

THE FEDERAL RESERVE'S NEW FRAMEWORK: CONTEXT AND CONSEQUENCES

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This paper discusses the Federal Reserve's new framework and highlights some important policy implications that flow from the revised consensus statement and the new strategy. In particular, it first discusses the factors that motivated the Federal Reserve in November 2018 to announce it would undertake in 2019 the first-ever public review of its monetary policy strategy, tools, and communication practices. It then considers the major findings of the review as codified in our new Statement on Longer-Run Goals and Monetary Policy Strategy and highlights some important policy implications that flow from them.

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MOTIVATION FOR THE REVIEW

As the Federal Open Market Committee (FOMC) indicated from the outset, the fact that the Federal Reserve System chose to conduct this review did not indicate that we believed we had been poorly served by the framework in place since 2012. Indeed, I would argue that over the 2012-2020 period, the framework served us well and supported the

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This paper builds on Clarida (2020a, 2020b, 2021a, 2021b, and 2021c). The views expressed in this paper are my own and not necessarily those of other Federal Reserve Board members or Federal Open Market Committee participants. The author is grateful to Burcu Duygan-Bump and Chiara Scotti for help in preparing this paper, to Kate Lassiter, Ethan Lewis, Nicholas von Turkovich and Laura Wilcox for excellent research assistance and to Christopher Karlsten for outstanding editing help. All errors are the author's own responsibility.

Federal Reserve's efforts after the global financial crisis (GFC) first to achieve and then, for several years, to sustain – until cut short in the spring of 2020 by the Covid-19 pandemic – the operation of the economy at or close to both our statutorily assigned goals of maximum employment and price stability in what became the longest economic expansion in U.S. history. Nonetheless, both the U.S. economy and, equally importantly, our understanding of the economy have clearly evolved along several crucial dimensions since 2012, and we believed that in 2019 it made sense to step back and assess whether, and in what possible ways, we might refine and rethink our strategy, tools, and communication practices to achieve and sustain our goals as consistently and robustly as possible in the global economy in which we operate today and for the foreseeable future.¹

Perhaps the most significant change since 2012 in our understanding of the economy has been the substantial decline in estimates of the neutral real interest rate, r^* , that, over the longer run, is consistent with our maximum-employment and price-stability mandates. Whereas in January 2012 the median FOMC participant projected a long-run r^* of 2.25% and a neutral nominal policy rate of 4.25%, as of December 2021, the median FOMC participant projected a long-run r^* equal to just 0.5%, which implies a neutral setting for the federal funds rate of 2.5%.² Moreover, as is well appreciated, the decline in neutral policy rates since the GFC is a global phenomenon that is widely expected by forecasters and financial markets to persist for years to come.³

The substantial decline in the neutral policy rate since 2012 has critical implications for monetary policy because it leaves the FOMC with less conventional policy space to offset adverse shocks to aggregate demand. This development, in turn, makes it more likely that recessions will impart elevated risks of more persistent downward pressure on inflation and upward pressure on unemployment that the Federal Reserve's monetary policy should, in design and implementation, seek to offset throughout the business cycle and not just in downturns themselves.⁴

Two other, related developments that have also become more evident than they appeared in 2012 are that price inflation seems less responsive to resource slack, and also, that estimates of resource slack based on historically estimated price Phillips curve relationships are less reliable and subject to more material revision than was once commonly believed.⁵ For example, in the face of declining unemployment rates that did not result in excessive cost-push pressure to price inflation, the median of the Committee's projections of u^* – the rate of unemployment consistent in the longer run with the 2% inflation objective – has been repeatedly revised lower, from 5.5% in January 2012 to 4% as of

the December 2021 Summary of Economic Projections (SEP).⁶ Projections of u^* by the Congressional Budget Office and professional forecasters show a similar decline during this same period and for the same reason.⁷ In the past several years of the previous expansion, declines in the unemployment rate occurred in tandem with a notable and welcome increase in real wages that was accompanied by an increase in labor's share of national income, but not a surge in price inflation to a pace inconsistent with our price-stability mandate and well-anchored inflation expectations. Indeed, this pattern of mid-cycle declines in unemployment coincident with noninflationary increases in real wages has been evident in the U.S. data since the 1990s.⁸

