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UNWINDING QUANTITATIVE EASING: HOW THE FED SHOULD PROMOTE STABLE PRICES, ECONOMIC GROWTH, AND JOB CREATION

HEARING

BEFORE THE

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JOINT ECONOMIC COMMITTEE

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UNWINDING QUANTITATIVE EASING: HOW THE FED SHOULD PROMOTE STABLE PRICES, ECONOMIC GROWTH, AND JOB CREATION

WEDNESDAY, MARCH 26, 2014

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, DC.

The committee met, pursuant to call, at 2:50 p.m. in Room 216 of the Hart Senate Office Building, the Honorable Kevin Brady, Chairman, presiding.

Representatives present: Brady of Texas, Paulsen, Carolyn B. Maloney, and Delaney.

Staff present: Doug Branch, Gail Cohen, Carroll Conor, Al Felzenberg, Niles Godes, Colleen Healy, Christina King, J.D. Mateus, Robert O'Quinn, and Andrew Silvia.

OPENING STATEMENT OF HON. KEVIN BRADY, CHAIRMAN, A U.S. REPRESENTATIVE FROM TEXAS

Chairman Brady. Good afternoon, everyone. I apologize about the delay from the vote series. It went so long, it was like quantitative easing: I never knew, you know, when it might end, but it has.

[Laughter.]

Thank you for your patience, to former Chair Maloney, to the Members, distinguished witnesses:

The subject of today's hearings is how the Federal Reserve should proceed to normalize monetary policy after the extraordinary actions taken during and after the Great Recession—consistent with promoting stable prices, economic growth, and of course jobs creation in America.

Three months ago the Federal Open Market Committee began to taper its large-scale asset purchase program known as quantitative easing. Financial market participants anticipate the program's termination before the end of the year. Yet, ending quantitative easing is simply the first step toward normalizing monetary policy.

The FOMC will also have to raise its target rate for federal funds to a level consistent with long-term price stability. And then, as it presumably allows its mortgage-backed securities to gradually unwind, it will have to deal more proactively with its unprecedented build up of excess bank reserves—currently at a stunning $2.64 trillion. These excess reserves represent the fuel for significant price inflation.

We truly live in challenging economic times. The United States suffers from a massive Growth Gap: missing 5.6 million private sector jobs and $1.3 trillion in real GDP as compared with the average recovery of the past 50 years.

Using the same comparison, families are struggling with a cumulative loss of $8,961 per person in real disposable income since the end of the Recession.

The slow-growth economic policies pursued by President Obama bear responsibility for this Growth Gap—policies such as higher taxes on small businesses, capital gains, and dividends; the Affordable Care Act; resisting the development of traditional energy sources on federal lands; and the onslaught of anti-growth regulations.

The Federal Reserve both contributed to the cause of the financial crisis and deserves praise for its extraordinary actions at the height of panic in 2008 which helped to stabilize financial markets. However, more than four years after the recovery began, the benefits from quantitative easing and extraordinarily low interest rates have diminished.

The Fed's policies have boosted Wall Street but left Main Street and middle-class families behind. Since the Recession ended, the current return adjusted for inflation on the S&P 500 is 98 percent. Real disposable income per person has risen by a meager 3.6 percent.

Ultimately, though an accommodative monetary policy may cushion real output and employment in the short term, it can't stimulate real output in employment over the long term. Sound monetary policy can't compensate for bad spending, tax, trade, and regulatory policies.

Meanwhile, the benefits are diminishing and the risks are rising from quantitative easing and extraordinarily low interest rates. I am concerned that the FOMC may be unintentionally inflating new asset bubbles and possibly setting the stage for significant price inflation and a further decline in the purchasing power of the dollar.

Today's hearing addresses a topic that should be of great interest to Americans from all walks of life. The Federal Reserve operates under a dual mandate for monetary policy—established in 1977—which gives equal weight to achieving long-term price stability and the maximum sustainable level of output and employment.

Yet as Federal Reserve Chairman Paul Volcker and Alan Greenspan correctly foresaw, monetary policy could contribute to achieving full employment if, and only if, the Federal Reserve focused solely on price stability.

Under their guidance, the Fed turned to an increasingly rules-based monetary policy. The results were outstanding: low inflation, and two long and strong expansions interrupted only by a brief, shallow recession.

Since the Great Moderation, monetary policy has again become discretionary and interventionist. Not surprisingly, the results are disappointing.

Beginning in 2008, the Fed explicitly deviated from the Volcker-Greenspan view, invoking the employment half of its mandate to justify its extraordinary actions.

Now we approach the end of quantitative easing. For three consecutive meetings, the FOMC has announced incremental decreases of $5 billion in its monetary purchase of both federal agency mortgage-backed securities and long-term Treasury securities.

Yet the complex and uncertain task of unwinding quantitative easing remains. As of March 19th, the Fed's balance sheet was $4.26 trillion—more than quadruple its September 3, 2008, level; and excess bank reserves held at the Fed is $2.64 trillion, compared with the meager $11.9 billion in September of 2008.

I will be very interested to hear our witnesses' views on how monetary policy should be normalized, and I am hopeful that they can also help us gain insights on how the FOMC should respond if current forecasts are wrong and significant price inflation materializes.

Also I am very interested in our witnesses' thoughts on the economic effects of financial repression—particularly paying higher interest rates to keep bank reserves from flowing into the economy; and any thoughts on the Fed turning toward using reverse repos instead of the Fed Funds Rate, as a tool to affect interest rates.

While the Federal Reserve—I say this often—while the Federal Reserve is supremely confident that it can end the bond buying, normalize interest rates, sell the mortgage-backed securities back into the market, and finesse the excess bank reserves while improving the economic and avoiding inflation, I am not so confident.

Today we are joined by two very distinguished and veteran Joint Economic Committee witnesses. Dr. John Taylor is the creator of the Taylor Rule that Central Banks have used to implement a rules-based monetary policy, and Dr. Mark Zandi is the Chief Economist of Moody's Analytics and highly respected. We are fortunate to have them with us.

With that, I look forward to their testimony and I would like to yield to the former Chair of the JEC, Congresswoman Maloney.

[The prepared statement of Chairman Brady appears in the Submissions for the Record on page 20.]

OPENING STATEMENT OF HON. CAROLYN B. MALONEY, A U.S. REPRESENTATIVE FROM NEW YORK

Representative Maloney. Well thank you, Mr. Chairman.

I do want to note that Vice Chair Klobuchar could not be here today, and I am pleased to stand in for her this afternoon. I thank Chairman Brady for calling this hearing to continue our Nation's continuing to examine our Nation's monetary policy and its effect on the economy.

We have come a long way since January of 2009 when the economy shed 821,000 private-sector jobs a month. And you see it in this chart, the deep red valley, and then climbing our way out.

In the Fall of 2009, CEA Chair Christina Romer testified before the JEC that the shocks that hit the U.S. economy in the Fall of 2008 were larger than those that caused the Great Depression, with household wealth falling by more than five times the declines seen in 1929.

A large part of the credit for this turnaround is due to actions taken by the Congress, the President, and the Federal Reserve.

Congress enacted policies that supported struggling families and encouraged job creation.

I only have time to mention a few of them. We provided tax relief in the Recovery Act for 95 percent of American families, and created jobs while investing in clean energy infrastructure and education.

We extended a host of safety net programs that helped struggling families weather the economic downturn. We extended the net operating loss carryback provision that helped keep small businesses working and allowed them to hire new employees.

We gave tax breaks to businesses that hire unemployed workers, and we boosted funding for small business loans via the Small Business Administration.

We are fortunate to have Mark Zandi as a witness at this hearing today. Dr. Zandi, along with Dr. Alan Blinder of Princeton University, quantified the impact of these policies, as well as actions taken by the President and the Federal Reserve, and concluded that the U.S. Government's response to the financial crisis prevented another Great Depression and saved about 8.5 million jobs.

The Fed responded aggressively with creative and effective actions to inject liquidity into our financial system which saved our Nation from economic catastrophe. More recently, the Fed has used other unconventional means to bolster the economic recovery.

In 1977, Congress enacted legislation that spelled out in greater detail the Fed's monetary policy objectives, collectively known as "The Fed's Dual Mandate."

These objectives are to, and I quote: "Promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

While it is true that in recent years the Fed has implemented some extraordinary monetary policies, these actions were necessitated by extraordinary circumstances. And it has helped stabilize our economy during this crisis and its aftermath.

While our recovery from the 2008 financial crisis has been long and painful over the last four years, the economy has added 8.7 million private-sector jobs.

The national unemployment rate of 6.7 percent has dropped more than 3 percentage points since the height of the downturn. The Gross Domestic Product has grown for 11 straight quarters. And the Council of Economic Advisers told this Committee two weeks ago that they project stronger growth in 2014.

In addition, the inflation fears put forward by critics of the Fed's policies are simply baseless. Inflation is low, about 1 percent over the past 12 months. And there are no signs of a rise in inflation for the foreseeable future.

The one area of our economy that continues to struggle is employment. I commend former Chairman Bernanke, Chair Yellen, and the other Federal Reserve Governors for continuing to pursue the objective of maximum employment.

The Fed lowered short-term interest rates to close to zero, which helped strengthen the economy by keeping borrowing costs affordable for businesses and consumers. This has spurred investment and consumer spending.

The Fed's purchases of Treasuries, mortgage-backed securities, and agency debt also known as quantitative easing, helped bring down long-term interest rates and lowered mortgage interest rates.

Because the economy has strengthened, the Fed announced in December that it was reducing its purchases under quantitative easing. Last week the Fed announced that it was further reducing its purchases under quantitative easing to $55 billion each month.

I look forward to a discussion on the timing and pace of the tapering of the quantitative easing and whether tapering has had an impact on mortgage interest rates or on overall economic growth.

Last month I asked Chair Yellen whether the Fed would consider a tapering pause, given the relatively weak job reports this winter. And although Chair Yellen did not think the current data warranted a pause, I would like to discuss with our panel what criteria the Fed should be looking for.

The Fed also changed its forward guidance on short-term interest rates. Instead of keeping the Fed Funds Target Rate near zero until the unemployment rate reaches 6.5 percent, or until a particular date in the future, the Fed recently stated that: "even after employment and inflation are near mandated consistent levels, economic conditions may for some time warrant keeping the Federal Funds Rate below levels the Committee views as normal in the longer run."

I would like the panel's opinion on that change, as well. Again, I thank the witnesses for joining us, and I yield back and look very much forward to your testimony. Thank you both, Dr. Taylor and Dr. Zandi, for joining us.

Chairman Brady. Thank you, former Chair.

Dr. John Taylor is the Mary and Robert Raymond Professor of Economics at Stanford University and the George P. Shultz Senior Fellow in Economics at the Hoover Institution. He previously served as Under Secretary of the Treasury for International Affairs, Senior Economic on the President's Council of Economic Advisers, and as a member of the Congressional Budget Office's Panel of Economic Advisers. Dr. Taylor received a BA in Economics from Princeton University, and a Doctor of Economics from Stanford University.

Welcome, Dr. Taylor.

Dr. Zandi is Chief Economist for Moody's Analytics. He has analyzed the economic effect of various tax and government spending policies and assessed the appropriate monetary policy response to bubbles in asset markets.

Dr. Zandi earned his Bachelor's from Wharton School of the University of Pennsylvania, and his M.A. and Doctorate at the University of Pennsylvania. He is a frequent witness, as Dr. Taylor is, to the Joint Economic Committee.

Welcome to you both. And, Dr. Taylor, let me recognize you.

STATEMENT OF HON. JOHN B. TAYLOR, Ph.D., MARY AND ROBERT RAYMOND PROFESSOR OF ECONOMICS AT STANFORD UNIVERSITY AND THE GEORGE P. SHULTZ SENIOR FELLOW IN ECONOMICS AT THE HOOVER INSTITUTION, STANFORD, CA

Dr. Taylor. Thank you, Mr. Chairman, and other Members of the Committee, for holding this hearing on monetary policy and for inviting me to testify.

For many years I've been a strong supporter of the Federal Reserve, especially during the 1980s and 1990s, until recently. And also during the financial panic in 2008, especially October and November.

But I have become critical of the Federal Reserve policy regarding its unconventional policies, both before the crisis and after. So I welcome the decisions recently to begin to intervene less in the markets through the so-called tapering.

I believe that the quantitative easing that really got underway after the panic in 2009 has not been effective. If you look at simple measures like interest rate spreads, they've gone the wrong direction.

If you think about in addition the uncertainty that this unwinding has caused throughout, I think it has been a drag. I have argued that there is a two-sided risk to the quantitative easing in its unwinding.

One, creating a slower recovery.

The other is the possibility of a higher inflation rate. Unfortunately, I think the risk that has actually been realized is the slower recovery due to this uncertainty of these very unusual policies.

That does not mean that the risk of inflation is not there; it will come if the Fed is unable to adjust the large amount of liquidity that's in the system.

The other part of the unconventional policy is the use of forward guidance that Congresswoman Maloney asked about. I believe that the forward guidance, for the most part, has also caused uncertainty.

There are two reasons for that. One, it is changed constantly. Virtually every year since it began, the Fed has changed. It first moved the dates out further. Then, changing to the unemployment rate index. And now moving off of that. So inherently this has caused unpredictability and uncertainty.

The second reason for the concern about the forward guidance is its inconsistency. And in a way, right now this inconsistency is becoming clear as the promises come closer to the future, the promise to keep the interest rate lower than normal when times become normal. It's very hard to deliver on that in the future, and that inconsistency causes uncertainty.

In my view, policy would have been much better in the past and would be better in the future if it was more rules-based and more predictable. I think there are some promising signs that we can move in that direction. The Fed has chosen a 2 percent inflation target. Most members of the FOMC see the long-term value of the Federal Funds Rate at 4 percent, and they see the importance of reacting systematically in their interest rate as the economy recovers.

All of those are very much consistent with the kind of rules for policy that have worked well. But there are still some concerns about how this will work in the future.

There is discussion now that we may even have quantitative easing forever. In answer to your question, Mr. Chairman, about the reverse repos, there are proposals out there to introduce reverse repos so that the Fed could set the interest rates even with huge amounts of liquidity in the system. And the purpose is that the Fed could continue to engage in quantitative easing whenever it likes and still maintain an interest rate.

So for these reasons I think it is very important for the Congress to consider requiring the Fed to adopt some kind of a rules-based policy. I have argued for that before this Committee in the past.

It would be appropriate for the Fed to choose, itself of course, what rule it should follow. That's the Fed's job, not the Congress'. But it seems reasonable, especially in these days, for the Congress to ask the Fed to follow and decide its rule. And if the Fed chose because of an emergency or a change in circumstances to deviate from its strategy, all it would have to do is report to the Congress about the reasons why.

I think that kind of consistency and transparency, regularity of reporting, would go a long way to restoring the kind of monetary policy that worked so well in the 1980s and 1990s until recently. And could work well again.

Thank you, very much.

[The prepared statement of Hon. John B. Taylor appears in the Submissions for the Record on page 24.]

Chairman Brady. Thank you.

Dr. Zandi.

