignment. Achieving a better public understanding of the policy approach of the central bank should improve economic performance, and in some circumstances correcting that misalignment can push the economy towards the central bank's goals. An example of this was the Fed's efforts to correct an overly hawkish perception of the conditions for policy to lift off from the ELB as the economy recovered from the GFC (see Femia, Friedman, and Sack, 2013).

Central banks at times have used a stronger form of guidance—one that partly commits them to a policy path that could be time inconsistent. By doing so, policymakers can achieve

better economic outcomes in particular circumstances, such as when the ability to ease the currency policy rate is constrained by the ELB (as discussed in Bernanke, 2022). The policy guidance used by the Fed under FAIT can be thought of as a form of this approach.[3] The intention was to convey that the federal funds rate would follow a path intended to create an overshooting of inflation relative to its target, following the period when policy was at the ELB.

The FOMC could have chosen a variety of different forms for the policy guidance used to implement FAIT, as reviewed in detail by Bernanke et al (2022). The guidance that was chosen, and that appeared in the FOMC statement from September 2020 until January 2022, was: "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."

This guidance turned out to be too aggressive, given how economic conditions evolved. It in effect constrained the FOMC from starting the policy tightening cycle until a point when it was far away from the appropriate policy path.

However, it is important to note that the policy guidance did not appear too aggressive at the time it was implemented. If we look at the pricing of 2-year and 5-year overnight index swaps (OIS), the instrument most closely tied to the expected path of the federal funds rate, it is hard to see any market effects around or ahead of the implementation of the policy guidance (Figure 1). Market participants at the time understood that policy was likely to remain at or near the ELB for a very long period because of the economic weakness caused by the Covid pandemic, and the policy guidance, when implemented, was largely seen as consistent with those expectations.

Similarly, inflation expectations, as measured by surveys and market prices, did not show notable concerns from the aggressiveness of the guidance at the time it was implemented. The inflation swaps market was pricing inflation to remain below the Fed's target for every year out to five years at that time. And the primary dealer survey conducted by the New York Fed after the guidance was put in place showed only a 14 percent chance that CPI inflation over the next

[3] Guidance intended to commit the central bank to a time-inconsistent policy path is sometimes referred to as Odyssean guidance, and guidance that provides information about the expected path of policy without tying the central bank's hands in any way is sometimes referred to as Delphic guidance. See Campbell et al (2012) for a discussion.

five years would average above 2.5 percent (only slightly above the Fed's target if one allows for some spread to PCE inflation), which was basically unchanged from surveys conducted earlier in the year. Given this evidence, simply stating that the guidance was "too aggressive" is somewhat misleading.

