"The Economic Outlook and Unconventional Monetary Policy"

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I'm very pleased to be with you today at Babson, a school known for doing a great job of preparing graduates to face the challenges of the economic landscape. Regardless of your area of concentration at Babson, the outlook for the economy is relevant to your studies and, of course, your pursuit of future employment.

This year and last, we all experienced real-life frights around Halloween, thanks to severe and unusual storms. I'm happy that Hurricane Sandy did not prevent us from getting together today at Babson, but I know our thoughts are with those in our region

and down the Eastern Seaboard who were so significantly affected by the storm – and who continue the clean-up and recovery process.

Today I plan to highlight three main points about the economic outlook. I always like to emphasize that my remarks represent my views, not necessarily those of my colleagues on the Federal Open Market Committee or at the Board of Governors.

A first point is this: while it is still early to gauge the full impact of the Federal Reserve's September monetary policy committee decision to begin an open-ended mortgage-backed security purchase program,[1] the program has so far worked as expected. The initial response in financial markets was larger than many expected. Given that our conventional monetary tool, the fed funds rate, has hit its lower bound of zero, we have turned to unconventional monetary policy. By that I mean policy that attempts to affect *long*-term interest rates directly, via asset purchases,[2] rather than indirectly by setting the *short*-term interest rate, as in conventional policy.

Unconventional policy has affected financial markets much like movements of conventional policy would have. Our use of unconventional policy tools has led to lower longer-term interest rates; higher equity prices; and, in a peripheral by-product of lower U.S. rates, exchange-rate effects.

By further easing financial conditions, the Fed's actions appear to be providing additional stimulus to the household sector – as witnessed recently by higher consumer confidence, and increases in purchases of interest-sensitive items such as new homes and cars. Certainly, concerns about such issues as the looming "fiscal cliff" in the U.S. and slow growth in many developed countries do appear to be depressing business spending. Still, our actions are likely to spur faster economic growth than we would have had

without this additional stimulus – and, as you know, economic growth has been painfully slow.

My second point is that the increased quantity of bank reserves that resulted from these unconventional monetary policy actions have not resulted in inflation above our 2 percent target. If you look over a longer period such as from 2000 to the present, *total* PCE[3] inflation has averaged 2.2 percent and *core* PCE inflation[4] has averaged 1.9 percent – in either case very close to the 2 percent target announced at the beginning of this year. The fact that we continue to undershoot our inflation target while unemployment remains high is, in my view, a very strong rationale for maintaining a highly accommodative stance for monetary policy.

My third point is that in addition to stable prices, the Federal Reserve is charged with attaining maximum sustainable employment – what we call our *dual* mandate, and this has implications for asset-purchase policies (and when to stop them). The statement issued after our last policy meeting highlighted that we expect to continue the asset purchase program until the economy experiences significant improvement in labor market conditions. How forcefully and how long to pursue asset purchases is complicated – by the uncertainty surrounding the effects of unconventional policies; by the usual difficulty in assessing progress toward our dual mandate (given the sometimes noisy signals of both inflationary pressure and labor market conditions); and by the reality that the amount of stimulus provided by our asset purchases depends in part on market participants' assessment of the likely size of the asset purchase program.[5]

The last complication is the result of the open-ended asset purchase program, since it does not entail a fixed amount or duration of purchases; in this respect it is more

like conventional policy in the past. In fact, the decision of when to stop easing during a recovery is a complicated matter even in more normal times, when pursuing conventional monetary policy through changes in the federal funds rate. Importantly, the economic conditions associated with the last easing action during a recovery are highly dependent on the extent of inflationary pressures at the time.

Given that the current inflation rate is quite low and is expected to stay low for several years, we have the flexibility to push for more improvement in labor markets than if inflation were not so subdued. My own personal assessment is that as long as inflation and inflation expectations are expected to remain well-behaved in the medium term, we should continue to forcefully pursue asset purchases at least until the national unemployment rate falls below 7.25 percent and then assess the situation.

