

## Ben S Bernanke: Central bank talk and monetary policy

Remarks by Mr Ben S Bernanke, Member of the Board of Governors of the US Federal Reserve System, at the Japan Society Corporate Luncheon, New York, 7 October 2004.

*The references for the speech can be found on the Board of Governors of the Federal Reserve System's website.*

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A few days before the last meeting of the Federal Open Market Committee (FOMC), I noticed a wire service story about the upcoming meeting with the following headline: "It's Not What They Do, It's What They Say." The story alluded to the fact that, with a 25-basis-point increase in the federal funds rate target at the FOMC meeting being widely anticipated, financial-market participants planned to focus their attention instead on the statement that would accompany the announcement of the rate decision. In doing so, they hoped to garner information about the FOMC's outlook and policy intentions that might prove useful in pricing fixed-income securities and other assets. Indeed, it has not been uncommon in the past few years for financial markets to react more strongly to changes in the wording of the Committee's statement than to its decision about the target for the federal funds rate itself.

The increased prominence of the FOMC's post-meeting statement is best understood as the latest step in a journey toward greater transparency and openness on the part of the Committee. This increase in transparency is highly welcome, for many reasons. Perhaps most important, as public servants whose decisions affect the lives of every citizen, central bankers have a responsibility to provide the public as much explanation of those decisions as possible, so long as doing so does not compromise the decisionmaking process itself. A more open policymaking process is also likely to lead to better policy decisions, because engagement with an informed public provides central bankers with useful feedback in the form of outside views and analyses. Beyond the basic rationales of democratic accountability and engagement with the public, however, open and clear communication by the policy committee - which in practice includes speeches and congressional testimony by FOMC members, as well as official statements - makes monetary policy more effective in at least three distinct ways.

First, in the very short run, clear communication helps to increase the near-term predictability of FOMC rate decisions, which reduces risk and volatility in financial markets and allows for smoother adjustment of the economy to rate changes. Indeed, the three recent rate hikes by the FOMC were so well anticipated that financial markets hardly responded when those actions were announced.

Second, in the long run, communicating the central bank's objectives and policy strategies can help to anchor the public's long-term expectations - most importantly, its expectations of inflation. Public confidence that inflation will remain low in the long run has numerous benefits. Notably, if people feel sure that inflation will remain well controlled, they will be more restrained in their wage-setting and pricing behavior, which (in something of a virtuous circle) makes it easier for the Federal Reserve to confirm their expectations by keeping inflation low. At the same time, by reducing the risk that inflation will come loose from its moorings, well-anchored inflation expectations may afford the central bank more short-term flexibility to respond to economic disturbances that affect output and employment.

The third way in which clear and open communication enhances the effectiveness of monetary policy - the channel that will be the focus of my remarks today - is by helping to align financial-market participants' expectations about the future course of monetary policy more closely with the policy committee's own plans and projections. As I will discuss, to the extent that central bank talk provides useful guidance to markets about the likely future path of short-term interest rates, policymakers will exert greater influence over the longer-term interest rates that most matter for spending decisions. At the same time, expanding the information available to financial-market participants improves the efficiency and accuracy of asset pricing. Both of these factors enhance the effectiveness and precision of monetary policy.

In the remainder of my remarks I will elaborate on the usefulness of central bank communication as a means of informing the policy expectations of financial-market participants and the public more generally. In doing so, I will discuss some new empirical evidence on the effects of central bank communication policies in both the United States and Japan, drawn from a recent paper I prepared with two Federal Reserve colleagues. Before proceeding, however, I should say that the views I

express today are not necessarily those of my colleagues on the Federal Open Market Committee or in the Federal Reserve System more generally.

