

Ben S Bernanke: Communication and monetary policy

Speech by Mr Ben S Bernanke, Chairman of the Board of Governors of the US Federal Reserve System, at the National Economists Club Annual Dinner, Herbert Stein Memorial Lecture, Washington DC, 19 November 2013.

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Nearly eight years ago, when I began my time as Chairman, one of my priorities was to make the Federal Reserve more transparent – and, in particular, to make monetary policy as transparent and open as reasonably possible. I believed then, as I do today, that transparency in monetary policy enhances public understanding and confidence, promotes informed discussion of policy options, increases the accountability of monetary policymakers for reaching their mandated objectives, and ultimately makes policy more effective by tightening the linkage between monetary policy, financial conditions, and the real economy. Of course, responding to the financial crisis and its aftermath soon became the Federal Reserve's main focus. As it has turned out, however, following the stabilization of the financial system, supporting our economy's recovery from the deepest recession since the Great Depression has required a more prominent role for communication and transparency in monetary policy than ever before.

In my remarks, I will discuss how the Federal Reserve's communications have evolved in recent years and how enhanced transparency is increasing the effectiveness of monetary policy. Despite the challenges inherent in communicating in an unprecedented economic and policy environment about a future that can be only imperfectly foreseen, I will explain why I believe that policy transparency remains an essential element of the Federal Reserve's strategy for meeting its economic objectives.

Policy frameworks and communication

To understand the critical role that the Federal Reserve's communications about monetary policy has played in recent years, it is useful to start by discussing the role of monetary policy communication more generally, including the relationship between policy communication and the broader policy framework.

Making monetary policy is sometimes compared to driving a car, with policymakers pressing on the accelerator or the brakes, depending on whether the economy needs to be sped up or slowed down at that moment. That analogy is imperfect, however, for at least two reasons. First, the main effects of monetary policy actions on the economy are not felt immediately but instead play out over quarters or even years. Hence, unlike the driver of a car, monetary policymakers cannot simply respond to what lies immediately in front of them but must try to look well ahead – admittedly, a difficult task. Second, the effects of monetary policy on the economy *today* depend importantly not only on current policy actions, but also on the public's expectations of how policy will evolve. The automotive analogy clearly breaks down here, for it is as if the current speed of the car depended on what the car itself expects the driver to do in the future.

The public's expectations about future monetary policy actions matter today because those expectations have important effects on current financial conditions, which in turn affect output, employment, and inflation over time. For example, because investors can choose freely between holding a longer-term security or rolling over a sequence of short-term securities, longer-term interest rates today are closely linked to market participants' expectations of how short-term rates will evolve. If monetary policymakers are expected to keep short-term interest rates low, then current longer-term interest rates are likely to be low as well, all else being equal. In short, for monetary policy, expectations matter.

Indeed, expectations matter so much that a central bank may be able to help make policy more effective by working to shape those expectations. Experience demonstrates that a useful approach to managing expectations – one that dovetails well with basic principles of transparency – involves policymakers stating clear objectives as well as their plans for attaining those objectives. For example, over the past two decades, many central banks have introduced explicit numerical targets for inflation. Supplemented by regular publication of the central bank’s economic forecasts and provisional plans for achieving its objective in the medium term, numerical inflation goals have helped increase the transparency and predictability of policy in a number of economies.

In this spirit, the Federal Open Market Committee (FOMC) has clarified the Federal Reserve’s objectives and policy strategy. Because of its dual mandate from the Congress, which specifies both maximum employment and price stability as policy objectives, the Federal Reserve could not adopt a numerical inflation target as its exclusive goal. Nor would it have been appropriate for the FOMC simply to provide a fixed objective for some measure of employment or unemployment, in parallel with an inflation objective. In contrast to inflation, which is determined by monetary policy in the longer run, the maximum level of employment that can be sustained over the longer run is determined primarily by nonmonetary factors, such as demographics, the mix of workforce skills, labor market institutions, and advances in technology. Moreover, as these factors evolve, the maximum employment level may change over time. Consequently, it is beyond the power of the central bank to set a longer-run target for employment that is immutable or independent of the underlying structure of the economy.¹

