

Considerable Period of Time: The Case of Signaling Future Policy

by Charles T. Carlstrom and Timothy S. Fuerst

During Alan Greenspan's tenure, the increase in the communication and transparency of FOMC decisions has been remarkable. Prior to 1994, the FOMC did not even announce its target for the federal funds rate, leaving markets to infer it from subsequent open market operations. Yet since February 1994, the FOMC has issued a statement after each meeting indicating the funds rate target decided upon during that meeting. In December 1998, the FOMC also began to include in its statement the current "bias," indicating possible behavior of future policy. In December 1999, this forward-looking behavior was modified to include a "balance of risk" assessment. This forward-looking policy statement was then amplified after the August 2003 meeting in which the FOMC introduced the now famous "considerable-period" language, stating that "the Committee believes that policy accommodation can be maintained for a considerable period." In January 2004, this outlook was weakened slightly when the FOMC stated that "the Committee believes that it can be patient in removing its policy accommodation." Finally, in June 2004, the language was again modified to indicate that the FOMC would start increasing rates, but that this policy accommodation would be removed at a "measured pace."

This *Commentary* looks at one possible rationale for forward-looking language in FOMC communications. In particular, we analyze advantages of the "considerable-period-of-time" language and suggest why the FOMC may have decided to introduce this statement after the August 2003 meeting.

■ Deflation and the Zero Nominal Interest Rate Bound

One troubling development in the economic environment around the time the considerable-period language was introduced was the possibility of deflation (negative inflation rates). Figure 1 shows that inflation had fallen from 3 percent at the beginning of 2001 to nearly 1 percent by mid-2003. There was a general concern that if the inflation trend continued there could be deflation. Although the probability of an actual deflation was considered small, many were concerned that the costs of deflation were potentially large. Figure 1 also shows that the Committee responded by continually decreasing the funds rate through the meeting on June 25, 2003, at which point the funds rate had dropped to an unprecedented 1 percent.

The possibility of deflation remained, but since nominal rates cannot fall below zero, there was the added concern that little additional monetary stimulus was available if the FOMC needed it. In other words, a 1 percent funds rate is only a few policy moves away from zero. Because of this limited downward maneuverability, there was a reluctance to decrease the funds rate any further. But even if the current funds rate is kept constant, there is another policy tool at the FOMC's disposal: the ability to influence market expectations of future policy movements.

■ Signaling the Future to Influence Today

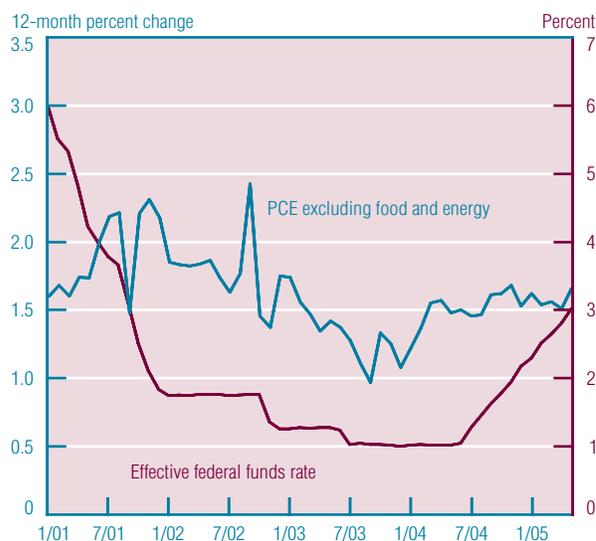
Policymakers have limited tools with which they can influence inflation and output. The most obvious tool is the current federal funds rate. But there is another tool: anticipated future movements in the funds rate, which affect

There has been a remarkable increase in FOMC communication over the last decade. Perhaps the most dramatic change was the inclusion of language indicating the possible direction of future policy. One example is the now famous "considerable-period" language that was inserted in August 2003. This forward-looking language was remarkable in that it seemingly signaled the Committee's intention to keep rates low for an extended period. This *Commentary* analyzes the reasons behind the "considerable-period-of-time" language, and it argues that such language was important to stem further declines in inflation since the funds rate was already close to its lower bound of zero.

inflation and output today. That is, the FOMC can either change the current funds rate or draft language in the policy statement that is meant to influence expectations about future changes in the funds rate, or both.