### Communication and the effectiveness of monetary policy

Although people often speak of the Federal Reserve as controlling interest rates, in fact the Fed directly affects only one very short-term and (in the scheme of things) relatively unimportant interest rate, the federal funds rate. As you may know, the federal funds rate is the interest rate at which commercial banks lend each other reserves for short periods, usually overnight. Other than managers of bank reserves and some other traders in short-term funds, few people in the private sector have much interest in the funds rate *per se*. In particular, most private-sector borrowing and investment decisions depend not on the funds rate but on longer-term yields, such as mortgage rates and corporate bond rates, and on the prices of long-lived assets, such as housing and equities. Moreover, the link between these longer-term yields and asset prices and the current setting of the federal funds rate can be quite loose at times. It is striking, for example, that even as the FOMC has raised its target for the federal funds rate by 75 basis points in its three meetings since June, the yield on ten-year Treasury securities has fallen by almost the same amount during that period. This unusual recent movement in longer-term yields contrasts with most previous Fed tightening cycles, in which long-term yields typically rose, sometimes quite dramatically.

Although the relation between the FOMC's setting of the federal funds rate and the more economically relevant long-term yields is hardly direct or mechanical, a critical connection does exist. The connection operates less through the current value of the funds rate, however, than through the interest-rate actions that the FOMC is expected to take in the future. Specifically, financial theorists and market practitioners concur that, with risk and term premiums held constant, long-term yields move closely with the expectations that financial-market participants hold about the *future* evolution of the funds rate and other related short-term rates. For example, all else being equal, if short-term rates are expected to be high on average over the relevant period, then longer-term yields will tend to be high as well. Were that not the case, investors would profit by holding a sequence of short-term securities and declining to hold long-term bonds, an outcome inconsistent with the requirement that, in equilibrium, all securities must be willingly held. Likewise, if future short-term rates are expected to be low on average, then long-term bond yields will tend to be low as well.

The fact that long-term yields depend at least as much on expected future values of the federal funds rate as on its current setting helps to explain the recent behavior of long-term bond yields to which I alluded a moment ago. This June, concerns about inflation, together with a general belief that economic growth would continue to be strong, led bond traders to anticipate that the Fed would tighten policy relatively quickly. Because the funds rate was expected to rise at a comparatively rapid pace, longer-term yields were well above short-term rates; in other words, the term structure of interest rates sloped steeply upward.

Since June, however, inflation fears have receded, and some financial-market participants have become less optimistic about the economy's near-term growth prospects. Because of these changes in their outlook, market participants now expect the FOMC to proceed more slowly in its tightening than they did in June.<sup>1</sup> Moreover, with inflation now expected to remain low, market participants may anticipate a lower short-term interest rate to prevail in the long run. With expectations of future short-term rates revised downward, bond yields have declined, and the slope of the term structure is much less steep than it was a few months ago.

I hope that this brief discussion is sufficient to convince you that the current setting of the federal funds rate provides at best only partial information about the overall tightness or ease of monetary conditions. To assess whether monetary policy is providing net stimulus or restraint to spending and the economy, one needs to know not only the current value of the funds rate but also the expected future path of the funds rate, as priced in financial markets.

But how are private-sector expectations of the FOMC's future policy actions formed in the first place? We come now to the nub of why central bank communications are so important. Without guidance

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<sup>1</sup> By the way, my statements about what the markets expect are not guesses. As I discuss later, various futures markets, such as the federal funds futures market and the Eurodollar futures market, provide useful information about how market participants expect the federal funds rate to evolve over the next couple of years.

from the central bank, market participants can do no better than form expectations based on the average past behavior of monetary policymakers, a strategy that may be adequate under some or even most circumstances but may be seriously misguided in others. In contrast, when the monetary policy committee regularly provides information about its objectives, economic outlook, and policy plans, two benefits result. First, with more complete information available, markets will price financial assets more efficiently. Second, the policymakers will usually find that they have achieved a closer alignment between market participants' expectations about the course of future short-term rates and their own views. By guiding market expectations in this way, the policy committee attains increased influence over the most economically relevant long-term yields, reduced financial and economic uncertainty, and, in all probability, better economic outcomes.