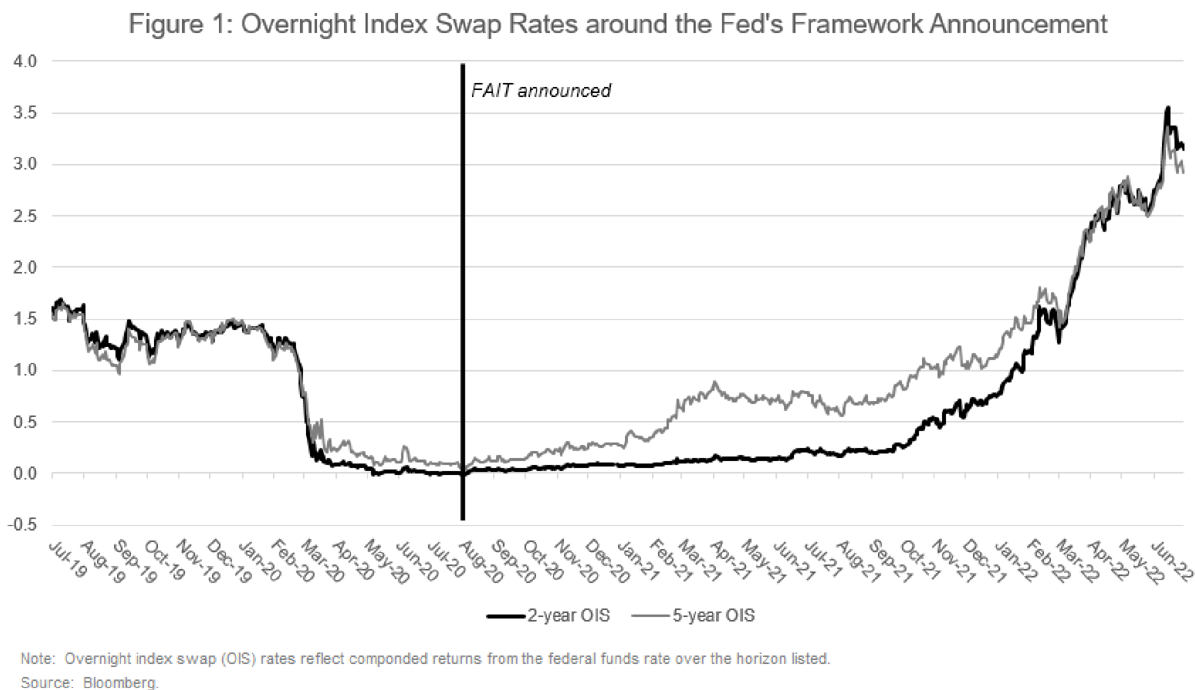


Figure 1: Overnight Index Swap Rates around the Fed's Framework Announcement

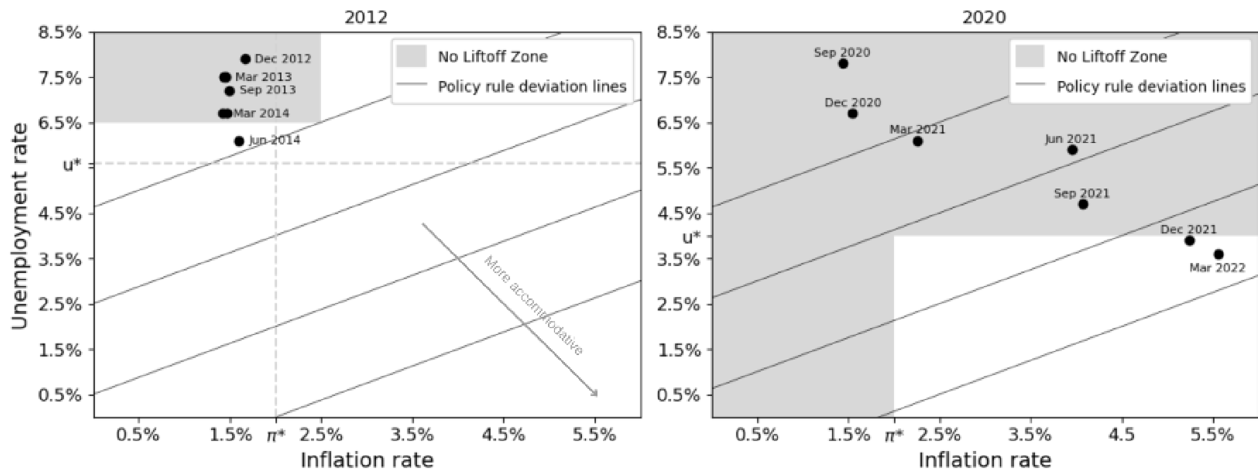
Note: Overnight index swap (OIS) rates reflect componded returns from the federal funds rate over the horizon listed.
Source: Bloomberg.

The true problem with the policy guidance was that it was too rigid in the way it was formulated. In particular, the guidance specified conditions for both employment and inflation that would need to be met before policy would lift off from the ELB. This "and" structure for the economic conditioning stood in contrast to earlier use of guidance and proved severely problematic.

The issue involved can be seen in Figure 2, which shows the conditions required for lift-off across two dimensions—one axis representing the unemployment rate, and the other representing the inflation rate. The guidance defines a "no liftoff" zone for policy that depends on these two variables. But because both conditions had to be met prior to liftoff, this guidance constrains policy in three of the quadrants around the full-employment unemployment rate (u^*) and the inflation target (π^*), as shown in the right panel. Only once the realization of both variables moved out of this zone were the conditions met to move the federal funds rate away from the ELB. Moreover, the guidance was somewhat tighter still, since inflation not only had

to reach π*, but also had to be expected to moderately exceed that level for some time in order to justify liftoff.

