GETTING AHEAD OF THE CURVE

How Taper 2.0 May Affect Bond Returns

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EXECUTIVE SUMMARY

How might the Fed's plan to reduce its bond-buying program affect returns and risk for Treasurys and mortgage-backed securities? With the Federal Reserve's monetary policy meeting occurring this week, the Fed might provide more clarity on its efforts to unwind its $4.5 trillion portfolio.

After nine years of quantitative easing ("QE") – large-scale security purchases to help stimulate economic growth – the Fed announced last month that it would reduce the amount of Treasury and mortgage-back securities (MBS) it buys every month. The Fed first broached this tapering idea in May 2013, but uncertainties on how the plan would be implemented led to market turmoil in the second half of 2013, known as the "taper tantrum."

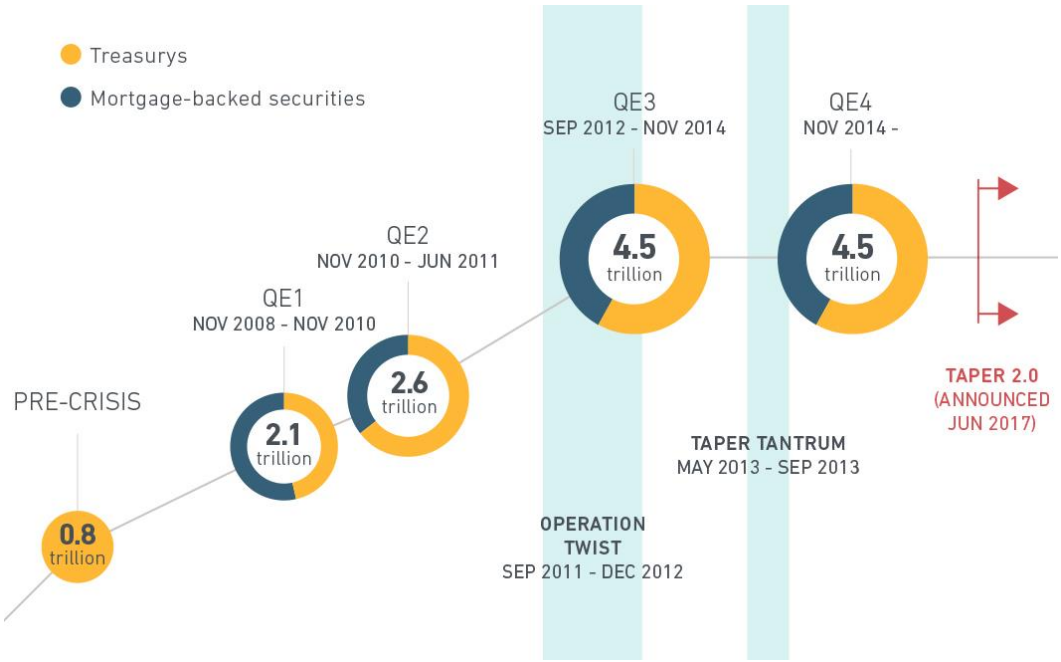
More recently, however, the Fed has made clear that it plans to pursue a conservative tapering policy and has communicated its plan more clearly. Market prices already reflect these "Taper 2.0" policy changes, resulting in low short-term volatility and a weaker correlation between the MBS spread and the Treasury bond yield. However, changes in bond regimes are possible if the market is uncertain about how the Fed will proceed.

TAPER 2.0: SHRINKING THE FED'S BOND-BUYING PROGRAM

The Federal Reserve's bond-buying program has had a significant impact on bond markets as the central bank has purchased large swathes of existing Treasurys and MBS in an effort bolster the economy. How the Fed eventually unwinds the program may have equally significant implications for yields and spreads of Treasury bonds and MBS. To get ahead of the curve, we look to past QE episodes for clues.

Exhibit 1 illustrates that the QE programs, initiated at the height of the great recession, eventually ballooned the Fed's balance sheet from the pre-crisis level of $800 billion of Treasury securities to a current $4.5 trillion portfolio that includes $2.5 trillion Treasurys and $1.8 trillion agency MBS. (Another $200 billion is invested in other securities).