These potential benefits have not been lost on Federal Reserve policymakers. Certainly, the development of the FOMC's post-meeting statement over the past decade suggests an increasing awareness of the practical advantages of increased transparency and communication. As hard as it may be to imagine, given the prominence afforded to FOMC statements today, before 1994 the FOMC issued no post-meeting statement, not even an announcement of its decision about the federal funds rate. Instead, in most instances, the Committee signaled its decision to financial markets only indirectly through the open-market operations used to affect the rate.<sup>2</sup> In February 1994, the FOMC began to release statements to note changes in its target for the federal funds rate but continued to remain silent after meetings with no policy changes. Statements have been released after every meeting only since May 1999.

The FOMC statements have evolved considerably. In their current form, they provide a brief description of the state of the economy and a somewhat formulaic description of the so-called balance of risks with respect to the outlook for output growth and inflation. The "balance-of-risks" part of the statement replaced an earlier formulation, known as the "policy tilt," which loosely characterized the likely future direction of the federal funds rate. The balance-of-risks portion of the statement also provides information about the likely course of policy, but it does so more indirectly by describing the Committee's assessment of the potential risks to its dual objectives of maximum sustainable employment and price stability rather than by commenting on the policy rate itself.

Most recently, the Committee has introduced additional commentary on the outlook for policy into its statement. For example, the August 2003 statement of the FOMC indicated that "policy accommodation can be maintained for a considerable period," a formulation replaced a few meetings later with the comment that the Committee could be "patient" in removing policy accommodation. These statements conveyed information to markets about the Committee's economic outlook as well as its policy approach. In my view, this language served an important purpose, illustrating in the process the value of central bank communication. At the time that "considerable period" was introduced, the market was pricing in a significant degree of near-term policy tightening, presumably on the expectation that the sharp pickup in growth in the third quarter of 2003 would induce the FOMC to raise rates. However, this market reaction placed insufficient weight, I believe, on the fact that the expansion that began in mid-2003 was characterized by exceptional gains in labor productivity, which implied in turn that the rapid growth in output did not materially increase the pressure on resources. With inflation low and with continuing slack in resource utilization, the rapid tightening projected by the markets did not appear justified, the surge in output growth notwithstanding. The language of the statement in August 2003 and subsequent meetings persuaded the markets that an autumn tightening was not in the cards, and market expectations adjusted accordingly. Crucially, this change in expectations resulted in lower interest rates at all maturities, a development that helped support the expansion in the latter part of last year.

When the policy tightening cycle finally began earlier this year, the FOMC indicated that, with underlying inflation still relatively low, it would proceed "at a pace that is likely to be measured." As I discussed in a speech in May, the gradualist approach implied by this statement is often appropriate during a period of economic and financial uncertainty (Bernanke, 2004). At the same time that it provided information on its outlook and its expected policy path, however, the Committee properly insisted that its policies would be conditional on the arriving economic data. In particular, the Committee noted that it would respond as necessary to maintain price stability.

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<sup>2</sup> Before 1994 the public did receive relatively immediate notice of monetary policy action if a change in the FOMC's target for the federal funds rate was accompanied by a change in the discount rate, which was always announced in a press release.

To be absolutely clear, in pointing out the benefits of clear communication I am *not* asserting that central bank talk represents an independent tool of policy. Indeed, if the central bank's statements are not informative about the likely future course of the short-term interest rate, they will soon lose their ability to influence market expectations. Rather, the value of more-open communication is that it clarifies the central bank's views and intentions, thereby increasing the likelihood that financial-market participants' rate expectations will be similar to those of the policymakers themselves - or, if views differ, ensuring at least that the difference can not be attributed to the policymakers' failure to communicate their outlook, objectives, and strategy to the public and the markets.