With regard to inflation expectations, there is broad agreement among academics and policymakers that achieving price stability on a sustainable basis requires that inflation expectations be well anchored at the rate of inflation consistent with the price-stability goal. The pre-GFC academic literature derived the important result that a credible inflation-targeting monetary policy strategy that is not constrained by the effective lower bound (ELB) can deliver, under rational expectations, inflation expectations that themselves are well anchored at the inflation target.⁹ In other words, absent a binding ELB constraint, a policy that targets actual inflation in these models delivers long-run inflation expectations well anchored at the target “for free.” But this “copacetic coincidence” no longer holds in a world of low r^* in which adverse aggregate demand shocks are expected to drive the economy in at least some downturns to the ELB. In this case, economic analysis indicates that flexible inflation-targeting monetary policy cannot be relied on to deliver inflation expectations that are anchored at the target, but instead will tend to deliver inflation expectations that, in each business cycle, become anchored at a level below the target.¹⁰ This downward bias in inflation expectations under inflation targeting in an ELB world can in turn reduce already scarce policy space – because nominal interest rates reflect both real rates and expected inflation – and it can open up the risk of the downward spiral in both actual and expected inflation that has been observed in some other major economies.

Inflation expectations are, of course, not directly observed and must be imperfectly inferred from surveys, financial market data, and econometric models. Each of these sources contains noise as well as signal, and they can and sometimes do give contradictory readings. But, at minimum, the failure of actual PCE (personal consumption expenditures) inflation – core or headline – over the 2012-2020 period to reach the 2% goal on a sustained basis cannot have contributed favorably to keeping inflation expectations anchored at 2%. Indeed, my reading of

the evidence during this period is that the various measures of inflation expectations I follow resided at the low end of a range I consider consistent with our 2% inflation goal.

THE NEW STATEMENT AND STRATEGY

On August 27, 2020, the FOMC unanimously approved a revised Statement on Longer-Run Goals and Monetary Policy Strategy that represents a robust evolution of its monetary policy framework.¹¹

There are six key elements behind our new framework and the forward guidance provided since the September 2020 FOMC statement. Five of these elements define how the Committee will seek to achieve its price-stability mandate over time, while the sixth pertains to the Committee's conception of its maximum-employment mandate. Of course, the Committee's price-stability and maximum-employment mandates are generally complementary, and, indeed, this complementarity is recognized and respected in the forward-guidance language introduced in the September 2020 FOMC statement.¹² However, for ease of exposition, I will begin by focusing on the five elements of the new framework that define how the Committee will seek to achieve over time its price-stability mandate:

- the Committee expects to delay liftoff from the ELB until PCE inflation has risen to 2% on an annual basis and other complementary conditions, consistent with achieving this goal on a sustained basis and to be discussed later, are met¹³;

- with inflation having run persistently below 2%, the Committee will aim to achieve inflation moderately above 2% for some time in the service of having inflation average 2% over time and keeping longer-term inflation expectations well anchored at the 2% longer-run goal¹⁴;

- the Committee expects that appropriate monetary policy will remain accommodative for some time after the conditions to commence policy normalization have been met¹⁵;

- policy will aim over time to return inflation to its longer-run goal, which remains 2%, but not below, once the conditions to commence policy normalization have been met¹⁶;

- inflation that averages 2% over time represents an *ex ante* aspiration of the FOMC, but not a time-inconsistent *ex post* commitment.¹⁷

As I highlighted in Clarida (2020b, 2021a), I believe that a useful way to summarize the framework defined by these five features is temporary price-level targeting (TPLT, at the ELB) that reverts to flexible inflation targeting (once the conditions for liftoff have been reached). Just such a framework has been analyzed by Bernanke *et al.*

(2019) and Bernanke (2020), who in turn build on earlier work by Reifschneider and Williams (2000), Eggertsson and Woodford (2003) and Evans (2012), among many others.