I think of this number as a threshold, not as a trigger – and the distinction is important. I think of a trigger as a set of conditions that necessarily imply a change in policy. A threshold, unlike a trigger, does not necessarily precipitate a change in policy. Instead, I think of my proposed threshold as follows. Once the unemployment rate declines to this level, we would undertake a full assessment of labor market conditions and inflationary pressures to determine whether further asset purchases are consistent with the desired trajectory for reaching our inflation and unemployment mandates in the medium term. Thus, a threshold precipitates a discussion and a more thorough assessment of appropriate policy, versus a trigger which starts a change in policy. As an example, suppose we reach one’s threshold unemployment rate but at that time the economy is slowing, and no further improvement in the unemployment rate is expected in

the short to medium term. This hypothetical situation would not necessarily imply a change in policy stance, especially if inflation was projected to remain below target.

Let me say also that an unemployment rate of 7.25 sounds high, but achieving an unemployment rate of 7.25 percent would require real GDP growth of roughly 3 percent for a year. That would be growth that is a full percentage point faster than the economy's so-called "potential" rate of growth, making this a challenge to achieve.

And as I noted, this is a threshold, not a trigger – at the 7.25 percent threshold the assessment of continued asset purchases would commence. It is worth noting that a variety of factors outside the realm of monetary policy (for example demographics) affect how low unemployment can get without igniting inflationary pressures.[6] But my own personal view is that if inflationary pressures remain muted, then labor market conditions would need to be more like 6.5 percent unemployment to warrant the federal funds rate being lifted off the zero bound.

The Economic Outlook

With that preview, let me say a bit about the economic context and outlook. We are in the third year of the recovery, and the economy has averaged close to 2 percent growth over that time, which is faster than many other advanced economies but too slow to return the nation to anything like full employment anytime soon.

To promote faster growth, with the hope of speeding up improvement in labor markets, the Federal Reserve announced additional monetary accommodation at our September 2012 policy meeting.[7] Three key aspects of the announcement were the continuation of our approach to exchanging short-term securities for long-term securities

through December (the maturity extension program), the plan to purchase $40 billion in mortgage-backed securities each month until significant improvement in labor markets is achieved, and the indication that short-term rates are expected to remain exceptionally low through mid-2015.

Now I would like to say a bit more about each of my three main points – the effect of unconventional policy, the inflation outlook, and the dual mandate and its implications for asset purchase policies.

Point #1: The Effect of Unconventional Policy

Given both the July statement of the policy committee, and Chairman Bernanke's August speech at the annual Jackson Hole economic symposium, there was a good deal of anticipation in financial markets that more forceful policy action would be taken.[8] Both were interpreted as indicating a likelihood of further action.

As **Figure 1** shows, many financial markets began moving well before the September announcement – and by the time of the actual announcement stock prices had risen, mortgage rates had fallen, corporate bond rates had fallen, and exchange rates had declined modestly (a peripheral by-product of lower U.S. rates). Such movements in financial markets are quite consistent with the normal reaction to conventional monetary policy announcements.

The effect of policy on longer-term rates seems in turn to be having a positive impact on the economy. To affect growth in the economy, financial market movements need to encourage firms and households to adjust their behavior. Of course, while it remains too early to fully assess the effect of our September action, households appear to

be reacting to the easing in financial conditions. **Figure 2** shows the four-week moving average of mortgage loan applications. One line reflects the refinance index, which has clearly been trending up recently. Even more encouraging has been the increase in the purchase index. The drop in mortgage rates at this time has the potential to be particularly effective given that housing prices in some regions of the country are beginning to rise. That, coupled with the risk that rates will rise once the purchase program is over, provides incentives not to defer purchase decisions.

Figure 3 shows that this increased activity is beginning to generate new home construction, as housing starts have been trending up recently. This is consistent with the more qualitative anecdotes I hear from bankers around New England – that they are seeing, and are willing to lend to, strong construction firms that are selling new homes once they are built.

There are, of course, other channels that transmit the Fed's action to the economy. Unconventional monetary policy actions have produced strength in several interest-rate-sensitive sectors since they began in earnest – building on the earlier moves to quickly make policy accommodative as the financial crisis and recession unfolded, and to keep policy accommodative in light of a very tepid recovery. **Figure 4** shows that auto loan rates at commercial banks also have been declining. The low cost of financing cars, along with positive wealth effects from increases in housing prices and stock prices, have helped to stimulate more robust auto sales – as you can see in **Figure 5**.

Figure 6 shows that consumer durables have been stronger in this recovery than during the previous two recoveries. This is despite a very weak housing market which presumably limited many durable goods purchases commonly associated with home

buying. Despite this significant "headwind," I think we can say that the accommodative stance of monetary policy and indeed the use of unconventional monetary policy have helped make interest-sensitive consumer durable purchases more affordable.

