

The FED and the Balance Sheet: Shrinking the Giant

Trump's election and his plan of loose fiscal policy put upward pressure on US inflation. In order to cool down the economy on the verge of full employment, FED raised rates in December and March and has promised two other hikes in 2017. Hiking fed fund rates is not the only approach the FED can pursue for tighter monetary policy. Indeed, the central bank minutes released on April 5, 2017 reported the plan to start shrinking its \$4.48 trillion balance sheet in a move toward monetary policy normalization. The scope of this article is to understand how the trimming will take place. Moreover, we attempt to estimate its effects on US Treasury 10-year yields and the yield curve.

FED balance sheet overview

The FED piled up its huge balance sheet in the response of the 2007-08 global financial crisis. As interest rates slashes became ineffective since rates were approaching zero, the FED implemented unconventional monetary policy through three rounds of large-scale asset purchases known as Quantitative Easing (December 2008-March 2010, November 2010-June 2011, September 2012-December 2013). The monetary stimulus expanded FED balance sheet from less than \$900 billion before the crisis to \$4.48 trillion today. Even though QE ended more than two years ago, FED's holdings have remained constant over time, as the central bank has rolled over the proceeds from maturing bonds into new purchases. Today, FED's assets are primarily made up by US Treasury Securities (\$2.46 trillion) and Mortgage-Backed Securities (\$1.78 trillion)¹.

The main reasons to push for the normalization of the central bank balance sheet are avoiding bond prices distortion provoked by the FED asset purchase programs and creating some policy space for the future, so that in case of a new economic turmoil, the FED at least has the option of doing QE.

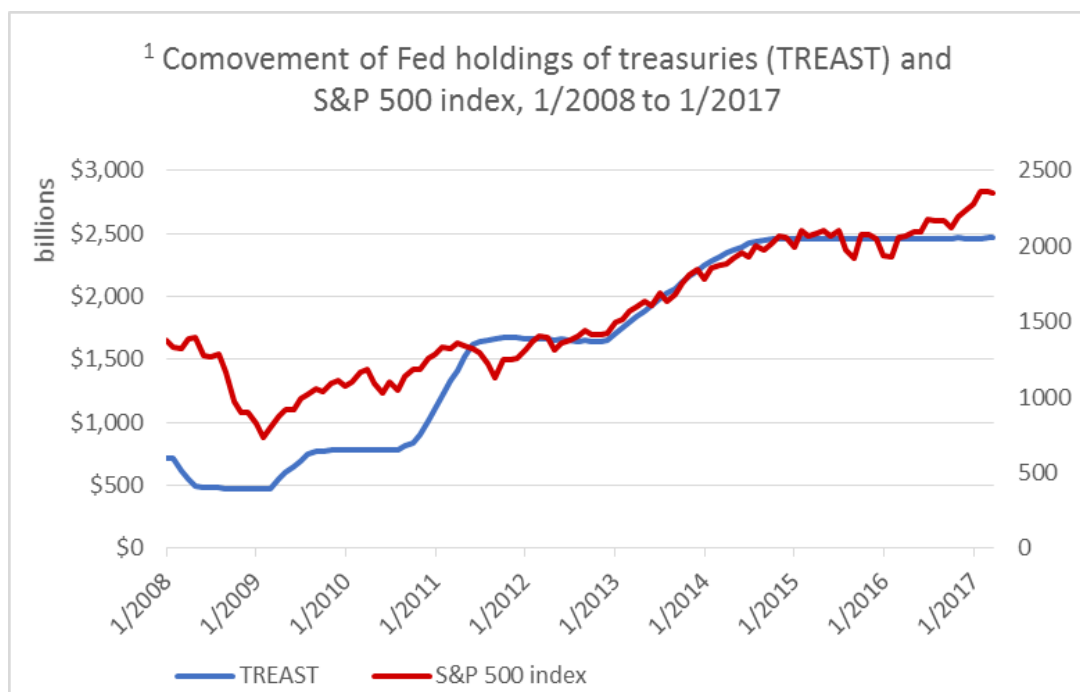


Chart 1: Co-movement of FED treasuries and S&P 500 (source of chart data: FRED, Yahoo Finance)

¹ Federal Reserve balance sheet as of April 13, 2017.