The approach on which the FOMC agreed is described in its statement of longer-run goals and policy strategy, issued in January 2012 and reaffirmed in January of this year.² The statement begins by affirming the FOMC’s commitment to meeting both of its statutory objectives. It then indicates that, in the context of the FOMC’s dual mandate, the Committee sees price stability as corresponding to a 2 percent longer-term inflation goal. On the employment side of the mandate, the Committee makes its best assessment of the maximum level of employment at any given time, recognizing that such assessments are necessarily uncertain and subject to revision. In practice, the Committee often expresses its employment objective in terms of the longer-run normal rate of unemployment. Currently, FOMC participants’ estimates of the longer-run normal unemployment rate, as publicly reported in the quarterly Summary of Economic Projections, range from 5.2 to 6 percent.³

As I noted, explicit objectives are most useful when accompanied by provisional plans for achieving them. Many central banks supplement their announced objectives with published forecasts that, implicitly or explicitly, lay out plans for achieving their goals. Although the size and diversity of the Federal Reserve’s policymaking committee has made achieving a single consensus forecast difficult, the quarterly Summary of Economic Projections reports each FOMC participant’s view of the most likely future paths of inflation, unemployment, and output growth, conditional on that individual’s view of appropriate monetary policy. In recent years, this survey has also included participants’ projections of the path of future short-term interest rates they see as most likely to achieve the Committee’s goals. In general, the

¹ To be clear, although monetary policy has limited influence on the level of employment that can be sustained in the longer run, it can be used to help eliminate gaps between the current level of employment and its sustainable level – as policy is doing today.

² The January 2013 statement is available on the Board’s website at www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals.pdf.

³ The central tendency of the projections for the longer-run normal unemployment rate (which drops the three highest and three lowest values submitted by FOMC participants) was 5.2 to 5.8 percent in September. For the most recent FOMC projections, see www.federalreserve.gov/monetarypolicy/fomcminutes20130918ep.htm on the Board’s website.

Committee's two objectives of maximum employment and price stability are complementary. When they are not, the FOMC has stated that it will pursue a balanced approach in the pursuit of its dual mandate, working to ensure that both inflation and employment are close to their desired values in the longer term.

In short, the Federal Reserve, like many central banks around the world, has made significant progress in recent years in clarifying its goals and policy approach, and in providing regular information about the future path of policy that it views as most likely to attain its objectives. This increased transparency about the framework of policy has aided the public in forming policy expectations, reduced uncertainty, and made policy more effective.

The financial crisis and its aftermath, however, have raised even greater challenges for, and demands on, the Federal Reserve's communication. We have had to contend with the persistent effects of the seizing-up of the financial system, the collapse of housing prices and construction, new financial shocks in Europe and elsewhere, restrictive fiscal policies at all levels of government, and, of course, the enormous blows to output and employment associated with the worst U.S. recession since the Great Depression. Moreover, for the first time since the FOMC began using the federal funds rate as its policy interest rate, that rate is effectively at zero and thus cannot be lowered meaningfully further. Consequently, to provide needed support to the economic recovery and minimize the risk of deflation, the Federal Reserve has had to adopt new policy tools, which bring their own communication challenges. In the remainder of my talk, I will discuss how the Federal Reserve has used communication to try to further inform the public's expectations about how the FOMC will employ what are currently its two principal policy tools: its plans regarding its short-term policy interest rate and its large-scale purchases of securities.

Forward guidance about policy interest rates

As the economy weakened over 2008, the FOMC repeatedly cut its target for the federal funds rate, its short-term policy rate. In December of that year, the target for the funds rate was reduced to a range of zero to 1/4 percent, and money market rates declined nearly to zero. Thus, using the standard means of further easing monetary policy – cutting the target interest rate – was no longer possible.

