

MARCH 26, 2018

Thoughts on a Long-Run Monetary Policy Framework: Framing the Question

"Should the Fed stick with the 2 percent inflation target or rethink it?" This was the very good question posed in [a special conference hosted by the Brookings Institution](#) this past January. Over the course of roughly two decades prior to the global financial crisis, a consensus had formed among monetary-policy experts and practitioners the world over that something like 2 percent is an appropriate goal—maybe even the optimal goal—for central banks to pursue. So why reconsider that target now?

The answer to that question starts with another consensus that has emerged in the aftermath of the global financial crisis. In particular, there is now a widespread belief that, once monetary policy has fully normalized, the federal funds rate—the Federal Open Market Committee's (FOMC) reference policy rate—will settle significantly below historical norms.

Several of my colleagues have spoken cogently about this phenomenon, which is often cast in terms of concepts like r^* , the natural rate of interest, the equilibrium rate of interest, or (in the case of my colleague [Jim Bullard](#)), r -dagger. I like to think in terms of the "neutral" rate of interest; that is, the level of the policy rate consistent with the FOMC meeting its longer-run goals of price stability and maximum sustainable growth. In other words, the level of the federal funds rate should be consistent with 2 percent inflation, the unemployment rate at its sustainable level, and real gross domestic product at its potential.

Estimates of the neutral policy rate are subject to imprecision and debate. But a reasonable notion can be gleaned from the range of projections for the long-run federal funds rate reported in the Summary of Economic Projections (SEP) released just after last week's FOMC meeting. According to the [latest SEP](#), neutral would be in a range 2.3 to 3.0 percent.

For some historical context, in the latter half of the 1990s, as the 2 percent inflation consensus was solidifying, the neutral federal funds rate would have been pegged in a range of something like 4.0 to 5.0 percent, roughly 2 percentage points higher than the range considered to be neutral today.

The implication for monetary policy is clear. If interest rates settle at levels that are historically low, policymakers will have limited scope for cutting rates in the event of a significant economic downturn (or at least more limited scope than they had in the past). I think it's fair to say that even relatively modest downturns are likely to yield policy reactions that drive the federal funds rate to zero, as happened in the Great Recession.

My view is that the nontraditional tools deployed after December 2008, when the federal funds rate effectively fell to zero, were effective. But it is accurate to say that our experience with these tools is limited, and the effectiveness of those tools remains controversial. I join the opinion that, all else equal, it would be vastly preferable to conduct monetary policy through the time-tested approach of raising and lowering short-term policy rates, if such an approach is available.

This point is where the challenge to the 2 percent inflation target enters the picture. The neutral rate I have been describing is a *nominal rate*. It is roughly the sum of an inflation-adjusted real rate—determined by fundamental saving and investment decisions in the global economy—and the rate of inflation. The downward drift in the neutral rate I have been describing is attributable to a downward drift in the inflation-adjusted real rate. A great deal of research has documented this phenomenon, such as some [influential research](#) by San Francisco Fed president John Williams and Thomas Laubach, the head of the monetary division at the Fed's Board of Governors.

In the long run, a central bank cannot reliably control the real rate of interest. So if we accept the following premises...

- A neutral rate that is too low to give the central bank enough room to fight even run-of-the-mill downturns is problematic;
- Cutting rates is the optimal strategy for addressing downturns; and
- The real interest rate is beyond the control of the central bank in the long run

...then we must necessarily accept that raising the neutral rate, thus affording monetary policymakers the desired rate-cutting scope when needed, would require raising the long-run inflation rate. Hence the argument for rethinking the Fed's 2 percent inflation target.

But is that the only option? And is it the best option?

The answer to the first question is clearly no. The purpose of the Brookings Institution sessions is addressing the pros and cons of the different strategies for dealing with the low neutral rate problem, and I commend them to you. But in upcoming [macroblog](#) posts, I want to share some of my thoughts on the second question.

Tomorrow, I will review some of the proposed options and explain why I am attracted to one in particular: price-level targeting. On Wednesday, I will propose what I think is a potentially useful model for implementing a price-level targeting scheme in practice. I want to emphasize that these are preliminary thoughts, offered in the spirit of stimulating the conversation and debate. I welcome that conversation and debate and look forward to making my contribution to moving it forward.









By [Raphael Bostic](#), president and chief executive officer of the Atlanta Fed


MARCH 27, 2018

Thoughts on a Long-Run Monetary Policy Framework, Part 2: The Principle of Bounded Nominal Uncertainty

In [yesterday's macroblog](#) post, I discussed one of the central monetary policy questions of the day: Is the possibility of hitting the lower bound on policy rates likely to be an issue for the Fed going forward, do we care, and—if we do—what can we do about it?