While the household sector has been responding to monetary policy actions, the response by businesses has been more muted. Firms appear to be deferring decisions until they have better clarity on the U.S. fiscal situation and on the likely path of international economic conditions. However, a continued household sector rebound is likely to improve demand and business conditions, encouraging more business investment – particularly once some of these downside risks and uncertainties are resolved.

Point #2: The Inflation Outlook

One of the concerns voiced about unconventional monetary policy is that expanding the Federal Reserve's balance sheet – injecting large quantities of reserves into the banking system – could be inflationary. Let's look to the data to assess this concern.

Figure 7 provides a measure of inflation – changes in the total personal consumption expenditure price index for the period since 2000. The average of year-over-year changes in the PCE price index has been 2.2 percent, quite close to our 2 percent target. However, it has been quite variable over the period, with PCE inflation significantly exceeding 3 percent during some periods and actually turning negative in the midst of the Great Recession. This volatility is partly attributed to periods of food and energy shocks, where price movements have tended to be sharp but temporary.

Figure 8 provides the changes in the personal consumption expenditure price index removing these volatile food and energy components. To be sure, the Fed is concerned about inflation including these components, as food and energy constitute an important share of essential household expenditures for people. But temporary movements in these components can obscure the underlying trend in overall inflation, so it can be useful to look at the inflation rate taking out food and energy. Over this period, the core PCE inflation rate has averaged 1.9 percent, which is slightly below our 2 percent target for total PCE inflation. And you can see that the core inflation measure has been far less volatile, remaining in a range between 1 and 3 percent.

Figure 9 shows both PCE and Core PCE inflation expressed as quarterly changes at annual rates. Over the past 12 years there have been a large number of quarters in which inflation has exceeded 2 percent – thus 2 percent has never been a "ceiling" for inflation. The distribution of quarterly *core* PCE inflation shows many fewer extreme observations, but nonetheless has exhibited a fairly broad range of outcomes. So while recent history has seen an underlying rate of inflation that is relatively stable around our target, I would suggest that attempting to hold actual inflation in lockstep with our 2 percent target over short timeframes is probably not realistic.

Beyond the U.S. situation, I would also point to Japan's experience as instructive. As I have pointed out many times, despite having an expanded balance sheet for an extended period, the Japanese continue to struggle with a deflation problem rather than an inflation problem.[9]

Point #3: The Implications for Asset Purchase Policies

The Fed's recently announced, unconventional asset purchase policies do seem to be having the desired effects, and the inflation rate remains below our 2 percent target. However, this policy action included the announcement that asset purchases will continue until the outlook for the labor market improves substantially. In other words, the policy action is open-ended versus time-bound. Should the economy experience another shock – say from a U.S. "fiscal cliff" situation or a shock from abroad, then we could lengthen the period of purchases or increase the amounts (or both). Similarly, favorable shocks would mean that we would purchase fewer securities.

The open-ended approach is particularly useful to convey that monetary policy will serve as an "automatic stabilizer" should shocks occur – one hopes at least mitigating possible shocks that could buffet the economy. I say "mitigating" because monetary policy would not necessarily be able to fully and immediately offset large shocks.

As with conventional monetary policy, decisions about the ideal timing for ending unconventional monetary stimulus require balancing a variety of considerations. **Figure 10** shows the economic conditions at the end of the easing cycle for the last three recessions. The end of the easing cycle in 1992 started despite weak labor markets, in part because of the high inflation rate at the time. The end of the easing cycle in 2001 occurred when the unemployment rate had fallen to 6.1 percent, in part because inflation was only 1.9 percent at the time.

The figure highlights that ending a cycle of easing during a recovery is highly dependent on a variety of economic factors. With lower inflation rates, it is possible to maintain the easing until the labor market shows more significant improvement. This

would be consistent with a balanced approach to both elements of the Fed's dual mandate.

The variables actually considered by policymakers are much broader than the variables reflected in Figure 10. No single variable perfectly captures the underlying rate of inflation, as the sharp differences between core and total PCE indicate. Similarly, no single variable perfectly captures conditions in the labor market – for example, unemployment rates can fall because workers become discouraged and leave the labor force, or because of a rapid expansion in hiring.

