Janet L Yellen: A challenging decade and a question for the future

Speech by Ms Janet L Yellen, Chair of the Board of Governors of the Federal Reserve System, at the 2017 Herbert Stein Memorial Lecture, National Economists Club, Washington DC, 20 October 2017.

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I am delighted to address the National Economists Club, and I am also honored on this occasion to be associated with Herb Stein, whose public service and scholarship—characterized by careful analysis, clear-eyed pragmatism, and sharp wit—exemplified the best in our profession. Herb was willing to consider new ideas and new approaches to government policy, and that openness fits with the subject of my remarks today. Namely, I will discuss the unconventional monetary policy tools used by the Federal Reserve since the start of the financial crisis and Great Recession and the role that those tools may play in addressing future economic challenges.

Nearly 10 years ago, with our nation mired in its worst economic and financial crisis since the Great Depression, the Federal Open Market Committee (FOMC) confronted a key challenge to the pursuit of its congressionally mandated goals of maximum employment and price stability: how to support a weakening U.S. economy once our main conventional policy tool, the federal funds rate, had been lowered to essentially zero. Addressing that problem eventually led to a second challenge: how to ensure that we could scale back monetary policy accommodation in an orderly fashion once it was no longer needed. Failure to meet either challenge would have significantly compromised our ability to foster maximum employment and price stability, leading to serious consequences for the livelihoods of millions of Americans.

I will argue today that we have met the first challenge and have made good progress to date in meeting the second. Thanks in part to the monetary policy accommodation provided in the aftermath of the crisis—especially through enhanced forward rate guidance and large-scale asset purchases—the U.S. economy has made great strides. Indeed, with the economy now operating near maximum employment and inflation expected to rise to the FOMC's 2 percent objective over the next couple of years, the FOMC has been scaling back the accommodation provided in response to the Great Recession. In no small part because of our authority to pay interest on excess reserves, the process of removing policy accommodation is working well.

After discussing a few issues related to our recent decision to start reducing the size of the Federal Reserve's balance sheet, I will address a key question: What is the appropriate future role of the unconventional policy tools that we deployed to address the Great Recession? While I believe that influencing short-term interest rates should continue to be our primary monetary policy lever in normal times, our unconventional policy tools will likely be needed again should some future economic downturn drive short-term interest rates back to their effective lower bound. Indeed, empirical analysis suggests that the neutral federal funds rate—defined as the level of the federal funds rate that is neither expansionary nor contractionary when the economy is operating near its potential—is much lower than in previous decades. Consequently, the probability that short-term interest rates may need to be reduced to their effective lower bound at some point is uncomfortably high, even in the absence of a major financial and economic crisis.

I will return to the question about the future of our various policy tools, but first I would like to review our experience this decade, which I view as instructive for addressing that question.

Meeting the challenge of providing additional accommodation

A substantial body of evidence suggests that the U.S. economy is much stronger today than it would have been without the unconventional monetary policy tools deployed by the Federal Reserve in response to the Great Recession. Two key tools were large-scale asset purchases

and forward guidance about our intentions for the future path of short-term interest rates. The rationale for those tools was straightforward: Given our inability to meaningfully lower short-term interest rates after they reached near-zero in late 2008, the FOMC used increasingly explicit forward rate guidance and asset purchases to apply downward pressure on longer-term interest rates, which were still well above zero.

Longer-term interest rates reflect, in part, financial market participants' expectations of the future path of short-term interest rates. As a result, FOMC communications that affect those expectations—such as the enhanced forward rate guidance provided in our post-meeting statements in the aftermath of the Great Recession—can affect longer-term interest rates.[1] In addition, longer-term interest rates include a term premium, which is the compensation demanded by investors for bearing the interest rate risk associated with longer-term securities. When the Federal Reserve buys longer-term securities in the open market, the remaining stock of securities available for purchase by the public declines, which pushes the prices of those securities up and thus depresses their yields by lowering the term premiums embedded in those yields.[2] Several studies have found that our forward rate guidance and asset purchases did appreciably reduce longer-term interest rates.[3]

The FOMC's goal in lowering longer-term interest rates was to help the U.S. economy recover from the recession and stem the disinflationary forces that emerged from it. Some have suggested that the slow pace of the economic recovery proves that our unconventional policy tools were ineffective. However, one should recognize that the recovery could have been much slower in the absence of our unconventional tools. Indeed, the evidence strongly suggests that forward rate guidance and securities purchases—by substantially lowering borrowing costs for millions of American families and businesses and making overall financial conditions more accommodative—did help spur consumption and business spending, lower the unemployment rate, and stave off disinflationary pressures.[4]