The answers to the first questions are, in my opinion, yes and yes. That's the easy part. The last question—what can we do about it?—is the hard part. In the end, this is a question about the framework for conducting monetary policy. The menu of options includes:

1. **Raising**   the Federal Open Market Committee's (FOMC) longer-run inflation target;
2. **Maintaining**   the current policy framework, including the 2 percent longer-run inflation target, relying on unconventional tools when needed;
3. **Targeting**  the growth rate of nominal gross domestic product;
4. Adopting an inflation rate with flexible inflation targets that are adjusted based on the state of the economy (a relatively recent entry to the list [suggested by Boston Fed president Eric Rosengren](#) );
5. Price-level targeting.

[Chicago Fed president Charles Evans](#), [San Francisco Fed president John Williams](#), and former Federal Reserve chairman [Ben Bernanke](#) , among others, have advocated for some version of the last item on this list of options. I am going to add myself to the list of people sympathetic to a policy framework that has a form of price-level targeting at its center.

I'll explain my sympathies by discussing principles that are central to my thinking.

First, I think the Fed's commitment to the long-run 2 percent inflation objective has served the country well. I recognize that the word "commitment" in that sentence might be more important than the specific 2 percent target value. But credibility and commitment imply objectives that, though not immutable, rarely change—and then only with a clear consensus on a better course. With respect to changing the 2 percent objective as a longer-run goal, my feet are not set in concrete, but they are in pretty thick mud.

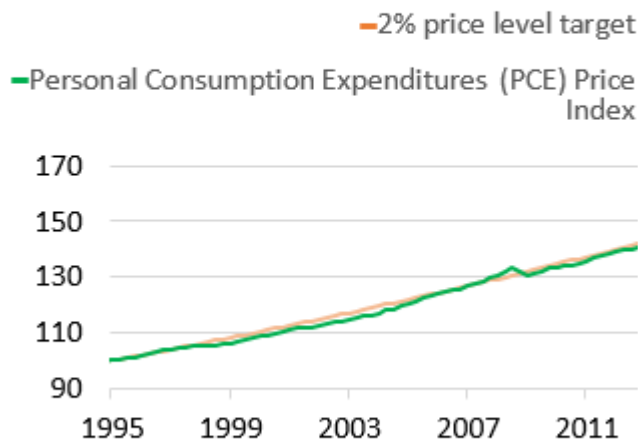
Second, former Fed chairman Alan Greenspan offered a well-known definition of what it means for a central bank to succeed on a charge to deliver price stability. Paraphrasing, Chairman Greenspan suggested that the goal of price stability is met when households and business ignore inflation when making key economic decisions that affect their financial futures.

I agree with the Greenspan definition, and I believe that the 2 percent inflation objective has helped us meet that criterion. But I don't think we have met the Greenspan definition of price stability solely because 2 percent is a sufficiently low rate of inflation. I think it is also critical that deviations of prices away from a path implied by an average inflation rate of 2 percent have, in the United States, been relatively small.

Here's how I see it: until recently, the 2 percent inflation objective in the United States has essentially functioned as a price-level target centered on a 2 percent growth path. The orange line in the chart below shows what a price-level path of 2 percent growth would have been over the period from 1995 to 2012. I chose to begin with 1995 because it arguably began the Fed's era of inflation targeting. Why does the chart end in 2012? I'll get to that tomorrow, when I lay out a specific hypothetical plan.

The Actual Path of the Price Level: 1995-2012

Inflation performance against a hypothetical 2 percent price-level target Index (1995q1=100)



Sources: U.S. Bureau of Economic Analysis, Atlanta Fed calculations, Haver Analytics

The green line in the chart is the actual path of the price level, as measured by the price index for personal consumption expenditures. The chart explains what I mean when I say the FOMC effectively delivered on a 2 percent price-level target. Over the period depicted in this chart, the price level did not deviate much from the 2 percent path.

I believe the inflation outcome apparent in the chart is highly desirable. Why? Because the resulting price-level path satisfies what I will call the “principle of bounded nominal uncertainty.” In essence, the principle of bounded nominal uncertainty means that if you save a dollar today you can be “reasonably confident” about what the real value of that saving will be in the future.

For example, suppose that in January 1995 you had socked away \$1 in cash that you intended to spend exactly five years later. If you believed that the Fed was going to deliver an average annual inflation rate of 2 percent over this period, you’d expect that dollar to be worth about 90 cents in real purchasing power by January 2000. (Recall that cash depreciates at the rate of inflation—I didn’t say this was the best way to save!)

