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# FEDERAL RESERVE'S FIRST MONETARY POLICY REPORT FOR 2016

# HEARING

BEFORE THE

## COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

ON

OVERSIGHT ON THE MONETARY POLICY REPORT TO CONGRESS PURSUANT TO THE FULL EMPLOYMENT AND BALANCED GROWTH ACT OF 1978

FEBRUARY 11, 2016

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# FEDERAL RESERVE'S FIRST MONETARY POLICY REPORT FOR 2016

**THURSDAY, FEBRUARY 11, 2016**

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
*Washington, DC.*

The Committee met at 10:01 a.m., in room SD–538, Dirksen Senate Office Building, Hon. Richard C. Shelby, Chairman of the Committee, presiding.

**OPENING STATEMENT OF CHAIRMAN RICHARD C. SHELBY**

Chairman SHELBY. The Committee will come to order.

Today we will receive testimony from Federal Reserve Chair Janet Yellen. The semiannual Monetary Policy Report to the Congress is an important statutory tool for oversight of the Federal Reserve, which was created by Congress over 100 years ago as part of the Federal Reserve Act.

The act grants the Fed a certain degree of independence, but in no way does it preclude congressional oversight or accountability to the American people. There is broad consensus that the Fed should communicate in a manner that helps Congress and the public understand its monetary policy decision making.

How the Federal Open Market Committee makes its decisions remains a point of contention, however. Some argue for unfettered discretion, while others advocate a rule-based construct.

Recently, a statement released by 24 distinguished economists and other officials, including John Taylor, George Shultz, Allan Meltzer, and three Nobel Prize winners, disputes the idea that adherence to a clearer, more predictable rule or strategy would reduce Fed independence.

In fact, their statement argues, and I will quote, that "publicly reporting a strategy helps prevent policymakers from bending under pressure and sacrificing independence."

Last year, this Committee favorably reported the Financial Regulatory Improvement Act, which included a provision that would not establish a rule but, rather, require the Fed to disclose to Congress any rule it may happen to use in its decision making process.

I believe this represents a reasonable step toward increased transparency and accountability. It is my hope that this year we will be able to reach some kind of agreement on this and other banking reforms.

Never before has it been more important for Congress to consider ways to strengthen Fed transparency and accountability. Since the financial crisis, the Fed has expanded its monetary policy actions to an extent that would have been unthinkable 10 years ago.

As former Fed Chairman Paul Volcker described, during the crisis, the Fed took, and I will quote him, "actions that extend the very edge of its lawful and implied powers, transcending certain long-embedded principles and practices."

We are all too familiar with the successive rounds of quantitative easing that brought the Fed's balance sheet to over $4 trillion, with no wind-down in sight.

I think it begs the question: How will the Fed shrink a balance sheet that exceeds 20 percent of the entire U.S. economy?

Some also worry that the Fed may have assumed economic responsibilities beyond its statutory mandates of price stability and full employment. To the extent that the Federal Reserve has done so, it should be disclosed and justified.

While I agree that the Fed should be free to make independent decisions, it should not be completely shielded from explaining its decisions and the factors that it uses to guide them. At times, it seems that Federal Reserve officials resist even sensible reforms designed to improve economic performance, congressional oversight, or public understanding of the Federal Reserve's actions.

The need to preserve Fed independence is very real, but surely it does not justify objection to any reform. Independence and accountability should not be viewed as mutually exclusive concepts.

In fact, accountability is even more crucial given the Federal Reserve's role as a financial regulator. Never before has a single entity held so much power over the direction of our financial system.

Notably, Dodd-Frank expanded the Fed's regulatory authority over large sectors of the economy, including insurance companies and other nonbank financial institutions. Such regulatory authority and the rulemakings issued as a result of it raise significant questions.

Recently, the Federal Reserve has issued a number of new regulations stemming from the Basel III bank capital rules, such as total loss-absorbing capital, the liquidity coverage ratio, and high-quality liquid asset ratings. These rulemakings are based on the requirements set by the Bank for International Settlements and its Basel Committee on Banking Supervision.

But instead of allowing international bodies to serve as de facto U.S. regulators, the Fed should appropriately vet these rules and answer important questions.

For example, are those international requirements appropriately tailored for our domestic financial institutions? Are they even necessary given existing rules? Are they harming our economy or placing U.S. firms at a disadvantage?

I continue to encourage the Federal Reserve to further exercise its regulatory discretion to tailor enhanced prudential standards according to the systemic risk profile of each institution, not arbitrary factors. And where it does not have the authority to do so, Congress should step in with legislative changes. None of the Federal Reserve's authorities are immune from reform, and many of us believe that reform is long overdue.

Madam Chairman, I look forward to your testimony today and your thoughts on these important issues.

Senator Brown.

**STATEMENT OF SENATOR SHERROD BROWN**

Senator BROWN. Thank you, Mr. Chairman. Thank you, Madam Chair. It is so nice to have you back here. It is good to see everyone back in this hearing room. This is our first gathering since October, and I welcome all of you back.

I cannot help but think back to February 2009 when then-Chair Ben Bernanke told this Committee that our economy was suffering a severe contraction. President Obama had just taken the reins in the middle of a financial crisis that would become the worst since the Great Depression. American taxpayers had just rescued the banking and auto industries. By the time we hit bottom, 9 million jobs had disappeared. The unemployment rate soared to 10 percent. In some places that we all represent it was higher. Five million families lost their home to foreclosure. I mentioned to Chair Yellen that my wife and I live in Zip code 44105 in Cleveland, which had more foreclosures in the first half of 2007 than any Zip code in the United States. Thirteen trillion dollars in household wealth was wiped out. It was one of the darkest periods in our Nation's economic history.

Seven years later, it is clear we have come a long way since the financial crisis. Our economy has added 13 million jobs since 2010. We have had 71 consecutive months—that is almost 6 years—of job growth. The unemployment rate has dropped to below 5 percent, the lowest level since 2008. Average hourly earnings are up 0.5 percent since December, the second strongest monthly gain since the crisis, up 2.5 percent in the last year. And the Fed, as we know, increased rates for the first time in a decade. That is the good news.

But we still face severe challenges. Wages have been too flat for too long. Too many workers are still looking for jobs. Those that have one are not making as much as they should be, and some are benefiting from the recovery. Mostly the top 5 percent are benefiting from the recovery far more than average workers.

International economies are slowing. American exports are challenged by the strong dollar. Oil prices are at all-time lows, though they have not provided the economic boost that many analysts expected. Inflation remains very low.

The slow and steady progress of the economy has given rise to what I fear—and I see that in this room—what I fear is a collective amnesia for many on Wall Street and many in Congress, as if they forgot what happened in 2006, 2007, and 2008, as if they did not know about the human suffering in every one of our States, the lost wealth, the lost jobs, the foreclosed homes.

I think that few of us, and none of us enough, spend time talking to people who have lost their homes and have to explain to their child that they are going to have to move to a new neighborhood in a less nice house and go to a different school, and the pain that caused to the millions of people who have seen their homes foreclosed on.

They seem to have forgotten—this collective amnesia suggests that far too many people that sit on this side of this dais have forgotten just how devastating the crisis was for an entire generation of working and middle-class Americans. Instead of working to strengthen our economy and to bolster the financial system safeguards, some Republicans want to unleash the forces that almost destroyed the economy in the first place. They want to go back to business as usual with Wall Street.

Instead of conducting oversight hearings to push for implementation of the Wall Street Reform Act, we all remember when President Obama signed Dodd-Frank that chief financial services lobbyists in this town said, "Now it is half-time," meaning they were going to go to work to try to stop the Fed and weaken the FDIC rules and do whatever they could do on behalf of Wall Street. So instead of conducting hearings to push for implementation of Wall Street reform, this Committee instead has been holding hearings on weakening the law for banks and nonbanks and how to make it impossible for regulators to finalize their rules.

The Banking Committee has not in 13 months held a single hearing on strengthening consumer protections. We have not talked about improving credit reporting and debt collection. We have not examined how to curtail payday lending or make rental housing more accessible, affordable, and safe.

There is a lot of work to do to ensure we do not repeat the mistakes that led to the Great Recession. I sent a letter to Chair Yellen this week urging the Federal Reserve to do more to reduce the risks posed by big banks' involvement in the commodities business. The Fed and the FDIC need to make public determinations if individual firms have not provided credible living wills that demonstrate that they could go out of business without wrecking the financial system. This is one of the ways we determine if too big to fail still actually exists.

The regulators should finish rules relating to compensation incentives on Wall Street, understanding when Americans who have not had a raise for years are just barely making it when they see this kind of compensation on Wall Street and these kinds of bonuses for executives in many cases who helped to get us into the bad situation we are in.

If we have learned anything from the crisis, it is that Wall Street encouraged behavior that caused the crisis at a steep price to American homeowners and American renters. The Fed still has work remaining on its regulatory framework for the nonbanks that it supervises as well as insurance companies that own savings and loan holding companies, and I hope you will pay close attention, Madam Chair, to those business models.

And while regulators have taken important steps to rein in risks in money market mutual funds and the tri-party repo market, policymakers should continue to examine these and other potential threats in the nonbank sector.

To those that say that the reforms that have taken place in the U.S. will put us at a competitive disadvantage, this week has shown us that they actually benefit our financial system. It is clear to me that as a result of the new regulations, U.S. financial institutions are more resilient than their counterparts in other parts of the world.

Chair Yellen, I look forward to your assessment of both the economy and where we are with efforts to strengthen and more stabilize our financial system. All of us must do the necessary work to promote financial stability, to protect consumers, to help prevent what could be the next crisis. There is far too much at stake for American families to do otherwise.

Thank you.

Chairman SHELBY. Madam Chair, your written testimony will be made part of the record in its entirety. You proceed as you wish. Welcome to the Committee again.

## STATEMENT OF JANET L. YELLEN, CHAIR, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Ms. YELLEN. Thank you. Chairman Shelby, Ranking Member Brown, and other Members of the Committee, I am pleased to present the Federal Reserve's semiannual Monetary Policy Report to the Congress. In my remarks today, I will discuss the current economic situation and outlook before turning to monetary policy.

Since my appearance before this Committee last July, the economy has made further progress toward the Federal Reserve's objective of maximum employment. And while inflation is expected to remain low in the near term, in part because of the further declines in energy prices, the Federal Open Market Committee expects that inflation will rise to its 2-percent objective over the medium term.

In the labor market, the number of nonfarm payroll jobs rose 2.7 million in 2015 and posted a further gain of 150,000 in January of this year. The cumulative increase in employment since its trough in early 2010 is now more than 13 million jobs. Meanwhile, the unemployment rate fell to 4.9 percent in January, 0.8 percentage point below its level a year ago and in line with the median of FOMC participants' most recent estimates of its longer-run normal level. Other measures of labor market conditions have also shown solid improvement, with noticeable declines over the past year in the number of individuals who want and are available to work but have not actively searched recently, and in the number of people who are working part-time but would rather work full-time. However, these measures remain above the levels seen prior to the recession, suggesting that some slack in labor markets remains. Thus, while labor market conditions have improved substantially, there is still room for further sustainable improvement.

The strong gains in the job market last year were accompanied by a continued moderate expansion in economic activity. U.S. real gross domestic product is estimated to have increased about 1–¾ percent in 2015. Over the course of the year, subdued foreign growth and the appreciation of the dollar restrained net exports. In the fourth quarter of last year, growth in the gross domestic product is reported to have slowed more sharply, to an annual rate of just ¾ of a percent; again, growth was held back by weak net exports as well as by a negative contribution from inventory investment. Although private domestic final demand appears to have slowed somewhat in the fourth quarter, it has continued to advance. Household spending has been supported by steady job gains and solid growth in real disposable income—aided in part by the declines in oil prices. One area of particular strength has been purchases of cars and light trucks; sales of these vehicles in 2015 reached their highest level ever. In the drilling and mining sector, lower oil prices have caused companies to slash jobs and sharply cut capital outlays, but in most other sectors, business investment rose over the second half of last year. And homebuilding activity has continued to move up, on balance, although the level of new construction remains well below the longer-run levels implied by demographic trends.

Financial conditions in the United States have recently become less supportive of growth, with declines in broad measures of equity prices, higher borrowing rates for riskier borrowers, and a further appreciation of the dollar. These developments, if they prove persistent, could weigh on the outlook for economic activity and the labor market, although declines in longer-term interest rates and oil prices provide some offset. Still, ongoing employment gains and faster wage growth should support the growth of real incomes and, therefore, consumer spending, and global economic growth should pick up over time, supported by highly accommodative monetary policies abroad. Against this backdrop, the Committee expects that with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace in coming years and that labor market indicators will continue to strengthen.

As is always the case, the economic outlook is uncertain. Foreign economic developments, in particular, pose risks to U.S. economic growth. Most notably, although recent economic indicators do not suggest a sharp slowdown in Chinese growth, declines in the foreign exchange value of the renminbi have intensified uncertainty about China's exchange rate policy and the prospects for its economy. This uncertainty has led to increased volatility in global financial markets and, against the background of persistent weakness abroad, exacerbated concerns about the outlook for global growth. These growth concerns, along with strong supply conditions and high inventories, contributed to the recent fall in the prices of oil and other commodities. In turn, low commodity prices could trigger financial stresses in commodity-exporting economies, particularly in vulnerable emerging market economies, and for commodity-producing firms in many countries. Should any of these downside risks materialize, foreign activity and demand for U.S. exports could weaken, and financial market conditions could tighten further.

Of course, economic growth could also exceed our projections for a number of reasons, including the possibility that low oil prices will boost U.S. economic growth more than we expect. At present, the Committee is closely monitoring global economic and financial developments, as well as assessing their implications for the labor market and inflation and the balance of risks to the outlook.

As I noted earlier, inflation continues to run below the Committee's 2-percent objective. Overall consumer prices, as measured by the price index for personal consumption expenditures, increased just ½ percent over the 12 months of 2015. To a large extent, the low average pace of inflation last year can be traced to the earlier steep declines in oil prices and in the prices of other imported goods. And given the recent further declines in the prices of oil and other commodities, as well as the further appreciation of the dollar, the Committee expects inflation to remain low in the near term.

However, once oil and import prices stop falling, the downward pressure on domestic inflation from those sources should wane, and as the labor market strengthens further, inflation is expected to rise gradually to 2 percent over the medium term. In light of the current shortfall of inflation from 2 percent, the Committee is carefully monitoring actual and expected progress toward its inflation goal.

Of course, inflation expectations play an important role in the inflation process, and the Committee's confidence in the inflation outlook depends importantly on the degree to which longer-run inflation expectations remain well anchored. It is worth noting, in this regard, that market-based measures of inflation compensation have moved down to historically low levels; our analysis suggests that changes in risk and liquidity premiums over the past year-and-a-half contributed significantly to these declines. Some survey measures of longer-run inflation expectations are also at the low end of their recent ranges; overall, however, they seem reasonably stable.

Turning to monetary policy, the FOMC conducts policy to promote maximum employment and price stability, as required by our statutory mandate from Congress. Last March, the Committee stated that it would be appropriate to raise the target range for the Federal funds rate when it had seen further improvement in the labor market and was reasonably confident that inflation would move back to its 2-percent objective over the medium term. In December, the Committee judged that these two criteria had been satisfied and decided to raise the target range for the Federal funds rate ¼ percentage point, to between ¼ and ½ percent. This increase marked the end of a 7-year period during which the Federal funds rate was held near zero. The Committee did not adjust the target range in January.

The decision in December to raise the Federal funds rate reflected the Committee's assessment that, even after a modest reduction in policy accommodation, economic activity would continue to expand at a moderate pace and labor market indicators would continue to strengthen. Although inflation was running below the Committee's longer-run objective, the FOMC judged that much of the softness in inflation was attributable to transitory factors that are likely to abate over time, and that diminishing slack in labor and product markets would help move inflation toward 2 percent. In addition, the Committee recognized that it takes time for monetary policy actions to affect economic conditions. If the FOMC delayed the start of policy normalization for too long, it might have to tighten policy relatively abruptly in the future to keep the economy from overheating and inflation from significantly overshooting its objective. Such an abrupt tightening could increase the risk of pushing the economy into recession.

It is important to note that even after this increase, the stance of monetary policy remains accommodative. The FOMC anticipates that economic conditions will evolve in a manner that will warrant only gradual increases in the Federal funds rate. In addition, the Committee expects that the Federal funds rate is likely to remain, for some time, below the levels that are expected to prevail in the longer run. This expectation is consistent with the view that the neutral nominal Federal funds rate—defined as the value of the

Federal funds rate that would be neither expansionary nor contractionary if the economy was operating near potential—is currently low by historical standards and is likely to rise only gradually over time. The low level of the neutral Federal funds rate may be partially attributable to a range of persistent economic headwinds—such as limited access to credit for some borrowers, weak growth abroad, and a significant appreciation of the dollar—that have weighed on aggregate demand.

Of course, monetary policy is by no means on a preset course. The actual path of the Federal funds rate will depend on what incoming data tell us about the economic outlook, and we will regularly reassess what level of the Federal funds rate is consistent with achieving and maintaining maximum employment and 2 percent inflation. In doing so, we will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. In particular, stronger growth or a more rapid increase in inflation than the Committee currently anticipates would suggest that the neutral Federal funds rate was rising more quickly than expected, making it appropriate to raise the Federal funds rate more quickly as well. But, conversely, if the economy were to disappoint, a lower path of the Federal funds rate would be appropriate. We are committed to our dual objectives, and we will adjust policy as appropriate to foster financial conditions consistent with their attainment over time.

Consistent with its previous communications, the Federal Reserve used interest on excess reserves, or IOER, and overnight reverse repurchase, or RRP, operations to move the Federal funds rate into the new target range. The adjustment to the IOER rate has been particularly important in raising the Federal funds rate and short-term interest rates more generally in an environment of abundant bank reserves. Meanwhile, overnight RRP operations complement the IOER rate by establishing a soft floor on money market interest rates. The IOER rate and the overnight RRP operations allowed the FOMC to control the Federal funds rate effectively without having to first shrink its balance sheet by selling a large part of its holdings of longer-term securities. The Committee judged that removing monetary policy accommodation by the traditional approach of raising short-term interest rates is preferable to selling longer-term assets because such sales could be difficult to calibrate and could generate unexpected financial market reactions.

The Committee is continuing its policy of reinvesting proceeds from maturing Treasury securities and principal payments from agency debt and mortgage-backed securities. As highlighted in the December statement, the FOMC anticipates continuing this policy "until normalization of the level of the Federal funds rate is well under way." Maintaining our sizable holdings of longer-term securities should help maintain accommodative financial conditions and reduce the risk that we might need to return the Federal funds rate target to the effective lower bound in response to future adverse shocks.

Thank you. I would be pleased to take your questions.

Chairman SHELBY. Madam Chair, we have talked about this privately before, but does the Fed still use the Phillips rule in a lot of its deliberations?

Ms. YELLEN. Well, the——

Chairman SHELBY. Is that an important tool? Or is it just one of many tools?

Ms. YELLEN. It is essentially a theory that fits reasonably, but certainly not perfect, explaining the inflation process. And it is a theory that says first that inflation expectations play a key role in determining inflation; second, that various supply shocks, such as movements in the price of oil or commodities or import prices, also play an important role; and, third, that the degree of slack in the labor market or the degree more generally of pressure on resources in the economy as a whole exert an influence on inflation as well; and that theory underlines the kind of statement that I have made that, if inflation expectations remain well anchored and the transitory influence of energy prices and the dollar fade over time, that in a tightening labor market with higher resource utilization, I expect inflation to move back up to 2 percent. It is consistent with that Phillips curve theory.

So, in essence, yes, I want to make clear that all of those elements play a role. And, of course, there can be other factors, idiosyncratic factors or other factors not captured by that model that make a difference. So that model in part underlies an expectation inflation will return to 2 percent. But in our statement in December and January, the Committee indicated that we will continue to assess actual developments with inflation and see whether they are in alignment with our expectations because, after all, this is not a theory that is perfect.

Chairman SHELBY. Would you say today that the precipitous decline in the price of oil and gas plus the rise of the dollar has surprised the Fed to some extent? Or could you have predicted all of this?

Ms. YELLEN. So I think we have been—markets have been and we have been quite surprised by movements in oil prices. I think in part they reflect supply influences, but demand may also play a role.

The stronger dollar is partly something that we anticipated because the U.S. economy has been performing more strongly than many foreign economies, and we have a divergence in the stance of monetary policy that influences capital flows in the dollar. Nevertheless, the strength of the dollar and the extent to which it has moved up since mid-2014 is not something that we anticipated.

So, yes, we have been surprised in part by those developments, and they have played a significant role in holding down inflation.

Chairman SHELBY. Do you believe this economy, although it is a number of years old, as you would say, has peaked or is near peaking or will start declining and put us into a recession of some type? Or you just do not know, it is something you are watching?

Ms. YELLEN. Well, we are watching developments very carefully. I would say there is always some chance of a recession in any year, but the evidence suggests that expansions do not die of old age. We are, as I mentioned in my testimony, looking very carefully at global financial market and economic developments that create risks to the economy, and we are evaluating them, recognizing that these factors may well influence the balance of risks or the trajectory of the economy, and thereby might affect the appropriate stance of monetary policy. But at this point I think it is premature to make a judgment. We will meet in March, and our Committee will carefully deliberate about what impact these developments have had. Today I think it is premature to render a judgment on that.

Chairman SHELBY. Are you saying basically the Fed will be careful, looking at every aspect of the economy and the international economy, before it raises the Federal funds rate? Is that what you are saying?

Ms. YELLEN. Yes, certainly, we will. We will evaluate the outlook, certainly taking these developments into account, and I want to emphasize that, as I said, monetary policy is not on a preset course. We want to set the path of policy that will achieve the objectives that Congress has assigned to us, and that certainly entails doing what we can to make sure that the expansion continues.

Chairman SHELBY. Could you just take a couple of minutes and share with us your view as to the strength of our banking system today if we were to—we hope we will not go into a recession, but we do have cycles, and we know that. What is the condition of our banking system? Do you feel comfortable about our banking system? Or is it work you are working every day on?

Ms. YELLEN. I think the steps that we have taken over the last 7 years have had very substantial payoffs in the form of a much more resilient and stronger, better capitalized, more liquid banking system. We have not only raised capital and liquidity standards, including especially ramping those up for the most systemic firms; we have also used stress test methodology to see whether we think those firms—and we do think that they can—continue to support the credit needs of our economy, even in this scenario of very significant stress. So I think we do have a strong banking system, and we have seen marked improvement.

Chairman SHELBY. Senator Brown.

Senator BROWN. Thank you, Mr. Chairman.

You said in your testimony and in your response to Chairman Shelby, Madam Chair, you said that in regards to monetary policy the Committee is by no means on a preset course, and then you later said if the economy were to disappoint that you would—you suggested it would be less likely to raise interest rates. And I want to make just one comment, and then I have three questions—or a couple questions about wages, that the dual mandate is so important, I so appreciate your emphasis always on it, on, of course, restraining inflation, but also equally importantly, and to many of our constituents, I think maybe even more importantly, the importance of job growth. And I also appreciate the importance to you of wage growth as you deliberate on these questions of raising interest rates. And while job growth has been better than some might have expected with 71 consecutive months, wage growth has not, as you know, and with some good signs recently but not enough. Data released earlier this month show average hourly earnings increased in 2015.

My questions are these: Are other wage growth—and just three questions, and answer them together, if you would. Are other wage growth indicators showing the same increases? Are wage increases occurring across race and gender and across economic sectors, or are certain groups doing better than others in that wage growth? And, finally, can the economy reach full employment without labor force participation increases for women and minorities and have widespread wage growth? So if you would sort of pull those together and answer, Madam Chair.

Ms. YELLEN. So you asked about other wage indicators. As you indicated, average hourly earnings have picked up, but it is a series that is volatile. And while I think we see some evidence of faster wage growth there, I would still refer to that evidence as tentative.

In compensation per hour, we also see a somewhat slightly higher pace over the last 12 months in its growth, but, again, this is a very volatile series.

And in terms of the employment cost index, compensation growth has really not shown any sustained pickup, and that is a significant series.

So at best, I would say the evidence of a pickup is tentative. I do continue to envision that if the labor market continues to improve, as we certainly hope it will, that there is scope and we will likely see some further pickup in wage growth.

In terms of particular groups in the economy, I cannot give you recent evidence on developments by—I think you asked for race and gender, but——

Senator BROWN. And sector.

Ms. YELLEN. So I do not have that data at my fingertips, but, we know that in the U.S. we have had a longstanding trend toward rising inequality, rising wage inequality in this country, and that more educated people have seen faster wage growth than those in the middle and at the bottom, and I believe that trend continues. A lot of jobs during the downturn, middle-income jobs, were lost. And although jobs across the occupational distribution have been created, job creation has perhaps been more heavily skewed toward sectors that have lower pay. And I think that there are deeper structural reasons that these trends continue. They predate the downturn in the economy, but the downturn probably accelerated those trends that perhaps relate to globalization and technological change that are demanding increased skill.

Senator BROWN. Thank you, and I think you cannot—and I just have one comment. I think we cannot be satisfied that we have full employment without full employment across demographic lines, meaning women and minorities, especially. We do not really have full employment until it is full for them also, and I know that you recognize that.

Let me shift—and I know we do not have a lot of time because there is a vote called—to a question on living wills. We have discussed that process. Last year, you said you felt that the Fed and FDIC have provided companies with clear feedback on the deficiencies in the submissions to you, and that you would be willing to make formal determinations that certain plans are not credible.

Three questions. When do you anticipate providing feedback on last year's submissions? Are you still committed to making formal determinations about insufficient plans? And will you differentiate between and among firms when you provide feedback or make determinations?

Ms. YELLEN. So, when, we are actively engaged and far along in evaluating these plans. The Board has met regularly since August. I believe we have had seven Board meetings to discuss these plans. We have worked closely with the FDIC. We have not made final determinations, so it is premature for me to give you a definite time, but we will make these determinations in the not too distant future. We are very actively engaged.

And, yes, we are still committed, as I indicated, to finding that plans that do not meet the specifications we outlined, we are certainly prepared to find them deficient and to specify what those deficiencies are.

Senator BROWN. And one more quick one. Does an aggressive, thorough living will process answer the question of too big to fail?

Ms. YELLEN. It certainly helps. We have also put in place requirements for adequate—our so-called TLAC rules for adequate loss absorbency. We certainly are requiring that firms have workable plans for how they would be resolved under bankruptcy. And Dodd-Frank—so we want to make sure that there is a way that they could be resolvable under bankruptcy, and that the resources are there so that the taxpayer would not be at risk. And Dodd-Frank provided as a backup authority Title 2, which would be, if it is necessary, an additional tool that we can use.

So I think it is premature to say we have solved too big to fail, but I do think we have made very substantial strides toward dealing with it, toward addressing it.

Chairman SHELBY. Thank you.

Senator Crapo.

Senator CRAPO. Thank you, Mr. Chairman.

Chair Yellen, I appreciated your comments at our last Humphrey-Hawkins hearing when we discussed the $50 billion trigger being used to determine when a bank is systemically important and your openness to increasing the threshold and focusing on the flexibility that we need there.

While Congress continues to make progress on this effort—and hopefully we will make some progress soon—you have previously noted that the Federal Reserve has the authority and discretion on its own to tailor the application of these rules as they apply to systemically important designated banks, those covered by Section 165 of Dodd-Frank.

My question is: Can you give us some specific examples of the kind of tailoring that might be in the works as the Federal Reserve works on this? And will there be relief on stress testing and resolution planning?

Ms. YELLEN. So we are, for example, actively engaged in reviewing our stress test testing and capital planning framework for the bank holding companies above $50 billion, and we are considering ways in which we can make that less burdensome for the bank holding companies that are close to the $50 billion asset line.

Along with that, we might make it somewhat stricter for some of the GCIBs. We are considering that as well, and I think that would be tailoring appropriately, I think—at both ends of the spectrum. We are paying close attention to the costs and benefits of particular changes, how they affect those institutions.

So we have not made final decisions, but that is certainly something on the drawing board where I hope we can make progress.

Senator CRAPO. Do you believe we will see any of that tailoring announced soon or applied soon?

Ms. YELLEN. Certainly this year, but I think if we were to make changes, they would not take effect until the 2017 cycle of stress testing.

Senator CRAPO. Thank you. And shifting topics, because of the liquidity issues that occurred on October 15, 2014, in the Treasury market, there has been a lot of effort by the Federal Reserve and others to better understand the factors that impact the liquidity of the Treasury market, especially during stressed market conditions.

The concern that I heard is that several factors, including new regulations, may have reduced market-making capacity in the market, and that during stressed market conditions, liquidity may be more prone to disappearing at times when it is most needed, as it seemed to do on October 15th.

Are you concerned that liquidity in the bond markets may be less available in stressed market conditions and that we need to better understand and analyze all the factors, including the impact of regulations on this?

Ms. YELLEN. Senator, yes, I agree with what you said. You know, normal metrics, the ones we typically monitor on liquidity conditions in these markets, have not changed that much, but the perception and, of course, some experiences, as you cited, suggest that under stressed conditions liquidity may disappear when it is most needed. So we are looking very carefully at that and at all of the factors that may be involved. Regulation is on the list, but there are other things as well. The prevalence of high-frequency trading has increased. Broker-dealers have reconsidered in the aftermath of the crisis the appropriate models they want to use to run their businesses. There have been changes in disclosure that affect corporate bond markets, and we want to recently to disentangle the impact of all of those different influences.

Senator CRAPO. Well, thank you. And one last question. There have been several hearings on the Financial Stability Oversight Council that focused on ways to improve transparency, accountability, and communications. In the April Subcommittee hearing that Senator Warner and I held, the witnesses agreed that the Financial Stability Oversight Council needed to provide actionable guidance to designated systemically important financial institutions on how they could de-risk and ultimately shed their designation label.

What has been done—this has been referred to as an “off ramp.” Do you agree that further progress in this area is appropriate? And wouldn’t our financial system be safer if companies knew what they could do to address the risks and had an incentive to become less systemically risky?

Ms. YELLEN. So I would certainly agree with you, it would be good if they became less systemically risky, and designation is not intended to be permanent. The FSOC reviews these designations every year, and it is, of course, important for firms to understand the kinds of steps that they could take to shed their designation and to become less risky.

But I think the FSOC needs to be very careful not to micromanage these firms and to try to tell them exactly what their business models ought to be. Those firms know exactly why they were designated. They have received detailed letters and analysis explaining what the factors were about their businesses that would give rise to systemic risk in the event of their failure. So they do understand why they have been designated and the things that they would need to address.

So designation is not intended to be permanent. We do have regular reviews, and I think those firms do have an understanding of the kinds of things they would need to be prepared to do. So I just do not think it is appropriate for the FSOC to say, "We want you to do the following business plans." There are a lot of different ways in which a firm might decide to address those issues.

Senator CRAPO. Thank you. My time has expired. I would like to discuss this with you further. Thank you.

Ms. YELLEN. Certainly.

Senator CORKER. [Presiding.] Senator Tester.

Senator TESTER. Thank you, Senator Corker.

Thank you, Chairman Yellen, for being here today. I want to follow up with Senator Crapo's questions a little bit because there is some new information that you just gave that I was not aware of, and that is that—and correct me if I am wrong—you just said that the companies understand why they are designated as a SIFI and, therefore, they understand what they have to do to get undesignated. Is that what you just said? Because that is new information for me.

Ms. YELLEN. Well, in the sense that they have been given very detailed explanations of what aspects of their business give rise to the systemic risks that have caused them to be designated.

Senator TESTER. And so is that information given as the process goes on or after the process of designation is done?

Ms. YELLEN. Well, there is a three-stage process.

Senator TESTER. Yeah.

Ms. YELLEN. And there is a great deal of interaction with FSOC during that process.

Senator TESTER. OK.

Ms. YELLEN. So I believe before they are designated, there is a sufficient amount of interaction that they well understand the aspects——

Senator TESTER. Why they are being designated?

Ms. YELLEN. ——that are leading them to be designated, and then they are given a very detailed——

Senator TESTER. Would they have the opportunity as that process goes on to make changes so they would change the direction the FSOC is going? If that information is—what I am getting at is if that information is being given out early enough so the company can say, well, we are going to make some changes—not changes that the FSOC demands of them to make, but they have chosen to make some changes to stop the designation, do you believe they have time to do that before the designation is made?

Ms. YELLEN. So they certainly have lots of opportunities to interact with FSOC and to explain——

Senator TESTER. OK.

Ms. YELLEN. ——their business model and the direction it is going.

Senator TESTER. I think that is good. Thank you, Chairman.

I want to talk a little bit about the housing sector just very, very briefly. Could you give us your perspective on what the Fed is seeing in the housing sector right now and what a hiccup in that sector would mean for the American taxpayer?

Ms. YELLEN. So we are seeing a recovery, I would say, in housing. It has gone on now for a number of years, but it is very, very gradual.

Senator TESTER. Yeah.

Ms. YELLEN. House prices are recovering. They have increased quite a bit, and I think that is helping the financial situation of many households.

Senator TESTER. Yeah.

Ms. YELLEN. The level of new construction of residential investment remains quite low relative to underlying demographic trends. So it seems to me there is quite a significant way for housing to go before we could say it is at levels consistent with demographic trends. So I think it will continue to improve.

Senator TESTER. OK.

Ms. YELLEN. And it is a support to the economy.

Senator TESTER. All right. And a hiccup in the housing industry, what would that mean for the taxpayer right now?

Ms. YELLEN. For the taxpayer.

Senator TESTER. The American taxpayer, what would a housing slowdown or perhaps not a collapse but a decrease in their growth mean to the American taxpayer vis-a-vis Fannie Mae and Freddie Mac?

Ms. YELLEN. Oh, vis-a-vis Fannie Mae and Freddie Mac?

Senator TESTER. Yeah.

Ms. YELLEN. So I am not——

Senator TESTER. OK.

Ms. YELLEN. I do not have——

Senator TESTER. We are probably going down a line that we——

Ms. YELLEN. I am sorry. I do not have numbers on——

Senator TESTER. Tell me, can you give me a sense of what the Fed is doing to ensure that we are protecting consumers while at the same time differentiating between community banks and the big banks——

Ms. YELLEN. Well, when you say that we are protecting consumers——

Senator TESTER. Yes, while at the same time differentiating the regulations that impact the small banks versus the big guys.

Ms. YELLEN. So consumer protection is a very important part of our supervision, and the CFPB examines the larger banks in terms of their consumer compliance, and our responsibility is now with the smaller banks in community banks where we have consumer protection enforcement.

We try to tailor our examinations, our consumer exams of the community banks so that they are not too burdensome and they are focused on real risks.

Senator TESTER. Do you feel you have been successful in that tailoring from a community bank standpoint?

Ms. YELLEN. We are very focused on regulatory burden on community banks, and we are trying to do both in the safety and soundness side and on the consumer compliance side everything that we can to reduce burden while still making sure that banks abide by consumer protection.

Senator TESTER. OK. If I might, Mr. Chair, just very quickly, we are seeing consolidation in banks in Montana pretty rapid. Is that true throughout the country? And are you concerned about that?

Ms. YELLEN. Well, there has been consolidation. We are concerned about the burdens on community banks and trying to relieve that. In a low-interest-rate environment, net interest margins are also squeezed for many of these banks, and that is a factor also here.

Senator TESTER. Thank, Mr. Chairman. Thank you, Janet.

Senator CORKER. Thank you.

Madam Chairman, thank you for being here. I know when we went through our confirmation hearings, I noted that you were the first avowed dove to head the Fed, and yet you honored the statements you made, which were at the time that if the data showed that you needed to raise interest rates, you were going to do so, and you just did that recently. And I noticed during this hearing you were talking about 2 percent inflation and full employment. I think the question by many is: Are there any other rules at the Fed other than 2 percent inflation and full employment as you look at data that guide where you are going? I would like not a particularly long answer to that.

Ms. YELLEN. Well, those are——

Senator CORKER. I think there has been—as you know, there have been criticisms about whether there really is a rule-based system that people understand so that it is not like the Fed is the Wizard of Oz and no one really knows what is going to happen. And, you know, markets have fallen 500 points, which is unusual, in the last couple days after testimony, which I thought was good yesterday. But is there some other rule-based system that those of us who care about these kind of things could count on relative to what the Fed's actions are?

Ms. YELLEN. So, Senator, if I might, I would like to distinguish between a systematic approach to monetary policy, which I believe we have put in place, and a system that we use that is in line with what other advanced central banks do and a mechanical, mathematical rule-based approach, which I do not support and no central bank that I am aware of follows.

We have articulated in a clear statement what our objectives are: 2 percent inflation and our interpretation of maximum employment. Every 3 months, all members, all participants in the FOMC set out their explicit projections for key variables and also the monetary policy path that they regard as appropriate to achieve those variables, and we publish these projections.

Now, it is not a single Committee-endorsed view, but it does show the range of forecasts and assessments of what appropriate policy would be in line with those forecasts, and we update those projections every 3 months in line with incoming data. And I would regard that as quite a bit of information and a systematic approach. We are telling the public what the range of opinion is about appropriate policy and the associated path for the economy. And, of course, there is uncertainty. So policy is not on——

Senator CORKER. I got it.

Ms. YELLEN. ——a preset path. We update those projections, but we are showing what we think in a systematic way.

Senator CORKER. I would think—we had a nice conversation the other day at length, and I think that one of the things the Fed could do—you asked me questions along those lines—would be to maybe come in here in an off-the-record meeting and lay that out, and then contrast that with a rule-based system. I think that would be very helpful to the Fed and I think very helpful to the Committee Members here.

Let me ask you this: Just briefly on the $4.5 trillion balance sheet that the Fed now has, as we look at where we are today, has there been any thought, looking in the rearview mirror, that it might have been good to unload some of that earlier so there was additional ammunition should that be needed in the future?

Ms. YELLEN. Well, so I think the thinking about additional ammunition is that the best ammunition we have and the single most reliable and predictable tool for affecting the stance of monetary policy is variations in short-term interest rates. So as the economy has now gotten to a point where we are slowly reducing accommodation, we have a choice between selling off assets or raising short-term interest rates.

Senator CORKER. I am talking about as the economy goes the other direction, and I guess the question then is—so you have got a pretty loaded up balance sheet, and I think people are beginning to observe that the Fed is probably out of ammunition, unless you decided to go to negative rates. And if you could, briefly—I am not proposing this. I am just observing what is happening around the world and what is happening here in our own country. I think people are waking up and realizing that the Fed really has no real ammunition left. You alluded to this some yesterday, but—and I have one more question, so I do not want this to be too long. But are you considering if things go south, which none of us hope do, are you considering negative rates? I know you had that question yesterday. Yes or no?

Ms. YELLEN. So the answer is that we had previously considered them and decided that they would not work well to foster accommodation back in 2010. In light of the experience of European countries and others that have gone to negative rates, we are taking a look at them again because we would want to be prepared in the event that we needed to add accommodation. We have not finished that evaluation. We need to consider the U.S. institutional context and whether they would work well here. It is not automatic.

Senator CORKER. Yeah.

Ms. YELLEN. There are a number of things to consider. We have not——

Senator CORKER. I got it.

Ms. YELLEN. So I would not take those off the table, but we would have work to do to judge whether they would be workable here. And I would say we have——

Senator CORKER. I would have thought that where we would be is that we were out of ammunition. And it would be good for the markets to understand that we are out of ammunition, and now it is up to other factors. But now, as I hear it, potentially negative rates are something that could affect things over time.

If I could just go down one more path, productivity. You have talked about that as the greatest driver for wage increases. And I appreciated some of Senator Brown's opening comments, and I want to say that, you know, the concern that we all have is the most vulnerable in our society are the ones that are hurt most when we have downturns and the slowest to regain, and there is no question there is a wealth gap in our country. The question is: What do we do about it?

You have mentioned the most important factor determining productivity in advances in living—advances in living standards is productivity growth, defined as the rate of increase on how much a worker can produce in an hour of work. Over time, sustained increases in productivity are necessary to support rising household incomes. And then later on, we do know that productivity ultimately depends upon many factors, including our workforce knowledge and skills. By the way, does monetary policy affect knowledge or skills? The answer is no.

Does the quality of capital equipment—monetary policy does not affect that. Is that correct?

Ms. YELLEN. Well, the only qualification I would make is that during a long, deep downturn like we had, capital investment, in part because it was not needed, was very slow. And that leaves a legacy that has a negative impact. And when people are out of work for a long period of time, their skills can erode to the point where it becomes difficult for them——

Senator CORKER. I am trying to help you here. The teacher has now showed up, and he is going to reprimand me for going over. So is there anything about monetary policy that——

Chairman SHELBY. Senator Corker knows that would not be in order.

Senator CORKER. Does monetary policy affect infrastructure investment?

Ms. YELLEN. No.

Senator CORKER. OK. So the point is productivity is sort of on this side of the dais. Is that correct?

Ms. YELLEN. Yes.

Senator CORKER. And when people try to look at the Fed through monetary policy to increase productivity, it is a ridiculous notion, is it not?

Ms. YELLEN. Fundamentally, it is not something we control.

Senator CORKER. And that is our job, and we are not doing our job.

Let me just ask one last question, and the Chairman has been very nice. He came in today in a very good mood.

[Laughter.]

Senator CORKER. Last year, in a budget meeting, the head of—Doug Elmendorf came in and said that because Federal borrowing reduces total saving in the economy over time, the Nation's capital stock would ultimately be smaller than it would be if debt was smaller, and productivity and total wages would be lower. So as we accumulate debt, we are actually hurting many of the people in this room that came today because they care about this, because we are really hurting productivity. Is that a true statement?

Ms. YELLEN. Well, over long periods of time, yes, I would agree with that.

Senator CORKER. Thank, Madam Chairman.

Thank you, Chairman.

Chairman SHELBY. Senator Menendez.

Senator MENENDEZ. Thank you, Mr. Chairman.

Madam Chairman, let me talk about the challenges of families who still, notwithstanding the numbers, do not see their incomes rising. I know that in some respects the numbers are indisputable. The unemployment rate is at 4.9 percent, the lowest since we have seen since February 2008, less than half of what it was at the peak in October 2010, 14 million jobs over 71 straight months. But those numbers in my mind do not tell the whole story. Long-term unemployment persists with people unemployed for 27 weeks or longer, compromising more than a quarter of all of the total number of jobless individuals. Hardworking families throughout the country have been waiting too long for income increases to materialize. And those the economy has partially healed and hopefully will continue to heal, to me there is a clear indicator of how much harm was inflicted by the financial crisis.

Many employers due to market conditions are paying low wages and offering limited benefits to their employees with little concern that these employees will leave because of the slack in the job market. Employers have a sea of prospects every time an employee jumps ship.

So talk to me about what needs to be done at the Fed and elsewhere to address long-term unemployment and to foster policies that transform economic growth into growth for hardworking families.

Ms. YELLEN. Well, I think what we are trying to do to contribute to the solution of that problem is to keep the economy growing at a steady pace, to keep the labor market improving in the hope and expectation that a stronger labor market will improve the status of all groups in the labor market and begin to bring down long-term unemployment, involuntary part-time employment, and we have seen that.

So unemployment rates have come down for almost all demographic groups. As high as it is, the incidence of long-term unemployment has declined. Involuntary part-time unemployment has also declined as the economy has improved. But these are long-standing adverse trends, including structural factors like globalization, the very slow growth in middle-income jobs, technological trends that have favored higher-skilled workers. I mean, I think for Congress there are any number of things that you might consider and might do that would be helpful in addressing these trends. Some of them, many of them would be related to training, education, increasing opportunity to make sure that those skills can be more readily acquired.

Senator MENENDEZ. Let me ask you, just before I turn to another subject, how can the Fed better account for full employment and, thus, enhanced efficiency and production in its analysis and planning?

Ms. YELLEN. Well, from my point of view, and I think from the point of view of the FOMC, more jobs are always good, employment is good. And when we think about maximum employment, we are really considering is there a point at which pursuing that goal would lead to higher inflation and inflation above our 2-percent objective.

So we try to estimate, and, in fact, all participants in the FOMC every 3 months write down their estimate of the unemployment rate in the economy that would be sustainable and consistent with our inflation objective. At the moment the median of those estimates is 4.9 percent, but most of us recognize that there are additional forms of slack that we would certainly like to see diminished.

Senator MENENDEZ. Well, as a corollary, and a final point I would like to hear from you on, context matters. When I sit on the Senate Foreign Relations Committee and I see what is happening with China and other places in the world, context matters. And here in the United States and in Europe and Asia, we have seen the combination of fiscal austerity and tight monetary policy can be toxic for an economy that is recovering. And so I know that there is this sense among—I think there is a sense among Fed policymakers that they are eager to reach the point in the economy where we can "normalize" monetary policy by raising rates. But can you describe the risks to the economy—and this is always a calibration, I understand—of tightening too soon? And do you take this global context into consideration when you are looking at that?

Ms. YELLEN. We absolutely take the global context into consideration, and normalization is not something we want to pursue and accomplish for its own sake. We only want to move to more normal levels of interest rates if it is consistent with achieving our objectives of 2 percent inflation and maximum employment. We want to and intend to put in place the monetary policy that is consistent with achieving those objectives.

In an economy that has been recovering, the Committee felt that it could be on a path and would likely be on a path where short-term rates would gradually rise over time consistent with that objective. But I want to emphasize that monetary policy is not on some preset course. Monetary policy will be set and calibrated to do the best we can to achieve our congressionally mandated objectives.

Senator MENENDEZ. All right. Thank you, Mr. Chairman.

Chairman SHELBY. Senator Toomey.

Senator TOOMEY. Thank you, Mr. Chairman. And, Madam Chairman, thanks for joining us again.

I want to follow up on the line of discussion that Senator Corker was discussing, and, Madam Chairman, we have had this conversation before. You may recall I have been advocating that the Fed normalize interest rates for a long time now. One of my deep concerns is that central banks around the world, very much including our own, seem to be trying to compensate for an inability of the political class around the world to address what is really holding back economic growth, which are fiscally unsustainable budgets, in our case and I would argue in much of the rest of the world, an avalanche of new regulations that is holding back economic growth, high marginal tax rates that discourage savings, work, investment. And the fact is central banks' monetary policy cannot make up for those problems.

In fact, you could argue in some cases they can make it worse.

Now we see the markets as of this morning appear to be pricing in an expectation that there will be no further increases in the interest rates that the central bank controls. They may be right, they may be wrong, but that is the expectation now. And there is this discussion, since the rest of the world is pursuing ever further this new chapter in radical monetary policy, we have this discussion about negative interest rates. And I appreciate the fact that you in your discussion with Senator Corker pointed out that there might be some serious concerns.

I find it very, very disturbing to even seriously consider moving in that direction, and I hope we could talk about some of the potential risks of negative interest rates, because I think there is a qualitative difference, and I would like to get your thought on this between, say, a 25-basis-point movement in Fed-controlled rates, a movement that takes you from a low-positive rate to another low-positive rate, versus one that crosses the threshold into the negative.

Above and beyond the psychological effect—I think most of us have grown up our entire life with the expectation that there is an absolute floor to interest rates. That would be shattered, and that might have unanticipated consequences. But there are practical consequences, too, and I am hoping you could comment on some.

For instance, it would seem that it would crush net interest margins for banks and perhaps dramatically diminish their ability to provide capital. I do not know how a money market business survives at all if there is a sustained period of negative interest rates.

I could see an adverse effect on business investments. Investors would be pressured to move further out the risk curve, even further than they have already been pressured. It would put the U.S. deep in the midst of a global currency war, which is won by he who debases his currency the most.

And I would suggest that the results where it has been tried have not gone so well. Sweden has had negative interest rates since 2009. They have got a massive property bubble. The eurozone area generally has had negative interest rates since June of 2014. GDP growth has been very, very weak. Japan recently instituted negative interest rates, and as you saw, among other problems, they recently had a completely failed auction. They had to give up on auctioning off JGBs, so I guess we just monetize the debt.