STATEMENT OF DR. MARK ZANDI, Ph.D., CHIEF ECONOMIST, MOODY'S ANALYTICS, WEST CHESTER, PA

Dr. Zandi. Thank you, Chairman Brady, Congresswoman Maloney, and Congressman Delaney. Thank you for the opportunity to be here today on this very important topic.

I would like to make three points.

The first is that, echoing Congresswoman Maloney's comments, I think the Federal Reserve did an admirable job navigating through the financial crisis and the Great Recession. Without the very aggressive and creative efforts during that period, the financial system would have likely collapsed and the economy would have experienced another Depression. And that aggressiveness and creativity came in many forms: credit facilities that provided liquidity to different corners of the financial system, to the money markets, to the commercial paper markets. These programs were designed very well to fade away as the financial markets found their footing, and they have.

Bank stress testing put our banking system on solid financial footing, which is so key to the provision in the form of credit, which is vital to economic growth.

Zero short-term interest rates. I think that was clearly necessary in the context of a peak unemployment rate that was close to 10 percent, and very low inflation below target and stable inflation expectations in what was going on in the financial system.

And most controversial, but also important, quantitative easing. I think it is fair to say there are potential negatives from quantitative easing, but on net it has been a meaningful plus to the economy. It has lowered long-term interest rates, which has helped to support housing values, stock prices, and broader economic growth.

There are negatives. There are positives from QE, but on net it has been a plus.

So my second point is to QE. I think it is fair to say that over time the benefits have diminished, and thus it's appropriate for the Federal Reserve at this point to begin winding down the program.

But it has worked out quite well in lowering long rates, bringing up housing values, and stock prices. And I think it has actually helped monetary policy in general, QE, especially in reducing volatility in the financial system.

So if you look at the variability of asset values, of fixed income, credit spreads, stock prices, you know, the things that you would look at to try to gauge whether uncertainties affecting markets and the economy, you do not see it in the data. In fact, the stability is quite amazing. The value of the dollar has been incredibly stable throughout this period.

I do worry about potential bubbles. I think that is reasonable to be concerned about. And I think the Federal Reserve is focused on this, as well. They are scouring the financial system for potential bubbles. And at least to this point, they feel quite manageable.

I do worry about future inflation. I think that is a very reasonable concern in the context of the liquidity that is in the banking system. But clearly to date that is not an issue.

Inflation expectations, which is the financial market's perspective on inflation, they're rock solid. They have not moved at all. They are at 2.5 percent, and no movement at all.

So I think QE has been a plus for the economy on net.

The third point is, I do agree with the concern about how this is going to play out going forward. How do we wind down quantitative easing and normalize interest rates? This is not going to be easy. It is going to be tricky, and I am sure there are going to be a few bumps along the way.

But I think the Federal Reserve has all the tools they need to execute on this. I think they have the ability to manage short-term interest rates very well through the interest rate on reserves, through term deposits, and I think the fixed rate reverse repo program is very effective. The Federal Reserve has worked very carefully with money market funds, with primary dealers; they are looking to expand counterparties, Federal Home Loan Banks, and it seems to be quite effective in terms of managing short-term interest rates in the context of a surfeit of bank reserves.

And I think they have the will to do this, and the creativity to do it. And so far so good. You know, they have begun to taper. They have laid out a path for short-term interest rates. And if, I am sure, you asked the Federal Reserve Members what they thought about a 10-year Treasury Bond at 2–3/4 percent, they would say that sounds pretty good to me. That is exactly probably where they would like it in the context of the low unemployment or the employment growth is.

So and even today, you know, with the tapering, long-term rates have not risen, and they did not after QE–1 ended and QE–2. So, you know, I concur that this is going to be—it is not going to be easy, and I am sure there are bumps, but I am confident that they will be able to pull this off and the economic recovery will continue to gain traction.

Thank you.

[The prepared statement of Dr. Mark Zandi appears in the Submissions for the Record on page 29.]

Chairman Brady. Thank you both, very much.

A couple of questions to try to understand better.

Dr. Zandi, I was concerned about the recent statements by the new Chairman about lower interest rates continuing far beyond, you know, the lower unemployment rates as well. You know, to a layman it seemed as if the Fed simply was not moving the goal posts but removing them completely. They were almost to the eye of the beholder type of Fed policy going forward.

So, one, do you think the market has assimilated, anticipated the end of quantitative easing?

Two, do you think the market has done the same for this near-zero interest rate approach? I mean, are they starting to understand that this cannot continue?

And then, do you think the market has given any thought yet to just the mortgage-backed securities and the excess bank reserves that will have to be addressed as the economy starts to take off?

Dr. Zandi. Well I think we can glean expectations in financial markets from futures markets. And if you look at what the futures markets are saying, the sort of consensus view in the financial system is that tapering will end by year's end, September, October, November; that interest rates will remain—short-term interest rates remain at zero for, as they say in the FOMC, for a considerable period, and Chairwoman Yellen has articulated that's roughly six months, and that is pretty much embedded in the futures markets.

And, that interest rates will—short-term interest rates will start to rise in the summer or fall of 2015, and slowly normalize over time. So that is what is embedded in the financial markets. That is what is in the bond market. That is what is in the stock market. That is what is in the currency market.

So I think the Federal Reserve at least at this point in time has expectations in the financial markets right where they want them.

Now I do expect that this spring/summer growth will reaccelerate. I think the economy was temporarily weakened by things like very poor weather—at least where I come from it's been—well, here, you know better than anyone. And at that point, bond investors are going to start to anticipate an earlier tightening of monetary policy, pull forward their expectations, and we might see long-term interest rates rise.

So the Federal Reserve at that point, sometime this spring/summer, will be tested again. And this will be a very important test of whether the new Chairwoman can explain some of the thinking behind, you know, the path she has articulated for future interest rates. But so far, so far so good.

Chairman Brady. Dr. Taylor, two quick questions.

One, why haven't we had significant price inflation? Do you think this should be a concern, a threat going forward?

Dr. Taylor. [Off microphone].

Chairman Brady. Could you hit that microphone button?

Dr. Taylor. Sorry, Mr. Chairman.

The economy has been quite weak. You mentioned that in your opening. So the usual kind of pressure you see that raises inflation has not been there.

The second is this liquidity is staying in the banks for the time being at least, and so it has not leaked out to the money growth as could occur. But I think going down the road there is no reason to be complacent about this at all. It is kind of what you would expect. If anything, you would wonder why there has not been even less inflation. But I think it is still a concern going down the road.

Chairman Brady. As a layman, if you just listen to our businesses back home and then throughout the country, I always get the sense there is real uncertainty over increased regulations, including banking regulations in that area, and uncertainty over fiscal policies and about the ability to invest now without repercussions later.

I sense the Fed has their foot on the pedal, go, go. I think the regulators have their foot on the brake for our banks, in addition to the lack of demand that is part of the challenge we've got.

Dr. Taylor, a final question. I have introduced legislation to reform the Federal Reserve. And among its major provisions is to focus back on price stability, the single mandate versus dual mandate, and some other reforms.

In past discussions there is concern that should we do that, that we somehow, the Fed will somehow ignore job creation in a disappointing recovery, or that it might not have the ability to react to a financial crisis in the future.

Could you address those concerns for me?

Dr. Taylor. Well it certainly would have the ability to react. There is no stipulation that the Fed could not do its lender-of-last-resort activities. So it would be completely unchanged.

I think what is perhaps confusing to people on this issue is that when you look at history it is the very extra focus on other things besides stable prices that has caused the problem. And it has even led to higher unemployment.

In the 1970s, the Fed drifted away from its price stability goal and it actually tried to address the employment issue. And look what happened. Unemployment went up and up and up and up. Then you had Paul Volcker come in who changed that and focused back on price stability. And look what happened? Unemployment went down, down, down.

And then recently we have had this much discussion of the unemployment again. What happened to unemployment? It's gone up much higher. I was at this committee hearing in 1977 and Hubert Humphrey was in your position. And he was outraged that the economists were talking about an unemployment rate of 4.9 percent. That's way too high.

And so we have had, unfortunately, a policy which has led to higher unemployment, even though the statement is to focus on it.

So that is my concern about this and why I think a focused Fed, limited-purpose Fed would work better.

Chairman Brady. Thank you, Doctor. Thank you, both. Congresswoman Maloney.

Representative Maloney. Thank you.

At its current rate, the Federal Reserve will finish its tapering in October of this year. And I would like to ask you first, Dr. Zandi, then Dr. Taylor, when do you think the Fed will start to raise short-term interest rates?

Dr. Zandi. Well I articulated what the markets think. They must be listening to me.

[Laughter.]

That is my expectation, as well. The Federal Reserve has me right in line with their thinking. That would be consistent with a steady improvement in the labor market, a decline in unemployment, increased labor force growth. It would be consistent with inflation below target, 2 percent. Stable inflation expectations. And a financial system that is performing reasonably well.

So I think the most likely scenario, I think with as much certainty as you possibly can have in any kind of economic forecasting, short-term rates will begin to rise in the second half of 2015, and normalize over the subsequent two or three years.

Representative Maloney. Dr. Taylor.

Dr. Taylor. I think that is consistent with what Chair Yellen has said, and therefore the intentions of at least the Chair of the FOMC and the Fed.

I think there are differences of opinion within the FOMC at this point. You can see that in their own forecasts. Some think it will come up earlier. So ultimately I think it's going to depend on the balance of discussion in the FOMC, and it could occur a little bit earlier than that—again, depending on the strength of the economy and the recovery itself.

Representative Maloney. And, Dr. Zandi, what economic indicators do you think the Fed is looking at to determine its timing on short-term interest rates?

Dr. Zandi. I think a plethora of indicators, and they articulated some of them in the last FOMC meeting when they moved from threshold-based guidance to database guidance.

So labor market indicators are very important. Unemployment, labor force participation, wage growth, all very important. Obviously inflation, inflation expectation and various measures of financial market and financial institution performance are very critical to their thinking about the conduct of policy.

So I think it is a plethora of economic and financial market variables they are using.

Representative Maloney. Well I think all of us would like to see the economy improving faster than we are seeing it. It is the slowest recovery I have ever seen. And the elephant in the room that some economists are beginning to talk about is the huge amount of debt that our college students are graduating with and not being able to find jobs—$40,000, $50,000.

And this translates into an area that you talk a great deal about, Dr. Zandi, and that is the high importance of housing in our overall economy. I would also say car sales. These are two big areas of jobs, job growth and strength in our economy. And people who buy cars and new houses are young people starting out in their careers. They buy the cars. They buy the houses. They start their families. They move forward.

But with this huge amount of debt—and I often ask these young people. Some of them say they expect to pay it off in their 50s, some earlier. But this is a drag on our economy. And I would like to ask both of you to comment on it, on any reflections that you have on this. And do you believe it is a drag on our economy? Housing has improved, but it is nowhere what we would expect it to be at. I have heard some economists say it's 25 percent of our economy with the related activities, and also the purchasing of cars are way below.

So I would like to hear your comments on the elephant in the room.

Dr. Zandi. Well it is in my household. So the elephant is there. You know, I have a 23-year-old boy who graduated from Wake Forest and had a happy day two weeks ago when he found a job. He did it on his own, so we're happy.

But the Millennials are struggling in lots of different ways. You mentioned student debt. That's obviously the case. And actually they did the right thing. I mean, they were told, appropriately so, that to advance their financial situation in the future they would need to get training, and education, and so they went to school. And in many cases you cannot do that if you do not have any home equity because of the declining housing values and you have to take on student loan debt. And they did that.

For some, it is going to pay off. For others, it is not. If you do not graduate, then obviously this is a very significant financial weight. The jobs they are getting are paying at lower wages.

So it is very likely that—and there are really good studies that show that your lifetime earnings are a direct function of your starting salary. So I think the Millennials are behind the financial eightball, and that means they are going to be getting married later than I did and you did, and have children later, start households later, buy homes later, and buy cars later.

So I think this is a very significant longer term issue for the American economy, and I think we need to seriously think about student lending broadly and really what it is buying us. And, whether we shouldn't be redirecting the subsidies we provide through the Student Loan Program to expanding the availability of educational resources—you know, E-learning, universities, community colleges, to bring down the cost of education, because that is the way to help these kids have the jobs that they are going to need to be able to pay off the debt and to do well in the future.

Representative Maloney. Dr. Taylor, could you comment?

Dr. Taylor. I think the reasons for the slow recovery are more than just a couple of things. The elephant you referred to, that's important, but it's a broader issue.

Just for example, the savings rate that we have is not excessively high. It is reasonable. It is much lower than it was during the very rapid recoveries in the 1980s. So the factors about that couldn't be the whole issue.

So, when I look at it, I think of some of the things that Chairman Brady mentioned: that there's this uncertainty about the policies. If you look at fast recoveries in the past, we did not have that as much. There are a lot of things that need to be done. The Tax Code, for example, is causing a drag.

So I think of it as the best thing that can be done to get a faster recovery is to get policy back into, I guess, a more certain, more predictable mode. I think if we were able to do that, we would get these growth rates like we saw in the past.

Representative Maloney. Thank you. My time has expired.

Chairman Brady. Thank you.

Mr. Delaney.

OPENING STATEMENT OF HON. JOHN DELANEY, A U.S. REPRESENTATIVE FROM MARYLAND

Representative Delaney. Thank you, Mr. Chairman, for holding this hearing. And I want to thank our witnesses for being here.

I will comment briefly on the Fed and then just ask a couple of questions. I actually think the Fed's actions around the crisis were heroic, which I think both of you have acknowledged. And I actually think QE–1 and QE–2, QE–1 in particular, QE–2 to a lesser extent, were important.

I was of a view that QE–3 was unnecessary, and we were at a point of diminishing returns. If you look at where rates had been and how long they had been there, and if you look at the amount of investment they made for QE–3, it really did not do anything other than raise asset prices. And it disproportionately benefitted wealthy Americans, and to some extent it hurt middle class Americans who were savers and have a larger percentage of their savings in cash, and CDs, and things like that.

So I was fairly critical of that policy, but I think on balance you have to give the Fed very high marks for their performance across the cycle, which I think both of you on balance seem to—Dr. Zandi in particular.

And I think this notion about tapering, I think they have been pretty clear what they are going to do. And it also seems to me, and the thing that is not talked about enough, is I think the Fed balance sheet will be the size it is now for 10 years.

The probability of them shrinking the balance sheet to me is almost nonexistent. And I think that will be a permanent state for awhile. They will stop growing it, but the notion that they are going to shrink it any time soon seems to me to be very low probability.

I am interested in your views about—Dr. Zandi, Dr. Taylor—what do you think the Fed's balance sheet will be in 5 or 10 years?

Dr. Taylor. I have the same concerns as you do that the balance sheet will remain high. Remember, it is still rising.

Representative Delaney. Right.

Dr. Taylor. And if it stops rising in October, I think it is going to remain. And it concerns me because that is a situation which is loaded with risk—inflationary risk, or if they try to undo it in a way, contractionary risk. Withdrawing liquidity is always hard for a Central Bank, and this makes it even harder.