In fact, because the price level’s realized path over that time hewed very closely to the expected 2 percent growth path, the actual value of the dollar you saved would have been very close to the 90 cents you expected. And this, I think, epitomizes a reasonable definition of price stability. If you and I enter into a contract to exchange a dollar at some future date, we can confidently predict within some range that dollar’s purchasing power. Good monetary policy, in my view, will satisfy the principle of bounded nominal uncertainty.

This is the starting point of my thinking about a useful monetary policy framework—and how I think about price-level targeting generally. Tomorrow, I will expand on this thought and offer a specific example of how a price-level target might be put into operation in a way that is both flexible and respectful of the principle of bounded nominal uncertainty.



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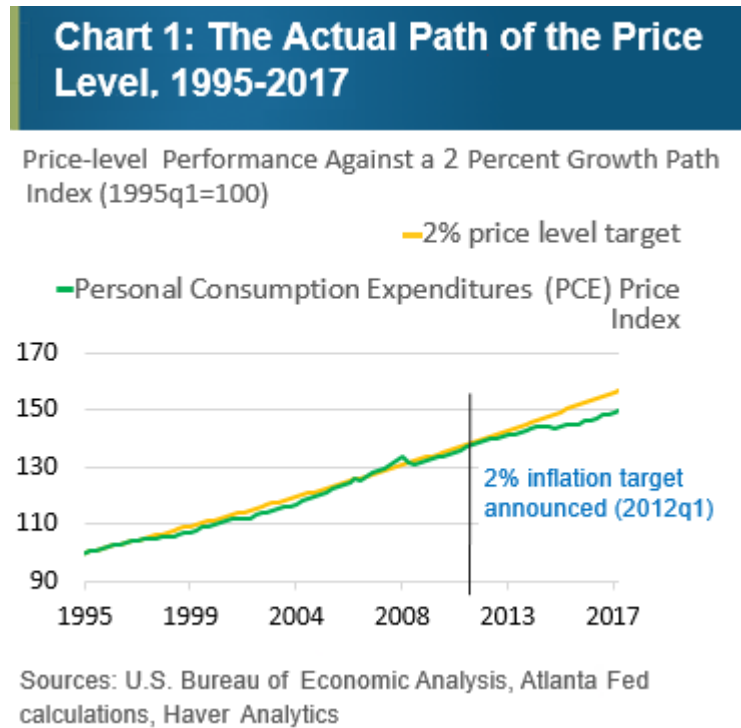
MARCH 28, 2018

Thoughts on a Long-Run Monetary Policy Framework, Part 3: An Example of Flexible Price-Level Targeting

I want to start my discussion in this post with two points I made in the previous two *macroblog* posts ([here](#) and [here](#)). First, I think a commitment to delivering a relatively predictable price-level path is a desirable feature of a well-constructed monetary framework. Price stability is in my view achieved if people can have confidence that the purchasing power of the dollars they hold today will fall within a certain range *at any date in the future*.

My second point was that, as a matter of fact, the Federal Open Market Committee (FOMC) delivered on this definition of price stability during the years 1995–2012. (The FOMC formally adopted its 2 percent long-run inflation target in 2012.)

If you are reading this blog, you're almost certainly aware that since 2012, the actual personal consumption expenditures (PCE) inflation rate has persistently fallen short of the 2 percent goal. That, of course, means that the price level has fallen increasingly short of a reference 2 percent path, as shown in chart 1 below.

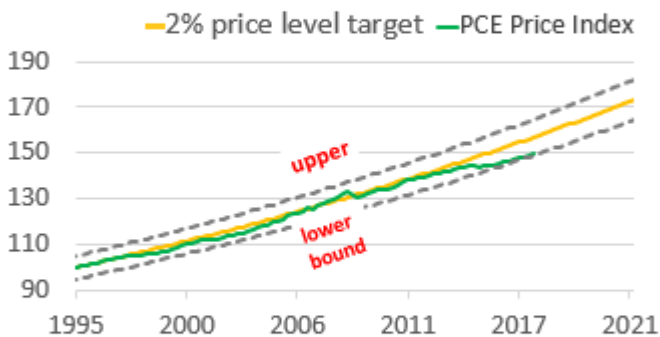


Is this deviation from the price-level path a problem? The practical answer to that question will depend on how my proposed definition of price stability is implemented.

By way of example, let's suppose that the FOMC commits to conducting monetary policy in such a way that the price level will always fall within plus-or-minus 5 percent of the long-run target path (which itself we define as the path implied by a constant 2 percent inflation rate). This policy—and how it relates to the actual path of PCE price inflation—is illustrated in chart 2.