Figure 2: Fed Guidance on Policy Rate Liftoff



Note: The 2012 guidance was expressed in terms of the inflation projection 1 to 2 years ahead, while the 2020 guidance was expressed in terms of realized inflation. In both panels, the points represent the realized outcomes for inflation and the unemployment rate. Given the lags in the release of economic data, the 2020 guidance was first known to have been met at the January 2022 FOMC meeting. The 2012 guidance was changed to a more general structure at the March 2014 meeting (and the unemployment threshold that had been in place was not met until the June 2014 meeting).
Source: Federal Reserve, Bureau of Labor Statistics, Bureau of Economic Analysis.

This form of guidance does not put a limit on the amount by which the federal funds rate can deviate from a standard monetary policy rule. The chart shows "policy rule deviation lines" that capture the gap between policy set to the ELB and the rate prescribed by the Fed's balanced-approach rule.[4] The line through (u*, π*) itself reflects an aggressive policy approach, as most policy rules would call for the policy rate to be near its neutral level, rather than near 0 percent, in those circumstances. And as we move to rule-deviation lines further down and to the right, the implied aggressiveness of policy accommodation gets even more substantial. Under this form of guidance, it was possible for the Fed to end up moving quite far in that direction.

Indeed, that is exactly what happened. The outcome that had been intended by the Fed was likely one in which the economy would approach full employment and the inflation target at the same time (without overshooting), which is what the median FOMC member expected to occur roughly three years ahead in the SEP projections made in September 2020. As inflation spiked higher, the economy instead ended up moving substantially to the right in the figure as the unemployment rate declined. However, the economy remained in the no-hike zone because the employment threshold had not yet been met. That meant that the deviation from the balanced approach rule became quite sizable—on the order of 800 basis points (Figure 3). In the words of

[4] For the specification of the balanced-approach rule, see the July *Monetary Policy Report*, page 50.

President Evans, policy was “wrong-footed” as it came into the tightening cycle, and the guidance was the main culprit (Evans, 2022). Eggertson and Kohn (2023) reach similar views, concluding that the guidance used imposed too much inertia on policy and put no limit on how high inflation could go before tightening commenced.[5]

Note the contrast between the 2020 guidance and the conditional guidance used in 2012. That guidance indicated that lift-off could occur once either the unemployment rate fell below 6.5 percent <u>or</u> inflation was expected to exceed 2.5 percent. That earlier guidance therefore created a no-liftoff zone with a very different shape (left panel in Figure 2)—one that, importantly, bounded how large the policy rule deviation could get. The policy rule gap at the time that the lift-off conditions were met was only 100 basis points in that earlier episode (and, indeed, the Committee waited somewhat longer before beginning raising rates).