Just if I could add, I also worry that if it's a 10-year proposition, it is a forever proposition. You are talking about a different kind of Central Bank than ever we had before.

Representative Delaney. Arguably if it stays the same size in 20 years, it's a smaller issue because the economy is much bigger, right? So you ultimately, if we can have some decent growth, we grow ourselves out of all these problems. But I tend to think—and so we should just come to grips with the fact that we're going to have a big Fed balance sheet.

Dr. Zandi, do you have a view?

Dr. Zandi. No, I don't think that's the case. What is going to happen, I think, is they are going to stop QE bond buying, and then they are going to let the balance sheet mature.

Representative Delaney. They will let it run off.

Dr. Zandi. Oh, yeah. And if you let it mature, it is back to where it should be in 10 years, roughly 10 years. So they're not going to sell———

Representative Delaney. You think they can take that much liquidity out of the system? Because it seems to me the average life of their investments are probably 5 to 7 years.

Dr. Zandi. Well the QE has its impact on long-term interest rates.

Representative Delaney. Right.

Dr. Zandi. So they are slowly going to let that come out of long-term interest rates. So by my calculation, QE all in has lowered long-term interest rates by 75 to 100 basis points. That comes out of long-term interest rates over a 10-year period.

Representative Delaney. Right.

Dr. Zandi. That's the thinking. And I think that's the theory.

Representative Delaney. Right.

Dr. Zandi. So far that's been the empirical evidence.

Representative Delaney. Yes.

Dr. Taylor. So if I could add?

Representative Delaney. Yes.

Dr. Taylor. I really disagree about the empirical evidence. It is based on very unusual kind of studies. And if you just look at the basics, when QE started, QE–3 started, the 10-year rate was 1.7. It is now 2.7. How can you say that this is having an impact?

If you look at spreads, before we started quantitative easing they were smaller than spreads now. It is very hard to find effects of these things that hold up to scrutiny.

Representative Delaney. Right. I mean, there are a lot of other variables that go into how people think about spreads. It's their view of risk. Their view of the taper in and of itself caused credit spreads to widen because they view it as a risk factor that they want to underwrite.

But it seems to me QE–3 was really in many ways the Fed's response to Congress's inability to do things, right? Because the Fed is a blunt instrument, as we know, and early on in the crisis, and even QE–1 and QE–2, they were doing what they needed to do. QE–3 was their attempt to do things in a very imprecise way that Congress would do better.

What worries me, if you look at what's really caused the unemployment challenges we have in this Nation, they really started before the crisis. They were just masked by a lot of debt.

You know, we had a very large credit bubble obviously before the crisis, and that created artificial employment in the system mostly around housing but in other ways. So some of these structural employment issues we have—not structural in terms of people being unemployed for a long period of time, but structural in terms of what is going on in our economy—probably started a long time ago.

And they are really related to globalization and technology, two very disruptive forces that have affected the workforce.

I worry significantly that there is another shoe to drop in this, and that we are not prepared for this. I know I am out of time, but I am just interested in your views as economists how big of a threat do you think we have for more disruption in the employment market based on continued technological innovation?

Dr. Zandi. Well first, globalization I think—I agree with your assessment that globalization and technological change has had a very disruptive effect on the labor market, particularly middle and low-income households.

Representative Delaney. Right.

Dr. Zandi. Globalization, though, is I think, we're right at the tipping point from where it goes to being a problem to a big plus.

Representative Delaney. Yes, yes.

Dr. Zandi. A big plus. So——

Representative Delaney. We can't stop it. I am not arguing to stop it.

Dr. Zandi. But we should be working really hard to——

Representative Delaney. Equip ourselves.

Dr. Zandi. Yes. Because we are going to benefit enormously going forward, because the emerging world is now in our sweetspot. We are going to sell to them, and that is going to be key.

Technology, that is an issue. So if you look at, you know, you line up occupations by pay scale and you relate that to technological innovation, you quickly see actually the folks in the bottom part of the payscale, they're okay.

Representative Delaney. They're fine. They are actually doing better because as you get better at the top you create more jobs at the bottom.

Dr. Zandi. Yes. It is the middle that gets coded out effectively.

Representative Delaney. Right.

Dr. Zandi. And this is——

Representative Delaney. You've got a barbell economy.

Dr. Zandi. And this is the policy challenge because you have to raise their educational attainment so they move up and not down, and we are not very good at that. We haven't been, historically.

Representative Delaney. Right. I know I'm out of time, but there's no one else in the queue.

Chairman Brady. Dr. Taylor.

Dr. Taylor. Yes. So I think the globalization has always been there. It's growing. You can point to globalization aspects, many people did, in the 1980s when we had a strong recovery.

The extra exuberance we got before the crisis I would also point to the Federal Reserve was very low rates in 2003, 2004, and 2005. It wasn't just the other factors coming from abroad.

So that is why I say if you could get the policies right, our policies right. And when you say the Fed responded because the Congress wasn't doing anything, that is not a good position to be in. If the Central Bank is going to hold out its shingle saying we will take care of this, they are going to be asked all the time. And that is kind of the worst situation.

Representative Delaney. And it is not just the Congress. It's Congress and the Administration———

Dr. Taylor. Absolutely.

Representative Delaney [continuing]. Together. So I want to make sure. Okay, thank you.

Chairman Brady. I know we are out of time. Can I do a follow-up question on the side of the balance sheet? I think it is important.

I think it is encouraging that tapering is occurring. The Fed is only serving four desserts after each meal rather than seven. You know, next month it will be three. It still leaves it with a huge balance sheet, as Congressman Delaney made the case.

We have got a ton of mortgage-backed securities that at some point have to be unwound. But on the issue of inflation, if the economy starts to take off clearly banks are going to begin lending. And if inflation emerges, the Fed is going to want to respond either by reserving—increasing reserve requirements, or paying more interest on the excess reserves.

One, how effective a tool is that in dealing with inflation at that point? Are there other viable options for the Fed? What is the economic impact?

Dr. Taylor. So the Fed can raise rates by paying interest on reserves, even with the balance sheet so big. I think it is important for them to also be reducing the size of the balance sheet as they do this.

There are two things that are going on, and I think it is a question about whether they will be able to. It is always hard for a central bank to withdraw liquidity, every time. And there are a million excuses not to do it. So that is the main concern I have, that they will end up being behind the curve. And once inflation gets picked up, it is very hard to reverse.

Dr. Zandi. Can I just say, in terms of managing short-term interest rates in the context of this surfeit of bank reserves, the fixed-rate reverse repo program is working very, very well.

You talk to dealers, you talk to the large money market funds, it is working incredibly well. They have got a floor under—they've got to make some tweaks to the program. They need to increase the counterparties. They have to bring in the Federal Home Loan Bank System, and then they're golden. They've got it.

So I think they will be able to manage the short-term interest rates higher.

The other constraint on credit, though, it's not only liquidity but more importantly in the context of the current environment it's capital. So they are going to be able to control the flow of credit through capital, and in fact they are doing it through the bank stress testing process.

They can manage the aggregate credit flows very, very precisely, and also where the credit goes, by the way. So actually I think the stress testing process gives the Federal Reserve much more power over the banking system and the economy than monetary policy.

I mean, they can manage things very, very precisely with that tool. And no one is paying attention to that.

Representative Delaney. So you're saying—it's really a good insight—they could just say, well, I think there is too much real estate credit so we are going to say——

Dr. Zandi. Yes.

Representative Delaney [continuing]. For cumulative losses on real estate, we are going to double our downside case, run the numbers, and everyone will pull credit or capital out of real estate.

Dr. Zandi. Everybody.

Representative Delaney. That's a really good point.

Dr. Zandi. Everybody will, by definition, because you have just raised the cost of capital for every bank.

Representative Delaney. Right, right.

Dr. Zandi. I mean, overnight.

Representative Delaney. They are setting the rules basically on how banks have to think about risk.

Dr. Zandi. I really think this should be——

Representative Delaney. Do you think that's a good thing?

Dr. Zandi. Well that's a great question. That's a really good question.

Representative Delaney. Yeah. Sometimes the regulators are the best assessors—they haven't proven to be the best assessors of risk.

Dr. Zandi. Well I think it needs oversight. So, you know, I hear the committees talk about monetary policy, quizzing them on interest rates; no one is quizzing them on this regulatory tool, and I think it is key that there is oversight here.

Representative Delaney. That is a really good point.

Chairman Brady. Dr. Taylor.

Dr. Taylor. Just to say, when the Fed moves beyond monetary policy to credit allocation, which is what you are talking about, it is a different type of institution. And I think for the most part it was set up as a limited-purpose institution; it gets into credit allocation? It affects fiscal policy. It affects your job, as you were talking about a few minutes ago. But the responsibility of Congress is appropriation and things like credit allocation, not the Federal Reserve.

Chairman Brady. And the concern there is credit allocation invites political interference. You know, as that price list goes on, the Fed did contribute to the credit bubble and we don't all have the same level of confidence going forward. But this is the conversation that we hope to have on monetary policy, an adult conversation on what is the best role for the Fed? What are the real concerns and threats out there? What do we need to be aware of from this Committee and its economic impacts.

So I want to thank the Members who were here today. Dr. Taylor, Dr. Zandi, thank you again for always being available to have this conversation. With that, the hearing is adjourned.

(Whereupon, at 3:39 p.m, Wednesday, March 26, 2014, the hearing was adjourned.)

SUBMISSIONS FOR THE RECORD

PREPARED STATEMENT OF HON. KEVIN BRADY, CHAIRMAN, JOINT ECONOMIC COMMITTEE

Vice Chair Klobuchar, Members, and Distinguished Witnesses:

The subject of today's hearing is how the Federal Reserve should proceed to normalize monetary policy after the extraordinary actions taken during and after the Great Recession—consistent with promoting stable prices, economic growth, and job creation for America.

Three months ago the Federal Open Market Committee (FOMC) began to taper its large-scale asset purchase program, known as quantitative easing. Financial market participants anticipate the program's termination before then end of the year. Yet ending quantitative easing is simply the first step toward normalizing monetary policy.

The FOMC will also have to raise its target rate for federal funds to a level consistent with long-term price stability; and then as it presumably allows its mortgage-backed securities to gradually unwind, it will have to deal more proactively with its unprecedented build-up of excess bank reserves—currently at a stunning $2.64 trillion. These excess reserves represent the fuel for significant price inflation.

We truly live in challenging economic times. The United States suffers from a massive Growth Gap—missing 5.6 million private-sector jobs and $1.3 trillion in real GDP as compared with the average recovery of the past 50 years. Using the same comparison, families are struggling with a cumulative loss of $8,961 per person in real disposable income since the end of the recession.

The slow-growth economic policies pursued by President Obama bear responsibility for this Growth Gap—polices like higher taxes on small businesses, capital gains, and dividends; the Affordable Care Act, resisting the development of traditional energy sources on federal lands, and the onslaught of anti-growth regulations.

The Federal Reserve both contributed to the cause of the financial crisis and deserves praise for its extraordinary actions at the height of panic in 2008, which helped to stabilize financial markets. However, more than four years after this recovery began, the benefits from quantitative easing and extraordinarily low interest rates have diminished.

The Fed's policies have boosted Wall Street but left Main Street and middle-class families behind. Since the recession ended the current return adjusted for inflation on the S&P 500 is 98%, but real disposable income per capita has risen by a meager 3.6%.

Ultimately, though an accommodative monetary policy may cushion real output and employment in the short term, it cannot stimulate real output and employment over the long term. Sound monetary policy cannot compensate for bad spending, tax, trade and regulatory policies.

Meanwhile the benefits are diminishing and the risks are rising from quantitative easing and extraordinarily low interest rates. I am concerned that the FOMC may be unintentionally inflating new asset bubbles and possibly setting the stage for significant price inflation and a further decline in the purchasing power of the dollar.

Today's hearing addresses a topic that should be of great interest to Americans from all walks of life. The Federal Reserve operates under a dual mandate for monetary policy— established in 1977—which gives equal weight to achieving long-term price stability and the maximum sustainable level of output and employment.

Yet as Federal Reserve Chairmen Paul Volcker and Alan Greenspan correctly foresaw, monetary policy could contribute to achieving full employment—if and only if—the Federal Reserve focused solely on price stability.

Under their guidance, the Fed turned to an increasingly rules-based monetary policy. The results were outstanding: low inflation and two long and strong expansions, interrupted only by a brief, shallow recession.

Since the Great Moderation, monetary policy has again become discretionary and interventionist. Not surprisingly, the results are disappointing. Beginning in 2008, the Fed explicitly deviated from the Volcker-Greenspan view, invoking the employment half of its mandate to justify its extraordinary actions.

Now we approach the end of quantitative easing. For three consecutive meetings, the FOMC has announced incremental decreases of $5 billion in its monetary purchase of both federal agency mortgage-backed securities and long-term Treasury securities.

Yet the complex and uncertain task of unwinding quantitative easing remains. As of March 19th the Fed's balance sheet was $4.26 trillion—more than quadruple its September 3, 2008 level of $945 billion, and excess bank reserves held at the Fed is $2.64 trillion—compared with $11.9 billion on September 3, 2008.

I will be very interested to hear our witnesses' views on how monetary policy should be normalized, and I am hopeful that they can also help us gain insights on how the FOMC should respond if current forecast are wrong and significant price inflation materializes.

Also I am very interested in our witnesses' thoughts on the economic effects of financial repression—particularly paying higher interest rates to keep bank reserves from flowing into the economy; and any thoughts on the Fed turning toward using reverse repos instead of the Fed Funds rate, as a tool to affect interest rates.

While the Federal Reserve is supremely confident that it can end the bond buying, normalize interest rates, sell the mortgage backed securities back into the market and finesse the excess bank reserves while improving the economy and avoiding inflation, I am not.

Today we are joined by two very distinguished and veteran JEC witnesses. Dr. John Taylor is the creator of the Taylor rule that central banks have used to implement a rules-based monetary policy, and Dr. Mark Zandi is the chief economist of Moody's Analytics. We are fortunate to have them with us.

With that, I look forward to their testimony.

Opening Statement of Hon. Amy Klobuchar, Vice Chair, Joint Economic Committee

Thank you Chairman Brady for holding today's hearing on monetary policy. We're fortunate to be joined by two witnesses with a deep understanding of these issues, Dr. Mark Zandi and Dr. John Taylor. I want to thank both of you for being here today.

STATE OF THE ECONOMY

Chairman Brady held a hearing of this Committee on monetary policy and the mission of the Federal Reserve about a year ago. Since then, the labor market has strengthened, inflation has remained in check, the economy has continued to grow and the Fed has begun to wind down its quantitative easing program.

While we are still not where we would like to be, we have continued to make real progress recovering from the recession. The economy has added jobs for 48 consecutive months. It has now regained 8.7 million of the 8.8 million private-sector jobs lost during the recession.

The national unemployment rate of 6.7 percent has dropped more than three percentage points since the height of the downturn. In my state, the unemployment rate is better than the national average at 4.7 percent. Inflation is low, about one percent over the past 12 months, and there is no sign of a rise in inflation for the foreseeable future. Gross Domestic Product (GDP) has grown for 11 straight quarters and the Council of Economic Advisers told this Committee two weeks ago that they project stronger growth in 2014.