A policy that delays liftoff from the ELB until a threshold for average inflation has been reached is one element of a TPLT strategy. Starting with our September 2020 FOMC statement, we communicated that inflation reaching 2% is a necessary condition for liftoff from the ELB.¹⁸ The FOMC also indicated in these statements that the Committee expects to delay liftoff until inflation is “on track to moderately exceed 2% for some time”. What “moderately” and “for some time” mean will depend on the initial conditions at liftoff (just as they do under other versions of TPLT), and the Committee’s judgment on the projected duration and magnitude of the deviation from the 2% inflation goal will be communicated in the quarterly SEP for inflation.

Our new framework is asymmetric. That is, as in the TPLT studies cited earlier, the goal of monetary policy after lifting off from the ELB is to return inflation to its 2% longer-run goal, but not to push inflation below 2%, and the desired pace of return to 2% can reflect considerations other than the 2% longer-run goal for inflation that are relevant to the Committee’s mandate. In the case of the Federal Reserve, we have highlighted that making sure that inflation expectations remain anchored at our 2% objective is just such a consideration. I follow closely the Fed staff’s index of common inflation expectations (CIE) – which is now updated quarterly on the Board’s website – as a relevant indicator that this goal is being met.¹⁹ Other things being equal, my desired pace of policy normalization post liftoff to return inflation to 2% would be somewhat slower than otherwise if the CIE index at the time of liftoff is below the pre-ELB level.

Our framework aims *ex ante* for inflation to average 2% over time but does not make a commitment to achieve *ex post* inflation outcomes that average 2% under any and all circumstances. The same is true for the TPLT studies I cited earlier. In these studies, the only way in which average inflation enters the policy rule is through the timing of liftoff itself. Yet in stochastic simulations of the FRB/US model under TPLT with a one-year memory that reverts to flexible inflation targeting after liftoff, inflation does average very close to 2% in the stochastic simulations reported in Bernanke *et al.* (2019). The model of Mertens and Williams (2019) delivers a similar outcome: Even though the policy reaction function in their model does not incorporate an *ex post* makeup element, it delivers a long-run (unconditional) average rate of inflation equal to target by aiming for a moderate inflation overshoot away from the ELB that is calibrated to offset the inflation shortfall caused by the ELB.

THE NEW FRAMEWORK AND MAXIMUM EMPLOYMENT

An important evolution in our new framework is that the Committee now defines maximum employment as the highest level of employment that does not generate sustained pressures that put the price-stability mandate at risk.²⁰ As a practical matter, this definition means that, when the unemployment rate is elevated relative to my SEP projection of its long-run level, monetary policy should, as before, continue to be calibrated to eliminate such employment shortfalls as long as doing so does not put the price-stability mandate at risk. Indeed, since our September 2020 FOMC statement, we have indicated that we expect it will be appropriate to keep the federal funds rate in the current 0 to 25 basis point target range until inflation has reached 2% (on an annual basis) and labor market conditions have reached levels consistent with the Committee's assessment of maximum employment. In our new framework, when, in a business cycle expansion, labor market indicators return to a range that, in the Committee's judgment, is broadly consistent with its maximum-employment mandate, it will be data on inflation itself that policy will react to, but going forward, policy will not tighten solely because the unemployment rate has fallen below any particular econometric estimate of its long-run natural level.