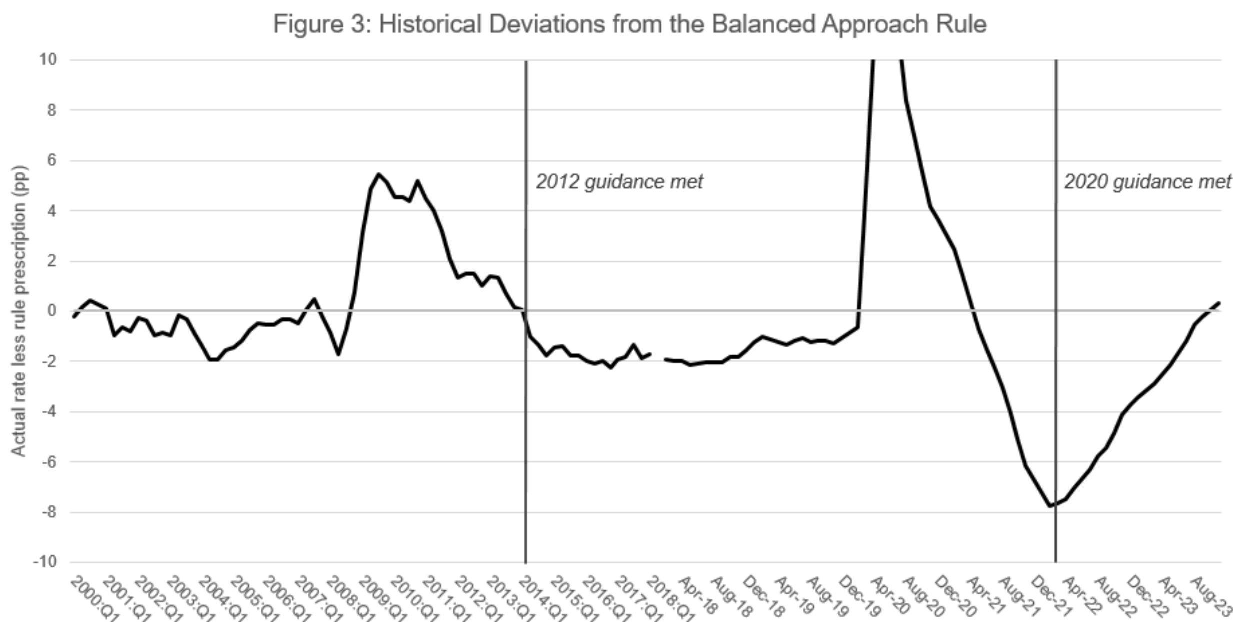


Figure 3: Historical Deviations from the Balanced Approach Rule

Note: Figure switches from quarterly to monthly in 2018, reflecting the presentation of the data in the Monetary Policy Report.
Source: Federal Reserve's Monetary Policy Report.

A reasonable take-away from this period is that policy guidance should involve a form of conditioning on economic outcomes that constrains the amount by which the policy outcome can deviate from a normal policy rule. Such an approach would be a useful guardrail, since we know that those policy rules tend to be stabilizing across a range of economic environments. Guidance

[5] Although we think the policy response to the high inflation was undesirably delayed, the FOMC subsequently tightened policy very rapidly and, by doing so, managed to keep longer-term inflation expectations relatively well anchored. That policy shift was important for bringing inflation back to the 2 percent target.

may well be intended to convey likely deviations from such rules, but it is prudent to put an upper bound on the size of that deviation.

Of course, the FOMC did have an escape hatch, in that the guidance was expressed in terms of Committee expectations for the appropriate policy path, which could presumably change. Moreover, there was a sentence in the fifth paragraph of the policy statement saying, "The Committee would be prepared to adjust the stance of monetary policy as appropriate if risks emerge that could impede the attainment of the Committee's goals." However, this language was boilerplate in nature, and it was relatively far from the actual policy guidance.

In the event, the Committee chose to stick with its guidance. At the December 2021 press conference, Chair Powell noted that: "We also updated our assessment of the progress the economy has made toward the criteria specified in our forward guidance for the federal funds rate. With inflation having exceeded 2 percent for some time, the Committee 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" (Federal Reserve, 2021). The hesitation to abandon the guidance likely reflected a concern that doing so could undermine the credibility of future forward guidance and, presumably, a sense that the Committee could adjust policy later to offset the effects of a slow start to the tightening cycle.

To be clear, in difficult enough policy environments, it could be appropriate to make substantial commitments regarding the future stance of policy. Stronger commitments can generate larger effects on financial conditions, and so can offer greater improvements in economic outcomes. However, the FOMC needs to bear in mind the risks it is taking and fully assess how unexpected economic developments could involve large costs.

Overall, we believe that if the Fed is going to attempt to overshoot the inflation target after ELB periods, then policy guidance can be effective at communicating the intended policy path and constraining (to some degree) the FOMC to follow it. However, it is imperative for the form of the guidance to be sufficiently conditioned on economic outcomes and structured effectively to avoid having policy become excessively easy relative to usual policy norms or contribute to poor economic outcomes if circumstances evolve in an unexpected direction.

QE needed better calibration, communication, and clarity of purpose

The second tool that the Fed relied upon for implementing the FAIT framework was its purchases of Treasury and mortgage-backed securities under the program that began in the spring of 2020. Our general point regarding such programs is a simple one: If the FOMC plans to turn to QE as a policy tool to use at times when its primary instrument is constrained, then it should hold the use of that tool to the same standards that it applies to the primary policy instrument. Most importantly, the FOMC should more carefully calibrate the magnitude of asset purchases and communicate effectively about its reaction function for those purchases.

On calibration, the QE program implemented over the period following the Covid episode appears to have been significantly larger than what was appropriate based on the evolution of the economy. The overall size of the program totaled $4.6 trillion, with purchases continuing at a pace of $120 billion per month until November 2021 and then continuing through a tapering process until March 2022. It will be useful to see the Fed staff exercises that justified this path for the balance sheet once the 2020-2021 FOMC materials are released, but a program of that size seems hard to justify.

