

The Great QE Unwind: How It Will Affect the Economy and Markets

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Synopsis

After years of reinvesting its maturing Treasury and mortgage-backed security holdings, the Federal Reserve is finally preparing to end the reinvestment of its holdings and begin shrinking its balance sheet over the next several years. Over the same period, US deficits are projected to grow substantially under current law. If any major proposed legislative initiatives by the Trump administration are enacted, this could cause deficits to swell even further.

Increasing US deficits will require the Treasury to ramp up bond issuance just as Fed bond reinvestment ends. As new buyers will be required to absorb both the US primary deficit and the Fed's reduction in its holdings, the US yield curve is likely to steepen. Price concessions into US Treasury auctions will likely increase as well. Similarly, the European Central Bank will also be unwinding its Quantitative Easing program, resulting in a comparable need for new buyers to supplant diminished central bank bond buying. This will probably lead to steeper European yield curves, putting additional pressure on the US curve to steepen further.

This paper examines various implications that the QE-unwind is likely to have for financial markets. To do this, we will examine some of the specific effects that can be expected from shrinking the balance sheet of the US Federal Reserve. We will also give some indications of how this shrinkage, both in the US and other countries where QE has been used, could have a bigger impact on markets than conventional interest rate increases. For these reasons, we believe the winding down of QE merits close investor attention.

Overview

The Federal Reserve Open Market Committee (“FOMC”) recently laid out plans to begin shrinking its balance sheet. It envisions the balance sheet normalization process not to be an active tool of Fed policy and will let this take place in the “background.”ⁱ By communicating the process in advance and increasing the rate of reduction gradually, the Fed hopes to avoid the “taper tantrum” response that Chairman Bernanke received when he announced in May 2013 the intention to start reducing purchases at the end of QE-Infinity. The initial reaction of the market was to view this announcement as “hawkish” and therefore a bond market flattener. But does this make sense?

The taper tantrum was characterized by a sharp rise in US Treasury yields, large selloffs in emerging market assets and currencies, a major appreciation of the US dollar, large widening in the spreads of corporate assets and significant drops in global equity markets.ⁱⁱ This tightening of financial conditions happened quickly and generated a large impact, undoubtedly leaving an indelible impression on FOMC members. During the taper period in 2014 and subsequently until early 2016, US equities, and global assets more generally, were subject to periodic risk-off episodes. Some of these selloffs were triggered by concerns over Chinese capital outflows. However, even these outflows may have been induced by the phase out of asset purchases by the Federal Reserve. Note that all through 2013 and for most of 2014, the Fed balance sheet still grew but at a decelerating rate. During this period, the Bank of Japan upped its QE buying, and the ECB began its own QE program by buying asset-backed securities and corporate debt. This served as a prelude to the ECB’s even more aggressive purchases of government securities in 2015.

Quantitative easing is thought to operate through several possible channels. By lowering the term premium in the yield curve, QE operates through the portfolio balance channel, forcing investors to sell bonds and pushing them to invest their proceeds into riskier assets, such as listed equities. This substitution effect hopefully flows into more productive investments and not just financial assets. QE may also induce companies to make long-term investments, as their capital budgeting decisions use a lower hurdle rate due to the lower term premium in the yield curve.

Unfortunately, evidence for increased economic activity from QE is relatively weak. However, it is clear that QE has worked in the following ways:

- a) by artificially flattening yield curves
- b) weakening the exchange rates of the country's currency
- c) allowing poorly performing companies to roll over their debt (thereby encouraging the existence of so-called Zombie companies)
- d) inflating stock prices, commodity prices, and the value of emerging market assets

For example, by depressing yields on government securities, QE encourages yield-seeking behavior where investors are happy to take currency risk (selling the currency of the QE printing country to buy other countries' bonds where they can invest at higher yields). It also encourages investors to buy corporate debt. Corporates found that with debt issuance windows nearly always open and interest costs low, they could leverage up their balance sheets by issuing debt to fund stock buybacks, thereby supporting equity markets.ⁱⁱⁱ As many commentators have pointed out, the increasing size of the global central bank balance sheet has been eerily correlated with the increase in the value of global risk assets as well as US equities (see Figure #1).