Given the fact that the FED is the largest player in the US bond market and it has contributed to fuel the nine-year bull market in stocks, the risk of balance sheet shrinking is a major market selloff, triggered by the tightening. This is what happened with the so-called taper tantrum. The term refers to the 2013 surge in US yields, when the former Federal Reserve Chairman Ben Bernanke announced the start of tapering in their policy of shifting away from QE. In reaction to news, investors panicked and withdrew money from the bond market, resulting in high volatility and falling bond prices.

The central bank fears that moving too aggressively could lead to volatility and so it will be very careful to avoid market disruption. Therefore, policymakers are planning to pause the number of rate hikes as unwinding begins. This is the position taken by the New York Federal Reserve President William Dudley, who considers balance sheet normalization as a substitute for fed funds rate hikes. Moreover, the FED believes that proper signaling and communication will minimize any negative effect on bonds and stocks. Therefore, FED moves will be communicated well in advance, presumably allowing financial markets to absorb the shock.

The shrinking process

Until now, the FED is sticking to its communication policy, announcing the balance sheet reduction two weeks ago, while the date of the actual move (not disclosed yet) is likely to be around the end of 2017. However, there is still a lot of uncertainty concerning how the reduction will actually take place. There are two possible approaches:

- Selling securities
- Letting securities mature.

Selling securities is a very aggressive move that would lead to a quick normalization, but also result in interest rates to increase sharply, bringing in unwanted volatility. The alternative consists of simply letting the balance sheet decline by stopping reinvestments. This approach would lead to a slow and soft unwind. Given its predictability, the maturity approach would limit volatility and, thus, it is likely to be the FOMC's favourite approach to balance sheet shrinking.

In the FOMC March meeting, policymakers discussed two ways of implementing the maturing approach. The first case consists of phasing out reinvestments to let the balance sheet decline at a constant rate. This approach has the advantage of reducing the risks of triggering financial market volatility or of potentially sending misleading signals about the Committee's policy intentions. The second case would cease reinvestments all at once. This approach is viewed as easier to communicate while allowing for somewhat swifter normalization of the size of the balance sheet.

By allowing the balance sheet to shrink in a passive and predictable manner, without active management, the FOMC aims to maximize predictability and minimize the chances of market disruption. Because of this, ceasing reinvestments all at once could be the Committee final choice. In this case, the maturity distribution of securities held by the central bank assumes an important role. In the short-term, we expect little effects on volatility as only \$153 billion of the FED's securities holdings (less than 4% of the FED balance sheet) mature this year. However, the trimming becomes larger after 2018, with \$1.2 trillion of the bonds maturing between 2018 and 2022. This reduction regards primarily Treasury bonds, not mortgage-backed securities (MBS). As far as MBS holdings are concerned, their decline will happen much later, because over 99% of the \$1.78 trillion in MBS held by the central bank will mature in more than 10 years. Limiting only to the securities' maturity might not seem particularly reasonable because MBS entail the possibility of early payments. Nevertheless, this scenario is unlikely as early

payments generally take place when the outstanding debt is refinanced taking on a loan at more favourable conditions (i.e. lower interest rate), but interest rates are expected to increase during the normalization process.