Other central banks also deployed unconventional policy tools in the years that followed the financial crisis.[5] Evidence accumulated from their experience also supports the notion that these tools have helped stimulate economic activity in their countries after their short-term interest rates were lowered to near-zero—and, in some cases, even below zero.[6]

Meeting the challenge of scaling back accommodation

By 2014, the U.S. economy was making notable progress toward the FOMC's goals of maximum employment and price stability. The unemployment rate had dropped to 6 percent by midyear—well below its Great Recession peak of 10 percent—and other measures of labor market conditions were also showing significant improvement. In addition, inflation, as measured by the change in the price index for personal consumption expenditures, had reached about 1-3/4 percent by mid-2014 after hovering around 1 percent in the fall of 2013. Reflecting that progress, the Federal Reserve's focus was shifting from providing additional monetary policy accommodation to scaling it back.[7] A key question for the FOMC then was how to reduce the degree of accommodation in the context of a vastly expanded Federal Reserve balance sheet.

One possible approach was to start by reducing the Federal Reserve's securities holdings while short-term interest rates remained at the lower bound. We could allow securities to roll off the Federal Reserve's balance sheet and even sell securities, thereby putting upward pressure on long-term rates while calibrating the pace and configuration of the reduction in our holdings as warranted by our maximum employment and price stability objectives. Eventually, once our securities holdings had shrunk sufficiently, the FOMC could start nudging up its short-term interest rate target.

One problem of this "last in, first out" approach was that the FOMC does not have any experience in calibrating the pace and composition of asset redemptions and sales to actual and

prospective economic conditions. Indeed, as the so-called taper tantrum of 2013 illustrated, even talk of prospective changes in our securities holdings can elicit unexpected abrupt changes in financial conditions.

Given the lack of experience with reducing our asset holdings to scale back monetary policy accommodation and the need to carefully calibrate the removal of accommodation, the FOMC opted to allow changes in the Federal Reserve's securities holdings to play a secondary role in the Committee's normalization strategy. Rather than balance sheet shrinkage, the FOMC decided that its primary tool for scaling back monetary policy accommodation would be influencing short-term interest rates.

As we explained in our "normalization principles" issued in September 2014, the FOMC decided to maintain the overall size of the Federal Reserve's securities holdings at an elevated level until sometime after the FOMC had begun to raise short-term interest rates.[8] Once normalization of the level of the federal funds rate was "well under way" and the Committee judged that the economic expansion was strong enough that further increases in short-term interest rates were likely to be warranted, the FOMC would gradually and predictably reduce the size of the balance sheet by allowing the Federal Reserve's securities holdings to "run off"—that is, we would allow our balance sheet to shrink passively by not reinvesting all of the principal payments from our securities.[9]

One advantage of the FOMC's chosen approach to scaling back accommodation is that both the FOMC and the public have decades of experience with adjustments in short-term interest rates in response to changes in economic conditions. Nonetheless, the post-crisis environment presented a new test to the FOMC's ability to influence short-term interest rates.

Before the crisis, the FOMC could raise the federal funds rate—the rate at which banks with excess reserves lend to banks with a reserve need—by removing a small amount of reserves from the banking system. That would translate into a higher federal funds rate because reserves were relatively scarce to begin with. The intuition was simple: The FOMC would signal that it was going to tighten conditions in the reserve market, and the cost of obtaining reserves in the market—the federal funds rate—would rise. Other market interest rates would then increase accordingly.

After the crisis, however, reserves were plentiful because the Federal Reserve funded its large-scale asset purchases through adding reserves to the system—crediting the bank accounts of those who were selling assets to the Fed. Moreover, in light of the FOMC's decision not to sell the longer-term securities it acquired, reserves were likely to remain plentiful for the foreseeable future. Consequently, when the time came to remove accommodation, a key question for the Committee was how to raise the federal funds rate in an environment of abundant reserves.[10] An important part of the answer to that question came in the Federal Reserve's authority to pay interest on excess reserves. The Congress granted the Federal Reserve that authority in 2006, to become effective in 2011. However, in the fall of 2008, the Congress moved up the effective date to October 2008.