The large asset holdings represent a meaningful amount of additional policy accommodation (beyond the near-zero policy rate setting) under the stock-based view of QE effects, and it would be surprising if any reasonable policy rule would have called for that much accommodation over the second half of 2021 and into 2022—a period during which inflation rose to more than 5 percent and the unemployment rate fell to under 4 percent. Indeed, some simple calibrations suggest that the Fed's asset holding had made up for the constraints of the ELB by the first quarter of 2021. By that time, the Fed had added nearly 15 percent of GDP in terms of "ten-year equivalents" to its asset holdings. Estimates in the literature would map that amount into the equivalent of 2 to 3 percentage points of easing with the federal funds rate, which is roughly equal to the shortfall to the balanced-approach rule for the first quarter, as shown in the Monetary Policy Report from July 2021.[6] By the second quarter, the prescription

[6] Converting asset purchase amounts into equivalent federal funds rate movements requires strong assumptions, and the results should be regarded with considerable uncertainty. Here, we make an assumption that is in line with the assessment of the effects of QE3 reported in Engen et al (2015), which is that purchases of 1 percentage point of ten-year equivalents as a share of GDP lower the term premium on the ten-year yield by 5 basis points. That estimate implies that the post-Covid asset purchase program would have lowered the ten-year yield by 75 basis points. Most researchers assume a mapping to the federal funds rate that multiplies this effect by a factor of 3 or 4, since movements in the federal funds rate are expected to revert and thus have a smaller than 1-for-1 effect on long rates.

from the balanced approach rule moved above zero, making it even harder to justify the continuation of asset purchases.[7]

In addition to better calibrating the asset purchases, it would be useful for the FOMC to communicate more extensively about the policy reaction function for that instrument. As noted above, policy is more effective when markets understand the reaction function, and this holds for asset purchases in the same way that it does for the primary policy instrument.

To its credit, the FOMC did provide guidance on the asset purchases beginning in its December 2020 policy statement, saying: "[T]he Federal Reserve will continue to increase its holdings of Treasury securities by at least $80 billion per month and of agency mortgage-backed securities by at least $40 billion per month until substantial further progress has been made toward the Committee's maximum employment and price stability goals." However, these conditioning factors are vague, and there was little interpretation of them offered until the end of the program was imminent.[8]

In order for market participants to have a better understanding of the reaction function for asset purchases, the FOMC likely needs to communicate about it more frequently. To assess the extent of these communications, we applied a natural language processing exercise to all sentences from speeches by Federal Reserve Board members or the New York Fed President from January 2020 to September 2021 and found that references to the federal funds rate path were nearly four times as frequent as references to the balance sheet path. Moreover, the FOMC offers an important quantification of its view for the federal funds rate in the Summary of Economic Projections, but it does not do the same for the balance sheet.

It would also be helpful if the FOMC clearly specified the purpose of a QE program and structured it appropriately given that purpose. QE generally has three purposes that could be considered: 1) to signal about the future path of short-term rates, as an adjunct to forward guidance, 2) to reduce term premiums and loosen financial conditions through the portfolio

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These assumptions together deliver an effect of 2 to 3 percentage points for the equivalent move in the federal funds rate.

[7] A further consideration is that the Fed continued to purchase mortgage-backed securities over this period even though housing demand was very strong and the housing market was becoming overheated by some measures.

[8] Another problem with this guidance was that, as with the rate guidance, the wording requires conditions to be met for both employment and inflation, and hence it was not well suited for a situation in which inflation surged well above target.

balance channel, and 3) to improve market functioning during periods of market stress. In short, we believe that 1 should be crossed off the list, and 2 and 3 should be more clearly differentiated.

QE has substantial shortcomings as a signaling device for the policy rate. First, central banks often like to adjust the pace of purchases or runoffs slowly and predictably to avoid adverse effects on market functioning, but this substantial inertia can make it hard to use purchases as an effective signal of future federal funds rate actions when conditions change rapidly. Second, there are no operational reasons that prevent the Fed from moving the balance sheet and policy rate in different directions, and hence there is no "hard coded" constraint that makes ongoing purchases a signal that the Fed cannot raise the policy rate. And lastly, given that the Fed can provide substantial communications directly about its policy rate, including explicit guidance offered in the FOMC statement and the projection of the appropriate policy path in the SEP, it is unclear why an additional signal from the balance sheet is useful.