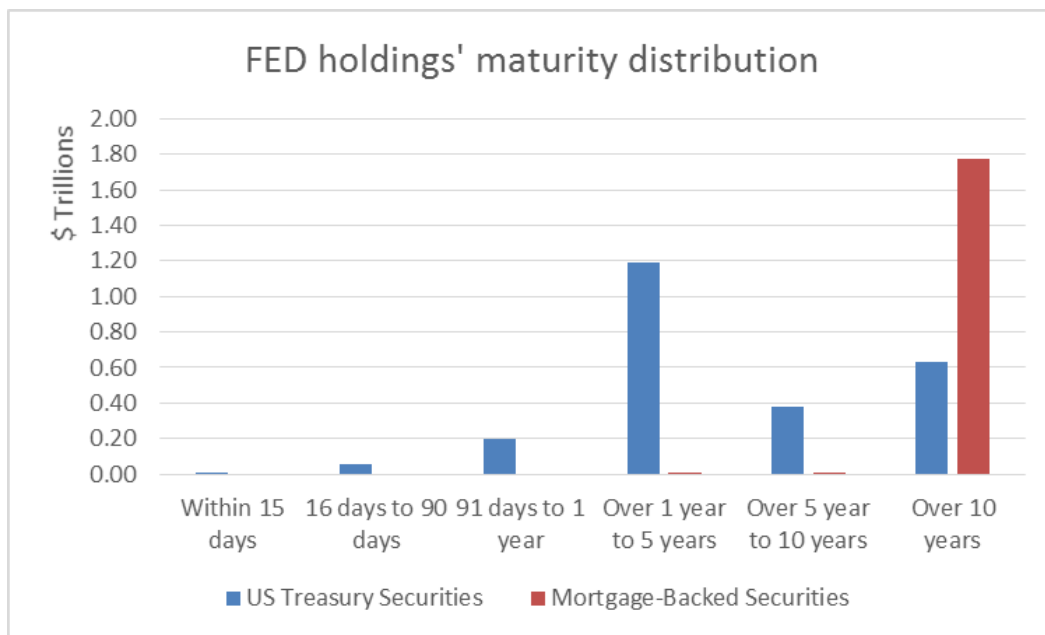


Chart 2: FED holdings' maturity profile (source of chart data: Federal Reserve Statistical Release as of April 13, 2017)

As the effect of balance sheet unwinding is uncertain, the FED will begin normalization only when short-term rates will be comfortably away from their lower bound, allowing the FOMC to offset unexpected drawbacks with monetary stimulus. Moreover, if the economy faced significant adverse shocks during the normalization process, policymakers might decide to restart reinvestments in order to bolster recovery.

For the sake of transparency, policymakers call for the FOMC to provide guidance about the ultimate size of the FED balance sheet. This issue will help market participants to understand how radical the shrinking will be. Before the crisis, the FED had a ca. \$900 billion balance sheet that included currency as the primary liability and government-issued securities as the primary asset. However, many analysts agree the global financial crisis represented a landmark shift in how monetary policy is conducted and, thus, there is consensus that central banks' balance sheets need to be greater than pre-crisis levels.

To gain a rough understanding of what the optimal size of FED balance sheet will be, we focus on its liabilities. Today, currency in circulation is ca. \$1.5 trillion. Adding to cash the total commercial banks' reserves, we get to \$2.0-2.5 trillion as a reasonable size for the FED balance sheet. There is consensus for these figures. Ben Bernanke himself, former Federal Reserve Chairman, in a recent article² considered \$2.5 trillion the optimal balance sheet size, positioning in the upward part of our range. From this perspective, we understand that the FED is unlikely to reduce radically its balance sheet.

The effects

It is important to point out that, as QE was an unexplored area of monetary policy, so the effects of balance sheet shrinking are unknown and there is no historical guidance for a proper forecast. For sure, the FED withdrawal from the bond market will result in a reduced demand and so higher yields. We can try to forecast the effect on yields looking at how much yields declined during the three rounds of QE. The fundamental (and probably

² "Shrinking the FED's balance sheet" - Brookings. January 26, 2017.

oversimplifying) assumption is that FED balance sheet shrinking will have the same effect on yields, in absolute terms, as the monetary stimulus under QE.

