

## **Economic Recovery and Balance Sheet Normalization**

Narayana Kocherlakota  
President  
Federal Reserve Bank of Minneapolis

Minnesota Chamber of Commerce  
Bloomington, Minnesota  
April 6, 2010

Thank you for that introduction, and thank you very much for the opportunity to address the Minnesota Chamber of Commerce today. This is an impressive gathering of business owners and executives. I know that you have all recently weathered a long economic winter. On that note, let's hope this warm spring that we've been enjoying is a metaphor for our budding economy. I believe that is indeed the case. But as I will describe shortly, I think it may be a while before things get really hot again.

As you have just heard, I became president of the Federal Reserve Bank of Minneapolis about six months ago. Coincidentally, this is roughly the same time that the economy began to recover. I realize, of course, that correlation does not equal causation. But, hey, facts are facts. So I would just like to say that ... well ... you're welcome.

I'm kidding, of course, but my serious intent is to raise the issue of Federal Reserve influence on the economy. The Federal Reserve has been very active in the U.S. economy over the past two-and-a-half years. Now the economy is on the mend. It is time for the Federal Reserve to think about how to go about resuming its more traditional role. In the latter part of my speech, I will discuss one aspect of this process: Federal Reserve balance sheet normalization.

First, though, I want to talk about our "springtime" economy and offer you my forecast. Now, I have to say that the continued demand for economists' forecasts is a little puzzling to me, given our track record. On that note, it's been said that economists make predictions about gross domestic product to the hundredth decimal point for one reason: to prove that they have a sense of humor. Well, just to assure you that I am taking this all very seriously, I will keep my

forecasts to the tenth decimal point. And before I begin, let me remind you that the following views are my own, and not necessarily those of others in the Federal Reserve.

Let me start my outlook with the most troubling information first. Housing starts and sales remain at near historically low levels. These data are disturbing to many observers. And that's understandable. After many past recessions, residential investment has played a significant role in the subsequent recovery. Arguing by analogy, some are concerned that we cannot have a sustainable economic recovery unless housing starts pick up dramatically from their current low levels.

I have to say that I'm somewhat skeptical of this thinking. Yes, the housing sector is important, but residential investment makes up just 2.8 percent of the country's gross domestic product. The U.S. economy is a wonderfully diverse one, and has many possible sources of growth. We can—and I believe that we will—have significant growth in output without seeing a major turnaround in the housing market.

But suppose for a moment that we do accept the claim that housing is somehow critical for an economic turnaround. I'm not sure how, if at all, it would affect my thinking as a monetary policymaker. The Federal Reserve can only influence the housing market by manipulating interest rates. But there is little evidence that interest rates have a big influence on housing starts. For example, in a 2007 National Bureau of Economic Research paper on housing and the business cycle, UCLA professor Edward Leamer estimated a relationship between current housing starts, past housing starts, and interest rates. The Minneapolis Fed banking studies group has used Leamer's estimates to calculate the impact of a 100-basis-point permanent decrease in 10-year Treasury yields on housing starts one year from now. The group

has found that housing starts would be 11 percent higher with the rate cut than without it. This effect would be barely noticeable, given that housing starts need to nearly triple to get back to their normal level.

Housing starts are more strongly affected by the general health of the economy (job growth or loss) and the stock of housing relative to demand. As I see it, the problems in the housing sector right now are largely driven by this second factor. For a number of reasons, the nation has built a lot more houses than it now needs or wants. As a result, my own prediction is that housing starts are going to remain low—possibly for several years.

What does the large supply of housing mean for the general economy? It means that resources formerly dedicated to building and outfitting homes are gradually shifting to other uses. This points out another remarkable feature of the U.S. economy: its flexibility. Resources in the U.S. economy—from financial capital to human capital—can move freely from one sector to another. Clearly, this reallocation process is difficult in many ways. In particular, it takes place only because companies cut production or close their doors, and accordingly cut their workforces. These workers have to find jobs elsewhere, and they endure the trauma of being unemployed. Nonetheless, the reallocation process is a necessary one if an economy is to regain its health and start growing again.