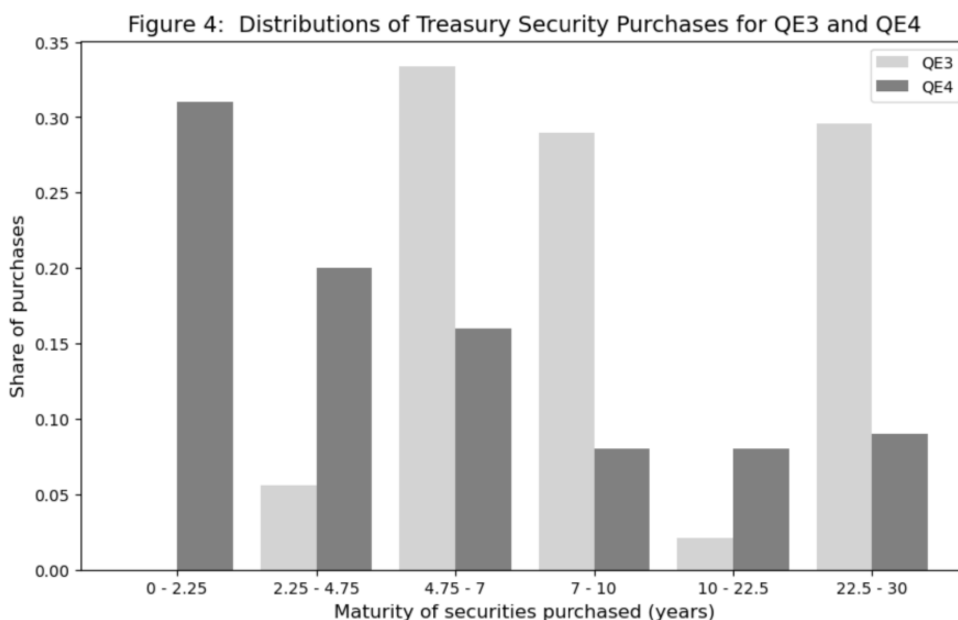
If we leave aside signaling, we can focus on the two primary purposes of QE: policy accommodation and market functioning. The BIS and other central banks have made a strong case that it is best practice for central banks to clearly separate these two purposes, as the different purposes can affect the appropriate structure of the asset purchase programs (see BIS, 2022, and Hauser, 2022). However, the Fed has generally mixed these two purposes together. In explaining the asset purchases initiated in March 2020, the FOMC pointed to the need to support or sustain smooth market functioning. In September 2020, it began to point to both sustaining smooth market functioning and promoting accommodative financial conditions, and it retained this dual purpose through the end of the program. Given this communication, it is impossible to determine how much of the $4.6 trillion asset purchase program was initially aimed at each purpose. Clearly the early parts of the program were aimed more at market functioning, and the latter parts were aimed more at policy accommodation, but the hand-off between them was never clearly delineated.

One could argue that this distinction would not have mattered for the overall size of the program. In this case, market functioning purchases were followed immediately by the policy accommodation part of QE, and that latter part presumably would take into account what was already held and size the remainder accordingly. Moreover, while there are reasons that market functioning purchases can often be held for a shorter period of time, in this case the appropriate

holding period would have shifted longer once the purpose of the asset holdings changed to policy accommodation.

Nevertheless, as a matter of transparency it would have been helpful to note the different objectives as part of the overall calibration of QE. In addition, the distinction might have been important for the appropriate structure of QE. It seems unlikely that the maturity distribution warranted for market-functioning QE was the same as that warranted for policy-accommodation QE, but that is what the Fed ended up implementing given the fuzzy distinction between these purposes. The market functioning QE program included a meaningful share of shorter- and intermediate-term securities, as those were being sold at a rapid clip by market participants for liquidity purposes. Once the Fed transitioned to policy-accommodation QE, it maintained that distribution of purchases across the curve, in contrast to the longer-duration assets purchased in earlier QE programs (Figure 4). It seems questionable that the policy-accommodation portion of QE4 should not have shifted to longer maturities, and a sharper distinction between the two purposes could have facilitated such a shift and generally allowed for more effective communication around the asset purchases.[9]

Figure 4: Distributions of Treasury Security Purchases for QE3 and QE4



Note: The figure shows the share of Fed purchases in the indicated maturity ranges. The figure excludes Treasury inflation-indexed securities, which accounted for 3% of purchases during QE3 and 8% during QE4.
Source: Federal Reserve.