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This guidance has an important implication for the Taylor-type policy reaction function I will consult. In particular, I will continue – as I have done since joining the Fed – to consult policy rules that respect the Taylor principle as a benchmark for calibrating the pace and destination of policy rate normalization once, after the inflation and employment thresholds have been reached, the process of policy normalization commences. Consistent with our new framework, the relevant policy rule benchmark I will consult after the conditions for liftoff have been met is an inertial Taylor-type rule with a coefficient of zero on the unemployment gap, a coefficient of 1.5 on the gap between core PCE inflation and the 2% longer-run goal, and a neutral real policy rate equal to my SEP projection of long-run r^* . As discussed earlier, the degree of inertia in the benchmark rule I consult will depend on initial conditions at the time of liftoff, especially the reading of the staff's CIE index relative to its February 2020 level. Such a reference rule, which becomes relevant once the conditions for policy normalization have been met, is similar to the forward-looking Taylor-type rule for optimal monetary policy derived in Clarida *et al.* (1999). The stability properties of Taylor-type rules in dynamic stochastic general equilibrium models have been studied by Bullard and Mitra (2002) and Galí (2008), among others, and they show that for the standard Taylor

coefficient of 1.5 on the inflation gap and a coefficient of zero on the unemployment gap, the rational expectations equilibrium is unique for standard parametrizations.

*IMPLICATIONS FOR MONETARY POLICY
IN THE CURRENT MACRO ENVIRONMENT*

As of December 2021, indicators of economic activity and employment reveal that the U.S. economy has continued to strengthen following the catastrophic collapse in economic activity in the first half of 2020 as a result of the global pandemic and the mitigation efforts put in place to contain it. Real gross domestic product (GDP) rose at a strong 6.5% pace in the first half of 2021, and growth is widely expected to continue at a robust, though somewhat slower, pace in the second half of the year. If so, GDP growth in the 2021 calendar year could be the fastest since 1983, despite a surge in Covid-19 cases in the summer and supply chain bottlenecks that held back economic activity in the third quarter.

Core PCE inflation since February 2020 – a calculation window that smooths out any base effects resulting from “round trip” declines and rebounds in the price levels of Covid-19 sensitive sectors and, coincidentally, also measures the average rate of core PCE inflation since hitting the ELB in March 2020 – was running at a 3% annual pace through October 2021, and that reading is well above what I would consider to be a moderate overshoot of our 2% longer-run goal for inflation. Fully reopening the \$20 trillion economy is essentially taking longer and has cost more than it did to shut it down. In particular, the reopening has been characterized by significant sectoral shifts in both aggregate demand and supply, and these shifts have been causing widespread bottlenecks and triggering substantial changes in the relative price and wage structure of the economy. A similar reopening dynamic has been playing out in other advanced economies, such as Canada and the United Kingdom. As these relative price adjustments work their way through the economy, measured inflation rises. But I continue to believe that the underlying rate of inflation in the U.S. economy is hovering close to our 2% longer-run objective and, thus, that the unwelcome surge in inflation in 2021, once these relative price adjustments are complete and bottlenecks have unclogged, will in the end prove to be largely transitory under appropriate monetary policy. Looking ahead, I note that, as shown in the most recent SEP, released in December 2021, inflation is projected to remain above 2% in all years of the projection window. As such, the SEP median inflation

projections for 2022 and 2023 are pointing to an inflation forecast that looks to be “on track to moderately exceed 2% for some time”, the threshold specified in the FOMC statement.

As with overall economic activity, conditions in the labor market have also continued to improve. Job gains as measured by the payroll survey have continued to be robust over the past few months. Labor market progress this year, as measured by the Kansas City Fed’s Labor Market Conditions Indicators, has been notable, with this index of 24 labor market indicators closing its shortfall relative to its pre-pandemic level. Nonetheless, factors related to the pandemic, such as caregiving obligations and ongoing fears of the virus, continue to weigh on employment and participation. Thus, the course of the labor market and, indeed, that of the economy continue to depend on the course of the virus, though my expectation today is that the labor market by the end of 2022 will have reached my assessment of maximum employment if the unemployment rate has declined by then to the SEP median of modal projections of 3.5%.

Given this outlook and so long as inflation expectations remain well anchored at the 2% longer-run goal – which, based on the Fed staff’s CIE index, I judge at present to be the case and which I project will remain true over the forecast horizon – commencing policy normalization in 2022 would, under these conditions, be entirely consistent with our new flexible average inflation targeting framework. I note that under the December 2021 SEP median of modal projections, annualized PCE inflation since the new framework was adopted in August 2020 is projected to average 3.6% through year-end 2022 and 3.2% through year-end 2023.