But how do anticipations of future policy influence what happens today? For one, longer-term rates are heavily dependent on the future course of shorter-term rates. For example, the interest rate on a two-year loan is closely linked to the four six-month interest rates that are expected to arise over these two years. Secondly, household consumption and business-investment decisions are influenced by longer-term interest rates such as one-year commercial loans, four-year car loans, and fifteen-year mortgages. The federal funds rate is a very short-term

FIGURE 1 CORE PCE AND EFFECTIVE FEDERAL FUNDS RATE



SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Board of Governors of the Federal Reserve System, "Selected Interest Rates," H.15, Federal Statistical Releases.

FIGURE 2 TAYLOR RULE AND FEDERAL FUNDS RATE



SOURCES: Board of Governors of the Federal Reserve System, "Selected Interest Rates," H.15, Federal Reserve Statistical Releases. The formula for the Taylor rule is from Sharon Kozicki, "How Useful Are Taylor Rules for Monetary Policy?" Federal Reserve Bank of Kansas City, *Economic Review*, 1999:IIQ.

rate, an overnight rate. But if the FOMC can signal its intentions to maintain a funds-rate reduction for a long, or "considerable," period of time, such a signal of future short-term rates will lead to a reduction in longer-term rates. This reduction in longer-term rates will stimulate output and also increase inflation.

■ August 2003 and the Need for Credibility

Let us use the preceding analysis to think about the FOMC's decisionmaking in August 2003. Recall that (1) the funds rate was at 1 percent, a level that left

little downward maneuverability, and (2) many feared the possibility of a deflation. How is a deflation to be avoided if the current funds rate is not an available tool? The FOMC could put downward pressure on longer-term rates by signaling its intention of keeping the short-term rate (the federal funds rate) low for a considerable period of time. If such a signal was believed, this policy announcement would be stimulative today and thus ward off the potential deflation.

It is important to emphasize the need for central-bank credibility for such a policy announcement to work. The central bank can influence market anticipations of future central-bank policy only if it usually follows through on its announcements. If the FOMC's actual policy behavior systematically deviates from previous policy announcements, then the central bank will lose its ability to influence expectations. But there is a cost to such credibility. If the FOMC can deliver better outcomes in the fall of 2003 by announcing policy moves for the spring of 2004, then the cost of such an announcement comes due in the spring of 2004 when these previous announcements must be fulfilled. Of course, such announcements are not firm promises but more likely a portrayal of the intentions of the Committee if the economy unfolds as expected.