### **Do FOMC statements affect policy expectations? Some evidence**

In my remarks thus far I have argued in general terms that FOMC communication can help inform the public's expectations of the future course of short-term interest rates, providing the Committee with increased influence over longer-term rates and hence a greater ability to achieve its macroeconomic objectives. Casual observation confirms that market participants do pay close attention to FOMC statements and that these statements often move markets. But have FOMC statements had the effects that were intended? And how important have these effects been, relative to the impact of the rate-setting decision itself? With two Federal Reserve colleagues, Vincent Reinhart and Brian Sack, I recently developed new empirical evidence on these questions, some highlights of which I will briefly share with you today (Bernanke, Reinhart, and Sack, 2004).<sup>3</sup>

The effects of FOMC actions and statements are reflected most clearly and directly in financial markets; so to try to measure these effects my coauthors and I studied the responses to FOMC decisions of some key interest rates and asset prices. More specifically, we observed financial-market developments over the period beginning fifteen minutes before and ending forty-five minutes after each policy decision became known to the public.<sup>4</sup> The advantage of restricting the analysis to a short period spanning the Committee's decision is that the changes in yields or asset prices occurring within that narrow window are more likely to reflect the impact of the decision, as opposed to the arrival of other information about the economy. We included in our data set all FOMC policy decisions since July 1991 - both those taken at regular meetings and those made between meetings, a total of 116 decisions. Of these 116 policy decisions, 56 were accompanied by an official statement, and 60 did not involve a statement.

Of greatest interest to us was determining how FOMC actions and statements affected the expectations of financial-market participants about the likely future course of the federal funds rate. A variety of financial instruments convey information about these expectations. In our work we focused on a particular futures contract (a Eurodollar futures contract), which provides a good measure of what the market expects the federal funds rate to be at a horizon of about one year.<sup>5</sup> By observing the change in the price of that contract in the period around each FOMC decision, we were able to infer how that decision affected year-ahead policy expectations. Moreover, the fact that our data set included some decisions accompanied by statements and some without statements allowed us to separate the effects of rate actions and statements on policy expectations and, consequently, on longer-term yields.

Our findings support the view that FOMC statements have proven a powerful tool for affecting market expectations about the future course of the federal funds rate.<sup>6</sup> Certainly, the market's expectations for year-ahead rates respond to unexpected changes in the FOMC's target for the federal funds rate, as we would expect. However, as most rate actions are well anticipated by financial markets, changes in

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<sup>3</sup> Sack has very recently left the Board. Our paper was commissioned by the Brookings Institution and was presented there on September 9, 2004. It will be published in the *Brookings Papers on Economic Activity*.

<sup>4</sup> Determining precisely when each decision was either announced or conveyed to the market by other means, such as the commencement of open-market operations to establish the new rate, was a tedious process. For details and a record of the timing of decisions, see Grkaynak, Sack, and Swanson (2004).

<sup>5</sup> The future rate implied by the contract embeds a risk premium that generally causes it to deviate from the federal funds rate expected by the typical market participant. However, changes in the contract rate that occur in a short period surrounding an FOMC decision are likely to be determined primarily by changes in the policy outlook rather than changes in the risk premium.

<sup>6</sup> Kohn and Sack (2003) and Grkaynak, Sack, and Swanson (2004), using methods similar to ours, also find evidence that FOMC statements have a strong impact on policy expectations and on financial markets generally.

the federal funds rate alone account for only a small portion of the change in expectations around FOMC decisions.<sup>7</sup> Over the short period around a policy decision, FOMC statements, not the rate-setting action itself, have the greater influence on year-ahead rate expectations, particularly when the content of the statement is not fully anticipated by market participants.<sup>8</sup> For example, according to our estimates, a policy statement that surprises the market leads market participants to revise their year-ahead rate expectations about 14 basis points more than they would have in the absence of such a statement.