In the context of our new framework, while the ELB can be a constraint on monetary policy, the ELB is not a constraint on fiscal policy, and appropriate monetary policy under our new framework, to me, must – and certainly can – incorporate this reality. Indeed, under present circumstances, I judge that the support to aggregate demand from fiscal policy – including the roughly \$2 trillion in accumulated excess savings accruing from (as yet) unspent transfer payments – in tandem with appropriate monetary policy, can fully offset the constraint, highlighted in our Statement on Longer-Run Goals and Monetary Policy Strategy, that the ELB imposes on the ability of an inflation-targeting monetary policy, acting on its own and in the absence of sufficient fiscal support, to restore, following a recession, maximum employment and price stability while keeping inflation expectations well anchored at the 2% longer-run goal.²¹

CONCLUSION

The Federal Reserve's new flexible average inflation targeting framework is a combination of TPLT at the ELB with flexible inflation targeting, to which TPLT reverts once the conditions to commence policy normalization articulated in our September 2020 FOMC statement have been met. In this sense, our new framework indeed represents an evolution, not a revolution. Importantly, even as the economy we face now looks different than when we set out to do the framework review, we think the new framework is set to serve us well. While supply and demand imbalances related to the pandemic and the reopening of the economy are contributing to elevated levels of inflation at the moment, several of the factors that motivated the review still stand, including the substantial decline in estimates of the r^* . The FOMC is committed to using all available tools, including threshold-based forward guidance as well as large-scale asset purchases, to achieve the price-stability and maximum-employment goals specified in our new consensus statement.

NOTES

1. For a discussion of the elements that motivated the launch of the review and of how the previous policy framework had served us, see Clarida (2020a). See also Powell (2020).
2. The most recent Summary of Economic Projections, released following the conclusion of the September 2021 FOMC meeting, is available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>. See Chair Powell's address in Jackson Hole, Wyoming (Powell, 2020), for an illustration of the revisions to the macroeconomic projections – including for the longer-run neutral federal funds rate – of FOMC participants as well as private and public forecasters. The downward revisions to r^* over time have been informed, in part, by the general fall in interest rates and by econometric evidence that suggests that this fall is of a permanent rather than a cyclical nature. See, among many contributors, Hamilton *et al.* (2016), Laubach and Williams (2016), Del Negro *et al.* (2017), Johannsen and Mertens (2018), and López-Salido *et al.* (2020). For discussions of the various factors that might have contributed to this fall, see Fischer (2016) and Rachel and Smith (2017).
3. For evidence on the global nature of the decline in r^* , see King and Low (2014), Holston *et al.* (2017), Wynne and Zhang (2018), and Del Negro *et al.* (2019). For a discussion of global considerations for U.S. monetary policy, see Obstfeld (2020).
4. For pre-GFC discussions of the macroeconomic consequences of policy rates being constrained by the ELB, see Krugman (1998), Eggertsson and Woodford (2003), and Adam and Billi (2007). For the GFC and its aftermath, using a time-series approach, Eberly *et al.* (2020) estimate that, in the absence of the ELB constraint, the labor market recovery would have proceeded at a significantly more rapid pace than was observed, whereas core inflation would have been only modestly higher because of inflation's limited sensitivity to resource slack. Using a DSGE (dynamic stochastic general equilibrium) approach, the mean estimates of Gust *et al.* (2017) suggest that a binding ELB accounted for about 30 percent (roughly 2% points) of the 6% contraction in GDP in 2009 relative to the peak in 2007 and was responsible for an even larger fraction of the ensuing slow recovery.
5. For evidence of a flattening of the slope of the Phillips curve in the United States and abroad, see, among others, Simon *et al.* (2013), Blanchard *et al.* (2015) and Pfajfar and Roberts (2018). The

difficulties in assessing shortfalls from maximum employment using measures of the unemployment rate have motivated researchers to explore alternative approaches. See Abraham *et al.* (2020) for an approach based on the job search and matching framework. See also the staff discussion of various concepts of unemployment rate benchmarks by Crump *et al.* (2020), which was prepared as part of background materials for the framework review.

