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Additional easing by the Fed at its September FOMC meeting

- Given the weak pace of the economic recovery and the recent disappointing employment report, the Fed will very likely announce a new round of quantitative easing at the September 12-13 FOMC meeting.
- The evidence from the past few years indicates that both forward guidance and large-scale asset purchases are powerful monetary policy tools when short-term interest rates are constrained by the zero bound.
- We expect the FOMC to proceed with an extension of its forward rate guidance with a promise to keep rates at exceptionally low levels until mid or late 2015 compared to the current guidance for late 2014. Forward guidance since the adoption of the zero bound has led to an immediate decline of 14bps on average in long-term yields.
- It is also very likely that the Fed will announce an open-ended asset purchase program, having the flexibility to adjust to economic and labor market developments. We expect purchases to include mortgage-backed securities as well as Treasuries, on top of what is bought under the ongoing Operation Twist program.
- Empirical estimates of asset purchases' effects on Treasury yields lie in the neighborhood of 15-20bps decline in 10y Treasury yields for every $600 bn asset purchases. This effect is equivalent to the effect of a 75bps cut in the federal funds rate.

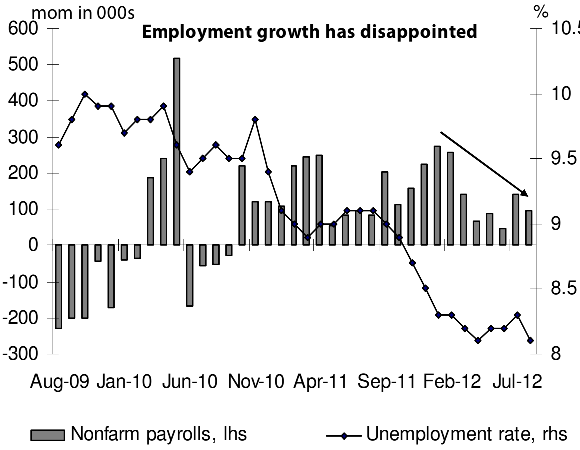
The statement and minutes of the August FOMC meeting and Chairman Bernanke's speech at the 2012 Jackson Hole Symposium had a clear dovish tone, with the Fed ready to provide further monetary accommodation unless incoming information on economic and financial conditions points to "a substantial and sustainable strengthening in the pace of the recovery". The chairman has highlighted his "grave concern" for labor market stagnation, citing his growing impatience with the unemployment rate which currently stands far above levels consistent with maximum employment. After a brief acceleration in job growth in July which gave hope for a stronger labor market recovery, the August employment report came in weaker than expected, with nonfarm payrolls increasing just 96k (Figure 1). Although the unemployment rate ticked down to 8.1% from 8.3% in the previous month, this decline was fully attributed to a decline in the labor force participation, as civilian employment actually declined by 119k. Given the weak pace of the economic recovery and the recent disappointing employment report, there is a strong case for additional Fed easing at the September 12-13 FOMC meeting.

The evidence from the past few years indicates that both forward guidance and large-scale asset purchases are powerful monetary policy tools when short-term interest rates are constrained by the zero bound[1]. As far as forward guidance is concerned, several studies have examined

[1] *Williams C. John.2011. "Unconventional Monetary Policy: Lessons from the Past Three Years." FRBSF Economic Letter 2011-31 (October 3)*

the effects of central bank communication[2] and concluded that Fed's policy statements have significant effects on economic decisions and expectations about the future path of policy rates and, consequently, on long-term interest rates. Professor Michael Woodford of Columbia University[3] has stated that forward guidance at the zero bound, i.e. the central bank's commitment to a specific policy path, is more effective than forward guidance in normal times, i.e. FOMC participants' policy rate projections.