It seems to me there are a lot of potential problems, and I wonder if you could, first, confirm that, for a layman, when we talk about negative interest rates, if that is imposed on savers, we are talking about savers having to pay a bank in order to take their money on deposit. Isn't that equivalent to a tax on savings? And could you just comment on some of these other problems?

Ms. YELLEN. So in the European countries that have taken rates to negative territory, while I will say I was surprised that it was possible to move rates as negative as some countries have done, I think we have not in those countries seen actual fees levied on depositors. I may be wrong about—there may be some experiences there that I am not aware of, but I do not think there has been broad-based passthrough of negative rates to at least small depositors. But——

Senator TOOMEY. And if banks resist that, then that just means their margins are crushed.

Ms. YELLEN. Their margins have been squeezed. A low interest rate environment generally tends to push down net Internet margins.

Now, they adopted it because they were concerned about inflation running very much below their objectives and wanted to stimulate the economy in order to achieve those objectives, so there were reasons that they adopted it. In our own context, when we considered this in 2010, we were concerned about potential impacts on money market functioning and did not really think it was be possible to bring them to very negative levels. And before we were to take a step like that, we would have to think through all of the institutional details and how they would work in the U.S. context.

I think as a matter of due diligence and preparedness, these are things we need to work through, but we do not even know if payments and clearing and settlement systems in our context would be able to easily handle negative rates. So we have not studied that.

Senator TOOMEY. And just a very quick follow-up, Mr. Chairman, and I will be finished, but isn't it also true that there is an internal memo at the Fed from, I think it was, August of 2010 that raises doubts about whether the Fed has the legal authority to impose negative interest rates?

Ms. YELLEN. No. So there is a memo from 2010, and what it really said is that the legal issues have not been studied. It was silent on the legality. It was a memo that discussed market functioning and economic issues connected with it, and the legal issues had not been vetted.

I am not aware of any legal restriction that would mean that we could not establish negative rates, but I will say that we have not looked carefully at the legal side of this.

Senator TOOMEY. I would like to submit that memo to the record, Mr. Chairman, and just quote very briefly from——

Chairman SHELBY. Without objection, it will be made part of the record.

Senator TOOMEY. Thank you, Mr. Chairman. Among other things, the memo does say, and I quote, "There are several potentially substantial legal and practical constraints." In another part of the letter it says, and I quote, "It is not at all clear that the Federal Reserve Act permits negative IOER rates."

So, obviously, there was a question in somebody's mind.

Ms. YELLEN. Right. It had not been seriously studied, and at this point I am not aware of a legal constraint. But, again, we have not run that through a careful legal analysis.

Senator TOOMEY. Thank you very much.

Chairman SHELBY. Thank you.

Senator Warner.

Senator WARNER. Thank you, Mr. Chairman.

Chairwoman Yellen, it is great to see you, and thank you for your service. As we kind of go back and forth about effects of monetary policy or not—and I share some of Senator Toomey's concerns about negative interest rates—I would, a little tongue in cheek, make mention of one of your comments in reply earlier to Senator Menendez, which I think would actually have 100 percent approval on this panel, where you said more jobs are good for the economy. How we get those more jobs is some question, and we can debate monetary policy or not. But one of the things—and we were talking about productivity, and, again, I share your views on productivity. Productivity gains often are driven by knowledge and skills, and I think one of the things that we have talked about before, but unfortunately this Congress has not fully addressed, is the rising challenge around student debt, now at $1.3 trillion and rising, greater than credit card debt, and the ripple effect that has across our whole economy, not just to those individual students or recent graduates and their families, but I would like you to comment upon that kind of wage box you are caught in with rents, student debts, not enough rising wages, and the effect that has both on startups, as someone—we all know 80 percent of our net new jobs have been created by startups over the last 30 years. Startup entrepreneur numbers are down, a lot of that, I believe, due to student debt. First-time home buyers are down, often times due to student debt. I know you and other regulatory entities have looked at this, but I would like you to comment on the effect if we continue to have this number grow and do not take a more comprehensive approach to student debt, what kind of drag that will be on the economy, because, again, echoing your comments that more jobs are better for the economy, driving down that student debt I believe would lead to further growth in the housing market and further growth in entrepreneurial activities.

Ms. YELLEN. So, on the one hand, taking on that student debt, to the extent it is successful in building skills that put people in higher-wage jobs and qualify them for better work is really critical to their getting ahead.

You know, on the other hand, there is a lot to worry about with student debt, with people attending colleges or gaining education where they do not finish, the reward is not there, to me a major concern is that people may not be well-informed about what the benefits are of what they are taking on. And if an individual finds themselves in difficult financial straits for any reason, that debt, because it is not dischargeable in bankruptcy, can be a very severe burden that really holds people back.

In terms of studies, there has been, it would appear, a decline in new business formation. I have not seen anything myself, but I might not be aware of studies that link it to student debt. I have not seen that. It is certainly possible, but I am not aware of that.

With respect to housing, some economists at the Fed have tried to look at that, and others have, and I think the results are mixed. It is not clear that student debt is a major factor responsible for inability to buy homes or get ahead in the housing market, although I understand it is quite logical that a heavy student debt burden would make it difficult——

Senator WARNER. I would simply note that home builders across all sectors are indicating particularly the weakest part of the housing market is first-time home buyers, oftentimes people who, because they are otherwise burdened with student debt, do not make those investments.

And I think I would just urge my colleagues there are comprehensive approaches that Senator Warren and others have suggested in terms of total refinancing. But there are other steps that can be taken, whether it is better transparency—we all know higher education next to buying a house may be your most expensive item you purchase. Better transparency about outcomes, that would force higher education to come clean a little more. Clearly, the problem of not finishing is a huge issue. But we do not have very much transparency in higher education. On top of that, income-based repayment, the Administration has made some movements there. I think there are more. I mean, there is low-hanging fruit.

Ms. YELLEN. Yes.

Senator WARNER. Businesses already can provide ongoing education to employees on a pre-tax basis. I scratch my head, and I have got bipartisan legislation that would say if you can go ahead and continue your education on a pre-tax basis, why shouldn't an employer be able, in concert with an employee, to use pre-tax dollars to pay down student debt on both sides of the balance sheet? Good for retention, good obviously for the employees as well.

I will not go ahead and take the additional 3 or 4 minutes that most of my colleagues have had beyond the timeline in respect to my other colleagues, but I would like to submit for the record a couple of questions about what happens as we draw down this capital surplus account, and obviously the Fed has kicked in about $517 billion over the last 6 years. As you wind down that portfolio, we could see, obviously, those dollars go down. And I know that you share some of the concerns. As we unwind that $4 trillion balance sheet, how much cushion does the central banking system need, particularly when Congress most recently has raided part of that cushion, and I would take that for the record.

Thank you, Mr. Chairman.

Chairman SHELBY. Thank you.

Senator Cotton.

Senator COTTON. Thank you. Since Senator Warner graciously yielded back his extra 3 or 4 minutes, I will just add that to my extra 3 or 4 minutes to get 8 or 9 extra minutes maybe.

[Laughter.]

Chairman SHELBY. Chair Yellen is not up here every day.

Senator COTTON. I will try to be brief. Madam Chair, welcome back. Throughout much of history, the Federal Reserve has raised interest rates when economic growth is strong and accompanying inflation is growing—hence, the cliche that the Federal Reserve takes the punch bowl away right as the party is getting going.

In December, we were in the middle of a quarter with seventenths of a percent economic growth and inflation was below the stated target. The Open Market Committee raised interest rates. Could you explain why this historical anomaly occurred?

Ms. YELLEN. Well, our focus is on the labor market and the path that it is on and the fact that economic growth has been very slow and this has been true for quite some time and yet the labor market has made more or less continuous improvements is a reflection of slow pace of productivity growth, I would say. So we saw a labor market where jobs were being created at a pace of around 225,000 or so a month. The unemployment rate had fell to very close to levels we would regard as sustainable in the longer run, although in my view there remains slack. There did and still remains some slack in the labor market.

Monetary policy was highly accommodative. The funds rate had been at zero for 7 years, and we had a large balance sheet, so we were not talking about moving to a restrictive stance of policies simply diminishing accommodation by a modest amount. And while inflation was running below our 2-percent objective, the Committee judged that transitory factors, particularly energy prices and the appreciation of the dollar, were placing significant downward pressure, that that would ebb over time, and as the labor market continued to improve, that inflation would move back up to 2 percent. And we want to make sure, given the lags in monetary policy, that we do not wait so long to begin the process of modest adjustments in the Fed funds rate that we end up significantly overshooting both of our objectives and allowing inflation to rise to the point where we would have to tighten policy in a more precipitate manner, which could potentially place ongoing sustainable economic growth and improvement in the labor market in jeopardy.

So we wanted to be able to move in a very gradual way and to make sure that the economy remained on a sustainable course of improvement.

Senator COTTON. Thank you. You used a term there, “transitory factors,” that you also cite on page 5 of your testimony where you say the Committee “judged that much of the softness in inflation was attributable to transitory factors that are likely to abate over time,” without specifying in the written testimony, you just cited energy prices and appreciation of the dollar. Are there any other transitory factors that you——

Ms. YELLEN. Those are the main ones, and, you know, of course, energy prices have continued to move down.

Senator COTTON. So now 2 months on, do you still expect that energy prices and the appreciation of the dollar will halt or even turn around on their current trajectory?

Ms. YELLEN. So, you know, energy prices have continued to move down. I feel eventually they will stop moving down and stabilize. Exactly when that will be, when that happens, when that eventually happens and the dollar stabilizes, inflation will begin to move up, it is hard to predict exactly when that will be, and there can be and have been surprises.

Senator COTTON. Thank you.

I want to turn briefly to wages. Several Members of this Committee have expressed their concern about stagnant wages, especially for working-class men and women in this country. I share that concern, as do apparently many people in the audience, judging by their T-shirts.

One point we have not touched upon is immigration, and here I do not mean illegal immigration but legal immigration. We are now at record-high levels of foreign-born residents in this country. Something like one-seventh of all American residents were born in a foreign country. Do you think that that level of mass legal immigration has put downward pressure on the wages of working men and women in this country, native-born Americans?

Ms. YELLEN. I am not aware of evidence that suggests it has, but I would need to look into it. I am not aware of evidence on that.

Senator COTTON. OK. Thank you.

Chairman SHELBY. Senator Warren.

Senator WARREN. Thank you, Mr. Chairman. And it is good to see you again here, Chair Yellen. And it is also good to see people here from across the country, people who are fed up.

I know that as Chair you have done a lot of outreach, but seeing people here who have come in from a lot of different places is a strong reminder that every Fed decision affects every person in this country. And the Fed has plenty of opportunities to hear from giant banks. It is good to hear from real people and get that reminder, so thank you.

Now, I want to go back to another question here. As you know, Dodd-Frank requires giant financial institutions to submit living wills. These are the documents that describe how these banks could be liquidated in a rapid and orderly fashion in bankruptcy without either bringing down the economy or needing a taxpayer bailout.

If the Fed and the FDIC find that those living wills are not credible, the agencies can take steps to reduce the risks poses by these banks by imposing higher capital standards, by lowering leverage ratios, or by breaking up the banks by forcing them to sell off assets.

A year-and-a-half ago, in August of 2014, the Fed and the FDIC identified several problems with the living wills submitted by 11 of the biggest banks in this country. The FDIC found that all 11 of those wills were not credible, while the Fed agreed about the problems but then refused to make any determination about whether the wills met the legal standard about credibility. In other words, the Fed did not say they were credible, but the Fed did not say they were not credible either.

Now, that mattered a lot because it is only a joint determination by the agencies that has any legal force. The Fed's refusal to call the plans "not credible" meant the agencies could not use statutory tools to push these risky banks in the right direction. So I want to start by looking back at that decision by the Fed.

The FDIC stands behind insured deposits, so its main mission is to stop bank failures before they happen so taxpayers will not be on the hook for some kind of bank failure. Of all the regulators, the FDIC has the most expertise in liquidating failed banks. So if the FDIC found that the banks' liquidation plans were not credible and the Fed agreed with the FDIC on the basic problems with each of these plans, why did the Fed refuse to join the FDIC and designate these plans as not credible?

Ms. YELLEN. Well, looking back to the decision we made last year, we had set out in the guidance pertaining to these living wills that we expected to go through a few rounds of submissions to clarify. It is a completely new process, and we felt the banks needed to understand what expectations were in terms of what we wanted to see, and we felt that we had not given sufficiently clear guidance to make the decision at that time.

We worked very closely with the FDIC. As you noted, we have given detailed guidance to these firms about what we want to see in this round of living wills. We are spending a great deal of time, we have had seven full Board meetings so far since August to discuss and work through these living wills. We are working closely with the FDIC in evaluating them, and we did make clear and it continues to be the case that if a living will does not satisfactorily address the shortcomings that we identified last year, that we are prepared to make findings that a living will is deficient.

Senator WARREN. OK. So let me go then to where you are going here. The FDIC already thought that the facts established that the plans were not credible for 11 of the largest financial institutions. In August of 2014, the Fed and the FDIC required those 11 firms to resubmit living wills that addressed the problems they had identified, and the firms resubmitted their plans last July. And as you say, it is my understanding that you are just about finished reviewing those plans. So once again I want to underline only joint determinations by both the FDIC and the Fed will carry the force of law.

So can you say today that you will work with the FDIC to ensure that the agencies issue joint determinations of credibility on each of the 11 living wills that were resubmitted?

Ms. YELLEN. We are working very closely with them to evaluate these living wills, and——

Senator WARREN. Well, I assume you did that last time, that you worked closely with them. I think that is what you said in your testimony.

Ms. YELLEN. We did, and we wrote joint letters to these firms, and we will certainly try to do that again to identify shortcomings that the living wills have and further steps that we want to see. Each member of the Board of Governors and members of the FDIC Board are charged with arriving at our own individual judgments as to whether or not these living wills are credible or facilitate resolution, and I cannot guarantee you that we will arrive at identical conclusions.

Senator WARREN. OK. Fair——

Ms. YELLEN. ——we have each been vested by Congress into making a judgment based on the merits.

Senator WARREN. OK. If you cannot ensure that the agencies will issue joint determinations, which is how we get to the effect of the law, let me ask if you will make another commitment, and that is, will you at least commit that if the Fed finds a living will credible and the FDIC does not find a living will credible, that the Fed will issue a written public explanation for why it is reaching a different conclusion? It seems like that is the least that the Fed can do to help the public understand its position.

Ms. YELLEN. Well, my expectation is that we will release the letters that we send to the firms giving our evaluations of their living will.

Senator WARREN. So you will be explaining—if there is a difference between the Fed and the FDIC, you will be issuing a written statement about why the Fed decided something was credible that the FDIC found was not credible?

Ms. YELLEN. Well, I want to be careful exactly what I say about this.

Senator WARREN. Good.

Ms. YELLEN. We expect to send letters; hopefully they will be joint letters; hopefully we will be able to agree on what the shortcomings are of the living wills and if either agency finds that they are not credible, we need to identify specific deficiencies that we wish to see remedied. And my strong hope and expectation is that we will arrive at joint agreement with the FDIC on those deficiencies and release letters that explain what we find them to be.

Senator WARREN. Well, I very much hope that the Fed and the FDIC are on the same page. That is the only way we get the impact of this law. Living wills are one of the primary tools that Congress gave to regulators to make sure that the taxpayers will not be on the hook if another giant bank fails, and it is critical that the Fed use this authority, like the FDIC has been willing to do, to make sure our financial system safer.

Thank you.

Ms. YELLEN. I agree with you on that, and we have been working with them all along through our supervisory process as well, which is separate, but we are also emphasizing recovery planning and resolution through our supervision.

Senator WARREN. Thank you.

Thank you, Mr. Chairman.

Chairman SHELBY. Thank you, Senator Warren.

Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman. And welcome. I suspect now that you have had more than 60 different individuals asking questions. Most of them perhaps have been asked.

In looking at today's testimony, I think a lot of attention was paid to the discussion on negative interest rates, and I noted that there were a couple of items that I suspect, as you have shared, you have indicated that while you would be looking at negative rates, the analysis is not yet done, and that it is not off the table. But you have also indicated that the variations in short-term interest rates is one of the key tools that you have.

Would it be fair, though, to say that today, as you have answered these questions, the current discussion and the current focus is not so much on reducing the interest rates that we have in effect today but, rather, whether they should remain stable or move up?

Ms. YELLEN. Well, yes. We certainly felt in December when we made our decision to raise rates that the economy was recovering, that inflation would move up, and it would likely be appropriate to gradually continue to raise rates, not to cut them.

A lot has happened since then. As I have indicated, global economic and financial developments impinge on the outlook. We are in the process of evaluating how those developments should affect our outlook or our assessment of the balance of risks. We will meet in March and provide a new set of projections that will sort of update markets on our thinking on the outlook and the risks. But I have not thought that a downturn sufficient to cause the next move to be a cut was a likely possibility. And we have not yet seen, I would say, a shift in the economic outlook that is sufficient to make that highly likely. But in saying that, I also want to make clear that policy is not on a preset course, and if our perception of the risks and the outlook changes in a manner that did make that appropriate, certainly that is something the Committee would have to take into account in order to meet its objectives. It is not what I think is the most likely scenario.

Senator ROUNDS. Very good. Let me just change focus a little bit and move into basically the regulatory side of the responsibilities which you carry.

When the Federal Reserve writes its rules, I think it is important for the Board to do a thorough cost-benefit analysis before it creates any new red tape or negotiates international agreements like insurance capital standards. We talked a little bit in here about the fact that there is a regulatory impact on productivity, and the one thing that on our side of the dais we talk about is what we can do most certainly to provide opportunity for productivity to increase within our economy. There are some areas in which you do have on the regulatory side an impact as well.

With regard to the issue of international agreements, specifically on insurance capital standards, is the Fed currently working on any cost-benefit analysis related to the insurance industry either in the context of regulation or for international agreements?

Ms. YELLEN. So we are very carefully considering what capital standards we should impose on the designated firms that we need to create standards for or S&L holding companies that are primarily insurance-focused.

Senator ROUNDS. But will you do a cost-benefit analysis to those rules?

Ms. YELLEN. We are charged with putting in place appropriate standards to mitigate systemic risk in the event that one of those firms would have failed, to make it operate in a safer and sounder way, and that is our charge. We will put rules out for comment. We will consider regulatory burden. And we will consider various ways of designing rules which might be least burdensome, and——

Senator ROUNDS. But would that mean that you would consider then doing a cost-benefit analysis and the burden that these may place on the individual entities that you are regulating?

Ms. YELLEN. Well, we will certainly put out a Notice of Proposed Rulemaking and consider comments on it, including those that pertain to costs.

Senator ROUNDS. So the answer is, "I would rather not answer the question on whether or not there is a cost-benefit analysis included"?

Ms. YELLEN. Well, I am not going to commit to a cost-benefit analysis of those rules.

Senator ROUNDS. OK. Very good. One of the major concerns about the current insurance SIFIs designation process is that there is no real comparison with banks to determine systemic risk because—I would suspect that we are in rather uncharted waters with regard to adding the insurance companies in with the banks and considering them as SIFIs. I am concerned that we may not have the reliable data to compare banks to insurance companies in this regard.

What has either the Federal Reserve or the FSOC done compare the systemic risk of bank SIFIs and nonbank companies against each other? Has there been an analysis?

Ms. YELLEN. So in the case of each of those designations, a very detailed analysis was done asking what would be the systemic consequences of the failure of that organization. And in the case of the insurance companies that were designated—MetLife, Prudential, and AIG—the FSOC did determine and judge with very careful work done that the failure of those organizations would potentially have systemic consequences that needed to be addressed.

Senator ROUNDS. Are those publicly available analyses?

Ms. YELLEN. They are on the FSOC Web site. You can find the analysis, and they do not include confidential firm information. The firms themselves were provided with greater detail than what is on the Web site, but there is detailed information available.

Senator ROUNDS. Thank you.

Thank you, Mr. Chairman.

Chairman SHELBY. Senator Donnelly.

Senator DONNELLY. Thank you, Mr. Chairman. Madam Chair, thank you.

Yesterday was a really bad day for my home State of Indiana. We had over 2,100 workers who were given pink slips yesterday. They lost their jobs at a company that had been in Indiana since the early 1950s. Carrier's Indianapolis plant will be closing, and UTEC is moving their manufacturing department from Huntington, Indiana, both part of United Technologies, over 2,100 jobs. All of those jobs are being shipped to Mexico.

Last year, Carrier had $58 billion in sales and $6.1 billion in earnings. So we have 2,100 people who have lost their jobs because apparently $6.1 billion in earnings is not enough.

Now, the promise of America has always been you work hard, you do your job, you help your company be profitable. And then in return you hope to have a decent retirement, to be able to maybe get a fishing boat, see your kids go to school.

So how do we tell workers who have put their whole heart and soul into a company, who have provided them with over $6.1 billion in sales, that that is not enough?

I mean, the reasons folks are here is because there has always been a promise if you work hard that the company in return will stand up and do right by you. So how is doing right having $6.1 billion in earnings and shipping 2,100 Indiana jobs off to Mexico when we also in Indiana have said you have one of the best business climates in America? And these same folks said if we put in tax extenders, things like bonus depreciation, research credit, Eximbank—I sat here and fought for Eximbank because these folks came and said this will help American jobs stay in America.

So how do you provide the confidence to these workers and others that this compact even exists anymore?

Ms. YELLEN. A great deal has changed in the job market, and many families during the downturn particularly but on a longer-term basis have faced the kind of miserable situation that you have described of losing a job that they held for the better part of their career and expected would provide them a secure retirement. And this is a miserable and burdensome situation that many households have faced.

For our part, what we are trying to do and have tried to do is make sure that there are enough jobs overall in the economy that those workers can find another job. And, of course, we know——

Senator DONNELLY. I understand, but I am just asking you—and maybe this is not as the Fed Chair. Why should they have to find another job when they produced over $6.1 billion in earnings for a company that is doing extraordinarily well but it is still not enough? "We are going to ship your job to Mexico because you created huge profits for us. You created incredible success for us. You created the opportunity for this company to grow and for our shareholders to do really, really well, but we just do not have room for you as the worker anymore."

Ms. YELLEN. Many firms have made that decision, that moving their activities elsewhere is a profitable course and have made those decisions.

Senator DONNELLY. And the question becomes: Profitable for who? For an America that we have forever had the promise that you do your job, like I said, you work hard—I mean, that is what my dad did every day. He took the train to work every day so he could feed us kids. I was the fifth of five. But his company never told him, "Sorry. You made a ton of dough for us. We are moving to Mexico." And if they did, I do not know what we would have done.

And now we are facing the same thing in the steel industry as well. We have been facing it for a while, and you have probably heard there are actually questions about the ongoing viability of a number of the American steel companies. And a big part of that is currency manipulation, illegal dumping, all of these kind of things.

And so, you know, as we look at this, I know the Treasury Department monitors currency manipulation. Other agencies monitor illegal trade activities. But as head of the Fed, are you concerned that the United States tries to play by the rules while other countries dump steel here, dump other products here, manipulate currency, and we seem to be unable to provide our companies who are doing with a level playing field?

Ms. YELLEN. Well, U.S. policymakers—the Treasury has prime responsibility for exchange rate policy, but they have made clear and the G7 has made very clear that currency manipulation to attempt to gain advantage for a country's products in global markets and to shift the playing field through currency manipulation is unacceptable policy. And I know that the Treasury Department in their conversations with foreign officials in other countries is vigilant about looking for and addressing currency manipulation.

On the other hand, we all recognize that countries should be allowed to use tools of domestic policy like monetary policy to stimulate domestic demand in situations where inflation is running well below a country's inflation objective or domestic spending, unemployment is high and domestic spending is weak. We have used monetary policy for this purpose. Other countries have done the same. And there is some impact of monetary policies on exchange rates. We recognize that. But it also works through other channels that tend to have broadly shared benefits.

Senator DONNELLY. Well, as Fed Chair, I hope you keep in mind, as you set rates, as you set other things, the importance to our families of the chance to go to work. And I feel in particular very burned today, after having fought so hard for the Eximbank, that some of the very same folks who told me it was critical for jobs in the United States, to be there when they needed something, and then to walk away now. Thank you, Madam Chair.

Thank you, Mr. Chairman.

Chairman SHELBY. Senator Heller.

Senator HELLER. Mr. Chairman, thank you, and thanks for holding this hearing. I want to thank the Chairwoman for being here also and taking the time.

I want to raise some questions about how the Fed communicates with the general public, specifically their policies and specifically how you communicate those. Let me give you an example here, and it led up to the increase of the interest rates back in December.

You had people from the Fed like the head of the San Francisco Fed saying that they were pretty hawkish that interest rates were going to be increased and that those increases were coming, and the market reacted to it.

Then there were others like the head of the Chicago Fed calling for rates to stay near zero, and the markets reacted to it.

Then we had some Fed officials implying that any rate increases would be data-driven, and the markets responded to that. And then we had some saying there was no formula. Even today, we seem to have a new person each day giving their thoughts about future rates.

Now, I do not have a problem with broad questions and a variety of viewpoints coming from Fed members, but what it is causing, though, is confusion and instability in the markets today every time someone has something to say, feeling like they have got to walk in front of a mic and make a comment.

My question to you is: Do you think there is a problem here and how these markets are reflecting every time one of these Fed members opens their mouth by hundreds of points? Hundreds of points. And, in general, I am not sure most of them know what they are talking about.

Ms. YELLEN. So I would say that Congress purposely created a system with a large monetary policymaking committee where there would be a diversity of views so that we did not fall into a group think type of mentality, and we do have at the moment 17 members who come to the table with a range of views. They——

Senator HELLER. So you are comfortable? You are comfortable where we are today?

Ms. YELLEN. We have guidelines for communications because it is important to explain to the public what our policy is about.

Senator HELLER. Could I see a copy of that guideline? I would sure like that.

Ms. YELLEN. Yes, I would be glad to——

Senator HELLER. OK.

Ms. YELLEN. First of all, the guideline says that everyone shares a joint objective of explaining the Committee's decisions. They can explain their own views, but should be explaining that they are not speaking for the Committee, that they are speaking for themselves. And the person who speaks——

Senator HELLER. But they do have an official capacity, and——

Ms. YELLEN. ——for the Committee is the Chair.

Senator HELLER. ——it clearly carries water. It carries water. You raised rates on December 16th by a quarter of a point. At that time the markets closed—the S&P 500 closed at 2,073. Yesterday, it closed at 1,851, and I think it is down another 34 or 35-plus points today. Do you feel that you or the Fed is responsible for this decline?

Ms. YELLEN. Well, the immediate market response, and for a number of weeks, to the Fed decision was quite tranquil. It was a decision that I believe had been well communicated and was expected, and there was very little market reaction.

Around the turn of the year, we began to see more volatility in financial markets. Some of the precipitating factors seemed to be the movement in Chinese currency and the downward move in oil prices. I think those things have been the drivers and have been associated with broader fears that have developed in the market about the potential for weakening global growth——

Senator HELLER. OK. Let me——

Ms. YELLEN. ——with spillovers to inflation——

Senator HELLER. Thank you.

Ms. YELLEN. ——so I do not think it is mainly our policy.

Senator HELLER. Let us go back to oil prices again since it is not your policies that are causing the market decline. You told us last year here in this meeting that a drop in oil prices was a good thing for the economy and for the consumer. That is what you said a year ago. And yet since then we have seen thousands of jobs lost. We see oil companies in bankruptcy and consumers that are not spending their gas savings. Do you still feel the same way about oil prices?

Ms. YELLEN. Well, clearly, declining oil prices have had some negative consequences. There have been sharp job cuts and cutback in drilling activity and capital spending, and that has been——

Senator HELLER. Do you think you made a mistake? Do you think you made a mistake a year ago when you said it would be good for the economy and good for the consumers?

Ms. YELLEN. On balance, I would say it is still true for the United States. We are net importer of oil, in spite of our large production, and the gains to households from lower oil prices, they average about $1,000 per household.

Now, whether they spend or do not spend those gains, those are substantial gains. From the standpoint of growth, what has been dominant so far I would say is the negative consequences on spending from——

Senator HELLER. OK.

Ms. YELLEN. ——the cutback in drilling activity.

Senator HELLER. Let me get your feeling on a question. Do you think that banks here in America are overregulated or underregulated?

Ms. YELLEN. I recognize that regulatory burden is a significant issue for many banks, and it is something we will do our very best and have been working to mitigate, particularly for community banks that are vital to the health of their communities. But I do think for the larger banks whose failure would have systemic consequences, it is critically important to make sure that they hold more capital liquidity, are held to higher standards to address the threats that they pose to the financial stability of our country and the global economy.

Senator HELLER. So is it fair for me to say that you believe smaller banks are overregulated, large banks are underregulated?

Ms. YELLEN. I do not want to say as a blanket matter that community banks are overregulated. What I do think is that we need to do everything in our power to look for ways to simplify and control regulatory burdens for them.

Senator HELLER. One more question.

Chairman SHELBY. Go ahead.

Senator HELLER. One more question. Thank you for being——

Chairman SHELBY. We have got a vote, but go ahead. Let him ask the question.

Senator HELLER. One more question. In a recent *Wall Street Journal* survey, the odds of a recession in the next 12 months have climbed to 21 percent, and that is double what it was a year ago. What are your thoughts on that?

Ms. YELLEN. Well, as I mentioned in my testimony and in my answers this morning, we have seen global economic and financial developments that may well affect the U.S. outlook. Financial conditions have tightened, and that can have consequences for the outlook. I think it is premature at this point to decide exactly what the consequences of those shocks will be, and it depends in part on whether they persist. And that is something we will be looking at closely going forward.

Senator HELLER. Madam Chairwoman, thank you very much for being here. And, Mr. Chairman, thanks for the time.

Chairman SHELBY. Thank you.

Senator Schumer.

Senator SCHUMER. Thank you, Mr. Chairman. Thank you, Madam Chair, for the good job you do. And now that Brooklyn is in the news, I am glad we have another daughter of Brooklyn doing well.

I see that we have some people in the audience from a group called "Fed Up", many from New York, and I welcome them, although it was just my luck the people wearing New York City beanies left just before I spoke. Tell them hello. And I see that some of the shirts say, "Let our wages grow", and that is apropos, and that relates to my first question.

I was pleased to see that wages rose 0.5 percent—oh, they came back. Hi, New York City people. I believe I saw that wages grew 0.5 percent in the month of January. I hope recent data we have seen is a sign that middle class incomes and people trying to be in the middle class, their incomes are growing again, because wages have been stagnant for too long.

But I have to be honest with you. Given the fact we are in a deflationary environment globally and our own inflation rate is continuing to run well below the Fed's 2-percent target, I am concerned that further movement by the Fed to raise rates in the near term could snuff out the embers of real wage growth before they are even given a chance to catch fire.

If you believe that the flattening and decline of wages is the number one problem our economy faces, that it is harder to stay in the middle class, it is harder to get to the middle class than it has been in a very long time, you make that a very high priority—which I do and I know you do.

So going forward, do you still believe that, given the room for growth in the labor market, considerable evidence of consistent wage growth is still important for you to see before the Fed considers raising rates further? And, second, will the FOMC be particularly cautious in its decision making so as to protect against the prospect of stifling wage growth before it even gets going?

Ms. YELLEN. So Congress has assigned us maximum employment and price stability as objectives. Our focus is on inflation and trying to achieve a 2-percent objective for inflation. The behavior of wages—so, first of all, we have seen substantial improvement in the labor market, and we, at the time we raised rates, expected that improvement to continue, fully expected as that occurred that wages would move up at a somewhat faster pace.

Senator SCHUMER. We have just begun to see it. I mean, it is hardly sufficient. Would you not agree? We have not made up for the loss in wage growth over the last decade yet.

Ms. YELLEN. Well, productivity growth has been extremely slow, and the state of the labor market and the pace of inflation are not the only factors feeding into wage growth. For the last eight quarters, productivity in the nonfarm business sector has barely grown at a quarter of a percent, and that is a substantial drag on wages as well.

So I would not say that wage growth is a litmus test for changes in monetary policy. But it is something that is indicative both of likely inflationary pressure going forward. It is not a sure sign of it, but it is relevant, and it is also relevant in assessing whether or not we are at maximum employment.

Senator SCHUMER. Well, yeah, but I see it just the other way, that I am less worried about inflation and more worried about slow wage growth, which has picked up a little bit late. But if you look at the last decade or even the last three decades, productivity is considerably further up than wage growth is. And one of our great challenges is tying the two together.

So I will just say I hope that you and the FOMC will look at growth in wages—it may not be the only issue, for sure, but it is a very important issue. But I am going to move on here, and you can comment further on what I said if you want. But it is related.

Now, another thing that is going on is the strength of the dollar, and it has been critical in the interplay, so I want to get your specific thoughts. Given the strength of the dollar and the influence of the global deflationary environment, couldn't one argue that the dollar's strength has essentially served as another increase to the Federal funds rate? If you look at manufacturing, it is not doing well because of all of those issues. And, again, it seems to me that efforts by the Fed to raise rates further could end up being a double whammy to our economy because here you have the strength of the dollar hurting our export businesses, which are still vital to us, and another wage rate—wages added onto that.

So have you seen that the strength of the dollar has influence on whether you should raise rates further?

Ms. YELLEN. The strength of the dollar is certainly something we take account of in deciding on monetary policy. I agree with you net exports have declined. It has been a drag on the economy and for that reason does factor into our thinking. It is one of the reasons we think that the so-called neutral level of the Fed funds rate is low at the moment, but remember that in spite of that drag and the impact it is having on manufacturing, the economy has continued to create jobs at a pace of 220,000 or some a month. And so we cannot just look at sectoral impacts. We have to look at the overall performance of the labor market. But certainly the dollar and the drag that it implies—it is a symptom and in part a signal of the strength of the U.S. economy in comparison with many others.

Senator SCHUMER. And a drag on the U.S. economy.

Ms. YELLEN. It is both.

Senator SCHUMER. Which possibly could make things worse.

Ms. YELLEN. It is both things.

Senator SCHUMER. Thank you, Mr. Chairman.

Chairman SHELBY. Senator Reed.

Senator REED. Well, thank you very much, Mr. Chairman. And thank you, Madam Chairman, and thank you for your leadership and your endurance. We expect nothing less from a Brown graduate, so I am not at all surprised.

One of human phenomenon is sometimes when you try to fix a problem, you unwittingly create other problems. I know in Dodd-Frank we were concerned about the bilateral nature of derivatives, and so we have now required them to be on a clearing platform, which creates not a bilateral issue but a multilateral issue. But that in itself introduces the possibility of systemic risk. And, frankly, one of the lessons of the crisis was always be on watch for the next fault line and take proactive steps to prevent it.

In that context, the Financial Stability Oversight Council noted that there are still a number of central clearinghouse platform issues. Can you give us your comments now about how close you are watching? Is there any developments that concern you? And is this going to be a constant area of emphasis and investigation?

Ms. YELLEN. So I completely agree with you. Creating those central clearing platforms has importantly diminished risk in the financial system, but they are a source of risk. FSOC has pointed out that this is making sure that they are appropriately supervised and operate subject to very high standards because they are platforms that concentrate risk. This is a very high priority for us. We are very focused on it. These platforms are now supervised. The SEC and CFTC have significant authority here. We have backup authority. Globally, there is a focus on ensuring comprehensive and strong supervision of these platforms. So, you know, we are not ready to rest and say everything is done, but we are very focused on it, and it——

Senator REED. Let me underscore the issue the international is very important because of the ability and willingness of entities to arbitrage sort of regulatory environments, moving from here to someplace that does not have quite the same oversight.

Ms. YELLEN. That is right.

Senator REED. And you are trying, I believe in many ways, including margin requirements, to level the playing field internationally.

Ms. YELLEN. That is exactly right.

Senator REED. Thank you very much, Madam Chairman.

The issue of Federal Reserve Bank Presidents, we have talked about this. I know you have got 12 that are due for reassignment or change at the end of February of 2016, a few weeks from now. They will be elected by the Class B Directors, who are elected by local financial institutions to represent the public, and then the Class C Directors appointed by the Board.

A general issue is how do you ensure that there is real public participation in this process. One of the impressions that we had in 2008 and 2009 crafting Dodd-Frank was this sort of is an inside game in which, in fact, the Class A Directors appointed by the banks were influential. How do you ensure that there is a real public purpose and public scrutiny of these Directors?

Ms. YELLEN. So the governance around this was established in the Federal Reserve Act, and we tried to make sure that the Reserve Banks and the Board adhered to that. We tried to make sure that the Class C Directors that are appointed by the Board are broadly representative of the public and all sectors mentioned in the Federal Reserve Act. I think we have among Federal Reserve Bank Directors——

Senator REED. I must—I have been rightly corrected by my very intelligent staff. Presidents.

Ms. YELLEN. Presidents.

Senator REED. The Presidents of the Federal Reserve Banks. That is the focus of my question.

Ms. YELLEN. Yes. So the presidents are appointed by the Class B and C Directors. We try to make sure that those Class Cs and that the Directors more broadly represent not only business interests but also community interests, that there is sufficient diversity. The Board is constantly attentive in its oversight of the Reserve Banks to the issue of diversity of representation on those boards, and it has improved considerably. At the moment I believe something like 45 percent of Bank Directors are either women or minorities.

Now, they are charged with making recommendations about appointment and reappointment of Reserve Bank Presidents, and the Board of Governors is charged with reviewing those recommendations and deciding. And we will take that obligation seriously. We have a regular process, an annual process in which the Board through its Oversight Committee. We review each Reserve Bank every year and, in particular, the performance of the president. And the Members of this Committee discuss with the boards of directors, the chair, and deputy chair the performance of the president.

So there is ongoing monitoring of the performance of the president. There is feedback to the Boards of Directors on it. When we come up to the 5-year point to review these appointments, we will act on the recommendations of the Boards of Directors, but it is not as though we are just looking at that for the first time when we make those decisions.

Senator REED. Thank you, Madam Chairman.

Thank you, Mr. Chairman.

Chairman SHELBY. Senator Heitkamp.

Senator HEITKAMP. I do not know if they save the best for last, but, you know, we are hanging in there.

The first thing I want to say—and it troubles me every time this happens. In your exchange with Senator Warner, Chair Yellen, when you talk about working people, you know, the answer is always, "Let us improve their job skills. Let us get them more training, and then they will get a better job."

Someone has to be a CNA; someone has to drive a garbage truck. And they are well trained for those jobs. But those jobs do not pay a living wage, and that is why so many people are frustrated, because these jobs are not going to go away. These jobs are essential, whether it is being wait staff in a restaurant or whether it is being a CNA in a nursing home or whether it is, in fact, you know, delivering pizza.

And so, we need to be really careful when the response to wage inequality or income inequality is more skills for the workers, because I think it does not focus the attention on the value of work and what we need to do to improve the opportunities for people who work every day. And I know you do not intend that, but I just felt like I had to get that off my chest.

The challenge that I have in North Dakota is we are countercyclical. As you know, we are fundamentally a commodity-driven State. Commodity prices have taken a toll, whether it is in our agricultural sector or whether it is in the energy sector, and that has been exacerbated by a high dollar value.

I had a gentleman once ask me, said, "I just cannot figure out in North Dakota if a high dollar value is good or bad." I said, "Let me help you with that. It is bad," because we are fundamentally an export State.

But I will tell you, we are deeply concerned about currency manipulation. We are deeply concerned about the challenges of having to compete against other currencies in other markets, and that has national and, I think, international ramifications.

But I also want to point out that in production—oil production, gas production—we have lost probably globally about 250,000 and about 100,000 jobs in this country. That is a huge hit. And it really was that production sector, whether we are talking about agriculture or whether we are talking about oil and gas, that buoyed this economy during the tough times.

There has been so little attention to the challenges of commodity producers, not just, you know, people who invest in commodities but the challenge of commodity producers. What is the Fed doing to analyze the challenges for commodity producers and to analyze what the increase in dollar value and potential currency manipulation means going forward to production of commodities in this country?

Ms. YELLEN. Well, we are looking critically—commodities, their prices, and trends are a huge global driver and driver for the United States. We look carefully at the factors that are resulting in low commodity prices and trying to understand the extent to which low prices reflect supply or shifts in demand in various emerging markets.

Senator HEITKAMP. What impact do you believe the dollar value has had on profitability of commodity production in this country?

Ms. YELLEN. When the dollar appreciates, it typically tends to push down oil prices. So the link that you are suggesting is certainly there. We have a global economy in which there is considerable weakness in many parts of the world, including Europe and Japan. Countries are adopting expansionary monetary policies in order to bring inflation up to their desired target levels and to address weakness in their own economies. The U.S., with a 4.9 percent unemployment rate, is far more advanced in that process of recovery, and the different cyclical positions of our different economies, are a factor that is pushing up the dollar. The dollar in part reflects disproportionate strength in the U.S. economy, and that is a natural response to it.

The U.S. Treasury is responsible for currency policy, and currency manipulation is something that they would not sanction. The G7 has spoken out against it. But we do believe that countries should be able to use tools of policy like monetary policy for domestic ends.

Senator HEITKAMP. And, obviously, one person's monetary policy is another person's currency manipulation, and I think we need to be very cautious in how we characterize monetary policy in other countries lest we not limit our access to tools that we may need.

Ms. YELLEN. I think that is very important, and we have used——

Senator HEITKAMP. I get that. In the time that I have remaining—and I want to thank you for your patience, and you sat through a lot of hours here. I want to talk about something that I have been working on that has caused some concern within the Fed organization, and that is cost-benefit analysis and review of cost-benefit analysis of independent agencies.

Senators Warner and Portman have pursued a bill for a number of years which, in fact, asks that there be an independent review of cost-benefit analysis of independent agencies. You have been subject to an Executive order that really is advisory, as near as I can tell, and we are trying to figure out how we can get a second opinion on your cost-benefit analysis. And I think that is an essential piece of this if we are going to do the appropriate oversight.

So I would just like a commitment that the Fed will work with us to try and understand your need for independent, but to please appreciate and understand our need for legitimate oversight and tools that help us with legitimate oversight.

Ms. YELLEN. I am certainly willing to work with you on that, but as your comment indicated, you recognize the importance of independence for regulatory agencies that we not be subject to executive branch review.

Senator HEITKAMP. And we have worked to try and figure out how we replace OIRA as the reviewing agency, how we engage even to the point we contract with independent economists to actually look at this analysis and get a second opinion. And I think, you know, you are kind of caught in the middle here, people who do not think you do enough and people who think you do too much. And one of the ways that I think we can broaden support for the Fed is broaden transparency.

You know, to Elizabeth's point, tell us why you are making a decision if you believe that the living will is appropriate. Tell us why you made this decision on cost-benefit. And I know, Chair Yellen, you have been very interested in being more transparent without being disruptive to markets. I appreciate the difficulty of the lane that you are in, but we need these tools in order to do our oversight, and we need these tools kind of going forward.

So I look forward to working with you. This is not an idea that is going to go away. It is an idea that has been introduced over and over again, and we would appreciate any input so that we can accomplish what we want, which is to not set monetary policy but give us the tools that we need to review what decisions you make.

So thank you, Mr. Chairman, and I am done.

Senator BROWN. [Presiding.] Thank you.

Senator Shelby, the Chairman, will return in a moment. He has three or four questions in the second round. I will ask a couple of questions now, and then I think we can dismiss you, Madam Chair.

I want to ask a question about Senator Heitkamp's views on cost-benefit. A lot of us are very concerned about these efforts on cost-benefit analysis and where it could take us as a Nation. I recall, as you do—and we have talked about this before—when the President signed Dodd-Frank, the leading financial services lobbyists said, "It is halftime." And that was a call, that sounded an alarm to a lot of us that we knew that they were going to do—Wall Street was going to do everything possible to slow walk and delay and lobby and push back against any of the Dodd-Frank implementation that we all cared about and the reason we passed Dodd-Frank. And this whole cost-benefit analysis idea, frankly, is—I am not questioning anybody's motives, particularly Senator Heitkamp's, but it is, you know, the best way to weaken Dodd-Frank, and it is really kind of the dream of Wall Street to keep this slow walk going and slow it down even more. It is not just financial regulation, and you have done good work at the Fed. I wish the Fed in the past had done more, but generally, regulators are trying but this will undercut your efforts, this cost-benefit analysis bill, and ultimately lead to weakening health and safety rules, which has been the long-time battle in this institution. Emerson would talk about the battle between the conservators and the innovators, and the conservators wanted to preserve their privilege and power, and the innovators wanted to move the country forward. And cost-benefit analysis just helps the powerful people in this town resist any kind of regulation that makes people's lives better, whether it is health, whether it is safety, whether it is safety and soundness of the financial system.

So I want to ask a question about that and about your letter. Senator Rounds also asked you a question earlier about cost-benefit. It sounds like a good idea. How can you be against regulatory reform? How can you be against cost-benefit analysis? But it is obviously how do you calculate the benefit of a rule that contributes to safety and soundness? It is so much harder to quantify the benefits than it is the cost. That is not even counting the slow walk that this will require and how easy it is to delay things by the cost-benefit analysis.

So you sent a letter out signed by many other agency heads. Just explain why you sent that letter and kind of make your case for why that is so important.

Ms. YELLEN. Well, we were very concerned that the bill under consideration, first of all, would have a severe impact on the independent agencies' ability to put out rules that would involve executive branch, Presidential involvement. I agree with you, it would cause very significant delays in implementing regulations and probably result in unnecessary and unwarranted litigation in connection with our rules.

We are putting our rules very often in situations where Congress has decided there is a safety and soundness issue they want us to address by imposing safeguards in a particular area, and our job is to figure out how to do that where Congress has already judged that the benefits are worthwhile. As you said, the financial crisis took a huge toll, an amazing economic cost to the country and the global economy. And you have directed us——

Senator BROWN. And I assume there would have been——

Ms. YELLEN. ——to try to create a safer and sounder financial system when we have done—for example, capital rules, there has been cost-benefit analysis. While there are some costs, the benefits of reducing the probability of a financial crisis overwhelm those costs. So our job is to find the least burdensome way of putting out rules to implement what Congress has told us to do. We publish Advance Notices of Proposed Rulemaking, Notices of Proposed Rulemaking, take comments, look for and discuss alternative ways that we might approach promulgating a rule to reduce burden and take comments into account. So it is not as though there is no a weighing of benefits and costs that are involved already in what we do.

Senator BROWN. How long typically is that process?

Ms. YELLEN. The process can take years, and especially when there are multi-agency rules that have to be put in place. We are coming close to completing the Dodd-Frank agenda of rulemaking, but it has taken a very long time, and we have been very actively engaged in trying to do this as rapidly as we possibly can.

Senator BROWN. So if it has taken half a decade for the regulators, you and the FDIC and the OCC and others, if it has taken half a decade plus to do Dodd-Frank——

Ms. YELLEN. That is right.

Senator BROWN. ——rulemaking, what would it—can you guess what it would have taken if there had been a cost-benefit analysis like this?

Ms. YELLEN. Well, clearly, it would be much more burdensome and take much longer. There is no doubt about it. I cannot give you a guess, but as you indicated, attempting to quantify the benefits of safety and soundness regulation is very difficult.

Senator BROWN. Well, who would have wanted this to take longer?

Ms. YELLEN. You indicated that those who were regulated——

Senator BROWN. Well, what do you think? Do not say what I indicated. But who in this town, who in this country would have wanted these regulations to have taken longer?

Ms. YELLEN. Well, we know that banking organizations are concerned with regulations and the burdens that they impose.

Senator BROWN. OK. Let me shift to another question. I think Senator Shelby will be back within a couple of minutes.

I want to talk about interest on excess reserves. Some have suggested repealing or limiting the Fed's authority to pay interest on excess reserves. I am concerned this is an attempt by those opposed to the unconventional steps the Fed took during the crisis to limit the Fed's monetary policy tools. What are the implications of repealing or limiting interest on reserves?

Ms. YELLEN. It is the most critical tool that we have for monetary policy to adjust the level of short-term interest rates and the stance of monetary policy. First let me say that our knowledge that we had that tool when the time came to raise interest rates was critical to the decisions we made throughout the financial crisis and thereafter to undertake unconventional policies, including large-scale lending programs, and then quantitative easing or large-scale asset purchases. The knowledge that we, when the time came, would be able to use interest on excess reserves to raise the level of short-term interest rates was critical in the decisions that we made that I believe provided great support to the economy and caused us to recover more rapidly.