The so-called zero lower bound on the FOMC's policy interest rate was not the only challenge the Committee faced. First, the depth of the recession, combined with ongoing concerns about the functioning of the financial system, raised significant uncertainties about both the likely pace of recovery and the effectiveness of monetary policy in supporting growth. The recoveries from most post-World War II U.S. recessions had been relatively rapid, with production, unemployment, and other key variables returning to close to normal levels within six to eight quarters. In such cases, the policy horizon most relevant to financial markets might be the next several quarters. In the aftermath of the recent crisis, however, the Committee had to consider the possibility that a highly accommodative policy might be required for a number of years.

Second, a federal funds rate effectively at zero created an important asymmetry for policy planning. On the one hand, if the economy were to recover rapidly and inflation were to increase, monetary policymakers would be able to respond in the normal way, by raising the federal funds rate. But, on the other hand, if the economy were to remain weak or recover only gradually – the case we actually faced – the FOMC would not be able to cut the funds rate further. Moreover, in the latter case, the economy could face an increased risk of deflation – falling prices. As the case of Japan illustrates, deflation may impede economic growth while being very difficult to escape. To try to pre-empt such outcomes, a strong case

existed for monetary policy to be more accommodative than suggested by standard policy rules calibrated to normal times.⁴

So the Committee faced a situation in which more monetary policy accommodation was needed, and possibly for quite a long time – yet its basic policy tool, the federal funds rate target, had been pushed to its limit. To put the Committee's problem another way, standard policy rules and a range of other analyses implied that, to achieve the FOMC's objectives, the target for the federal funds rate should be set well below zero, which, of course, was not feasible. Fortunately, as I discussed earlier, the degree of accommodation provided by monetary policy depends not just on the current value of the policy rate, but on public expectations of future settings of that rate. The Committee accordingly realized that it could ease policy further – and reduce uncertainty about future policy – by assuring the public and markets that it intended to keep the policy rate low for some time, and for a longer period than the public initially expected.

At first, the Committee employed purely qualitative language to send this message: After the FOMC stated in December 2008 that it would likely be appropriate for the federal funds rate to remain near zero for “some time,” it changed the formulation in March 2009 to “an extended period.”⁵ However, such language did not convey very precisely the Committee's intentions. In August 2011, the Committee introduced a specific date into its guidance, stating that conditions would likely warrant keeping the federal funds rate target near zero at least through mid-2013.⁶ This date-based guidance was more precise than the qualitative language the Committee had been using, and it appears to have been effective in communicating the FOMC's commitment to a highly accommodative policy. In particular, following the introduction of dates into the FOMC statement, interest rates and survey measures of policy expectations moved in ways broadly consistent with the guidance.⁷

Although the date-based forward guidance appears to have affected the public's expectations as desired, it did not explain how future policy would be affected by changes in the economic outlook – an important limitation. Indeed, the date in the guidance was pushed out twice in 2012 – first to late 2014 and then to mid-2015 – leaving the public unsure about whether and under what circumstances further changes to the guidance might occur.⁸ In December of last year, the FOMC addressed this issue by tying its forward guidance about its policy rate more directly to its economic objectives.⁹ Introducing so-called state-contingent guidance, the Committee announced for the first time that no increase in the federal funds rate target should be anticipated so long as unemployment remained above 6-1/2 percent and inflation and inflation expectations remained stable and near target.¹⁰ This formulation

⁴ See, for example, Eggertsson and Woodford (2003) and Reifschneider and Williams (2000).

⁵ See Board of Governors (2008, 2009).

⁶ See Board of Governors (2011).

⁷ Evidence that this is the case has been provided by Campbell, Evans, Fisher, and Justiniano (2012), Swanson and Williams (2013), Raskin (2013), and by a recent study of the Federal Reserve Bank of New York's survey of primary dealers (Femia, Friedman, and Sack, 2013).

⁸ See Board of Governors (2012a, b).

⁹ See Board of Governors (2012c).