Thanks to this assumption, we can infer the unknown effects on yields starting from the known effects of the aforementioned unconventional monetary policy. In so doing, we only focused on the three periods in which the FED carried out QE. In these periods, indeed, the central bank was with no doubt the main driver of yields dynamics. We regressed the US Treasury 10-year yields on the FED balance sheet size (using monthly data). The result is plotted in the chart below.

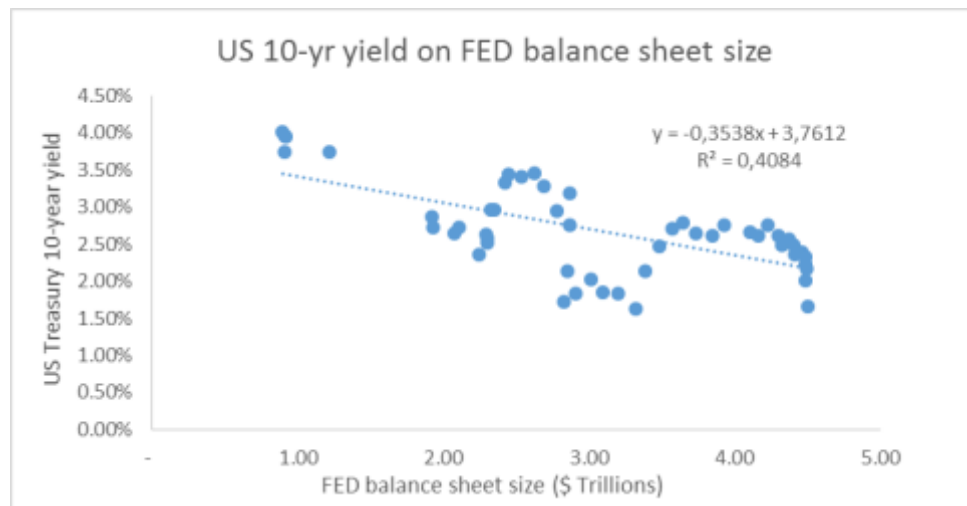


Chart 3: US 10-year yield on FED balance sheet size (source of chart data: Federal Reserve System)

The regression model looks consistent with R-squared of around 0.40. Using this rough model, we calculated that a \$100 billion of monetary stimulus results in a reduction of 10-year yields of ca. 3-4 bps. Therefore, sticking to our fundamental assumption, for every \$100 billion of government debt not rolled over, US Treasury 10-year yield will increase 3-4 bps. Using this back-of-the-envelope estimate, we forecast yields increasing ca. 5 bps for 2017, as the FED holds \$153 billion worth of US Treasuries maturing this year. By the same token, we expect yields increasing ca. 14 bps in 2018, when \$400 billion worth of US Treasuries held by the FED will mature.

According to our estimates, if the FED actually chooses to shrink its balance sheet in a passive and predictable manner by letting securities to mature, the short-term effect on yields will be modest. However, if investors look ahead to the whole FED's holdings of US Treasuries, the impact of rundown on bond yields could be as large as 75-100 bps (considering FED is holding \$2.48 trillion worth of US Treasuries). This scenario seems very unlikely, as, according to our previous considerations on the optimal balance sheet size, the FED does not need to unwind all its government bond holdings.

As far as the yield curve is concerned, we believe that balance sheet normalization will put upward pressure to term premiums. Indeed, the monetary stimulus in the aftermath of the economic crisis depressed term premiums, resulting in a never-seen-before flat yield curve. This trend is likely to reverse when the FED would stop reinvestments and start decreasing its security holdings. The Treasury would repay the maturing bonds issuing new debt that would not be absorbed by the central bank injecting cheap money in the economy. Moreover, it is reasonable to expect Trump administration to deliver on its ambitious fiscal plan in the upcoming years, thus increasing the US public debt. In this environment characterized by extra bond supply, the FED tightening and the announced ECB tapering, the market will demand higher term premiums, resulting in a steeper yield curve.