Now, if Congress were to repeal our ability to pay interest on reserves, we would not be able to control short-term interest rates in the way we did before the crisis. So we would be forced to contemplate shrinking our balance sheet perhaps rapidly, and I would be greatly concerned about the impact that that could have on the economy, on the economic recovery.

For example, selling of mortgage-backed securities could raise mortgage rates and have a very adverse impact on the housing market, and we purposely decided that we will shrink our balance sheet in a predictable and gradual manner through diminishing or ceasing reinvestment to avoid the kind of unpredictable impacts on financial conditions that could come from rapidly selling off our portfolio. But without the ability to control short-term interest rates through using interest on excess reserves, we would be forced to contemplate those steps, and I would worry about their consequences.

And, finally, if I could just take another second, I would like to point out that although we are paying banks interest on their accounts with us, the counterpart of those reserves is large asset holdings that we have on our balance sheet on which we earn considerably more interest income than we are paying to the banks, and that differential has resulted in 2015 in transfers from the Fed to the Treasury and the American taxpayers of $100 billion for the last 2 years, $600 billion since 2008. If our balance sheet had to shrink rapidly, those transfers would clearly diminish to the far lower levels that were typical before the crisis.

So this is not something that would be a financial winner. Our goal is economic performance. I think our top concern should be what would be the impact on the economy, which would be very negative. But even in the financial sense for the taxpayer, it would not be a positive.

Senator BROWN. Good. Thank you, Mr. Chairman. Thanks.

Chairman SHELBY. [Presiding.] Thank you, Senator Brown.

Madam Chair, I have several questions. I know it has been a long morning, and we are in the afternoon now. Recently, a House-passed bill would force the Federal Reserve and other regulators to consider what you call "liquid and readily marketable municipal bonds" as Level 2 assets in the calculation of the bank's liquidity coverage ratio. The Level 2A category, it is my understanding, currently includes GSE securities, which are considered very liquid and uniform in structure. In addition, the Fed has proposed treating eligible municipal bonds as Level 2B assets for liquidity purposes.

My question: Do you support the House bill to treat municipal bonds as Level 2 assets? And why or why not?

Ms. YELLEN. So I would not support the legislation to treat them as Level 2A assets.

Chairman SHELBY. And explain why.

Ms. YELLEN. Yes. Because this is a liquidity requirement to make sure that banks have sufficient liquid assets to cover the kinds of outflows they could see——

Chairman SHELBY. You are in stressful times.

Ms. YELLEN. In a stressful situation. So the most liquid assets are cash and U.S. Treasuries. Mortgage-backed securities, Fannie and Freddie mortgage-backed securities and Level 2A assets are quite liquid but not as liquid as cash or Treasuries, which is why we have downgraded them. And while we have proposed to include some more liquid municipal securities, they are not as liquid as those included in 2A, and we have tried to recognize that while municipal securities generally are not very liquid, some are sufficiently liquid to include them in limited amounts but in Category 2B. And I think that this bill would interfere with our supervisory judgments about what constitutes adequate liquidity.

Chairman SHELBY. Are there two things—we talked about this up here many times, and you have talked about it. There are two things banks need, capital and they have to have liquidity, because you could have capital and no liquidity, and in a stressful environment you could be in trouble, could you not?

Ms. YELLEN. Yes.

Chairman SHELBY. So your statement is dealing with liquidity. You do not want to weaken the banking system. You want to strengthen it. Is that your basic premise?

Ms. YELLEN. Absolutely, yes.

Chairman SHELBY. OK. In the area of reforming the Federal Reserve that I talked about in my opening statement, currently members of the Board of Governors do not have the ability to employ their own staff, instead relying on a shared staff of the Board, which you head up. I understand that you oppose a policy that would allow a specific member of the Board of Governors of the Federal Reserve to employ even a single person to work exclusively for them.

What are your reasons for opposing this policy? Is it control or is it—what? What is it?

Ms. YELLEN. Well, I want to be careful. I think that Governors certainly are entitled—they have substantial responsibilities——

Chairman SHELBY. They do.

Ms. YELLEN. ——and are entitled to adequate support. And as Chair, I have worked to make sure—and I think this is true that each of the Governors has somebody——

Chairman SHELBY. Well, you were a member of the Board of Governors before you were Chair.

Ms. YELLEN. Yes, and it was important to me when I was a member and Vice Chair, and I took on a staff—it was a staff member, not someone I hired from the outside but a staff member who was assigned to work primarily with me to help me with my particular work. And most of the Governors now have staff members who were working primarily or exclusively with them to help them undertake their particular job responsibilities. And I am not opposed to that. I have tried to foster it.

We have pretty complicated agendas and a lot of work to do, and we do need help.

Chairman SHELBY. But if you were a member of the Board of Governors and you had really no support staff, then there is not a heck of a lot you could add to a debate like within the Fed at a crucial time. But if you had support, you know, there are many voices down there; there should not be just one voice. There should be a healthy debate even inside the Federal Reserve, should there not?

Ms. YELLEN. Yes, of course there should be, and Board staff provides support to all of the Governors, including their individualized needs. But it is certainly appropriate for Governors who want to have staff specially work with them to have that ability. I am not opposed to that.

Chairman SHELBY. In the area of Fed transparency and transcript release, you said before that the Fed, and I will quote, "is one of the most transparent central banks in the world." But, also—and these are your words, too—"there is always room for further improvement."

I understand that you oppose a policy that would improve Fed transparency by shortening the delay in the release of Federal Open Market Committee transcripts from 5 years to 3 years. Now, 5 years to 3, that is not——

Ms. YELLEN. I believe——

Chairman SHELBY. Go ahead.

Ms. YELLEN. Only a few central banks release transcripts at all, and we are the shortest lag. I believe the next shortest lag is 8 years. When transcripts were first released, it was debated what the lag should be, and even with a 5-year lag, I think the experience was that fewer people were willing to engage actively with others in meetings, expressing their views rather than read from prepared remarks. And while I would say we have a reasonable degree of interaction in the meetings, the knowledge that we will be releasing transcripts in 5 years does lead to less interaction in the meetings.

We really need to be able to engage with one another with give-and-take where people feel protected that their unvarnished views and exchanges with their colleagues will not quickly be exposed to the public. We, after all, release very detailed minutes of those discussions within 3 weeks. I would simply fear that moving up the release, the timing of the release of verbatim transcripts actually would not add very much, if anything, to what the public already knows about our policies from detailed minutes of the discussions, statements, reports, that actually there would not be much additional information and it would stifle the level of interaction that we have. Clearly, that is a balancing act, but that is my concern.

Chairman SHELBY. Well, I could see how a release of transcripts in 5 months or 3 months could cause problems in the economy, you know, the monetary policy and everything else. But 5 years, 3 years, I do not buy that. I believe that although—and I have said this to you privately and publicly here. I believe the Fed should be independent, but I do not think that you are totally independent, but we ought to know—we should not be a member of the Board of Governors. I do not want to be a member of the Board of Governors. But, on the other hand, we should know what you are doing and why you are doing it.

Now, do we need to know that immediately? Probably not, for a lot of reasons, sometimes. But we do need to know, and to move it the transcript release from 5 years to 3 years seems overly generous to me. That is my view.

Reforming the Fed structure in the area there, we have talked about this, too, Madam Chairman. When asked yesterday, I believe it was in the House, about the structure of the Federal Reserve System, you said, and I will quote, "The current structure of the Fed is something Congress decided after a long debate and weighing of a whole variety of considerations"—that is true, like any important—"and while this may be the case, I believe the Federal Reserve System was established by Congress," as we have talked, "over 100 years ago." Since then, the country has changed dramatically. Our economy has changed dramatically. And as you are aware, the San Francisco Federal District now includes approximately 65 million people—this is the Fed District—while the Minneapolis Fed District includes just 9 million people.

Why, Madam Chair, do you oppose instituting any type of review of the structure of the Fed, an outside, healthy study? Why do you do that knowing that things are evolving all the time, as I pointed out?

Ms. YELLEN. It is, of course, up to Congress to consider what the appropriate structure is of the Fed, and I am well aware of the fact that history plays a great role in deciding what the Fed would be. Probably if we were starting from scratch, you would not have the 12th District with 65 million people, I think 20 percent of the U.S. economy having one Federal Reserve Bank. And Congress can, of course, reconsider the appropriate structure.

I simply mean to say I do not regard the structure as broken in the sense that it is failing to put in place good monetary policies, failing to collect the information we need about what is happening in the economy to craft good policies. We do have, as Congress intended, independent-minded people sitting around the table crafting policies.

Of course, the structure could be something different, and it is up to Congress to decide that. I certainly respect that. I simply mean to say I do not think it is broken the way it is.

Senator BROWN. Mr. Chairman, if I could add——

Chairman SHELBY. Go ahead.

Senator BROWN. The San Francisco Fed has a really, really good president for a number of years.

Ms. YELLEN. Oh, yes. Thank you.

Chairman SHELBY. Well, we understand that. But the fact remains that since 1913—just since 1950, you have seen greater population changes in this country.

Ms. YELLEN. Of course.

Chairman SHELBY. For example, in the South, where I come from, from Virginia to Texas and the border States, that is the most heavily populated area of the United States, and it is slated to grow even more dense. Is that correct?

Ms. YELLEN. Yes, and, you know, when I was in San Francisco——

Chairman SHELBY. The same thing in the West. Look at the West growth since——

Ms. YELLEN. Of course. You know, we had places like Las Vegas or San Diego——

Chairman SHELBY. That is right.

Ms. YELLEN. ——that had no Fed branch or Reserve Bank representation that are growing faster and far larger than many places that do have branches. So, yes, there is a historical legacy that has left the Federal Reserve System in place where geographically it no longer represents the distribution of economic activity in the country. I would not argue with that.

Chairman SHELBY. And when things change, do you not think we should be aware of that to change with it?

Ms. YELLEN. So it is up to Congress to decide——

Chairman SHELBY. That is right.

Ms. YELLEN. ——if changes are necessary. I only mean to say that, for example, when I was the president in the 12th District, I was highly attentive to making sure, even though we have a very large district, that I was aware of developments all around our region and made a big effort to collect information from the various parts, very diverse parts of our district. And I think my colleagues do that as well.

Chairman SHELBY. Thank you. Madam Chair, thank you for your patience this morning.

Ms. YELLEN. No problem.

Chairman SHELBY. We appreciate your time today. Thank you very much.

Ms. YELLEN. Thank you for having me.

Chairman SHELBY. This hearing is adjourned.

[Whereupon, at 12:53 p.m., the hearing was adjourned.]

[Prepared statements, responses to written questions, and additional material supplied for the record follow:]

## PREPARED STATEMENT OF JANET L. YELLEN

CHAIR, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

FEBRUARY 11, 2016

Chairman Shelby, Ranking Member Brown, and other Members of the Committee, I am pleased to present the Federal Reserve's semiannual Monetary Policy Report to the Congress. In my remarks today, I will discuss the current economic situation and outlook before turning to monetary policy.

### Current Economic Situation and Outlook

Since my appearance before this Committee last July, the economy has made further progress toward the Federal Reserve's objective of maximum employment. And while inflation is expected to remain low in the near term, in part because of the further declines in energy prices, the Federal Open Market Committee (FOMC) expects that inflation will rise to its 2 percent objective over the medium term.

In the labor market, the number of nonfarm payroll jobs rose 2.7 million in 2015, and posted a further gain of 150,000 in January of this year. The cumulative increase in employment since its trough in early 2010, is now more than 13 million jobs. Meanwhile, the unemployment rate fell to 4.9 percent in January, 0.8 percentage point below its level a year ago and in line with the median of FOMC participants' most recent estimates of its longer-run normal level. Other measures of labor market conditions have also shown solid improvement, with noticeable declines over the past year in the number of individuals who want and are available to work but have not actively searched recently, and in the number of people who are working part time but would rather work full time. However, these measures remain above the levels seen prior to the recession, suggesting that some slack in labor markets remains. Thus, while labor market conditions have improved substantially, there is still room for further sustainable improvement.

The strong gains in the job market last year were accompanied by a continued moderate expansion in economic activity. U.S. real gross domestic product is estimated to have increased about 1¾ percent in 2015. Over the course of the year, subdued foreign growth and the appreciation of the dollar restrained net exports. In the fourth quarter of last year, growth in the gross domestic product is reported to have slowed more sharply, to an annual rate of just ¾ percent; again, growth was held back by weak net exports as well as by a negative contribution from inventory investment. Although private domestic final demand appears to have slowed somewhat in the fourth quarter, it has continued to advance. Household spending has been supported by steady job gains and solid growth in real disposable income—aided in part by the declines in oil prices. One area of particular strength has been purchases of cars and light trucks; sales of these vehicles in 2015, reached their highest level ever. In the drilling and mining sector, lower oil prices have caused companies to slash jobs and sharply cut capital outlays, but in most other sectors, business investment rose over the second half of last year. And homebuilding activity has continued to move up, on balance, although the level of new construction remains well below the longer-run levels implied by demographic trends.

Financial conditions in the United States have recently become less supportive of growth, with declines in broad measures of equity prices, higher borrowing rates for riskier borrowers, and a further appreciation of the dollar. These developments, if they prove persistent, could weigh on the outlook for economic activity and the labor market, although declines in longer-term interest rates and oil prices provide some offset. Still, ongoing employment gains and faster wage growth should support the growth of real incomes and therefore consumer spending, and global economic growth should pick up over time, supported by highly accommodative monetary policies abroad. Against this backdrop, the Committee expects that with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace in coming years and that labor market indicators will continue to strengthen.

As is always the case, the economic outlook is uncertain. Foreign economic developments, in particular, pose risks to U.S. economic growth. Most notably, although recent economic indicators do not suggest a sharp slowdown in Chinese growth, declines in the foreign exchange value of the renminbi have intensified uncertainty about China's exchange rate policy and the prospects for its economy. This uncertainty led to increased volatility in global financial markets and, against the background of persistent weakness abroad, exacerbated concerns about the outlook for global growth. These growth concerns, along with strong supply conditions and high inventories, contributed to the recent fall in the prices of oil and other commodities. In turn, low commodity prices could trigger financial stresses in commodity-exporting economies, particularly in vulnerable emerging market economies, and for commodity-producing firms in many countries. Should any of these downside risks materialize, foreign activity and demand for U.S. exports could weaken and financial market conditions could tighten further.

Of course, economic growth could also exceed our projections for a number of reasons, including the possibility that low oil prices will boost U.S. economic growth more than we expect. At present, the Committee is closely monitoring global economic and financial developments, as well as assessing their implications for the labor market and inflation and the balance of risks to the outlook.

As I noted earlier, inflation continues to run below the Committee's 2 percent objective. Overall consumer prices, as measured by the price index for personal consumption expenditures, increased just ½ percent over the 12 months of 2015. To a large extent, the low average pace of inflation last year can be traced to the earlier steep declines in oil prices and in the prices of other imported goods. And, given the recent further declines in the prices of oil and other commodities, as well as the further appreciation of the dollar, the Committee expects inflation to remain low in the near term. However, once oil and import prices stop falling, the downward pressure on domestic inflation from those sources should wane, and as the labor market strengthens further, inflation is expected to rise gradually to 2 percent over the medium term. In light of the current shortfall of inflation from 2 percent, the Committee is carefully monitoring actual and expected progress toward its inflation goal.

Of course, inflation expectations play an important role in the inflation process, and the Committee's confidence in the inflation outlook depends importantly on the degree to which longer-run inflation expectations remain well anchored. It is worth noting, in this regard, that market-based measures of inflation compensation have moved down to historically low levels; our analysis suggests that changes in risk and liquidity premiums over the past year-and-a-half contributed significantly to these declines. Some survey measures of longer-run inflation expectations are also at the low end of their recent ranges; overall, however, they have been reasonably stable.

**Monetary Policy**

Turning to monetary policy, the FOMC conducts policy to promote maximum employment and price stability, as required by our statutory mandate from the Congress. Last March, the Committee stated that it would be appropriate to raise the target range for the Federal funds rate when it had seen further improvement in the labor market and was reasonably confident that inflation would move back to its 2 percent objective over the medium term. In December, the Committee judged that these two criteria had been satisfied and decided to raise the target range for the Federal funds rate ¼ percentage point, to between ¼ and ½ percent. This increase marked the end of a 7-year period during which the Federal funds rate was held near zero. The Committee did not adjust the target range in January.

The decision in December to raise the Federal funds rate reflected the Committee's assessment that, even after a modest reduction in policy accommodation, economic activity would continue to expand at a moderate pace and labor market indicators would continue to strengthen. Although inflation was running below the Committee's longer-run objective, the FOMC judged that much of the softness in inflation was attributable to transitory factors that are likely to abate over time, and that diminishing slack in labor and product markets would help move inflation toward 2 percent. In addition, the Committee recognized that it takes time for monetary policy actions to affect economic conditions. If the FOMC delayed the start of policy normalization for too long, it might have to tighten policy relatively abruptly in the future to keep the economy from overheating and inflation from significantly overshooting its objective. Such an abrupt tightening could increase the risk of pushing the economy into recession.

It is important to note that even after this increase, the stance of monetary policy remains accommodative. The FOMC anticipates that economic conditions will evolve in a manner that will warrant only gradual increases in the Federal funds rate. In addition, the Committee expects that the Federal funds rate is likely to remain, for some time, below the levels that are expected to prevail in the longer run. This expectation is consistent with the view that the neutral nominal Federal funds rate—defined as the value of the Federal funds rate that would be neither expansionary nor contractionary if the economy was operating near potential—is currently low by historical standards and is likely to rise only gradually over time. The low level of the neutral Federal funds rate may be partially attributable to a range of persistent economic headwinds—such as limited access to credit for some borrowers, weak growth abroad, and a significant appreciation of the dollar—that have weighed on aggregate demand.

Of course, monetary policy is by no means on a preset course. The actual path of the Federal funds rate will depend on what incoming data tell us about the economic outlook, and we will regularly reassess what level of the Federal funds rate is consistent with achieving and maintaining maximum employment and 2 percent inflation. In doing so, we will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. In particular, stronger growth or a more rapid increase in inflation than the Committee currently anticipates would suggest that the neutral Federal funds rate was rising more quickly than expected, making it appropriate to raise the Federal funds rate more quickly as well. Conversely, if the economy were to disappoint, a lower path of the Federal funds rate would be appropriate. We are committed to our dual objectives, and we will adjust policy as appropriate to foster financial conditions consistent with the attainment of our objectives over time.

Consistent with its previous communications, the Federal Reserve used interest on excess reserves (IOER) and overnight reverse repurchase (RRP) operations to move the Federal funds rate into the new target range. The adjustment to the IOER rate has been particularly important in raising the Federal funds rate and short-term interest rates more generally in an environment of abundant bank reserves. Meanwhile, overnight RRP operations complement the IOER rate by establishing a soft floor on money market interest rates. The IOER rate and the overnight RRP operations allowed the FOMC to control the Federal funds rate effectively without having to first shrink its balance sheet by selling a large part of its holdings of longer-term securities. The Committee judged that removing monetary policy accommodation by the traditional approach of raising short-term interest rates is preferable to selling longer-term assets because such sales could be difficult to calibrate and could generate unexpected financial market reactions.

The Committee is continuing its policy of reinvesting proceeds from maturing Treasury securities and principal payments from agency debt and mortgage-backed securities. As highlighted in the December statement, the FOMC anticipates continuing this policy "until normalization of the level of the Federal funds rate is well under way." Maintaining our sizable holdings of longer-term securities should help maintain accommodative financial conditions and reduce the risk that we might need to return the Federal funds rate target to the effective lower bound in response to future adverse shocks.

Thank you. I would be pleased to take your questions.

## RESPONSES TO WRITTEN QUESTIONS OF CHAIRMAN SHELBY FROM JANET L. YELLEN

**Q.1.** At a hearing before the House Financial Services Committee on November 4, you stated, "we are looking at further ways in which we can tailor our supervisory approach, in particular, the CCAR process . . . We have some ideas about how we might tailor it, particularly [as it applies] to smaller firms." On December 18, the Federal Reserve Board released CCAR guidance that clarified existing practices, and did not introduce new tailoring, according to a briefing by Federal Reserve Board staff. Will the Board tailor CCAR expectations in a meaningful way that reflects the relative systemic risk of financial institutions? If so, when do you anticipate commencing and finalizing that effort?

**A.1.** The Federal Reserve's capital plan rule and related Comprehensive Capital Analysis and Review (CCAR) apply only to bank holding companies (BHCs) with total consolidated assets greater than $50 billion, not small- to mid-size banking organizations.

As you note, on December 18, 2016, the Federal Reserve published two supervisory guidance letters that set forth supervisory expectations for large BHCs' capital planning processes. SR letter 15-18 (Federal Reserve Supervisory Assessment of Capital Planning and Positions for Large Institution Supervision Coordination Committee (LIS CC) Firms and Large and Complex Firms) sets forth supervisory expectations for capital planning for firms subject to the Federal Reserve's LISCC framework and other large and complex firms, and SR letter 15-19 (Federal Reserve Supervisory Assessment of Capital Planning and Positions for Large and Noncomplex Firms) details the supervisory expectations for capital planning for firms with total consolidated assets of $50 billion or more that are not large and complex.[1] The guidance consolidated supervisory expectations that were previously communicated to the industry, and it formalizes the differences in expectations for firms of different size and complexity. Supervisory expectations applicable to SR 15-19 firms are less intensive than those applicable to SR 15-18 firms, particularly in the expectations for model use and controls, scenario design, and governance.

Currently, the Board is considering a broad range of issues related to the capital plan and stress testing rules and whether any modifications may be appropriate, including any modifications to the rules to reduce burden on firms that pose less systemic risk. The Board would publish a notice of proposed rulemaking for public comment in connection with any proposed change to the capital plan or stress testing rules.

**Q.2.** You have stated in the past that the Federal Reserve Board has limited ability to tailor certain requirements under Section 165 of Dodd-Frank. However, Section 165(a)(2) states that the Board may "differentiate among companies on an individual basis or by category," taking various factors into consideration. Has the Board

[1] Large and complex firms are U.S. BHCs and intermediate holding companies of foreign banking organizations that are either (i) subject to the Federal Reserve's LISCC framework or (ii) have total consolidated assets of $250 billion or more or consolidated total on-balance sheet foreign exposure of $10 billion or more.

done all it can do under the statute to appropriately tailor its regulations?

**A.2.** Under section 165 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, the Board is authorized to tailor the application of enhanced prudential standards.[2] In implementing section 165, the Federal Reserve has identified three categories of bank holding companies with $50 billion or more in total consolidated assets based not only on their size but also based on complexity and other indicators of systemic risk. Specifically, all bank holding companies with $50 billion or more in consolidated assets are subject to certain enhanced prudential standards, including risk-based and leverage capital requirements,[3] company-run and supervisory stress tests,[4] liquidity riskmanagement requirements,[5] resolution plan requirements,[6] and risk management requirements.[7] Bank holding companies with $250 billion or more in total consolidated assets or $10 billion or more in on-balance-sheet foreign assets are also subject to the advanced approaches risk-based capital requirements,[8] a supplementary leverage ratio,[9] more stringent liquidity requirements,[10] and a countercyclical capital buffer.[11] In identifying global systemically important banks, the Federal Reserve considers measures of size, interconnectedness, cross-jurisdictional activity, substitutability, complexity, and short-term wholesale funding. The eight U.S. firms identified as global systemically important banks (GSIBs) are subject to additional requirements including risk-based capital surcharges,[12] enhanced supplementary leverage ratio standards,[13] and more specific recovery planning guidance.[14]

**Q.3.** The Federal Reserve recently introduced and enhanced a variety of regulations including: more detailed Basel III capital requirements, a minimum Liquidity Coverage Ratio, margin trading rules, and Total Loss-Absorbing Capital requirements. While the stated goals of these rules are to ensure that banks have sufficient capital and liquidity cushions, it is not clear what the combined impact of such rules is on the economy. Has the Board conducted any studies to estimate the cumulative impact of these regulations? If not, do you believe that the Board should be doing so?

**A.3.** The Federal Reserve conducts a variety of economic analyses and assessments to support the rulemaking process. In the context of rulemakings that have been specifically referenced, the Federal Reserve included economic cost and impact assessments in its margin trading and Total Loss-Absorbing Capacity (TLAC) proposals. As these proposals relate to a specific regulation or requirement,

[2] 12 U.S.C. 5365(a)(2).
[3] 12 CFR 252.32.
[4] 12 CFR part 252, subparts E and F.
[5] 12 CFR part 252.34.
[6] 12 CFR part 243.
[7] 12 CFR 252.33.
[8] 12 CFR part 217, subpart E.
[9] 12 CFR 217.10(c)(4).
[10] See 12 CFR part 249.
[11] 12 CFR 217.11(b).
[12] 12 CFR part 217, subpart H.
[13] 12 CFR 217.11(a)(2)(v), (a)(2)(vi), and (c) (effective January 1, 2018).
[14] Federal Reserve supervisory letter 14-8, available at *http://www.federalreserve.gov/bankinforeg/srletters/sr1408.htm.*

the impact analyses naturally focus on the impact of the specific regulation in question, though impact and cost estimates can generally be aggregated across different regulatory initiatives. More broadly, the Federal Reserve engages in a regular quantitative impact assessment and monitoring program that is coordinated with other global regulators through the Basel Committee on Banking Supervision to assess the overall impact of prudential capital and liquidity requirements. This impact assessment has been conducted and made public regularly since 2012, and continues to inform the Federal Reserve's understanding of the cost and impact of capital and liquidity regulation.

More broadly, the Federal Reserve participates in a global effort through its participation on the Financial Stability Board (FSB) and the Basel Committee on Banking Supervision's Macroeconomic Assessment Group. The group published a study in 2010 that assessed the overall macroeconomic impact of stronger capital and liquidity requirements.

The Federal Reserve seriously considers the overall costs and benefits of all of the regulations it promulgates. The overarching goal of the Federal Reserve's regulatory program is to enhance financial stability while at the same time not creating any undue costs or burdens for the rest of the economy. The Federal Reserve is committed to engaging in an ongoing assessment program to better understand how post-crisis reform is influencing financial stability as well as the economic costs of enhanced regulation.

**Q.4.** Members of this Committee have raised concerns that U.S. regulators at the Financial Stability Board (FSB) and the International Association of Insurance Supervisors (IAIS) are not representing the United States in a coordinated, cohesive and centralized manner.

Have you ever represented the Federal Reserve at an FSB or IAIS meeting?

If not you, then who represents the Federal Reserve at these meetings?

Have you had any meetings with the Treasury Secretary or the SEC Chair in advance of these meetings to develop a cohesive and unified strategy?

**A.4.** As members of the FSB and International Association of Insurance Supervisors (IAIS), participation in these for a require certain commitments of staff and resources. Governor Daniel Tarullo or senior employees of the Federal Reserve, such as Mark Van Der Weide and Thomas Sullivan, represent the Federal Reserve at meetings of the FSB and IAIS. The Federal Reserve's representatives are supported by various staff members.

The Federal Reserve confers with other agencies regularly on many FSB and IAIS topics. With regards to U.S. representation at the FSB and IAIS, several U.S. agencies participate in the work of the FSB and the IAIS, and provide input that considers implications for U.S. domiciled firms that we supervise. The Federal Reserve, the U.S. Securities and Exchange Commission, and the U.S. Department of Treasury are all members of the FSB and engage in the FSB's global financial stability work. Related to the work of the IAIS, the Federal Reserve is participating alongside the Federal Insurance Office (FIO), the National Association of Insurance Commissioners (NAIC), and State insurance regulators in the development of international insurance standards that best meet the needs of the U.S. insurance market and consumers. The Federal Reserve, along with other members of the U.S. delegation at the FIO and the NAIC, actively engage U.S. interested parties on issues being considered by the IAIS.

Additionally, the FSB and the IAIS have public consultation processes designed to facilitate stakeholder participation and solicit industry and public views on key issues. The U.S. agencies ensure that U.S. comments are considered in the final deliberation process on such issues. However, it is important to note that neither the FSB, nor the IAIS, has the ability to impose requirements in any national jurisdiction. Implementation in the United States would have to be consistent with U.S. law and comply with the U.S. administrative rulemaking process, which would include issuing proposed rules for public comment.

**Q.5.** A recent report by the Office of Financial Research discussed the risk of a downturn in the credit markets, noting that "nonfinancial corporate balance sheet leverage is close to peak levels . . . and weak underwriting standards have persisted." In your opinion, has the low interest rate environment contributed to increased leverage and reductions in credit quality? What other factors are involved?

**A.5.** Corporate bond yields have been very low in recent years by historical standards, which has made borrowing through debt markets more attractive for corporations and has likely contributed to the notable increase in corporate borrowing. A substantial amount of the recent debt issuance has been used by firms to refinance existing debt into lower rates and longer maturities. In addition though, outstanding debt has grown and aggregate leverage ratios for the corporate sector have increased noticeably over the past few years and are now close to the top of their range during previous economic expansions. Even so, cash flow coverage ratios for the nonfinancial corporate sector remain fairly moderate.

A large part of the deterioration in credit quality in the corporate sector can be attributed to the steep downturn in oil prices and the resultant outlook for the energy sector, which had borrowed heavily from debt markets before the sharp drop in oil prices since mid-2014. Indeed, rating downgrades on corporate bonds over the past year have been particularly concentrated in the energy sector. Signs of some deterioration in credit quality in other industries are also apparent but notably smaller.

**Q.6.** The Federal Reserve Board's Total Loss Absorbing Capacity (TLAC) rule would require U.S. subsidiaries of foreign banks to include certain contractual provisions in their long-term debt instruments, including a contractual clause providing that the Federal Reserve can convert the debt into equity of the bank or cancel the debt, even if the bank is not in resolution proceedings. It is unclear if such long-term debt will be treated as debt or equity for tax purposes.

Is the intended outcome of the Federal Reserve's proposal that long-term debt should be treated as equity for tax purposes?

If so, does the Board intend to take the same approach for U.S. banks?

Has the Board consulted with the Treasury Department on this issue?

**A.6.** With regard to the Federal Reserve's proposed TLAC rule, the purpose of the proposed internal long-term debt requirement is generally to protect the financial stability of the United States and, if applicable, to facilitate the single-point-of-entry resolution of the foreign GSIB parent of a given U.S. intermediate holding company. To accomplish these goals, it is important that the U.S. intermediate holding company be recapitalized (if necessary) on a going-concern basis, without entering a resolution proceeding and without disruption to the foreign GSIB's U.S. operations. To make such a going-concern recapitalization possible, the proposed rule would require the U.S. intermediate holding companies of foreign GSIBs to issue to a foreign parent entity a minimum amount of long-term debt instruments with a contractual provision providing for the Federal Reserve to convert that long-term debt into equity under specified conditions. Under the proposal, one of the required preconditions for conversion would be a determination by the Federal Reserve that the U.S. intermediate holding company is in default or in danger of default.

By contrast, the TLAC proposal does not seek to provide for the recapitalization of the top-tier holding company of a U.S. GSIB on a going-concern basis. Rather, the proposed rule would require those entities to issue plain vanilla [15] long-term debt, with no provision for conversion to equity. The recapitalization of a U.S. GSIB would be effected only through the top-tier parent holding company's entry into a resolution proceeding, during which the entity's long-term debt would be subject to write-down.

The period for public comment on the TLAC proposal has ended, and the Federal Reserve is now reviewing the comments that it has received. Some of these comments address the potential tax treatment of long-term debt instruments that the proposed rule would require covered entities to issue. The Federal Reserve will give careful consideration to all comments as it moves towards the issuance of a final rule.

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## RESPONSES TO WRITTEN QUESTIONS OF SENATOR TOOMEY FROM JANET L. YELLEN

**Q.1.** As part of the policy tools it is using to normalize interest rates, the Federal Reserve has set up reverse repurchase facilities. It is my understanding that there are two such RRP facilities at the Federal Reserve Bank of New York (FRBNY)—one for domestic participants (with a regularly updated list of counterparties posted on the FRBNY's Web site) and one for foreign central banks (where a list of counterparties does not appear to be publicly available). I have several questions regarding these facilities.

Which entities or committees set the policy which the foreign RRP facility abides by? Is it the FOMC? The Board of Governors? The FRBNY?

[15] 80 *Federal Register* 74929 (November 30, 2015).

**A.1.** The Federal Open Market Committee (FOMC) authorizes the operation of the foreign repurchase (RP) pool for foreign central bank and international accounts. The most recent authorization language can be found in the Committee's Authorization for Domestic Market Operations (ADMO) from January of this year. [1]

**Q.2.** How is pricing set for the foreign RRP facility? How does the policy and process compare to that which is applied to the domestic RRP facility?

**A.2.** Pricing for the foreign RP pool is "undertaken on terms comparable to those available in the open market." [2] In fact, the rate on the pool has averaged about one basis point below the overnight tri-party repo rate and has moved very closely over time with market rates. [3] This policy toward pricing for the foreign RP pool has not varied with changes in the setting of monetary policy by the FOMC.

By contrast, the offering rate on the domestic reverse repurchase (RRP) facility is set by the FOMC to help maintain the Federal funds rate at the FOMC's monetary policy target. As such, the FOMC is using the domestic RRP rate as a monetary policy tool, which is distinct from the way it uses the foreign RP pool, which is as an investment service to foreign central banks and other official account holders.

**Q.3.** Why is the foreign RRP rate, beginning in 2015, relatively high given the trend? Why did the Fed feel it was necessary to price foreign RRP rates higher than 6-month Treasury bill rates?

**A.3.** The rate offered on the foreign RP pool is tied to a comparable-maturity, market-based Treasury repo rate. As such, any change in the relation between the rate on the foreign RP pool and the rate on 6-month Treasury bills is the result of changes in market conditions in the repo and Treasury markets and not the result of a change in Federal Reserve policy with respect to the foreign RP pool.

**Q.4.** As expected, foreigners rotated tens of billions of dollars out of Treasury bills and instead increased their usage of the foreign RRP facility. Was this an intended and anticipated effect by the Fed?

**A.4.** Foreign official holdings of Treasury bills were little changed on net in 2015—at $335.3 billion in December 2014 and $336.7 billion in December 2015. [4] Thus, it is not apparent that foreign official holders of Treasury bills did reduce their holdings.

However, usage of the foreign RP pool has increased following a relaxation in restrictions on the size of investments in the pool. Official investors have for some time wanted to increase their positions in the pool, but, prior to 2008, participation was restricted be-

[1] See *http://www.federalreserve.gov/monetarypolicy/files/FOMC__DomesticAuthorization.pdf.*

[2] See ADMO, paragraph 4.

[3] See figure 16 from Simon Potter's presentation, "Money Markets After Liftoff: Assessment to Date and the Road Ahead", February 22, 2016. *https://www.newyorkfed.org/newsevents/speeches/2016/pot160222.* The accompanying figures and data are available at *https://www.newyorkfed.org/medialibrary/media/newsevents/speeches/2016/pot160222/full-presentation.pdf* and *https://www.newyorkfed.org/medialibrary/media/newsevents/speeches/2016/pot160222/data-r.xlsx.*

[4] From Treasury International Capital System, Major Foreign Holders of U.S. Treasury Securities, *http://ticdata.treasury.gov/Publish/mfhhis01.txt.*

cause movements in the pool affected market interest rates, which could have interfered with the implementation of monetary policy. Since 2008, however, in the environment of reserve abundance, movements in the repo pool have had little to no impact on market rates. Accordingly, to accommodate the demands of account holders, the Federal Reserve eased the constraints on the permitted size of the investments in the pool. The Federal Reserve was not seeking to increase pool investments, but given the previous interest expressed by account holders, it was no surprise that investments increased when these constraints were lifted.

**Q.5.** To what extent was the Fed motivated by a desire to substitute the use of deposits at U.S. banks with cash pools (and the accompanying need for short-term risk-free Treasury instruments)?

**A.5.** As noted above, the Federal Reserve was not seeking to increase the size of the pool, nor was it seeking to induce official account holders to substitute one type of asset for another. Demand for investments in the foreign RP pool has been driven solely by the interests of the foreign official account holders.

**Q.6.** It would seem to me that this policy is encouraging foreigners to use the Fed's foreign RRP facility rather than making use of U.S. money market funds, the largest of which are counterparties to the Fed through the domestic RRP facility. Was this an intended and anticipated effect by the Fed?

Additionally, to what extent is the Fed concerned that pursuing this policy undermines the health and depth of money market funds?

**A.6.** The foreign RP pool is a long-standing service that the Federal Reserve has provided to foreign central banks, foreign Governments, and official international institutions, and the way in which the interest rate for the pool is calculated has not changed. Although the restrictions on the size of investments have changed recently, the resulting changes in the overall size of the foreign RP pool have had no noticeable effect on market interest rates because of the large volume of reserves now in the system.[5] Finally, these account holders generally do not hold significant balances with money market funds, so shifts into the foreign RP pool are not directly affecting the assets under management at money market funds.[6]

**Q.7.** The Fed has expressed some reluctance to allow too much usage of the domestic RRP facility, fearing that the market would become too used to the Fed as a counterparty. Additionally, there is concern that the Fed could increase systemic risk by creating a single point-of-failure for cash markets, rather than a diffused system that has traditionally been in place through the interbank market. Does the Fed share these concerns as it relates to the foreign RRP facility?

**A.7.** The Federal Reserve closely monitors the impact of its operations to determine whether they are having any unintended or un-

[5] See Simon Potter's presentation, p.11, for a discussion of this point.

[6] As of the fourth quarter of 2015, total foreign holdings of money market mutual fund shares, which includes holdings by official foreigners, were $114.5 billion, compared to total money market mutual fund assets of $2,715.7 billion. See L.206 Money Market Mutual Fund Shares, Board of Governors, *http://www.federalreserve.gov/apps/fof/DisplayTable.aspx?t=1.206.*

desirable impact. If such impact were to be observed, the FOMC could then take appropriate action to ameliorate it. The Federal Reserve maintains the right to limit the size of the RP pool at any time.

**Q.8.** On October 30, 2015, the Federal Reserve Board proposed its Total Loss-Absorbing Capacity (TLAC) rule. As I have written to you in the past, I support a strong and workable TLAC with the goal of making the failure and resolution of large financial institutions more manageable and without taxpayer bailouts. However, I have a few questions that I would like addressed.

As I read the rule, bank holding companies (BHCs) designated as a global systemically important bank (GSIB), or the bridge companies that succeed them, would be prohibited from obtaining secured liquidity from the private sector, such as debtor-in-possession (DIP) financing, as part of a resolution under Title I under Dodd-Frank.

Did the Fed intend to restrict access to DIP financing?

Doesn't this contradict Dodd-Frank's stated goal of using Title I resolution as a first option if mechanically the BHC would find bankruptcy unworkable without short-term liquidity provided without taxpayer support?

Will you commit to explicitly allowing these firms to access DIP financing during bankruptcy proceedings?

**A.8.** The proposed total loss-absorbing capacity (TLAC) rule would prohibit global systemically important banking organization (GSIB) top-tier holding companies from issuing debt instruments with an original maturity of less than one year to a third party. The general purpose of this prohibition is to mitigate the risk posed to the financial stability of the United States by potentially destabilizing short-term funding runs on those holding companies.

The proposed prohibition generally should not prevent a GSIB from obtaining needed liquidity, including during resolution. This is because the proposed TLAC rule would generally require that a GSIB's operations be engaged in by its subsidiary legal entities rather than by its top-tier holding company, and it would place no restriction on the ability of those operating subsidiaries to obtain liquidity themselves (including both secured and unsecured and long-term and short-term liquidity). As discussed in the preamble to the proposed TLAC rule, the proposal is intended to mitigate the risk of liquidity runs on those subsidiary entities by facilitating single-point-of-entry (SPOE) resolution, pursuant to which only the top-tier holding company would enter resolution while its operating subsidiaries would continue normal operations. By enhancing the credibility of SPOE resolution, in which losses would be borne by the equity holders and creditors of the top-tier holding company, the proposal should increase the confidence of the creditors of GSIB operating subsidiaries and reduce their incentive to run if the GSIB experiences financial distress.

We are committed to making the GSIBs more resolvable under the U.S. Bankruptcy Code, consistent with Title I of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), as well as under the orderly liquidation authority (OLA) provided by Title II of the Dodd-Frank Act, and the provisions discussed above are intended to facilitate orderly resolution under both of those frameworks. As we move forward with the process of considering comments and finalizing the proposed TLAC rule, we will consider how to address issues related to debtor-in-possession funding during a resolution under the U.S. Bankruptcy Code.

**Q.9.** Similarly, provisions restricting the issuance of short-term debt by intermediate holding companies (IHCs) would preclude JHCs from obtaining DIP financing in bankruptcy.

Was this intended?

Would the Fed consider making it explicit that IHCs would be able to obtain DIP financing if they were to file for bankruptcy?

**A.9.** Similarly, the identical restrictions on the issuance of short-term debt by the U.S. intermediate holding companies (IHCs) of foreign GSIBs were intended to promote resolvability under both the U.S. Bankruptcy Code and the OLA, as well as SPOE resolution of the foreign GSIB parent entity in its home jurisdiction. As we move forward, we will consider how to address issues related to debtor-in-possession funding with respect to foreign GSIB IHCs as well as U.S. GSIBs.

**Q.10.** It seems very clear that the Fed is heavily restricting the use of convertible features in the debt instruments allowed.

Is this to maintain flexibility under Title II Orderly Resolution Authority? In effect, is this preserving a regulator's ability to decide when to place a firm into resolution and how to structure the capital stack?

Wouldn't markets be better at signaling when a firm needs to be resolved and wouldn't convertible features strengthen the value of that signal?

Wouldn't having convertible features as an option allow BHCs and investors the ability to be explicit and clear of creditor rights going in to a resolution?

**A.10.** The proposed TLAC rule would restrict the use of convertible features in eligible long-term debt instruments in order to safeguard the fundamental objective of the proposal's standalone long-term debt requirement: ensuring that a failed GSIB will have at least a fixed minimum amount of loss-absorbing capacity available to absorb losses at the time that its holding company enters resolution. This objective is equally important for increasing the prospects for orderly GSIB resolution under both the U.S. Bankruptcy Code and the OLA. Debt instruments with features that would cause conversion into or exchange for equity prior to the holding company's entry into resolution would not serve this goal, since the instruments could convert into equity—which absorbs losses on a going-concern basis—before the firm enters resolution and could then be depleted prior to failure, leaving the firm with insufficient loss-absorbing capacity for orderly resolution at the point of failure. Thus, while convertible debt, like equity, could reduce a GSIB's probability of failure, it would do little to achieve the proposal's principal goal of reducing the harm that a GSIB's failure would do to the financial stability of the United States.

The proposed TLAC rule is intended to promote clarity about the consequences of a GSIB's failure for various classes of creditors, in particular, by making clear that losses will generally be absorbed first by the holding company's TLAC holders, and thereby to increase the role of market discipline played by the entities that hold the holding company's equity and unsecured long-term debt.

Question 12 of the preamble to the proposed TLAC rule invites comment on whether eligible long-term debt instruments should be permitted to have any of the features that would be prohibited under the proposal (which include provisions for conversion). As we move toward finalization, we will consider whether allowing eligible long-term debt instruments to include any conversion features would be appropriate in light of the objectives of the proposed rule.

**Q.11.** The rule proposes a requirement that internal TLAC be issued to a foreign parent.

Would this outright prohibit a foreign parent's ability to use its receivables on internal TLAC to recapitalize a foreign affiliate of the IHC?

If this is an attempt to ring-fence internal TLAC, wouldn't this make the preferred single-point-of-entry (SPOE) strategy for resolution through bankruptcy or OLA unworkable should foreign jurisdictions take the same approach?

**A.11.** The proposed TLAC rule would require that a foreign GSIB IHC's cross-border internal TLAC instruments be issued to a foreign parent entity that controls the IHC. The primary purpose of including this restriction, rather than permitting internal TLAC to be issued to another foreign entity within the foreign GSIB or to a third party, is to prevent the conversion of internal TLAC into equity from effecting a change in control over the IHC. A change in control could create additional regulatory and management complexity that would be undesirable and potentially disruptive during resolution. Ensuring that internal long-term debt instruments are held by a foreign parent entity also safeguards the financial stability of the United States by ensuring that losses incurred by a foreign GSIB IHC will be passed out of the U.S. economy during resolution and by ensuring that the foreign GSIB has sufficient skin in the game to encourage it to support the IHC rather than simply allowing it to fail if its equity stake is depleted.

Question 32 of the preamble to the proposed TLAC rule invites comment on the definition of eligible internal TLAC instruments (which includes the requirement that such instruments be issued to a foreign parent that controls the IHC). We are committed to facilitating GSIB resolution and will consider whether a modification to this element of the internal TLAC proposal would be appropriate in light of the considerations discussed above and the objectives of the proposed rule.

**Q.12.** In 2014, I wrote a letter to you on the Supplementary Leverage Ratio (SLR) expressing concern that the rule, at least as applied to custody banks, did not reflect their unique business model and risks they presented to the financial system. At the time I raised concerns that this would harm their customers, because custody banks would find it economically unattractive to accept cash deposits during times of stress.

Since the rule's adoption and given the state of play in short-term markets, have you evaluated the extent to which it should be revisited?

**A.12.** The Federal Reserve, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation (the Agencies) finalized he supplementary leverage ratio rule (SLR rule) in September 2014, which requires internationally active banking organizations to hold at least 3 percent of total leverage exposure in tier 1 capital, calculates total leverage exposure as the sum of certain off-balance sheet items and all on-balance sheet assets. [1] The on-balance sheet portion does not take into account the level of risk of each type of exposure and includes cash. As designed, the SLR rule requires a banking organization to hold a minimum amount of capital against on-balance sheet assets and off-balance sheet exposures, regardless of the risk associated with the individual exposures. This leverage requirement is designed to recognize that the risk a banking organization poses to the financial system is a factor of its size as well as the composition of its assets. Excluding select categories of on-balance sheet assets, such as cash, from total leverage exposure would generally be inconsistent with this principle.

We understand the concern that certain custody banks, which act as intermediaries in high volume, low-risk, low-return financial activities, may experience increases in assets as a result of macroeconomic factors and monetary policy decisions, particularly during periods of financial market stress. [2] Because the SLR is not a risk-based measure, it is possible that increases in banking organizations' holdings of low-risk, low-return assets, such as deposits, could cause this ratio to become the binding regulatory capital constraint. However, when choosing an appropriate asset profile, banking organizations consider many factors in addition to regulatory capital requirements, such as yields available relative to the overall cost of funds, the need to preserve financial flexibility and liquidity, revenue generation, the maintenance of market share and business relationships, and the likelihood that principal will be repaid.

Federal Reserve staff has held meetings with and reviewed materials prepared by the custody banks in connection with the implementation of the SLR. The Federal Reserve continuously considers potential improvements to its regulations based on feedback from affected parties and the general public but is not considering making any modifications to the SLR at this time. The SLR requirement and the enhanced SLR requirements do not become effective until January 1, 2018. According to public disclosures of firms subject to these requirements, the GSIBs have made significant progress in complying with the enhanced SLR requirements.

**Q.13.** It is my understanding that custody banks have been in to meet with the Fed on the problems created by the SLR in times

[1] See 79 *Fed. Reg.* 57725 (September 26, 2014), available at *http://www.gpo.gov/fdsys/pkg/FR-2014-09-26/pdfl2014-22083.pdf.*

[2] The Agencies have reserved authority under the capital rule to require a banking organization to use a different asset amount for an exposure included in the SLR to address extraordinary situations. See 12 CFR 3.l(d)(4) (OCC); 12 CFR 217.1(d)(4) (Federal Reserve); 12 CFR 324.1(d)(4) (FDIC).

of stress. What has your response to them been? Where do you anticipate their clients placing their cash if custody banks are penalized for taking it in on deposit?

