



A deep dive into QT

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In the [first note](#) in a series of three on the financial market impact of a reduction in the Fed's holdings of assets on its balance sheet - Quantitative Tightening (QT) - we argued that QT puts pressure on yields to rise and the yield curve (the difference between long term and short term yields) to flatten, all else equal. We think this is the case because we see QT as operating mainly by impacting future expectations about the economy and monetary policy. Many financial market participants instead tend to associate QT with higher rates but a steepening of the yield curve. In a [second note](#) we discussed why this is not our base case. In this note we review the arguments behind these opposing views, in the hope to provide some clarity for investors as they attempt to navigate markets in the challenging times ahead.

[Executive Summary](#)

- *There is a significant degree of uncertainty/disagreement about how QT and Quantitative Easing (QE – a purchase of assets by the central bank) work in practice.*
- *We think QT largely works by impacting future expectations about the economy and monetary policy (related to the so-called expectations channel of QE/QT), and as such puts pressure on yields to rise and the yield curve to flatten, all else equal.*
- *Many, if not most, market participants instead believe QT operates mainly by altering the quantity of central bank/private sector assets and/or liabilities in the financial system (related to the so-called portfolio rebalancing and liquidity channels of QE/QT), and therefore think that QT comes with a steeper yield curve.*
- *As we discuss in the note, the so-called expectations channel of QE/QT runs in less inconsistencies with theory and data. Arguments relying on the impact of changes in the quantity of assets and/or liabilities are mostly valid at times and in the short run.*

Broadly speaking, we think QT does not operate very differently from how standard monetary policy works, i.e. by impacting expectations for growth and inflation, the markets' understanding of the central banks' reaction function, and expectations for future short term interest rates in turn.

The impact of conventional policy (think a 25bp rate hike) occurs not only because of a given policy decision today, but also, often mainly, because of communications that accompany the decision and affect future expectations. To see this, assume a central bank raises policy rates but communicates that it has done so for a technical reason - so market participants don't make inferences about changes in broader policy strategy and its future implications – and that it will reverse the hike at the next meeting. Such a decision would have little, if any, impact on financial conditions and the economy more broadly.¹

The effect of balance sheet policy mostly occurs in a similar way. It depends on:

- i) What signal it provides on the broader policy stance, i.e. whether, and by how much, tightening/loosening is needed. Here, decisions of the pace and speed of QT are crucial.

¹ A point made by [Vlieghe \(2018\)](#).



- ii) What it communicates about the central banks' future reaction to growth and inflation. For instance, If QT is conducted despite falling demand (e.g. because inflation is high, such as today), the market may interpret it as signaling a fundamental shift in the central banks reaction function, leading investors to price in the risk of rising yields when growth falls (the real term premia rises). The impact of longer-term (forward) rates, and the shape of the yield curve, depends on how persistent such a change in reaction function is expected to be.
- iii) How it affects the outlook for the economy and inflation. For instance, if QT is expected to lead/contribute to a slowdown in the economy and inflation, forward long rates may not rise as much or even fall.

Crucially, as with conventional policy, the overall impact of QT is highly dependent on the communications that accompany it. For example:

- If QT is presented as “watching paint dry”, i.e. the Federal Reserve (Fed) runs down its balance sheet by the passive runoff of assets and communications on the balance sheet are mostly technical (unrelated to policy strategy), it likely puts limited upward pressure on long rates. This is the approach adopted by the Fed so far.
- If QT is presented as alternative to policy rates – i.e. a faster pace of QT is used to allow a more gradual rise in interest rates – there is no significant change in overall policy stance, and the impact on rate expectations is also somewhat contained.
- If QT is presented (or interpreted) as complementary to raising rates – i.e. the Fed adopts a faster QT aiming to reinforce the impact of faster rate rises - the rise in long rates (and the tightening in financial conditions) is likely to be significant.

To bring everything together, the specific impact of QT on interest rates and the yield curve depends on how the policy affects expectations, which in turn rests on the on the details of the policy, the macro context in which it's adopted and the forward guidance that comes with it.