6. The large degree of uncertainty attached to estimates of r^* , of u^* , the slope of the (short-run) Phillips curve, and other key economic objects adds additional risk-management considerations in the conduct of monetary policy, especially in a low r^* environment in which the federal funds rate is likely to be constrained by the effective lower bound. See Powell (2019) for a discussion of the implications for monetary policy and Clarida (2020a). See also the model-based analyses of Erceg *et al.* (2018), Ajello *et al.* (2020), and Hebden *et al.* (2020).

7. See Powell (2020) for an illustration. See also Caldara *et al.* (2020) for a discussion of how repeated surprises in macroeconomic forecasts affect inference about the appropriate stance of policy.

8. See Clarida (2016, 2019), Heise *et al.* (2020), and Feroli *et al.* (2021) for discussions.

9. See Bernanke *et al.* (1999) for a review of the considerations that led to the adoption of inflation-targeting frameworks and the early international experience. See Svensson (1997), Clarida *et al.* (1999), and Woodford (2003) for conceptual treatments of inflation targeting, including of rational expectations.

10. See Bianchi *et al.* (2019) and Mertens and Williams (2019).

11. The Statement on Longer-Run Goals and Monetary Policy Strategy is available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-statement-on-longer-run-goals-monetary-policy-strategy.htm>.

12. The September 2020 FOMC statement says: "The Committee decided to keep the target range for the federal funds rate at 0 to ¼ 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." (paragraph 4). The statement is available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>.

13. The Statement on Longer-Run Goals and Monetary Policy Strategy articulates the inflation objective: "The Committee reaffirms its judgment that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate." (paragraph 4). The September 2020 FOMC statement indicates the conditions for liftoff (see note 12).

14. The September 2020 FOMC statement reads: "With inflation running persistently below this longer-run goal, the Committee will aim to achieve inflation moderately above 2% for some time so that inflation averages 2% over time and longer-term inflation expectations remain well anchored at 2%." (paragraph 4). A similar sentence appears in the Statement on Longer-Run Goals and Monetary Policy Strategy.

15. The September 2020 FOMC statement reads: "The Committee seeks to achieve maximum employment and inflation at the rate of 2% over the longer run. With inflation running persistently below this longer-run goal, the Committee will aim to achieve inflation moderately above 2% for some time so that inflation averages 2% over time and longer-term inflation expectations remain well anchored at 2%. The Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved." (paragraph 4).

16. The Statement on Longer-Run Goals and Monetary Policy Strategy articulates the inflation objective (see note 13).

17. The Statement on Longer-Run Goals and Monetary Policy Strategy says: "In order to anchor longer-term inflation expectations at this level, the Committee seeks to achieve inflation that averages 2% over time, and therefore judges that, following periods when inflation has been running persistently below 2%, appropriate monetary policy will likely aim to achieve inflation moderately above 2% for some time." (paragraph 4).

18. This condition refers to inflation on an annual basis. TPLT with such a one-year memory has been studied by Bernanke *et al.* (2019).

19. See Ahn and Fulton (2020) for a discussion of the CIE index and Ahn and Fulton (2021) for a link to the regular update.

20. The Statement on Longer-Run Goals and Monetary Policy Strategy articulates this concept with the following: “The maximum level of employment is a broad-based and inclusive goal that is not directly measurable and changes over time owing largely to nonmonetary factors that affect the structure and dynamics of the labor market. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee’s policy decisions must be informed by assessments of the shortfalls of employment from its maximum level, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments” (paragraph 3).

21. For a theoretical analysis of the fiscal and monetary policy mix at the ELB, see Woodford and Xie (2020). For studies of the government expenditure multiplier at the ELB, see Christiano *et al.* (2011), Eggertsson (2011) and Woodford (2011).

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