

Global macro matters

# Unwinding loose monetary policy: Yields expected to rise only modestly

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As the world economy continues to recover from the pandemic, we expect inflationary pressures to build, supported by accommodative monetary and fiscal policy. In our central scenario, we anticipate central bank policy rates in major developed economies to lift off from 2023 onward while quantitative easing (QE) unwinds. However, our model suggests that this gradual normalization of monetary policy will lead to only a modest lift in long-term government bond yields.

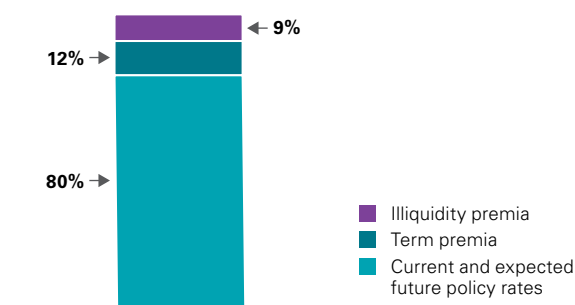
This paper outlines our framework for assessing the drivers of bond yields, uses that framework to illustrate the effect of QE announcements on yields, and provides forecasts for 10-year yields across regions based on three key macro scenarios.

## QE helped depress bond yields during the pandemic's early stages

In March 2020, as the severity of the impact of COVID-19 on the global economy and financial markets was becoming more apparent, major central banks intervened by cutting interest rates, announcing additional QE purchases, and implementing other liquidity support measures to bolster financial conditions.

During this period of high financial market volatility, changes in 10-year government bond yields were predominantly driven by changes in three factors: current and expected future policy rates, term premia, and illiquidity premia (Figure 1).

Figure 1. Drivers of daily changes in the 10-year U.S. Treasury yield around the Federal Reserve's March 2020 QE announcement



Notes: Decomposition of the drivers is derived from the model described on page 2. Daily changes in 10-year yields around the U.S. Federal Reserve's March 2020 QE announcement are regressed on (1) the QE news-flow variable, (2) daily changes in the 3-month yield and daily changes in the difference between the 3-year and the 3-month yield to account for changes in current and expected future policy rates, and (3) daily changes in 10-year government bond bid-ask spreads to account for liquidity effects. The chart shows the average attribution of each driver over the sample period, which covered 30 days before and 45 days after the QE announcement. Percentages do not total 100 because of rounding.

Sources: Vanguard, using data from Bloomberg.

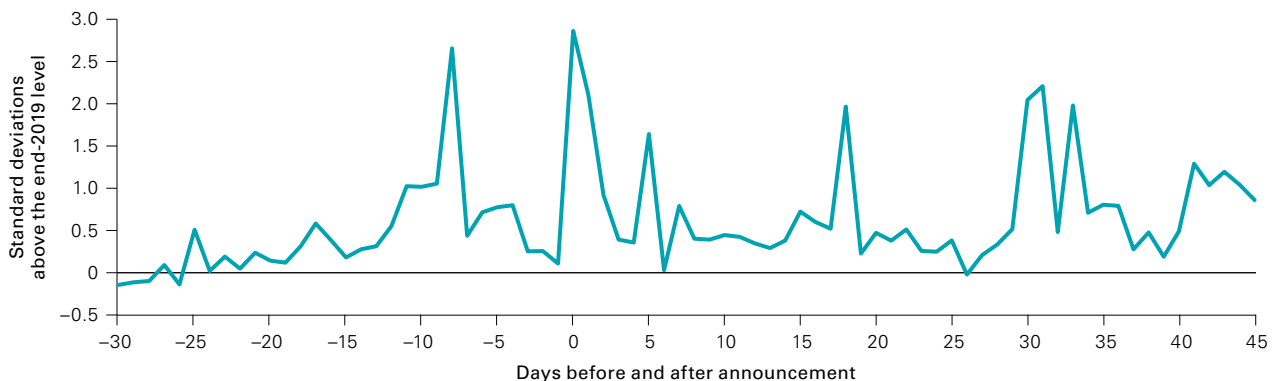
We use natural language-processing techniques to isolate the impact of QE announcements on government bond term premia.<sup>1</sup> This method uses the relative frequency of news stories that are linked to central bank announcements as a way of identifying QE-related “events.”<sup>2</sup> The key advantage of this approach is that the identification of QE events is systematic, rather than the more manual approach adopted by traditional event studies (Hamilton et al., 2018). **Figure 2** shows how this variable measuring QE-related news has evolved over the sample period.