**A.13.** Please see response to Question 12.

**Q.14.** I remain concerned that despite Congress expressing a desire for the Fed and other regulators to reevaluate and recalibrate the treatment different-sized banks receive under rules promulgated in accordance with Basel III, there has been no meaningful improvement. As a result, consumers and small business-owners find it harder and more expensive to borrow.

Given that the asset and foreign activity thresholds used to implement Basel are woefully outdated and pre-date the 2008 Financial Crisis, wouldn't it be better for the Fed to abandon these standards in favor of those which more closely reflect the current banking landscape and the risks posed by today's institutions?

**A.14.** The financial crisis showed there was a need for higher quantities of higher quality capital for banks of all sizes so that they could continue operating and lending to their communities during periods of stress. To this end, the revised regulatory capital rules adopted by the Agencies strengthen the quantity and quality of banking organizations' capital, thus enhancing their ability to continue functioning as financial intermediaries during stressful periods, reducing risks to the deposit insurance fund and the chances of taxpayer bailouts, and improving the overall resilience of the U.S. financial system. [3] Consistent with section 171 of the Dodd-Frank Act, the Agencies' capital rules apply to all insured depository institutions and depository institution holding companies that have $1 billion or more in total consolidated assets or that engage in significant nonbanking activities. [4]

In addition, the Agencies have tailored the application of certain components of the capital rules. Certain large and more complex banking organizations are subject to additional capital requirements in light of their size and increased risk profile. For example, banking organizations that have $250 billion in total consolidated assets or total consolidated on-balance sheet foreign exposure of $10 billion or more are subject to the advanced approaches capital rules, a supplementary leverage ratio requirement, and the requirement to recognize most elements of accumulated other comprehensive income in regulatory capital. [5] In addition, the eight U.S. firms identified as global systemically important banks (GSIBs) are subject to risk-based capital surcharges, [6] enhanced supplementary leverage ratio standards, [7] and more specific recovery planning guidance. [8]

Underlying this tailoring was the principle that progressively more stringent regulation should apply to the different firms based on their relative importance to the financial system, and thus the harm that could be expected to the system if they failed. The Fed-

[3] See, for example, 12 CFR part 217 (Federal Reserve).
[4] 12 U.S.C. 5371.
[5] 12 CFR part 217, subpart E.
[6] 12 CFR part 217, subpart H.
[7] 12 CFR 217.11(a)(2)(v), (a)(2)(vi), and (c) (effective January 1, 2018).
[8] Federal Reserve supervisory letter 14-8, available at *http://www.federalreserve.gov/bankinforeg/srletters/sr1408.htm*.

eral Reserve continues to consider ways to further tailor the capital standards and related requirements to reflect differences in risk among firms.

**Q.15.** Has the Fed considered using the Fed's own systemic indicator approach? Currently the systemic indicator approach is applied for some rules but not for others.

**A.15.** As indicated in the response to Question 14, the Federal Reserve has established tailored regulatory requirements and supervisory expectations since the recent financial crisis for the large banking organizations that take into account macroprudential considerations and systemic risk. These include various enhanced prudential standards under section 165 of the Dodd-Frank Act.[9]

**Q.16.** Would you agree that a more holistic approach, such as that guided by the Fed's systemic indicators, would assist in better calibrating rules, such as the LCR, than simple asset thresholds?

**A.16.** As I have stated in the past, one-size-fits-all should not be the model for regulation. The Federal Reserve has made it a top priority to ensure that we appropriately tailor our regulation and supervision of banks to their size, complexity, and risk. As indicated in the responses to Questions 14 and 15, the Federal Reserve has used a variety of measures to tailor its prudential requirements. The Federal Reserve continues to consider ways to further tailor the standards to reflect differences in risk among firms.

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**RESPONSES TO WRITTEN QUESTIONS OF SENATOR KIRK FROM JANET L. YELLEN**

**Q.1.** In 2009, the Federal Reserve expressly recognized that the insurance premium finance industry was an essential source of credit to the Nation's small business community and vital to the restoration of the Nation's economy when it designated insurance premium finance loans as one of the select categories of collateral eligible for its Term Asset Backed Securities Loan Facility (TALF). Today, the insurance premium finance industry provides loans to finance the purchase of commercial insurance coverage worth more than $40–45 billion in annual premiums.

I am writing specifically to ask how the Fed intends to enforce a forthcoming final rule, entitled "Customer Due Diligence Requirements for Financial Institutions", that is to be issued by the Department of the Treasury and the Financial Crimes Enforcement Network (FinCEN) imminently. I am concerned that this rule could adversely affect the ability of bank-owned insurance premium finance companies to provide financing for small businesses that is critical to their day-to-day operations. The Fed should work closely with Treasury and FinCEN when the rule comes out to avoid any unintended consequences of implementation.

In light of the Fed's recognition of this industry's significance as a source of affordable, essential credit to small businesses, I would respectfully ask the following:

FinCEN long ago determined that purchases of property and casualty insurance policies by insureds from insurance companies in

[9] 12 U.S.C. 5365.

and of themselves do not present any appreciable risk of money laundering or other financial crimes and have therefore been excluded from applicable FinCEN regulations. Accordingly, there does not appear to be any appreciable risk that insurance premium financing will be used to launder money or fund terrorism. What is the basis for the Fed applying CIP requirements to premium finance companies and when specifically can we expect to hear specific guidelines on how Fed enforcement will look?

**A.1.** We understand the concerns that have been raised by some in the insurance premium finance industry regarding the requirement to collect customer identification information under the Bank Secrecy Act (BSA). In 2003, Financial Crimes Enforcement Network (FinCEN) and the Federal banking agencies issued an interagency Customer Identification Program (CIP) rule implementing section 326 of the USA PATRIOT Act. The CIP rule requires banks and other financial institutions to form a reasonable belief regarding a customer's identity when opening an account.[1] The CIP rule applies to any "formal banking relationship established to provide or engage in services, dealings, or other financial transactions including a deposit account, a transaction or asset account, a credit account, or other extension of credit."[2] The CIP rule does not exempt accounts established for the purpose of insurance premium financing. The CIP rule applies equally to banks and their subsidiaries when opening an account within the meaning of the rule.[3]

The requirements of the CIP rule are typically satisfied by adopting risk-based procedures at account opening that enable the bank to verify the customer's identity to the extent reasonable and practicable. First, a bank's CIP must obtain a name, date of birth, address, and identification number from a customer who is an individual.[4] Second, the bank must adopt identity verification procedures that describe when and how the bank will verify the customer's identity using documentary or nondocumentary methods.[5] Finally, the CIP rule has specific account record keeping and notice requirements.[6] The procedures used by the Federal Reserve and other banking agencies to examine a bank's compliance with the CIP rule are identified in the Bank Secrecy Act/Anti-Money Laundering (BSA/AML) manual published by the Federal Financial Institutions Examination Council member agencies.[7]

In 2014, separate from the CIP rule, FinCEN issued a proposed rule that establishes customer due diligence (CDD) requirements for banks and other financial institutions with obligations under BSA. As proposed, the CDD rule requires banks to identify the beneficial owner(s) of any legal entity customer who opens an "account" within the meaning of the CIP rule. Although the proposed

[1] 31 CFR §1020.100(c), (a).
[2] 31 CFR §103.121(a)(i).
[3] *Interagency Interpretive Guidance on Customer Identification Program Requirements Under Section 326 of the USA PATRIOT Act,* FAQs Final CIP Rule (April 28, 2005).
[4] 31 CFR §1020.220(a)(2)(i).
[5] 31 CFR §1020.220(a)(2)(ii).
[6] 31 CFR §1020.220(a)(3) and (a)(5).
[7] See generally, *Federal Financial Institution Examination Counsel, Bank Secrecy Act/Anti-Money Laundering Examination Manual* (2014) (available at: *https://www.ffiec.gov/bsa—am1—infobase/pages—manual/manual—online.htm*). The FFIEC member agencies include the Federal Deposit Insurance Corporation, National Credit Union Administration, Office of the Comptroller of the Currency, and the Consumer Financial Protection Bureau, as well as the Federal Reserve Board.

CDD rule exempts certain customers, these exemptions do not extend to customers who establish an insurance premium financing relationship with a bank or its subsidiary. The Federal Reserve does not have the authority to exempt insurance premium finance companies from any increased costs associated with FinCEN's proposed CDD rule. The Federal Reserve's responsibility is limited to examining banks under its supervision for compliance with the CDD rule once FinCEN reaches its final determination. Indeed, only FinCEN retains the authority to determine whether the final CDD rule will apply to the insurance premium financing industry.

**Q.2.** I am concerned that the Fed's application of CIP requirements, once the rule is finalized, to bank-owned premium finance companies will result in higher costs to small businesses that depend on affordable premium financing to operate. How would the Fed propose to address this presumably unintended consequence of applying CIP requirements to bank-owned premium finance lenders?

**A.2.** Please see response to Question 1.

**Q.3.** Since it is not clear that even the existing CIP requirements should apply to the premium finance industry, will you please confirm that the Fed will not apply the proposed incremental CIP requirements (if such rules become final) to the insurance premium finance industry? Absent such confirmation, please explain the rationale for application of incremental CIP requirements to bank-owned insurance premium finance companies.

**A.3.** Please see response to Question 1.

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## RESPONSES TO WRITTEN QUESTIONS OF SENATOR HELLER FROM JANET L. YELLEN

**Q.1.** Through our previous correspondence you have stated that, "we are committed to a formal rulemaking process in the development of a domestic insurance capital standard. Issuance of a final rule will commence after we assess the feedback given during the Notice of Proposed Rulemaking."

Do you expect that proposed rulemaking will be issued in 2016, and if so when?

**A.1.** The Federal Reserve remains committed to tailoring its approach to consolidated supervision of insurance firms, including the development and application of a domestic regulatory capital framework and other insurance prudential standards, to the business of insurance, reflecting insurers' different business models and systemic importance compared to other firms supervised by the Federal Reserve. Moreover, as you note, we are committed to a formal rulemaking process in the development of a domestic insurance capital standard. We are approaching our mandate carefully and are engaged in a deliberative process. We are committed to following a transparent rulemaking process that will include a public comment period on a concrete proposal.

**Q.2.** You have stated that the Board is committed to a capital approach that is tailored to the unique risks of insurers and one that is appropriate for the U.S. market, insurers, and consumers. Please provide specific decisions that have been made on how the Board may tailor regulations to account for the difference between insurance businesses and the banking sector.

**A.2.** As stated in the answer above, in our consolidated supervision of insurance firms, the Federal Reserve remains committed to tailoring its supervisory approach, including a domestic regulatory capital framework and other insurance prudential standards, to the business of insurance, reflecting insurers' different business models and systemic importance compared to other firms supervised by the Federal Reserve. The Federal Reserve appreciates that insurance involves unique risks among financial institutions, encompassing both liabilities and assets, and it is important to keep in mind the liability structure of firms in determining capital requirements for insurance companies, particularly with regard to the mix of the insurers' activities. It would be premature to comment on how the Federal Reserve may treat the unique risks of certain insurance lines, mix of business and the like, before we have fully evaluated the potential options and complicated our deliberations. We are, however, approaching our mandate carefully and with proper deliberation. In our development of domestic standards, we continue to solicit views from external parties and engage in internal deliberation as we develop the domestic capital frameworks as well as rulemaking regarding other aspects of the Federal Reserve's mandate and authority as set out in the Dodd-Frank Wall Street Reform and Consumer Protection Act. Moreover, The Insurance Capital Standards Clarification Act of 2014 gave the Federal Reserve further flexibility to tailor a capital standard to the business of insurance.

**Q.3.** Will the Board issue one proposed domestic capital rule for all insurers it supervises? If the Board is currently exploring multiple domestic capital standards what are the possible benefits and detriments to this approach based on the Board's evaluations so far?

**A.3.** The Federal Reserve is considering a variety of options for the domestic capital standards that reflect the unique risks of certain insurance lines, mix of business, and other factors. However, the Federal Reserve has not fully evaluated these options and has not completed its deliberations, so it would be premature to comment on these matters. In our consolidated supervision of insurance firms, the Federal Reserve remains committed to tailoring its supervisory approach, including a domestic regulatory capital framework and other insurance prudential standards, to the business of insurance, reflecting insurers' different business models and systemic importance compared to other firms supervised by the Federal Reserve. Moreover, we are committed to a formal rulemaking process in the development of insurance prudential standards.

**Q.4.** As a member of the Financial Stability Oversight Council what information does the Board provide to systemically important financial institutions on how they can de-risk and de-designate? Do you support providing a clear roadmap or analysis on actions a company can take to be less of a potential risk to the financial system?

**A.4.** The Federal Reserve Board's (Board) regulations and supervisory guidance applicable to the largest U.S. bank holding companies and nonbank financial companies that are designated by the

Financial Stability Oversight Council (FSOC) are intended to reduce the threat that could be posed to U.S. financial stability by the material financial distress or failure of these organizations and promote their safe and sound operations. Such regulations are designed to increase the resilience of systemically important financial institutions and foster such firms' ability to provide credit and other financial services in times of financial stress. Through speeches and testimony, the Board and its staff also provide information on how financial institutions, both banks and nonbanks, can reduce the risk they could pose to U.S. financial stability.

FSOC designation of nonbanks is not intended to be permanent. The Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) provides that the FSOC annually review designations to make sure that they remain appropriate and take into account significant changes at the firms that materially affect the FSOC's determination. At the time of designation, nonbank financial companies are given a detailed basis for the determination that a nonbank financial company should be subject to supervision by the Board. Factors include the extent of short-term funding activities at those organizations, the firms' products and associated short-term liabilities, their capital markets activities, securities lending, over the counter derivatives, and interconnectedness with the rest of the financial system. Firms can use that information, as well as factors the FSOC is required to consider under the Dodd-Frank Act, to guide their efforts to reduce their systemic footprint.

**Q.5.** During your testimony you stated to me that you recognize that regulatory burden is a significant issue for many banks and it is something the Board will do its best to mitigate particularly for community banks. You also stated the Board will do everything in its power to look for ways to simplify and control regulatory burdens for community banks. What specific actions will the Board take to tailor or simplify regulations specifically for community lenders this year?

**A.5.** The Federal Reserve has long maintained that our regulatory efforts should be designed to minimize regulatory burden consistent with the effective implementation of our statutory responsibilities. In addition, the Federal Reserve and the other banking agencies have developed a number of compliance guides that are specifically designed to assist community banks' understanding of applicable regulatory requirements.

Generally, the Federal Reserve strives to balance efforts to ensure that supervision and regulation are calibrated appropriately for smaller and less risky institutions with our responsibility to ensure that consumer financial transactions are fair and transparent, regardless of the size and type of supervised institutions involved. The Federal Reserve has worked to minimize regulatory burdens for community banks, by fashioning simpler compliance requirements and clearly identifying which provisions of new regulations are of relevance to smaller banks.

In February, the Federal Reserve, Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency (the Agencies) increased the number of small banks and savings associations eligible for an 18-month examination cycle rather than a

12-month exam cycle. Upon authorization provided in the Fixing America's Surface Transportation Act, enacted on December 14, 2015, the Agencies moved quickly to raise the asset threshold from $500 million to $1 billion in total assets for banks and savings associations that are well-capitalized and well-managed to be eligible for an 18-month examination cycle.

In April, the Board implemented new procedures for examiners to conduct off-site loan reviews for community and small regional banks. State member banks and U.S. branches and agencies for foreign banking organizations with less than $50 billion in total assets can opt to allow Federal Reserve examiners to review loan files off-site, so long as loan documents can be sent securely and with the required information. Banks may still select to have on-site loan reviews if they prefer.

Continued efforts to reduce burden include a new consumer compliance examination framework for community banks instituted by the Board that more explicitly bases examination intensity on the individual bank's risk profile, weighted against the effectiveness of the bank's compliance controls. The Board also revised its consumer compliance examination frequency policy to lengthen the time between on-site consumer compliance and Community Reinvestment Act examinations for many community banks with less than $1 billion in total consolidated assets.

Also in April, the Board approved a final rule raising the asset threshold of the Board's Small Bank Holding Company and Savings and Loan Holding Company Policy Statement (Policy Statement) from $500 million to $1 billion and expanding its application to savings and loan holding companies. As a result of this action, 89 percent of all bank holding companies and 81 percent of all savings and loan holding companies are now covered under the scope of the Policy Statement. The Policy Statement reduces regulatory burden by excluding these small organizations from certain consolidated capital requirements. In addition to reducing capital burden, the action significantly reduced the reporting burden associated with capital requirements by eliminating the more complex quarterly consolidated financial reporting requirements and replacing them with semiannual parent-only financial statements for 470 institutions. In addition, raising the asset threshold allowed more bank holding companies to take advantage of expedited applications processing procedures.

To deepen its understanding of community banks and the specific challenges facing these institutions, the Board meets twice a year with the Community Depository Institutions Advisory Council (CDIAC) to discuss the economic conditions and issues that are of greatest concern to community institutions. The CDIAC members are selected from representatives of community banks, thrift institutions, and credit unions who serve on local advisory councils at the 12 Federal Reserve Banks. The Board also has launched a number of outreach initiatives, including the establishment of its "Community Banking Connections" program, which is designed to enhance the dialogue between the Board and community banks. In addition, this program highlights key elements of the Board's supervisory process for community banks and provides clarity on supervisory expectations.

Under the auspices of the Federal Financial Institution Examination Council (FFIEC), the Board is participating in the decennial review of regulations as required by the Economic Growth and Regulatory Paperwork Reduction Act of 1996 (EGRPRA). Four *Federal Register* notices have been released requesting comments on the regulations that are applicable to insured depository institutions and their holding companies in 12 substantive categories: Applications and Reporting; Powers and Activities; International Operations; Banking Operations; Capital; the Community Reinvestment Act; Consumer Protection; Directors, Officers and Employees; Money Laundering; Rules of Procedure; Safety and Soundness; and Securities. The final comment period closed on March 22, 2016, and produced over 160 written comment letters. Additionally, the Federal Reserve participated in six outreach events across the country with over 1,030 participants attending in person, by telephone, or via live stream. The member agencies of the FFIEC are carefully reviewing the comments and a final report will be provided to Congress later in the year.

Additionally, under the auspices of the FFIEC, public notice was issued in September 2015 that established a multistep process for streamlining Call Report requirements. The notice included proposals to eliminate or revise several Call Report data items, announced an accelerated start of a statutorily required review of the Call Report, and began an assessment of the feasibility of creating a streamlined community bank Call Report. In addition to the formal EGRPRA process, efforts continue for engaging in industry dialogue and outreach, to better understand significant sources of Call Report burden.

**Q.6.** Coming from a State where we have lost many community lenders, are you worried about credit availability? Will the Board do any specific research on how regulations are impacting credit availability in our economy?

**A.6.** The Board recognizes the unique and important role that community banks play, particularly by lending to small- and medium-sized businesses in local economies. The Board is committed to establishing a deep understanding of the role of community banks in providing credit, and of the impact of economic conditions and regulation on community bank activity.

As part of our surveillance function, the Board produces regular reports on profitability, risks, and lending activity for each of its supervisory portfolios, including Community Banking Organizations. There is a challenge to monitoring community banks, in that the Board must strike a balance between the desire for more information and the burden of increased regulatory reporting for the banks.

As mandated by the EGRPRA, the Board submits a report to Congress every 5 years on the availability of credit to small businesses. The last such report was submitted in 2012, and detailed the substantial changes in credit conditions during the financial crisis of 2007–2008, as well as the improvements in credit availability that had occurred as of 2012. The next report on small business credit availability will be submitted in 2017.

Since 2013, the Board, in partnership with the Conference of State Bank Supervisors (CSBS), has hosted an annual conference on community banking research and policy. The conference brings together researchers from the Board and academic institutions, and consists of 2 days of research presentations and panels. Governor Brainard and I provided keynote addresses to the 2015 event.

Coinciding with the conference, the Board and CSBS have issued an annual report on community banking.[1] The report is based largely on a survey conducted by the CSBS and State regulators. The survey seeks to provide an understanding of the profile of community banks, including their product and customer mix, as well as a view of bankers' impressions on key issues facing the industry, including the cost impact of regulatory compliance.

The Board also recognizes that regulatory compliance often represents a fixed cost, and as such community banks can be at a disadvantage to their larger counterparts in shouldering the burden of compliance. For this and other reasons, the Board is convinced committed to tailoring banking supervision and regulation based on the size and complexities of firms. Among our efforts to reduce regulatory burden for small banks, the Board is currently participating in the decennial review under EGRPRA, as previously noted. The review has included numerous public comments and outreach sessions, and has helped identify a number of themes on which the Board and other agencies have already taken action. In addition, the Board is acting along with other regulators to reduce the burden of various examinations for small banks.

**Q.7.** Specifically, what is the Board's plan to unwind the Federal Reserve's nearly $4.5 trillion dollar balance sheet and when will that happen?

**A.7.** The size and composition of the Federal Reserve's balance sheet reflects the policy actions the Federal Open Market Committee (FOMC) has taken over recent years to achieve its statutory objectives for monetary policy—maximum employment and stable prices. In September 2014, as part of prudent planning, the FOMC released Policy Normalization Principles and Plans[2] (Principles and Plans) that provided information regarding its strategy to reduce the size of the Federal Reserve's securities holdings once it began normalizing the stance of monetary policy.

As stated in the Principles and Plans, the FOMC intends to reduce the Federal Reserve's securities holdings in a gradual and predictable manner primarily by ceasing to reinvest repayments of principal on securities holdings. In its most recent statement, the FOMC again noted that it is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the Federal funds rate is well under way.

The FOMC also noted in the Principles and Plans that it currently does not anticipate selling agency mortgage-backed securi-

[1] See "Community Banking in the 21st Century: Policy and Research Conference", Sept. 31–Oct. 1, 2015, *https://www.csbs.org/news/press-releases/pr2015/Pages/PR-100115b.aspx.*

[2] *https://www.federalreserve.gov/newsevents/press/monetary/20140917c.htm*

ties as part of the normalization process, although limited sales might be warranted in the longer run to reduce or eliminate residual holdings. In addition, the timing and pace of any sales would be communicated to the public in advance. Of course, all of these balance sheet plans can be adjusted in light of economic and financial developments.

**Q.8.** During your testimony you responded to Senator Crapo's question regarding liquidity conditions and stated that you are looking very carefully at that the factors that may be affecting liquidity in the markets. Will you please further elaborate on what specific studies or evaluations are currently being conducted by the Federal Reserve regarding liquidity conditions in the fixed income market?

**A.8.** Federal Reserve staff have been involved in several projects on market liquidity both internally and with other U.S. Government agencies. Internally, staff have studied and are continuing to study whether there has been a decline in secondary market liquidity in the fixed income markets. Although we have not found strong evidence of a significant deterioration in day-to-day liquidity, it is possible that changes in the structure of markets have made liquidity less resilient. This is more difficult to analyze because it involves the study of relatively infrequent events. Among the factors we have looked at, algorithmic traders have become more prevalent in the Treasury market, and the share of bond holdings held by open-end mutual funds, some of which provide significant liquidity transformation, has grown significantly in the postcrisis period. We have explored the importance of these factors, and focused on changes in the broker dealer business model and on the potential impact of regulatory changes on market liquidity. We note that staff at the Federal Reserve Bank of New York have also done a number of studies on market liquidity and have recently published some of this work online.[3]

Federal Reserve staff have also played a key role in the interagency work on the events of October 15, 2014, when fixed income markets experienced a sudden and extreme increase in market volatility.[4] Staff also continue to engage actively with the U.S. Treasury, the Commodity Futures Trading Commission, and the Securities and Exchange Commission on work examining longer term changes in fixed income market structure and their potential impact on market liquidity.

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## RESPONSES TO WRITTEN QUESTIONS OF SENATOR SASSE FROM JANET L. YELLEN

**Q.1.** *State of the Economy*—I'd like you to elaborate on your statement during the February 11, 2016, Senate Banking Committee hearing that "job creation has perhaps been more heavily skewed toward sectors that have lower pay," and that "the downturn probably accelerated those trends that perhaps relate to globalization and technological change that are demanding increased skill." This is an important concept to grapple with because our economy is fac-

[3] *http://libertystreeteconomics.newyorkfed.org/2016/02/continuing-the-conversation-on-liquidity.html#.Vs3HdXIUWmR*
[4] *http://www.federalreserve.gov/newsevents/press/other/20150713a.htm*

ing a crisis in the nature of work. If we think about the history of economics, we had the "old economy," which evolved from hunter gatherers, to settled farmers and big tool manufacturing economies. Now we're entering into a "new economy" which exists within a global economy and a fast, technology-based, information age.

With this old and new economy framework in mind, in what sectors do you find the unemployment rate is lower? Where is it increasing or decreasing more quickly?

**A.1.** The Bureau of Labor Statistics collects data on the previous industry and occupation of people who are unemployed. These data indicate that the unemployment rates of highly skilled workers, including managers and professionals (around 2 to 3 percent) are lower than the unemployment rates for lower-skilled service workers and workers in goods producing industries (typically around 4½ to 6½ percent). By sector, the unemployment rates for workers in the information and professional, and business services industries are lower than for workers in the construction and leisure and hospitality industries. These findings are indicative of the patterns of job creation that I mentioned in my remarks.

However, the unemployment rate data can be difficult to interpret, because they reflect not only the long-term changes in the demand for certain types of workers that you mentioned, but also the state of the business cycle and transitory sector-specific factors. For instance, unemployment rates for those in lower-skilled occupations have been falling, likely reflecting the further progress in cyclical recovery. And while the unemployment rate is high among former construction workers, this is likely a holdover from the housing market collapse and subsequent slow recovery in residential investment. Similarly the high (and rising) unemployment rate among workers in the mining industry is largely the result of the contraction in oil extraction due to the decline in oil prices, rather than longer run trends.

Another way to appreciate the shift in job creation that I mentioned is to look at an occupation's share of civilian employment. For instance, the share of total employment made up by managers, professionals, and related workers has risen from less than 30 percent in the mid-1980s to nearly 40 percent. In contrast, the share of employment constituted by office and administrative workers has fallen from 16 percent to 12 percent over that same time period, while the production worker share of employment has fallen from 9 percent to less than 6 percent.

**Q.2.** In what sectors are wages higher? Where are they increasing more and less quickly?

**A.2.** Data from the Bureau of Labor Statistics' Employer Costs for Employee Compensation survey indicate that compensation is higher for workers in industries, such as professional and business services, financial activities, educational services and information, that could be thought to have many high-skilled workers (compensation at $40 per hour or more, on average). Industries such as manufacturing and transportation and warehousing also pay their workers relatively well (compensation between $35 and $40 per hour, on average). Low-paying industries include leisure and hospitality and retail trade (compensation under $20 per hour). One thing to note is that all these industries include workers with varying skill levels.

It is difficult to discern trends in wages over short periods of time, since these movements can be dominated by cyclical forces and idiosyncratic shocks. Looking at the Bureau of Labor Statistics' Employment Cost Index, over the past decade, compensation growth for most industries has averaged around 2½ percent. However, if you look over longer time periods, workers with higher skills, for instance, as measured by higher levels of education, have experienced greater wage gains than other workers.

**Q.3.** In what sectors, if any, have workers stopped looking for jobs?

**A.3.** Useful data on this topic come from the Bureau of Labor Statistics' Displaced Workers' Survey, which surveys workers who had been in their jobs for at least 3 years and who "lost or left jobs because their plant or company closed or moved, there was insufficient work for them to do, or their position or shift was abolished."[1] In interpreting these data, it is useful to keep in mind that these job losses and any labor force exits could be due to cyclical as well as structural factors.

Over the period from 2011 to 2013, former workers in some manufacturing industries, including transportation equipment and many nondurable manufacturing industries, were more likely than average to have left the labor force, as were former workers in retail trade, finance and insurance, and management, administrative, and waste services. Looking by occupation, according to the most recent data, former workers in the production, transportation, and material moving occupations were the most likely to have left the labor force, followed by individuals leaving sales and office occupations. Workers in occupations requiring higher skills were less likely to exit the labor force.

**Q.4.** How do observations about unemployment and labor force participation in the old and new economy affect the Fed's interest rate policy decisions?

**A.4.** One of the Federal Reserve's mandates from the Congress is to conduct monetary policy so as to promote the maximum level of employment that can be sustained without leading to higher inflation. In assessing its employment objective, policymakers must evaluate how changes in the economy, such as globalization and technological change, affect the types of jobs and skills needed in the workforce. In addition, policymakers need to consider how trends in the size and makeup of the labor force—for example, its composition by age, education, and skills—affect the longer-run normal rate of unemployment and the maximum sustainable level of employment. Because of the factors influencing the demand and supply of labor evolve over time, the Federal Open Market Committee (FOMC) cannot specify a fixed longer-run goal for employment or the unemployment rate. Policymakers update their assessments of the longer-run economic outlook regularly using a wide range of information and present their views four times each year in their Summary of Economic Projections (SEP). In the SEP projections prepared in connection with the March 2016 meeting,

[1] *http://www.bls.gov/news.release/disp.nr0.htm*

FOMC participants reported estimates of the longer-run normal rate of unemployment that ranged from 4.7 to 5.8 percent, with a median estimate of 4.8 percent. Conditional on appropriate monetary policy, participants projected that the unemployment rate would be at or below their individual estimates of the longer-run normal rate from 2016 to 2018, and that inflation would gradually rise over that period, reaching a level at or close to the FOMC's longer-run objective in 2018.

**Q.5.** I'd like to briefly turn to Iran, which recently demanded that Iranian oil purchasers transact in euros instead of dollars. What volume—if any—of oil transactions would have to be denominated in euros instead of dollars for such a shift to impact the Federal Reserve's monetary policy or macroeconomic projections?

**A.5.** Iran currently exports about 1.6 million barrels of oil per day, which is higher than the roughly 1 million barrels per day averaged over 2014 to 2015, but still below the 2.2 million barrels per day pace before the limited States and the European Union tightened sanctions targeting Iran's oil sector in 2012. [2] However, even if Iranian exports were to move back up to pre-sanction levels and oil prices to rise to $50 a barrel, their share of global oil trade would only be around 3 percent and of overall global trade only about 0.2 percent. [3]

Most oil prices are quoted in dollars, and would continue to be, as having a common currency likely facilitates transparency and communication. Moreover, many of the benefits that are said to accrue to the United States because of dollar invoicing, such as the stability of prices in the face of exchange rate movements, are less relevant for oil markets because oil prices are very responsive to market conditions, including exchange rate changes.

**Q.6.** *Entitlement Spending*—I'd like you to elaborate on your statement to Representative Andy Barr that "Every Fed chair that I can remember has come and told Congress that [mandatory entitlement spending] is a looming problem with serious economic consequences."

In July of 2015, former Federal Reserve Chairman Alan Greenspan said that the "extraordinary rise in entitlements" is "extremely dangerous." Do you agree with this sentiment? Why?

**A.6.** As do most economists, I agree with the assessment that the Federal Government budget is on an unsustainable path, given current fiscal policies. The Congressional Budget Office (CBO) projects that Federal budget deficits and Federal Government debt will be increasing, relative to the size of the economy, over the next decade and in the longer run. [4] In the CBO's projections, growth in Federal spending—particularly for mandatory entitlement programs and interest payments on Federal debt—outpaces growth in revenues in the coming years. The increases in entitlement programs, such as Social Security and programs providing health care, are mainly at-

[2] According to the International Energy Agency's March estimate.

[3] Total world trade is about $19 trillion dollars. At least 40 percent of world trade is denominated in dollars, which is about 4 times greater than the U.S. share of global exports and imports. Total global exports of oil are about 64 million barrels per day.

[4] Congressional Budget Office, "The Budget and Economic Outlook: 2016 to 2026", January 2016, and "The 2015 Long-Term Budget Outlook", June 2015.

tributable to the aging of the population and rising health care costs per person. For fiscal sustainability to be achieved, whatever level of spending is chosen, revenues must be sufficient to sustain that spending in the long run.

**Q.7.** Please describe the "serious economic consequences" of failing to address entitlement spending.

**A.7.** I believe the CBO appropriately describes several reasons why high and rising Federal Government debt would have serious negative consequences for the economy.[5] First, because Federal borrowing reduces total saving in the economy over time, the Nation's capital stock would ultimately be smaller than it would be if debt was lower; as a result, productivity and overall economic growth would be slower. Second, fiscal policymakers would have less flexibility to use tax and spending policies to respond to unexpected negative shocks to the economy. Third, the likelihood of a fiscal crisis in the United States would increase.

**Q.8.** How soon does the United States need to address our entitlement spending, before there are, as you put it, "serious economic consequences"?

**A.8.** Neither experience nor economic theory clearly indicate the threshold at which Government debt would begin to impose substantial costs on the U.S. economy.[6] But given the significant costs and risks associated with a rapidly rising Federal debt, fiscal policymakers should soon put in place a credible plan for reducing deficits to sustainable levels over time. Doing so earlier rather than later would ultimately prove less costly by avoiding abrupt shifts in policy and by giving those affected by budget changes more time to adapt.

**Q.9.** How would a failure to address entitlement spending affect the way in which the Federal Reserve conducts monetary policy?

**A.9.** The Federal Reserve adjusts monetary policy as appropriate to maintain or to make progress toward our statutory goals of maximum employment and price stability; both the direction and size of those adjustments could depend on the implications of a failure to address entitlement spending for the economic outlook. For example, it is possible that a failure to put entitlement programs on a sustainable longer-term path could result in an increase in the yields that investors demand on longer-term U.S. Treasury securities. To the extent those increased yields pass through into higher interest rates on corporate bonds, mortgages, and bank loans, the increase in rates would tend to restrain economic activity in the United States and could require the Federal Reserve to ease policy to achieve its economic objectives. In other scenarios, concerns that entitlement programs were not on a sustainable course could contribute to inflationary pressures that could require the Federal Reserve to tighten policy to achieve its objectives. Of course, these are not the only possible outcomes. In judging the appropriate stance of monetary policy, the Federal Reserve constantly assesses incom-

[5] Congressional Budget Office, "The Budget and Economic Outlook: 2016 to 2026", January 2016.

[6] See, for example, Congressional Budget Office, "Federal Debt and the Risk of a Fiscal Crisis", July 27, 2010.

ing economic and financial data and their implications for the economic outlook.

**Q.10.** How would a failure to act affect the amount of interest the Federal Government pays on the debt? How early could we start to see this affect?

**A.10.** With a high level of Federal debt and a forecast of increasing budget deficits, as interest rates rise from their current levels to more typical ones, the CBO projects that Federal spending on interest payments will soon begin to rise considerably. [7]

**Q.11.** Could a failure to address entitlement spending ever affect the dollar's status as a reserve currency?

**A.11.** The U.S. dollar has been considered the world's reserve currency on a consistent basis for quite a while, and projections showing that the Federal budget is unsustainable over the long run have also been known for some time. Thus, it is uncertain what circumstances could change that status. There is no way to predict with any confidence whether and when such a change might occur; in particular, there is no identifiable level of Federal debt, relative to the size of the economy, indicating that this would be likely or imminent.

**Q.12.** Could a failure to address entitlement spending ever cause markets to significantly question the Treasury bill's status as a risk-free instrument? What would the consequences be if this were to occur?

**A.12.** U.S. Treasury securities have generally been considered risk-free because of the size and strength of our economy. And as I stated in my response above, at the same time, projections showing that the Federal budget is unsustainable over the long run have been known for some time. Similarly, there is no way to predict with any confidence whether and when a change in the risk-free status of Treasury securities might occur. In particular, there is no threshold level of debt, relative to the size of the economy, indicating that investors would become unwilling to finance all of the Federal Government's borrowing needs unless they were compensated with very high interest rates. But all else being equal, the higher the ratio of Federal debt to GDP, the greater the risk of this happening. [8]

**Q.13.** *Regional Banks*—I'd like to ask about the Federal Reserve's implementation of Section 165 of Dodd-Frank, which provides for enhanced prudential standards for banks with $50 billion in assets or higher. As you know, these standards include stress tests, which require banks to evaluate how they would fare under unfavorable economic conditions, and resolution plans, which require banks to provide a plan for winding down during a crisis. I'm concerned about the unnecessary damage that these prudential standards could have on regional banks, which play a key role in expanding capital to small- and medium-size businesses.

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[7] Congressional Budget Office, "The Budget and Economic Outlook: 2016 to 2026", January 2016.

[8] See, for example, Congressional Budget Office, "Federal Debt and the Risk of a Fiscal Crisis", July 27, 2010.

Do regional banks pose the same risk as large banks with a trillion or more in assets?

**A.13.** As I have stated in the past, one-size-fits-all should not be the model for regulation. The Federal Reserve has made it a top priority to ensure that we appropriately tailor our regulation and supervision of banks to their size, complexity, and risk. By statute, all banking organizations above $50 billion in assets are subject to enhanced prudential standards. However, the Federal Reserve recognizes that very large, complex firms pose a greater risk to the financial system than smaller, noncomplex firms, and we have differentiated our implementation of the enhanced prudential standards as a result. The eight globally systemic banks are overseen by the Large Institution Supervision Coordinating Committee (LISCC) and are subject to the highest supervisory standards relative to firms outside this portfolio.[9] LISCC firms are subject to additional capital and leverage surcharges and more stringent liquidity requirements. In addition, the LISCC firms are subject to the highest supervisory standards across all assessment areas to include governance, risk management, internal controls, capital policy, scenario design, and the use of models.

The Federal Reserve has further differentiated between large, complex super-regional institutions and other large banking organizations with smaller regional footprints. The large, complex firms while subject to tailored expectations as opposed to the LISCC firms, are subject to heightened standards relative to the smaller, noncomplex firms. This distinction was outlined in the publication of guidance[10] in which the Federal Reserve set expectations for capital planning for LISCC Firms and Large and Complex Firms (with assets in excess of $250 billion and onbalance sheet foreign exposure in excess of $10 billion) that are higher than the expectations for their smaller counterparts.

In addition to tailoring guidance, the Federal Reserve continues to explore ways to improve our supervision process around capital planning to ensure that our supervisory approaches and methodologies are appropriate and consistent as possible for similar sized institutions.

**Q.14.** I'm concerned that our Federal banking regulatory regime arbitrarily relies upon asset thresholds to impose prudential regulations, instead of independently analyzing the risk profile of financial institutions. Should a bank's asset size be dispositive in assessing a bank's risk profile for the purposes of imposing prudential regulations? For example, would a bank with less than a half-trillion in assets typically have the same complexity and conduct the same kind of financial activities as a bank with over $2 trillion in assets?

**A.14.** Under section 165 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), the Federal Reserve is

[9] The eight domestic banks classified as global systemically important financial institutions supervised by LISCC are: Bank of America Corporation, The Bank of New York Mellon Corporation, Citigroup Inc., The Goldman Sachs Group, Inc., JP Morgan Chase & Co., Morgan Stanley, State Street Corporation, and Wells Fargo & Company.

[10] SR Letter 15-18 (Federal Reserve Supervisory Assessment of Capital Planning and Positions for LISCC Firms and Large and Complex Firms) and SR Letter 15-19 (Federal Reserve Supervisory Assessment of Capital Planning and Positions for Large and Noncomplex Firms).

authorized to tailor the application of enhanced prudential standards. In implementing section 165, the Federal Reserve has identified three categories of bank holding companies with $50 billion or more in total consolidated assets based not only on their size, but also based on complexity and other indicators of systemic risk. Specifically, all such bank holding companies are subject to certain enhanced prudential standards, including risk-based and leverage capital requirements, company-run and supervisory stress tests, liquidity risk-management requirements, resolution plan requirements, and risk management requirements. Bank holding companies with $250 billion or more in total consolidated assets or $10 billion or more in on-balance-sheet foreign assets are also subject to the advanced approaches risk-based capital requirements, a supplementary leverage ratio, more stringent liquidity requirements, and a countercyclical capital buffer.

In identifying global systemically important banks, the Federal Reserve considers measures of size, interconnectedness, cross-jurisdictional activity, substitutability, complexity, and short-term wholesale funding. The eight U.S. firms identified as global systemically important banks (GSIBs) are subject to risk-based capital surcharges, an enhanced supplementary leverage ratio, and more specific recovery planning guidance.

In addition, the Federal Reserve tailored the application of the enhanced prudential standards required under section 165 to General Electric Capital Corporation (GECC), a nonbank financial company designated by the Financial Stability Oversight Council (FSOC) for supervision by the Federal Reserve. Because of the substantial similarity of GECC's current activities and risk profile to that of a large bank holding company, the enhanced prudential standards that would be applied to GECC are similar to those that apply to large bank holding companies, but they are tailored to reflect the unique characteristics of GECC. The standards include (1) capital requirements; (2) capital-planning and stress-testing requirements; (3) liquidity requirements; and (4) risk-management and risk-committee requirements.

**Q.15.** Please describe in detail how the Federal Reserve will meaningfully tailor Section 165 prudential standards to match a particular bank's "capital structure, riskiness, complexity, financial activities . . . [and] size," as allowed for under Section 165, including with regards to stress testing and resolution planning?

**A.15.** The Federal Reserve has tailored resolution planning requirements for firms subject to section 165 of the Dodd-Frank Act where it has permitted firms with limited nonbanking operations to file a tailored plan that exempts it from many informational requirements. Additionally, the Federal Reserve and the Federal Deposit Insurance Corporation have exempted 90 firms with limited U.S. operations from most plan requirements. These firms may file plans that focus on material changes to their initial resolution plan filed in 2014, actions taken to strengthen the effectiveness of those plans, and, where applicable, actions to ensure any subsidiary insured depository institution is adequately protected from the risk arising from the activities of nonbank affiliates of the firm. The

Federal Reserve's recovery planning guidance focuses only on the eight U.S. GSIBs.

Bank holding companies with more than $50 billion in total consolidated assets are subject to the Federal Reserve's Comprehensive Capital Analysis and Review (CCAR), which evaluates the capital planning processes and capital adequacy of the largest U.S.-based bank holding companies, including the firms' planned capital actions such as dividend payments and share buybacks and issuances. Strong capital levels absorb losses and help ensure that banking organizations have the ability to lend to households and businesses even in times of financial and economic stress. In December 2015, the Federal Reserve released guidance to its examiners and banking institutions that consolidates the capital planning expectations for all large financial institutions and clarifies differences in those expectations based on firm size and complexity. The guidance is designed to tailor the Federal Reserve's expectations for large financial institutions.

For the largest and most complex firms, the guidance clarifies expectations that have been previously communicated to firms, including through past CCAR exercises and related supervisory reviews. These firms are bank holding companies and intermediate holding companies of foreign banks subject to the Federal Reserve's LISCC framework, or firms with $250 billion or more in total consolidated assets or $10 billion or more in foreign exposures.

For firms with more than $50 billion, but less than $250 billion in total consolidated assets, as well as less than $10 billion in foreign exposures, the guidance clarifies the supervisory expectations to be applied for the firms' capital planning processes. In general, the guidance is tailored to reflect the lower systemic risk profile and less complex operations of these firms, as compared to the largest and most complex firms.

**Q.16.** In testimony to the Senate Banking Committee, you noted that the Federal Reserve is "actively engaged in reviewing our stress-test testing in capital planning framework" and that the Federal Reserve is "considering ways in which we can make that less burdensome for the bank holding companies that are close to the $50 billion asset line." How close to $50 billion in assets must a bank be for the Federal Reserve to consider tailoring the stress test regime?

**A.16.** Please see response to Question 13.

**Q.17.** Is the Federal Reserve considering tailoring Section 165 prudential standards for banks with assets that are not merely "close" to $50 billion in assets? For instance, according to Basel Systemic Risk Indicators from 2013, the systemic risk score of almost every bank with less than $500 billion in assets is 4 times less than every bank with more than $500 billion in assets.

**A.17.** As indicated in the responses to Questions 14 and 15, the Federal Reserve has tailored meaningfully the application of the enhanced prudential standards under section 165 to both bank holding companies and GECC. Underlying this tailoring was the principle that progressively more stringent regulation should apply to firms based on their relative importance to the financial system, and thus the harm that could be expected to the system if they failed. The Federal Reserve continues to consider ways to further tailor the enhanced prudential standards to reflect differences in risk among firms.

**Q.18.** *Insurance*—I'd like to ask about the Federal Reserve's development of insurance capital standards.

What steps has the Federal Reserve taken to ensure that the minimum capital standards are tailored to the business of insurance?

**A.18.** The Federal Reserve is committed to developing capital standards in accordance with its statutory mandate and authority in a way that is appropriate and tailored to the insurance industry. The Federal Reserve appreciates that insurance involves unique risks among financial institutions, encompassing both liabilities and assets, and it is important to keep in mind the liability structure of firms in determining capital requirements for insurance companies, particularly with regard to the mix of the insurers' activities. We are approaching our mandate carefully and with proper deliberation. In our development of domestic standards, we are consulting with the industry, State commissioners and other key external parties on several aspects of the standards to achieve the Federal Reserve's mandate under the authority as set out in the Dodd-Frank Act. Moreover, the Federal Reserve intends to make full use of the flexibility provided by the Insurance Capital Standards Clarification Act of 2014 to tailor the capital standards to the business of insurance.

**Q.19.** How much deference will the Federal Reserve give to State insurance regulators in developing these insurance standards? Will State insurance standards provide the broad basis for the Federal Reserve's new regulations? Why or why not?

**A.19.** With the enactment of the Dodd-Frank Act, the Federal Reserve was assigned responsibility as the consolidated supervisor of insurance holding companies that own thrifts, as well as insurance companies designated by the FSOC. The Federal Reserve's principal supervisory objectives for the insurance firms that it oversees include protecting the safety and soundness of the consolidated firms, as well as mitigating risks to financial stability. The Federal Reserve continues to engage extensively with State insurance regulators, the National Association of Insurance Commissioners, and other interested stakeholders to solicit feedback on insurance prudential standards that would comport with the Federal Reserve's statutory authority.

The Federal Reserve's consolidated supervision supplements existing State based legal-entity supervision, which focuses on policyholder protection, with a perspective that considers the risks across the entire firm. Moreover, the Federal Reserve's insurance prudential standards will not alter or replace the existing State-based framework, including capital requirements at the legal entity level, that are already in place. We continue to coordinate with State insurance regulators in their protection of policyholders and aim to avoid duplications of their supervision. We leverage the work of State insurance regulators where possible and continue to look for opportunities to further coordinate with them.

It would be premature to comment on how the Federal Reserve will treat the unique risks of certain insurance lines, mix of business and the like, before we have fully evaluated the potential options for insurance prudential standards, including those that rely, in part, on the State-based capital requirements of regulated insurance companies. In our supervision of insurance firms, the Federal Reserve remains committed to tailoring our supervisory approach, including a domestic regulatory capital framework and other insurance prudential standards, to the business of insurance, reflecting insurers' different business models and systemic importance compared to other firms supervised by the Federal Reserve. Moreover, we are committed to a formal rulemaking process in the development of insurance prudential standards.

**Q.20.** Has the Federal Reserve conducted cost benefit analysis to develop these insurance standards? If not, why? If so, please share the results of these studies?

**A.20.** With respect to the insurance standards and all other rulemakings, the Federal Reserve follows the Administrative Procedures Act and other applicable administrative laws that govern the various aspects of rulemakings, including the consideration of costs and benefits. The Federal Reserve regularly conducts economic analyses in connection with rulemakings, including considering the potential economic impact of a rule on small depository institutions consistent with the Regulatory Flexibility Act, and considering the anticipated cost of paperwork consistent with the Economic Growth and Regulatory Paperwork Reduction Act. To inform our rulemaking, in 2014, the Federal Reserve conducted an extensive quantitative impact study. The data we collected helps us to understand the insurance risks of the firms that participated in the study.

To the extent possible, the Federal Reserve attempts to minimize regulatory burden in its rulemakings consistent with the effective implementation of our statutory responsibilities. The Federal Reserve is charged by Congress to promulgate rules largely designed to improve the safe and sound operation of financial organizations and safeguard financial stability. As part of the rulemaking process, the Federal Reserve specifically seeks comment from the public on the burdens and benefits of our proposed approach as well as on alternative approaches and, in adopting final rules, the Federal Reserve seeks to adopt a regulatory alternative that faithfully implements the statutory provisions while minimizing regulatory burden. It would be premature for the Federal Reserve to disclose the cost benefit analysis of the insurance standards rulemaking since it is still in the development stage and we have yet to conclude our deliberations.