Even if there were single variables that fully captured labor market conditions and inflationary pressures, the future path of those variables would depend on a wide range of factors. Most importantly, and consistent with the definition of a threshold discussed earlier, an unemployment rate of 7.25 percent when growth is expected to be below 2 percent is very different from the same rate when growth is expected to be 4 percent or higher. In the first case, one might expect labor market conditions to deteriorate in future quarters. In the second, one would normally expect to see further significant improvement in labor market conditions.

Furthermore, because we are far from our normal policies, we must acknowledge the uncertainty surrounding the efficacy of these policies, as well as our ability to execute a graceful exit from unconventional policy (that is, to return to conventional federal funds rate policy, and to reduce our large balance sheet to a size more consistent with a normally-functioning economy). Given the lack of historical experience in exiting such a large balance sheet, the possibility of unintended consequences should not be dismissed. We are very attuned to these concerns and are working to address them.

Despite the challenge to communicating in simple terms the likely exit strategy, I will say that my own preference would be to continue asset purchases until we had at least reached an unemployment rate of 7.25 percent, given the low rates of inflation we have been experiencing and are likely to be experiencing over the medium term – however, I will say again that this is a threshold, not a trigger. Assuming that inflation and inflation expectations remain well-behaved, at that point the discussion should center on whether *overall* labor market conditions are consistent with "substantial improvement" – for example, whether the lower unemployment rate reflects job creation rather than reductions in the labor force as discouraged workers stop seeking jobs; whether we are seeing sustained, robust payroll employment growth; and whether we envision continued substantial improvement in labor markets for some quarters to come. Under those conditions, I would stop asset purchases.

Concluding Observations

In summary and conclusion, let me reiterate that household spending patterns are consistent with some improvement in the economy, and appear to be responding (as desired) to monetary policy accommodation. Nonetheless, abrupt fiscal austerity or adverse shocks from abroad could still overwhelm the nascent positives. Hurricane Sandy's effects could exact a toll on the fourth-quarter performance of the economy. In general, potential downside risks make an open-ended monetary policy particularly attractive, because policy can recalibrate in response to such shocks without starting up new programs.

Certainly I hope that these risks will subside, and we will quickly see more improvement in the economy – leading to a substantial improvement in labor markets and an early end to our asset purchase program.

Thank you again for inviting me to speak with you at Babson, and I would be happy to field a few questions from the students and faculty here today.

NOTES:

[1] See the overview by Chairman Ben Bernanke in the Question 1 section of "Five Questions about the Federal Reserve and Monetary Policy" – remarks at the Economic Club of Indiana available on the Board of Governors web site at http://www.federalreserve.gov/newsevents/speech/bernanke20121001a.htm

[2] Also see remarks by Federal Reserve Governor Jeremy C. Stein on "Evaluating Large-Scale Asset Purchases", available on the Board of Governors website at http://www.federalreserve.gov/newsevents/speech/stein20121011a.htm

[3] Personal Consumption Expenditures

[4] Core measures set aside the volatile food and energy elements that the Fed cares about but cannot control.

[5] So the way it is communicated can affect the amount of stimulus to the economy.

[6] Fed Chairman Ben Bernanke has noted that "whereas monetary policymakers clearly have the ability to determine the inflation rate in the long run, they have little or no control over the longer-run sustainable unemployment rate, which is primarily determined by demographic and structural factors, not by monetary policy. … [T]he sustainable unemployment rate can only be estimated, and is subject to substantial uncertainty. Moreover, the sustainable rate of unemployment typically evolves over time as its fundamental determinants change." See "Monetary Policy Objectives and Tools in a Low-Inflation Environment" – remarks at the Revisiting Monetary Policy in a Low-Inflation Environment Conference, Federal Reserve Bank of Boston, October 15, 2010, http://www.federalreserve.gov/newsevents/speech/bernanke20101015a.htm

[7] The announcement is available at http://www.federalreserve.gov/newsevents/press/monetary/20120913a.htm

[8] "Monetary Policy since the Onset of the Crisis", available at the following link on the Board of Governors website: http://www.federalreserve.gov/newsevents/speech/bernanke20120831a.htm

[9] See "Acting to Avoid a "Great Stagnation" available at http://www.bostonfed.org/news/speeches/rosengren/2012/092012/index.htm - and in particular Figure 9.