Another mechanism by which QE works to stimulate the economy is the so-called "wealth effect." By increasing the price of bonds and other complementary assets, investors see that their wealth has risen. Conversely, debtors might see it drop, although credit spreads will tighten. Let us assume the marginal propensity to spend on consumption is, say, 4% of an increased level of wealth. This would lead to higher consumer spending, supporting the real economy. The offset to this is twofold:

- a) By depressing the yield on assets, the income increase from higher wealth is much smaller. Consumers spend based on permanent income. So while wealth may have risen, yields will have dropped, resulting in income not rising as much as wealth;

b) Investors might view QE wealth increases as temporary and subject to reversal once unwound. Looking through temporary increases, consumers might not increase spending.

While there is ample evidence that QE decreased term *premia*, thereby boosting fixed income prices, and that it led to higher equity valuations, tighter credit spreads and emerging market asset appreciation, there is much less evidence that it significantly boosted real economic activity.

Let us now consider what could happen as global central bank balance sheets begin to shrink. In particular, what specific effects will shrinking the US Federal Reserve balance sheet produce? *Fasten your seat belts! We are about to find out.*



Figure 1: Illustrates the correlation between the expansion of major central bank balance sheets and the S&P 500.^{iv}

The Fed's June Meeting

On June 14, 2017, the FOMC raised interest rates by 25 basis points for the third consecutive quarter. The Fed did so based on their internal Phillips curve models, which predict that low levels of unemployment will lead to increasing inflation. They also did so despite core inflation dropping for three months in a row as well as the widely-followed Citibank US Economic Surprise Index weakening sharply in recent months. Perhaps, more importantly, the Fed laid out its plan to shrink its bloated balance sheet over the next several years. Balance sheet reduction will be

accomplished by *not* reinvesting some coupons and principal payments of the System Open Market Account (“SOMA”) holdings. It is likely to commence in the 4th quarter of 2017 for both US Treasury and mortgage-backed securities (“MBS”) holdings at a combined maximum rate of reduction of no more than \$10 billion dollars per month. Thereafter, every three months, the combined rate is scheduled to increase by an additional \$10 billion dollars per month until the 4th quarter of 2018, when the combined maximum rate will have risen to \$50 billion dollars per month. This maximum rate will then stay in effect for several years until the SOMA balance sheet has shrunk to what the Fed considers a normal, non-crisis amount.^v

While the Fed has previously tapered its purchases, and in fact ended them for brief periods twice, neither the Fed nor any other major central bank that has engaged in QE has actually tried to shrink its balance sheet to a more normal level thereafter. Most central banks believe it is the total stock of reserves that determine how accommodative they are under QE, rather than the rate of increase. Indeed, risk asset prices correlate well with the total balance sheet size of the three major central banks (Fed, ECB and BOJ). So, the Fed slowing the rate of increase in the size of the balance sheet (as in the taper tantrum) was, according to its officials, still engaging in easing, while shrinking the balance sheet would be reducing policy accommodation. What is odd is that the Fed and other central banks make claims about the efficacy of QE, but when they attempt to go in reverse, they seem to think they will not see any meaningful effect. Will the process really “run quietly in the background” as the Fed hopes and not be a tightening of policy? What are the economic and financial implications as this gets underway? It is the firm contention of this white paper that Fed balance sheet shrinkage could have substantially greater effects on markets than conventional interest rate increases. These effects will be crucially important for investors to understand.