¹⁰ See Board of Governors (2012c). Specifically, the guidance says that the Committee anticipates that its 0 to 1/4 percent target range for the federal funds rate will be appropriate at least as long as the unemployment rate remains above 6-1/2 percent, inflation between one and two years ahead is projected to be no more than a half percentage point above the Committee's 2 percent longer-run goal, and longer-term inflation expectations continue to be well anchored. The FOMC asserted in its statement that it viewed the new thresholds to be consistent with the earlier, date-based guidance. Femia, Friedman, and Sack (2013) present evidence that respondents to the survey of primary dealers largely shared this assessment.

provided greater clarity about the factors influencing the Committee's thinking about future policy and how that thinking might change as the outlook changed.¹¹

As my colleagues and I have frequently emphasized, the conditions stated in this guidance are thresholds, not triggers. Crossing one of the thresholds will not automatically give rise to an increase in the federal funds rate target; instead, it will signal only that it is appropriate for the Committee to begin considering whether an increase in the target is warranted. This threshold formulation helps explain why the Committee was willing to express the guidance bearing on the labor market in terms of the unemployment rate alone, instead of following its usual practice of considering a broad range of labor market indicators. In the judgment of the Committee, the unemployment rate – which, despite some drawbacks in this regard, is probably the best single summary indicator of the state of the labor market – is sufficient for defining the threshold given by the guidance. However, after the unemployment threshold is crossed, many other indicators become relevant to a comprehensive judgment of the health of the labor market, including such measures as payroll employment, labor force participation, and the rates of hiring and separation. In particular, even after unemployment drops below 6-1/2 percent, and so long as inflation remains well behaved, the Committee can be patient in seeking assurance that the labor market is sufficiently strong before considering any increase in its target for the federal funds rate.

Large-scale asset purchases and related communication

Because of the severity of the recession and the disruptions in financial markets, and because short-term interest rates were near the zero lower bound, it became clear early on that more monetary accommodation would be needed than could be provided through the management of short-term rates alone, even with guidance that those rates would be kept low well into the future. Accordingly, at about the same time that the FOMC reduced its target for the federal funds rate close to zero, it began supplementing its rate policies and forward rate guidance with large-scale asset purchases (LSAPs) – specifically, open market purchases of longer-term U.S. Treasury securities and securities issued by the government-sponsored enterprises, primarily mortgage-backed securities (MBS).

Both LSAPs and forward guidance for the federal funds rate support the economy by putting downward pressure on longer-term interest rates, but they affect longer-term rates through somewhat different channels. To understand the difference, it is useful to decompose longer-term interest rates into two components: One reflects the expected path of short-term interest rates, and the other is called a term premium. The term premium is the extra return that investors require to be willing to hold a longer-term security to maturity compared with the expected yield from rolling over short-term securities for the same period.

As I have noted, forward rate guidance affects longer-term interest rates primarily by influencing investors' expectations of future short-term interest rates. LSAPs, in contrast, most directly affect term premiums. As the Federal Reserve buys a larger share of the outstanding stock of longer-term securities, the quantity of these securities available for private-sector portfolios declines. As the securities purchased by the Fed become scarcer, they should become more valuable. Consequently, their yields should fall as investors demand a smaller term premium for holding them. This argument depends importantly on the assumption that the longer-term Treasury and MBS securities that the Fed buys are not

¹¹ An advantage of the state-contingent formulation is that it increases the tendency of financial market conditions to act as an automatic stabilizer for the economy. For example, bad news about the labor market, which tends to lengthen the amount of time the public expects to be required for the unemployment rate to reach the threshold, should likewise increase the length of time that the public expects policy to remain highly accommodative. In response to this shift in policy expectations, interest rates should fall and asset prices should rise, thus easing financial conditions and helping to offset the adverse change to the outlook.

perfectly substitutable with other types of assets, an assumption that seems well supported in practice.¹²