[9] For an example of such evolution, see the Bank of Canada announcement in October 2020. Once market functioning had recovered, the Bank of Canada reduced the pace of its purchases and shifted the remaining purchases toward longer maturities, which have larger effects on the interest rates that matter for business and household spending (Bank of Canada 2020).

To summarize, QE can be a powerful tool when markets are dislocated or when the federal funds rate is constrained by the ELB. However, to make QE as effective as possible, the FOMC needs to calibrate purchases more carefully based on economic developments and also communicate the purpose and likely extent of purchases clearly to the public.

What changes should be made to the Fed's framework?

In the end, it is the Fed's policy tools, and the manner in which they are used and communicated, that matter most for fostering the Fed's goals. As noted earlier, however, the framework document can help support the effectiveness of the tools if it helps the public to understand the way that policymakers will use them in various situations and aligns policy expectations with the intentions of the Committee.

We see the best structure as having a broad policy framework statement that would be appropriate in a wide range of policy environments. While the breadth of the framework may limit what it conveys about policy in specific circumstances, it would be coupled with policy guidance and announcements about asset purchases that would provide the details of the policy approach to be taken by policymakers in any particular case.

Specifically, we would make the following recommendations:[10]

First, we would drop the indication that policy depends on shortfalls from maximum employment rather than deviations from maximum employment. It seems unwise for the Committee to restrict its ability to be preemptive and hence unable to respond to an expectation of overheating. There is considerable evidence that inflation forecast targeting is a useful approach to monetary policy (Svensson, 2020), but such forecasts will depend on the path of employment relative to its maximum level among other factors. The framework should allow for policymakers to respond, while taking appropriate account of their assessments of the costs, benefits, and risks.

The ability to be preemptive with policy and to respond as needed to actual or expected tightness in labor markets could be particularly important following periods when the Fed commits to keeping rates low during ELB episodes in order to ensure that inflation returns to

[10] The Fed's coming review could also cover a range of other topics, including the possible use of a target range for inflation or consideration of other policy tools, such as negative rates. Given considerations of length, we did not consider these topics in this paper.

target over a reasonable period. In those circumstances, the FOMC needs to be able to deploy an appropriate policy rule once its guidance has been satisfied and it is normalizing policy. Particularly if growth is rapid, it should be able to respond to an economy that is nearing or exceeding estimates of maximum sustainable employment, even if inflation has not yet moved higher. Waiting for clear signs of inflation in such cases before imposing tighter policy poses a real risk to the inflation outlook. Indeed, makeup strategies could lead to significant overshooting, and the result could be an unmooring of inflation expectations (English, Lopez-Salido, and Tetlow, 2013). If policymakers are going to create overshooting, they need to be able to modulate it with tight policy if economic growth rebounds strongly and the economy nears estimates of maximum employment.[11]

The second change we would make would be to move from FAIT back to more traditional inflation targeting. The goal of 2 percent average inflation over time is specific and could help the public form expectations for policy. However, it is greatly weakened by the lack of a clear period of averaging, as well as of information on the size and duration of the possible overshooting. Given the lack of specificity, it seems unlikely that this part of the framework document contributes greatly to shaping the public's expectations for policy. Moreover, the shift to average inflation targeting is a potential source of confusion after a period of high inflation.

We believe that the robust components of a framework are a commitment to use the policy instruments aggressively to foster the Fed's objectives and a focus on anchoring longer-run inflation expectations at the Fed's target. The temporary averaging perspective strikes us as having little incremental value relative to those broad principles.

In that context, the Committee could note the importance of being responsive enough to account for the ELB by using language similar to that used by the ECB. After its 2021 strategy review, the ECB Governing Council announced that:

> "The commitment to a symmetric inflation target requires especially forceful or persistent monetary policy action when the economy is close to the effective lower bound, to avoid negative

[11] It could still be useful to indicate in the framework document that the Committee does not see high employment, per se, as a problem to be avoided. Instead, it is a problem because it can lead to higher inflation. Indeed, as emphasized by Don Kohn, that observation could be used to define the Committee's assessment of maximum employment, which is not currently defined in the framework document (Boocker and Wessel, 2024). By maximum employment the Committee presumably means the maximum level of employment that can be sustained without significant cumulative upward pressure on prices. At least at the margin, the Committee would prefer employment above the level that is sustainable, but such levels of employment would have costs in terms of stable prices and so cannot be a goal of policy.