We apply this method to several markets. For each, we regress daily changes in 10-year yields on QE-related news, while controlling for other high-frequency factors that drive yields such as changes in current and future expected policy rates, and liquidity effects.<sup>3</sup>

By comparing the fitted values of our model to a counterfactual where no QE announcements are assumed, we can extract an estimate for the effect of QE announcements on term premia. **Figure 3a** shows the difference between our fitted model values (dark teal line) and the counterfactual of no QE announcements (purple line) for the 10-year U.S. Treasury yield around the time of the Federal Reserve’s March 2020 QE announcement. The estimated impact on term premia is 57 basis points.

**Figure 3b** shows the results of this analysis for other markets, including the United Kingdom, Canada, and Germany. The results have been scaled to account for the size of each central bank’s QE program. It appears that during March and April 2020, central bank QE announcements had a significant and negative effect on long-term government bond yields, even after controlling for current and expected future policy rates and liquidity effects.

**Figure 2. QE-related news over the sample period**



**Note:** The chart shows a weighted average of QE-related news stories for the European Central Bank, the Bank of England, the U.S. Federal Reserve, and the Bank of Canada around the March 2020 QE announcements, expressed as standard deviations above the end-2019 level.

**Source:** Bloomberg News Trends function.

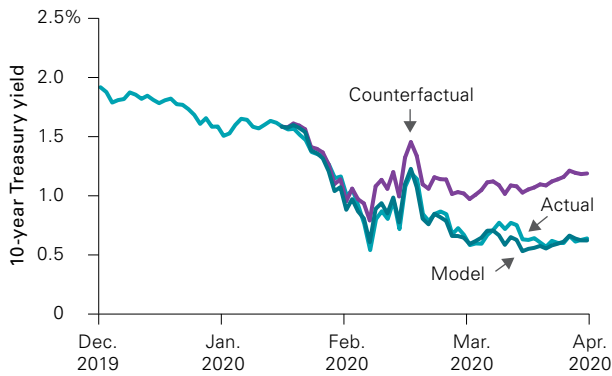
1 Quantitative easing may also affect yields through changing expectations of future policy rates. This potential signaling effect is not captured by our results.

2 This was attained using the Bloomberg “News Trends” function. This function allows us to analyze the volume of news published on specific topics over time. It is built on a vast archive of news stories and social media posts from over 150,000 sources.

3 This method assumes that any changes in 10-year yields that were not driven by changes in policy rate expectations or liquidity effects are driven by changes in term premia. Our estimated impacts may also be picking up changes in term premia that are not driven by QE announcements, though any effect is assumed to be small given the narrow time window.

**Figure 3. QE announcements had a significant and negative impact on government bond term premia**

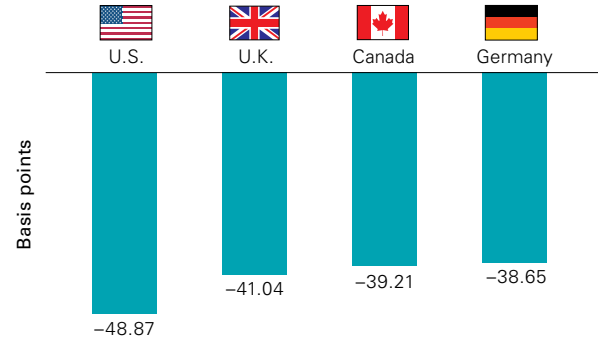
a. 10-year U.S. Treasury note yield (actual versus model versus counterfactual)



**Notes:** The chart shows the fitted values from the analysis described in this section and compares them to a counterfactual where no QE announcements are assumed, around the time of the Federal Reserve’s March 2020 QE announcement. The difference between the model and the counterfactual is the estimate for the effect of QE announcements on term premia.