As both forward rate guidance and LSAPs affect longer-term interest rates, the use of these tools allows monetary policy to be effective even when short-term interest rates are close to zero. However, the Committee does not view these two tools as entirely equivalent. One reason is that we have much less experience with policies designed to operate on term premiums, as LSAPs do. As a result, though a strong majority of FOMC members believes that both the forward rate guidance and the LSAPs are helping to support the recovery, we are somewhat less certain about the magnitudes of the effects on financial conditions and the economy of changes in the pace of purchases or in the accumulated stock of assets on the Fed's balance sheet. Moreover, economists do not have as good an understanding as we would like of the factors determining term premiums; indeed, as we saw earlier this year, hard-to-predict shifts in term premiums can be a source of significant volatility in interest rates and financial conditions. LSAPs have other drawbacks not associated with forward rate guidance, including the risk of impairing the functioning of securities markets and the extra complexities for the Fed of operating with a much larger balance sheet, although I see both of these issues as manageable.¹³ In deciding to employ LSAPs, the FOMC has accordingly remained attentive to the possible costs and risks as well as to the efficacy of this less familiar tool, a point the Committee has regularly noted in its post-meeting statements. Of course, elevated unemployment, below-target inflation, lingering economic fragility, and the harmful effects of long-term unemployment on our society and economic potential also pose significant costs and risks, and the Committee has, thus far, judged that the balance favors the use of LSAPs.

Between November 2008 and June 2012, the FOMC announced or extended a series of asset purchase programs, in each case specifying the expected quantities of assets to be acquired under the program. Like the use of date-based forward guidance, announcing a program of predetermined size and duration has advantages and disadvantages. On the one hand, a fixed program size is straightforward to communicate; on the other hand, a program of fixed size cannot so easily adapt to changes in the economic outlook and the consequent changes in the need for policy accommodation. In announcing its fixed-size programs, the FOMC did state a general willingness to do more if needed – and, indeed, it has followed through on that promise – but such statements left considerable uncertainty regarding the conditions that might warrant changes in an existing program or the introduction of a new one.

¹² I discussed this effect more fully in Bernanke (2012). As I noted then, both Milton Friedman (2000) and James Tobin (1965, 1969) made this argument. LSAPs may affect financial conditions through other channels as well; see Bernanke (2012) for a more complete discussion. One such channel is a “signaling channel,” which works to the extent that the direct action of buying securities increases the credibility of communication tools like forward rate guidance (Posen, 2012).

¹³ An additional concern that some have raised about the Federal Reserve's expanded balance sheet is the possibility that financial conditions could evolve in a way that significantly reduces the Fed's net interest income on its portfolio for a time, which in turn could lead to a period during which the Fed is not remitting income to the Treasury; see Carpenter and others (2013) for an analysis. Such a situation, though unlikely, could have reputational costs and possibly increase risks to the Federal Reserve's independence. Although these costs must be taken into account, careful analysis suggests that, in fact, LSAPs almost certainly will result in improved government finances: First, even if a period of no payments to the Treasury occurs, it is highly likely that the payments over the period of unconventional monetary policy will be significantly higher than they would have been without LSAPs; indeed, since 2009, the Fed has remitted more than \$350 billion to the Treasury, about the same total as it remitted during the 18 years prior to the crisis (1990–2007 inclusive). Second, a complete accounting of the fiscal effects of LSAPs should take into account the beneficial effects of a stronger economy on tax receipts, interest payments, and government spending; the reduction in the budget deficit from these sources will certainly outweigh the effects on the deficit of any changes in the pace of Fed payments. Finally, while fiscal effects are important, the full effect of the FOMC's policies also includes important additional benefits of increased economic growth and employment and of greater price stability.

In a step roughly analogous to the shift from date-based guidance to the contingent, thresholds-based guidance now in use for the federal funds rate target, in September 2012 the FOMC announced a program of asset purchases in which the total size of the purchase program would not be fixed in advance but instead would be linked to the Committee's economic objectives. In particular, the Committee initiated purchases of agency MBS at the rate of \$40 billion per month and stated its intention to continue purchases until the outlook for the labor market improved substantially in a context of price stability.¹⁴ In December 2012, when a program to extend the maturity of the Fed's portfolio of Treasury securities came to an end, the FOMC added purchases of \$45 billion per month in longer-term Treasury securities to the new program, bringing the monthly purchase rate to \$85 billion, where it remains today.