Our argument is as follows: QT, paired with rising policy rates, reinforces expectations of a tighter policy stance (higher expected rates), but also leads to rising expectations for a slowdown in economic activity - offsetting some of the rise in the average policy rate embedded in longer term bonds in the form of expectations. The rising probability of an economic slowdown also puts downward pressure on term premia because it becomes more desirable to hold a safe fixed income security when the economy does poorly, and policy is eventually expected to loosen in response to a weaker outlook. Such a concoction of factors tends to lead to a rise in yields initially but also a flattening of the yield curve.

Instead, the standard view is that QT (QE) operate mainly by adding back (removing) safe assets to (from) the financial system.

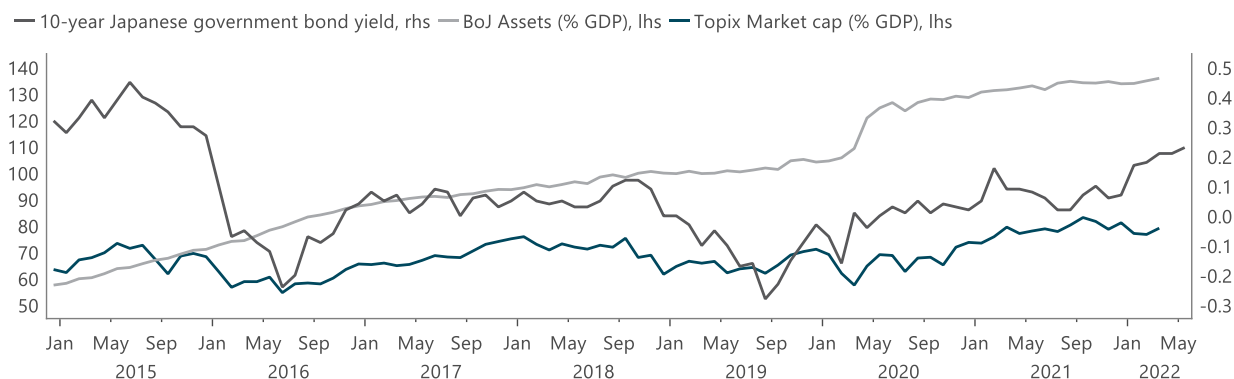
Many market practitioners tend to think about central bank balance sheet policies almost exclusively as operating by impacting demand and supply dynamics for safe assets, i.e. government bonds.

As this argument goes, a fall in the stock of bonds held by the central banks (via QT) implies there will be a greater amount of government bonds available in the market, leading to an increase in the compensation required by investors to absorb more government bonds (i.e., the term premium rises). In other words, greater bond supply leads to lower prices (higher yields).

As a consequence, given the term premium is one of the primary drivers of long term-rates relative to short term rates, a rise in long term rates leads to a steepening in the yield curve.

We tend to disagree with such a view. Over longer periods of time, and after incorporating the role of expectations, we think the importance of this channel is somewhat limited. For instance, the chart below shows that as the Bank of Japan's purchases of public and private assets rose to close to a staggering 140% of GDP, equity market performance and bond yields remained broadly flat. The reason, we think, is that Japanese QE failed to meaningfully change expectations for the economy, tarnishing the expectations channel through which QE/QT mostly operates.

Japan's QE continued to rise as a % of GDP but equity market capitalization (% GDP) and sovereign bond yields remained broadly flat.



Source: BNY Mellon Investment Management, Macrobond. Data as of 01/06/2022

In theory, reallocating assets between private and public-sector balance sheets has no impact if these assets are only valued for their payoffs and there are no constraints on investors' allocations across asset classes. Evidence does indeed suggest investment allocations (within fund and across funds) to a great extent move in line with expected returns across securities/asset classes over time.

And additional longer-term evidence also shows little support for the idea that safe assets have been removed from the financial system since the start of QE. In fact, the quantity of government bonds (and bonds more generally) that private investors needed to absorb once accounted for central bank purchases has instead risen since the start of the QE era – both in absolute dollar terms and in relative terms (e.g. as a proportion of GDP).