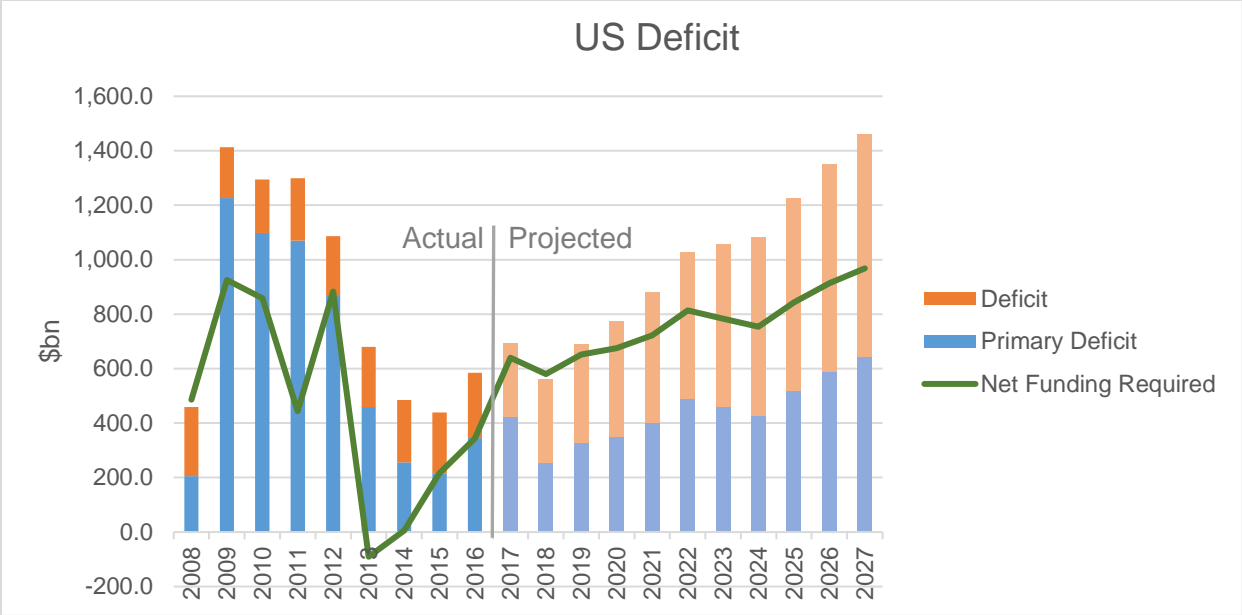
Traditional Monetary Policy vs QE

Traditional monetary policy tries to maintain a steady growth rate in a monetary aggregate such as M1 or M2. It depends for its efficacy on a stable money demand function. Due to innovations in financial services, such as the development of money market funds, the increase in electronic transactions, and credit card usage, M1 or M2 have been supplanted in many countries by inflation targeting. For many

decades, the Fed had targeted an effective funds rate by controlling the quantity of US Treasury Bills it held in its SOMA. When the effective Fed Funds rate dipped below the target Fed Funds rate, the Fed would engage in open market operations to drain reserves by selling T-Bills. Likewise, if the effective Fed funds rate rose above the target Fed Funds rate, the Fed would add reserves by buying T-Bills and injecting money into the market. In QE, while still targeting a short-end Federal Funds rate, the Fed also adds reserves on a continuous basis by buying government bonds. Since reserves keep increasing, the Fed controls the effective Federal Funds rate by creating a corridor. It can put a floor on rates by draining reserves through its Overnight Reverse Repo (“O/N RRP”) facility. The Fed actively lends out part of its SOMA holdings at the O/N RRP, a rate set at the Federal Funds Target Rate Lower Bound (currently 1%), while offering to pay Interest on Excess Reserves to banks at the Federal Funds Target Rate Upper Bound (currently 1.25%). It is the Federal Funds Target Upper Bound that is popularly quoted by the media as the Fed’s interest rate.