FEDERAL RESERVE'S ACTIONS

Actions taken by the Fed and Congress helped bring about the economic recovery. The Fed lowered short-term interest rates to near zero at the end of 2008 and stated last week that it will keep those rates low for a considerable period of time as the economy continues to recover.

Low interest rates have helped strengthen the economy by keeping borrowing costs affordable for businesses and consumers. This has spurred investment and consumer spending. Because the economy has strengthened, the Fed announced in December that it was reducing its purchases under quantitative easing. A further reduction to $55 billion each month was announced last week. It has always been understood that these efforts would be scaled back as the economic recovery strengthened. The Fed's tapering is a sign that the recovery has gained traction.

THE FED MUST REMAIN FOCUSED ON FULL EMPLOYMENT

In 1977, Congress clarified that the Fed's dual mandate is to promote maximum employment and stable prices. Even with the progress we have made, we all know families who are working several jobs to get by, as well as workers who can't find a job after months and months of searching. Though the short-term unemployment rate has already declined to close to its pre-recession level, the long-term unemployment rate remains at 2.5 percent, nearly triple what it was before the recession began.

Now is not the time for the Fed to take its eye off promoting employment. Requiring the Fed to focus solely on price stability would be directing it to essentially ignore employment at a time when the labor market is still recovering.

CONCERNS ABOUT THE FED

Under Chairman Bernanke, the Fed also improved its communication about the policy-making process. This was movement in the right direction. I believe the Fed needs increased transparency and accountability. I will encourage the Federal Reserve Chair Janet Yellen to build on the steps taken by her predecessor and I look forward to our witnesses' views on this as well. Finally, the Fed has kept interest rates low to strengthen the economy, which is hard on savers. Yet, in the past four years, Americans have saved well over four percent of their incomes.

FISCAL POLICY

While my focus this afternoon has been on monetary policy and the role of the Fed, Congress has a critical role to play in boosting our economy in the short term while laying a stronger foundation for growth in the long term.

We have taken steps to put our country on a sound fiscal path. The deficit has been cut by more than half since the end of 2009. We've passed the bipartisan Murray-Ryan budget agreement, which led to passage of the Omnibus spending bill this year and sets us on a clear path for spending next year. We reached an agreement through March 15, 2015 to ensure our nation will pay its bills on time. And finally, we passed the Farm Bill, which saves $23 billion over the last bill and is vital to many states in this country.

As we pursue smart fiscal policy, we must continue to press policies that will help the economy —immigration reform, which saves $158 billion over 10 years and over $800 billion over 20 years, training our workers, making sure we move forward with exports and growth in the manufacturing sector, and comprehensive tax reform.

CONCLUSION

Over the past five years, we've seen the impact monetary policy can have on the economy. Monetary policy can support business investment, manufacturing and consumer spending —accelerating economic growth.

To get the biggest bang for the buck, monetary and fiscal policies should complement each other. In recent years, monetary policy has contributed to growth while unnecessary and shortsighted cuts in spending have made it more difficult for the economy to grow.

Thank you again to our witnesses for being here.

QUESTIONS FOR THE RECORD FROM VICE CHAIR AMY KLOBUCHAR

FOR DR. MARK ZANDI

Question 1:

Last week, the Fed decided to change its "forward guidance" for when it will consider raising interest rates. Previously, the Fed had said a 6.5 percent unemployment rate was a level that might make it consider raising rates.

Now the Fed says it will consider a wide range of economic indicators, not just the unemployment rate. This new guidance is not tied to specific numbers, making it more ambiguous but also perhaps more flexible and effective.

a) What are the benefits of the new approach to forward guidance the Fed decided to take last week?

b) Are there any drawbacks to moving away from specific numerical thresholds?

Question 2:

Low interest rates have helped spur the economy by promoting investment by businesses and households. And, low mortgage interest rates have helped both new and existing home owners. But lower interest rates have hurt older Americans who live off fixed incomes and are relying on the safe return they can get from the savings they keep in government bonds.

Could you describe the overall impact you think low interest rates have had on U.S. households?

FOR DR. JOHN TAYLOR

Low interest rates have helped spur the economy by promoting investment by businesses and households. And, low mortgage interest rates have helped both new and existing home owners. But lower interest rates have hurt older Americans who live off fixed incomes and are relying on the safe return they can get from the savings they keep in government bonds.

Could you describe the overall impact you think low interest rates have had on U.S. households?

RESPONSE FROM DR. MARK ZANDI, CHIEF ECONOMIST OF MOODY'S ANALYTICS, TO QUESTIONS FOR THE RECORD SUBMITTED BY VICE CHAIR AMY KLOBUCHAR

Question 1:

The recent change to the Federal Reserve's forward guidance is intended to provide policymakers with greater flexibility to respond to economic and financial market conditions. The previous explicit 6.5% unemployment rate threshold for raising short-term interest rates proved to be inadequate in measuring the health of the labor market given declining labor force participation and the large number of underemployed workers. Financial markets have responded well to the shift in guidance, at least so far. Long-term interest rates have not changed appreciably since the announced change in forward guidance.

The increased ambiguity in the Fed's forward guidance may make it less effective in keeping long-term rates from rising more quickly than desired once the economy reaccelerates in earnest. At that time, bond investors may begin to anticipate that the Fed will begin raising short-term rates sooner than the currently strongly held view of next summer. Or that short-term rates will rise more quickly than currently anticipated by bond investors once the Fed does begin increasing them. It is likely the Federal Reserve will have to change its guidance once again to align bond investors' expectations regarding the path of short-term interest rate with their own.

It is unlikely that the Fed would re-adopt time dependent or numerical dependent guidance. More likely would be the release of an explicit forecast for a wider range of economic variables and short-term interest rates that reflects policymakers' outlook, collectively, and perhaps even individually. Policymakers have shown a high degree of creativity as forward guidance has evolved, and to date they have been largely successful in managing long-term rates higher consistent with conditions in the job market, inflation, inflation expectations and financial market conditions.

Question 2:

The lower short and long-term interest rates resulting from the Federal Reserve's aggressive monetary policy actions since the Great Recession have been a significant financial net positive for U.S. households. Not all households have benefitted from the low interest rates, but most have.

The largest beneficiaries of the low interest rates are homeowners and stockholders. Two-thirds of American households are homeowners, with the home being the most important asset for most middle-income households. Approximately one-half of households own some stock, although households in the top one-fourth of the wealth distribution benefit significantly from rising stock values.

Bond holders have also benefitted significantly from the lower rates, which have lifted bond prices. Owners of agency mortgage backed securities have been substantial beneficiaries given the Federal Reserve's purchases of these bonds via quantitative easing. Most households who own bonds do so via their pension plans and insurance products. And like stockholders, they are predominately higher wealth households. Lower wealth households have not directly benefited significantly from the Fed's low interest rate policy, but they have been significant indirect beneficiaries as the low rates have supported businesses and thus the job market. Unemployment would be measurably higher today if not for the Fed's aggressive actions.

Many older non-working Americans with their savings in deposits and other cash-like instruments have been hurt by the low rates. They are appropriately reluctant to put their savings into riskier stocks and real estate investments, and the interest income they receive has declined with the lower rates. There are no good investment options for this group. This group has been hurt financially by the Fed's aggressive actions.

After Unconventional Monetary Policy

John B. Taylor[1]

Testimony before the
Joint Economic Committee of Congress at the Hearing on
"Unwinding Quantitative Easing:
How the Fed Should Promote Stable Prices, Economic Growth and Job Creation"

March 26, 2014

Chairman Brady, Vice Chair Klobuchar, other members of the Committee, thank you for the opportunity to testify on U.S monetary policy. As requested I will focus on unwinding current unconventional monetary policy—including quantitative easing and the Fed's forward guidance—and on moving toward a rules-based policy that promotes stable prices, economic growth and job creation.

I have been a strong supporter of Federal Reserve policy in the past, especially during the 1980s, 1990s and until recently, a period called the Great Moderation because of the excellent economic performance. But I have been critical of the Fed's unconventional monetary policy in recent years as I was of the Fed's highly discretionary policy of the late 1960s and 1970s.

Concerns about Unconventional Monetary Policy

The Federal Reserve's recent decision to slow down its quantitative easing with a reasonably clear plan to reduce the size of its purchases of long-term Treasury and mortgage-backed securities is welcome. Compared with the Fed's statements of last May and June, this more systematic tapering of quantitative easing—in which purchases are expected to reach zero by the end of this year—has caused relatively little volatility in the financial markets.

Quantitative Easing

Quantitative easing has not fulfilled its stated objective of stimulating the economy, and at best it has reached diminishing returns. Reports that it worked, such as Gagnon et al. (2011), are based largely on estimated announcement effects on interest rates. But these estimates are unreliable because they do not incorporate interest rate reversals that occur after the policy announcements.

Examining the entire time span of quantitative easing (QE1, QE2 and QE3 thus far) shows that yield spreads went in the opposite direction of what was intended. The10-year US Treasury spread over 1-year interest rates was 1.3% from 2003 through 2008 versus 2.4% from 2009 through 2013, the period of quantitative easing. My research with Johannes Stroebel (2012) focused on QE1. We found little or no significant effect on mortgage interest rates once

[1] Mary and Robert Raymond Professor of Economics at Stanford University and George P. Shultz Senior Fellow in Economics at Stanford's Hoover Institution

credit and prepayment risks are taken into account. It is even more difficult to find a favorable impact of QE3 on interest rates without the hypothesis of a synchronized event that moved rates in the opposite direction: When QE3 started the 10-year Treasury was yielding 1.7%. Now it is yielding about 2.7%. And it is worth noting that economic growth has come in below the Fed's forecasts which assumed the positive effects of quantitative easing.

There are also a number of unintended consequences of quantitative easing. At a fundamental level, quantitative easing is unpredictable. The magnitudes of the purchases are huge and the impacts are controversial among Fed policy makers. With the large magnitudes, frequent changes in size, and little consensus on the impacts, it's nearly impossible to make decisions about such policy actions predictable or rules-based.

The impact of a single government agency dominating the market has created uncertainty and distorted price discovery. The long-term interest rate does not react to news as it does when more conventional policies are in place. And with the short rate held near zero for a long time, the money market—and in particular the market for federal funds—does not function normally.

Uncertainty about the eventual unwinding or reduction in the size of the balance sheet — which has not occurred yet—creates a two-sided risk. The securities purchases are financed by increasing banks' reserve balances, which have risen from around $10 billion in 2008 to over $2,600 billion today. This is a massive increase in liquidity in the banking system, and it will keep on rising until QE3 is over. One side of the two-sided risk is a slower recovery due to the uncertainty caused by concerns of an unwinding that is too quick or erratic. On the other side is the risk of higher inflation that would occur if the Fed cannot reduce the size of its balance sheet quickly enough to avoid an increase in the broad money supply. Thus far the slower recovery risk has been realized, but future inflation risk still exists, and with the balance sheet still rising the risk remains very real today.

The policies also create incentives for otherwise risk-averse investors—retirees and pension funds—to take on too much risk. In addition quantitative easing can disrupt monetary policy in other countries as their central banks take special actions in response. This disruption can feed back on the American economy. Finally, the excursion of a limited purpose institution into fiscal policy and credit allocation and its effects on fiscal discipline and the distribution of income and wealth raise questions about its independence.

Time Inconsistent Forward Guidance

The other part of unconventional policy is forward guidance in which the Fed endeavors to say what the policy interest rate will be in the future. The rationale for the policy recently has been to keep expectations of future short-term interest rates exceptionally low in order to hold long-term interest rates low. As practiced by the Fed, however, forward guidance has also created uncertainty. There are two main reasons for the uncertainty. First, forward guidance procedures have changed every year since it began in 2009. The Fed began by saying it would hold the federal funds rate low for "for an extended period" and then change to "at least through mid-2013" and then to "late 2014" and then "through mid-2015." Then it changed the whole focus from dates to economic conditions, giving levels of the unemployment rate as a guide. And at the time of the last FOMC meeting it switched back to a mixture of time (six months) and a series of economic indicators for interest rate changes.

A second reason for the uncertainty —at least during the past two years—has been that the Fed has indicated that it would keep the policy interest rate low for longer than would likely be appropriate. It thus puts policy into a time inconsistency bind which has become increasingly clear as future promises have gotten closer to the present. At its last meeting the Fed indicated that it will hold the interest near zero for a while even after the economy is back to normal. This raises the question as to whether or not the members of the FOMC will actually do this when the time comes. Thus time inconsistency raises uncertainty.

A Rules-Based Strategy

For these reasons, it is important for the Fed to exit from these unconventional policies and lay out a strategy to do so. The most important part of the strategy should be to clarify where monetary policy is going in the future.

In my view the experience of monetary policy during the 100 years since the Fed was founded shows that monetary policy should become more rules-based. A rules-based policy would not involve the massive purchases of mortgages that we have seen in the past few years. It would ensure that any forward guidance be consistent over time. It would include the Fed's important lender of last resort role, as in the case of 9/11 attacks in 2001 and the financial panic in 2008.

I believe that the Congress can help the Fed move in this direction. A rules-based policy should be the benchmark for Fed decisions, and deviations from the rule should be explained by the Fed to the Congress and the American people.

Reverse Repos and Permanent Quantitative Easing

Some argue that the Fed should remain indefinitely on a policy of quantitative easing in which it would regularly intervene in any market it chooses and simultaneously move its policy interest rate around. One proposed mechanism would utilize reverse repurchase agreements (repos), as recommended for example by Gagnon and Sack (2014), to change the short-term interest rate during periods when the Fed's balance sheet and reserve balances are excessively high. The proposal would be to combine changes in the interest rate on reverse repos with the interest rate the Fed pays on bank reserves at the Fed. The Fed would likely move the reverse repo rate and interest on reserves in tandem.

But such a policy would bring with it all the problems with quantitative easing listed above, and it would throw away basic monetary policy principles including the ultimate importance of the growth of the quantity of money. To avoid such a development the Congress could require that the Fed submit in writing (as I suggested in Taylor (2011) as part of a broader legislative proposal reviewed below) "the procedure for adjusting the supply of bank reserves to bring about the desired federal funds rate, recognizing that the rate is determined by the supply and demand for reserves in the money market." Of course during a transition period from the current unusually high balance sheet and reserve balances, it may be necessary to use reverse repos as well as the interest rate on reserves to determine the short rate, but that should stop as soon as the transition is over and reserves return to normal. This should be part of a broader exit rule to reduce bank reserves in a predictable way.

Legislation for Rules-Based Policy

I have concluded that the Congress should pass legislation requiring the Fed to adopt a policy rule for the instruments of monetary policy. It would be the Fed's job not the Congress's to choose the rules-based policy, but if and when the Fed deviated from its chosen rule, it would have explain why in writing and in testimony before the House and Senate. Some argue that such legislation is not needed to achieve such a reform if the Fed and the Congressional committees could agree to follow such a procedure on their own, but the experience over the recent years suggests that legislation could help greatly, an issue that could be explored further by the proposed Centennial Monetary Commission.