The reallocation process is at work today in the United States—more slowly than we would like, but at work. Housing starts have remained at a very low level in recent months, but the economy has nonetheless begun to recover. GDP began to grow in the third quarter of 2009. In fact, that growth rate accelerated to a seasonally adjusted annualized rate of 5.6 percent in the fourth quarter.

Will this turnaround in GDP continue in the coming months and years? I believe it will, but I am not as optimistic as other economists. And since I have recently spoken at greater length about my forecast, I will give you the condensed version. My own forecast calls for about 3 percent growth per year over the next two years, as opposed to the consensus view among economists, which is 3.5 percent. This pessimism derives from two sources. First, our statistical forecasting model at the Federal Reserve Bank of Minneapolis is predicting that GDP growth over this period will be around 2.5 percent per year. The model is a simple one in many ways, but its forecasting track record is surprisingly good.

Second, financial markets have largely healed from the traumas of 2007-09. But the banking sector faces ongoing problems. Banks with large amounts of commercial real estate risk-exposure face a correspondingly elevated risk of failure. This threat could well lead to continued declines in bank lending, which would curtail the recovery.

To this point in my forecast, I have been discussing broad factors that can affect GDP growth. However, as I mentioned earlier, GDP does not tell the full story of the impact of recessions. We need to also be thinking about unemployment.

Unemployment is currently 9.7 percent. It has been higher in the post-World War II period—it reached 10.8 percent in the bleak fall of 1982. However, in the 25-year span between January 1984 and January 2009, unemployment never topped 8 percent. It is safe to say that those born after 1968 have never experienced an economic episode of this kind in their working lives. It is also safe to say that the Federal Reserve is certainly not meeting its full employment mandate when unemployment is at 9.7 percent.

Certainly, there has been some good news in labor markets. Unemployment has declined from its high of 10.1 percent in October 2009. In March, nonfarm payroll employment increased by 162,000 jobs—the biggest increase in three years. Nonetheless, I still think the outlook for unemployment is not promising. Unemployment is notoriously slow to recover, and the rate has been especially slow to decline after the last two milder recessions of 1990-91 and 2000-01. I would be surprised if unemployment were below 9 percent by the end of 2010 or below 8 percent by the end of 2011.

Let me end this discussion of my outlook on a more positive note, with a caveat to follow. The positive news in this economy is that inflation has been relatively tame. From the fourth quarter of 2007 to the fourth quarter of 2009, PCE inflation has averaged slightly less than 1.5 percent per year. Over that same period, core PCE inflation (subtracting food and energy) averaged around 1.7 percent per year. The Federal Reserve is keeping inflation at levels consistent with good long-run economic performance.

Here's the caveat: Deposit institutions are holding over a trillion dollars in excess reserves (that is, over 15 times what they are required to hold given their deposits). These excess reserves create the *potential* for high inflation. Suppose that households believe that prices will rise. They would then demand more deposits to use for transactions. Banks can readily accommodate this extra demand, because they are holding so many excess reserves. These extra deposits become extra money chasing the same amount of goods and so generate upward pressure on prices. The households' inflationary expectations would, in fact, become self-fulfilling.

Why might households expect an increase in inflation? The amount of federal government debt held by the private sector has gone up by over 30 percent since the beginning of 2008. This debt can only be paid by tax collections or by the Federal Reserve's debt monetization (that is, by printing dollars to pay off the obligations incurred by Congress). If households begin to expect that the latter will be true—even if it is not—their inflationary expectations will rise as well.

I hasten to say—and I want to stress—that I view this scenario as unlikely. For it to transpire, the country would need a combination of bad monetary policy and poor fiscal management. I do not foresee this combination as likely to occur. Nonetheless, good policy requires good choices, and policymakers at the Federal Reserve and in Congress need to keep this scenario in mind when making their decisions. I can assure you that we in the Federal Reserve have every intention of keeping our end of the bargain.

So, to summarize my economic forecast, I do think that the economy is on the mend and should continue to recover over the next two years—in terms of both GDP and unemployment—but at slower rates than we would like. The outlook for inflation is basically promising, as long as the Federal Reserve and Congress work together appropriately. And as for housing: Housing will recover eventually. In the meantime, the general economy has already begun the recovery process.