US Treasury’s Funding Needs Grow as the Fed Divests

Since ending QE purchases in 2014, the Fed has continued to reinvest the coupon and principal payments of both its US Treasuries and MBS holdings. Under the proposed plan, the Fed will likely reduce reinvestments of purchases of US Treasuries by \$6 billion per month, while reducing MBS reinvestments by \$4 billion per month, starting in October. Unlike in QE where the Fed would buy pre-announced designated maturities of bonds each day at 11 AM (thereby spreading purchases throughout the month), the Fed’s current operational policy is to buy US Treasuries alongside Treasury auctions. Each month, the US Treasury auctions 2 year, 3 year, 5 year, 7 year and 10 year Notes, 30 year bonds, as well as 2 year Floating Rates Notes and Treasury Inflation Protected Securities. In June, these amounted to \$162 billion of issuance. On average over the past three months, the Fed has bought an average of \$20 billion per month in US Treasuries directly from the Treasury at the time of each auction. While these numbers might not sound like a lot, a closer examination should warrant caution.^{vi}



vii **Figure 2:** Illustrates US (actual and projected) budget deficits, primary deficits and net funding requirements for the Treasury.

Beginning in 2018 and 2019, the heavy redemption runoff from the Fed balance sheet is set to increase. The Fed, in the first 12 months, will allow up to \$180 billion of US Treasuries and up to \$120 billion of MBS to runoff. Thereafter, it will allow up to \$360 billion of US Treasury and up to \$240 billion of MBS runoff. Examining the US Treasury component in greater depth for a moment, while recognizing that some other investors will have to buy the MBS runoff as well, yields some noteworthy insights. Referring to Figure #2 above, the US Treasury deficit increased from \$160 billion in 2007 to \$1.4 trillion in 2009. However, demand for bonds was also high. As the US economy recovered from the financial crisis, tax receipts grew and benefit payments decreased. This led to a period of declining deficits. After years of steady improvement, due to increased tax receipts and the budget sequester, the US deficit had fallen to under \$500 billion by 2015. However, the budget sequester never addressed the growth of entitlements. Going forward, the US deficit is projected to rise to well over \$1 trillion by 2022, as entitlement spending continues to increase unabated. It is also worth noting that these numbers do not include any fiscal spending, defense increases, infrastructure spending or tax cuts that might come into force under President Trump and would likely generate higher deficits.

Assuming that the US Treasury can count on existing investors to roll over their principal and interest payments, the US primary deficit (deficit excluding interest payments) can be thought of as the Treasury's net funding needs. However, in the era of QE, one needs to adjust this as well to account for net Treasury accumulation by the Fed. For example, as illustrated in Figure #2, in 2009 and 2010, while the US ran over \$1trillion in primary deficits, net funding needs were in the range of \$800 billion to \$900 billion, after adjusting for Fed buying. Indeed, by 2013, when Fed buying exceeded the primary deficit, net Treasury funding needs turned briefly negative. Looking forward, not only are primary deficits on the rise, given net Fed divestment of its Treasury holdings, the Treasury will also need to find buyers to fund both its primary deficit and to replace the Fed as a holder. From a slight negative in 2013 ahead of the Fed taper, net funding needs are projected to swell back to a high of \$800 billion by 2022, nearly equaling the highest funding requirements immediately after the financial crisis. Larger auction sizes will be needed as Fed purchases disappear. Moreover, the Fed's decision to stop reinvesting MBS coupons and principal will also have a significant effect on the MBS market, as the Fed is by far the largest buyer, accounting for up to 40% of new originations. The need to absorb mortgage buying will compete directly with the funding needs of the US Treasury as well.