US Public Debt Held by the Private Sector (% World GDP)



Source: BNY Mellon Investment Management, Macrobond. Data as of 07/06/2022

Even [more granular analyses](#) looking at the relationship between government debt held by the private sector and yields, find little evidence of a positive correlation.²

It's undeniable that markets are not perfectly rational and also move for reasons other than expectations. For instance, it's a well-known fact that in the short term, large flows of asset do lead to a market impact.

But we argue that for this demand/supply channel to work for a prolonged period of time, one needs the presence of market frictions, which are usually most present in specific market circumstances: in the short run, (i) because market structure³/regulatory issues⁴ lead to demand and supply being far from perfectly elastic; and (ii) due to market functioning being impaired, e.g. during episodes of financial market turbulence.

Even allowing for a shorter-term impact from this channel of QT, we think that if the Fed runs down its balance sheet by passive runoff (rather than sales) the impact on rates is not automatic and depends on the US Treasury's issuance decisions. The US Treasury has discretion over its issuance strategy, particularly in the short run, and aims to minimise debt funding costs. If the Treasury relies more heavily

² Many of these analyses do not take into account the private sector's *expected* debt holdings net of QE purchases, but rather look at *actual* debt holdings net of QE. This is important because yields (also) move when expectations are formed. That said, markets discount changes in supply before they occur in a probabilistic way. As such, assuming the market does not always fully price expectations correctly, one should expect to observe some relationship when the change in the stock of Treasury debt net of QE purchases actually occurs.

³ For instance, funds have mandates that force them to allocate to specific assets. In addition, the growth of passive investment means that there is a greater share of investors that allocate in a fixed, systematic way. But portfolio rebalancing can occur not only within funds, but also across funds (i.e. carried out by the fund managers vs. by the end investors of the funds). As such, if a fund cannot rebalance based on profitable opportunities, end-investors will reallocate away from such fund (although it will take some time to do so).

⁴ E.g. leverage ratio, liquidity constraints, risk management practices.

on bills to replace lost Fed financing, there will be only a partial effect from the undoing of the Fed's holdings of long duration asset holdings. This is a point sometimes lost in market commentary.

A second popular view is that QT (QE) operates mainly by altering the quantity of central bank reserves in the financial system.

Reserves, a liability on the central bank balance sheet, represent the safest available asset in the financial system. Reserves can be thought of as deposits of commercial banks with the Federal Reserve. When a central bank buys government bonds, it does so in exchange for reserves, so is effectively swapping a riskier, higher duration, asset for a safer, zero duration one. As the central bank balance sheet shrinks due to QT (i.e. central banks assets fall), reserves fall, leading to a concomitant fall in the deposits held by non-banks with commercial banks (paired with a rise in government held by non-banks and the private sector more generally).

The first consequence is similar to the one described above: the supply of safe assets that needs to be absorbed by the private sector rises.

But by shifting the focus on the liabilities side of the Fed's balance sheet, there are two additional implications. First, that private sector assets as a whole decline, leading to less "money" available for the private sector to purchase assets. Second, given reserves can change due to a range of factors, including due to changes in the Treasury's General Account (TGA) in the US (or Longer-Term Refinancing Operations (LTROs) in the euro area), markets can be impacted by changes in the balance sheet unrelated to QT/QE.

In part, our criticism of this argument is as discussed previously: changes in the quantity of safe assets the private sector can invest in mainly matter in the short run and when markets are dysfunctional.

In addition, while it is true that the private sector assets as a whole decline (rise) as a consequence of QT (QE), the growth in private sector assets is exclusively due to a rise in reserves, which are a special type of assets that cannot be used to purchase other assets. Reserves are an IOU from the central bank to commercial banks. Commercial banks can use reserves to make payments to each other, but, in aggregate, they cannot swap them for another asset, such as government bonds or a loan. In other words, the rise in reserves does not result in "more money" chasing assets.

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