As I noted, the Committee set a criterion of substantial improvement in the outlook for the labor market as the condition for ending the new purchase program. The Committee also signaled its expectation that it would end the purchases and return to an emphasis on rates policy and forward guidance before it had fully attained its dual mandate objectives, stating that "the Committee expects that a highly accommodative stance of monetary policy will remain appropriate for a considerable time after the asset purchase program ends and the economic recovery strengthens."¹⁵ The reason for this sequencing choice, again, was the greater uncertainty about the costs and efficacy of LSAPs, relative to the more familiar tool of managing the current short-term interest rate and, through forward guidance, expectations of future short-term interest rates. Moreover, to the extent that the use of LSAPs engenders additional costs and risks, one might expect the tradeoff between the efficacy and costs of this tool to become less favorable as the Federal Reserve's balance sheet expands.

Having seen progress in the labor market since the beginning of the latest asset purchase program in September 2012, the Committee agreed in June of this year to provide more-comprehensive guidance about the criteria that would inform future decisions about the program. Consequently, in my press conference following the June FOMC meeting, I presented a framework linking the program more explicitly to the evolution of the FOMC's economic outlook. In particular, I noted the Committee's expectation at the time that improvements in the job market would continue, supported by a moderate pickup in growth that would support those gains. The Committee additionally expected that inflation would be moving back toward its 2 percent objective over time. If the incoming data were broadly consistent with that outlook, the Committee would likely begin measured reductions in the pace of asset purchases later in 2013. If the economy evolved as anticipated, the end of purchases would occur around midyear 2014. I also emphasized that the path of purchases would depend on incoming data and could be slower or faster than envisioned in the modal scenario – indeed, I noted that the pace of purchases could be increased for a time, if warranted.

The framework I discussed in June implied that substantial additional asset purchases over the subsequent quarters were likely, with even more purchases possible if economic developments proved disappointing. However, following the June meeting and press conference, market yields moved sharply higher. For example, between the FOMC meetings of June and September, the 10-year Treasury yield rose about 3/4 percentage point and rates on MBS increased by a similar amount.

¹⁴ This criterion was expressed in slightly different ways in the FOMC statements between September 2012 and January 2013. Since March 2013, the statement has included the sentence, "The Committee will continue its purchases of Treasury and agency mortgage-backed securities, and employ its other policy tools as appropriate, until the outlook for the labor market has improved substantially in a context of price stability." FOMC statements are available at www.federalreserve.gov/monetarypolicy/fomccalendars.htm.

¹⁵ See Board of Governors (2012c).

Financial market movements are often difficult to account for, even after the fact, but three main reasons seem to explain the rise in interest rates over the summer. First, improvements in the economic outlook warranted somewhat higher yields – a natural and healthy development. Second, some of the rise in rates reportedly reflected an unwinding of levered positions – positions that appear to have been premised on an essentially indefinite continuation of asset purchases – together with some knock-on liquidations of other positions in response to investor losses and the rise in volatility. Although it brought with it some tightening of financial conditions, this unwinding and the associated rise in term premiums may have had the benefit of reducing future risks to financial stability and, in particular, of lowering the probability of an even sharper market correction at some later point. Third, market participants may have taken the communication in June as indicating a general lessening of the Committee’s commitment to maintain a highly accommodative stance of policy in pursuit of its objectives. In particular, it appeared that the FOMC’s forward guidance for the federal funds rate had become less effective after June, with market participants pulling forward the time at which they expected the Committee to start raising rates, in a manner inconsistent with the guidance.¹⁶

To the extent that this third factor – a perceived reduction in the Fed’s commitment to meeting its objectives – contributed to the increase in yields, it was neither welcome nor warranted, in the judgment of the FOMC. This change in expectations did not correspond to any actual lessening in the FOMC’s commitment or intention to provide the high degree of monetary accommodation needed to meet its objectives, as Committee participants emphasized in subsequent communications.