## RESPONSES TO WRITTEN QUESTIONS OF SENATOR COTTON FROM JANET L. YELLEN

**Q.1.** You testified at your confirmation hearing that even a positive rate close to zero could disrupt money markets that help fund financial institutions. By extension, isn't it logical to conclude that a negative interest rate would be even more disruptive?

**A.1.** As noted in its most recent statement, the FOMC anticipates further improvement in labor market conditions with inflation returning to 2 percent over the medium term. This economic outlook is expected to be associated with gradual increases in the Federal funds rate. That said, if the economic outlook weakened appreciably, the FOMC would need to consider actions to provide additional policy accommodation to foster progress toward its statutory objectives of maximum employment and price stability. The experience of foreign countries suggests that negative interest rates have provided additional monetary policy accommodation in those countries without significant disruptions in money markets. However, it is unclear whether the same would be true for the United States. At a minimum, any consideration of negative interest rates in the United States would require careful study of the implications of negative rates for U.S. financial markets and institutions and U.S. households and businesses along with the potential for unintended consequences.

**Q.2.** How long can the wholesale banking system withstand a global environment of negative interest rate policies from the major central banks?

**A.2.** The long-run effects of negative interest rate policies on banks' profitability are uncertain. In a number of economies where the policy has been introduced, banks' profits have been reduced by lower interest income, but have been supported by lower funding costs, capital gains on bond holdings, and lower provisions for loan losses. At the same time, negative interest rate policies may be providing economic stimulus, and that stimulus may ultimately improve the overall economy and subsequently bank's income.

**Q.3.** What incentive effect would you expect negative interest rates to have on fiscal consolidation?

**A.3.** During the most recent recession and financial crisis, the Federal Reserve did not respond with a monetary policy that included a target for the Federal funds rate that was negative. As a result, without the experience of using a negative policy rate, it is difficult and speculative to describe the effects that it might have on the U.S. economy and the Federal Government budget. That said, if economic conditions were such that the Federal Reserve decided that it was appropriate to implement a negative policy rate, then the effects on the economy and the Federal Government budget could be qualitatively similar to the effects of our traditional monetary policy response of lowering the target for the Federal funds rate when the economy goes into a downturn. To the degree that a negative rate policy helped reduce long-term borrowing costs for households and businesses that, in turn, boosted economic activity and employment above where it otherwise would have been, the Federal Government budget would also be in a better position. If a stronger economy was the result of such a policy, then tax revenues would be higher and there would be less Government spending for income-support programs, such as unemployment insurance benefits.

**Q.4.** What would a further drop in discount rates, driven by NIRP, do to unfunded pension liabilities in the public and private sectors?

**A.4.** In general, lower discount rates mechanically increase the present value calculation for future pension liabilities. However, pension funding status is heavily dependent on the rate of return on pension assets, as well as the calculation of liabilities. As a result, the effect of monetary policy on pension funding status is difficult to ascertain, because monetary policy likely affects the rate of return on pension assets as well as the calculation of the liabilities. In addition, there is not a direct connection between monetary policy and the discount rate used by pension systems to calculate their liabilities. For example, the median discount rate being used by State and local retirement systems in their financial reports, as reported in "Wilshire Consulting's 2016 Report on State Retirement Systems", was 7.5 percent, well above the Federal Open Market Committee's Federal funds rate target range of 0.25–0.50 percent.

**Q.5.** Last year, an official from the Bank of International Settlements said: For central banks, [NIRP] policies raise the risk of financial dominance, exchange rate dominance, and fiscal dominance—that is, the danger that monetary policy becomes subordinated to the demands of propping up financial markets, massaging the exchange rate downwards, and keeping public refinancing costs low in the face of unprecedented public debt burdens. Do you disagree?

If you believe this might be a risk worth taking for the Fed that implies some temporal trade-off. But, as you know, pulling growth forward is not sustainable. How long would you expect a hypothetical NIRP environment to take to generate the real economic growth necessary to meet the Fed's dual mandate?

**A.5.** The Congress established the Federal Reserve as an independent central bank tasked with conducting policy to promote progress toward the statutory goals of maximum employment and stable prices. As part of this framework, the Federal Reserve is accountable to the Congress and the American people for its actions. The Federal Reserve supports appropriate accountability through many steps that foster a transparent monetary policy process. For example, the Federal Reserve regularly reports detailed descriptions of its analysis of economic and financial developments, the policy outlook, and policy deliberations in the minutes of every FOMC meeting. Additionally, I formally report to Congress twice each year on the economic and monetary policy outlook and typically testify on many other occasions as well. These and many other steps ensure that monetary policy actions undertaken by the Federal Reserve can be understood and scrutinized by the public. That process, in turn, ensures that monetary policy is directed solely at achieving the Federal Reserve's statutory objectives of maximum employment and stable prices.

The current stance of monetary policy remains very accommodative and, as noted in the answer to Question 1 above, the Federal Reserve anticipates that economic conditions will warrant gradual increases in the Federal funds rate over time. Regarding hypothetical situations in which additional policy accommodation could be needed, recent foreign experience suggests that negative interest rates have provided additional policy accommodation in those countries. However, it is unclear whether the same would be the case in the United States. Any consideration of the use of negative rates in the United States to provide additional policy accommodation would require careful study of many complicated issues.

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**RESPONSES TO WRITTEN QUESTIONS OF SENATOR ROUNDS FROM JANET L. YELLEN**

**Q.1.** The purpose of the Systemically Important Financial Institution designation process is to reduce risk, but I am concerned that it's a lot easier for firms to become designated a SIFI than it is for firms to de-risk and de-designate. What has the Federal Reserve done and what do can the Federal Reserve do going forward to make it easier for firms to de-designate?

**A.1.** The Federal Reserve Board's (Board) regulations and supervisory guidance applicable to the largest U.S. bank-holding companies and nonbank financial companies that are designated by the Financial Stability Oversight Council (FSOC) are intended to reduce the threat that could be posed to U.S. financial stability by the material financial distress or failure of these organizations and promote their safe and sound operations. Such regulations are designed to increase the resilience of systemically important financial institutions and foster such firms' ability to provide credit and other financial services in times of financial stress. Through speeches and testimony, the Board and its staff also provide information on how financial institutions, both banks and nonbanks, can reduce the risk they could pose to U.S. financial stability.

FSOC designation of nonbanks is not intended to be permanent. The Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) provides that the FSOC annually review designations to make sure that they remain appropriate and take into account significant changes at the firms that materially affect the FSOC's determination. At the time of designation, nonbank financial companies are given a detailed basis for the determination that a nonbank financial company should be subject to supervision by the Board. Factors include the extent of short-term funding activities at those organizations, the firms' products and associated short-term liabilities, their capital markets activities, securities lending, over-the-counter derivatives, and interconnectedness with the rest of the financial system. Firms can use that information, as well as factors the FSOC is required to consider under the Dodd-Frank Act, to guide their efforts to reduce their systemic footprint.

**Q.2.** Would a clearly marked off-ramp make with specific requirements for de-risking make it easier for firms to reduce systemic risk?

**A.2.** As stated above, the FSOC designation of nonbanks is not intended to be permanent. Because each firm's systemic footprint is different, the FSOC conducts its analysis on a company-by-company basis in order to take into account the potential risks and mitigating factors that are unique to each company. At the time of designation, nonbank financial companies are given a detailed basis for the determination that a nonbank financial company should be subject to supervision by the Board. Firms can use that information, as well as factors the FSOC is required to consider under the Dodd-Frank Act, to guide their efforts to reduce their systemic footprint.

**Q.3.** The designation of three insurers as systemically important has given the Federal Reserve a large voice in the regulation and supervision of the insurance industry. The Financial Stability Oversight Council has an independent insurance expert and the Federal Reserve has an insurance expert, but beyond that, how often and in what way does the Federal Reserve communicate with State insurance commissioners when making supervisory and regulatory decisions?

**A.3.** While the Federal Reserve and State insurance regulators, together with the National Association of Insurance Commissioners (NAIC), have distinct statutory authorities and mandates, the Federal Reserve remains committed to working cooperatively with the States on a wide range of insurance supervisory and regulatory issues. The Federal Reserve respects the work of State insurance regulators, collaborating both informally and formally through mechanisms such as supervisory colleges, the evaluation of supervised insurers' Own Risk and Solvency Assessments and other supervisory matters. Federal Reserve staff continues to meet regularly with State insurance departments to discuss supervisory plans and findings for the insurance firms for which the Federal Reserve has consolidated supervisory responsibility. We additionally have hosted multiple crisis management groups that included participation from parties including State insurance departments, as well as the Federal Insurance Office and Federal Deposit Insurance Corporation. Additionally, the Federal Reserve's examination teams leverage the important work of State insurance regulators in the evaluation of capital planning and sufficiency. The Federal Reserve continues to be committed to working with State insurance regulators, the NAIC and other involved regulators in the future.

**Q.4.** Right now, the United States is selling massive amounts of debt to finance U.S. deficits and we strongly rely on foreign Governments to buy that debt. So far, there has been a strong appetite from foreign Governments for our debt, however, at some point that may change. Is the Federal Reserve concerned about this?

**A.4.** Foreign entities hold close to half of Federal Government debt held by the public, roughly the same share as before the most recent recession and subsequent run-up in Federal debt. Foreign official entities, which include foreign central banks and sovereign wealth funds, hold less than one-third of Federal debt held by the public and make up the bulk of all foreign holdings. In general, foreign entities often want to hold U.S. Treasury securities because of their liquidity and perceived safety and soundness. Moreover, foreign holdings of Federal debt imply that there is less reliance on domestic sources of saving in order to finance Government borrowing, thereby keeping interest rates on Treasury securities lower than they would be otherwise. At this point, there is no apparent evidence that there has been any material decrease in foreign demand for Treasury securities, and interest rates on these securities remain fairly low.

**Q.5.** What does the Fed expect will happen to U.S. debt sales when we reach this point?

**A.5.** If, for some reason, foreign and domestic demand for U.S. Treasury securities were to decline significantly, then interest rates would have to rise such that investors would be willing to finance all of the Federal Government's borrowing needs. The extent to which interest rates have to increase would depend upon the magnitude of any decrease in demand.

**Q.6.** Does the Federal Reserve have a model that predicts when the world will be unable or unwilling to absorb additional debt from the U.S.?

**A.6.** The Federal Reserve does not have a model that currently predicts that the world will be unable or unwilling to absorb additional Federal Government debt. Indeed, demand for Treasury securities has been quite robust recently, even with the substantial increase in Federal debt over the past decade and projections of further increases in the coming years.

**Q.7.** Rulemakings by the Federal Reserve must follow the requirements of the Administrative Procedure Act, Regulatory Flexibility Act, and Paperwork Reduction Act. In addition, the Riegle/Neal Community Development and Regulatory Improvement Act require the Federal Reserve to consider the administrative burdens imposed by new regulations on depository institutions as well as the benefits of such regulations. However, recent rulemaking by the Federal Reserve has failed to release such economic analysis for public comment, which the D.C. Circuit Court of Appeals has held to be necessary to comply with the required economic analysis under these statutes. Why has the Federal Reserve not published the results of its economic analysis for public comment? Will you commit to doing so going forward?

**A.7.** With respect to all rulemakings, the Federal Reserve follows the Administrative Procedures Act and other applicable administrative laws that govern the various aspects of rulemakings, including the consideration of costs and benefits. The Federal Reserve regularly conducts economic analyses in connection with rulemakings, including considering the potential economic impact of a rule on small depository institutions consistent with the Regulatory Flexibility Act, and considering the anticipated cost of paperwork consistent with the Economic Growth and Regulatory Paperwork Reduction Act.

To the extent possible, the Federal Reserve attempts to minimize regulatory burden in its rulemakings consistent with the effective implementation of our statutory responsibilities. The Federal Reserve is charged by Congress to promulgate rules largely designed to improve the safe and sound operation of financial organizations and safeguard financial stability. As part of the rulemaking process, the Federal Reserve specifically seeks comment from the public on the burdens and benefits of our proposed approach as well as on alternative approaches and, in adopting final rules, the Federal Reserve seeks to adopt a regulatory alternative that faithfully implements the statutory provisions while minimizing regulatory burden.

**Q.8.** The Federal Reserve Bank of Kansas City recently issue a report on the agricultural sector of the economy which reported that depressed crop prices, increased inventories, and declining demand for exports caused agricultural lenders and the Fed to have, "increasing concerns about 2016 farm finances." Are you also concerned about the future of the farm economy?

**A.8.** Developments in the U.S. farm economy warrant close monitoring as low agricultural commodity prices have weighed on farm income. To support cash flow, short-term lending from commercial banks to the farm sector has increased. Although the combined balance sheet of the sector remains healthy, primarily due to elevated farm real-estate values, some commercial banks have reported concerns about repayment rates on agrelated loans. Looking ahead, continued low commodity prices and a decline in farmland values are key risks to the farm economy.

That said, some indicators suggest the sector is demonstrating resilience. In the fourth quarter of 2015, the delinquency rate on agricultural production loans was less than 1 percent, compared with 2.7 percent 5 years ago. Also, agricultural real estate values, which are a significant contributor to the health of balance sheets, have remained relatively stable—though, they have modestly declined from recent peaks.

To summarize, the downturn in the farm economy has been notable and raises concerns that farm borrowers could face mounting difficulties in the year ahead as the sector continues to adjust to lower commodity prices. The Federal Reserve will continue to closely monitor these developments as well as potential of spillover effects to sectors closely connected to the farm sector, banks and the financial system, or to the U.S. economy more generally.

**Q.9.** When you take a look at the health of America's farmers, what indicators do you look at and who do you listen to?

**A.9.** At the Federal Reserve we follow a wide variety of data on the farm sector, related both to farm finances (for instance, data on farm land prices and farm credit) and farm output (including data on farm product prices, farm income, and farm inventories). Moreover, the Federal Reserve Banks provide regular updates on a broad array of farm issues. Staff members reach out regularly to farm contacts in their districts to learn about the health of the sector, and that information is included in our "Summary of Commentary on Current Economic Conditions by Federal Reserve District" commonly known as the Beige Book, which is published eight times a year.

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**RESPONSES TO WRITTEN QUESTIONS OF SENATOR MORAN FROM JANET L. YELLEN**

**Q.1.** During your February 10th testimony in front of the House of Representatives Committee on Financial Services, you were asked by two members of Congress about how Custody banks could be prevented from accepting cash from pension funds and their other customers, especially in a period of financial market stress, because the Supplemental Leverage Ratio (SLR). You replied: "And the decision was made at the time that the leverage ratio is not our main capital tool, but a backup capital tool that is intended to, in a crude kind of way, base capital requirements on the overall size of a firm's balance sheet. And that for that reason, it should be included." Followed by, "There were considerations on both sides, and a decision was made to include Fed deposits."

In the case of the custody banks, it does not appear that the SLR is a "backstop," but is instead the binding capital constraint, which is impacting these banks ability to accept cash deposits from pension plans and other customers particularly in a period of financial stress or crisis. Can you tell me what your considerations were for including the Fed deposits in the SLR and why, given the nature of a custody banks business model, they were not exempted?

Also, if custody banks are unable to accept cash deposits in a time a crisis, what do you believe the pensions and other institutional investors will do what that cash?

**A.1.** The supplementary leverage ratio rule (SLR rule) adopted by the Federal Reserve, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation (the Agencies), requires internationally active banking organizations to hold at least 3 percent of total leverage exposure in tier 1 capital. The rule calculates total leverage exposure as the sum of certain off-balance sheet items and all on-balance sheet assets. [1] The on-balance sheet portion does not take into account the level of risk of each type of exposure and includes cash. As designed, the SLR rule requires a banking organization to hold a minimum amount of capital against on-balance sheet assets and off-balance sheet exposures, regardless of the risk associated with the individual exposures. This leverage requirement is designed to recognize that the risk a banking organization poses to the financial system is a factor of its size as well as the composition of its assets. Excluding select categories of on-balance sheet assets, such as cash, from total leverage exposure would generally be inconsistent with this principle.

The Agencies understand the concern that certain custody banks, which act as intermediaries in high-volume, low-risk, low-return financial activities, may experience increases in assets as a result of macroeconomic factors and monetary policy decisions, particularly during periods of financial market stress. [2] Because the SLR is not a risk-based measure, it is possible that increases in banking organizations' holdings of low-risk, low-return assets, such as deposits, could cause this ratio to become the binding regulatory capital constraint. However, when choosing an appropriate asset profile, banking organizations consider many factors in addition to regulatory capital requirements, such as yields available relative to the overall cost of funds, the need to preserve financial flexibility and liquidity, revenue generation, the maintenance of market share and business relationships, and the likelihood that principal will be repaid.

[1] See 79 *Fed. Reg.* 57725 (September 26, 2014), available at *http://www.gpo.gov/fdsys/pkg/FR-2014-09-26/pdf/2014-22083.pdf.*

[2] The agencies have reserved authority under the capital rule to require a banking organization to use a different asset amount for an exposure included in the SLR to address extraordinary situations. See 12 CFR 3.1(d)(4) (OCC); 12 CFR 217.1(d)(4) (Federal Reserve); 12 CFR 324.1(d)(4) (FDIC).

Regulatory requirements established by the Federal Reserve since the financial crisis are meant to address risks to which banking organizations are exposed, including the risks associated with funding in the form of cash deposits. The requirements are designed to increase the resiliency of banking organizations, enabling them to continue serving as financial intermediaries for the U.S. financial system and as sources of credit to households, businesses, State governments, and low-income, minority, or underserved communities during times of stress. The SLR requirement and the enhanced SLR standards do not become effective until January 1, 2018. According to public disclosures of firms subject to these requirements, the custody banks and other GSIBs have made significant progress in complying with the enhanced SLR requirements.

**Q.2.** We continue to see consolidation of the banking industry, particularly at the community bank level. Some of that has to do with market pressures. A lot of that has to do with the avalanche of regulation facing these institutions, and their lack of resources in coping with it.

What has the Fed done to tangibly reduce the regulatory burden on such institutions?

What impediments stand in front of regulators in aggressively addressing this problem?

What areas can the Fed—and other bank regulators—attack to address this problem?

**A.2.** The Federal Reserve has long maintained that our regulatory efforts should be designed to minimize regulatory burden consistent with the effective implementation of our statutory responsibilities. In addition, the Federal Reserve and the other banking agencies have developed a number of compliance guides that are specifically designed to assist community banks' understanding of applicable regulatory requirements.

Generally, the Federal Reserve strives to balance efforts to ensure that supervision and regulation are calibrated appropriately for smaller and less risky institutions with our responsibility to ensure that consumer financial transactions are fair and transparent, regardless of the size and type of supervised institutions involved. The Federal Reserve has worked to minimize regulatory burdens for community banks, by fashioning simpler compliance requirements and clearly identifying which provisions of new regulations are of relevance to smaller banks.

In January 2014, the Federal Reserve Board (Board) implemented a new consumer compliance examination framework for community banks. The new program more explicitly bases examination intensity on the individual bank's risk profile, weighted against the effectiveness of the bank's compliance controls. The Board also revised its consumer compliance examination frequency policy to lengthen the time between on-site consumer compliance and Community Reinvestment Act examinations for many community banks with less than $1 billion in total consolidated assets. These changes should increase the efficiency of our exam process and reduce regulatory burden on many community banks.

The Board approved a final rule in April 2015 raising the asset threshold of the Board's Small Bank Holding Company and Savings and Loan Holding Company Policy Statement (Policy Statement) from $500 million to $1 billion and expanding its application to savings and loan holding companies. As a result of this action, 89 percent of all bank holding companies and 81 percent of all savings and loan holding companies are now covered under the scope of the Policy Statement. The Policy Statement reduces regulatory burden by excluding these small organizations from certain consolidated capital requirements. In addition to reducing capital burden, the action significantly reduced the reporting burden associated with capital requirements by eliminating the more complex quarterly consolidated financial reporting requirements and replacing them with semiannual parent-only financial statements for 470 institutions. In addition, raising the asset threshold allowed more bank holding companies to take advantage of expedited applications processing procedures.

To deepen its understanding of community banks and the specific challenges facing these institutions, the Board meets twice a year with the Community Depository Institutions Advisory Council (CDIAC) to discuss the economic conditions and issues that are of greatest concern to community institutions. The CDIAC members are selected from representatives of community banks, thrift institutions, and credit unions who serve on local advisory councils at the 12 Federal Reserve Banks. The Board also has launched a number of outreach initiatives, including the establishment of its “Community Banking Connections” program, which is designed to enhance the dialogue between the Board and community banks. In addition, this program highlights key elements of the Board’s supervisory process for community banks and provides clarity on supervisory expectations.

In 2014, under the auspices of the Federal Financial Institution Examination Council (FFIEC), the Federal Reserve, the Comptroller of the Currency and the Federal Deposit Insurance Corporation (the Agencies) began their decennial review of regulations as required by the Economic Growth and Regulatory Paperwork Reduction Act of 1996 (EGRPRA) with the release of four *Federal Register* notices requesting comments on their regulations that are applicable to insured depository institutions and their holding companies in 12 substantive categories: Applications and Reporting; Powers and Activities; International Operations; Banking Operations; Capital; the Community Reinvestment Act; Consumer Protection; Directors, Officers and Employees; Money Laundering; Rules of Procedure; Safety and Soundness; and Securities. The final comment period closed on March 22, 2016, and produced over 160 written comment letters. Additionally, the Agencies held six outreach events across the country with over 1,030 participants attending in person, by telephone, or via live stream.

While the Agencies are in the process of conducting a systematic analysis and consideration of these comments in order to prioritize recommendations and to adopt changes as appropriate, they have already taken action on certain issues. For example, upon authorization provided in the Fixing America’s Surface Transportation Act, enacted on December 14, 2015, the Agencies moved quickly to raise the asset threshold from $500 million to $1 billion in total assets for banks and savings associations that are well-capitalized and well-managed to be eligible for an 18-month examination cycle.

Additionally, under the auspices of the FFIEC, the Agencies issued a public notice in September 2015 that established a multistep process for streamlining Call Report requirements. The notice included proposals to eliminate or revise several Call Report data items, announced an accelerated start of a statutorily required review of the Call Report, and began an assessment of the feasibility of creating a streamlined community bank Call Report. In addition to the formal EGRPRA process, the Agencies are continuing to engage in industry dialogue and outreach, to better understand significant sources of Call Report burden.

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**RESPONSES TO WRITTEN QUESTIONS OF SENATOR MENENDEZ FROM JANET L. YELLEN**

**Q.1.** Last year, the Federal Reserve, in conjunction with the OCC, FDIC, SEC, NCUA, and CFPB issued final standards, as required by the Wall Street Reform Act, to assess the diversity practices of regulated financial institutions. In my view, these standards, which changed little since the draft was released a few years prior, unfortunately fall short of what is necessary to achieve real progress. As I noted in my Corporate Diversity Survey last year, it's no secret that the financial industry has a long way to go to improve the diversity of its leadership, workforce, and supplier base. And as you know, the Offices of Minority and Women Inclusion were created to help address the lack of diversity within our financial sector, and we need much more than voluntary self-assessments to bring about transparency and meaningful change.

This is not some pie-in-the-sky policy—this directly connects to the financial health of our families and our communities. Lack of attention paid to communities of color likely contributed to regulatory neglect of problems that led to the crisis.

Beyond what is contemplated in the OMWI standards issued last year, what other concrete steps does the Federal Reserve plan to take to advance diversity and inclusion both within the Federal Reserve System and in the banking industry in general?

**A.1.** The Federal Reserve Board (Board) is committed to equal employment in all aspects of employment, and to fostering diversity and inclusion in the workplace. This includes both the letter and spirit of all current law. The Board's 2016–2019 Strategic Plan includes a strategic objective focusing on the recruitment, developments and retention of a highly skilled workforce that enables the Board to meet its mission and foster and sustain a diverse and inclusive environment.

The Board has collaborated with the Federal Reserve Banks to include in the 2016 Office of Minority and Women Inclusion (OMWI) reports core metrics for measuring key workforce indicators and procurement awards. The metrics enable the Board and Reserve Banks to monitor the effectiveness of diversity policies, practices, and programs and adjust activities where needed.

Under a Board management mandate adopted in 2015, succession planning, workforce planning, and talent management strategic objectives are being established throughout the Board. In addition, the Board implemented a Diversity Scorecard to assist divisions in pursuing a comprehensive and strategic focus on diversity and inclusion as a key metric. The scorecard establishes accountability for setting of diversity objectives and for actions by divisions to achieve those objectives. The scorecard objectives cover four performance areas: Leadership Engagement, Talent Acquisition, Talent Management, and Supplier Diversity.

We remain committed to evaluating the Board's personnel practices, policies, and other efforts to ensure that the workplace is free of discrimination and provides equal opportunity and access for minorities and women in hiring, promotion, business practices, and retention particularly to senior-management level positions.

The Board continues to collaborate with other financial regulatory agencies in the implementation of the "Final Interagency Policy Statement Establishing Joint Standards for Assessing the Diversity Policies and Practices of Entities Regulated by the Agencies" (Policy Statement). On February 29, 2016, the Board, Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation, Securities and Exchange Commission, National credit Union Administration, and the Consumer Financial Protection Bureau (the Agencies) received approval from the Office of Management and Budget to collect information pursuant to the policy statement. The information from the self-assessments may be used to monitor diversity and inclusion trends and identify leading policies and practices in the financial services industry. In collaboration with the other Agencies, the Board will work with regulated entities and other stakeholders to monitor progress toward meeting the joint standards, and provide technical assistance to the regulated entities in addressing diversity.

To address diversity in the economics profession the Board has, under the purview of the American Economic Association's Committee on the Status of Minority Groups in the Economics Profession, continued to organize, oversee, and participate in the three programs intended to foster a long-term strategy in the recruitment of minority economists: (1) the Summer Economics Fellow Program; (2) the Summer Training Program; and (3) the Mentoring Program.

The Board has also collaborated with Howard University to establish a teaching and mentoring program to build relationships between Board economists and the university's economics faculty and students. In addition, to encouraging the study of economics as a major, a team of economic research assistants from the Board visited local high schools, focusing on schools with demographically diverse populations. We will continue to explore new and innovative ways to increase the availability of minority and female professional economists in the educational and professional pipeline.

**Q.2.** Nonbank lending has grown steadily in recent years, and as you know, nonbank lenders often rely on funding sources that are more vulnerable to runs. The 2015 Shared National Credit Review of bank loans underwriting standards showed that while nonbanks own less than one-quarter of total loans, they own two-thirds of the highest-risk loans. And, with the growth of nonbank lending, intermediation chains have also lengthened, to the point where there are frequently banks and other nonbank financial institutions involved. As you know, the failure of a large, interconnected nonbank financial institution has the potential to wreak havoc on our system and instigating contagion among other institutions. From my perspective, bringing the largest and most interconnected of these institutions are within the wings of prudential regulation and supervision has been and will continue to be critical for our financial stability.

What steps is the Fed taking to identify risks to financial stability, and in particular those arising from nonbank institutions not currently subject to prudential supervision?

**A.2.** The Federal Reserve continuously monitors risks to financial stability from all components of the financial system including banks, nonbank financial institutions, financial market utilities, and markets themselves. This monitoring effort includes the activities and risks of various nonbank financial institutions, such as hedge funds, insurance firms, mutual funds, pension funds, consumer and business finance companies, as well as more opaque markets, such as repo and over-the-counter derivatives, and innovations such as distributed ledger technology. We also supervise the nonbank financial companies that the Financial Stability Oversight Council (FSOC) has determined should be subject to Federal Reserve supervision and prudential standards—two large insurance companies and GE Capital. We are working closely with other FSOC participants on initiatives to evaluate potential systemic risks arising from activities and products in the asset management industry, including liquidity and redemption risk, securities lending risk, operational risk, and resolvability and transition planning. And, we are consulting with the Commodities Futures and Trading Commission (CFTC) to better understand and manage risks around central counterparties. The Federal Reserve also continues its active participation in the Financial Stability Board, engaging in issues including shadow banking, supervision of global systemically important financial institutions, the development of effective resolution regimes for large financial institutions, and evaluation of potential systemic risks from marketwide asset management activities.

In addition, we have boosted the visibility into the nonbank financial institution sector by obtaining access to additional data on those firms through coordination with other regulators, purchases from outside vendors, enhanced regulatory reporting to better understand the linkages between banks and nonbank financial institutions, and voluntary collections from industry. For instance, with our colleagues at the Office of Financial Research and the Securities and Exchange Commission, we have launched a pilot project to collect data on bilateral repurchase agreements (see *https://financialresearch.gov/data/repo-data-project/*).

**Q.3.** What data gaps have you identified in analyzing risks of nonbank financial institutions?

**A.3.** Regulators and market participants alike understand the role that information gaps played in allowing some of the excesses during the run-up to the crisis to go undetected and hindering our efforts to contain the effects of the crisis. Regulators, including the Federal Reserve, have taken significant steps to improve the breadth and depth of our data collections. Of course, we recognize that data reporting is costly for institutions and we strive to minimize the burden consistent with our task of ensuring the safety and soundness of individual regulated institutions as well as the ongoing stability of the entire system. As noted above, one way in which we are filling data gaps is by collaborating with other regulators. For instance, with Congress' repeal of the indemnification clause in section 728 of the Dodd-Frank Wall Street Reform and Consumer Protection Act late last year, we are in the process of negotiating with the CFTC to provide our staff with direct access to interest rate swaps data. The Depository Trust and Clearing Corporation provides us with detailed, trade-level data on credit default swap transactions for which at least one counterparty is supervised by the Federal Reserve. Despite our efforts to expand the range of data sources with which we can conduct analysis, our ability to collect data from unregulated institutions is still constrained. For instance, we have limited visibility into the leverage of large hedge funds or to the lending practices of certain consumer and business finance companies.

**Q.4.** What has the Federal Reserve Board or Financial Stability Oversight Council done to perform cross-sectoral analyses of bank SIFIs and nonbank companies against each other with regard to systemic risk?

**A.4.** As we learned during the global financial crisis, it is not sufficient to focus only on risks that are apparent in the banking sector. Board staff are continuously monitoring risks comprehensively across all financial institutions and markets. As an example, we have in place a systemwide effort to bring together people who are working on understanding the interconnectedness of financial institutions across sectors, and they are monitoring and improving indicators of when that vulnerability is higher or lower than normal. One such measure is "conditional value at risk" or CoVaR, which is defined as the increase in the value-at-risk of the financial system due to an individual firm becoming distressed, and it can be calculated for banks and nonbanks. The detailed methodology for computing the CoVaR is presented in the Federal Reserve Bank of New York Staff Report 348 by Tobias Adrian and Markus Brunnermeier titled "CoVaR" (*http://www.ny.frb.org/research/staff_reports/sr348.html*).

We communicate our views on key financial vulnerabilities identified in our monitoring efforts in speeches and testimony, as appropriate, and provide a concise summary in the Monetary Policy Report to Congress twice a year. In addition, the FSOC's annual report on financial stability provides a comprehensive assessment of risks throughout the financial system.

**Q.5.** To what extent is the Federal Reserve engaged in coordination and collaboration with State insurance regulators, as well as industry, to ensure that the framework is both appropriately tailored to the business of insurance and effectively addresses risks to financial stability?

**A.5.** In its consolidated supervision of insurance firms, the Board remains committed to tailoring its supervisory approach to the business of insurance, reflecting insurers' different business models and systemic importance compared to other firms supervised by the Board. The Board's principal supervisory objectives for the insurance firms that it oversees include protecting the safety and soundness of the consolidated firms, as well as mitigating risks to financial stability. The Board continues to engage extensively with State insurance regulators, the National Association of Insurance Commissioners, and other interested stakeholders to solicit feedback on insurance prudential standards that would comport with the Board's statutory authority. We continue to coordinate with State insurance regulators in their protection of policyholders and aim to avoid replicating the supervision that they already perform. We leverage the work of State insurance regulators where possible and continue to look for opportunities to further coordinate with them.

**Q.6.** In a previous hearing, I asked Federal Reserve Governor Tarullo and others about a practice known as "regulatory capital relief trades", in which regulated financial institutions purchase credit protection (often using credit default swaps) from unregulated entities (often formed offshore to avoid regulation) to reduce the amount of capital they need to hold against an investment on their books.

In effect, these trades transfer risk from regulated institutions that are subject to capital requirements to unregulated entities that are not. Instead of raising equity to pay for an investment, a bank takes on exposure to an entity that may or may not be able to pay up if the investment goes bad.

As I said to Governor Tarullo, if this story sounds familiar, it should—this is strikingly similar to what we saw happen with AIG before the financial crisis. And we know how that worked out.

The Treasury's Office of Financial Research released a report last year on these capital relief trades, which states that "Regulatory capital relief trades . . . can increase banks' interconnectedness with nonbanks and . . . reduce transparency for investors and counterparties about a bank's capital adequacy," and that instead of reducing risk, these transactions merely "transform credit risk into counterparty risk."

The report goes on to say that more transparency and reporting is needed, and that supervisory stress tests do not sufficiently account for possible shocks from the failure of a counterparty to perform on these transactions.

What steps is the Fed taking to account for these transactions and their risks in its capital requirements, stress tests, and other appropriate measures?

**A.6.** Risk mitigation techniques, such as purchasing credit default swap protection, can reduce a firm's level of risk. In general, the Board views a firm's engagement in risk-reducing transactions as a sound risk management practice. At the same time, however, there are certain practices for which the risk-based capital framework may not fully capture the risks a firm faces in these transactions. The Board has issued a supervisory letter (SR letter 13-23, "Risk Transfer Considerations When Assessing Capital Adequacy—Supplemental Guidance on Consolidated Supervision Framework for Large Financial Institutions (SR letter 12-17/CA letter 12-14)") that provides guidance on how these risk-transfer transactions affect assessments of capital adequacy. The letter states that "supervisors will strongly scrutinize risk-transfer transactions that result in substantial reductions in risk-weighted assets, including in supervisors' assessment of a firm's overall capital adequacy, capital planning and risk management through CCAR." The letter goes on to underscore that firms should bring such transactions to the attention of supervisors and that the Board may also decide not to recognize such transactions for risk-based capital purposes. Accordingly, the Board has put in place and widely communicated several measures that are intended to ensure that risk-transfer transactions which do not result in a significant risk reduction are identified and dealt with accordingly.

**Q.7.** As you know, Congress passed, and the president signed into law, a 5-year transportation bill in December. In an attempt to avoid substantively addressing the insolvency of the Highway Trust Fund, Congress cobbled together a hodge-podge of funding sources—including tapping into the Federal Reserve's capital surplus account—all the while demonstrating an unwillingness to accept the reality that large scale public investments can actually have benefits for our society and economy, and that sometimes hard choices are necessary to make these investments.

From an economic perspective, with interest rates still low and slack still remaining in construction employment, and the strong need for new infrastructure investments to prevent even greater costs down the road, isn't now a particularly good time to fully invest in our transportation infrastructure?

**A.7.** As noted by the Congressional Budget Office (CBO), productive infrastructure investment can provide benefits for the economy and society more broadly.[1] However, the CBO also projects that Federal budget deficits and Federal Government debt will be increasing, relative to the size of the economy, over the next decade and in the longer run, which is an unsustainable fiscal policy.[2] To promote economic growth and stability over the long haul, the Federal budget must be put on a sustainable long-run path that initially stabilizes the ratio of Federal debt to nominal GDP, and, given the current elevated level of debt, eventually places that ratio on a downward trajectory. An increase in spending that is financed by an increase in borrowing would not improve the fiscal position of the Federal budget, even if interest rates are low now. When fiscal policymakers address the crucial issue of long-run fiscal sustainability, their choices should certainly consider how to make these necessary policy adjustments in a manner that helps make the economy more productive. But, I believe—as did my predecessor—that the specific choices made to achieve a sustainable fiscal policy are appropriately left to our Nation's elected officials and the American public.

[1] See, for example, Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure", March 2015, and "Approaches To Make Federal Highway Spending More Productive", February 2016.

[2] Congressional Budget Office, "The Budget and Economic Outlook: 2016 to 2026", January 2016, and "The 2015 Long-Term Budget Outlook", June 2015.

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

For use at 8:30 a.m., EST
February 10, 2016

# MONETARY POLICY REPORT

February 10, 2016

Board of Governors of the Federal Reserve System

# Letter of Transmittal

Board of Governors of the
Federal Reserve System

Washington, D.C., February 10, 2016

The President of the Senate
The Speaker of the House of Representatives

The Board of Governors is pleased to submit its *Monetary Policy Report* pursuant to section 2B of the Federal Reserve Act.

Sincerely,

Janet L. Yellen

Janet L. Yellen, Chair

## Statement on Longer-Run Goals and Monetary Policy Strategy

*Adopted effective January 24, 2012; as amended effective January 26, 2016*

The Federal Open Market Committee (FOMC) is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. The Committee reaffirms its judgment that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate. The Committee would be concerned if inflation were running persistently above or below this objective. Communicating this symmetric inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby fostering price stability and moderate long-term interest rates and enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances. The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may change over time and may not be directly measurable. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments. Information about Committee participants' estimates of the longer-run normal rates of output growth and unemployment is published four times per year in the FOMC's Summary of Economic Projections. For example, in the most recent projections, the median of FOMC participants' estimates of the longer-run normal rate of unemployment was 4.9 percent.

In setting monetary policy, the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

The Committee intends to reaffirm these principles and to make adjustments as appropriate at its annual organizational meeting each January.

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NOTE: Unless stated otherwise, the time series in the figures extend through, for daily data, February 4, 2016; for monthly data, January 2016; and, for quarterly data, 2015:Q4. In bar charts, except as noted, the change for a given period is measured to its final quarter from the final quarter of the preceding period.

# Summary

Labor market conditions continued to improve during the second half of 2015 and into early 2016. Payroll employment has increased at a solid average pace of 225,000 per month since June. The unemployment rate, which had reached a high of 10 percent in late 2009, declined from 5.3 percent last June to 4.9 percent in January. Although the unemployment rate now equals the median of Federal Open Market Committee (FOMC) participants' estimates of its longer-run normal level, other considerations suggest that some further improvement in labor market conditions is needed to achieve the Committee's maximum employment mandate. The labor force participation rate remains somewhat below most assessments of its trend, and an unusually large number of people continue to work part time when they would prefer full-time employment.

Inflation remains below the FOMC's longer-run goal of 2 percent: The price index for personal consumption expenditures (PCE) rose only ½ percent over the 12 months ending in December. The PCE price index excluding food and energy items, which often provides a better indication of future inflation, also remained subdued, rising 1½ percent over that period. Inflation has been held down substantially by the drop in energy prices; declines in the prices of non-oil imported goods have contributed as well. Meanwhile, survey-based measures of longer-run inflation expectations have drifted down a little since the middle of last year and generally stand near the lower ends of their historical ranges; market-based measures of inflation compensation have fallen and are at low levels.

Real gross domestic product (GDP) is reported to have increased at an annual rate of about 1¼ percent over the second half of the year, slower than the first-half pace. The expansion in economic activity reflected continued increases in private domestic final demand, supported by ongoing job gains and accommodative monetary policy. Government purchases rose modestly. By contrast, the rise in the foreign exchange value of the dollar over the past year and a half and the sluggish pace of economic activity abroad have continued to weigh on exports. In addition, the pace of inventory accumulation slowed markedly from its elevated first-half pace, thereby reducing overall GDP growth in the second half of 2015.

Domestic financial conditions have become somewhat less supportive of economic growth since mid-2015. Recent months have been marked by bouts of turbulence in financial markets that largely reflected concerns about the global economic outlook and developments in oil markets. Broad measures of U.S. equity prices have declined, on net, roughly returning these indexes to levels that prevailed during the first half of 2014. And the dollar has strengthened further, on balance, since the summer of 2015. Corporate risk spreads have widened, particularly for lower-rated issuers. Nonetheless, interest rates for investment-grade issuers are generally still low, reflecting declines in yields on longer-term Treasury securities. Moreover, although debt issuance by lower-rated firms has slowed, credit flows to nonfinancial businesses have remained solid since the middle of last year, supported by continued strong bond issuance of higher-rated firms and by bank lending. Household access to credit was mixed, with mortgages and credit cards still difficult to access for some borrowers while student and auto loans remained broadly available, even to borrowers with lower credit scores. Overall, debt growth in the household sector has remained modest and continues to be concentrated among borrowers with strong credit histories.

The U.S. financial system overall has been resilient to the stresses that have emerged since mid-2015, and financial vulnerabilities

remain moderate. Regulatory capital ratios and holdings of liquid assets at large banking firms are at historically high levels. Usage of short-term wholesale funding in the financial system is relatively low, and the use of leverage to finance securities purchases has declined somewhat. The ratio of aggregate private nonfinancial credit to GDP is below most estimates of its long-run trend, although leverage of speculative-grade nonfinancial corporations has risen further since the middle of last year and is relatively high. Risk premiums for many asset classes have increased. For instance, the rise in spreads on corporate debt has been larger than would be expected given the evolution of expected defaults. The direct exposures of the largest U.S. banking firms to the oil sector and to emerging market economies are limited. If conditions in those sectors worsen, however, wider stresses could emerge and be transmitted to the United States through indirect global financial linkages.

In December, after holding the federal funds rate near zero for seven years, the FOMC raised the target range for that rate to ¼ to ½ percent. The decision to increase the federal funds rate reflected the Committee's assessment that there had been considerable improvement in the labor market last year and that the Committee was reasonably confident that inflation would move back to 2 percent over the medium term; thus, the criteria set out by the Committee in March 2015 had been met.

The Committee anticipates that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate. This expectation is consistent with the view that the neutral nominal federal funds rate—defined as the value of the federal funds rate that would be neither expansionary nor contractionary if the economy was operating at its productive potential—is currently low by historical standards and is likely to rise only gradually over time, as headwinds to economic growth dissipate slowly and as inflation rises toward the Committee's goal of 2 percent. Consistent with this outlook, in the most recent Summary of Economic Projections (SEP), which was compiled at the time of the December FOMC meeting, FOMC participants projected that the appropriate level of the federal funds rate would be below its longer-run level through 2018. (The December SEP is included as Part 3 of this report.)

With respect to its securities holdings, the Committee will continue to reinvest principal payments from its securities portfolio, and it expects to maintain this reinvestment policy until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

The Committee has emphasized that the actual path of monetary policy will depend on how incoming data affect the economic outlook. In determining the timing and size of future adjustments to the target range of the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. Stronger growth or a more rapid increase in inflation than the Committee currently anticipates would likely call for faster increases in the federal funds rate; conversely, if conditions prove weaker, a lower path of the federal funds rate would likely be appropriate.

To move the federal funds rate into the new target range announced in December, the Federal Reserve raised the rate of interest paid on required and excess reserve balances and also employed an overnight reverse repurchase agreement facility. The effective federal funds rate was moved successfully into the increased target range. The FOMC remains confident that it has the tools it needs to adjust short-term interest rates as appropriate.

# Part 1
## Recent Economic and Financial Developments

*The labor market continued to improve during the second half of last year and early this year. Payroll employment has increased 225,000 per month, on average, since June. The unemployment rate fell from 5.3 percent in June to 4.9 percent in January and thus has reached the median estimate among Federal Open Market Committee (FOMC) participants of the level of unemployment that is considered to be normal in the longer run. Even so, the relatively low labor force participation rate and the unusually large number of people working part time who would prefer full-time employment suggest that some cyclical weakness is still present in the labor market. Since mid-2014, a steep drop in crude oil prices has exerted significant downward pressure on overall inflation, and declines in the prices of non-oil imported goods have held down inflation as well. The price index for personal consumption expenditures (PCE) increased only ½ percent during the 12 months ending in December, a rate that is well below the FOMC's longer-run objective of 2 percent; the index excluding food and energy prices rose 1½ percent over the same period. Both survey- and market-based measures of inflation expectations have moved down since June. Meanwhile, real gross domestic product (GDP) increased at an annual rate of 1¼ percent over the second half of 2015, slower than in the first half. The growth in GDP has been supported by accommodative monetary policy, favorable consumer confidence, and the boost to household purchasing power from lower oil prices. However, lower oil prices have also exerted downward pressure on domestic investment in the energy sector. In addition, sluggish growth abroad and the higher foreign exchange value of the dollar have weighed on exports, and financial conditions more generally have become somewhat less supportive of economic growth. Concerns about economic conditions abroad and the energy sector have contributed to lower equity prices and higher borrowing rates for some businesses.*

### *Domestic Developments*

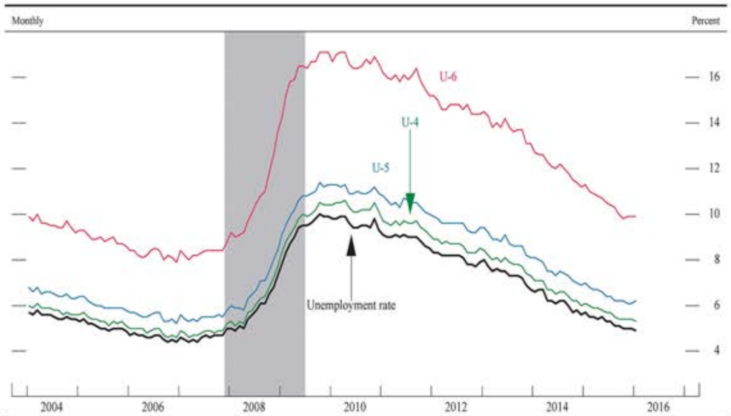
#### The labor market has continued to improve . . .

Labor market conditions strengthened further across a variety of dimensions over the second half of 2015 and early this year. Payroll employment gains remained robust, averaging about 235,000 per month over the second half of last year, similar to the gains over the first half; factoring in the January increase of about 150,000, monthly gains since June have averaged about 225,000 (figure 1). The increase in 2015 followed an even faster pace of job gains in 2014, and, in total, some 5¾ million jobs were added over the two years. In addition, the unemployment rate—which had reached 10 percent in late 2009—declined from 5.3 percent in June 2015 to 4.9 percent in January of this year; this level is ¾ percentage point lower than a year earlier and is equal to

1. Net change in payroll employment

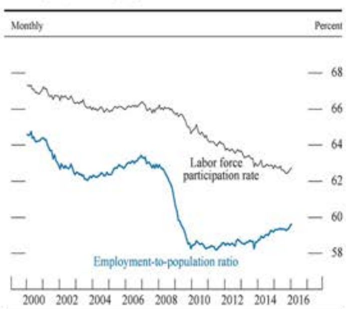

Source: Department of Labor, Bureau of Labor Statistics.

2. Measures of labor underutilization




NOTE: U-4 measures total unemployed plus discouraged workers, as a percent of the labor force plus discouraged workers. Discouragedworkers are a subset of marginally attached workers who are not currently looking for work because they believe no jobs are available for them. U-5 measures total unemployed plus all marginally attached to the labor force, as a percent of the labor force plus persons marginally attached to the labor force. Marginally attached workers are not in the labor force, want and are available for work, and have looked for a job in the past 12 months. U-6 measures total unemployed plus all marginally attached workers plus total employed part time for economic reasons, as a percent of the labor force plus all marginally attached workers. The shaded bar indicates a period of business recession as defined by the National Bureau of Economic Research.
SOURCE: Department of Labor, Bureau of Labor Statistics.

3. Labor force participation rate and employment-to-population ratio




NOTE: Both series are a percent of the population aged 16 and over.
SOURCE: Department of Labor, Bureau of Labor Statistics.

the median of FOMC participants' estimates of its longer-run normal level (figure 2). Broader measures of labor underutilization, such as those including individuals who are classified as marginally attached to the labor force, declined by similar amounts. (A "marginally attached" individual is defined as someone who is not looking for work currently and therefore treated as not in the labor force, but who wants and is available for work and has looked for a job in the past 12 months.)