Exhibit 1: The 10-Year Look - The Fed's Treasury and Mortgage-backed Securities Holdings



Source: Federal Reserve

Taper 2.0 may commence if the economy performs in line with Fed expectations, according to the central bank's June statement and meeting minutes. The Fed currently reinvests about $40 billion a month in Treasurys and MBS, respectively. Taper 2.0 would start

reducing the Fed's new monthly investments by $6 billion in Treasurys and $4 billion in MBS, eventually reaching monthly caps of $30 billion and $20 billion, respectively.[1]

We review QE's impact on performance since inception of the bond-buying program for both Treasurys and MBS using three key risk factors from the MSCI fixed income factor framework:

- 10-year Treasury yields.
- Current Coupon ("CC") 30-year MBS yields: the "CC" is a bond equivalent yield for a hypothetical par value pass-through MBS, obtained by interpolating the coupon across the TBA coupon stack.[2]
- Current Coupon Spread ("CC Spread"): the nominal spread between the "CC" and the Treasury curve, adjusted for curve slope, based on a proprietary MSCI model.[3] It is equivalent to the Treasury Option-Adjusted-Spread ("OAS") for a par value MBS pass-through.

[1] "FOMC Adds Addendum to the Policy Normalization Principles and Plans." June 14, 2017. Board of Governors of the Federal Reserve System press release.

[2] During the record low rate environment in 2012 and 2013, often the entire TBA coupon stacks are priced at premium. We use a proprietary modeling technique to compute the current coupon. See Zhang, D., M. Voros and I. Biro. (2017). "MSCI Agency MBS Current Coupon Computation." MSCI Research Technical Note (client access only).

[3] Zhang, D. and Y. Yu. "MSCI Current Coupon Models: Model Risk Premium in a Risk-Neutral Model." MSCI Model Insight (forthcoming).

Exhibit 2: An Uneven Path: QE's Effect on Treasury and MBS Yields and Spreads

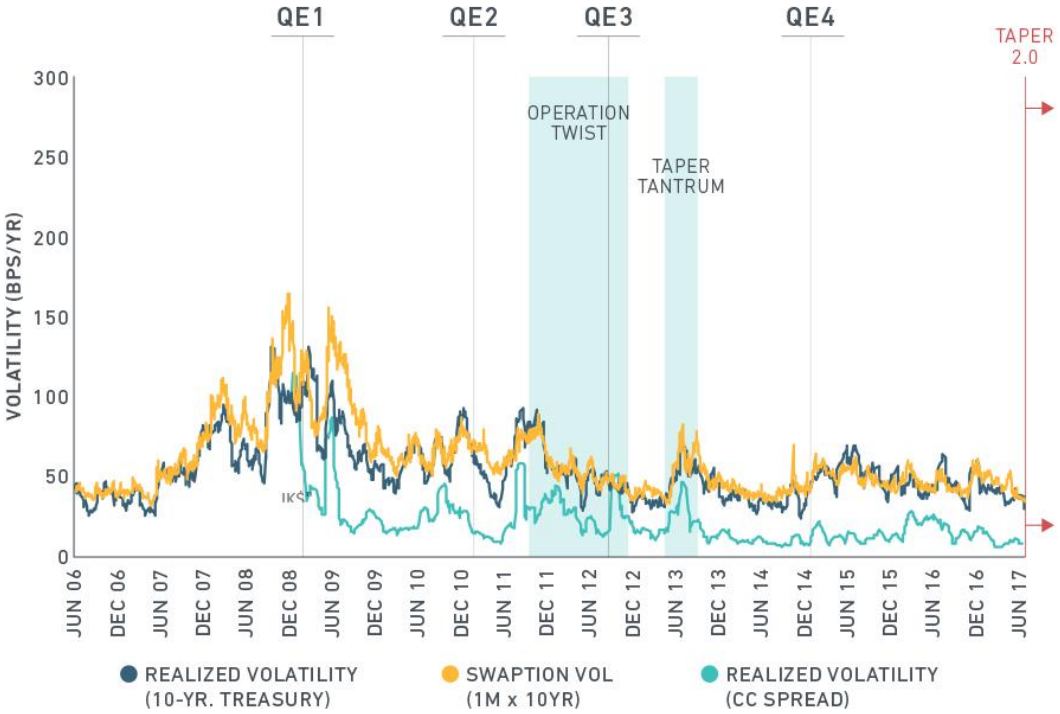
The QE programs fulfilled the Federal Reserve's aim of pushing down long-term bond and MBS yields after conventional monetary policy had cut short-term interest rates to zero. However, long-term bond yields did not always follow a smooth path, as we can see in Exhibit 2. For example, market speculation in the summer of 2013 that the Fed would taper its bond-buying program, and then again in the latter part of 2016 (combined with macro-economic uncertainties), led to 100-150 basis point (bps) jumps in yields for short periods.

The QE program's MBS purchase has also kept current coupon spreads at historically tight levels. If the Fed pursues a cautious path in unwinding its program, we could see a rise in Treasury yields and CC spreads may widen moderately, based on historical performance patterns. However, these trends may be subject to other macro-economic variables such as economic growth and inflation in the U.S., federal fiscal policy and foreign demand for U.S. assets.