■ A Quantitative Analysis

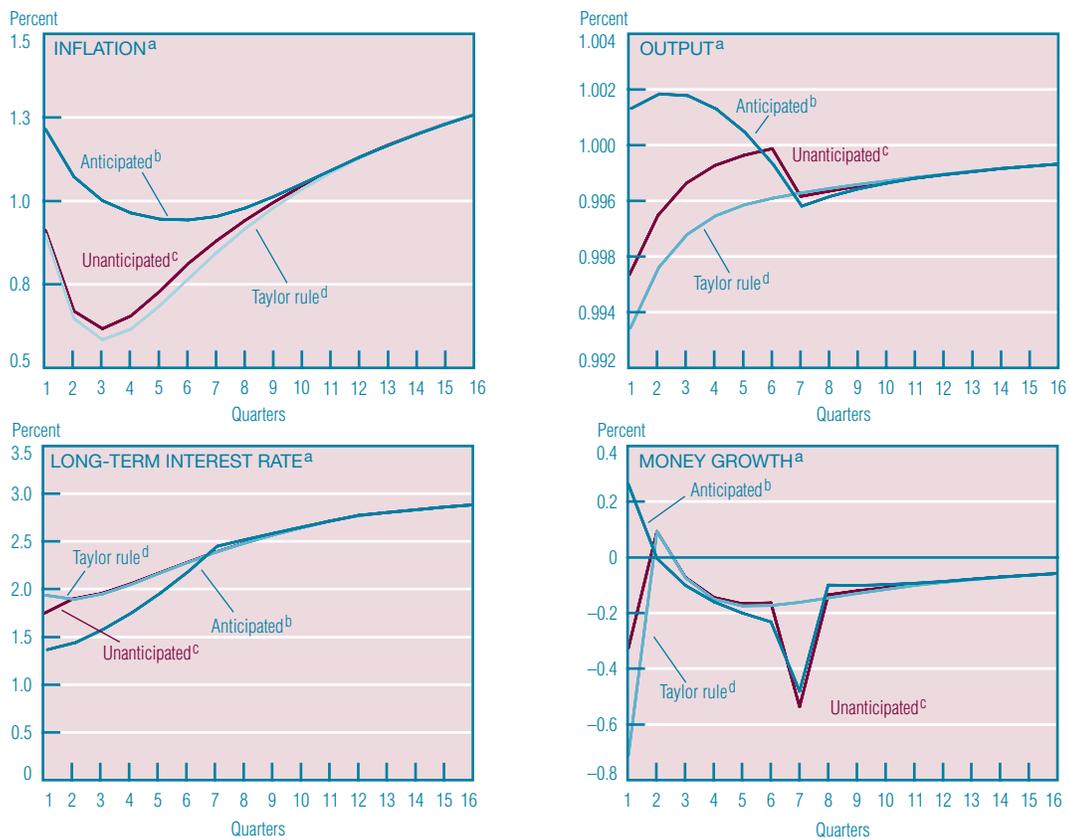
The remainder of this *Commentary* will use a model to quantitatively examine the size of these announcement effects. The previous discussion suggests that announcing a sustained accommodative policy is more stimulative than an accommodative policy that is not announced. But how large are these differences?

The exercise that follows is meant to loosely mimic the economy during the summer of 2003. We assume that the economy experiences a series of demand disturbances that lower both inflation and output. The exact nature of this shock is not important, but such a shock would give the central bank a rationale for stimulating the economy. Without these shocks, we assume that the long-run inflation target is 1.5 percent, and the long-run nominal funds rate is set at 3.3 percent.

We examine three policy scenarios. In the first, we assume that the central bank conducts policy according to a standard Taylor rule that posits that the funds rate should increase whenever inflation and output increase, and it should decrease if both decrease. If one goes up and the other goes down, the response of the federal funds rate should depend on the relative strength of each. Figure 2 graphs the behavior of the actual real funds rate and the funds rate that is predicted by the Taylor rule. For the purposes of this *Commentary*, we will treat the funds rate predicted by the Taylor rule as neutral and consider reductions from it as accommodative policy.

In 1993, John Taylor proposed that the behavior of the funds rate since 1986 can reasonably be described by a relatively simple formula, now known as the Taylor rule. The rule assumes that the central bank increases the federal funds rate when the inflation rate or output growth or both are larger than the central bank's target range. A neutral funds rate is difficult to estimate since it should change with economic conditions. In our theoretical model, we treat the federal funds rate suggested by the Taylor rule as neutral.

FIGURE 3 SIMULATING THE IMPACT OF A PERSISTENT FUNDS RATE CUT



a. Simulations for the anticipated and unanticipated experiments are the model's responses to policy being kept 175 basis points below the Taylor rule for six quarters. Author's simulations.
 b. Anticipated implies that the public understands and anticipates that monetary policy will deviate from the Taylor rule for six quarters.
 c. Unanticipated implies that the public believes that monetary policy will be conducted according to a Taylor rule, but instead the funds rate is unexpectedly kept below the Taylor rule.
 d. The formula for the Taylor rule is from Sharon Kozicki, "How Useful Are Taylor Rules for Monetary Policy?" Federal Reserve Bank of Kansas City, *Economic Review*, 1999:IIQ.
 SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Labor, Bureau of Labor Statistics; Board of Governors of the Federal Reserve System, "Selected Interest Rates," H.15, Federal Reserve Statistical Releases.