Having authority to pay interest on excess reserves means that the Federal Reserve can influence the federal funds rate and other short-term interest rates regardless of the amount of excess reserves in the banking system. The mechanics of the new framework are straightforward: Banks will generally only provide short-term funding at an interest rate around or above what they could earn at the Fed. As a result, if the Federal Reserve raised the rate it paid, other short-term lending rates would likely rise as well.[11] This new approach for raising short-term interest rates is working well: Since December 2015, we have raised the interest paid on excess reserves and the target range for the federal funds rate by 100 basis points, and the effective federal funds rate has risen accordingly.[12]

A closer look at our balance sheet strategy

In light of our recent decision to start reducing our securities holdings this month, I would like to discuss a few aspects of our balance sheet strategy.[13] The FOMC anticipated that its decision to maintain the size of the Federal Reserve's securities holdings at an elevated level until sometime after the beginning of rate hikes would keep some downward pressure on longer-term interest rates well after the end of its asset purchase programs. Although estimates of the effect of our securities holdings on longer-term interest rates are subject to uncertainty, a recent study reported that the Federal Reserve's securities holdings were reducing the term premium on the 10-year Treasury yield by roughly 1 percentage point at the end of 2016.[14]

The guidance that the FOMC would eventually start a gradual and predictable reduction of the Federal Reserve's securities holdings implied that the downward pressure on longer-term yields would likely diminish over time as financial market participants came to expect that the start of balance sheet normalization was nearing. Indeed, with that process now under way, it is likely that our securities holdings are now depressing the term premium on the 10-year yield by somewhat less than the 1 percentage point estimate reported for late last year.

Several factors suggest that the downward pressure on term premiums exerted by our securities holdings is likely to diminish only gradually as our holdings shrink. For instance, as I have already noted, our intention to reduce our balance sheet by reducing reinvestment of repayments of principal on our holdings—rather than selling assets—has been well communicated for several years now. As a result, we do not anticipate a jump in term premiums as our balance sheet reduction plan gets under way. In addition, the maturity distribution of our securities holdings is such that it will take some years for the size of our holdings to normalize via runoff.[15]

The judgment that the downward pressure on term premiums will decline only gradually as we reduce the size of our balance sheet stands in sharp contrast to evidence suggesting that this pressure built up rather quickly when we were expanding our balance sheet. To understand this contrast, remember that, unlike our plan to shrink our balance sheet, the various phases of our asset purchases had, to differing degrees, an element of surprise, with asset purchase announcements occasionally leaving a distinct imprint on the path of longer-term yields. Moreover, each of our asset purchase programs resulted in a rapid increase in our securities holdings during a relatively short period, whereas the normalization process will play out gradually over many years.

I have focused thus far on the likely response of term premiums to our balance sheet reduction plan. Let me turn my attention briefly to the likely response of longer-term yields, which, as I have noted, reflect both a term premium component and expectations of the future path of short-term interest rates. While the available evidence points to a strong reaction of longer-term yields to our asset purchases, it is conceivable that those yields will react much more modestly to our balance sheet reduction plan.

Consider, for instance, a hypothetical scenario in which the FOMC has decided not to rely on balance sheet reduction to scale back accommodation, choosing instead to continue to reinvest indefinitely all principal payments from the Federal Reserve's securities holdings. If financial market participants perceived no change in the economic outlook and no intention on the part of the FOMC to alter the overall stance of monetary policy, the FOMC's inclination to leave the size of the balance sheet unchanged would be taken as an indication that the FOMC would instead rely more on increases in short-term interest rates to scale back accommodation, resulting in a faster pace of short-term interest hikes. On net, longer-term yields may be little affected by this hypothetical scenario: While the decreased emphasis on balance sheet reduction would depress term premiums and hold longer-term yields lower, the expected faster pace of short-term interest rate increases would push longer-term yields higher.[16]

A key question for the future

As the financial crisis and Great Recession fade into the past and the stance of monetary policy gradually returns to normal, a natural question concerns the possible future role of the unconventional policy tools we deployed after the onset of the crisis. My colleagues on the FOMC and I believe that, whenever possible, influencing short-term interest rates by targeting the federal funds rate should be our primary tool. As I have already noted, we have a long track record using this tool to pursue our statutory goals. In contrast, we have much more limited experience with using our securities holdings for that purpose.

Where does this assessment leave our unconventional policy tools? I believe their deployment should be considered again if our conventional tool reaches its limit—that is, when the federal funds rate has reached its effective lower bound and the U.S. economy still needs further monetary policy accommodation.