And so, the economy has begun to normalize from the events of the past 30 months. It seems like a good time for the Federal Reserve to think about how to normalize policy. I want to spend the rest of my time talking about one aspect of this normalization process. The Federal Reserve has more than doubled its assets since September 2008. This expansion has taken two

distinct forms: making new kinds of loans and buying new kinds of securities. At this point, the new loans are mostly gone from our balance sheet. The new securities are very much still with us. As a result, the Federal Reserve's balance sheet looks both larger in scale and different in composition from 2007. In the remainder of my talk, I will discuss what the FOMC is targeting as "balance sheet normalization." I will also offer some thoughts about the process needed to accomplish this goal.

I said that the Federal Reserve made new kinds of loans and bought new kinds of securities. In terms of making new kinds of loans, the Board of Governors and the New York Fed worked together to open a number of short-term lending facilities during 2008 and into 2009. Their objective was to set borrowing rates and collateral requirements on these facilities to meet two conflicting targets: Borrowers would want to use them when financial markets were strained, and borrowers would not use them when financial markets were not strained. Despite some skepticism among outside observers, the facilities worked exactly as intended.

At their onset, in late 2008 and early 2009, the new lending facilities were critical in improving the functioning of financial markets. Let me pick a date—January 28, 2009. On that date, the Federal Reserve had a balance sheet of roughly 2 trillion dollars. The Federal Reserve held 500 billion dollars worth of Treasuries and under 10 billion dollars worth of mortgage-backed securities. It held 500 billion dollars worth of central bank liquidity swaps—essentially short-term dollar loans to other central banks. And it held about 700 billion dollars worth of loans to banks and issuers of commercial paper through the discount window, the term auction facility, and the commercial paper funding facility.



Now fast-forward to January 2010. The use of the various special lending facilities had declined sharply. As a result, the Federal Reserve closed virtually all of them as of February 1, 2010, and held its last term auction on March 8. The facilities worked exactly as intended: They provided necessary support when financial markets were strained and vanished when they were not. It is worth noting too that the Federal Reserve lost not a single penny on any of these loans.

Thus, the Federal Reserve's balance sheet has normalized in the sense that this new kind of lending has largely disappeared. But as of March 24, the Federal Reserve still has a balance sheet of over 2 trillion dollars, swollen by its holdings of unusual securities. In particular, the Federal Reserve owns about 1.1 trillion dollars in agency mortgage-backed securities and about 170 billion dollars in agency debt. The term "agency" refers to the fact that these securities are issued by government-sponsored enterprises that are involved in housing finance (primarily Fannie Mae and Freddie Mac). Fannie Mae and Freddie Mac create the MBSs by buying mortgages from around the country and bundling them together. The underlying mortgages are all fixed-rate ones, and all of the mortgages in a particular MBS have the same interest rate.

These assets may sound "toxic," to use the language of 2008. But all of these instruments are guaranteed by the U.S. taxpayer, and so the Federal Reserve itself faces no default or credit risk. Of course, if many borrowers do default on their mortgages, taxpayers suffer losses because taxpayers are backing Fannie Mae and Freddie Mac. But those losses are an issue for Congress and the Treasury—they do not find their way through to the Federal Reserve.

However, the Federal Reserve faces two other forms of risk in these securities. First, these securities are long term, and so their value responds to changes in long-term interest rates. Second, if interest rates fall, then more people will prepay their mortgages as they refinance. This means that the coupon payments that the Federal Reserve receives from a given agency MBS have an additional source of sensitivity to changes in long-term interest rates.

The minutes from the January 2010 FOMC meeting say that the participants were unanimous that, in the long run, they would like the Federal Reserve to have a much smaller balance sheet. There are a number of reasons for this preference, but certainly one is the concern about inflationary risks that I discussed earlier.

FOMC participants were also unanimous that, in the long run, the Federal Reserve should be holding only Treasuries. Why does the FOMC feel this way? There are several reasons, and different participants probably put differing weight on them. The first reason is simple. We want to return to our pre-2007 ways of conducting monetary policy. We feel that we understand that framework well—although not perfectly—and want to use it again in the future.