In the second policy scenario, the central bank is accommodative, lowering the funds rate 175 basis points below the Taylor rule prescription. This accommodation is assumed to be in place for six quarters, our version of a "considerable period" of time. In this scenario, we assume that the Committee issues a statement indicating that this "policy accommodation can be maintained for a considerable period," and it is sufficient to condition expectations so that market participants fully anticipate this future path of the funds rate.

In the third policy scenario, this six-quarter accommodation occurs but is not anticipated. This is meant to crudely mimic what would have happened if the FOMC had followed the same path for interest rates as it did in the second scenario, but market participants instead anticipated that the accommodation would not last and that the funds rate

would return to the Taylor rule prescription in the next period. This is our attempt to indicate how effective policy might have been if forward-looking language had not been issued by the FOMC. The key question is whether output and inflation react more in response to a series of *anticipated* or *unanticipated* funds-rate movements.

Figure 3 shows the results of these experiments. The output and inflationary consequences are much stronger when the policy accommodation is anticipated compared to when it is unanticipated. Because of the demand shock, the baseline Taylor rule has inflation declining to less than 1 percent (recall that the long-run level is 1.5 percent). When the accommodative policy is unanticipated, inflation barely increases above this path. But when the policy is anticipated, the initial decline in inflation is only to 1.2 percent. The

gap between the inflation rate in the anticipated-versus-unanticipated experiment peaks in excess of 0.4 percent. While both the anticipated and the unanticipated accommodation do increase output compared to the baseline Taylor rule, the effect is four times larger when the accommodation is anticipated.

When a policy change is anticipated, two effects occur. First, any impact, since it is anticipated, is moved forward in time. Thus, inflation increases immediately because interest rates are expected to be lower in the future. This immediate increase in inflation also feeds into output. But making the policy anticipated does more than just move the eventual impact forward; it magnifies these effects as well. Inflation remains substantially higher when the policy change is anticipated than it does when it is unanticipated. These results demonstrate the advantage of announced accommodation.

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By signaling a persistent decline in the funds rate below the Taylor rule level, the central bank is able to avoid a larger drop in inflation and output than would arise under either a Taylor rule with no accommodation or an unanticipated accommodation from the rule.

The stimulative impact of the anticipated accommodation can be seen in at least two ways: the long-term interest rate and money growth. Figure 3 shows the behavior of the two-year nominal interest rate under the three policy scenarios. In the baseline Taylor rule, this long-term rate falls from its steady state of 3.3 percent to 1.9 percent. When the 175 basis point policy accommodation is unanticipated, this rate falls a bit further to 1.7 percent. But we get the largest impact on the long-term rate when policy accommodation is anticipated: the long-term rate falls to 1.4 percent. This larger decline in the long-term rate leads to more stimulus to inflation and output.

The initial money-growth rate necessary to achieve the interest rate target is much different in the two experiments. Money growth is positive when accommodation

is anticipated and negative when it is not. This is because the larger output response for a given quantity of nominal money puts upward pressure on the real interest rate when the policy accommodation is anticipated. Therefore, to push the nominal and real rates down, the money supply has to respond sharply when the policy change is expected to remain in effect for six quarters. In the unanticipated experiment, output actually declines (because of the negative demand shock) so that the central bank must contract the money supply to achieve the interest rate target.

■ Conclusions

Perhaps one of the most dramatic changes during Greenspan's tenure as chairman was the clear indication about future policy intentions. The "considerable-period-of-time" language starting with the August 2003 meeting is the most stark example of the Committee deciding to signal these intentions. Given that interest rates could not be reduced much more because of the inability of nominal interest rates to fall below zero, such forward-looking language was important to stem the decline in inflation.

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