**Sources:** Vanguard, using input data from Bloomberg.

b. Estimated impact of QE announcements on term premia across countries



**Sources:** Vanguard, using input data from Bloomberg.

**Global bond yields to move modestly higher as ultra-accommodative monetary policy eventually unwinds**

In this section, we seek to project 10-year government bond yields out to 2030 in order to set reasonable expectations for investors. We start with our forward-looking macro views regarding the business cycle, policy rates, and QE, which are constructed by our global economics team. We then map these views onto bond yields using our proprietary model.

Our modeling approach involves a vector error correction model (VECM) where bond yields are a function of the neutral rate<sup>4</sup>; the policy rate; the difference between the 3-year yield and 3-month yield, which aims to capture changes in expectations of future policy rates; and the government bond “free float” (Gagnon et al., 2011). The free float captures changes in central banks’ holdings of QE-related assets.<sup>5</sup>

<sup>4</sup> The neutral rate is the interest rate that supports the economy at full employment/maximum output while keeping inflation constant.

<sup>5</sup> The government free float is calculated as the total stock of outstanding government bonds less central bank holdings of government bonds and other holdings of government bonds that are not freely traded in financial markets.

We ran forecasts for each market under three scenarios: a baseline reflation scenario, a recession scenario, and a “super-hot” recovery scenario. Our forecasts are driven by assumptions made on central bank policy rates and the size of central bank balance sheets as illustrated in Figure 4.1 and Figure 4.2.