The second reason has to do with appearances. We originally bought Fannie Mae and Freddie Mac instruments to accomplish two goals. The first objective was financial: We were trying to help improve liquidity conditions in the markets for those particular important instruments. The second objective was a macroeconomic one: The Federal Reserve wanted to lower *all* long-term interest rates. In my view, buying the agency securities was good policy, given market and macroeconomic circumstances in 2008 and 2009. But, in the long run, owning the obligations of Fannie Mae and Freddie Mae gives the impression that the Federal Reserve is

in the business of allocating credit to a particular small sector of the economy—namely, the housing sector. We don't want to be seen as being in the game of choosing which sector to back among the many in the economy.

Finally, at least some of us have a prejudice against holding long-term securities, no matter who issues them. Holding long-term securities means that we have maturity mismatches between our assets and our liabilities. These mismatches expose us to interest rate risk that we'd rather avoid.

So, the bottom line is that we want to have a smaller balance sheet and to get out of agency securities. To accomplish these goals, we could use a passive approach, an active approach, or both. The passive approach is to maintain our existing holdings of securities and engage in no further purchases or sales. Over time, some of the securities will mature. As well, people will prepay the mortgages underlying the MBSs as they sell their houses and refinance. Together, maturation and prepayment will lead to a reduction in the part of our balance sheet in MBSs.

The problem with the passive approach is that it is slow. Many of the MBSs bought by the Federal Reserve were new issues that will mature as late as 2040. As a result, if the Federal Reserve relies only on the passive approach, it will still be holding some amount of mortgage-backed securities as late as 2040. How much the Federal Reserve will be holding at that late date depends on how fast people prepay their mortgages. Prepayment speeds are hard to estimate with any degree of confidence, because they depend on rates of refinancing, and those depend on whether interest rates turn out to be high or low.

With this caveat in mind, the Federal Reserve Bank of Minneapolis banking studies group has done the following illustrative exercise. The New York Fed has every MBS owned by the Federal Reserve System listed on its Web site. The Minneapolis Fed's banking studies group obtained data from Bloomberg on the largest quintile of these MBSs by value and used those data to estimate the rate of prepayment on these MBSs over the past year. The group found that this rate of prepayment was sufficiently slow that only half of the mortgages will vanish from the balance sheet every 10 years. This estimate implies that as late as 2030, the Federal Reserve will still be holding something like 250 billion dollars in mortgage-backed securities.

So, the passive approach is a slow approach that will leave the Federal Reserve holding significant amounts of MBSs for many years to come. If the Federal Reserve wants to normalize its balance sheet in the next five, 10, or even 20 years, it needs to supplement the passive approach with an active one. In plain English, it will have to *sell* mortgage-backed securities.

Sales present an unusual challenge for the Federal Reserve, because they require us to be able to make a particular kind of credible commitment. To understand this commitment, I think that it's useful for me to talk through a situation that I see as roughly analogous.

Suppose Sarah owns two houses on the same block. Sarah decides that she wants to sell both houses. How should Sarah accomplish this change?

Clearly, if Sarah tries to sell both of her houses at once, she's going to suffer some serious losses. The houses are on the same block, and so they end up competing with each other. Sarah needs to sell the houses slowly over time, so that they don't compete with each other. Obviously, how slowly would depend on the particulars of market conditions. In my neighborhood right now, selling one house per year would be about the right speed.

So suppose Sarah puts one house on the market and tells everyone that she's not going to sell the other one until a year later. Then, she sells the first house after a month. It sells at a high price, because the buyers don't want to wait a whole year to get a house on this particular block.

At this stage, Sarah is supposed to wait a year to sell her second house. But Sarah was only planning to wait so long to sell the second house to protect the first house from competition. Once the first house is sold at a high price, she has no reason to wait. She will not fulfill her promise to wait a year.

Now think about what Sarah's inability to wait means for her first sale. The potential buyers of the first house will all realize that they won't have to wait a year to get a house on the same block. They will not be willing to pay a high price for the first house. And so Sarah's lack of credibility means that the first house will necessarily sell at the same price as if she's actually selling both houses at the same time.