Chart 2: A Hypothetical Flexible Price-Level Target

Price-level Performance Against a 2 Percent Growth Path Index (1995q1=100)



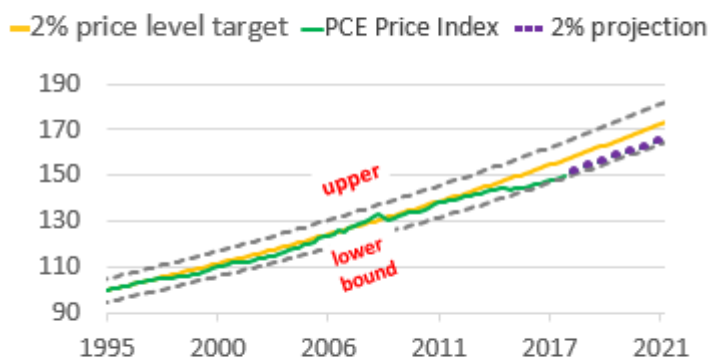
Note: Upper and lower bound are illustrated as plus or minus 5 percent of a 2 percent price-level target.

Sources: U.S. Bureau of Economic Analysis, Atlanta Fed calculations, Haver Analytics

So would inflation falling short of the 2 percent longer-run goal be a problem if the Fed was operating within the framework depicted in chart 2? In a sense, the answer is no. The current price level would be within the bounds of a hypothetical commitment made in 1995. If the central bank could perpetually deliver 2 percent annual inflation, that promise would remain intact, as shown in chart 3.

Chart 3: A Hypothetical Flexible Price-Level Target

Price-level Performance Against a 2 Percent Growth Path Index (1995q1=100)



Note: Upper and lower bound are illustrated as plus or minus 5 percent of a 2 percent price-level target.

Sources: U.S. Bureau of Economic Analysis, Atlanta Fed calculations, Haver Analytics

Of course, chart 3 depicts a forward path for prices whose margin for error is quite slim. Continued inflation below 2 percent would, in short order, push the price level below the lower bound, likely requiring a relatively accommodative monetary policy stance—that is, if policymakers sought to satisfy a commitment to this framework's definition of price stability.

Central bankers in risk management mode might opt for policies designed to deliberately move the price level toward the 2 percent average inflation midpoint in cases where the price level moves too close for the Committee's comfort to one of the bounds (as, perhaps, in chart 3). It bears noting that in such cases there are a wide range of options available to policymakers with respect to the timing and pace of that adjustment.

This scenario illustrates the *flexibility* of the price-level targeting framework I'm describing. I think it's important to think in terms of gradual adjustments that don't risk whipsawing the economy or force the central bank to be overly precise in its short-run influence on inflation and economic activity. A key feature of such a policy framework includes considerable short- and medium-run flexibility in inflation outcomes.

But the other key feature is that the framework limits that same flexibility—that is, it satisfies the principle of bounded nominal uncertainty. Suppose you and another person agree that you will receive a \$1 payment in 10 years in exchange for a service provided today. If the inflation rate over this 10-year period is exactly 2 percent per year, then the real value of that dollar in goods and services would be 82 cents.

In my example (the one with a plus-or-minus 5 percent bound on the price level), monetary policymakers have essentially committed that the agreed-upon payment would not result in real purchasing power of less than 78 cents (and the payer could be confident that the real purchasing power relinquished would not be more than 86 cents).

The crux of my argument is that a "good" monetary policy framework limits the degree of uncertainty associated with contracts involving transfers of dollars over time. In limiting uncertainty, monetary policy contributes to economic efficiency.

The 5 percent bound I chose for my illustration is obviously arbitrary. The magnitude of the acceptable deviations from the price-level path would be a policy decision. I'm not sure we know a whole lot about what range of deviations from an expected price path contributes most consistently to economic efficiency. A benefit of the framework I am describing is that it would focus research, discussion, and debate squarely on that question.

This series of posts is going on hiatus for a few days. Tomorrow, the Atlanta Fed is going to release its 2017 Annual Report, and I certainly don't want to steal its thunder. And Friday, of course, will begin the Easter weekend for many people.

But I want to conclude this post by emphasizing that the framework I am describing is more of a refinement of, and not a competitor to, many of the framework proposals I discussed in Monday's post. This is an important point and one that I will turn to in the final installment of this series, to be published next Monday.