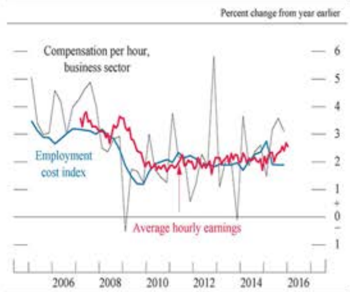
### . . . though some labor market slack likely remains . . .

While payroll employment and the unemployment rate have improved further since mid-2015, the labor force participation rate fell from an average of 62.7 percent of the working-age population during the second quarter of 2015 to 62.5 percent in the fourth quarter; the participation rate moved back up to 62.7 percent in January (figure 3). Changing demographics—most notably the increasing share of older people in the population, who are less likely to be in the labor force—and other longer-run structural changes in the labor market have continued to push down the participation rate even as cyclical forces have been pushing it up. That said, labor force participation appears to remain a little weaker than can be explained by structural factors alone, pointing to the likelihood that some slack remains in this dimension of labor utilization. In addition, although the share of workers who are employed part time but would like to work full time has fallen noticeably since June, it is still relatively high, indicating some scope for improvement on this dimension as well.

### . . . while labor compensation has shown some tentative signs of accelerating . . .

As the labor market has continued to improve, the rates of increase in some measures of hourly labor compensation have begun to pick up while others remain relatively subdued. For example, average hourly earnings for all employees increased 2½ percent over the 12 months ending in January, above the 2 percent pace seen throughout most of the recovery (figure 4). In addition, compensation per hour in the business sector—a volatile measure derived from the labor compensation data in the national income and product accounts, or NIPA—is reported to have increased more quickly in 2015 than its average pace throughout most of the recovery. In contrast, the employment cost index for private industry workers, which measures both wages and the cost to employers of providing benefits, increased about 2 percent over the 12 months ending in December, similar to the pace seen throughout most of the recovery. All of these measures of compensation are increasing at slower rates than those seen prior to the recession. This deceleration probably reflects a variety of factors, including the slower growth of productivity, the slower pace of inflation, and perhaps some remaining slack in the labor market. Despite the continued relatively small increases in nominal wages, the recent very low inflation led to a noticeably

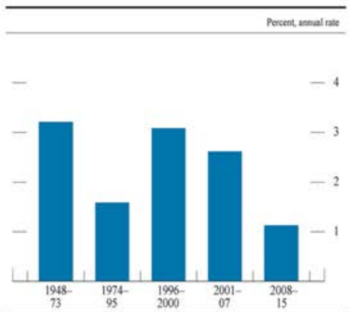
4. Measures of change in hourly compensation




Note: The average hourly earnings data series begins in March 2007 and extends through January 2016. The compensation per hour and employment cost index data extend through 2015:Q4. For business-sector compensation, change is over four quarters; for the employment cost index, change is over the 12 months ending in the last month of each quarter; for average hourly earnings, change is from 12 months earlier.

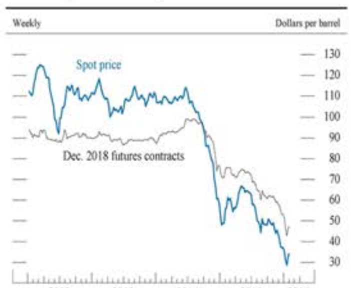
Source: Department of Labor, Bureau of Labor Statistics.

5. Change in business sector output per hour




NOTE: Changes are measured from Q4 of the year immediately preceding the period through Q4 of the final year of the period.
SOURCE: Department of Labor, Bureau of Labor Statistics.

6. Brent spot and futures prices




NOTE: The data are weekly averages of daily data and extend through February 4, 2016.
SOURCE: NYMEX.

larger wage gain last year on a purchasing-power-adjusted (or so-called real) basis than had been evident earlier in the expansion.

## . . . and productivity growth has been lackluster

Over time, increases in productivity are a key determinant of the rise in real wages and living standards. Labor productivity in the business sector increased at an annual rate of just ½ percent in 2015 and at an average annual rate of just 1 percent since the last business cycle peak in 2007 (figure 5). The average pace since 2007 is a little below the 1974–95 average and well below the pace during the period from the mid-1990s to 2007. The reasons behind the slower productivity performance in recent years are not well understood, but one factor seems to be the slower pace of capital accumulation.

## Falling oil prices continue to hold down overall consumer prices . . .

Consumer price increases have remained muted and below the FOMC's longer-run objective of 2 percent. As discussed in the box "Effects of Movements in Oil Prices and the Dollar on Inflation," crude oil prices have plummeted since June 2014, and the dollar has moved appreciably higher; both factors have contributed importantly to the low inflation readings of the past year.

Since July, the price of crude oil has fallen appreciably further, on net, with the spot price of Brent crude oil dropping below $35 per barrel, a level last seen more than a decade ago (the blue line in figure 6). Futures prices have also dropped significantly and indicate that market participants expect only modest price increases over the next few years. Although concerns about global growth have contributed to the fall in prices, much of the recent decline can be attributed to the abundance of global supply. Reductions in U.S. production have been slower and smaller than expected, and OPEC has abandoned its official production target in favor of maintaining robust production despite declining prices and the likely increase in Iranian oil exports in the coming months. The drop in crude oil prices continues to pass through to gasoline prices: The national average of retail gasoline prices (on a seasonally adjusted basis) moved down from more than $2.50 per gallon in June to about $2.00 per gallon in January.

Largely because of the decline in energy prices, overall consumer price inflation, as measured by the PCE price index, was running at just ¼ percent for the 12 months ending in June 2015; the 12-month change remained near that pace until year-end, when it edged up to ½ percent as some of the sharpest declines from a year earlier fell out of the 12-month calculation (figure 7).

Food prices were little changed over the past six months after edging down during the first half of 2015. Consumer food prices were held down in 2015 by falling food commodity prices, but futures markets suggest that these commodity prices will flatten out, implying that this source of downward pressure on consumer food price inflation is likely to wane.

### . . . but even outside of the energy and food categories, inflation has remained subdued

As is also discussed in the box "Effects of Movements in Oil Prices and the Dollar on Inflation," another important factor holding down inflation has been the behavior of import prices. After declining sharply in the first half of 2015, non-oil import prices continued to fall in the second half, albeit at a slightly more modest pace; the further declines in the second half reflected lower commodity prices as well as additional increases in the foreign exchange value of the dollar (figure 8). In addition, slack in labor and product markets likely placed downward pressure on inflation, although this factor has probably waned significantly. For all of these reasons, inflation for items other than food and energy (so-called core inflation) remained modest. Core PCE prices rose about 1½ percent over the 12 months ending in December, similar to the increase in 2014.

7. Change in the price index for personal consumption expenditures


NOTE: The data extend through December 2015; changes are from one year earlier.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

8. Non-oil import prices and U.S. dollar exchange rate


NOTE: The data for non-oil import prices extend through December 2015.
SOURCE: Department of Labor, Bureau of Labor Statistics; Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

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## Effects of Movements in Oil Prices and the Dollar on Inflation

Over the past year, inflation has continued to run well below the Federal Open Market Committee's longer-run objective of 2 percent (text figure 7). The 12-month change in the personal consumption expenditures (PCE) price index, which was about ½ percent in 2015, was held down most clearly by falling prices for oil and farm commodities. Falling prices for other commodities and the rise in the foreign exchange value of the dollar have also contributed importantly to continued low rates of inflation. Indeed, reflecting these influences, inflation for items other than food and energy remained relatively low, with core PCE price inflation at slightly under 1½ percent last year.

Since the middle of 2014, crude oil prices have tumbled, with the spot price of the global benchmark Brent crude oil falling from over $115 per barrel to under $35 per barrel in recent weeks; prices for a wide variety of other commodities have also declined considerably. The pass-through of falling oil prices into lower gasoline prices is typically relatively rapid, and the drop in consumer energy prices held down overall PCE inflation directly by more than ½ percentage point in 2015. Falling farm commodity prices also reduced consumer food price inflation over the past year, although the pass-through of these commodity price changes into overall PCE inflation tends to be somewhat smaller and more gradual than with oil prices. Additionally, the sustained reduction in both oil and non-oil commodity prices has likely lowered core inflation somewhat by holding down firms' production and distribution costs. Empirical estimates of the pass-through of energy costs into core inflation are generally quite small, with long and variable lags. Nonetheless, even with a small degree of pass-through, the very large declines in energy prices since the middle of 2014 have likely been holding down core consumer price inflation somewhat.

The broad dollar has appreciated more than 20 percent since the middle of 2014, reflecting both heightened concerns about the global outlook, which have resulted in safe-haven flows toward dollar assets, and diverging expectations regarding domestic and foreign monetary policy (figure A). A stronger dollar makes foreign goods cheaper for U.S. consumers. An extensive literature, however, has found that the pass-through of exchange rate changes to U.S. import prices is incomplete—that is, less than proportionate—as foreign exporters prefer to absorb part of the exchange rate change by narrowing profit margins. For example, a typical estimate is that a 10 percent appreciation

A. U.S. dollar exchange rate: Broad nominal dollar

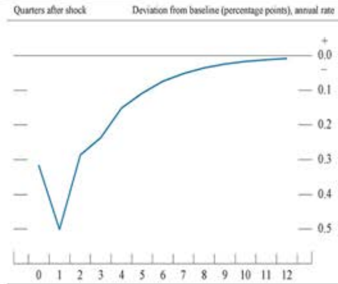

SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

of the dollar causes the prices of non-oil imported goods to decline about 3 percent after one year.[1] Roughly one-third of this effect occurs through the effect on imported commodities, as an increase in the value of the dollar tends to lower commodity prices proportionately.

Because imported goods and services make up only a modest share of U.S. consumption, a given percentage decline in import prices causes a much smaller percentage reduction in core PCE prices. Figure B uses a simple econometric model to illustrate how a 10 percent appreciation of the dollar might affect core PCE inflation through this channel.[2] According to this model, core PCE inflation dips in the two quarters following the appreciation before gradually returning to the baseline, leading to a four-quarter decline in core PCE inflation of about ¼ percentage point relative to the baseline in the first year following the shock. Given the size of the dollar's appreciation since the middle of 2014, this model suggests that falling import prices depressed core PCE inflation about ½ percentage point last year. Although the exact magnitude of the dollar's effect on inflation depends on the specific model used, this exercise suggests that the stronger dollar has played a material role in holding down PCE inflation.

Although further declines in energy prices or a further rise in the exchange value of the dollar are certainly possible, those movements will eventually stop. As these prices stabilize, the drag on consumer price inflation from oil and import prices will dissipate. Moreover, with margins of resource utilization having already diminished appreciably and longer-run inflation expectations reasonably stable, both core and overall inflation are likely to rise gradually toward 2 percent over the medium term as these transitory factors fade and the labor market improves further.

B. Effect of 10 percent appreciation on core PCE inflation



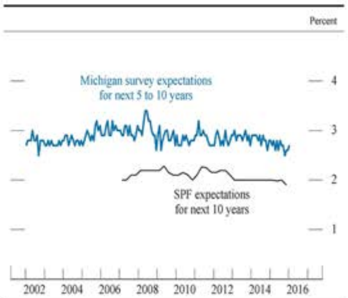

NOTE: The x-axis represents the quarters following the 10 percent appreciation shock.

SOURCE: Federal Reserve Board staff calculations based on an econometric model described in the appendix to Janet L. Yellen (2015), "Inflation Dynamics and Monetary Policy," speech delivered at the Philip Gamble Memorial Lecture, University of Massachusetts, Amherst, Mass., September 24, www.federalreserve.gov/newsevents/speech/yellen20150924a.htm.

1. For more detail, see Joseph Gruber, Andrew McCallum, and Robert J. Vigfusson (2016), "The Dollar in the U.S. International Transactions (USIT) Model," IFDP Notes (Washington: Board of Governors of the Federal Reserve System, February 8), www.federalreserve.gov/econresdata/notes/ifdp-notes/2016/the-dollar-in-the-us-international-transactions-model-20160208.html.

2. This model was discussed in a recent speech by Chair Yellen and is described in its appendix. See Janet L. Yellen (2015), "Inflation Dynamics and Monetary Policy," speech delivered at the Philip Gamble Memorial Lecture, University of Massachusetts, Amherst, Mass., September 24, www.federalreserve.gov/newsevents/speech/yellen20150924a.htm.

9. Median inflation expectations

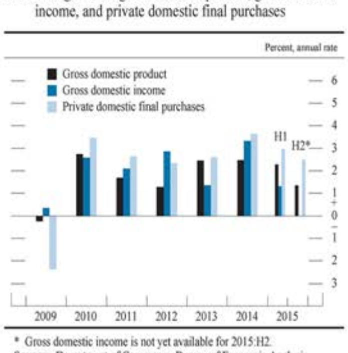



NOTE: The Michigan survey data are monthly. The SPF data for inflation expectations for personal consumption expenditures are quarterly and extend from 2007:Q1 through 2015:Q4.
SOURCE: University of Michigan Surveys of Consumers; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters (SPF).

10. 5-to-10-year-forward inflation compensation


NOTE: The data are weekly averages of daily data and extend through February 3, 2016, for inflation swaps, and February 4, 2016, for TIPS breakevens. TIPS is Treasury Inflation-Protected Securities.
SOURCE: Federal Reserve Bank of New York; Barclays; Federal Reserve Board staff estimates.

11. Change in real gross domestic product, gross domestic income, and private domestic final purchases




* Gross domestic income is not yet available for 2015:H2.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

## Survey- and market-based measures of inflation expectations have moved down since June

Wage- and price-setting decisions are likely influenced by expectations for inflation. Survey measures of longer-term inflation expectations have been quite stable over the past 15 years but appear to have moved down some lately, including over the past 6 months, to the lower end of their historical ranges. This decline has occurred both for the measure of inflation expectations over the next 5 to 10 years as reported in the University of Michigan Surveys of Consumers and for the median expectation for the annual rate of increase in the PCE price index over the next 10 years from the Survey of Professional Forecasters, conducted by the Federal Reserve Bank of Philadelphia (figure 9). Market-based measures of medium- (5-year) and longer-term (5-to-10-year-ahead) inflation compensation derived from the difference between yields on nominal Treasury securities and Treasury Inflation-Protected Securities moved down further, on net, over the second half of the year after having declined notably between mid-2014 and mid-2015 (figure 10). Although changes in inflation compensation could reflect changes in expected inflation, they also may reflect a variety of other considerations, including an inflation risk premium, liquidity premiums, and other factors.[1]

## Economic activity expanded at a moderate pace in the second half of 2015

Real GDP is reported to have increased at an annual rate of 1¼ percent in the second half of last year, slower than the first-half pace (figure 11). As in the first half of the year, economic activity during the second half was supported by solid gains in private

1. For further discussion of inferring inflation expectations from market-based measures, see the box "Challenges in Interpreting Measures of Longer-Term Inflation Expectations" in Board of Governors of the Federal Reserve System (2015), *Monetary Policy Report* (Washington: Board of Governors, February), www.federalreserve.gov/monetarypolicy/mpr_20150224_part1.htm.

domestic final purchases—that is, final purchases by households and businesses—and by modest increases in government purchases of goods and services. By contrast, aggregate demand continued to be held down by weak export performance, reflecting the rise in the foreign exchange value of the dollar and sluggish foreign economic growth. In addition, inventory investment slowed markedly from its elevated first-half pace, thereby reducing overall GDP growth in the second half of 2015.

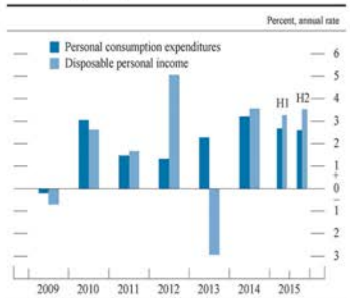
### Gains in income and wealth are supporting consumer spending . . .

Real personal consumption expenditures rose at an annual rate of 2½ percent in the second half of 2015, about the same as the first-half pace (figure 12). These increases have been supported by income gains from the improving labor market as well as the fall in gasoline and other energy prices, which has bolstered consumers' purchasing power. As a result, real disposable income—that is, income after taxes and adjusted for price changes—rose a robust 3½ percent in 2015 after a similar gain in 2014.

Consumer spending last year was also likely supported by further increases in household net worth. Although the value of corporate equities edged down last year, prices of houses—which are owned much more widely than are corporate equities—posted significant gains, and the wealth-to-income ratio remained elevated relative to its historical average (figure 13). In nominal terms, national house price indexes are now close to their peaks of the mid-2000s, but relative to rents, house price valuations are much lower than a decade ago (figure 14).

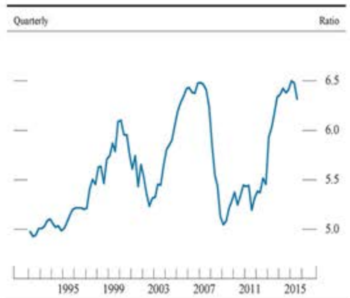
Coupled with low interest rates, the rise in incomes has lowered debt payment burdens for many households. The household debt service burden—the ratio of required principal and interest payments on outstanding household debt to disposable income, measured for the household sector as a whole—has remained at a very low level by historical standards

12. Change in real personal consumption expenditures and disposable personal income




SOURCE: Department of Commerce, Bureau of Economic Analysis.

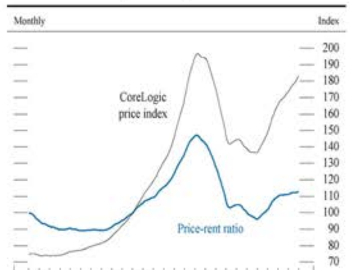
13. Wealth-to-income ratio




NOTE: The data extend through 2015:Q3. The series is the ratio of household net worth to disposable personal income.

SOURCE: For net worth, Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; for income, Department of Commerce, Bureau of Economic Analysis.

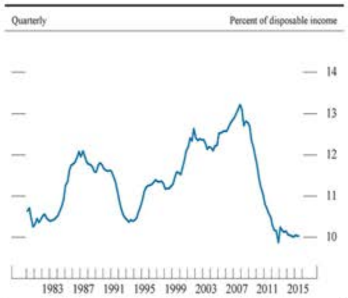
14. Nominal house prices and price-rent ratio




NOTE: The data extend through December 2015. The CoreLogic price index is seasonally adjusted by Federal Reserve Board staff. The price-rent ratio is the ratio of nominal house prices to the consumer price index of rent of primary residence. The data are indexed to 100 in January 2000.

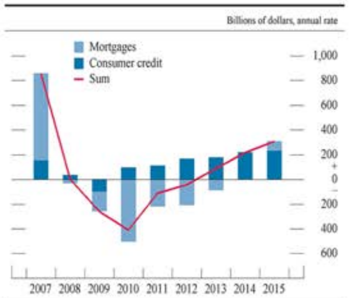
SOURCE: For prices, CoreLogic; for rents, Department of Labor, Bureau of Labor Statistics.

15. Household debt service



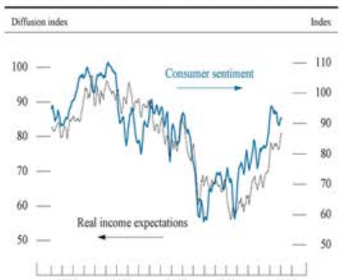

NOTE: The data extend through 2015:Q3. Debt service payments consist of estimated required payments on outstanding mortgage and consumer debt.
SOURCE: Federal Reserve Board, Statistical Release, "Household Debt Service and Financial Obligations Ratios."

16. Changes in household debt




NOTE: Changes are calculated from year-end to year-end, except 2015 changes, which are calculated from Q3 to Q3.
SOURCE: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

17. Indexes of consumer sentiment and income expectations




NOTE: The data are three-month moving averages and extend through January 2016. Consumer sentiment is indexed to 100 in 1966. Real income expectations are calculated as the net percent of survey respondents expecting family income to go up more than prices during the next year or two.
SOURCE: University of Michigan Surveys of Consumers.

(figure 15). As interest rates rise, the debt burden will move up only gradually, as most household debt is in fixed-interest products.

### . . . as is credit availability

Consumer credit continued to expand moderately through late 2015, as lending standards for both auto lending and student loans remained accommodative (figure 16). In addition, credit card lending has been rebounding since early last year. Standards and terms on credit cards are still relatively tight for riskier borrowers, although there has been some modest increase in access for borrowers with subprime credit histories. Delinquencies on credit card and auto loans are still near historical lows, in part due to the tight standards.

### Consumer confidence remains high

Household spending has also been supported by favorable consumer sentiment. For the past year or so, the overall index of consumer sentiment from the University of Michigan Surveys of Consumers has registered levels comparable to those that prevailed before the recession (figure 17). Rising real incomes, partly driven by falling energy prices and improvements in the labor market, have likely driven up consumer confidence. These same factors are probably behind the more upbeat expectations that households report for real income changes over the next year or two, which are now near pre-recession levels.

### Residential construction has improved modestly

The gradual recovery in residential construction activity continued over the second half of last year. Both single- and multifamily housing starts registered moderate increases in 2015 (figure 18). Sales of new and existing homes also rose moderately, abstracting from the temporary plunge in existing home sales in November, which reportedly reflected a lengthening in closing times due to new mortgage disclosure rules (figure 19). But while multifamily starts have recovered to their pre-recession level, single-family construction continues to be well below its earlier pace. The level of housing starts is still being held down by a meager pace of household formation, tighter-than-average mortgage credit supply, and shortages of skilled labor and other inputs in the construction sector.

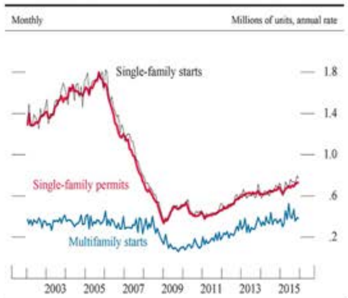
Although the October 2015 and January 2016 Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) reports suggest that a gradual easing of bank lending standards has continued over the past six months, mortgage credit is still difficult to access for borrowers with low credit scores, undocumented income, or high debt-to-income ratios.[2] For borrowers who can obtain credit, interest rates on mortgages remain near their historical lows, although they inched up, on net, over the second half of the year (figure 20). In 2015, outstanding mortgage debt rose for the first time since the recession as mortgage originations for home purchases increased and write-downs of mortgage debt continued to ebb.

### Overall business investment has slowed as a result of a sharp drop in investment in the energy sector

Business investment (private nonresidential fixed investment) rose at an annual rate of only ½ percent during the second half of 2015 after increasing at a 3 percent pace during the first half of the year (figure 21). Spending on equipment rose modestly, and a bit faster than during the first half of 2015, but spending on intangibles, such as research and development, and investment in structures outside of drilling and mining flattened out after posting strong gains during the first half of the year. Investment in structures used in the energy sector continued to fall precipitously, as the drop in oil prices has scuttled investment in higher-cost oil and gas wells. For the year as a whole, the pace of overall business investment

2. The SLOOS is available on the Board's website at www.federalreserve.gov/boarddocs/snloansurvey.

18. Private housing starts and permits

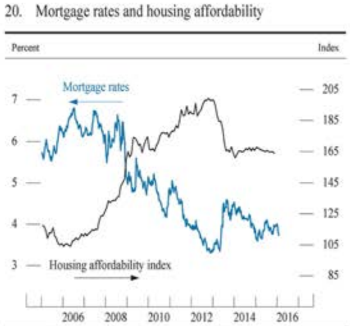



Note: The data extend through December 2015.
Source: Department of Commerce, Bureau of the Census.

19. New and existing home sales

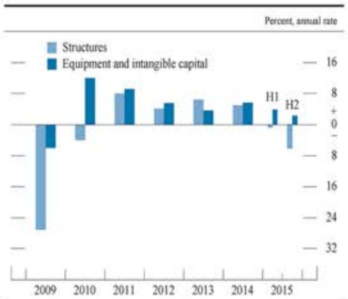

Note: The data extend through December 2015. "Existing home sales" includes single-family, condo, townhome, and co-op sales.
Source: For new single-family home sales, Census Bureau; for existing home sales, National Association of Realtors.

20. Mortgage rates and housing affordability



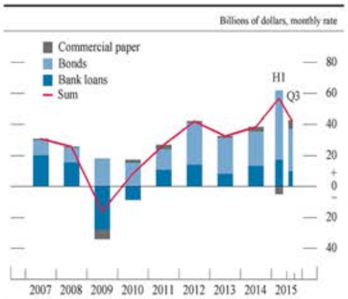

Note: The housing affordability index data are monthly through November 2015 and the mortgage rate data are weekly through February 3, 2016. At an index value of 100, a median-income family has exactly enough income to qualify for a median-priced home mortgage. Housing affordability is seasonally adjusted by Board staff.
Source: For housing affordability index, National Association of Realtors; for mortgage rates, Freddie Mac Primary Mortgage Market Survey.

21. Change in real private nonresidential fixed investment



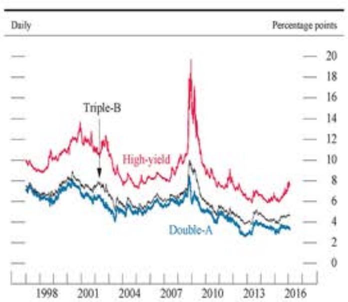

SOURCE: Department of Commerce, Bureau of Economic Analysis.

22. Selected components of net financing for nonfinancial businesses




NOTE: The data for the components except bonds are seasonally adjusted.
SOURCE: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

23. Corporate bond yields, by securities rating




NOTE: The yields shown are yields on 10-year bonds.
SOURCE: BofA Merrill Lynch Global Research, used with permission.

slowed compared with 2014, mostly as a result of the drop in the energy sector. Investment has been supported by low interest rates and financing conditions that are still generally accommodative, though somewhat less so than earlier.

## Corporate financing conditions have become somewhat less supportive

Domestic financial conditions for nonfinancial firms have become somewhat less supportive of growth since last June, particularly for non-investment-grade firms. Equity prices have declined and bond spreads have widened amid concerns about the global economic outlook and oil prices. Downgrades of bonds issued by nonfinancial companies have increased, and the leverage of these companies is near the top end of its range over the past few decades. Nonetheless, profitability has remained high outside the energy sector. Against a backdrop of low interest rates, investment-grade nonfinancial businesses have continued to raise substantial amounts of funds in bond and loan markets since last June, in part to finance mergers and acquisitions activity (figure 22). Speculative-grade bond issuance also was solid for much of 2015 but diminished toward the end of the year as spreads widened notably, particularly for firms in the energy sector (figure 23).

Loan demand remained strong across most major categories through the end of 2015. Of note, demand for commercial real estate (CRE) loans strengthened further and issuance of commercial mortgage-backed securities (CMBS) remained robust. Credit conditions tightened for this sector as concerns about credit quality led to wider spreads on CMBS and, according to the results of the October and January SLOOS reports, a moderate number of banks had tightened lending standards for CRE loans, particularly for construction and land development. A modest fraction of banks also reported having tightened lending standards for commercial and industrial loans to firms of all sizes since the second quarter.

## The drag from federal fiscal policy has ended . . .

After being a drag on aggregate demand during much of the expansion, federal fiscal policy has shifted to a more neutral stance as fiscal consolidation efforts have abated. During 2015, policy actions had little effect on taxes and transfers, and real federal purchases of goods and services edged up (figure 24).

The federal budget deficit narrowed further in fiscal year 2015 to 2½ percent of GDP, largely reflecting the increase in tax receipts owing to the ongoing economic expansion as well as the modest increase in purchases (figure 25). A deficit of this size is small enough to stabilize the ratio of the debt held by the public to nominal GDP; that said, the current level of that ratio is elevated relative to its average over the post–World War II period (figure 26). The Congressional Budget Office projects the deficit to move up to about 3 percent of GDP in fiscal 2016.

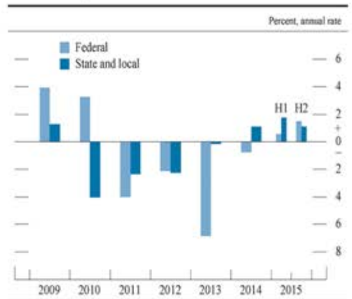
## . . . and state and local government expenditures are rising moderately

Fiscal conditions of most state and local governments continue to improve gradually. Tax revenues have been rising moderately, supported by the expansion of economic activity and increasing house prices. These governments boosted spending at a moderate rate in 2015. In particular, real state and local purchases of goods and services rose 1½ percent last year, as employment posted another modest gain and real construction spending rose markedly for the first time since the recession (figure 27).

## In contrast, net exports still held down growth in gross domestic product slightly

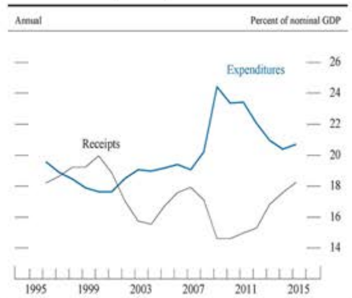
Exports held about flat in the second half of 2015, weighed down by the appreciation of the dollar and by soft foreign economic growth (figure 28). Although the stronger dollar made imports more affordable, import growth was also relatively subdued. Imports for inputs related to oil exploration and production

24. Change in real government expenditures on consumption and investment



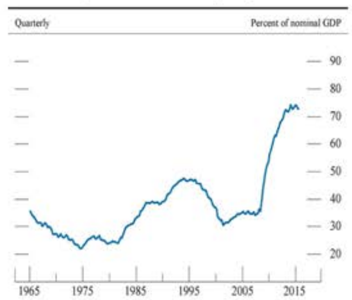

SOURCE: Department of Commerce, Bureau of Economic Analysis.

25. Federal receipts and expenditures



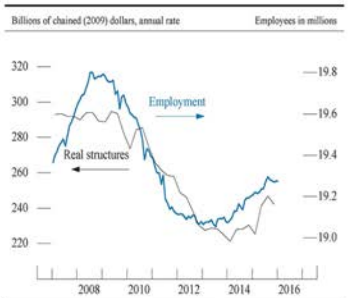

NOTE: The receipts and expenditures data are on a unified-budget basis and are for fiscal years (October through September); gross domestic product (GDP) data are for the four quarters ending in Q3.
SOURCE: Office of Management and Budget.

26. Federal government debt held by the public



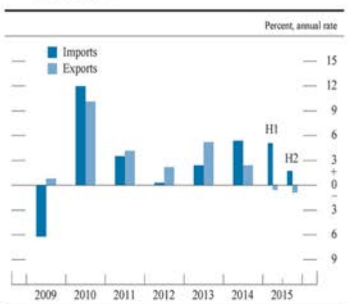

NOTE: The data extend through 2015:Q3. The data for gross domestic product (GDP) are at an annual rate. Federal debt held by the public equals federal debt less Treasury securities held in federal employee defined benefit retirement accounts, evaluated at the end of the quarter.
SOURCE: For GDP, Department of Commerce, Bureau of Economic Analysis; for federal debt, Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

27. State and local employment and structures investment



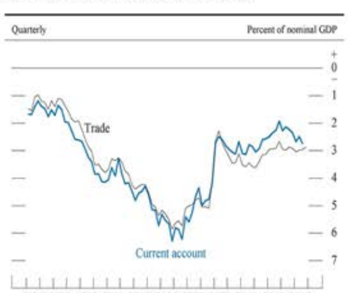

NOTE: The employment data are monthly, and the structures data are quarterly.
SOURCE: For employment data, Department of Labor, Bureau of Labor Statistics; for structures data, Department of Commerce, Bureau of Economic Analysis.

28. Change in real imports and exports of goods and services




SOURCE: Department of Commerce, Bureau of Economic Analysis.

29. U.S. trade and current account balances




NOTE: The current account data extend through 2015:Q3. GDP is gross domestic product.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

were particularly weak, consistent with steep declines in that industry. In all, real net trade continued to be a drag on real GDP growth in the second half of 2015. Although the real trade balance deteriorated, the nominal trade balance was little changed in 2015 in part because the value of imports declined, largely because of the decline in oil prices. Still, the current account deficit widened a bit to near 3 percent of nominal GDP as U.S. net investment income declined (figure 29).

## *Financial Developments*

### The expected path for the federal funds rate over the next several years declined

Despite further strengthening in labor market conditions and a range of other indicators that market participants viewed as consistent with continued expansion in the U.S. economy, market-based measures of the expected path of the federal funds rate over the next several years have moved down, on balance, since the middle of last year. Contributing to this shift were concerns about the foreign economic outlook and global disinflationary pressures, as well as Federal Reserve communications anticipating that economic conditions will warrant only gradual increases in the federal funds rate. Survey-based measures of the expected path of policy also moved down. According to the results of the most recent Survey of Primary Dealers, conducted by the Federal Reserve Bank of New York just prior to the January FOMC meeting, respondents' expectations for the federal funds rate target at the end of this year and next year were lower than those reported last June. Market-based measures of uncertainty about the policy rate approximately one to two years ahead declined, on balance, from their mid-2015 levels.

### Longer-term Treasury yields decreased

Yields on longer-term nominal Treasury securities have declined since the middle of last year on net (figure 30). The decreases in nominal yields largely reflected reductions in inflation compensation; yields on long-term inflation-protected Treasury securities were little changed. Participants in the U.S. Treasury market reportedly were particularly attentive to developments abroad, especially turbulence in Chinese financial markets, and to fluctuations in oil prices. Consistent with the changes in yields on Treasury securities, yields on 30-year agency mortgage-backed securities (MBS)—an important determinant of mortgage interest rates—decreased, on balance, over the second half of 2015 and early 2016 (figure 31).

### Broad equity price indexes decreased . . .

Since the middle of last year, amid considerable volatility, broad measures of U.S. equity prices have decreased notably, on net, as concerns about the foreign economic outlook appeared to weigh on risk sentiment and the outlook for corporate earnings growth (figure 32). Stock prices for companies in the energy and basic materials sectors dropped sharply, reflecting the continued fall in oil and other commodity prices. Implied volatility for the overall S&P 500 index, as calculated from options prices, increased, on balance, since the middle of last year; at times, its movement was notable.

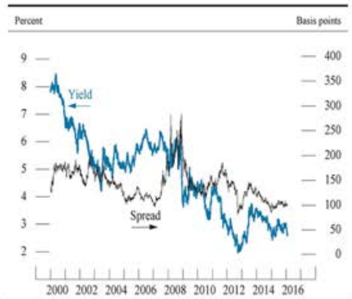
### . . . and risk spreads on speculative-grade corporate bonds moved up substantially, particularly for firms in the energy sector

Credit spreads in the corporate sector have widened across the credit spectrum. The spread of yields on investment-grade corporate bonds to yields on Treasury securities of comparable maturity rose moderately, and credit spreads on speculative-grade bonds widened substantially. Spreads for firms in the energy sector increased particularly sharply, reflecting the further drops in the price of oil since late June. Mutual funds investing in speculative-grade bonds experienced significant outflows over the second half of 2015 and early 2016, and, in December, redemptions from one such fund were suspended. During the second half of last year, the respondents

30. Yields on nominal Treasury securities

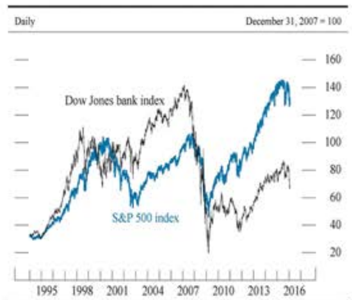

NOTE: The Treasury ceased publication of the 30-year constant maturity series on February 18, 2002, and resumed that series on February 9, 2006.
SOURCE: Department of the Treasury.

31. Yield and spread on agency mortgage-backed securities




NOTE: The data are daily. Yield shown is for the Fannie Mae 30-year current coupon, the coupon rate at which new mortgage-backed securities would be priced at par, or face, value. Spread shown is to the average of the 5- and 10-year nominal Treasury yields.
SOURCE: Department of the Treasury; Barclays.

32. Equity prices




NOTE: For Dow Jones Indices licensing information, see the note on the Contents page.
SOURCE: The Dow Jones Bank Index and the S&P 500 Index are a product of S&P Dow Jones Indices LLC and/or its affiliates.

to the Senior Credit Officer Opinion Survey on Dealer Financing Terms reported a moderate deterioration in liquidity and market functioning in speculative-grade corporate bonds and some tightening of the terms under which dealers were willing to provide financing to clients against such bonds.[3] In addition, some metrics of corporate bond market liquidity suggest a slight deterioration over the second half of 2015 and early 2016, though most indicators remain at levels comparable with those seen prior to the crisis. For further discussion of corporate bond markets and other financial stability issues, see the box "Developments Related to Financial Stability."

### Short-term funding markets continued to function well

Short-term dollar funding markets have functioned smoothly during the second half of 2015 and early 2016. Markets for unsecured offshore dollar funding and repurchase agreements, or repos, generally did not exhibit signs of stress. Year-end funding pressures were modest.

Money market participants continued to focus on the Federal Reserve's use of its monetary policy tools. These tools proved effective in raising the federal funds rate following the FOMC's decision to increase the target range in December, while other money market rates also moved up broadly in line with the increase in the federal funds target range. For a detailed discussion, see the box "Monetary Policy Implementation following the December 2015 FOMC Meeting" in Part 2.

### Treasury market functioning and liquidity conditions in the mortgage-backed securities market were generally stable

Indicators of Treasury market functioning have remained broadly stable over the second half of 2015 and early 2016. A variety of

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3. More information on the Senior Credit Officer Opinion Survey on Dealer Financing Terms is available on the Board's website at www.federalreserve.gov/econresdata/releases/scoos.htm.

liquidity metrics—including bid-asked spreads and bid sizes—have displayed no notable signs of liquidity pressures over the same period. In addition, Treasury auctions generally continued to be well received by investors.

Liquidity conditions in the agency MBS market were also generally stable. Dollar-roll-implied financing rates for production coupon MBS—an indicator of the scarcity of agency MBS for settlement—suggested limited settlement pressures over the second half of 2015 and early 2016.

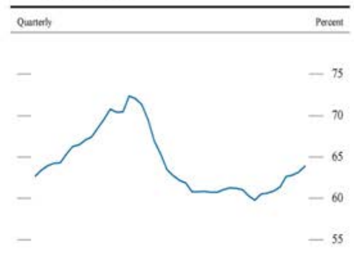
## Bank credit has continued to expand and bank profitability rose further

Aggregate credit provided by commercial banks increased at a solid pace in the second half of 2015 (figure 33). The expansion in bank credit was mainly driven by strong growth in loans coupled with an increase in banks' holdings of agency MBS. The growth of loans on banks' books was generally consistent with the SLOOS reports of increased loan demand for many loan categories.

Measures of bank profitability remained below their historical averages but improved slightly during the third quarter of 2015 (the latest available data), supported by lower noninterest expenses (figure 34). Net interest margins were about unchanged, on average, during the third quarter. Delinquency and charge-off rates for most major loan types were generally stable, near or at their lowest levels since the financial crisis.

Among large bank holding companies (BHCs), despite generally positive third- and fourth-quarter earnings reports, equity prices have decreased markedly, on balance, since the middle of last year. The decline in bank equity prices likely reflected concerns about global growth, the effects of a flatter yield curve on the outlook for bank profitability, and potential losses due to the decrease in energy prices. Credit default swap (CDS) spreads for large BHCs increased on net.

33. Ratio of total commercial bank credit to nominal gross domestic product




SOURCE: Federal Reserve Board, Statistical Release H.8, "Assets and Liabilities of Commercial Banks in the United States"; Department of Commerce, Bureau of Economic Analysis.

34. Profitability of bank holding companies


NOTE: The data, which are seasonally adjusted, are quarterly and extend through 2015:Q3.

SOURCE: Federal Reserve Board, FR Y-9C, Consolidated Financial Statements for Bank Holding Companies.

# Developments Related to Financial Stability

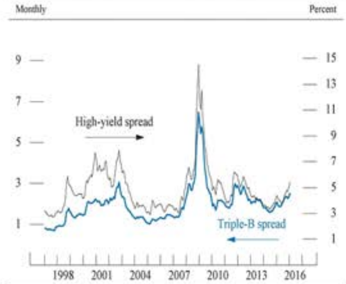
Financial vulnerabilities in the U.S. financial system overall have continued to be moderate since mid-2015. Regulatory capital and liquidity ratios at large banking firms are at historically high levels, and the use of short-term wholesale funding remains relatively low. Debt growth in the household sector continues to be modest and concentrated among borrowers with strong credit histories. Some areas where valuation pressures were a concern have cooled recently; in particular, risk premiums for below-investment-grade debt have widened. However, high leverage of nonfinancial corporations makes some firms highly vulnerable to adverse developments, such as lower oil prices or slowing global growth.

Vulnerabilities owing to leverage and maturity transformation in the financial sector remain low. Regulatory capital ratios at U.S. banking firms increased further in the third quarter of 2015, and holdings of high-quality liquid assets at banking firms also remain at very high levels. In addition, some of the largest domestic banks have reduced their reliance on potentially less stable types of short-term funding. The aggregate delinquency rate on bank loans declined to its lowest level since 2006, though delinquency rates on loans to the oil and gas industry, which account for a small share of most banks' portfolios, have increased. Bank underwriting practices in the leveraged loan market have improved, on balance, over the past year but occasionally still fall short of supervisory expectations. Moreover, domestic banking firms have only limited exposure to emerging market economies. However, developments in foreign economies and financial markets, particularly an escalation of recent volatility or a worsening of the outlook for China, could transmit risks through indirect financial linkages.

Net secured borrowing by dealers, primarily used to finance their own portfolios of securities, continued to decrease and is near historical lows, while securities financing activities aimed at facilitating clients' transactions also remain at low levels. The latter is consistent with reports that dealers have tightened price terms for securities financing and derivatives. The volume of margin loans outstanding—an important component of overall leverage used by hedge funds—appears to have moderated. Short-term funding levels remain relatively low, though reforms aimed at reducing structural vulnerabilities in those markets are still being implemented.

Overall asset valuation pressures have eased. Corporate bond spreads increased notably and are now above their historical norms (figure A). Those spreads appear to have risen by more than the compensation required for higher expected losses, suggesting risk premiums have also increased. Issuance

A. Corporate bond spreads to similar-maturity Treasury securities




NOTE: The spread is the 10-year yield for corporate bonds less the 10-year Treasury yield; bond yields are estimated from a smoothed curve fit to bond yields, and Treasury yields are estimated from a smoothed curve fit to off-the-run Treasury securities.

SOURCE: Department of the Treasury; BofA Merrill Lynch Global Research, used with permission.

of speculative-grade bonds and leveraged loans has slowed significantly, which also could reflect, in part, an increase in investors' risk aversion. Despite the volatility, most indicators of liquidity conditions in corporate bond markets, such as trading volumes and bid-asked spreads, deteriorated only slightly. Nonetheless, the suspension of redemptions in December by a high-yield bond mutual fund that had a high concentration of very low-rated debt and had experienced persistent outflows highlighted a vulnerability at open-end mutual funds that offer daily redemptions to investors while holding less-liquid assets.

Commercial real estate prices continued to rise, supported in part by improved fundamentals, and commercial real estate lending by banks accelerated in recent quarters. However, spreads on securities backed by commercial mortgages widened further and bank lending standards reportedly have tightened since July, suggesting that financing conditions have become a little less accommodative. In addition, late last year, federal banking regulators issued a joint statement reinforcing existing guidance for prudent risk management in that sector.[1] Residential home prices also continued to increase. However, price-to-rent ratios do not suggest that valuations are notably above

1. See Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of the Comptroller of the Currency (2015), "Agencies Issue Statement on Prudent Risk Management for Commercial Real Estate Lending," press release, December 18, www.federalreserve.gov/newsevents/press/bcreg/20151218a.htm.

historical norms, and residential mortgage debt growth remains minimal.

Broad equity indexes have declined significantly since July 2015, and forward price-to-earnings ratios have fallen to a level closer to their averages of the past three decades. Yields on longer-term Treasury securities decreased over that period, and estimates of term premiums remained low. Because many assets are priced based on Treasury yields, their low level continues to pose a risk to valuations of assets that have lower-than-average earnings yields. However, in December, the Federal Reserve's increase in the target range for the federal funds rate did not result in significant changes in longer-term interest rates or their volatility.

The ratio of private nonfinancial sector credit to gross domestic product remains below estimates of its long-term upward trend, reflecting subdued levels of household debt. Debt growth in the nonfinancial business sector has slowed in recent months, particularly among speculative-grade and unrated firms. However, leverage of such firms has risen to historical highs, especially among those in the oil industry, a development that points to somewhat elevated risks of distress for some business borrowers.

As part of its effort to improve the resilience of financial institutions and overall financial stability, the Federal Reserve Board has taken several further regulatory steps. First, the Board finalized a rule that increases risk-based capital requirements for U.S. global systemically important bank holding companies (G-SIBs).[2] The applicable surcharges are calibrated based on the systemic footprint of each U.S. G-SIB so that the amount of additional capital a firm must hold increases with the costs that its failure would impose in terms of U.S. financial stability. The G-SIB surcharge rule is designed to ensure that U.S. G-SIBs either hold substantially more capital, reducing the likelihood that they will fail, or choose to shrink their systemic footprint, reducing the harm that their failure would do to the financial system.

Second, the Board announced that it is seeking public comment on its proposed framework for setting the Countercyclical Capital Buffer (CCyB) and voted to affirm the CCyB amount at the current level of 0 percent—consistent with the continued moderate level of financial vulnerabilities.[3] The buffer is a macroprudential tool that can be used to increase the resilience of the financial system by raising capital requirements on internationally active banking organizations when there is an elevated risk of above-normal losses in the future. The CCyB would then be available to help those banking organizations absorb shocks associated with worsening credit conditions, and it may also help moderate fluctuations in the supply of credit. In releasing the framework for comment, the Board consulted with the Federal Deposit Insurance Corporation and the Office of the Comptroller of the Currency. Should the Board decide to increase the CCyB amount in the future, banking organizations would have 12 months before the change became effective, unless the Board established an earlier effective date.

Third, the Board issued for public comment a proposed rule that would impose total loss-absorbing capacity and long-term debt requirements on U.S. G-SIBs and on the U.S. operations of certain foreign G-SIBs.[4] The proposal would require each covered firm to maintain a minimum amount of unsecured long-term debt that could be converted into equity in a resolution of the firm, thereby recapitalizing the firm without putting public money at risk. The proposal would diminish the threat that a G-SIB's failure would pose to financial stability and is an important step in addressing the perception that certain institutions are "too big to fail."

Finally, the Board, acting in conjunction with other federal regulatory agencies, issued a final rule imposing minimum margin requirements on certain derivatives transactions that are not centrally cleared.[5] The swap margin rule will reduce the risk that derivatives transactions would act as a channel for financial contagion and, by imposing higher margin requirements on uncleared swaps than apply to cleared swaps, will incentivize market participants to shift derivatives activity to central clearinghouses.

2. See Board of Governors of the Federal Reserve System (2015), "Federal Reserve Board Approves Final Rule Requiring the Largest, Most Systemically Important U.S. Bank Holding Companies to Further Strengthen Their Capital Positions," press release, July 20, www.federalreserve.gov/newsevents/press/bcreg/20150720a.htm.

3. See Board of Governors of the Federal Reserve System (2015), "Federal Reserve Board Seeks Public Comment on Proposed Policy Statement Detailing the Framework the Board Would Follow in Setting the Countercyclical Capital Buffer (CCyB)," press release, December 21, www.federalreserve.gov/newsevents/press/bcreg/20151221b.htm.

4. See Board of Governors of the Federal Reserve System (2015), "Federal Reserve Board Proposes New Rule to Strengthen the Ability of Largest Domestic and Foreign Banks Operating in the United States to Be Resolved without Extraordinary Government Support or Taxpayer Assistance," press release, October 30, www.federalreserve.gov/newsevents/press/bcreg/20151030a.htm.

5. See Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, Farm Credit Administration, and Federal Housing Finance Agency (2015), "Agencies Finalize Swap Margin Rule," joint press release, October 30, www.federalreserve.gov/newsevents/press/bcreg/20151030b.htm.