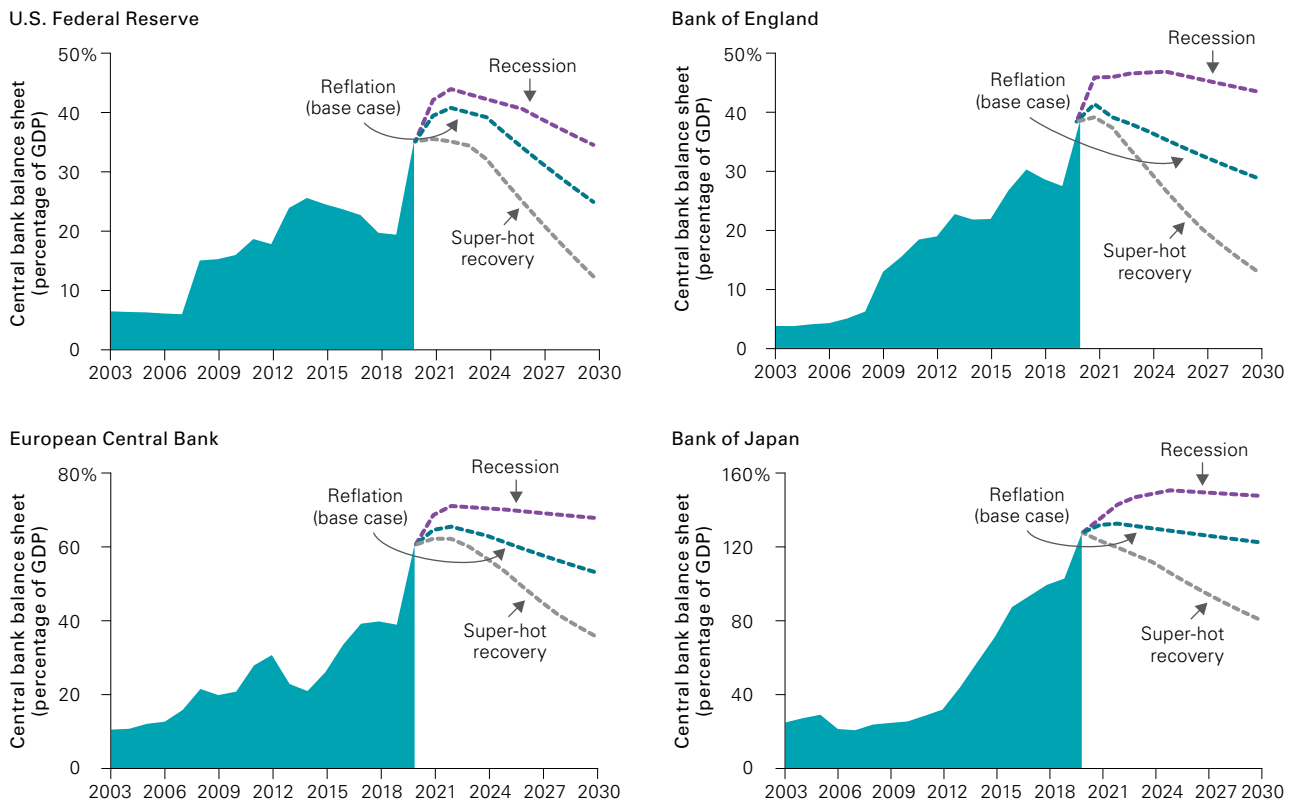
Our 10-year bond yield forecasts are presented in Figure 5. Despite market fears of a sharp rise in yields, the figure illustrates that we anticipate only a moderate lift across U.S., Germany, and U.K. 10-year yields over the next decade as monetary policy slowly tightens. This is based on our expectation that central bank balance sheets will remain relatively large, even after normalization of monetary policy,<sup>6</sup> and that policy rates will rise only modestly above the zero lower bound over the next decade, to 2.5% in the U.S. and the U.K., 1.5% in the euro area, and roughly 0% in Japan.

Figure 4.1. Policy rates are expected to lift only modestly over the next decade

	Lift-off date	2025	2030
Federal Reserve	Q3 2023	1.25%	2.50%
Bank of England	Q1 2023	1.25%	2.50%
European Central Bank	Q4 2023	0.60%	1.50%
Bank of Japan	—	-0.10%	-0.10%

Source: Vanguard.

Figure 4.2. Central bank balance sheets are expected to remain large relative to history



Sources: Vanguard, using historical central bank balance sheet data from Bloomberg.

<sup>6</sup> Central bank balance sheets are likely to be larger in equilibrium than they were before QE started, both in nominal terms and as a percentage of GDP. This is because many central banks moved from a “corridor” to a “floor” system after the global financial crisis to ensure that they can still influence short-term rates with an abundance of excess reserves. Following stricter regulatory capital and liquidity requirements, banks now also demand higher levels of central bank reserves.