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APRIL 02, 2018

Thoughts on a Long-Run Monetary Policy Framework, Part 4: Flexible Price-Level Targeting in the Big Picture

In the [second post](#) of this series, I enumerated several alternative monetary policy frameworks. Each is motivated by a recognition that the Federal Open Market Committee (FOMC) is likely to confront future scenarios where the effective lower bound on policy rates comes into play. Given such a possibility, it is important to consider the robustness of the framework.

My previous *macroblog* posts have focused on one of these frameworks: price-level targeting of a particular sort. As I hinted in the [part 3 post](#), I view the specific framework I have in mind as a complement to, and not a substitute for, many of the other proposals that are likely to be considered. In this final post on the topic, I want to expand on that thought, considering in turn the options listed in part 2.

1. Raising the FOMC's longer-run inflation target

The framework I described in part 3 was constructed to be consistent with the FOMC's current long-run objective of 2 percent inflation. But nothing in the structure of the plan I discussed would bind the Committee to the 2 percent objective. Obviously, a price-level target line can be constructed for any path that policymakers choose. The key is to have such a target and coherently manage monetary policy so that it achieves that target. The slope of the price-level path—that is, the underlying long-run inflation rate—is an entirely separate issue.

2. Maintaining the 2 percent longer-run inflation target and policy framework more or less as is, relying on unconventional tools when needed

As noted, the flexible price-level targeting example I discussed in part 3 was constructed with a long-run 2 percent inflation rate as the key benchmark. In that regard, it is clearly consistent with the Fed's current inflation goal.

Further, a central question in the current framework is how to interpret a goal of 2 percent inflation in the longer run. One interpretation is that the central bank aims to deliver an inflation rate that *averages* 2 percent over some period of time. Another interpretation is that the central bank aims to deliver an inflation rate that *tends toward* 2 percent, letting bygones be bygones in the event that realized inflation rates deviate from 2 percent.

The bounded price-level targets I have presented do not force a particular answer to the question I raise, and both views can be supported within the framework. Hence, the framework is consistent with whichever view the FOMC might adopt. The only caveat is that deviations from 2 percent cannot be so large and persistent that they push the price level outside the target bounds.

As to the problem of the federal funds rate falling to a level that makes further cuts infeasible, nothing in the notion of a price-level target rules out (or demands) any particular policy tool. If anything, bounded price-level targets could expand the existing toolkit. They certainly do not constrain it.

3. Targeting nominal gross domestic product (GDP) growth

Targeting nominal GDP growth, which is the sum of real GDP growth and the inflation rate, represents a deviation from the price-level targeting I have described. In this framework, the longer-run rate of inflation depends on the longer-run rate of real GDP growth.

To see how this works, consider the period from 2003 to 2013. In 2003, the [Congressional Budget Office](#) projected an average annual potential GDP growth rate of 2.9 percent over the next 10 years. Had there been a nominal GDP growth target of 5 percent at this time, the implicit annualized inflation target would have been just over 2 percent. However, current CBO estimates indicate that actual potential GDP growth over this period averaged just 1.5 percent, which would suggest an inflation target of 3.5 percent. As data came in and policymakers saw this lower level of growth, they would have responded by shifting upward the implicit inflation target.

For advocates of using a nominal GDP target, shifting inflation targets is a key feature and not a bug, as it allows policy to adjust in real time to unforeseen cyclical and structural developments. What nominal GDP targeting doesn't satisfy is the principle of bounded nominal uncertainty. Eventually, price-level bounds that are set with an assumed potential real growth path will be violated if shifts in potential growth are sufficiently large. The appeal of nominal GDP targeting depends on how one weighs the benefits of inflation-target flexibility against the costs of price-level uncertainty inherent in that framework.

4. Adopting flexible inflation targets that are adjusted based on economic conditions

Recently, my colleague Eric Rosengren, president of the Boston Fed, offered a proposal ([here](#) and [here](#)) that has some of the flavor of nominal GDP targeting but differs in important respects. Like nominal GDP targeting, President Rosengren's framework would adjust the target inflation rate given structural shifts in the economy. However, if I understand his idea correctly, the FOMC would deliberate specifically on the desired rate of inflation and adjust the target within a predetermined range.

Relying on the target's appropriate range opens the possibility of compatibility between President Rosengren's framework and the one I presented. Policymakers could use price-level targeting concepts in developing a range of policy options given the state of the economy. The breadth of the range of options would depend on the bounds the FOMC felt represented an acceptable degree of price-level uncertainty.

Summing all of this up, then—to me, the important characteristic of a sound monetary policy framework is that it provides a credible nominal anchor while maintaining flexibility to address changing circumstances. I think some form of flexible price-level targeting can be a part of such a framework. I look forward to a robust and constructive debate.



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