Since central banks control short-term interest rates and since reducing the balance sheet should be equivalent to hiking rates (under QE theory), the Fed will likely keep short-term rates lower than it otherwise would as it cuts its buying. Any adjustment in yields, almost irrespective of how the US Treasury alters its issuance, will tend to put steepening pressure onto the curve, as the total quantity of US dollar duration (the sensitivity of debt to changes in interest rates) will increase. Moreover, US Secretary of the Treasury Mnuchin has expressed a preference for extending the US Treasury's debt maturity profile by shifting to longer maturity issuance—also potentially steepening the yield curve. Eventually we can expect this to tighten financial conditions, as corporates will face a higher cost of capital, while MBS spreads should widen. Simultaneous with this Fed unwind, the ECB is likely to reduce its bond purchase pace in 2018, before phasing out bond purchases

completely in 2019 (partly based on legal restrictions of how much it can buy). The BOJ will also likely reduce purchases further as it exhausts available quantities of JGBs. The Portfolio Balance Channel has caused European and Japanese buyers to buy long maturity US Treasuries as their own yield curves have flattened due to their central banks' QE. By 2019, global central bank balance sheets (at the ECB, BOJ plus Fed) will begin to shrink. Yield curves globally will begin to steepen, reinforcing the steepening in each region. We might see risk assets hold up through 2019, but each year thereafter central bank reserves will drop further, leading to a tipping point where liquidity tightens enough to elicit a response from risk assets as well.

Implications for Markets that No Investor Can Ignore

In the US Treasury market, increased supply at auctions will grow steadily throughout 2018, likely resulting in significant yield curve steepening, as QE is reversed. The current Treasury Secretary's preference for extending the Treasury's debt maturity profile and the Trump administration's fiscally expansive proposals for increased defense spending, infrastructure projects, and tax cuts to the extent these measures are enacted will further increase debt issuance.

Rather than being used as a liquidity point for investors to buy large quantities of bonds, US Treasury auctions will be more difficult to digest. During the lull between QE I and QE II (despite still shaky financial conditions and strong demand for fixed income), the large US primary deficits caused major underperformance of government securities prior to auctions, with auctions regularly "tailing" (selling below secondary market prices). It is likely that as net new issuance increases (accounting for the reduction in Fed purchases), we will see significant stress and concessions into US Treasury auctions. If we look at the green line in Figure #2 (US Treasury Funding Needs Net of the Fed Purchases), we can see that net funding needs will begin to approach and even exceed the funding needs that existed in 2009 and 2010. A similar phenomenon is likely in Europe, where following three years of negative net issuance after accounting for ECB bond buying, ECB bond buying reductions will turn supply positive in 2018 and strongly positive by 2019, leading to spread widening by weaker credits and steeper yield curves.

In a strong economy, and with central bank balance sheets still growing through 2018, we might not hear the giant sucking sound out of emerging markets, equities or high yield debt for some time. After years of financial repression, with yields at multi-decade lows and with financial institutions on much firmer footing, and with an upturn in global synchronized growth, appetite for government securities is waning in any case. Hence, we expect to see a steeper US yield curve and wider MBS spreads. More importantly, it may be substantially more difficult for US and European governments to issue their debt at auctions and syndications. We might even see bond market vigilantes start to impose fiscal discipline on the US government.

ⁱ United States Federal Reserve Board. (July 5, 2017). Minutes of the Federal Open Market Committee June 13-14, 2017. Washington, D.C.ⁱⁱ Kaletsky, Anatole. "The Markets and Bernanke's "Taper Tantrums"." Reuters.com. Reuters, 19 Sept. 2013. Web. 7 July 2017.

ⁱⁱⁱ Krishnamurthy, Arvind, and Annette Vissing-Jorgensen. "The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy." *Brookings Papers on Economic Activity* (2011): 215-87. Brookings.edu. The Brookings Institute. Web. 7 July 2017.

^{iv} "BoJ, ECB Balance Sheets Exceed The Fed's For First Time Ever – What Happens Next?" ZeroHedge. ZeroHedge, 01 June 2017. Web. 07 July 2017.

^v United States Federal Reserve Board. (July 5, 2017). Minutes of the Federal Open Market Committee June 13-14, 2017. Washington, D.C.

^{vi} *ibid*

^{vii} Underlying Data From: Congressional Budget Office, *The Budget and Economic Outlook: 2017 to 2027*. (January, 2017).