The M2 measure of the money stock has increased at an average annualized rate of about 6 percent since last June, about the same pace registered in the first half of 2015 and faster than nominal GDP growth. Demand for liquid deposits has continued to boost M2 growth.

### Municipal bond markets functioned smoothly, but some issuers remained strained

Credit conditions in municipal bond markets have generally remained stable since the middle of last year. Over that period, the MCDX—an index of CDS spreads for a broad portfolio of municipal bonds—and ratios of yields on 20-year general obligation municipal bonds to those on longer-term Treasury securities edged up on net.

Nevertheless, significant financial strains were still evident for some issuers. In particular, Puerto Rico, which continued to face challenges from subdued economic performance, severe indebtedness, and other fiscal pressures, defaulted on some bond issues not backed by guarantees from the commonwealth and is seeking to restructure its debt.

## *International Developments*

### The dollar continued to strengthen . . .

The foreign exchange value of the dollar rose further, on net, since the middle of last year, bringing its increase since mid-2014, when the most recent run-up began, to over 20 percent by the beginning of 2016 (figure 35). Expectations that the Federal Reserve would soon start increasing its policy interest rates, even while most foreign central banks maintained or expanded monetary policy accommodation, boosted the value of the dollar. (For more discussion, see the box "Monetary Policy Divergence in the Advanced Economies.") The dollar has also appreciated against the renminbi since last summer, when the People's Bank of China

35. U.S. dollar exchange rate indexes


NOTE: The data, which are in foreign currency units per dollar, are weekly averages of daily data and extend through February 4, 2016.
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

(PBOC) announced it was changing its policy to allow market forces to play a greater role in determining the renminbi's exchange rate. The PBOC allowed the renminbi to depreciate 3 percent against the dollar in August and another 1½ percent after the turn of the year. These developments, which contributed to intensified uncertainty about China's exchange rate policy and the prospects for its economy, fostered episodes of global market turbulence that further boosted the dollar. Investors became more focused on downside risks to prospects for growth in China and, by implication, global growth. These concerns about growth, along with still-strong oil production and high inventories, contributed to a sharp drop in commodity prices, which in turn weighed on the currencies of several commodity-exporting countries.

### . . . while equity prices and foreign sovereign bond yields have declined

Triggered in part by the unexpected devaluation of the renminbi and an ensuing increase in concerns about global economic growth, equity indexes have dropped, on net, in most emerging market economies (EMEs) and advanced foreign economies (AFEs) since the beginning of the summer (figure 36). In particular, Chinese stock prices tumbled more than 40 percent despite official interventions, including circuit breakers and bans on stock sales, that were intended to mute some of the downward pressure. The fall in Brazilian stock prices was also very sharp, as global market turbulence as well as domestic developments, including a corruption scandal, declining output, and persistent high inflation, prompted stock prices to fall nearly 25 percent since last summer.

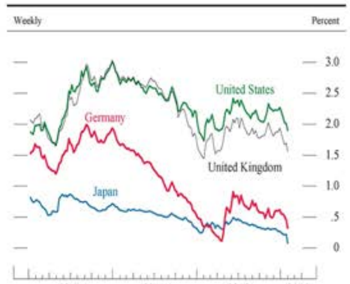
As in the United States, 10-year sovereign yields declined in most AFEs, likely in part because of increasing concerns about potential deflationary pressure amid falling commodity prices (figure 37). In the euro area, Greek sovereign yields, which had risen sharply in the first half of the year, declined substantially

36. Equity indexes for selected foreign economies


Note: The data are weekly averages of daily data and extend through February 4, 2016. For Dow Jones Indices licensing information, see the note on the Contents page.

Source: For Japan, Tokyo Stock Price Index (TOPIX); for the euro area, Dow Jones Euro STOXX Index; for China, Shanghai Composite Index; for emerging markets, Morgan Stanley Emerging Markets MXEF Capital Index; all via Bloomberg.

37. 10-year nominal benchmark yields in selected advanced economies




Note: The data are weekly averages of daily data and extend through February 4, 2016.

Source: Bloomberg.

## Monetary Policy Divergence in the Advanced Economies

As recovery has gradually taken hold in the U.S. economy over the past few years, both activity and inflation in the advanced foreign economies (AFEs) have remained persistently weak. This divergence in the economic outlooks for the United States and the AFEs has led to expectations of divergence in their monetary policies. Although the Federal Reserve raised its target for the federal funds rate in December, policy rates in most AFEs are near zero (and negative for several economies) and are expected to remain low for several years. Furthermore, the European Central Bank (ECB) and Bank of Japan are providing further monetary accommodation through sizable asset purchase programs, and both of these central banks have indicated that asset purchases will continue, given that inflation remains well below target. Given this ongoing monetary easing, the average policy rate expected by market participants over the next 24 months has declined in the euro area and Japan since 2014, while that of the federal funds rate gradually increased over this period as "liftoff" approached (figure A).

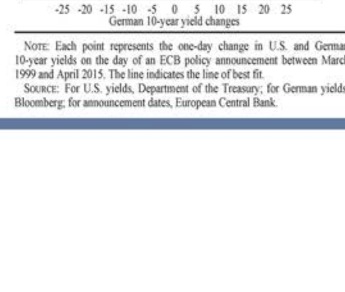
Two effects of these policy divergences that operate through financial markets have important consequences for the economies involved.[1] First, and most obviously, monetary policy divergences have given rise to changes in exchange rates: Portfolio rebalancing by international investors toward economies and currencies with higher interest rates has put downward pressure on AFE currencies, and the dollar has appreciated significantly against these currencies since mid-2014 (text figure 35). This dollar appreciation has contributed to the drag that U.S. net exports have exerted on U.S. economic growth in recent quarters, but the stronger dollar also has contributed to cyclical stabilization abroad as expenditures have shifted toward weaker economies. This effect on international trade is also a consideration for U.S. and foreign monetary policies: All else being equal, a smaller contribution to the U.S. economy from the external sector likely points to a more gradual pace of policy normalization in the United States. By the same token, the economic stimulus from more-depreciated currencies abroad may allow AFE central banks to provide less monetary accommodation—or to start removing it earlier—than would otherwise be the case.

Second, the effect of monetary policy actions on financial conditions may spill over to interest rates in other countries. For example, on ECB policy announcement days, changes in U.S. and German long-term sovereign yields historically have been highly correlated (figure B); similarly large correlations are observed between U.S. and German yields on days when the Federal Reserve has made policy announcements. In the context of economic and policy divergences, these monetary policy spillovers may alter financial conditions in other countries in ways that are not necessarily consistent with their cyclical stabilization needs. For example, recent monetary easing abroad likely has had a tempering effect on longer-term U.S. interest rates that partially offsets the effect of our own policy normalization. Analogously, reduced monetary accommodation in the United States likely will partially offset the effect of greater monetary accommodation abroad. However, the implications of current policy divergences for monetary spillovers should not be exaggerated: U.S. policy remains accommodative and, on net, likely continues to contribute to accommodative conditions abroad.

A. Two-year overnight index swap rates in selected advanced economies


SOURCE: Bloomberg.

B. One-day changes in U.S. and German 10-year yields on ECB policy announcement days, 1999–2015




NOTE: Each point represents the one-day change in U.S. and German 10-year yields on the day of an ECB policy announcement between March 1999 and April 2015. The line indicates the line of best fit.
SOURCE: For U.S. yields, Department of the Treasury; for German yields, Bloomberg; for announcement dates, European Central Bank.

1. For more detail, see John Ammer, Michiel De Pooter, Christopher Erceg, and Steven Kamin (2016), "International Spillovers of Monetary Policy," IFDP Notes (Washington: Board of Governors of the Federal Reserve System, February 8), www.federalreserve.gov/econresdata/notes/ifdp-notes/2016/international-spillovers-of-monetary-policy-20160208.html.

as an agreement was reached last summer between the European Union and Greece. In contrast, bond spreads in a number of EMEs rose modestly, on net, in the second half of the year before moving up more steeply after the start of 2016 amid a widespread increase in risk aversion.

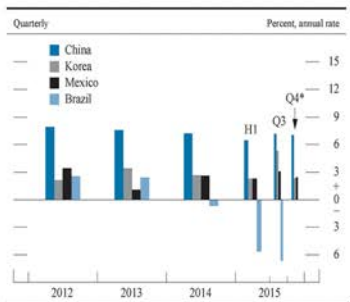
### Growth in the emerging market economies moved back up from earlier in 2015 . . .

Following weak growth in the first half of 2015, economic activity in the EMEs improved in the second half, as the pace of growth picked up in Asia and Latin America (figure 38). However, growth has been held back in part by exports from EMEs, which declined appreciably early in 2015 and remain subdued on average.

Economic activity in most of emerging Asia, which had been restrained in the first half of the year by soft external demand and by the outbreak of MERS (Middle East Respiratory Syndrome) in South Korea, picked up in the second half, as the drag from these pressures subsided. In China, GDP growth is reported to have held steady around 7 percent in the second half of the year, boosted in part by relatively strong growth in services. However, weak manufacturing, as well as the financial market volatility noted previously, led to a pronounced heightening of concerns about the economy during the second half of the year.

In Latin America, the decline in commodity prices, along with other macroeconomic challenges, continued to weigh on the economic activity of several countries. In Mexico, the economy continued to grow at a moderate pace in the second half of 2015, supported by improving household demand. However, low oil prices have pressured public finances, and manufacturing exports faltered toward the end of the year. In Brazil, the economy is undergoing its most severe recession in decades. Tight monetary policy in response to high inflation, low commodity

38. Real gross domestic product growth in selected emerging market economies




* Gross domestic product of Brazil is not yet available for 2015:Q4.

NOTE: The data for Mexico incorporate the flash estimate for 2015:Q4. The data for China are seasonally adjusted by staff. The data for Mexico, Brazil, and Korea are seasonally adjusted by their respective government agencies.

SOURCE: For China, China National Bureau of Statistics; for Korea, Bank of Korea; for Mexico, Instituto Nacional de Estadistica Geografia e Informatica; for Brazil, Instituto Brasileiro de Geografia e Estadistica; all via Haver Analytics.

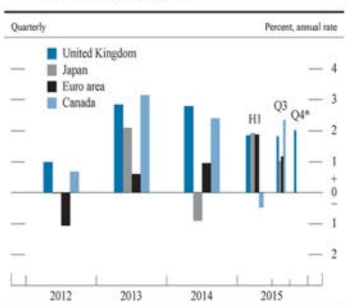
prices, and the fallout from a high-profile corruption scandal eroded business confidence and contributed to a collapse in investment.

Inflation remained subdued in many EMEs, as the continuing decline in commodity prices contributed to a moderation of headline inflation. Consequently, some central banks, including those of Korea and India, loosened monetary policy to support growth. In China, the PBOC also lowered its benchmark rate and cut the reserve requirement ratio in August and October to address weakness in the economy. In contrast, faced with inflationary pressures stemming partly from their depreciating currencies, Brazil, Chile, and Colombia raised their policy rates in the second half of 2015.

### . . . and in the advanced foreign economies, economic activity expanded at a moderate pace

In Canada, where low oil prices induced a mild contraction earlier in the year, economic activity rebounded in the third quarter as exports recovered and business-sector investment contracted at a slower pace. That said, more recent indicators of growth weakened markedly during the fourth quarter. In contrast, in the euro area, Japan, and the United Kingdom, economic activity grew moderately in the third quarter, and recent indicators for fourth-quarter growth, such as purchasing managers indexes, have largely held steady (figure 39).

39. Real gross domestic product growth in selected advanced foreign economies




* Gross domestic products of the euro area, Japan, and Canada are not yet available for 2015:Q4.

SOURCE: For the euro area, Eurostat; for Japan, Cabinet Office, Government of Japan; for Canada, Statistics Canada; for the United Kingdom, Office for National Statistics; all via Haver Analytics.

As in the United States, inflation remained low in most advanced foreign economies. Further declines in commodity prices weighed on inflation in the AFEs; in the euro area, Japan, and the United Kingdom, consumer prices changed little in 2015. Over the same period, consumer prices rose about 1½ percent in Canada, reflecting the boost to import prices from the sharp depreciation of the Canadian dollar over the past year.

With inflation low, AFE central banks maintained highly accommodative monetary policies, and some signaled their intention to maintain large balance sheets well into the future. The European Central Bank, in addition to lowering its deposit rate further into negative territory, announced an extension of the intended duration of its asset purchase program through at least March 2017 and that it would reinvest principal payments for as long as necessary. The Bank of England announced that it will start shrinking its balance sheet only after its policy rate rises to about 2 percent from its current level of ½ percent. Meanwhile, in response to weak economic performance earlier in 2015, the Bank of Canada cut its policy rate further. More recently, the Bank of Japan cut the interest rate that it pays on a portion of banks' current account deposits to negative 0.1 percent.

# Part 2
## Monetary Policy

*In December, the Federal Open Market Committee (FOMC) raised the target range for the federal funds rate by ¼ percentage point after seven years in which that rate had been held near zero. The FOMC's decision reflected the considerable improvement in the labor market last year and the Committee's assessment that, even with the modest reduction in policy accommodation, the labor market would continue to strengthen and inflation would return over the medium term to the FOMC's 2 percent objective. Monetary policy remains accommodative, and the Committee expects that economic conditions will warrant only gradual increases in the federal funds rate. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.*

### The FOMC raised the federal funds rate target range in December . . .

Since last March, the FOMC had anticipated that it would be appropriate to increase the federal funds rate when it had seen further improvement in the labor market and was reasonably confident that inflation would move back to 2 percent over the medium term. In December, the FOMC, judging that these criteria had been met, raised the target range for the federal funds rate to ¼ to ½ percent (figure 40).[4]

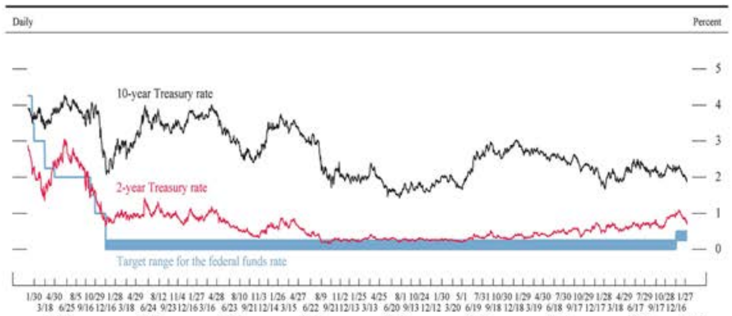
The Committee's decision to raise the federal funds rate recognized the time it takes for policy actions to affect future economic outcomes; if the FOMC delayed the start of policy normalization for too long, a relatively abrupt tightening of policy might eventually be needed to keep the economy from overheating and inflation from significantly overshooting the Committee's 2 percent objective. Such an abrupt tightening could disrupt financial markets and perhaps even inadvertently push the economy into recession.

### . . . but monetary policy remains accommodative

Even after the increase in the federal funds rate late last year, the stance of monetary

4. See Board of Governors of the Federal Reserve System (2015), "Federal Reserve Issues FOMC Statement," press release, December 16, www.federalreserve.gov/newsevents/press/monetary/20151216a.htm.

40. Selected interest rates




Note: The 2-year and 10-year Treasury rates are the constant-maturity yields based on the most actively traded securities. The dates on the horizontal axis are those of regularly scheduled Federal Open Market Committee meetings.

Source: Department of the Treasury; Federal Reserve Board.

policy remains accommodative. The FOMC anticipates that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate, and that the federal funds rate is likely to remain, for some time, below the levels that are expected to prevail in the longer run.

This expectation is consistent with the view that the neutral nominal federal funds rate—defined as the value of the federal funds rate that would be neither expansionary nor contractionary if the economy was operating at its productive potential—is currently low by historical standards and is likely to rise only gradually over time. One indication that the neutral federal funds rate is low is that U.S. economic growth has been only moderate in recent years despite the very low level of the federal funds rate and the Federal Reserve's very large holdings of longer-term securities. Had the neutral rate been running closer to the average level estimated to have prevailed in recent decades, these policy actions would have been expected to foster a much more rapid economic expansion.

An array of persistent economic headwinds have weighed on aggregate demand since the financial crisis; these headwinds included, at various times, limited access to credit for some borrowers, contractionary fiscal policy, and weak growth abroad coupled with a significant appreciation of the dollar. Although the overall restraint imposed by such headwinds has declined over the past few years, the effects of some headwinds have remained significant. As these effects abate further, the neutral federal funds rate should gradually move higher over time. (For a discussion of how the neutral federal funds rate is likely to evolve over time, see the box "The Neutral Federal Funds Rate in the Longer Run.")

Another reason that the Committee expects only a gradual increase in the federal funds rate will be warranted is that, with the federal funds rate near zero, the FOMC can respond more readily to upside surprises to inflation, economic growth, and employment than to downside shocks. This asymmetry suggests that it is appropriate to be more cautious in normalizing the stance of monetary policy than would be the case if short-term nominal interest rates were appreciably above zero.

In part reflecting this concern, the FOMC continued to reinvest principal payments from its securities portfolio, and the Committee expects that this reinvestment policy will be maintained until normalization of the level of the federal funds rate is well under way. Maintaining sizable holdings of longer-term securities should help support accommodative financial conditions and reduce the risk that the Committee would not be able to deliver sufficient accommodation by lowering the federal funds rate in the event of future adverse shocks.

The FOMC expects that, supported by an accommodative monetary policy, economic activity will continue to expand at a moderate pace and the labor market will continue to strengthen. Inflation is expected to remain low in the near term, in part because of recent further declines in energy prices, but to rise to 2 percent over the medium term as the transitory effects of declines in energy and import prices dissipate and the labor market strengthens further. In light of the current shortfall of inflation from 2 percent, the Committee is carefully monitoring actual and expected progress toward its inflation goal.

### The FOMC's policy decisions will continue to be data dependent

Although the Committee expects that economic conditions will warrant only gradual increases in the federal funds rate, the Committee has emphasized that the actual path of monetary policy will depend on how incoming data affect the economic outlook. In determining the timing and size of future adjustments to the target range, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. Stronger growth or a more rapid increase in inflation than the Committee currently anticipates would likely call for faster increases in the federal funds rate; conversely, if conditions prove weaker, a lower path of the federal funds rate would likely be appropriate. Similarly, the timing of a change in the reinvestment policy will depend on economic developments and their implications for progress toward the FOMC's goals of maximum employment and price stability. In assessing realized changes in economic conditions and forming its outlook, the Committee will take into account a wide range of measures, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

## The size of the Federal Reserve's balance sheet has remained stable

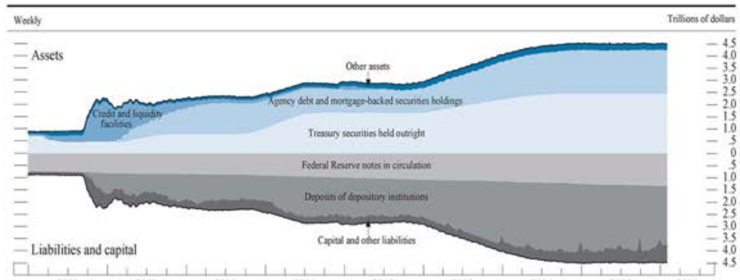
With the continuation of the Committee's reinvestment policy, the Federal Reserve's total assets have held steady at around $4.5 trillion (figure 41). Holdings of U.S. Treasury securities in the System Open Market Account (SOMA) have remained at $2.5 trillion, and holdings of agency debt and agency mortgage-backed securities at approximately $1.8 trillion. Consequently, total liabilities on the Federal Reserve's balance sheet were largely unchanged.

Given the Federal Reserve's large securities holdings, interest income on the SOMA portfolio has continued to support substantial remittances to the U.S. Treasury Department. Preliminary results indicate that the Reserve Banks provided for payments of $97.7 billion of their estimated 2015 net income to the Treasury. In addition, the Reserve Banks transferred to the Treasury $19.3 billion from their capital surplus as required by an amendment to the Federal Reserve Act contained in the Fixing America's Surface Transportation Act of 2015. Remittances from 2008 through 2015 total about $600 billion on a cumulative basis—an average of about $75 billion a year, compared with about $25 billion a year, on average, over the decade prior to 2008.

## The Committee continued to focus on the implementation of monetary policy

Consistent with the FOMC's Policy Normalization Principles and Plans published on September 17, 2014, the Federal Reserve used interest paid on reserve balances

41. Federal Reserve assets and liabilities




NOTE: "Credit and liquidity facilities" consists of primary, secondary, and seasonal credit; term auction credit; central bank liquidity swaps; support for Maiden Lane, Bear Stearns, and AIG; and other credit facilities, including the Primary Dealer Credit Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, and the Term Asset-Backed Securities Loan Facility. "Other assets" includes unamortized premiums and discounts on securities held outright. "Capital and other liabilities" includes reverse repurchase agreements, the U.S. Treasury General Account, and the U.S. Treasury Supplementary Financing Account. The data extend through February 3, 2016.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

## The Neutral Federal Funds Rate in the Longer Run

As discussed in the main text, economic growth has been only moderate in recent years despite the very low level of the federal funds rate and the Federal Reserve's large-scale purchases of longer-term securities. This observation suggests that headwinds have lowered the "neutral" federal funds rate—defined as the value of the federal funds rate that would be neither expansionary nor contractionary if the economy was operating at its productive potential—to historically low levels.

As economic disturbances dissipate, the neutral federal funds rate should rise to its expected longer-run level. This longer-run value of the neutral rate plays an important role in monetary policy analysis: It is a key determinant of the longer-run level of the federal funds rate and other nominal interest rates. When expressed on a real basis, it also corresponds to the intercept of simple policy rules such as those studied in Taylor (1993).[1] Like the current neutral rate, the longer-run value of the neutral rate is not directly observed and must be estimated using the available data and potentially imperfect models of the economy.

Since 2012, the median of the projections of the longer-run level of the federal funds rate in the Federal Open Market Committee's Summary of Economic Projections has fallen from 4.25 percent to 3.50 percent.[2] In addition, several econometric studies have estimated a decline in the longer-run value of the neutral rate by statistically modeling the co-movements between variables like inflation, interest rates, output, and unemployment.[3] Figure A shows estimates from

1. See John B. Taylor (1993), "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy*, vol. 39 (December), pp. 195–214.

2. See the December 2015 Summary of Economic Projections, which appeared as an addendum to the minutes of the December 15–16, 2015, meeting of the Federal Open Market Committee and is included as Part 3 of this report.

3. See, for example, Benjamin K. Johannsen and Elmar Mertens (forthcoming), "The Expected Real Interest Rate in the Long Run: Time Series Evidence with the Effective Lower Bound," FEDS Notes (Washington: Board of Governors of the Federal Reserve System); Michael T. Kiley (2015), "What Can the Data Tell Us about the Equilibrium Real Interest Rate?" Finance and Economics Discussion Series 2015-077 (Washington: Board of Governors of the Federal Reserve System, August), www.federalreserve.gov/econresdata/feds/2015/files/2015077pap.pdf; Thomas Laubach and John Williams (2015), "Measuring the Natural Rate of Interest Redux," Hutchins Center Working Papers 15 (Washington: Brookings Institution, November), www.brookings.edu/~/media/Research/Files/Papers/2015/10/30-laubach-williams/WP15-Laubach-Williams-natural-interest-rate-redux-2.pdf?la=en; and Thomas A. Lubik and Christian Matthes (2015), "Calculating the Natural Rate of Interest: A Comparison of Two Alternative Approaches," Economic Brief 15-10 (Richmond: Federal Reserve Bank of Richmond, October), https://www.richmondfed.org/~/media/richmondfedorg/publications/research/economic_brief/2015/pdf/eb_15-10.pdf. In these

and also employed an overnight reverse repurchase agreement (ON RRP) facility to implement its decision in December to raise the target range for the federal funds rate.[5] Specifically, the Board of Governors raised the interest rate paid on required and excess reserve balances to ½ percent, while the FOMC authorized ON RRP operations at an offering rate of ¼ percent. (For further information, see the box "Monetary Policy Implementation following the December 2015 FOMC Meeting.") In addition, the Board of Governors approved an increase in the discount rate (the primary credit rate) to 1 percent.

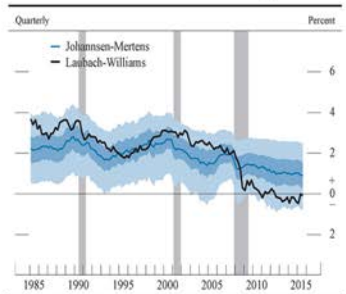
Along with the decision to increase the target range for the federal funds rate, the FOMC also temporarily suspended the aggregate cap on ON RRP transactions, indicating that ON RRP operations would be undertaken in amounts limited only by the value of Treasury securities held outright in the SOMA that are available for such operations and by a per-counterparty limit of $30 billion per day. Nonetheless, total reverse repurchase

5. See Board of Governors of the Federal Reserve System (2014), "Federal Reserve Issues FOMC Statement on Policy Normalization Principles and Plans," press release, September 17, www.federalreserve.gov/newsevents/press/monetary/20140917c.htm.

two time-series models of the longer-run value of the neutral rate, expressed on a real basis. One is from Johannsen and Mertens (forthcoming), and the other is from Laubach and Williams (2015).[4] The figure includes the uncertainty bands for the Johannsen and Mertens estimates, which indicate that the uncertainty surrounding the longer-run value of the neutral rate is substantial (as it is in other model frameworks).

Uncertainty about the longer-run value of the neutral rate implies uncertainty about the expected cumulative rise in policy rates during the policy normalization process. The risk that the longer-run value of the neutral rate going forward could be lower than currently estimated is especially pertinent, because such a scenario would likely increase the probability that monetary policy will be constrained by the effective lower bound on nominal interest rates in the future, with adverse consequences for macroeconomic outcomes.

A. Estimates of the neutral real rate in the longer run




NOTE: The data extend through 2015:Q3. For the Johannsen-Mertens model, at each date, the parameters of the model and the longer-run equilibrium real rate are jointly estimated using data up to that date. For the Laubach-Williams model, the parameters are estimated on the entire data sample, but estimates of the longer-run equilibrium real rate use data only up to the date of interest. Shaded regions are 50 and 90 percent uncertainty bands from the Johannsen-Mertens model. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.

SOURCE: Benjamin K. Johannsen and Elmar Mertens (forthcoming), "The Expected Real Interest Rate in the Long Run: Time Series Evidence with the Effective Lower Bound," FEDS Notes (Washington: Board of Governors of the Federal Reserve System), and Thomas Laubach and John Williams (2015), "Measuring the Natural Rate of Interest Redux," Hutchins Center Working Papers 15 (Washington: Brookings Institution, November), www.brookings.edu/~/media/Research/Files/Papers/2015/10/30-laubach-williams/WP15-Laubach-Williams-natural-interest-rate-redux-2.pdf?la=en.

studies, the longer-run value of the neutral rate is sometimes referred to as the longer-run value of the "natural" rate or the longer-run "equilibrium" federal funds rate.

4. The estimates from the Johannsen-Mertens and Laubach-Williams models are not the same because the models use different data to infer slack in the economy and because the model restrictions and estimation methods are different.

agreement transactions with the Federal Reserve have remained near levels observed prior to the increase in the target range for the federal funds rate and the suspension of the aggregate cap. The Committee intends to phase out this facility when it is no longer needed to help control the federal funds rate.

The Federal Reserve also continued to test the operational readiness of other policy tools. Three Term Deposit Facility operations were conducted in the second half of 2015. The operations offered either 7- or 14-day deposits at a floating rate of 1 basis point over the interest rate on excess reserves. In these operations, deposit volumes declined slightly from previous tests with similar parameters.

## Monetary Policy Implementation following the December 2015 FOMC Meeting

At its December 2015 meeting, the Federal Open Market Committee (FOMC) increased the target range for the federal funds rate from between 0 and ¼ percent to between ¼ and ½ percent, effective December 17.[1] In order to implement the monetary policy stance announced in December, the Board of Governors also voted to raise the interest rate paid on required and excess reserve balances to 0.50 percent. Moreover, the FOMC authorized an increase in the overnight reverse repurchase agreement (ON RRP) facility offering rate to 0.25 percent and indicated that the aggregate amount of the ON RRP operations would be constrained only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations.[2] Each of these monetary policy decisions is consistent with the guidance provided in the Policy Normalization Principles and Plans outlined in the July 2015 *Monetary Policy Report*.[3]

The effective federal funds rate rose to 0.37 percent at the time of the change to the target range for the federal funds rate amid orderly trading conditions in money markets (figure A). Since the increase in the target range, the effective federal funds rate has traded in a relatively narrow range of 0.35 to 0.38 percent, with the exception of month-ends, when the rate fell temporarily in typical fashion. Increases in interest rates in other money markets were similar to the rise in the federal funds rate following the December meeting, with overnight Eurodollar rates closely tracking the effective federal funds rate and the general collateral repurchase agreement (or repo) rate maintaining spreads to unsecured rates similar to those observed before the December meeting.

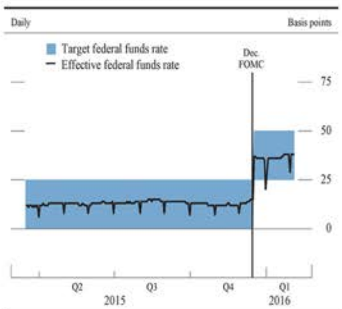
Total volume in the ON RRP facility was virtually unchanged on the day after the December meeting (figure B). In the weeks following the December meeting, the total amount of Federal Reserve reverse repurchase agreement (RRP) operations reflected typical calendar-related effects. On year-end, volume in the ON RRP facility was nearly $475 billion, roughly in line with aggregate RRP operations seen on recent quarter-ends. Following year-end, usage of the ON RRP facility rapidly returned to—and has remained at—levels that prevailed before year-end, consistent with recent quarter-end patterns.

1. See Board of Governors of the Federal Reserve System (2015), "Federal Reserve Issues FOMC Statement," press release, December 16, www.federalreserve.gov/newsevents/press/monetary/20151216a.htm.

2. In a related action, the Board of Governors voted to approve a ¼ percentage point increase in the discount rate to 1 percent.

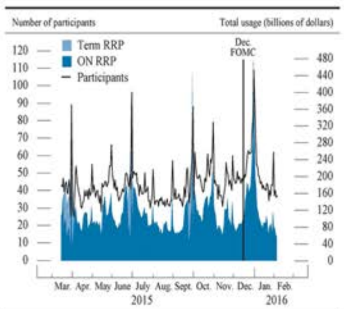
3. See the box "Policy Normalization Principles and Plans: Additional Details" in Board of Governors of the Federal Reserve System (2015), *Monetary Policy Report* (Washington: Board of Governors, July), p. 35, www.federalreserve.gov/monetarypolicy/files/20150715_mprfullreport.pdf.

A. Effective federal funds rate




Source: Federal Reserve Bank of New York.

B. Reverse repurchase agreement operations




Note: ON RRP is overnight reverse repurchase agreement; term RRP is term reverse repurchase agreement. Data are daily.
Source: Federal Reserve Bank of New York.

# Part 3
## Summary of Economic Projections

*The following material appeared as an addendum to the minutes of the December 15–16, 2015, meeting of the Federal Open Market Committee.*

In conjunction with the Federal Open Market Committee (FOMC) meeting held on December 15–16, 2015, meeting participants submitted their projections of the most likely outcomes for real output growth, the unemployment rate, inflation, and the federal funds rate for each year from 2015 to 2018 and over the longer run.[6] Each participant's projection was based on information available at the time of the meeting, together with his or her assessment of appropriate monetary policy and assumptions about the factors likely to affect economic outcomes. The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the Federal Reserve's objectives of maximum employment and stable prices.

FOMC participants generally expected that, under appropriate monetary policy, real gross domestic product (GDP) growth in 2016 and 2017 would be at or somewhat above their individual estimates of the longer-run growth rate and would converge toward its longer-run rate in 2018 (table 1 and figure 1). All participants projected that the unemployment rate would decline further in 2016. Most participants expected that in 2018 the unemployment rate would remain somewhat below their individual judgments of its longer-run normal rate. Participants projected that inflation, as measured by the four-quarter change in the price index for personal consumption expenditures (PCE), would pick up in 2016 and 2017 from the very low rate seen in 2015. Almost all participants projected inflation in 2018 to be at or very near the Committee's 2 percent objective.

As shown in figure 2, all but two participants thought that it would be appropriate to raise the target range for the federal funds rate before the end of 2015. Most participants expected that it would be appropriate to raise the target range for the federal funds rate gradually over the projection period as headwinds to economic growth dissipate slowly over time and as inflation rises toward the Committee's goal of 2 percent. Consistent with this outlook, most participants projected that the appropriate level of the federal funds rate would be below its longer-run level through 2018.

Almost all participants viewed the levels of uncertainty associated with their outlooks for economic growth and the unemployment rate as broadly similar to the norms of the previous 20 years. Nearly all also viewed the levels of uncertainty associated with their inflation forecasts as broadly similar to historical norms. Most participants saw the risks to their outlooks for real GDP growth and the unemployment rate as broadly balanced. A majority viewed the risks attending their projections for both PCE and core PCE inflation as broadly balanced, but many saw these risks as weighted to the downside. Among those who saw the risks to their inflation outlook as tilted to the downside,

6. The president of the Federal Reserve Bank of Minneapolis did not participate in this FOMC meeting, and the incoming president is scheduled to assume office on January 1, 2016. James M. Lyon, First Vice President of the Federal Reserve Bank of Minneapolis, submitted economic projections.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, December 2015
Percent

| Variable | Median[1] | | | | | Central tendency[2] | | | | | Range[3] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 | Longer run | 2015 | 2016 | 2017 | 2018 | Longer run | 2015 | 2016 | 2017 | 2018 | Longer run |
| Change in real GDP | 2.1 | 2.4 | 2.2 | 2.0 | 2.0 | 2.1 | 2.3–2.5 | 2.0–2.3 | 1.8–2.2 | 1.8–2.2 | 2.0–2.2 | 2.0–2.7 | 1.8–2.5 | 1.7–2.4 | 1.8–2.3 |
| September projection | 2.1 | 2.3 | 2.2 | 2.0 | 2.0 | 2.0–2.3 | 2.2–2.6 | 2.0–2.4 | 1.8–2.2 | 1.8–2.2 | 1.9–2.5 | 2.1–2.8 | 1.9–2.6 | 1.6–2.4 | 1.8–2.7 |
| Unemployment rate | 5.0 | 4.7 | 4.7 | 4.7 | 4.9 | 5.0 | 4.6–4.8 | 4.6–4.8 | 4.6–5.0 | 4.8–5.0 | 5.0 | 4.3–4.9 | 4.5–5.0 | 4.5–5.3 | 4.7–5.8 |
| September projection | 5.0 | 4.8 | 4.8 | 4.8 | 4.9 | 5.0–5.1 | 4.7–4.9 | 4.7–4.9 | 4.7–5.0 | 4.9–5.2 | 4.9–5.2 | 4.5–5.0 | 4.5–5.0 | 4.6–5.3 | 4.7–5.8 |
| PCE inflation | 0.4 | 1.6 | 1.9 | 2.0 | 2.0 | 0.4 | 1.2–1.7 | 1.8–2.0 | 1.9–2.0 | 2.0 | 0.3–0.5 | 1.2–2.1 | 1.7–2.0 | 1.7–2.1 | 2.0 |
| September projection | 0.4 | 1.7 | 1.9 | 2.0 | 2.0 | 0.3–0.5 | 1.5–1.8 | 1.8–2.0 | 2.0 | 2.0 | 0.3–1.0 | 1.5–2.4 | 1.7–2.2 | 1.8–2.1 | 2.0 |
| Core PCE inflation[4] | 1.3 | 1.6 | 1.9 | 2.0 | | 1.3 | 1.5–1.7 | 1.7–2.0 | 1.9–2.0 | | 1.2–1.4 | 1.4–2.1 | 1.6–2.0 | 1.7–2.1 | |
| September projection | 1.4 | 1.7 | 1.9 | 2.0 | | 1.3–1.4 | 1.5–1.8 | 1.8–2.0 | 1.9–2.0 | | 1.2–1.7 | 1.5–2.4 | 1.7–2.2 | 1.8–2.1 | |
| Memo: Projected appropriate policy path | | | | | | | | | | | | | | | |
| Federal funds rate | 0.4 | 1.4 | 2.4 | 3.3 | 3.5 | 0.4 | 0.9–1.4 | 1.9–3.0 | 2.9–3.5 | 3.3–3.5 | 0.1–0.4 | 0.9–2.1 | 1.9–3.4 | 2.1–3.9 | 3.0–4.0 |
| September projection | 0.4 | 1.4 | 2.6 | 3.4 | 3.5 | 0.1–0.6 | 1.1–2.1 | 2.1–3.4 | 3.0–3.6 | 3.3–3.8 | -0.1–0.9 | -0.1–2.9 | 1.0–3.9 | 2.9–3.9 | 3.0–4.0 |

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 16–17, 2015.

1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable in each year.
3. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
4. Longer-run projections for core PCE inflation are not collected.

several highlighted the continued strength of the dollar and some recent indications that inflation expectations had declined as contributing to those risks.

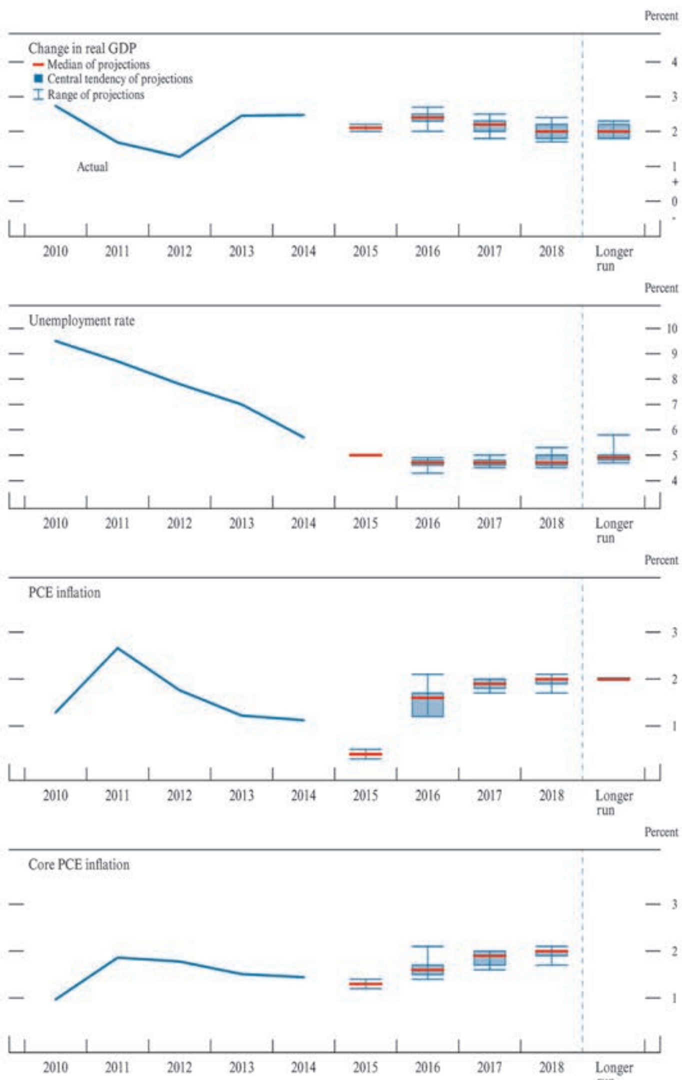
## The Outlook for Economic Activity

Participants generally projected that, conditional on their individual assumptions about appropriate monetary policy, real GDP would increase in 2016 and 2017 at a pace somewhat above their estimates of its longer-run rate. Real GDP growth would then slow in 2018 to a rate at or near their individual estimates of the longer-run normal rate. Participants pointed to a number of factors that they expect will contribute to moderate output growth over the next few years, including labor market conditions that are supportive of economic expansion, household and business balance sheets that had improved significantly since the financial crisis, and a stance of monetary policy that was expected to remain accommodative.

Compared with their contributions to the Summary of Economic Projections (SEP) in September, participants' projections of real GDP growth from 2016 to 2018 were generally little changed. The median value of participants' projections for real GDP growth in 2016 was revised up slightly to 2.4 percent; some participants cited the Bipartisan Budget Act of 2015, which was passed in late October, as adding support to economic growth in the near term. Very few participants changed their forecasts for real GDP growth in the longer run, resulting in an unchanged median.

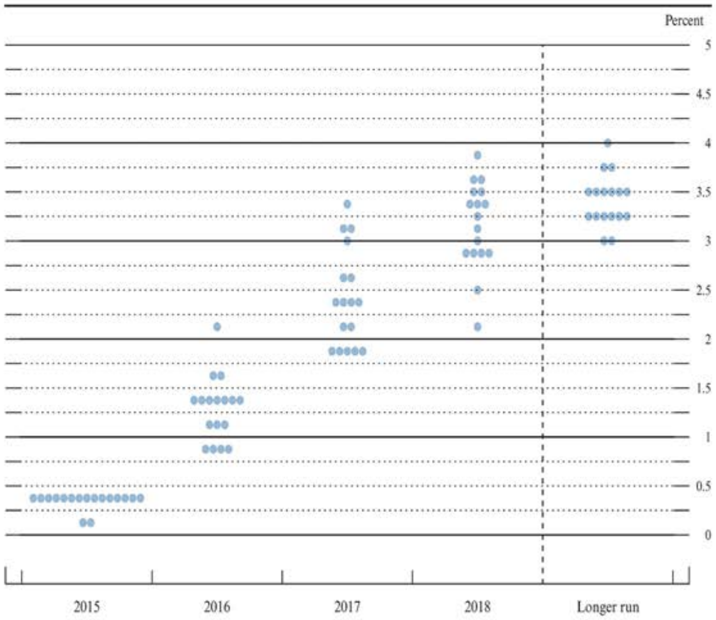
All participants projected that the unemployment rate would be at or below their individual judgments of its longer-run normal level from 2016 through 2018. Compared with the September SEP, most participants' projected paths for the unemployment rate were revised down a little over those three years, with the median of the projections in the fourth quarter of each year at 4.7 percent. Many also revised down slightly their

Figure 1. Medians, central tendencies, and ranges of economic projections, 2015–18 and over the longer run




NOTE: Definitions of variables are in the general note to table 1. The data for the actual values of the variables are annual.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate




NOTE: Each shaded circle indicates the value (rounded to the nearest ⅛ percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run.

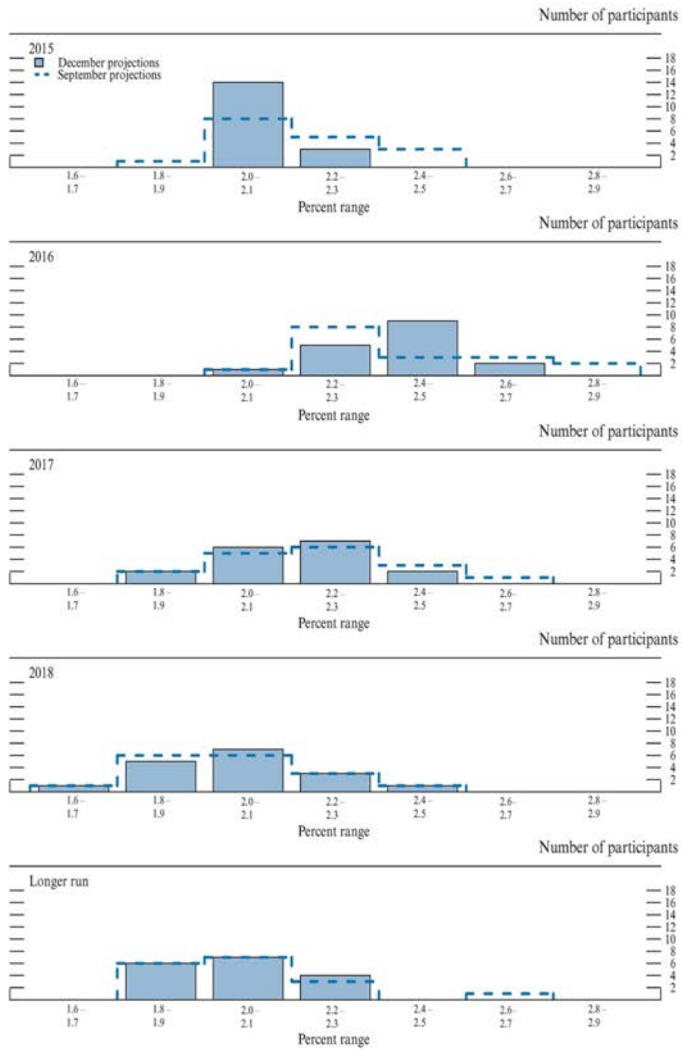
estimates of the longer-run normal rate of unemployment, although the median forecast of 4.9 percent was unchanged since September. Participants generally cited stronger-than-expected labor market data in recent months as a factor explaining the downward revisions to their unemployment rate forecasts.

Figures 3.A and 3.B show the distribution of participants' views regarding the likely outcomes for real GDP growth and the unemployment rate through 2018 and in the longer run. The distributions of the projections for real GDP growth over the next several years and in the longer run narrowed some since the September SEP. The diversity of views across participants on the outlook for GDP growth reflected, in part, differences in their individual assessments of the size and persistence of the effects of lower energy prices and a stronger dollar on real activity; the time it would take for the headwinds that have been restraining the pace of the economic expansion, such as financial and economic conditions abroad, to dissipate; and the appropriate path of monetary policy. With regard to the unemployment rate, the distributions of projections over the next three years shifted modestly to lower values since September.

## The Outlook for Inflation

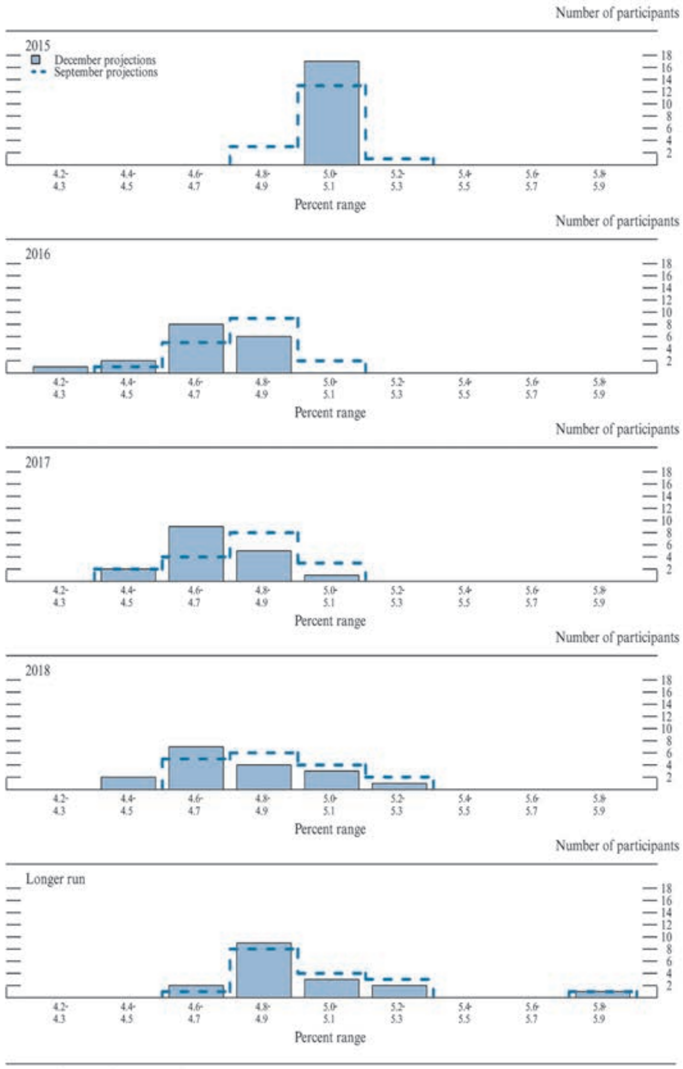
Nearly all participants saw PCE price inflation picking up in 2016, rising further in 2017, and then reaching a rate in 2018 at or very

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2015–18 and over the longer run




NOTE: Definitions of variables are in the general note to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2015–18 and over the longer run




NOTE: Definitions of variables are in the general note to table 1.

close to the Committee's 2 percent longer-run objective. However, relative to the September SEP, almost all participants marked down their projections for PCE price inflation in 2016, observing that recent declines in energy prices and the continued strength in the dollar could exert additional downward pressure on inflation in the near term. Revisions to participants' inflation forecasts in 2017 were more mixed, while the projections for inflation in 2018 were little changed. Most participants also marked down their projections for core PCE price inflation in 2016, although almost all still expected core inflation to rise gradually over the projection period and to be at or very close to 2 percent by 2018. Factors cited by participants as contributing to their outlook that inflation will rise over the medium term included recent signs of a pickup in wage growth, their expectation of tighter resource utilization, their expectation that the effects of recent appreciation in the dollar and declines in oil prices on inflation will fade, their anticipation that inflation expectations will remain at levels consistent with the FOMC's longer-run objective, and still-accommodative monetary policy.