We also confirmed that FOMC statements tend to move market beliefs in the direction one would have expected. In particular, statements that were unexpectedly "hawkish" in tone - that is, statements that seemed to indicate that future policies might involve higher rates than previously thought - resulted in increases in year-ahead policy expectations of between 12 and 16 basis points on average, whereas "dovish" statements led to similar decreases in rate expectations. The largest effects on policy expectations and yields were observed following FOMC statements that directly addressed the likely future evolution of policy, such as the August 2003 statement that invoked the "considerable period" and the January 2004 statement that introduced the phraseology that the Committee "can be patient."

There seems to be little doubt that FOMC statements can have a substantial influence on year-ahead policy expectations. We found that they influence expectations and rates beyond the one-year horizon, as well. For example, we calculated that the content of FOMC statements accounts for about 68 percent of the variability in the five-year Treasury yield in the hour around FOMC decisions. By contrast, the Committee's decision about where to set the funds rate explains only 12 percent of the variance in the five-year yield, with the remaining 20 percent of the variance reflecting other influences.

We investigated a number of other dimensions of FOMC statements and their effects. For example, some observers have argued that, by focusing attention on certain macroeconomic variables as possible triggers for policy action, recent statements have increased the responsiveness of yields and asset prices to news about those particular variables. A possible case in point is the monthly payroll employment number, whose importance to markets appears to have been elevated by references to employment and resource utilization in recent FOMC statements.<sup>9</sup>

If FOMC communication has served to highlight the monthly payroll statistics and their possible link to policy decisions, then financial markets should have become more sensitive to unexpected developments in payrolls. To check this hypothesis, we studied the behavior of the ten-year Treasury yield in the thirty-minute window around the monthly release of the payroll data. We broke the sample into the periods before and after the introduction of the "considerable period" language in August 2003. We found that, in the earlier period, an announcement that reported 100,000 jobs more than expected translated into a 4-basis-point increase in the ten-year yield during the thirty-minute window around the announcement. In contrast, since the August 2003 FOMC meeting, a positive surprise of 100,000 jobs has increased Treasury yields about 11 basis points. This economically and statistically important difference is consistent with the view that FOMC statements have increased the sensitivity of financial markets to the payroll data. It is interesting that, although central bank talk may have increased sensitivity to certain data releases, overall financial market volatility has declined recently. Federal Reserve communications policy has likely contributed to the fall in volatility by reducing the uncertainty surrounding the future course of policy.

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<sup>7</sup> We concentrated on changes in the funds rate that were surprises to financial markets, on the grounds that changes in the funds rate that were fully anticipated would already be priced into markets in advance of the FOMC's action. To determine which FOMC rate-setting actions were unexpected, as well as the magnitude of the policy surprises, we followed Kuttner (2001) and compared the rate actually set by the FOMC at each meeting to the market's expectation of that rate, as inferred from the prices of federal funds futures contracts. Applying our methodology, we found that an unexpected 25-basis-point change in the Committees funds rate target has been associated with a change of about 13 basis points, in the same direction, in the expected funds rate one year ahead. As noted in the text, however, most changes in the funds rate are at least partially anticipated, implying that the unexpected component of most funds rate decisions is considerably less than 25 basis points. The effect on year-ahead rate expectations of a typical change in the funds rate is correspondingly reduced, to 5 basis points or less.

<sup>8</sup> To determine which statements surprised markets we used a number of sources, including staff commentaries prepared at the Board of Governors and the Federal Reserve Bank of New York, articles in the *Wall Street Journal*, pre-meeting commentary by a leading financial firm, and pre-meeting surveys of primary dealers and other market participants.

<sup>9</sup> Each FOMC statement that used the "considerable period" language also discussed labor market conditions, and the December 2003 statement tied the "considerable period" outlook for policy closely to "slack" in resource use.

As I observed earlier, much of the potency of monetary policy lies not in the FOMC's ability to affect today's federal funds rate but rather in the Committee's ability to influence market expectations about future policy and, consequently, the economically more relevant long-term rates. On this important metric, the statement has become an increasingly important tool of policy. Of course, as I have already emphasized, talk is of no value if market participants do not believe that the FOMC intends to follow through on its plans - adjusting as necessary, of course, to developments in the economy. In the long run, talk and action must complement and reinforce each other if policy is to be effective.