The Federal Reserve faces exactly these same problems when undertaking to sell MBSs. Like Sarah, if the Federal Reserve were to sell its holdings of MBSs all at once, the sales price of the MBSs would be low. Long-term interest rates would spike up, which the Federal Reserve doesn't want. Like Sarah, the Federal Reserve can avoid this problem by spacing its sales out over time. But just like Sarah, the Federal Reserve faces a commitment problem. The Federal Reserve wants to sell gradually in large part to ensure that its early sales of MBSs are at a high price. But once those early sales are made, the Federal Reserve has an increased incentive to sell its remaining MBSs rapidly. And as in Sarah's case, if the market believes that the Federal Reserve will act on this increased incentive, the Federal Reserve will only be able to sell its early

MBSs at a low price. Under this story, any MBS sales—no matter how small—may have big effects on long-term interest rates.

So far, sales sound pretty challenging! Fortunately, the analogy between the Federal Reserve and Sarah is incomplete. The difference gets at the very heart of what the Federal Reserve is about. Our structure—and in particular our independence from Congress and the president—means that we are set up to act in the public’s long-run interest, not to maximize short-run political or monetary gain. This structure means that, with the right set of policymakers on the FOMC, the Federal Reserve can credibly make and keep long-run commitments. Indeed, our credibility has been critical in the past crisis. Since July 2007, the monetary base has more than doubled, and the public debt has gone up by over 30 percent. At the same time, though, long-run inflationary expectations—as embedded in the prices of 5-year and 10-year inflation-indexed TIPS bonds—have moved slightly, if at all. The public and markets trust the Federal Reserve to keep inflation under control—and we will fulfill their trust.

Our structure means too that the Federal Reserve can credibly commit to selling its MBSs slowly over time. Along these lines, in testimony before Congress in late March, Chairman Bernanke described how he expected MBS sales to work. He emphasized that the timing of initiating sales, like any other move by the FOMC, would depend on its assessment of economic conditions. But once conditions are right, he suggested that the Federal Reserve could reduce its balance sheet by pre-announcing and then implementing a slow, gradual path of sales.

I’ve always been a numbers guy, and so I find it helpful in my own thinking to put some actual numbers on the table. To pick one of many possible plans, suppose we were to commit to the public to sell 15 billion to 25 billion dollars worth per month of MBSs. This path of sales,

combined with prepayments, would get the Federal Reserve out of MBSs within five years after the start of selling. The plan would also return the Federal Reserve's balance sheet to a normal size, so that excess reserves would be normalized at their 2007 levels well before the end of the five-year period. Just as important, I feel confident that this pace of sales would be sufficiently slow that it would have little or no impact on MBS prices and long-term interest rates.

To sum up: It is likely that the Federal Reserve will have to sell a nontrivial amount of its MBS holdings if it is to be able to normalize its balance sheet in the next two decades. Such sales might cause untoward jumps in interest rates unless the Federal Reserve is able to credibly commit to a sufficiently slow pace. Fortunately, as is true in all realms of monetary policy, the Federal Reserve is well situated to make, communicate, and carry out such a commitment. I am optimistic that we will be able to normalize our balance sheet by the end of the teens.

I've covered a lot of ground in this talk—from the housing sector to the general economy to the Fed balance sheet. My overarching theme has been the issue of normalization after the recession. That normalization will, in my view, be slow in the housing sector. But despite the ongoing difficulties in this sector, the recovery process seems underway in the general economy. It is time for us in the Federal Reserve to begin to think about the process of normalization of our balance sheet, and how that process is likely to work.

This concludes my remarks, but let me close by thanking all of you for this invitation. Some of you in this room have worked formally with the Federal Reserve Bank in the past, either as a member of our board of directors or as a member of one of our business advisory councils. Others of you—or representatives of your companies—have shared business insights

that help us better understand what's going on in the economy. That local representation is part of what makes the Federal Reserve System unique. So thanks to all of you who have worked with us in the past, and as for the rest of you—we'll be in touch. And now I would be happy to take your questions.