Figure 1



Source: US Bureau of Labor Statistics

Examining how the ten-year Treasury yield has reacted on days when the FOMC changed its policy towards a more dovish direction, we find evidence of the powerful effects of forward guidance at the zero bound. In particular, ten-year Treasury yields fell by an average of 14 bps following the August 2011 and January 2012 announcements, when the FOMC committed to exceptionally low levels for the fed funds rate until mid-2013 and late-2014, respectively. On the contrary, ten-year Treasury yields have only fallen by an average of 6 bps on days when an easing bias was adopted from 2000 until 2008, before the enforcement of the zero rate bound.

Large-scale asset purchases (LSAPs) are the main alternative to forward guidance in the unconventional monetary policy field. The Federal Reserve carried out three rounds of asset purchases since the onset of the crisis in 2007 (Table 1). The first two rounds (the so-called Quantitative Easing 1-QE1) took place in November 2008 and March 2009, firstly announcing purchases of $500bn in agency mortgage-backed securities (MBS) and $100bn in agency debt, and secondly expanding its mortgage buying program with additional purchases of $750bn in agency mortgage-backed securities, $100bn in agency debt and $300bn in longer-term Treasury securities. The third round of asset purchases (QE2) was announced in November 2010, i.e. additional $600bn of longer-term Treasury securities. There are a number of theories that deal with the channels through which LSAPs affect Treasury yields and generally financial conditions[4], the most significant of which are signaling and portfolio rebalancing effects. The signaling channel works through the effects asset purchases have on investors' expectations of future short-term rates. The portfolio balance channel works through the removal of Treasuries and mortgage-backed securities from the market, lowering yields on these assets and on other securities that investors may rebalance into. Woodford's paper on methods of policy accommodation at the zero bound[5] questions the effectiveness of Fed asset purchases and concludes that they are a useful tool mainly to the extent that they reveal guidance about future monetary policy actions. A simple event study that registers the decline in the ten-year Treasury rate on days of quantitative easing announcements shows that ten-year yields have fallen by an average of 15 bps following each announcement (Table 1). Empirical estimates of LSAP effects on Treasury yields lie in the neighborhood of 15-20 bps decline in the ten-year Treasury yield for every $600 bn US LSAP[6], except for a few outliers (Table 2). The estimated effect of 15-20 bps is not small, as it is equivalent to the expected decline in the ten-year Treasury yield due to a 75 bps cut in the fed funds rate[7].

Michael Woodford also argued that the Fed should focus on strengthening its forward guidance with a commitment that is dependent on the outlook of the US economy. President Evans of the Chicago Fed has made such a proposal, with the FOMC committing to zero fed funds rates until the unemployment rate has declined to 7%, provided that medium-term inflation does not exceed 3%. Although Woodford finds President Evans' proposal more effective that the current policy stance, he

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[2] *Gurkaynak, Refet, Brian Sack, and Eric Swanson. 2005. "Do Actions Speak Louder Than Words? The Response ofAsset Prices to Monetary Policy Actions and Statements." International Journal of Central Banking 1(1, May), pp. 55–93.*

[3] *Woodford, Michael.2012. "Methods of Policy Accommodation at the Interest-Rate Lower Bound." To be presented at the Jackson Hole Symposium, "The Changing Policy Landscape, August 31-September 1, 2012 (20, August).*

[4] *Krishnamurthy, Arvind, and Annette Vissing-Jorgensen. 2011. "The Effects of Quantitative Easing on Interest Rates." Brookings Papers on Economic Activity, forthcoming.*

[5] *See footnote 3.*

[6] *See footnote 1.*

[7] *Chung, Hess, Jean-Philippe Laforte, David Reifschneider, and John Williams. 2011. "Have We Underestimated the Likelihood and Severity of Zero Lower Bound Events?" Federal Reserve Bank of San Francisco Working Paper 2011-01.*