At its September 2013 meeting, the FOMC applied the framework communicated in June. The Committee’s decision at that meeting to maintain the pace of asset purchases was appropriate and fully consistent with the earlier guidance. The Committee was looking for evidence that job market gains would continue, supported by a pickup in growth. As it happened, the implications for the outlook of the evidence reviewed at the September meeting were mixed at best, while the ongoing fiscal debates posed additional risks. The Committee accordingly elected to await further evidence supporting its expectation of continued improvement in the labor market.¹⁷ Although the FOMC’s decision came as a surprise to some market participants, it appears to have strengthened the credibility of the Committee’s forward rate guidance; in particular, following the decision, longer-term rates fell and expectations of short-term rates derived from financial market prices showed, and continue to show, a pattern more consistent with the guidance.

In coming meetings, in evaluating the outlook for the labor market, we will continue to consider both the cumulative progress since September 2012 and the prospect for continued gains. We have seen meaningful improvement in the labor market since the latest asset purchase program was announced in September 2012. At the time, the latest reading on the unemployment rate was 8.1 percent, and both we and most private-sector economists were projecting only slow reductions in unemployment in the coming quarters. Recent reports on payroll employment had also been somewhat disappointing. However, since the program was announced, the unemployment rate has fallen 0.8 percentage point, and about 2.6 million payroll jobs have been added. Looking forward, we will of course continue to monitor the incoming data. As reflected in the latest Summary of Economic Projections and the October FOMC statement, the FOMC still expects that labor market conditions will continue to improve and that inflation will move toward the 2 percent objective over the medium term. If these views are supported by incoming information, the FOMC will likely begin to moderate the pace of purchases. However, asset purchases are not on a preset

¹⁶ For example, the Eurodollar futures rate for mid-2015 rose about 40 basis points in the few days following the June FOMC meeting, far more than could be explained by revisions to the economic outlook.

¹⁷ See Board of Governors (2013a, b).

course, and the Committee's decisions about their pace will remain contingent on the Committee's economic outlook. As before, the Committee will also continue to take into account its assessment of the likely efficacy and costs of the program.

When, ultimately, asset purchases do slow, it will likely be because the economy has progressed sufficiently for the Committee to rely more heavily on its rate policies, the associated forward guidance, and its substantial continued holdings of securities to maintain progress toward maximum employment and to achieve price stability.¹⁸ In particular, the target for the federal funds rate is likely to remain near zero for a considerable time after the asset purchases end, perhaps well after the unemployment threshold is crossed and at least until the preponderance of the data supports the beginning of the removal of policy accommodation.

Conclusion

I began my time as Chairman with the goal of increasing the transparency of the Federal Reserve, and of monetary policy in particular. In response to a financial crisis and a deep recession, the Fed's monetary policy communications have proved far more important and have evolved in different ways than I would have envisioned eight years ago.

The economy has made significant progress since the depths of the recession. However, we are still far from where we would like to be, and, consequently, it may be some time before monetary policy returns to more normal settings. I agree with the sentiment, expressed by my colleague Janet Yellen at her testimony last week, that the surest path to a more normal approach to monetary policy is to do all we can today to promote a more robust recovery.¹⁹ The FOMC remains committed to maintaining highly accommodative policies for as long as they are needed. Communication about policy is likely to remain a central element of the Federal Reserve's efforts to achieve its policy goals.

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¹⁸ By the logic described earlier, the Fed's maintenance of a large balance sheet (by reinvesting principal paydowns and rolling over maturing securities) should continue to put downward pressure on term premiums and longer-term interest rates, even after purchases end. Also, as I noted at my June press conference, a strong majority of the Committee now expects that there will be no sales of agency MBS during the process of normalizing monetary policy, although in the longer run limited sales could be used to reduce or eliminate residual MBS holdings. See Board of Governors (2013c).

¹⁹ See Yellen (2013).

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