Does this mean that it will take another Great Recession for our unconventional tools to be used again? Not necessarily. Recent studies suggest that the neutral level of the federal funds rate appears to be much lower than it was in previous decades.[17] Indeed, most FOMC participants now assess the longer-run value of the neutral federal funds rate as only 2-3/4 percent or so, compared with around 4-1/4 percent just a few years ago.[18] With a low neutral federal funds rate, there will typically be less scope for the FOMC to reduce short-term interest rates in response to an economic downturn, raising the possibility that we may need to resort again to enhanced forward rate guidance and asset purchases to provide needed accommodation.[19]

Of course, substantial uncertainty surrounds any estimates of the neutral level of short-term interest rates. In this regard, there is an important asymmetry to consider. If the neutral rate turns out to be significantly higher than we currently estimate, it is less likely that we will have to deploy our unconventional tools again. In contrast, if the neutral rate is as low as we estimate or even lower, we will be glad to have our unconventional tools in our toolkit.

The bottom line is that we must recognize that our unconventional tools might have to be used again. If we are indeed living in a low-neutral-rate world, a significantly less severe economic downturn than the Great Recession might be sufficient to drive short-term interest rates back to their effective lower bound.

Conclusion

Let me conclude with a brief summary. As a result of the Great Recession, the Federal Reserve has confronted two key challenges over the past several years: One, the FOMC had to provide additional policy accommodation after short-term interest rates reached their effective lower bound; and two, subsequently, as we made progress toward the achievement of our mandate, we had to start scaling back that accommodation in the presence of a vastly expanded Federal Reserve balance sheet.

Today I highlighted two points about the FOMC's experience with those challenges. First, the monetary policy tools that the Federal Reserve deployed in the immediate aftermath of the crisis —explicit forward rate guidance, large-scale asset purchases, and the payment of interest on excess reserves—have helped us overcome these challenges.

Second, in light of evidence suggesting that the neutral level of short-term interest rates is significantly lower than it was in previous decades, the likelihood that future monetary policymakers will have to confront those two challenges again is uncomfortably high. For this reason, we must keep our unconventional policy tools ready to be deployed again should short-term interest rates return to their effective lower bound.

[1] Before the Great Recession, the FOMC occasionally provided forward rate guidance, but that guidance was typically confined to a relatively short horizon.

[2] In addition to depressing term premiums, large-scale asset purchases by the Federal Reserve can lower longer-term yields if those purchases are perceived by the public as a signal that short-term interest rates are likely to remain lower for longer than previously anticipated.

[3] See, for instance, Eric T. Swanson and John C. Williams (2014), "Measuring the Effect of the Zero Lower Bound on Medium- and Longer-Term Interest Rates," *American Economic Review,* vol. 104 (October), pp. 3154–85; Joseph Gagnon, Matthew Raskin, Julie Remache, and Brian Sack (2011), "The Financial Market Effects of the Federal Reserve's Large-Scale Asset Purchases (PDF), " *International Journal of Central Banking,* vol. 7 (March), pp. 3-43; and Stefania D'Amico, William English, David Lopez-Salido, and Edward Nelson (2012), "The Federal Reserve's Large-Scale Asset Purchase Programmes: Rationale and Effects," *Economic Journal,* vol. 122 (November), pp. F415–46.

[4] See, for instance, Eric M. Engen, Thomas Laubach, and David Reifschneider (2015), "The Macroeconomic Effects of the Federal Reserve's Unconventional Monetary Policies," Finance and Economics Discussion Series 2015–005 (Washington: Board of Governors of the Federal Reserve System, January).

[5] The Bank of Japan had deployed unconventional tools well before the crisis.

[6] See, for instance, Andrew G. Haldane, Matt Roberts-Sklar, Tomasz Wieladek, and Chris Young (2016), " QE: The Story So Far (PDF)," Staff Working Paper No. 624 (London: Bank of England, October); and Luca Gambetti and Alberto Musso (2017), "The Macroeconomic Impact of the ECB's Expanded Asset Purchase Programme (APP) (PDF)," ECB Working Paper 2075 (Frankfurt: European Central Bank, June).

[7] See Janet L. Yellen (2017), "From Adding Accommodation to Scaling It Back," speech delivered at the Executives' Club of Chicago, Chicago, Ill., March 3.

[8] Information on the FOMC's Policy Normalization Principles and Plans is available on the Board's website at www.federalreserve.gov/monetarypolicy/policy-normalization.htm.