Table 1: Quantitative Easing Announcements

Date	Announcement	1-Day Change in 10y Treasury Yield
November 25, 2008	Purchases of up to $500bn in agency mortgage-backed securities (MBS) and up to $100bn in agency debt.	-0.24
March 18, 2009	Purchases of up to an additional $750bn in agency mortgage-backed securities (MBS), up to $100bn in agency debt and up to $300bn in longer-term Treasury securities over the next six months.	-0.51
November 3, 2010	Purchase of additional $600bn in longer-term Treasury securities by the end of Q2 2011, a pace of about $75bn per month.	+0.04
September 21, 2011	Purchases of $400bn in Treasury securities with remaining maturities of 6 years to 30 years and sales of an equal amount of Treasury securities with remaining maturities of 3 years or less by the end of Q2 2012 (Operation Twist)	-0.07
June 20, 2012	Continuation of the Operation Twist through the end of 2012. This continuation will result in the purchase, as well as the sale and redemption, of about $267bn in Treasury securities by the end of 2012.	+0.01
Average		**-0.15**

Source: Federal Reserve

believes that a nominal GDP level target would be even more effective. We do not believe that the Fed is ready for such an aggressive strengthening of its forward guidance, given that the gap between current nominal GDP and the pre crisis level could presuppose a period of higher inflation. Besides, it should be noted that although headline consumer price inflation has declined from its recent high of 3.9% y-o-y in September 2011 -when the Operation Twist was launched- to 1.4% in July 2012, core consumer prices have been hovering above 2% on an annual basis since October 2011, so a further increase in consumer prices would not be in line with Fed's dual mandate.

We expect the FOMC to proceed with an extension of its forward rate guidance with a promise to keep rates at exceptionally low levels until mid or late 2015, compared to the current guidance for late 2014. The minutes of the 31 July-1 August revealed that the majority of FOMC participants were already in favor of such a change but the Committee decided to wait for the publication of the updated summary of economic projections in September. Furthermore, it is very likely that the Fed will announce an open-ended purchase program, where the Fed announces at each meeting a monthly or quarterly flow rate of asset purchases, without putting a ceiling on the asset purchase program. Such a move would give the Fed the flexibility to adjust to incoming economic data and do whatever is needed to ensure a more sustainable labor market recovery. Besides, many FOMC participants have recently indicated that "any new purchase program should be sufficiently flexible to allow adjustments, as needed, in response to economic developments or to changes in the Committee's assessment of the efficacy and costs of the program". We expect purchases to include mortgage-backed securities as well as Treasuries, on top of what is bought under the ongoing Operation Twist program. Although an open-ended and conditional purchase program is a first step towards Evans' proposal, we do not attach a high probability for such an outcome, as such a radical move would require a significant deterioration in economic and labor market conditions.

Table 2: Empirical estimates of LSAP effects

Study	Sample	Method	Estimated effect of $600 billion LSAP (±2 std errs if avail.)
Modigliani-Sutch (1966, 1967)	Operation Twist	time series	0 bp (±20 bp)
Bernanke-Reinhart-Sack (2004)	Japan, U.S.	event study	400 bp (±370 bp), 40 bp (±60 bp)
Greenwood-Vayanos (2008)	postwar U.S. (pre-crisis)	time series	14 bp (±7 bp)
Krishnamurthy-Vissing-Jorgensen (2010, 2011)	postwar U.S., QE1, and QE2	time series	15 bp (±5 bp)
Gagnon-Raskin-Remache-Sack (2011)	QE1	event study, time series	30 bp (±15 bp), 18 bp (±7 bp)
D'Amico-King (2010)	QE1 Treasury purchases	security-specific event study	100 bp (±80 bp)
Hamilton-Wu (2011)	QE2	affine no-arbitrage model	17 bp
Hancock-Passmore (2011)	QE1 MBS purchases	time series	depends, roughly 30 bp
Swanson (2011)	Operation Twist	event study	15 bp (±10 bp)
Joyce-Lasaosa-Stevens-Tong (2011)	U.K. LSAPs	event study, time series	40 bp
Neely (2011)	effect of U.S. QE1 on foreign bond yields	event study	17 bp (±13 bp)

Source: Williams C. John.2011. "Unconventional Monetary Policy: Lessons from the Past Three Years." FRBSF Economic Letter 2011-31 (October 3)

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