THE FED'S MORE CAUTIOUS APPROACH

While there are large long-term uncertainties for Treasury yields and MBS spreads, short-term volatility as of June 2017 is near a historical low, in contrast to the spike in volatility witnessed during the 2013 taper tantrum, as we can see in Exhibit 3. Historically, the unpredictability created by quantitative easing and tapering has led to increased market volatility. More recently, the Fed has adopted a more cautious approach and has communicated its intentions more effectively, calming financial markets.

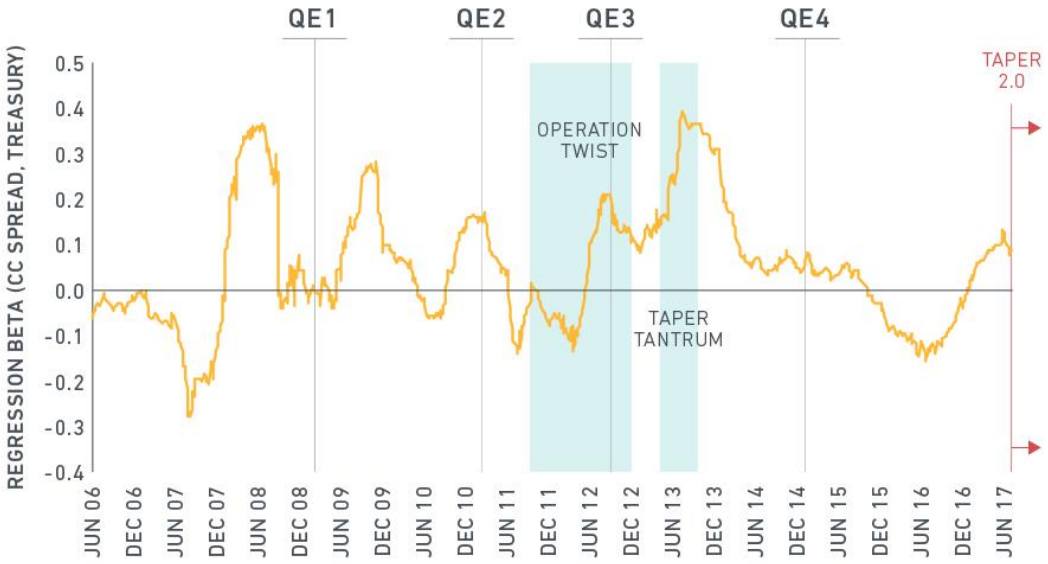
Exhibit 3: QE Bond-buying Program has Spurred Spikes in Volatility



These shifts in volatility also reflect several regime shifts that occurred during the course of the various QE programs. We can see these shifts occur when we look at the correlation between MBS option-adjusted spreads (OAS) and the benchmark curve, which is referred to as "OAS directionality." OAS directionality is an important factor in valuing and hedging MBS.

Before the financial crisis, OAS directionality generally was negative. When interest rates fell and bond markets rallied, the MBS market generally became more wary of prepayment risk, often leading to widening of MBS spreads. As a result, the durations implied by market price dynamics were often shorter than OAS model durations.[4]

Exhibit 4: Lack of QE Clarity has Led to Higher Volatility and Positive OAS Directionality



120-Day Trailing Regression beta between CC Spreads and 10-year Treasury Yields

However, the QE programs have reversed this relationship. When the bond market expected larger future Fed Treasury and MBS security purchases, Treasury yields typically fell and the MBS spread generally tightened. This positive correlation usually peaked during periods when the market was unclear about the implementation of the QE program. For example, during the 2013 taper tantrum episode, CC Spread moved on average 0.4 bps for every 1 bps change in the 10-year Treasury yield. This positive OAS directionality substantially lengthened TBA market[5] durations against durations from OAS models.

[4] In general, OAS models do not take into account many drivers of market price, such as prepayment model uncertainties, supply and demand dynamics and risk premiums for liquidity. As a result, investors need to adjust model hedge ratios to include OAS directionality.

[5] TBA refers to forward MBS trades issued by Fannie Mae, Freddie Mac and Ginnie Mae. The securities are "to be announced" (TBA). The names of securities are provided 48 hours prior to the trade settlement date.

In contrast, the anticipated Tapering 2.0 already is largely reflected in prices for Treasury and MBS securities. Unlike the taper tantrum we have seen low short-term volatility and weaker OAS directionality. As further tapering progressively reduces the Fed's security purchases, OAS directionality may shift from positive to neutral (or even negative) as MBS fundamentals become more important drivers of risk and return. When analyzing hedging strategy and relative performance of Treasurys and MBS, institutional investors may want to get ahead of the curve.

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