### **Central bank talk when the policy rate is near the zero bound**

The research I have described was actually a part of a larger project in which my coauthors and I investigated alternative monetary policies that might be used when the short-term interest rate is close to zero. As the attending members of the Japan Society well know, Japan has been in that difficult situation for more than six years. Although effective communication by the central bank is always important, it becomes especially important when the rates are near zero. Indeed, when the proximity of the zero bound prevents further rate cuts to stimulate the economy, talking about future policy actions may be one of the few tools at the central bank's disposal by which to influence conditions in financial markets.

The Bank of Japan's recent policies illustrate the centrality of communication policies. In April 1999, the Bank of Japan (BOJ) not only reduced its call rate to within a few basis points of zero, it also announced its intention to keep the call rate at zero "until deflationary concerns are dispelled." This policy, known as the zero-interest-rate policy, or ZIRP, was interrupted by a 25-basis point rise in the call rate in August 2000 but then effectively re-introduced in March 2001 in conjunction with the BOJ's new policy of quantitative easing.<sup>10</sup> The BOJ's goal in committing to the ZIRP was to persuade participants in the Japanese bond market that short-term rates would remain low for longer than they had thought - a commitment that, if credible, should result in longer-term rates being lower than they otherwise would be.

Did the ZIRP influence longer-term rates as intended? I will spare you the details but report that our tentative answer is "yes." Our most useful evidence involved a comparison of the actual Japanese term structure of interest rates with estimates of the term structure derived from an econometric model, one that links interest rates to macroeconomic conditions. We found that, relative to the predictions of our model, Japanese interest rates fell significantly after the introduction of the ZIRP in April 1999, rose after the policy was interrupted in August 2000, then declined again when the ZIRP was re-introduced (along with the new policy of quantitative easing) in March 2001. The effects of the ZIRP look particularly large for interest rates on securities with maturities between two to five years, a result consistent with other research on this episode (for example, Fujiki and Shiratsuka, 2002). Apparently, then, central bank talk has had benefits in Japan as well as in the United States.

### **Conclusion**

The practice of monetary policy has changed significantly over the past fifteen years or so, both in the United States and abroad. We see today a worldwide trend toward greater clarity, transparency, and specificity in central bank communication with the public. These changes are important for reasons of governance and democratic accountability as well as for promoting the exchange of ideas between those inside and those outside central banks. Significantly, as I have emphasized today, monetary policy is more effective when the policy committee provides the public guidance on its outlook, objectives, and plans.

Reasonable people differ on how the FOMC statement should evolve from its present form. My own view is that we are approaching the limits of purely qualitative communication and should consider the inclusion of quantitative information presented in a clearly specified framework (Bernanke, 2003). For example, like policymakers at many other central banks, the FOMC could specify its long-term inflation objective and include explicit economic forecasts, conditioned on alternative assumptions, in its

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<sup>10</sup> Under its quantitative easing policy, the BOJ has committed to provide more reserves to the banking system than are needed to maintain the call rate at zero. The BOJ's commitment to quantitative easing thereby commits it to the ZIRP as well.

statements or in regular reports. That being said, one must recognize that the FOMC is not a “unitary actor,” as the political scientists term it, but a committee of nineteen highly independent people. With the best will in the world, achieving a Committee consensus on a detailed forecast (for example) will always be difficult in the short time available. Some ambiguity in the FOMC’s communications may therefore be unavoidable.

That being said, the increases in the transparency of the FOMC and the Federal Reserve System during the past decade have really been quite impressive, to the credit of those who have served the institution during that period. Experience has shown that this greater transparency has had many palpable benefits, including more effective monetary policy and better macroeconomic outcomes.