There has been considerable research and experience with monetary policy rules, and the so-called Taylor rule, which emerged from years of extensive research by many people, has continued to attract a lot of interest. That such a rules-based policy would work well follows from Fed history over the past century as monetary historian Allan Meltzer (2012) has concluded, reporting that "The longest period of low inflation and relatively stable growth that the Fed has achieved was the 1985–2003 period when it followed a Taylor Rule."

There are of course other rules-based procedures for the instruments of policy. One way to judge the effectiveness of this type of policy is to note that it would keep the growth of nominal GDP steady as some have suggested as a goal of policy: The volatility of nominal GDP growth was less during 1985-2003 than in the years before and after.

There are some promising signs that the Fed could move toward such a rules-based policy in the future. The Fed has already adopted a 2% inflation target, the value imbedded into the Taylor rule. A 2% inflation target also now guides policy at the European Central Bank, the Bank of England, and the Bank of Japan, creating an international standard which also improves exchange rate stability.

Moreover, members of the Federal Open Market Committee now forecast that in the long-run the federal funds rate should average around 4%, implying a 2% real interest rate, which is also imbedded in the Taylor rule. There is now agreement that the Fed's interest rate response to changes in the inflation rate should be greater than one, leaving the appropriate response to the economy's overall capacity and its measurement as the remaining area of disagreement.

Recently Janet Yellen (2013) stated that "Many studies have shown that, in normal times, when the economy is buffeted by typical shocks—not the extraordinary shock resulting from the financial crisis—simple rules can come pretty close to approximating optimal policies." The implication is that after the recent experience with unconventional monetary policy, a rules-based policy should become the norm.

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Written Testimony of Mark Zandi
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Before the Joint Economic Committee

"Unwinding Quantitative Easing: How the Fed Should Promote Stable Prices, Economic Growth and Job Creation"

March 26, 2014

The Federal Reserve did an admirable job navigating through the financial crisis that began in 2007, the resulting Great Recession, and the subsequent economic recovery. Without the Fed's aggressive actions, the financial system would have collapsed and the economy would have suffered a depression.

The Federal Reserve took a range of extraordinary steps to quell the financial panic. It established new credit facilities to provide liquidity to financial institutions and markets. To stabilize the banking system, the Fed required the nation's largest bank holding companies to conduct stress tests and raise enough capital to withstand the worst credit losses on record.

The Fed aggressively lowered interest rates, adopting a zero interest-rate policy by the end of 2008. To bring down long-term interest rates, it has engaged in massive bond-buying, aka quantitative easing. The QE program began in 2009; by the time it ends, likely later this year, it will have added nearly $3 trillion in Treasury bonds and Fannie Mae and Freddie Mac mortgage-backed securities to the Fed's balance sheet.

QE has drawbacks, but on net it has supported a weak economy. The increase in the Fed's balance sheet has reduced 10-year Treasury yields by an estimated 85 basis points and lifted stock prices more than 10%. This in turn has lifted real GDP by 1.2 percentage points, supporting 1.35 million additional jobs and lowering the unemployment rate by approximately 0.7 percentage point.

As the recovery has gained traction and unemployment has declined, the Fed has begun to taper its bond-buying program. The Fed has the tools and the resolve necessary to ensure its exit will not undermine the recovery, but shrinking its balance sheet and raising rates will be a slow and difficult process.

Key to the successful normalization of monetary policy is the Fed's use of forward guidance—signaling to financial markets, businesses and households the central bank's intentions regarding monetary policy—to manage the increase in long-term interest rates consistent with improvements in the job market. The Fed has moved away from explicit unemployment-rate thresholds for future rate increases to qualitative guidance regarding the criteria for those rate increases. The Fed will almost surely have to adjust its forward guidance to gracefully manage future increases in long-term interest rates.

Getting this right will not be easy, and an unwanted increase in interest rates is the most serious threat to the recovery. The economy's long-term potential would be impaired if long-term unemployment remains high, wasting much valuable human capital. Nonetheless, the chances are good that policymakers will get this reasonably right and the economy will continue to improve, completing a long and painful trip back from the financial crisis and Great Recession.

Policy in the panic

The Federal Reserve's unprecedented policy response to the crisis that began in 2007 was vital to forestall a collapse of the financial system and a much more severe economic downturn. Most notable were new credit facilities, stress-testing for financial institutions, zero short-term interest rates, and quantitative easing.

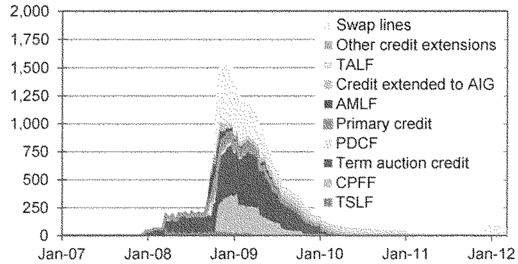
Credit facilities

The Fed introduced a series of new credit facilities beginning early in the financial crisis. Within a few months, the Term Auction Facility, the Term Securities Loan Facility, the Term Asset-Backed Securities Loan Facility, the Commercial Paper Funding Facility, the Money Market Investor Funding Facility, and currency swap lines had been set up.

During the height of the crisis in late 2008, these facilities provided close to $1.5 trillion in liquidity to the financial system (see Chart 1). Without them, vital parts of the financial system could easily have shut down. Particularly threatened was the important commercial paper market, a key source of short-term funds for nonfinancial corporations. Losing the ability to issue commercial paper would have impaired many firms' operations, with a devastating impact on the economy.

Chart 1: Aggressive Fed Action During the Crisis

Federal Reserve's short-term lending operations, $ bil



Sources: Federal Reserve, Moody's Analytics

The credit facilities were artfully designed to grow more costly to financial institutions as credit markets healed and private sources of liquidity became available. Consequently, the facilities wound down as the crisis abated, and had all but faded away by the end of 2011.

Stress-testing

Also instrumental in stemming the financial crisis were bank stress tests, introduced in the U.S. in early 2009. The banking system was then near collapse, and while the government had managed to keep some institutions alive, no one knew what it would take to restore them to health.

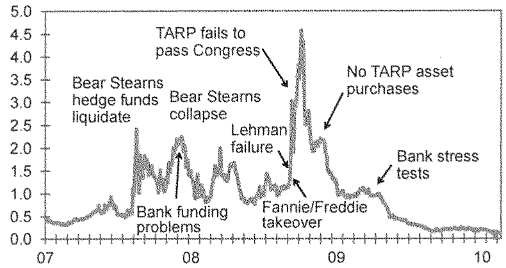
The U.S. Treasury and Federal Reserve designed the stress tests to find out. Banks were asked to assess what could happen to their mortgages, credit cards and other loans if the economy were to fall into a 1930s-style depression, and to raise the capital necessary to withstand the losses that would result from such a scenario.

Banks objected to the exercise. The stress tests were complicated, and the thought of going cap in hand to investors for more capital was uncomfortable. Worse, if banks could not raise the necessary capital from private sources, they would have to accept it on punitive terms from the government.

But regulators overruled the banks, wisely as it turned out. The stress tests worked. The banks were recapitalized, and markets as well as the bankers themselves were reassured that the system was sound. A few months after the U.S. financial system had been near collapse, it was up and running again. The TED spread, a good measure of banks' fear about lending to each other, quickly returned to its precrisis level (see Chart 2). The banks knew that if their counterparties went through the stress tests as they had, they were on very solid financial ground.

Chart 2: Policymakers Stabilize Banking System

TED spread, difference between 3-mo Libor and T-bill yields



Sources: Federal Reserve Board, Moody's Analytics

Stress-testing has since become a standard part of global financial regulation. Former Fed Chairman Ben Bernanke often points to stress-testing when asked what he likes most in financial regulatory reform.[i] European authorities are conducting extensive stress tests this year, and the International Monetary Fund advocates their adoption by all its member countries. The largest financial institutions in the world test every year. They no longer complain, viewing the exercise as critical for robust risk and capital management.

Stress-testing has helped put the global financial system on a stronger foundation, but it has also given central banks an immensely powerful tool. More than ever, central bankers can now determine the flow of credit to the economy and where that credit goes. The potential for unintended consequences is significant.

Overly stringent stress tests could force the banks to hold too much capital and to restrict credit, stunting economic growth and hampering the global recovery. Even in better times, central banks will need to be aware of how excessively rigorous stress-testing can affect the economy. It is comforting to think that if such tests had been the norm a decade ago, they might have helped central banks curb the runaway mortgage lending that inflated the housing bubble. But what if the tests had also discouraged banks from backing worthwhile innovations, such as clean power and information technology, which have raised living standards?

Stress-testing could stifle financial innovation. By definition, new financial products have no track record; thus the historical data needed for rigorous analysis are lacking. Central banks will likely be harder on new products that cannot be assessed quantitatively.

There is also the risk that stress-testing could evolve into financial protectionism. Most major banks maintain global operations, and the stress tests rightly consider global economic conditions. But if regulators grow concerned that banks are lending too much overseas, they could construct test scenarios in which the global economy is hit by a severe downturn. Banks would be forced to hold more capital against overseas loans, prompting them to cut back on foreign activities.

Like any tests, these also encourage test-takers to focus simply on passing. This means banks' models and risk-management methods will look increasingly the same, and lending practices will grow increasingly uniform. If passing the stress tests means favoring some types of loans over others, banks could herd in that direction, threatening financial stability.

Banks may take less risk because of the stress tests, but those risks may simply move to other, less visible, parts of the financial system where there are no stress tests and central banks have less influence. The failure of institutions in this so-called shadow banking system could ultimately threaten the economy.

Central bankers must be sensitive to the added clout they wield through the stress tests. They must be more transparent about the tests' methodology, the results, and how they will ensure that tests are in the public interest. In the U.S., the Financial Stability Oversight Council—a consortium of regulators established under the Dodd-Frank Act to identify systemic threats to the financial system—should evaluate the stress tests.

Legislators must also increase their oversight of the Fed, probing not only interest-rate policy and balance-sheet size, but also the stress tests' mechanics. Lawmakers should be asking, why are banks being asked to stress to one economic scenario and not another? Why is the recession in a given scenario not more severe, or less? And should the test be harder on one type of lending than another? Legislators have a responsibility to regulate the regulators.

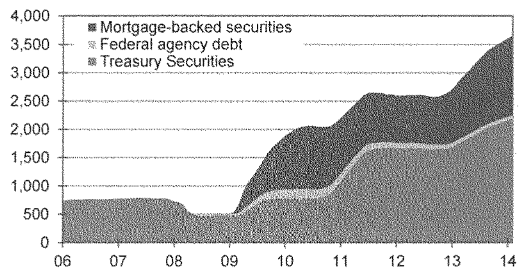
Bank stress tests helped save the global economy from depression, and remain critical to a well-functioning financial system. Prudent oversight will ensure that they continue to play a positive role.

ZIRP and QE

Further mitigating the severity of the financial crisis and its economic fallout was the Fed's aggressive lowering of interest rates. The Fed cut short-term rates effectively to zero by early 2009, and then worked to reduce long-term interest rates further by expanding its balance sheet through massive bond purchases (see Chart 3).

Chart 3: Fed's Balance Sheet Balloons With QE

Assets held outright on Fed's balance sheet, $ bil



Sources: Federal Reserve, Moody's Analytics

The Fed's bond-buying or quantitative easing program has been controversial, but its fundamental mechanics are no different than those of traditional monetary policy. As when the Fed lowers its benchmark short-term rate target, QE simply increases reserves in the banking system. The difference is simply scale, as QE has resulted in a significant surfeit of bank reserves.

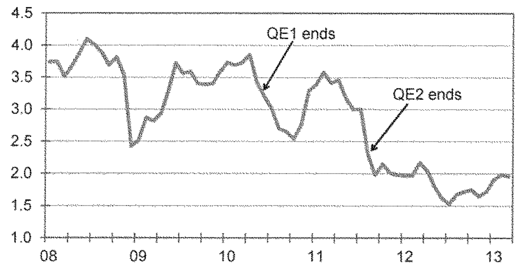
There is a reasonable debate over how QE lowers long-term interest rates. The "stock view" holds that different financial assets are not perfect substitutes. As such, changes in the net supply of an asset affect its yield and those of similar assets.[ii] As the Fed purchases assets, the pool of those assets shrinks, reducing the risk premium required to hold the remainder. Some investors are displaced and invest in other financial assets.[iii] The stock view holds that bond investors price in QE programs when they are announced, and that when bond-buying ends there will be little immediate impact on interest rates.

The "flow view" holds that future Fed purchases, not the amount of an asset that the Fed has already bought, affect the price of the assets the Fed is purchasing. The flow view implies that long-term rates will increase when bond-buying concludes. Bond investors will not step up at current interest rates and purchase tens of billions of dollars in monthly Treasury and MBS issuance when the Fed stops buying.

There is substantial empirical evidence to support the stock view. Interest rates did not increase significantly when the Fed ended its first or second rounds of QE (see Chart 4).[iv] Moreover, if it is obvious that rates will spike once the Fed ends QE, why are investors not selling U.S. debt now in anticipation? Even if one does not believe markets are efficient, and that investors price in the effects of Fed purchases when they are announced, one would have to believe that obvious gains or losses will be anticipated.

Chart 4: Stock, Not Flow, Counts in Long-Term Rates

10-yr Treasury note yield, %



Sources: Federal Reserve, Moody's Analytics

Insurance companies, pension funds, the Social Security Trust Fund, and sovereign wealth funds will remain big buyers of U.S. government debt given their covenants and business models. And investors who are not buying U.S. debt at current interest rates will not have an effect on interest rates when QE3 ends since they have already been priced out of the U.S. government debt market.

In the current macroeconomic environment, the logical implication of the stock view is that Treasury yields will increase only to the extent that the Fed's portfolio of Treasuries shrinks. The end of QE will certainly put upward pressure on long-term interest rates, but the stock view implies that by gradually shrinking its portfolio of bonds, the Fed can gracefully manage the increase in long-term rates.

Quantifying the Fed's role

To quantify the economic impact of the Fed's actions during the financial crisis, the Moody's Analytics model of the U.S. economy was simulated under a baseline scenario that includes all the policies actually pursued (financial and fiscal), and a counterfactual scenario that excludes the policies implemented by the Fed.[v] The difference between these scenarios provides an estimate of the impact of the steps taken by the Fed during the crisis.[vi]

In the scenario that assumes the Fed did not respond, the Great Recession would have gone on for another year; instead of an 18-month downturn lasting through mid-2009, it would have extended into summer 2010. By 2011, real GDP would have been almost $800 billion, or 6%, lower without the Fed's actions, and the unemployment rate almost 3 percentage points higher. By the second quarter of 2011—when the economic impacts are their largest—the Fed's financial-rescue policies are credited with saving almost 5 million jobs.

Evaluating QE

Of all of the Fed's policy actions since the financial crisis, QE is the most controversial. This is with good reason, as QE has both positive and negative economic consequences. On net, QE has provided a meaningful boost to the economy and jobs, but that net benefit has diminished with each successive round.