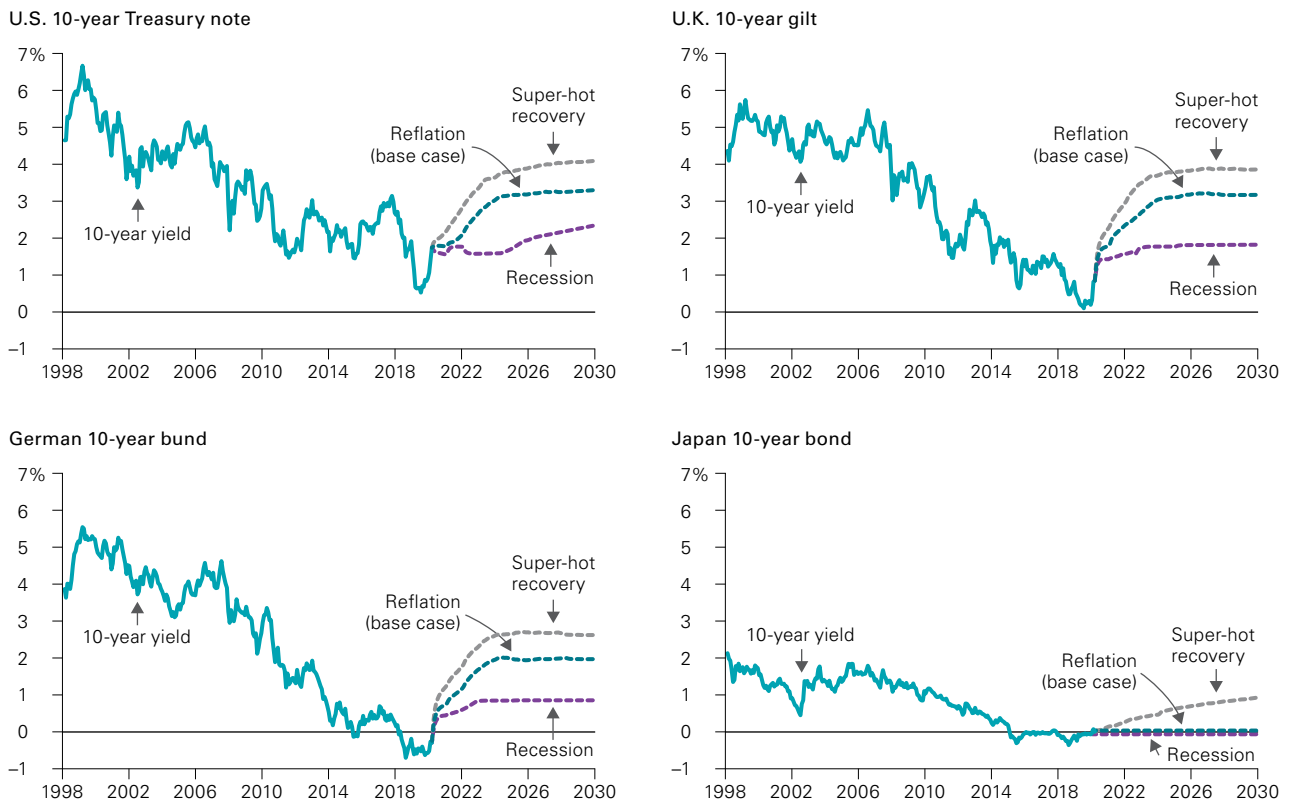
The largest increase in yields is expected in the U.S. and the U.K. because of a greater expected increase in the policy rate and a greater reduction in the balance sheet. By contrast, in Japan, we do not expect a tightening of monetary policy this decade, and as such, we expect the 10-year yield to remain relatively anchored around 0%.

Even under more aggressive monetary tightening assumptions, as illustrated by our super-hot recovery scenario, where the policy rate reaches 4% in the U.S., 3.8% in the UK, 2.6% in the euro area, and 0.9% in Japan, we are hard-pressed to see bond yields returning to pre-global financial crisis (GFC) levels.

### Conclusion

The recovery from the pandemic is likely to accelerate as vaccines are rolled out and life slowly returns to normal. Despite this, it will take several years for unemployment rates and spare capacity to fall back to pre-pandemic levels and for inflation to consistently meet central bank targets. This implies that monetary policy will not begin to normalize for several years. Indeed, we expect policy rates to lift off in 2023 and rise a modest amount above the zero lower bound. Central bank balance sheets are also expected to remain elevated. The upshot of this is that bond yields will rise further over coming years but perhaps not as much as some market participants fear.

Figure 5. 10-year bond yields are expected to remain below pre-GFC levels



Sources: Vanguard, using historical 10-year government bond yield data from Bloomberg.

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