Figures 3.C and 3.D provide information on the distribution of participants' views about the outlook for inflation. The distribution of participants' projections for PCE price inflation in 2016 and 2017 shifted to the left compared with the September SEP, while the distributions of projections for 2018 and in the longer run were little changed. The distributions of projections for core PCE price inflation moved lower for 2016 and 2017 compared with September but did not change for 2018.

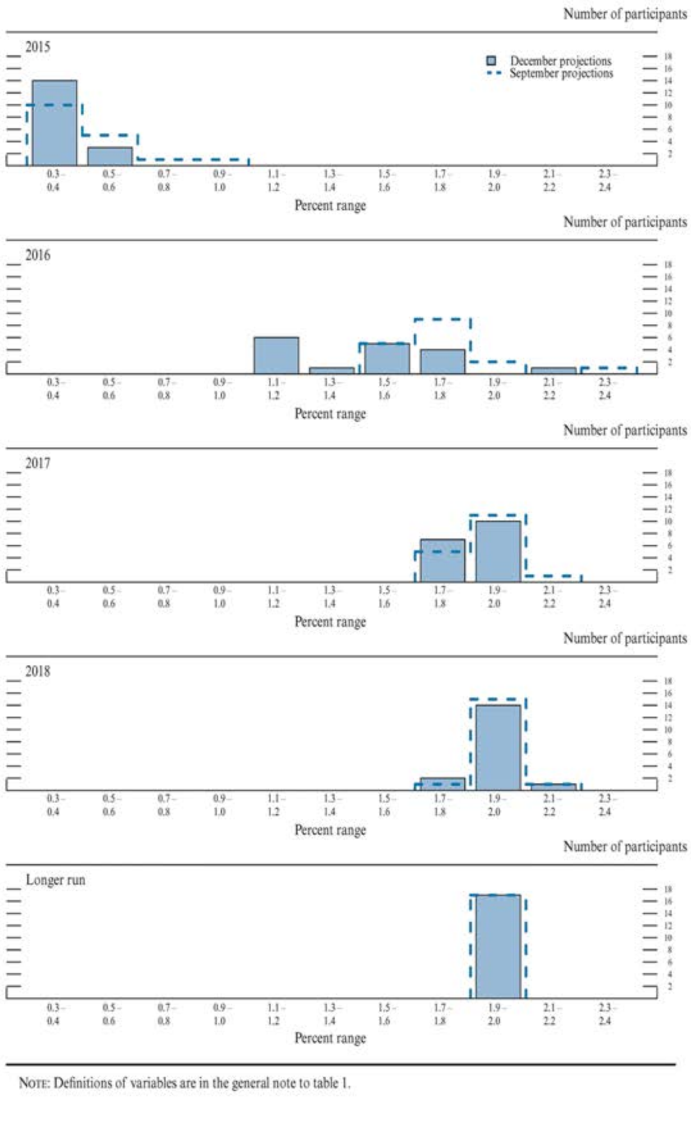
## Appropriate Monetary Policy

Figure 3.E provides the distribution of participants' judgments regarding the appropriate level of the target federal funds rate at the end of each calendar year from 2015 to 2018 and over the longer run. Relative to September, the projections of the appropriate levels of the federal funds rate over the next three years generally shifted to lower values. The median projection for next year was unchanged, but the medians for 2017 and 2018 declined slightly. The median projection now stands at 1.4 percent at the end of 2016, 2.4 percent at the end of 2017, and 3.3 percent at the end of 2018. Given their expectations that economic headwinds will persist and that inflation will rise gradually to 2 percent over the next three years, most participants judged that it would be appropriate for the federal funds rate to remain below its longer-run normal level from 2016 to 2018. Participants projected that a gradual rise in the federal funds rate over that period would be appropriate as some of those headwinds, such as sluggish foreign economic growth, diminish and the temporary factors holding down inflation dissipate. Some participants noted that a gradual increase in the federal funds rate would be consistent with their expectation that the neutral short-term real interest rate will rise slowly over the next few years.

Both the median and the range of participants' projections of the federal funds rate in the longer run, at 3.5 percent and 3 to 4 percent, respectively, were unchanged since September. However, several participants revised their projections for the longer-run federal funds rate slightly lower. All participants judged that inflation in the longer run would be equal to the Committee's objective of 2 percent, implying that their individual judgments regarding the appropriate longer-run level of the real federal funds rate, in the absence of further shocks to the economy, ranged from 1 to 2 percent, the same as in September.

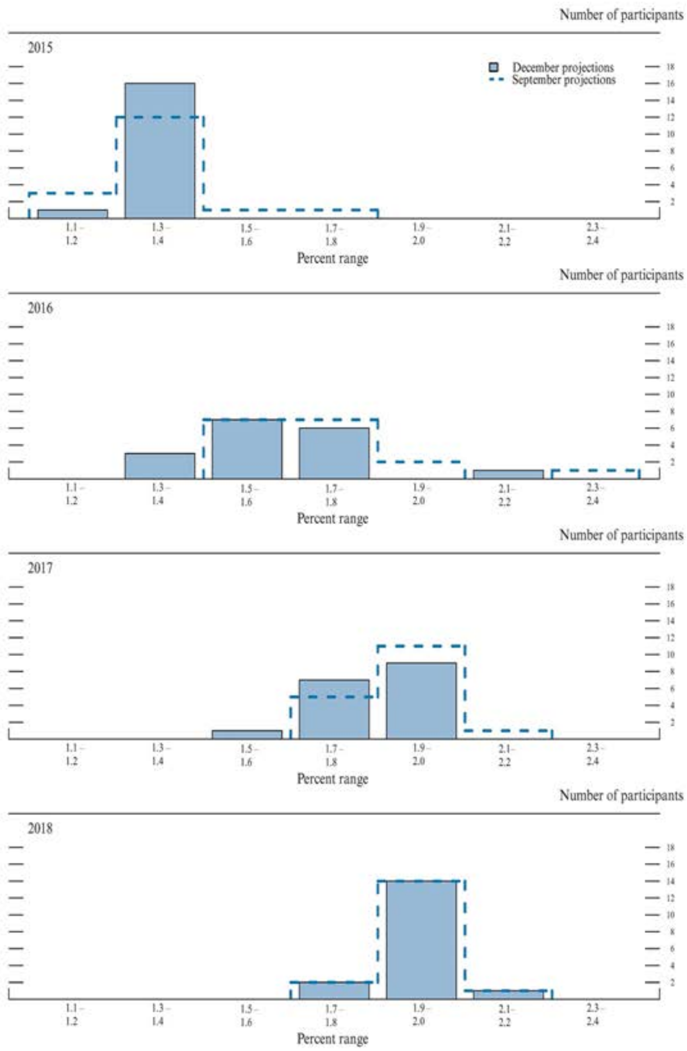
Participants' views of the appropriate path for monetary policy were informed by their judgments about the state of the economy and the outlook for labor markets and inflation. One important consideration for many participants was their estimate of the extent of slack remaining in the labor market, as informed by the incoming data on various labor market indicators. Another

Figure 3.C. Distribution of participants' projections for PCE inflation, 2015–18 and over the longer run



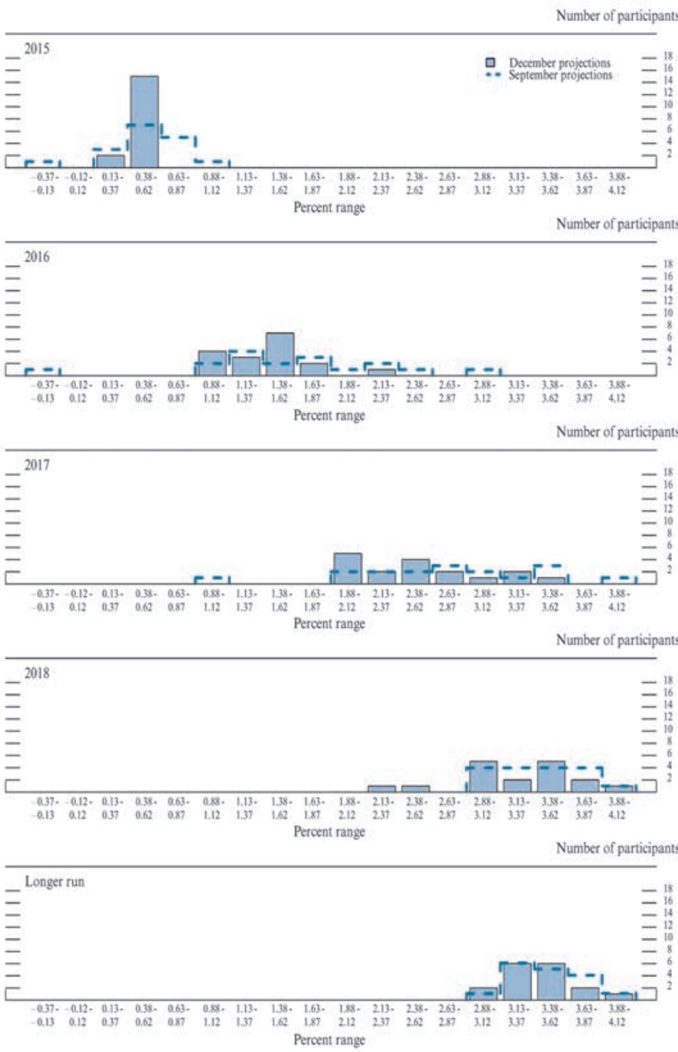

NOTE: Definitions of variables are in the general note to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2015–18




NOTE: Definitions of variables are in the general note to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2015–18 and over the longer run




Note: The midpoints of the target ranges for the federal funds rate and the target levels for the federal funds rate are measured at the end of the specified calendar year or over the longer run.

was prospects for inflation to return to the Committee's objective of 2 percent; in making such assessments, participants considered a range of factors, including measures of inflation compensation and longer-run inflation expectations as well as the likely persistence and size of the effects from low energy prices and the strong dollar. Participants also emphasized the potential for international developments to continue to have important implications for domestic economic activity and inflation and thus for appropriate monetary policy. Several participants discussed potential interactions between policy normalization and risks to financial stability. In addition, given the continued proximity of short-term interest rates to their effective lower bound, asymmetric risks around the outlook for employment and inflation were noted as one reason why a gradual approach to raising the federal funds rate may be appropriate.

## Uncertainty and Risks

As in the September SEP, nearly all participants continued to judge the levels of uncertainty around their projections for real GDP growth and the unemployment rate as broadly similar to the average level of the past 20 years (figure 4).[7] Most participants saw the risks to their outlooks for real GDP growth and unemployment as broadly balanced, as the number of participants who viewed the risks to economic growth as weighted to the downside and the risks to the unemployment rate as weighted to the upside fell appreciably since September. Diminished risks to domestic economic activity from developments abroad and the strength of recent labor market data were among the reasons noted for the more upbeat assessment of risks.

Table 2. Average historical projection error ranges

Percentage points

| Variable | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|
| Change in real GDP[1] | ±0.9 | ±1.8 | ±2.1 | ±2.1 |
| Unemployment rate[1] | ±0.1 | ±0.8 | ±1.4 | ±1.8 |
| Total consumer prices[2] | ±0.2 | ±1.0 | ±1.0 | ±1.0 |

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1995 through 2014 that were released in the winter by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, and consumer prices will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2007), "Gauging the Uncertainty of the Economic Outlook from Historical Forecasting Errors," Finance and Economics Discussion Series 2007-60 (Washington: Board of Governors of the Federal Reserve System, November), available at www.federalreserve.gov/pubs/feds/2007/200760/200760abs.html; and Board of Governors of the Federal Reserve System, Division of Research and Statistics (2014), "Updated Historical Forecast Errors," memorandum, April 9, www.federalreserve.gov/foia/files/20140409-historical-forecast-errors.pdf.

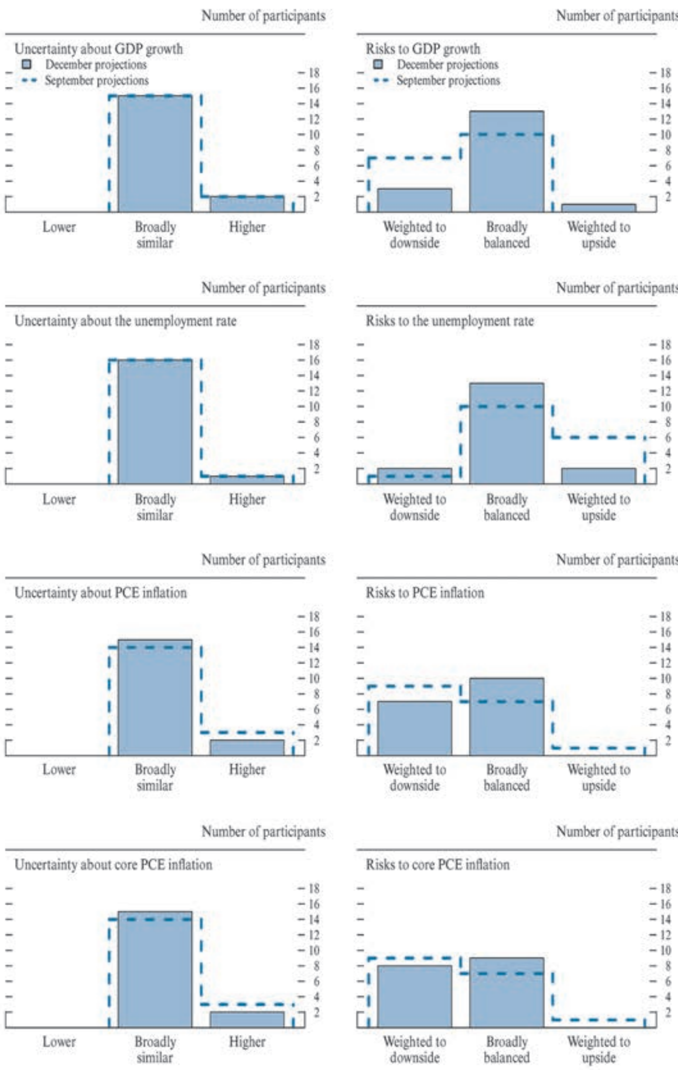
1. Definitions of variables are in the general note to table 1.

2. Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projection is percent change, fourth quarter of the previous year to the fourth quarter of the year indicated.

As in the September SEP, participants generally agreed that the levels of uncertainty associated with their inflation forecasts were broadly similar to the average level over the past 20 years. The number of participants who viewed the risks to their inflation forecasts as weighted to the downside declined slightly since September, and a majority now viewed the risks to both PCE and core PCE inflation as broadly balanced. Among those who saw risks to inflation as tilted to the downside, several highlighted the continued strength of the dollar and some recent indications that inflation expectations had declined as contributing to their perception of those risks.

7. Table 2 provides estimates of the forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation over the period from 1995 through 2014. At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty in the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

Figure 4. Uncertainty and risks in economic projections




NOTE: For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty." Definitions of variables are in the general note to table 1.

## Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee. The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 2.1 to 3.9 percent in the current year, 1.2 to 4.8 percent in the second year, and 0.9 to 5.1 percent in the third and fourth years. The corresponding 70 percent confidence intervals for overall inflation would be 1.8 to 2.2 percent in the current year, and 1.0 to 3.0 percent in the second, third, and fourth years.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty in the past, as shown in table 2. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, participants judge whether each variable is more likely to be above or below their projections of the most likely outcome. These judgments about the uncertainty and the risks attending each participant's projections are distinct from the diversity of participants' views about the most likely outcomes. Forecast uncertainty is concerned with the risks associated with a particular projection rather than with divergences across a number of different projections.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward.

# Abbreviations

| | |
|---|---|
| AFE | advanced foreign economy |
| BHC | bank holding company |
| CDS | credit default swap |
| CMBS | commercial mortgage-backed securities |
| CRE | commercial real estate |
| EME | emerging market economy |
| FOMC | Federal Open Market Committee; also, the Committee |
| GDP | gross domestic product |
| MBS | mortgage-backed securities |
| ON RRP | overnight reverse repurchase agreement |
| OPEC | Organization of the Petroleum Exporting Countries |
| PBOC | People's Bank of China |
| PCE | personal consumption expenditures |
| SEP | Summary of Economic Projections |
| SLOOS | Senior Loan Officer Opinion Survey on Bank Lending Practices |
| SOMA | System Open Market Account |

**"REDUCING THE IOER RATE: AN ANALYSIS OF OPTIONS" MEMO SUBMITTED BY SENATOR TOOMEY**

Authorized for public release by the FOMC Secretariat on 01/29/2016

August 5, 2010

**Reducing the IOER Rate: An Analysis of Options**[1]

Chris Burke, Spence Hilton, Ruth Judson, Kurt Lewis, and David Skeie

This note examines the likely impact that reducing the interest on excess reserves (IOER) rate would have on short-term money market rates and money market functioning, including possible implications for money market funds.[2] Three cases are examined: cutting the IOER rate to a level of about 10 basis points, reducing the rate to zero, and setting a negative IOER rate.[3] We assume that aggregate reserve levels will remain at exceptionally high levels and that discretionary open market operations are not otherwise employed to influence the level of short-term money market rates.

Overall, we would anticipate that cutting the IOER rate by 15 basis points, to a level of 10 basis points, would reduce overnight money market rates by a somewhat lesser amount, likely leaving them in a range centered between 5 and 10 basis points. The greatest potential impacts on financial market structure and functioning might be expected to arise through the effects of lower money market rates on money market funds (MMFs), although on balance we would not anticipate significant disruptions in this case. However, predicting these effects becomes progressively more challenging for levels of the IOER set closer to zero, and uncertainty is compounded by the possible impacts of recent regulatory changes for money market funds.

Setting the IOER rate to zero instead would probably leave short-term money market rates slightly above zero. Trading volumes in overnight markets, particularly bank wholesale funding markets, would likely be much reduced. The potential for investor reallocations out of MMFs would also be greater. Even with reduced trading volumes, the lower short-term rates would still likely be transmitted out the yield curve and hence could result in more accommodative financial conditions. However, the effect would be fairly modest, given the limited room for short-term interest rates to decline.

It is difficult to identify and quantify all of the potential effects of setting the IOER rate below zero. The ability of both depository institutions (DIs) and the public to hold currency would seem almost certain to prevent a sizable negative IOER rate from translating into significantly negative short-term rates. It is possible, but not certain, that setting the IOER rate at modestly negative levels, for example around -10 basis points,

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[1] This note draws on a series of staff memos prepared for the December 2008 FOMC meeting. Those earlier notes did not posit explicit levels for the interest rate paid on excess reserves.

[2] Much of the economic benefit to lowering the IOER rate would depend on its impact on longer-term interest rates, which, in addition to its direct impact on short-term rates, might be affected by the degree to which lowering the IOER rate were also seen as a signal about the future path of policy. However, in this memo, we restrict our analysis to the direct effects on the level of short-term rates, and on whether there could be market disruptions that could interfere with the transmission of lower short-term rates to long-term rates

[3] In all cases, the rate of interest paid on all required reserve balances is assumed to match the IOER rate.

might exert some further modest downward pressure on market rates without inducing institutions and individuals to shift into currency.

**Option 1: Lowering IOER to about 10 Basis Points**[4]

Effects on Rates and Trading Activity in Short-term Funding Markets

If the IOER rate were to be reduced to 10 basis points, average overnight unsecured domestic bank funding rates (U.S.-brokered Eurodollars and federal funds transactions) and secured rates for financing government securities (repo) would in general likely trade in a range slightly below the rate paid on excess reserves, and the same funding patterns that are observed today would likely persist. Experience over the past year suggests that lenders who are not eligible for IOER are often willing to accept yields as low as 5 basis points in the market instead of leaving their funds uninvested, as they still cover their transaction costs and (with the exception of the GSEs discussed below) face risks similar to those of leaving deposits uninvested at their clearing bank.[5] In addition, there have been days when the effective rate was at or only slightly below the IOER rate and even DIs already holding large excess reserve positions have continued to borrow in the federal funds market, suggesting that these institutions are willing to participate in trades at very narrow rate spreads.[6] As a result, a range of 5 to 10 basis points for the effective federal funds rate and other measures of money market rates seems likely.[7]

Thus, we would anticipate that a portion, but not all, of a 15-basis-point reduction in the IOER rate would be reflected in a reduction in overnight money market rates. Some degree of volatility associated with idiosyncratic late-day trading, sharp swings in dealers' collateral positions, statement dates, and other factors would be expected to continue to push rates outside their typical ranges on occasion.[8] With trading patterns not expected to be disrupted in any significant way, we would expect the decline in overnight

[4] While most of the discussion in this section focuses on the specific case of the IOER rate at 10 basis points, the analysis should generalize to IOER rates up to 15 basis points. However, it is not clear to what extent the analysis should generalize to rates below 10 basis points.

[5] Conversations with market participants active in wholesale markets suggests that transactions costs typically account for 1 basis point or less on most wholesale transactions in bank funding and repo markets.

[6] Figure 1 displays the effective federal funds rate and the high and low rates for brokered trades for 2010 to date. The presence in the market of non-IOER eligible participants that seek to invest large balances each day has created arbitrage opportunities for banks to borrow at rates below the IOER rate and maintain those funds as excess reserves, resulting in risk-free earnings.

[7] From December 16, 2008, to July 21, 2010, the daily fed funds effective rate averaged 16 basis points. For much of that period, average daily rates of 14 to 15 basis points were common, but more recently theses rates have been closer to 20 basis points. U.S.-brokered Eurodollar rates have tended to be slightly higher and Treasury repo rates more often somewhat lower than these fed funds levels.

[8] While most borrowing in bank funding markets might continue to occur at market rates slightly below the IOER rate, credit tiering and ongoing needs of some banks to cover their structural deficiencies (even with high aggregate excess reserve levels) would be expected to lead to some trading above the IOER rate.

market rates associated with this cut in the IOER rate to be transmitted across the yield curve just as similar-sized declines occurring at higher rate levels would be.

GSE Participation and Federal Funds Transactions

Evidence suggests that the GSEs, which have the option to hold risk-free balances at the Fed but are not eligible to earn interest on those reserves, would also likely continue to lend to banks overnight in unsecured federal funds transactions if rates were at least 5 basis points or so, but such an outcome is not certain.[9] Over the past year or so, some GSEs have occasionally preferred to leave cash at the Fed rather than lend when overnight market rates have fallen below 10 basis points or so, and staff conversations have confirmed that this placement of funds at the Fed has been a deliberate strategy for some individual GSEs. However, it is unclear to what degree this behavior reflects a strategic bargaining posture with borrowing institutions rather than solely a judgment about the risk-adjusted profitability of placing funds on an unsecured basis at rates below 10 basis points. Indeed, we have also observed lending by individual GSEs in unsecured markets at rates well below 10 basis points, and some recent discussions with GSEs indicate that the absolute lower bound of rates at which they would be willing to make fed funds sales could even be below 5 basis points. Nonetheless, the GSEs might reduce their lending in overnight markets if the rates they received were consistently below 10 basis points.

If the GSEs were to reduce or cease their lending into the market, volume in the brokered federal funds market would be significantly reduced. This change would likely make the calculated effective federal funds rate less representative of broader market conditions, and therefore of less use for the FOMC's policy deliberations. GSEs account for a substantial, though not precisely known, share of brokered federal funds transactions. If fed funds transactions volume were to decline substantially, the daily effective rate might become more influenced by idiosyncratic late-day trades.[10] But apart from the possible effects on the calculation of the daily effective federal funds rate, the withdrawal of GSEs from fed funds lending is not necessarily problematic. GSE lending makes up a relatively small portion of total lending in overnight wholesale funding markets. As a result, the overall functioning of money markets, and in particular the ability of financial institutions to obtain funding in these markets to cover structural balance sheet deficiencies, would not likely be harmed.

[9] Reactions by GSEs could vary, as their lending behavior in different markets is not homogeneous. Also, GSEs might have a slightly lower rate threshold for curtailing lending in secured markets than in unsecured markets, although even repo transactions against Treasury collateral are not generally viewed as being entirely free of risk.

[10] In particular, late-day trading could impart some upward bias to the effective funds rate as a measure of the central tendency for overnight rates, as late-day trades, which sometimes occur at relatively high rates when banks struggle to cover unexpected deficiencies in illiquid market conditions, would account for a greater share of total transaction volume. For this reason, and for other considerations raised elsewhere in this note, if policymakers wished to continue to identify a range of effective federal funds rate outcomes with its policy stance, they may wish to set the upper end of that range slightly above the IOER rate. Alternatively, a different market rate reference or objective might be adopted.

Impact on Money Market Funds

The greatest potential impacts on financial market structure and functioning might be expected to arise through effects of lower money market rates on money market funds (MMFs). These funds currently have about $2.8 trillion in assets under management, with about $360 billion held in Treasury-only and Treasury-repo ("Treasury-focused") funds and about $1.6 trillion held in "prime" funds (Figure 2). The amounts invested in funds of this type have dropped considerably since early 2009, shortly after the IOER rate was reduced to 25 basis points, apparently reflecting investors' attempts to obtain higher yields on alternative assets. In general, the pace of runoffs at money funds has moderated in recent months.

Very low short-term interest rates have already reduced revenues for nearly all MMFs. Yields on MMFs' portfolio instruments have fallen short of the fees they normally charge, and many fund managers have waived fees to prevent negative net yields. Further declines in short-term rates would likely trigger additional outflows and further reduce industry revenues. Based on comparisons of current MMF expense ratios with those that prevailed in August 2008—when money market yields generally exceeded all MMF expense ratios—it appears that fees have been reduced for at least one third of all current MMF assets under management.[11] Pressures have been, and would continue to be, most pronounced in Treasury-focused MMFs, where such fee reductions affect about two-thirds of assets. To a lesser degree, other types of MMFs, such as government and agency as well as tax-exempt funds, would also come under significant additional strain such that further prolonged low interest rates could potentially generate some consolidation and liquidations. In contrast, prime MMFs are likely to be more resilient to the types of reductions in short-term rates that would be result from a lower IOER rate.

Even with further declines in revenues, it remains unclear whether fund sponsors would opt to close MMFs. In early 2009, several fund managers indicated that they believed that Treasury-focused MMFs could survive roughly a year in the current low interest rate environment, but fund closures have been minimal to date. Fund sponsors' decisions to keep MMFs open likely reflect more than just a profit-loss determination at individual funds.[12] The value of maintaining MMFs as part of a menu of investment products may be important for asset managers, and sponsors may choose alternatives to fund liquidation to avoid losing customers and business lines.

On balance, we would expect declines in short-term market rates associated with a cut in the IOER rate to a level of 10 basis points to prompt additional outflows from MMFs as investors seek higher yields. At the same time, the prospect of some fund closures would have to be countenanced, with Treasury-focused funds likely the most affected.

[11] This figure is calculated by summing the assets under management in all of the funds for which the current gross yield falls short of the expense ratio reported in August 2008, and likely under-represents actual fee reductions.

[12] For example, some money fund managers have closed Treasury as well as government and agency funds to new investors but have kept them open for existing investors.

However, we would expect MMFs to remain a significant source of funding in short-term money markets, albeit at possibly reduced levels.

Effects of Changes in Money Market Funds on Money Markets

Although severe further attrition within the money fund industry as a whole is not seen as a likely outcome of lowering IOER to 10 basis points, this possibility cannot be excluded. To the degree that shareholders in MMFs instead invest directly in money market instruments, asset holdings and trading flows and relationships might shift, with some degree of temporary disruption possible. But after these adjustments, the remaining impact on money market rates should be limited. Treasury-focused funds, which are most likely to be significantly affected by lower rates, have a very limited effect on the market for Treasury securities because these funds hold a relatively small share of outstanding Treasury bills. Institutional investors hold over 75 percent of the money in Treasury-focused funds, and many of these investors probably could participate directly in the underlying markets.

The consequences could be somewhat different in the event of large-scale attrition or liquidation of MMFs if investors re-allocated their funds mostly into bank deposits or other bank liabilities rather than directly into wholesale money markets. This outcome seems more likely for retail investors, who represent about one-third of the assets under management at MMFs and who likely would be less able to participate directly in these wholesale money markets. Instead of lending in money markets, banks would have the option to earn 10 basis points risk free by holding these funds, and would therefore not have the same incentives to recycle funds previously invested in MMFs at rates lower (or even just slightly higher) than the IOER rate. In such a case, institutions with large structural deficiencies, such as securities dealers, might have to pay rates slightly above the IOER rate to obtain funding. Thus, at positive IOER rate levels, a large scale re-allocation of some short-term funds away from MMFs into banks would tend to partially countervail the downward pressure on overnight funding rates of a reduced IOER.

**Option 2: Lowering the IOER Rate to Zero**

Effects on Short-Term Money Market Rates and Trading Flows

Cutting the IOER rate to zero would remove incentives that banks currently have (and would still be expected to have even at an IOER rate of 10 basis points) to borrow in the market in order to arbitrage between funding rates and the IOER rate, eliminating one current source of demand in funding markets. However, financial institutions that rely on money markets to cover structural balance sheet deficiencies, including securities dealers and some banks, would still demand overnight and other short-term financing. Thus, we would anticipate that overnight money market rates could fall to the minimal levels needed to induce prospective lenders (which would now include banks holding sizable surplus reserves) to lend, which could be at rates as low as 5 basis points or even somewhat less.

Volumes in the overnight bank funding market (including both U.S.-brokered Eurodollar and federal funds transactions) could drop off significantly as banks ceased to arbitrage funding markets to earn the rate paid on excess reserves. Associated with this decline in trading volume could be some atrophying of the supporting infrastructure, which could have longer-run implications for market functioning (including changes possibly associated with shifts in funding out of MMFs, which are discussed below).[13] Borrowing volumes by dealers in secured funding markets would likely be much less affected.[14] GSEs might remain participants in secured overnight money markets, and banks might even be induced to re-enter these markets as lenders more regularly. But while incentives for money market trading might be lessened or removed, we would not anticipate that this would cause rates in the overnight sector to become de-linked from longer-term rates.

Effects on MMFs

Previous research projected nearly complete revenue losses for Treasury-focused funds at effective market rates in the low single digits.[15] Such losses could be enough to lead to widespread closures of these funds, although prime funds would likely continue to function despite some additional revenue losses with the IOER rate at zero. Even if MMF sponsors were willing to absorb the revenue losses associated with lower market rates, the lower returns to investors on these funds and even the reduced lending opportunities these funds could face might lead to a potentially substantial acceleration in money fund outflows into direct trading or bank liabilities. To an even more substantial degree than would be anticipated in the case where the IOER rate were cut to just a modestly positive level, MMF liquidations would be likely to prompt a significant reallocation into bank deposits. But unlike the case in which the IOER rate is left at a modestly positive level, banks would have an incentive to reinvest these funds at prevailing money market rates.

Additional Effects

A cut in the IOER rate to zero, associated declines in short-term market rates, and increasing inflows into bank deposits could have important implications for the banking sector.[16] Deposit inflows would reduce bank leverage ratios, although for the most part these ratios are comfortably above regulatory standards. With money market yields declining, rates on deposit liabilities already at or near zero, and the spread between the

[13] After the Bank of Japan's quantitative easing policy ended, money market activity generally recovered, although uncollateralized trading volumes never fully returned to earlier levels. However, there are some significant differences between Japanese and U.S. institutional arrangements. For more detail, refer to "Japanese Money Markets during Periods of Low or Zero Interest Rates," Fang Cai and Clara Vega, memo to the FOMC, December 5, 2008.

[14] This discussion largely assumes that cutting IOER to zero would not directly affect the incentives that borrowers in these markets might have to change their reliance on these funding markets. It is not obvious, for example, whether dealers would have a clear incentive to either increase or decrease their securities inventories. However, narrowing and even reversing the spread between the IOER rate and overnight funding rates could alter banks' demand for and the distribution of excess reserves.

[15] "Effects of Very Low Policy Rates on Money Market Funds," Patrick Dwyer, Patrick McCabe, Brian Mulligan, and Steve Oliner. Memo to the FOMC, December 5, 2008.

[16] To a lesser degree, some of these effects would likely materialize even with smaller cuts in the IOER rate.

IOER rate and rates in wholesale funding markets likely to narrow, banks' net interest margins could decline somewhat.[17] Banks are likely to respond to these pressures by cutting effective returns on bank deposits and by raising service charges where possible to offset their impact on bank balance sheets and spreads. Public demand for currency could expand, although Japan's experience with near-zero rates for many years does not suggest that currency demand would likely create severe distortions.

One previous concern, the possible impact on Treasury market liquidity of very low market rates, would likely be greatly eased because of the recent adoption of a penalty fee for delivery fails on trades in Treasury cash and repo markets. Absent this penalty, liquidity in Treasury cash markets had suffered in low interest rate environments in the past as the effective cost for fails was very low and the incidence of such fails increased substantially. The penalty fee appears to have been effective in reducing the incidence of delivery fails in the current low rate environment, and it would be expected to remain effective even if the IOER rate were set to zero. However, other financing markets, including those for MBS, would remain vulnerable to this risk. Indeed, the level of fails in the agency MBS market is already very elevated.

**Option 3: Lowering the IOER Rate below Zero**

Negative IOER in Other Countries

Assessing the possible impact of a negative IOER rate is challenging because there is virtually no domestic or international experience with negative policy rates on which to draw. In Sweden, the Riksbank has, since July 2009, maintained a negative interest rate on excess deposits held overnight by DIs. However, the Riksbank's daily and weekly market operations are aimed at maintaining overnight rates within a corridor whose lower bound is positive. The deposit facility, for which the rate is negative, is normally little used, and its rate thus has little direct impact on market rates. The Bank of England reportedly considered a negative rate target in its internal deliberations, but never implemented such a policy.

Legal and Practical Obstacles for Setting the IOER Rate Below Zero

There are several potentially substantial legal and practical constraints to implementing a negative IOER rate regime, some of which would be binding at any IOER rate below zero, even a rate just slightly below zero. Most notably, it is not at all clear that the Federal Reserve Act permits negative IOER rates, and more staff analysis would be needed to establish the Federal Reserve's authority in this area. In addition, the Federal Reserve computer systems used to calculate and manage interest on reserves do not currently allow for the possibility of a negative IOER rate, although these systems could be modified over time if needed.[18] Moreover, if negative IOER rates were to pull Treasury bill yields into negative territory, the Treasury would encounter difficulties

[17] With $1 trillion of excess reserves, elimination of a 5-basis-point spread between the IOER rate and bank funding costs, which may approximate the effective current spread, would represent a net annual loss of $500 million to the banking sector, or about 0.4 basis points on industry ROA.

[18] A rough estimate is that a few months would be required to make the needed system changes.

because it cannot accept negative rates at its auctions, although presumably it could modify its systems as well. Finally, as discussed further below, at sufficiently negative IOER rates, DIs might opt to shift a significant quantity of their reserve balances into currency. Present Federal Reserve inventories of currency, at about \$200 billion, would not be adequate to cover large-scale conversion of the nearly \$1 trillion in reserve balances to banknotes.[19] While the operational and legal impediments to a negative IOER rate are likely to be significant, for the remainder of this discussion we will assume that they can be overcome.

Currency and Substantially Negative IOER Rates

The ability of both DIs and the public to hold currency in place of any instrument yielding a negative return could prevent a sizable negative IOER rate translating into significantly negative short-term rates. With sufficiently negative IOER rates, DIs would substitute currency in the form of vault cash for reserve balances on a substantial scale to evade the costs associated with holding reserve balances, thereby significantly reducing reserve levels. In addition to reducing the total costs DIs face as a result of a negative IOER rate, sharply lower levels of reserve balances would likely prevent reductions in the IOER rate from being fully passed through to short-term market rates. At the same time, investors, including bank depositors, could counter attempts by banks to pass along a large negative IOER rate in the form of sharply higher service fees by increasing their own holdings of currency, subject to their own storage costs, which would further reduce reserve balances.

The exact point at which it would become cost effective to convert reserve balances to currency is uncertain, though it would presumably differ from bank to bank. For large denominations, the cost of shipping banknotes is on the order of one basis point; in addition, banks would have to cover the costs of storing additional vault cash holdings, which are in the range of 3 basis points per month (36 basis points per year).[20] Thus, a

[19] Production capacity for \$100 bills, the largest denomination in production, is uncertain, but is no more than \$500 billion per year. In the extreme, presumably production of larger-denomination banknotes could be reinstated, but at least one year's lead time would be required before production of such notes could begin. There is precedent for the use of denominations up to \$10,000 in general and for denominations up to \$100,000 for transactions between the Federal Reserve and the Treasury. In addition, the information that currency production is being ramped up substantially, or that any other changes to banknote management are being made, could have large and unpredictable consequences if such changes were misinterpreted as pointing to higher inflation.

[20] These estimates are very rough and are based on rental of space for relatively small volumes of notes. It is not clear whether costs would increase linearly or at a higher or lower rate for larger volumes. We would not anticipate that DIs would be moving currency back and forth between their vaults and the Federal Reserve in response to short-term payment flows, which would entail higher transportation costs, but rather would adopt reserve management strategies that would primarily involve increasing currency holdings and working with the implied lower reserve balances over extended periods. Specifically, we would anticipate that profit-maximizing DIs would manage their currency inventories conditional on transportation and storage costs for banknotes, the IOER rate, borrowing rates, and daylight and overnight overdraft fees. In addition, it should be noted that the Federal Reserve's existing custodial inventory program allows DIs to convert some denominations of currency held in their vaults to balances without physically moving it.

negative IOER rate below about -35 basis points might have the potential to trigger a significant reduction in banks' reserve balance holdings, at least among those that actively manage their accounts. The aggregate effect of DIs' actions to convert reserve balances to currency on a large scale would tend to counteract the effect a negative IOER rate would have on funding rates.[21]

Impact of a Modestly Negative IOER on Short-Term Interest Rates

At a modestly negative IOER rate, that is, between 0 and -30 basis points, DIs might not find it cost-effective to convert a significant portion of their excess reserves to currency, and such a rate could put some further downward pressures on short-term rates. In addition, whether or not most excess reserves were converted to vault cash, any negative IOER rate would still affect banks reaching the end of the day with excess balances from either supply shocks or intentional buffer stocks. These banks would face lower rates in a negative-IOER environment, and moderate further declines in short-term rates could potentially occur. Additionally, a negative IOER rate would likely result in attempts by DIs to pass along the costs associated with holding excess reserves to investors and depositors, and could induce some trading in short-term markets at negative rates, although competitive pressures and the expected duration of the negative rate would likely play a role in determining the actual impact on rates.[22]

The degree to which a modest reduction in the IOER rate below zero would put further downward pressure on market rates is uncertain and would be importantly affected by the presence of IOER-ineligible firms (the GSEs and FHLBs in particular), which would tend to limit the size of a possible pass-through to market rates.[23] If a negative IOER rate did not apply to these institutions, they would be in a position to arbitrage the reserves market, accepting balances from market participants at rates just slightly below zero to earn a risk-free zero return. In the limit, these non-IOER participants could hold nearly all excess balances, severely limiting any pass-through from a negative IOER rate to negative market rates.[24] However, it is difficult to know the extent to which these participants would be willing to expand their balance sheets in order to conduct such arbitrage.

[21] The impact of lower reserve levels on market rates is difficult to anticipate. Market rates will depend on the levels of the primary credit and IOER rates (assumed to be modestly positive and negative, respectively), the distribution of reserve shocks DIs face, and their level of reserve balances. A lower level of balances is expected to be associated with higher market rates. However, this effect might not be pronounced unless reserve levels fell well below current levels.

[22] Banks and bank holding companies have a number of options for passing along costs to their customers and counterparties, including higher account fees and lower deposit rates. It is not obvious how banks would choose to operate in this case.

[23] In addition to the possible changes in GSE and FHLB behavior, foreign private institutions, if faced with actually earning negative rates, could lobby their home country central banks to offer dollar-denominated accounts at zero or just slightly negative rates, with those central banks holding balances on deposit at the Fed at a zero rate.

[24] Recall that the counterparty restrictions for the GSEs limit only lending counterparties; any institution is in a position to lend funds to the GSEs.

The preceding discussion has focused on the implications of the availability of currency and the possible activities of the GSEs for the impact of a negative IOER rate on market rates. It suggests that negative IOER rates are unlikely to reduce market rates dramatically more than an IOER of zero. However, that result hinges on the exact level of rates that would trigger large-scale shifts from reserves into currency, and on the behavior of non-IOER participants in funding markets. Beyond their possible effect on market interest rates, negative IOER rates would likely result in dramatically reduced trading volumes in funding markets, as in the case with the IOER rate set to zero, and in further reductions in the profitability of MMFs, with an increased likelihood that some MMFs, especially Treasury-focused funds, would leave the market.

**Figure 1**

Brokered Federal Funds Trading Rates with Interest on Excess Reserves at 25 Basis Points

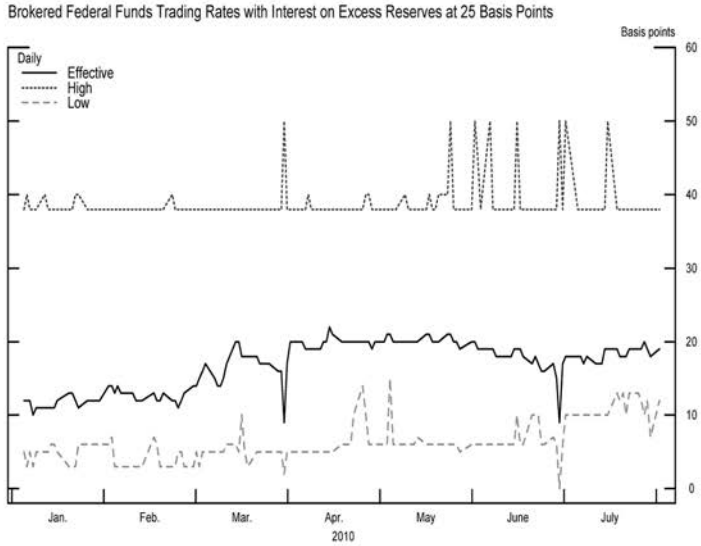
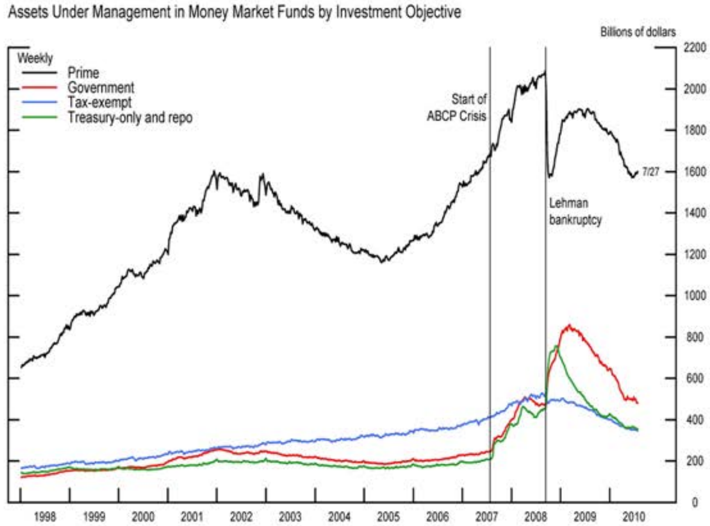



**Figure 2**

Assets Under Management in Money Market Funds by Investment Objective




Source. iMoneyNet.

**STATEMENT OF THE FINANCIAL INNOVATION NOW COALITION SUBMITTED BY SENATOR BROWN**

FINANCIAL INNOVATION NOW

**Statement for the Record**

The Financial Innovation Now (FIN) Coalition would like to thank Chairman Shelby, Ranking Member Brown, and members of the Senate Banking Committee for holding this hearing today and submitting this statement for the record. FIN also thanks Federal Reserve Chair Janet Yellen for her testimony.

FIN is an alliance of technology leaders working to modernize the way consumers and businesses manage money and conduct commerce. We believe that technological transformation will make financial services more accessible, safe, and affordable for all.[1]

We would like to take this opportunity to highlight the very important work the Federal Reserve Board is doing through the Faster Payments Task Force, of which FIN is a member.

The Federal Reserve established the Faster Payments Task Force (the Task Force) in January 2015 with the mission to "identify and evaluate alternative approaches for implementing safe, ubiquitous, faster payments capabilities in the United States."

The mission of the Task Force is critically important to commerce here in the United States and our competitiveness globally. However, FIN believes faster payments are also of utmost importance to the financial health of the 24.8 million[2] underbanked families and young adults across the United States. Making payments better for these households should be a high priority for the Task Force.

While the use of checks has been in decline, $535 billion in checks are still cashed, rather than deposited, annually.[3] That is partly because funds from checks totaling more than $200 deposited into large banks will take more than one business day to become available[4] and can sometimes take up to five business days.[5] If a weekend or bank

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[1] https://www.financialinnovationnow.org

[2] See *2013 FDIC National Survey of Unbanked and Underbanked Households*, Oct. 2014.

[3] "Deposit Is Out. Instant Is Ingo." *Ingo Money*. http://www.chexar.com/business/check-cashing-instant-deposit/

[4] Kim, Theresa. "How Long It Takes a Check to Clear at Top 10 Banks" MyBankTracker, 27 Nov. 2013. http://www.mybanktracker.com/news/2013/11/27/long-takes-check-clear-top-10-banks/

[5] Bernardo, Richie. "Funds Availability: When Will Your Deposit Clear?" WalletHub, Web. 04 Feb. 2016. https://wallethub.com/edu/available-funds/11314/

holiday falls within that timeline, a customer might wait up to a week to access to the funds from their own paycheck.

In fact, over half [6] of the adult population faces these cash flow problems every day, and instead turns to high-cost check-cashing or small-dollar loan alternatives. An FDIC study found that 60% of customers using non-bank check cashing services already have an account and a relationship at a financial institution. In other words, people are willing to pay hundreds in fees just for instant access to their own money.

What is most important to note is that consumers are not incurring these fees because of an extravagant, unaffordable lifestyle. Roughly 69% of first-time users of short-term loans said they used the loans to cover a recurring expense, such as rent or utilities, and 16% are using the loans to meet an unexpected but necessary expense.[7]

These delay-induced fees and cash flow problems are unacceptable in 2016, when a person can send an email or text in seconds with the ease of a smartphone, tablet or desktop computer. FIN believes that, as policymakers grapple with meeting the needs of the financially underserved, they should explore ways to leverage modern connectivity to overcome traditional barriers to financial services, and provide secure, convenient and cost-effective financial services, especially to those with greatest need.

Given the 138 million consumers facing these and other cash flow roadblocks everyday, we hope that Chair Yellen and members of the Task Force make expanding financial inclusion and meeting their needs an integral part of their mission. Further, as participants of the Task Force, we look forward to supporting the Federal Reserve in that mission.

Thank you again Mr. Chairman and Chair Yellen for your time today.

[6] Exact number is 57%. "Deposit Is Out. Instant Is Ingo." *Ingo Money*. http://www.chexar.com/business/check-cashing-instant-deposit/

[7] *How Borrowers Choose and Repay Payday Loans*. Washington, DC: Pew Charitable Trusts, 2013. 9. Print.