The economic benefit of QE is straightforward. By reducing long-term interest rates, QE lifts stock prices and house values and thus household wealth, reduces borrowing costs for households and businesses, and makes it easier for debtors to deleverage.[vii]

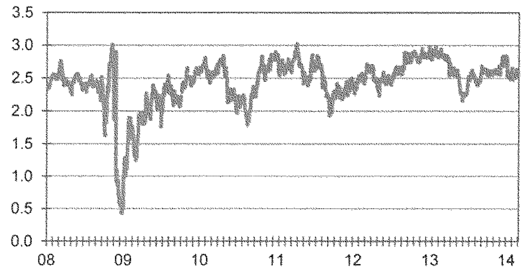
These benefits have diminished with each new round of QE. The first round of QE was launched when the downturn was at its sharpest; each subsequent round occurred with the economy in successively better shape. The impact of the first round of QE was amplified by signaling how aggressive the Fed would be in responding to the crisis. Investor, business and consumer confidence were fragile, and the Fed's decision to launch QE stabilized sentiment. The first round of QE also provided liquidity to the financial system, a benefit that became less important as financial markets settled.

Many potential costs of QE have also been identified. Most notable include: (1) dislodging long-term inflation expectations; (2) disrupting financial markets; (3) creating financial imbalances and asset bubbles; (4) pressuring emerging economies with large current account deficits; (5) financial repression; and (6) capital losses on the Fed's Treasury and MBS holdings.

Fears that QE could dislodge long-term inflation expectations have not been realized, at least to date. Survey- and market-based measures of long-term inflation expectations have been well-behaved. The five-year forward, five-year breakeven consumer price inflation rate has remained remarkably stable near 2.5% (see Chart 5). This is consistent with the Fed's inflation target.[viii]

Chart 5: Inflation Expectations Still Well-Anchored

Inflation expectations, 5-yr, 5-yr forward



Sources: Bloomberg, Moody's Analytics

QE could also potentially impair the functioning of financial markets. As the Fed increases its bond purchases, it could inhibit liquidity in the Treasury and MBS markets. There is some evidence of this occurring in Japan, as the Bank of Japan is purchasing roughly three-quarters of net government issuance, and Japanese government debt yields have become more volatile while trading volumes have fallen markedly. However, despite the recent decline in MBS issuance given weaker mortgage origination volumes, there is scant evidence of this occurring in the U.S. bond market.

Financial imbalances or even asset bubbles could form as a result of QE. This could happen if QE causes excessive risk-taking as investors search for higher returns. This is a consequential risk, but to date there is no evidence that bubbles are forming in asset markets. QE has helped push stock prices to record highs, but price-to-earnings ratios—among the best gauges of equity valuation—are still near their long-run averages. Corporate earnings have never been higher and profit margins never wider, as American companies have significantly reduced their cost structures. Credit spreads in the bond market have also narrowed, but they are also within historical norms. Leverage is also a telltale sign of a bubble, and leverage is currently low and stable.

The low level of interest rates has reduced income for households with most of their savings in cash-like instruments. Most of these households have other asset holdings, such as stocks, bonds and homes, and thus have on net benefited financially from QE. However, some older savers are not invested in these other assets and are appropriately reluctant to trade cash-like investments for riskier assets. While this is clearly a downside to QE, this group is small.

Emerging economies with large current account deficits have also been buffeted by QE, most notably Brazil, India, Indonesia, Turkey and South Africa. When the Fed was ramping up QE and global interest rates were falling, global investors seeking higher returns invested heavily in these countries, driving up their currency exchange values and asset prices. Now that the Fed is tapering QE, these same economies have seen their currencies fall and interest rates rise as their central banks defend their exchange rates and battle inflation. Growth in these economies has slowed sharply as a result. This is certainly a negative side effect of QE that should matter to the Fed, as emerging markets are key to global and thus U.S. growth. Still, the Fed must ultimately focus first on what is best for the U.S. economy.

There is also some concern that QE poses a risk to the Fed's balance sheet. Rising interest rates could lead the Fed to suffer an operating loss if it sells assets before they mature. But the Fed has made it clear that it intends to allow the securities on its balance sheet to go to maturity. Even if the Fed decided to sell assets at a loss, the biggest hazard would be to its own credibility. While the Fed is not required to have positive remittances to the Treasury, not doing so could bring political repercussions.

Quantifying QE's impact

An event study was conducted to quantify the economic impact of QE. The dates when there was a Fed announcement on QE are identified, and the impact on interest rates, stock, and the value of the U.S. dollar during a one-day observance window is recorded.[ix] To determine the impact on the economy, the direct interest rate, stock market, and U.S. dollar effects of QE from the event study were used to shock the Moody's Analytics macroeconometric model.

The event study makes the assumption that the selected event set captures all instances in which Fed communications affected QE expectations, and that no other events affected expectations. Financial markets are also assumed to be efficient so that the effect of QE announcements occurs not when the actual bond purchases take place, but instead when the announcement changes market participants' expectations.

The first step in conducting an event study is to identify all instances in which the Fed provided new information about its QE programs. There have been four noteworthy programs: QE1, QE2, Operation Twist and QE3 (see Table 1). After the events have been selected, it is important to define the adjustment interval in which market participants "price in" the announcement or adjust asset prices based on new information—in this case information released by the Fed. Some event studies use intraday prices to determine response windows, but given the novelty of QE, market participants may respond more slowly to QE announcements than to conventional monetary policy.[x] As such, this study considered a one-day response window: the change in the asset price from the last value prior to a QE announcement and the last closing value on the day of the announcement was recorded. The one-day response window used in the study is assumed to be wide enough to capture the financial market effects of the announcements, but not so wide that it also captures the impact of information unrelated to QE.

Table 1: Chronology of Federal Reserve Large-Scale Asset Purchase Announcements

Event	Date	Related LSAP Program	Action
Fed press release	11/25/2008	QE1	Federal Reserve announces $100 bil in agency debt purchases and $500 bil in agency MBS purchases
Chairman speech	12/1/2008	QE1	Chairman Ben Bernanke suggests the Fed could expand its initial LSAP program by buying Treasuries
FOMC statement	12/16/2008	QE1	FOMC announces it is considering purchasing Treasuries
FOMC statement	1/28/2009	QE1	FOMC moves closer to Treasury purchases
FOMC statement	3/18/2009	QE1	FOMC expands its initial LSAP program by announcing purchases of up to $300 bil in longer-term Treasuries, $200 bil in agency debt and $1.25 tril in agency MBS
FOMC statement	8/12/2009	QE1	FOMC drops language qualifying the maximum amount of Treasury purchases
FOMC statement	9/23/2009	QE1	FOMC drops language qualifying the maximum amount of agency MBS purchases
FOMC statement	11/4/2009	QE1	FOMC announces it would purchase around $175 bil in agency debt
FOMC statement	8/10/2010	QE1	FOMC announces reinvestment of agency debt and agency MBS principal payments
Chairman speech	8/27/2010	QE2	Bernanke lays the groundwork for QE2
FOMC statement	9/21/2010	QE2	FOMC explicitly acknowledges that it is considering QE2
FOMC statement	11/3/2010	QE2	FOMC announces additional purchases of $600 bil in longer-term Treasuries and reaffirms principal reinvestment
Chairman speech	8/26/2011	Operation Twist	Bernanke foreshadows Operation Twist
FOMC statement	9/21/2011	Operation Twist	FOMC announces $400 bil in purchases of 6- to 30-yr Treasuries, offset with equal sales of Treasuries with maturities of 3 yrs or less
FOMC statement	6/20/2012	Operation Twist	FOMC announces it will extend Operation Twist through the end of 2012
FOMC statement	9/23/2012	QE3	FOMC announces it will purchase $40 bil in agency MBS and $45 bil in longer-term Treasuries per month indefinitely
FOMC statement	12/12/2012	QE3	FOMC announces it will replace Operation Twist with outright Treasury purchases of equal amount

Source: Moody's Analytics

According to the event study, the yield on the 10-year Treasury note is 85 basis points lower than it otherwise would be if the Fed had not conducted any large-scale asset purchases. The 30-year fixed wholesale mortgage rate is 45 basis points lower, and the yield on three-year agency debt obligations is 100 basis points lower (see Table 2).[xi] Stock prices, as measured by the S&P 500 index, rose more than 10%, and the broad trade-weighted value of the U.S. dollar declined by about the same amount. These estimates are probably conservative, as bond and stock investors anticipated QE2 and QE3 long before the Fed announced the programs. This cannot be picked up by the event study.[xii]

Table 2: Event Study Analysis, 1-Day Change

Change in yield

Event	Date	2-yr UST	10-yr UST	30-yr WMR*	30-yr agency MBS	3-yr agency debt	10-yr swap	Baa index	S&P 500	Value of the $
		Bps	Bps	Bps	Bps	Bps	Bps	Bps	%	%
Fed press release	11/25/2008	-2	-21	7	-44	-24	-29	-9	0.66	-1.25
FOMC statement	12/16/2008	-8	-25	-8	-29	-18	-32	-15	5.14	-1.93
FOMC statement	1/28/2009	10	14	-11	7	5	14	14	3.36	0.28
FOMC statement	3/18/2009	-22	-48	1	-15	-33	-38	-23	2.09	-2.68
FOMC statement	8/12/2009	-2	5	-5	3	-2	-99	10	1.15	-0.49
FOMC statement	9/23/2009	1	-2	-2	-1	-5	-5	-2	-1.01	-0.09
FOMC statement	11/4/2009	-1	5	4	0	4	5	9	0.10	-0.98
FOMC statement	8/10/2010	-1	-7	-1	-2	-3	-6	3	-0.60	0.11
Chairman speech	8/27/2010	3	16	-4	12	9	17	17	1.66	-0.01
FOMC statement	9/21/2010	-4	-13	-8	-10	-8	-12	-8	-0.26	-1.11
FOMC statement	11/3/2010	-1	-2	-9	-2	-1	-2	12	0.37	-0.31
Chairman speech	8/26/2011	-2	-4	-6	-3	-6	-6	-4	1.51	-0.63
FOMC statement	9/21/2011	3	-8	-1	-24	8	-7	-16	-2.94	0.40
FOMC statement	6/20/2012	2	4	2	7	2	3	-2	-0.17	0.25
FOMC statement	9/23/2012	0	-4	-5	-3	0	-4	-7	-0.22	0.24
FOMC statement	12/12/2012	0	5	1	3	0	4	5	0.04	-0.30
Cumulative effect:		-24	-85	-45	-101	-72	-197	-16	10.9	-8.5

*30-day commitment rate for 30-yr fixed mortgage; represents the wholesale mortgage rate

Sources: Bloomberg, Moody's Analytics

The event study also supports the view that QE works through the portfolio balance effect. Swap rates and corporate bond yields declined even though the Fed did not directly purchase these assets. Similarly stock prices rose and the value of the dollar declined.

In order to measure how QE affected the economy, the Moody's Analytics macroeconomic model was simulated incorporating the direct changes in interest rates and stock prices derived from the event study. Based on this simulation, as of the fourth quarter of 2013, QE increased real GDP by 1.2%, lifted employment by 1.35 million jobs, and reduced the unemployment rate by 0.7 percentage point.

Graceful exit

Whether the Fed's aggressive policy actions since the financial crisis will ultimately be deemed a success depends on whether the Fed is able to normalize monetary policy without hurting the recovery. Normalization entails ending QE and raising short-term interest rates from zero to around 4%, the consensus of the Fed on where short-term rates should settle in the long run. This requires that policymakers manage short- and long-term rates higher consistent with an improving job market and inflation near the Fed's 2% target. While there will surely be fluctuations in interest rates over the next several years, and some moves could be harrowing, policymakers have the necessary tools, creativity, and resolve to engineer a reasonably graceful exit from QE and ZIRP.

Since the financial crisis, monetary authorities have developed a number of mechanisms for managing short-term interest rates when the banking system is awash in excess reserves, as it is today. This includes the ability to pay interest on excess reserves, term deposits, and fixed-rate reverse repurchase operations.

The fixed-rate reverse repo program appears especially effective in setting a floor under short-term rates. The Fed has been working with primary dealers and money market funds to ensure the program is effective. While there may be some changes to the program, including increasing the counterparties such as the Federal Home Loan Banks and adding to the universe of eligible collateral, it appears to be operating well.

The rate on reverse repos is likely to become the key benchmark short-term rate, with the federal funds rate and interest on excess reserves eventually harmonized to it. The repo market is especially important to the financial system. Repos allow investors to finance long positions by selling securities with an agreement to repurchase them at a later date at a specified price. This allows the efficient transformation of collateral between investors, and is thus essential to creating liquidity in financial markets.

Forward guidance

The Fed's principal mechanism for managing long-term interest rates is forward guidance—communicating to bond investors its intentions regarding quantitative easing and the size of its balance sheet and the path of short-term interest rates. Policymakers have honed their use of forward guidance, at times using calendar-based guidance and at others employing performance-based guidance.

At the mid-March meeting of the Federal Open Market Committee, policymakers dropped explicit unemployment-rate thresholds for ending QE and raising short-term rates in favor of qualitative guidance. That is, stating that the Fed's ZIRP will remain in place for a "considerable time after the asset purchase program ends," depending on "measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial developments."[xiii]

If growth accelerates this spring as expected, the current qualitative forward guidance may not be sufficient to keep long-term interest rates where policymakers want them. Bond investors will begin to pull forward expectations of the Fed's first rate hike. This will be an important test, much like the jump in long-term rates last summer when discussion of QE tapering first began. Policymakers succeeded in reining in long-term rates last fall, and they will likely need to be as creative and resolute this spring. While it will be tricky to successfully calibrate a communication strategy, odds are good they will succeed.

Fallout from higher rates

Rising interest rate cycles have been hard on the economy in times past, and there surely will be another adjustment this time. However, there are good reasons to think the adjustment will be manageable.

Arguably the biggest adjustment is already taking place in the mortgage market. Mortgage refinancing activity was going strong earlier in the year when fixed mortgage rates were hovering around 3.5%. With the average coupon on outstanding mortgages close to 5%, refinancing was robust. Refinancing by underwater homeowners was also being accelerated by a popular federal government program. However, with mortgage rates now at 4.5%, refinancing has tailed off, and if rates move much above 5%, activity will come to a standstill.

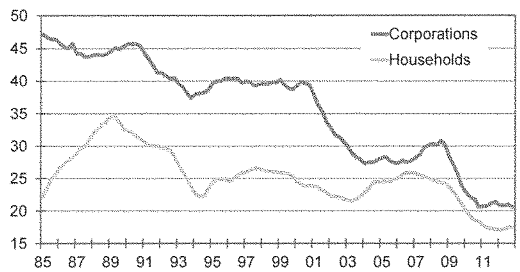
The rise in rates will dampen the housing recovery, at least temporarily. Potential first-time homebuyers are especially sensitive to any increase in rates given tight lending conditions. The average credit score for new purchase loan originations is close to 750, compared with closer to 700 prior to the recession. For context, the average credit score among all consumers with scores is about 700.