[9] The FOMC announced in December 2015 that it anticipated maintaining its reinvestment policy until normalization of the level of the federal funds rate was "well under way." That announcement is available on the Board's website at www.federalreserve.gov/monetarypolicy/files/monetary20151216a1.pdf. More recently, in June 2017, the FOMC provided additional details regarding its approach to reduce the Federal Reserve's securities holdings, indicating that once the balance sheet normalization plan began, principal payments received from securities held by the Federal Reserve would be reinvested only to the extent that those payments exceeded certain monthly caps. The caps would rise gradually but would remain in place during the normalization process. The June 2017 announcement, Addendum to the Policy Normalization Principles and Plans, is available on the Board's website at www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.20170613.pdf.

[10] For a discussion of the pre- and post-crisis frameworks for implementing short-term interest rate decisions, see Jane E. Ihrig, Ellen E. Meade, and Gretchen C. Weinbach (2015), "Rewriting Monetary Policy 101: What's the Fed's Preferred Post-Crisis Approach to Raising Interest Rates? (PDF)" *Journal of Economic Perspectives,* vol. 29 (Fall), pp. 177–98.

[11] The Federal Reserve created supplementary tools to be used as needed to help strengthen its influence over short-term interest rates when reserves are plentiful. For instance, the overnight reverse repurchase agreement facility allows a variety of counterparties, including eligible money market funds, government-sponsored enterprises, broker-dealers, and depository institutions to invest funds overnight with the Federal Reserve at a rate determined by the FOMC.

[12] For a discussion of how increases in the FOMC's target range for the federal funds rate have transmitted to other short-term interest rates, see Alyssa Anderson, Jane Ihrig, Mary-Frances Styczynski, and Gretchen C. Weinbach (2017), "How Have the Fed's Three Rate Hikes Passed through to Selected Short-Term Interest Rates?" FEDS Notes (Washington: Board of Governors of the Federal Reserve System, June 2).

[13] The FOMC's announcement of the beginning of implementation of the balance sheet normalization plan is available on the Board's website; see Board of Governors of the Federal Reserve System (2017), "Federal Reserve Issues FOMC Statement (PDF)," press release, September 20.

[14] See Brian Bonis, Jane Ihrig, and Min Wei (2017), "Projected Evolution of the SOMA Portfolio and the 10-Year Treasury Term Premium Effect," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, September 22).

[15] Moreover, as the FOMC announced in June, the Committee decided to cap the monthly run-off in the Federal Reserve's securities holdings, making the balance sheet normalization process even more predictable and gradual. The FOMC's announcement is available on the Board's website; see Board of Governors of the Federal Reserve System (2017), "FOMC Issues Addendum to the Policy Normalization Principles and Plans," press release, June 14.

[16] In contrast, when the Federal Reserve was purchasing assets, short-term interest rates were at their effective lower bound, and they were expected to remain there for the foreseeable future. As a result, decisions to buy additional assets—and the resulting additional downward pressure on term premiums—were not offset by expectations of a higher path for short-term interest rates. The end result was that there was greater potential for asset purchases to have a discernible effect on longer-term yields in the years immediately following the financial crisis than in current circumstances.

[17] See, for instance, James D. Hamilton, Ethan S. Harris, Jan Hatzius, and Kenneth D. West (2015), "The Equilibrium Real Funds Rate: Past, Present, and Future," NBER Working Paper Series 21476 (Cambridge, Mass.: National Bureau of Economic Research, August); Olivier Blanchard (2016), "Three Remarks on the U.S. Treasury Yield Curve," Peterson Institute for International Economics, *RealTime Economic Issues Watch* (blog), June 22, piie.com/blogs/realtime-economic-issues-watch/three-remarks-us-treasury-yield-curve; and Kathryn Holston, Thomas Laubach, and John C. Williams (2016), "Measuring the Natural Rate of Interest: International Trends and Determinants (PDF)," Working Paper Series 2016–11 (San Francisco: Federal Reserve Bank of San Francisco, December).

[18] FOMC participants' most recent projections of the federal funds rate are discussed in an addendum to the minutes of the Committee's September 2017 meeting, available in an October 11, 2017, press release on the Federal Reserve Board's website at www.federalreserve.gov/newsevents/pressreleases/monetary20171011a.htm.

[19] See Janet L. Yellen (2016), "The Federal Reserve's Monetary Policy Toolkit: Past, Present, and Future," speech delivered at "Designing Resilient Monetary Policy Frameworks for the Future," a symposium sponsored by the Federal Reserve Bank of Kansas City, held in Jackson Hole, Wyo., August 26; and David Reifschneider (2016), "Gauging the Ability of the FOMC to Respond to Future Recessions (PDF)," Finance and Economics Discussion Series 2016–068 (Washington: Board of Governors of the Federal Reserve System, August).