> deviations from the inflation target becoming entrenched. An especially forceful or persistent response to negative deviations is warranted by the need to support the anchoring of longer-term inflation expectations at two per cent, which helps to maintain price stability over the medium term. This implies that faced with large adverse shocks the ECB's policy response will, as appropriate and based on a careful proportionality analysis, include an especially forceful use of its monetary policy instruments. In addition, closer to the effective lower bound, it may also call for a more persistent use of these instruments. This may also imply a transitory period in which inflation is moderately above target." (ECB, 2021)

This language is helpful because it links the use of "especially forceful" policy action and a possible inflation overshoot (that is, a makeup strategy) explicitly to concerns about the ELB. At the same time, it avoids the introduction of "average inflation" with the associated potential for confusion regarding the timing and extent of any overshoot.[12] Instead, it emphasizes that the aim is to keep longer-term inflation expectations anchored at 2 percent, consistent with more traditional inflation targeting, and ties the use of makeup strategies explicitly to the inflation objective of the central bank.

If the FOMC used language like this in its framework document, it could then use forward guidance and announcements of purchase programs to make clear the extent to which an overshoot might be intended in a given situation.[13] That decision could appropriately depend on an assessment of the outlook and the potential costs, benefits, and risks of such an outcome. If an overshoot were intended, it would be helpful for public understanding to show in the SEP what sort of overshooting is envisaged by the Committee participants. That information would help inform market expectations for policy. (Incidentally, we note that the SEP failed to perform this function even in the FAIT regime, presumably because the period of inflation overshooting was expected to occur beyond the forecast horizon. In such circumstances, the Committee

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[12] In this sense, the ECB language is similar to how Vice Chair Clarida described the Fed's FAIT language. He said that the 2 percent average "represents an ex ante aspiration, not a description of a mechanical reaction function" (Clarida, 2020). However, the ECB language is clearer that overshooting may or may not be appropriate, depending on the situation.

[13] The framework could also say, "This commitment could also require especially forceful or persistent policy action when inflation unexpectedly rises to high levels, to avoid positive deviations from the inflation target becoming entrenched." That addition would emphasize the desire to keep expectations anchored and so could help in periods of high inflation, but clearly excludes the possibility of aiming for low inflation after a period of high inflation.

should extend the horizon or provide other information on the anticipated size of the overshoot, in order to provide a more complete view of their policy intentions).

We believe that the aggressive policy response undertaken after the pandemic would have been warranted under the proposed framework. The most important aspect to convey is that the Fed will implement a sufficiently aggressive policy response with the tools available, and not whether we think of that approach as FAIT or just flexible inflation targeting (FIT).

Given the importance of the tools, our third recommendation is to take the opportunity provided by the upcoming review of monetary policy strategy, tools, and communication to consider the implementation of forward guidance and asset purchases in detail. As noted above, we saw several important dimensions along which the implementation of the policy tools during the recent ELB episode could have been improved. Most importantly, the FOMC should ensure that the conditioning of policy guidance on economic outcomes is carefully done and limits the risk of leaving the federal funds rate so far from its appropriate level that it creates substantial policy difficulties, and the Committee should seek to calibrate and structure QE more effectively and communicate more clearly about those decisions.

Taken together, our recommendations would make the framework document more "constitutional." That is, there would be fewer changes to the document in response to the evolution of the economic environment. The five-year review process could then focus primarily on how the framework had been implemented and what aspects of that implementation proved effective or counterproductive. The result would be greater focus on how the Fed's monetary policy tools will be used and communicated going forward.

The Federal Reserve should be commended for its pro-active efforts to assess its monetary policy framework and to make improvements that will better allow it to achieve its economic mandate. Aggressive, proactive monetary policy is important for achieving the Fed's economic mandate and for promoting the economic conditions that benefit everyone, and having the right framework and the best implementation of the available tools are paramount for that purpose.

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