Higher rates may also have crimped the stock market rally. Stock prices have risen sharply, so it would not take much to jar them. The easy money in the stock market has probably been made, at least until the rising interest rate cycle is over.

Cushioning the fallout from rising rates on the economy is the diligence of households, businesses and government to lock in historically low rates. Households have worked especially hard at this, replacing adjustable-rate with fixed-rate mortgages. They have also paid down or defaulted on other higher cost variable-rate credit card and home equity loans. Only about 15% of household liabilities have interest rates that adjust within one year of a change in market rates. This compares with a peak of 35% in the late 1980s (see Chart 6).

Chart 6: Businesses, Households Lock In Low Rates

% of liabilities that adjust within 1 yr



Sources: Federal Reserve, BEA, Moody's Analytics

Bigger businesses have also diligently worked to raise as much cash as possible at favorable interest rates. Corporate bond issuance has surged over the past several years. Companies with the best financials are borrowing at rates close to that of the Treasury, while even companies with riskier financials have been able to borrow at record low rates. Interest coverage ratios for nonfinancial corporations—the share of cash going to debt service—are about as low as they have ever been.

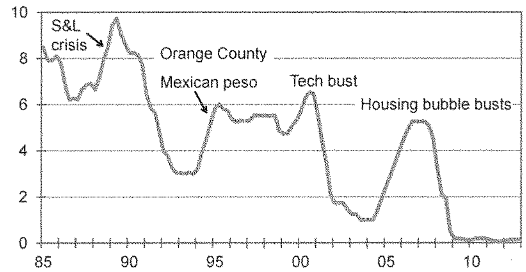
Even the federal government is scrambling to lock in low long-term interest rates. The average maturity of outstanding Treasury debt is well over five years and rising. Assuming that rates normalize over the next several years as expected, the government's interest expense as a share of GDP will remain within historical averages and not threaten the government's fiscal situation.

The nation's banking system is also well-prepared for the coming increase in interest rates. The Fed's Comprehensive Capital Analysis and Review stress-testing process has as one of its scenarios rapidly rising inflation and interest rates. The hypothetical rise in rates is so large and so fast that it is hard to imagine happening in reality, but this is the scenario the biggest banks are raising capital and liquidity to withstand. With regulators and bankers on high alert for a spike in rates, odds are low that such a scenario, if it were to come to pass, would do the kind of damage it has in past rate cycles.

This is not to say there will not be a significant misstep somewhere in the financial system as rates rise. Regardless of how well the Fed telegraphs rate increases, it would not be surprising if an unregulated financial institution were to be caught making a wrong-way bet. Similar missteps occur in all rising interest rate cycles (see Chart 7). However, with such a well-capitalized and liquid banking system, it is less likely such a financial event would become a serious macroeconomic problem this time.

Chart 7: Higher Rates Expose Excesses

Federal funds rate



Sources: Treasury, BEA, Moody's Analytics

Exceptionally favorable credit conditions also put the banking system in good stead as rates rise. Underwriting has been especially tight since the recession and, along with better household and business balance sheets means that banks will not see the credit problems suffered in earlier periods of rising rates. Delinquencies on commercial and industrial loans, credit cards, and auto loans have never been as low. Even first mortgage loan quality is fast improving, with exceptionally low and falling 30- and 60-day delinquency rates. It would take much higher rates and a much weaker economy to significantly undo this.

Banks will also benefit from a wider yield curve. Both short-term and long-term rates will rise, but bond investors will push up long-term rates well before the Fed increases short-term rates. The recent increase in long-term rates demonstrates this. While the Fed must manage long-term rates so they do not get too far ahead of short-term rates, the yield curve will widen through early 2015, fattening banks' net-interest margins, something bankers have been anticipating for some time.

Higher rates and borrowing costs pose a challenge for loan growth, however. If higher rates are driven by better economic growth and lower unemployment as anticipated, loan growth should hold up. Moreover, bankers will likely respond by easing their underwriting standards, as they should, given good credit conditions. Besides, greater credit availability will be necessary to fuel the stronger economy.

The nation's economic prospects are improving. While the recovery has faltered several times before, the economy is now in a much better place. The last serious threat to this optimism is the coming rise in interest rates. The Federal Reserve should be able to manage this, and if it succeeds as anticipated, the economy will soon be growing at full stride.

[i] See the speech "Stress Testing Banks, What Have We Learned," Bernanke, April 8, 2013. Speech at Atlanta Federal Reserve Financial Markets Conference.
http://www.federalreserve.gov/newsevents/speech/bernanke20130408a.htm

[ii] Bernanke, Ben. 2010. Speech at Jackson Hole, Wyoming.
http://www.federalreserve.gov/newsevents/speech/bernanke20100827a.htm

[iii] This is the "portfolio balance" effect. Tobin, James. 1958. "Liquidity Preference as Behavior Towards Risk." *Review of Economic Studies* 25: 124-31.

[iv] Many prominent commentators predicted such a spike in interest rates and were ultimately disproved.
http://blogs.wsj.com/marketbeat/2010/10/27/pimcos-bill-gross-qe2-is-a-ponzi-scheme

[v] This analysis is based on "How the Great Recession Was Brought to an End," Alan Blinder and Mark Zandi, July 2010. Moody's Analytics and Princeton University white paper.
https://www.economy.com/mark-zandi/

[vi] Estimating the economic impact of the Fed's policies is not an accounting exercise, but an econometric one. It is not feasible to identify and count each job created or saved by these policies. Rather, outcomes for employment and other activity must be estimated using a statistical representation of the economy based on historical relationships, such as the Moody's Analytics model. This model is regularly used for forecasting, scenario analysis, and quantifying the impacts of a wide range of policies on the economy. The Congressional Budget Office and the Obama administration have derived their impact estimates for policies such as the fiscal stimulus using a similar approach. The modeling techniques for simulating the fiscal policies were straightforward, and have been used by countless modelers over the years. While the scale of the fiscal stimulus was massive, most of the instruments themselves (tax cuts, spending) were conventional, so not much innovation was required on our part. But modeling the vast array of financial policies, most of which were unprecedented and unconventional, required some creativity, and forced some major simplifying assumptions. The basic approach was to treat the financial policies as ways to reduce *credit spreads,* particularly the three credit spreads that play key roles in the Moody's Analytics model: the TED spread, the spread between fixed mortgage rates and 10-year Treasury bonds, and the below-investment grade bond yield spread over Treasury bonds. Each of these spreads rose alarmingly during the crisis, but came down quickly once the financial medicine was applied. The key question was how much of the decline in credit spreads to attribute to the policies.

[vii] The Fed also earns more interest income on its larger bond holdings, which is remitted to the Treasury and goes to reducing the federal government's budget deficit.

[viii] The Fed's inflation target is 2% for core PCE inflation, which is roughly equivalent to 2.5% core CPI inflation given differences in the way the two measures are constructed.

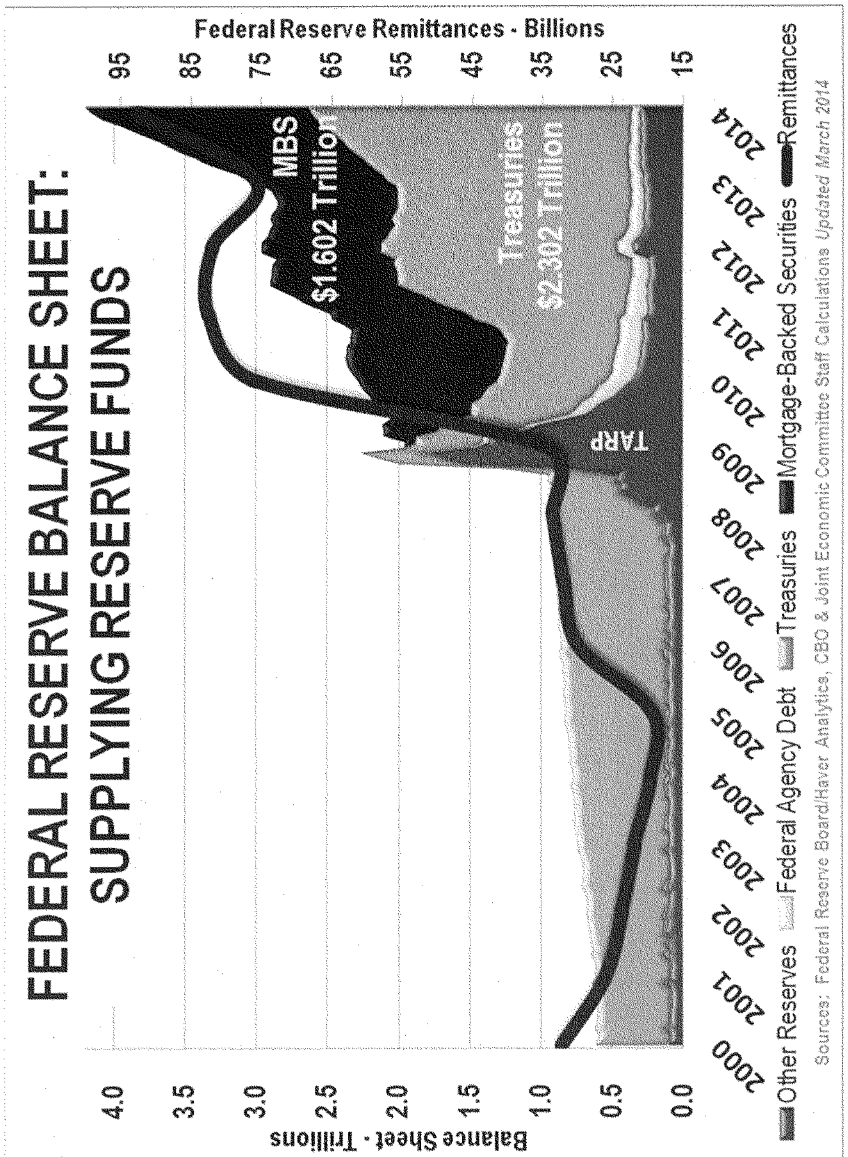
[ix] Bernanke, Ben, Vincent Reinhart, and Brian Sack. 2004. "Monetary Policy Alternatives at the Zero Bound: An Empirical Assessment." *Brookings Papers on Economic Activity* 2004-2: 1-100.

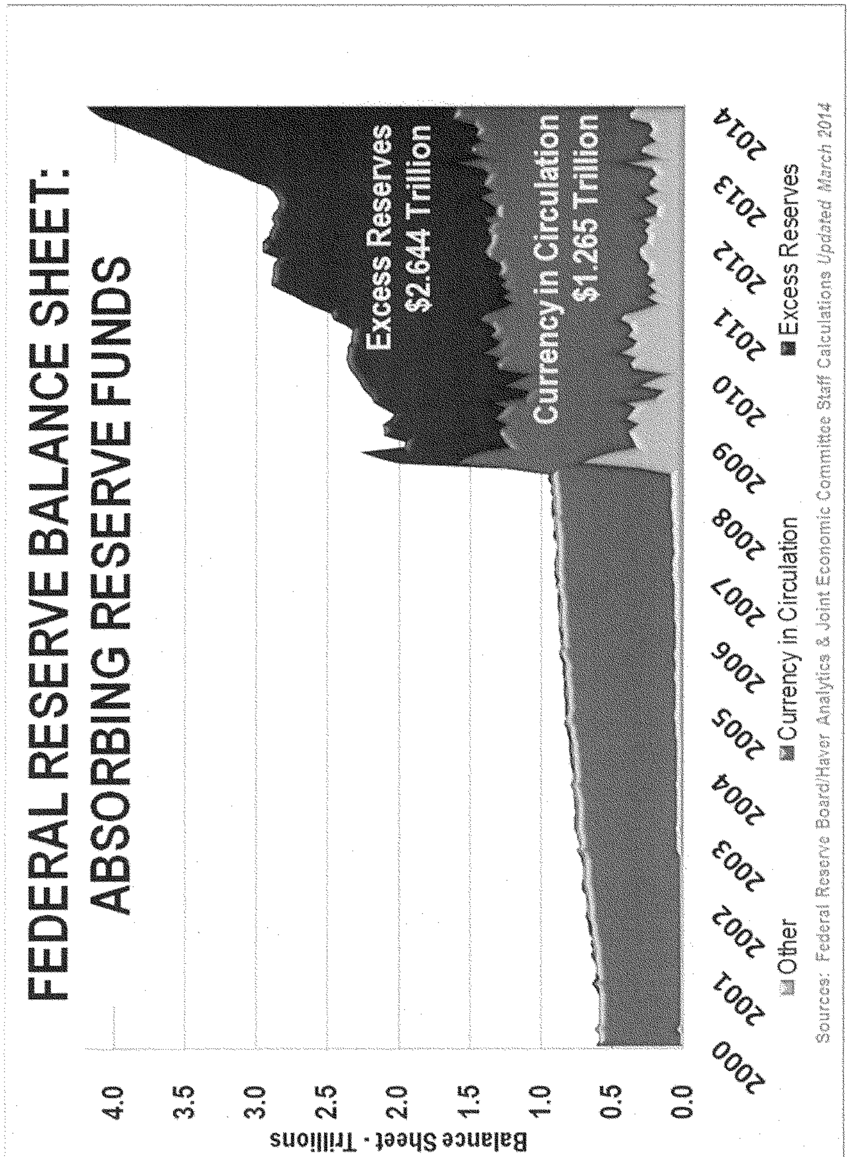
[x] Gagnon, Joseph, Matthew Raskin, Julie Remache, and Brian Sack. 2010. "Large-Scale Asset Purchases by the Federal Reserve: Did They Work?" *Federal Reserve Bank of New York Staff Reports* 2004: 17-18.

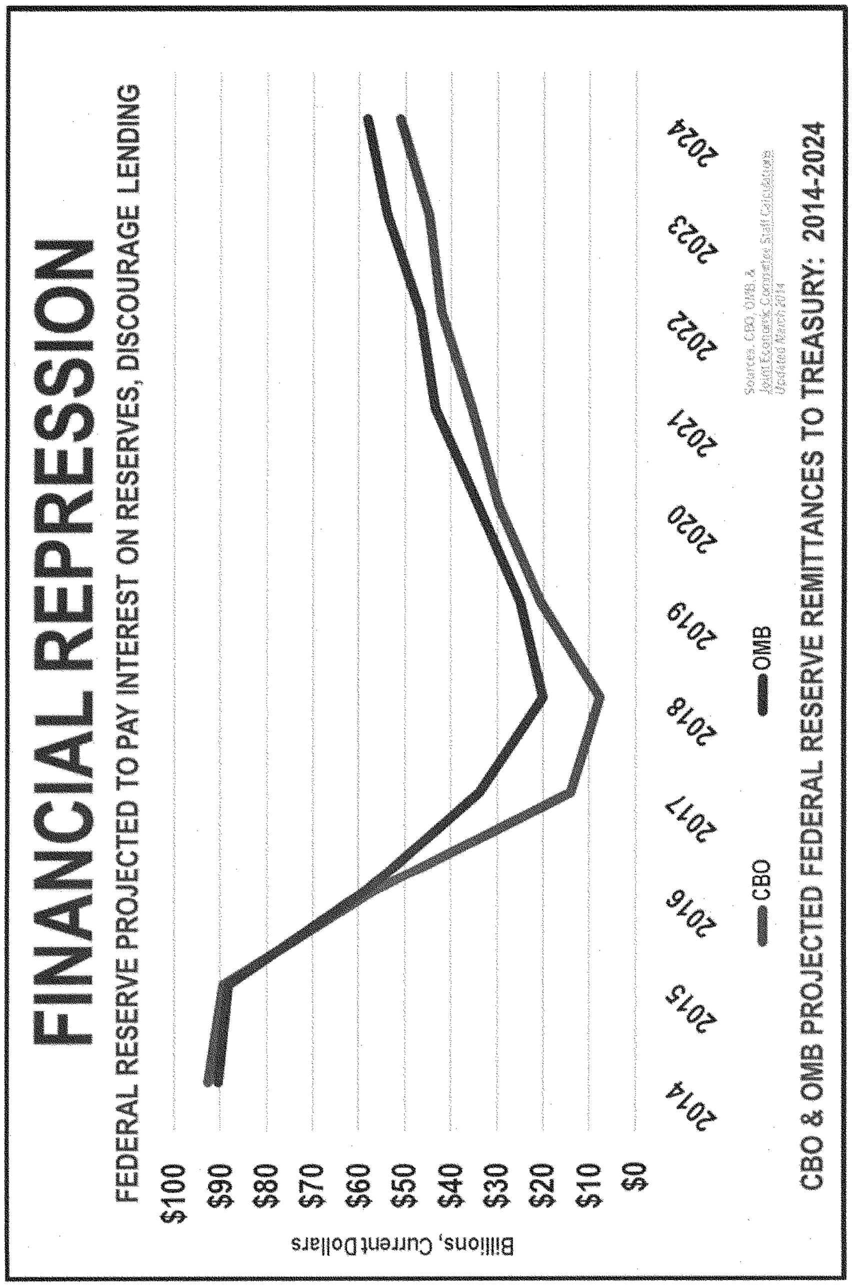
[xi] The three-year Fannie Mae-issued on-the-run debt obligation was used as a proxy for agency debt since the Federal Reserve concentrated its agency debt purchases on notes maturing within two and five years.

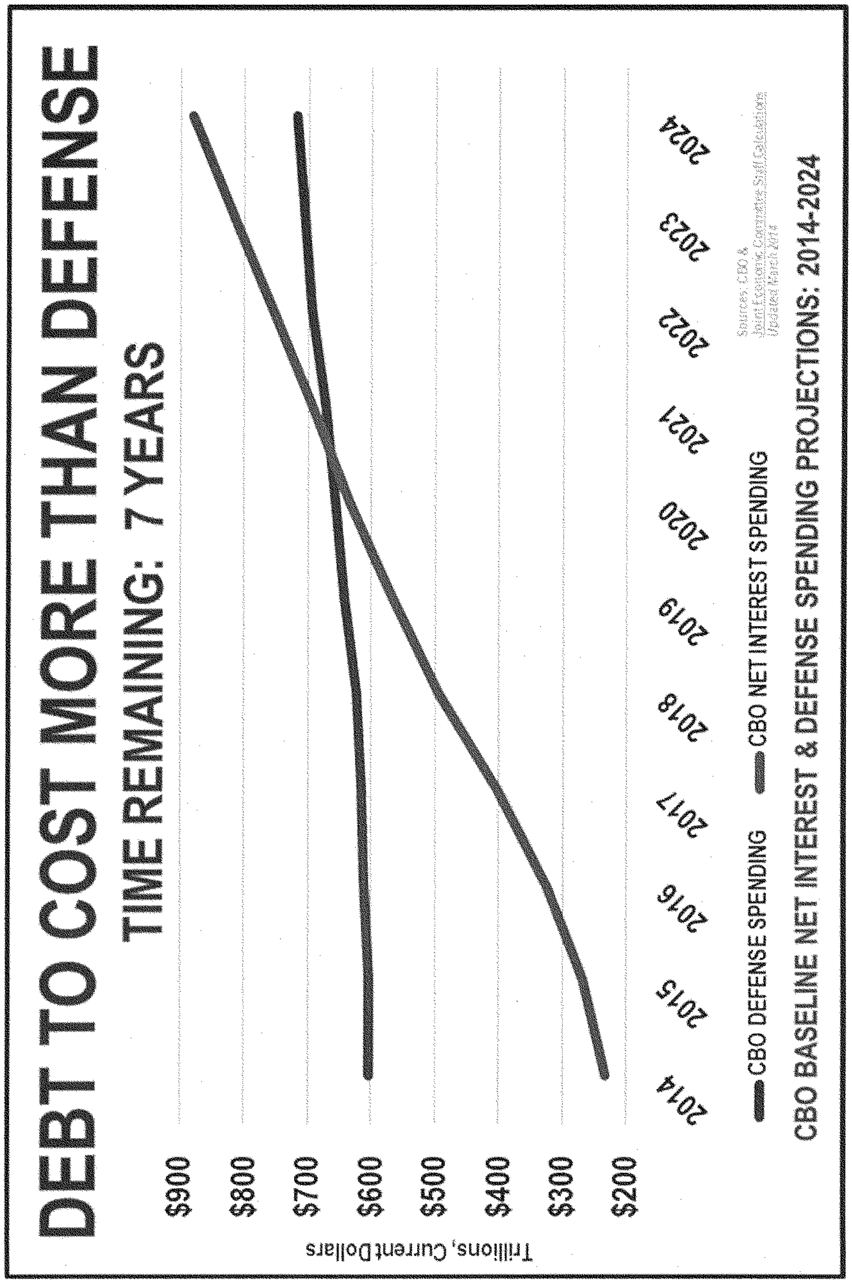
[xii] Moreover, with some of the events included in the event study, the Fed provided non-QE information that could have affected financial asset prices.

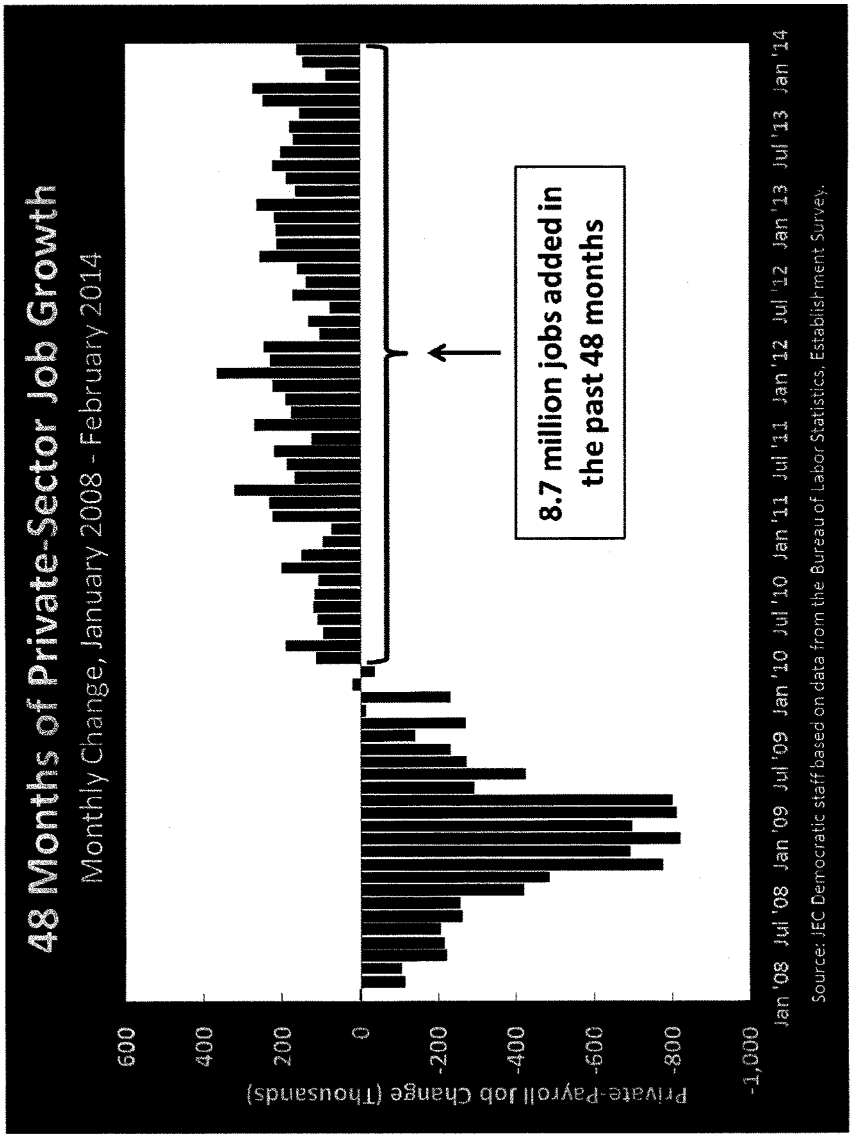
[xiii] This is from the FOMC's March 19, 2014 statement
http://www.federalreserve.gov/newsevents/press/monetary/20140319a.htm

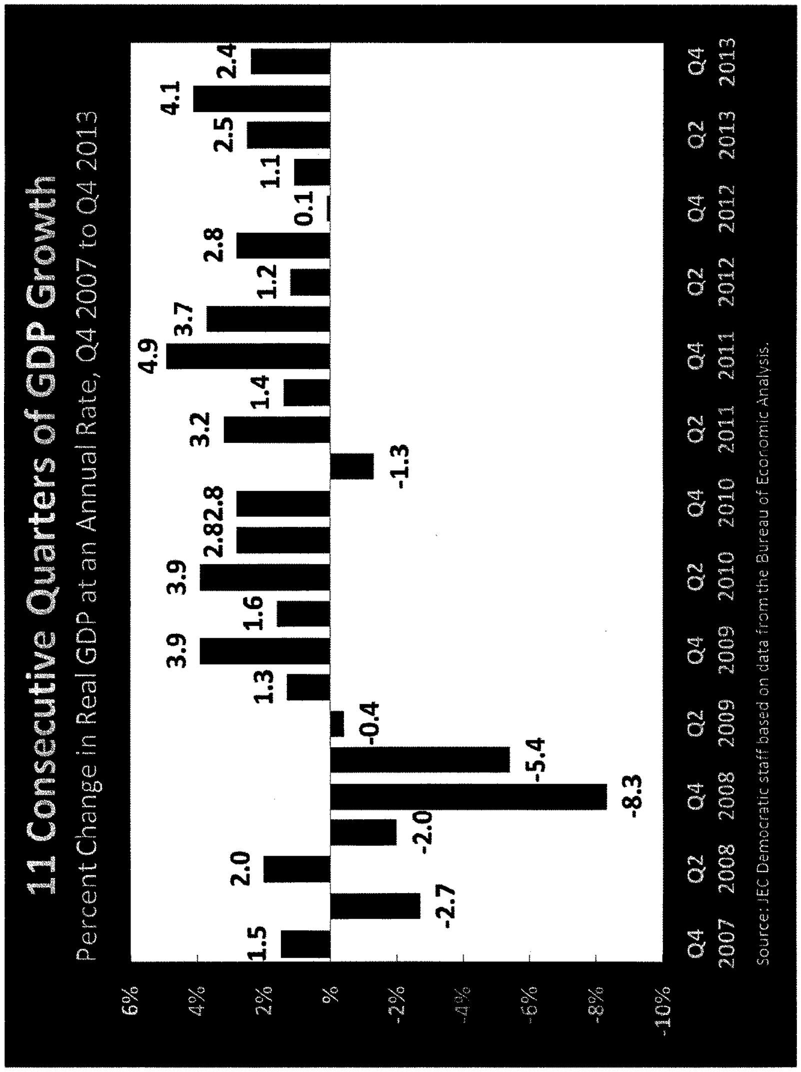

FEDERAL RESERVE BALANCE SHEET:
SUPPLYING RESERVE FUNDS
Balance Sheet - Trillions
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Federal Reserve Remittances - Billions
95
85
75
65
55
45
35
25
15
MBS
$1.602 Trillion
Treasuries
$2.302 Trillion
TARP
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Other Reserves
Federal Agency Debt
Treasuries
Mortgage-Backed Securities
Remittances
Sources: Federal Reserve Board/Haver Analytics, CBO & Joint Economic Committee Staff Calculations Updated March 2014


FEDERAL RESERVE BALANCE SHEET:
ABSORBING RESERVE FUNDS
Balance Sheet - Trillions
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Excess Reserves
$2.644 Trillion
Currency in Circulation
$1.265 Trillion
Other
Currency in Circulation
Excess Reserves
Sources: Federal Reserve Board/Haver Analytics & Joint Economic Committee Staff Calculations Updated March 2014


FINANCIAL REPRESSION
FEDERAL RESERVE PROJECTED TO PAY INTEREST ON RESERVES, DISCOURAGE LENDING
Billions, Current Dollars
$100
$90
$80
$70
$60
$50
$40
$30
$20
$10
$0
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
CBO
OMB
Sources: CBO, OMB, &
Joint Economic Committee Staff Calculations
Updated March 2014
CBO & OMB PROJECTED FEDERAL RESERVE REMITTANCES TO TREASURY: 2014-2024


DEBT TO COST MORE THAN DEFENSE
TIME REMAINING: 7 YEARS
Trillions, Current Dollars
$900
$800
$700
$600
$500
$400
$300
$200
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
CBO DEFENSE SPENDING
CBO NET INTEREST SPENDING
Sources: CBO &
Joint Economic Committee Staff Calculations
Updated March 2014
CBO BASELINE NET INTEREST & DEFENSE SPENDING PROJECTIONS: 2014-2024


48 Months of Private-Sector Job Growth
Monthly Change, January 2008 - February 2014
Private-Payroll Job Change (Thousands)
600
400
200
0
-200
-400
-600
-800
-1,000
Jan '08 Jul '08 Jan '09 Jul '09 Jan '10 Jul '10 Jan '11 Jul '11 Jan '12 Jul '12 Jan '13 Jul '13 Jan '14
8.7 million jobs added in the past 48 months
Source: JEC Democratic staff based on data from the Bureau of Labor Statistics, Establishment Survey.


11 Consecutive Quarters of GDP Growth
Percent Change in Real GDP at an Annual Rate, Q4 2007 to Q4 2013
6%
4%
2%
%
-2%
-4%
-6%
-8%
-10%
1.5
-2.7
2.0
-2.0
-8.3
-5.4
-0.4
1.3
3.9
1.6
3.9
2.8
2.8
-1.3
3.2
1.4
4.9
3.7
1.2
2.8
0.1
1.1
2.5
4.1
2.4
Q4 2007
Q2 2008
Q4 2008
Q2 2009
Q4 2009
Q2 2010
Q4 2010
Q2 2011
Q4 2011
Q2 2012
Q4 2012
Q2 2013
Q4 2013
Source: JEC Democratic staff based on data from the Bureau of Economic Analysis.