Government bond term premia during the pandemic
by Corrado Macchiarelli

With monetary policy interest rates at the effective lower bound (ELB) in developed economies, the conventional view is that countries should deploy their fiscal stimulus (Chadha, 2020).[1] Since the start of the Covid-19 pandemic, such fiscal support came in conjunction with the continuation of the central banks' asset purchase programmes so as to provide fiscal space, allowing governments to support the provision of services and transfers to mitigate the health and welfare impact of the shock across the society.

Central bank bond purchase programmes of the type announced before and during Covid-19, such as quantitative easing (QE), have a direct effect on the liquidity of the bond market. Long-term Treasury yields can be decomposed into two components: expectations of the future path of short-term Treasury yields and a term premium. These are, respectively, the average current and expected future short-term interest rates, and the compensation investors require for bearing the risk that short-term Treasury yields will not evolve as expected (risk premium).

Studying the term premia over the recent pandemic allows us to investigate what has driven changes in Treasury yields since Covid-19. In this box, we discuss the Treasury term premia for the US and the UK and some selected European

Figure 1. The relationship between the US term premium and CBOE SPX volatility VIX

- 2009 - February 2020
- March - October 2020
- - - - - Linear (2009 - February 2020)
- - - - - Linear (March - October 2020)

countries, i.e. Italy and Germany, with particular attention to the period after March 2020.

Since the term premium is not a variable which is observable, it must be estimated. To do so, we use a five-factor, no-arbitrage term structure model following Adrian *et al.* (2013a). The model uses zero-coupon yield data which are available at a daily frequency.

The term premium which we obtain is typically a countercyclical variable that rises during recessions and falls during recoveries (see Adrian *et al.*, 2013a, b). Since early 2020, however, there is no clear-cut relationship between the increase in term premia and the individual country output losses, particularly in some countries where a two-digit economic contraction has not been accompanied by a corresponding increase in the term premium.

It is also useful to compare the term premium we obtain with standard measures of uncertainty or volatility (VIX), for the US for example. The evidence suggests that financial market volatility appears to be normally associated with high levels of term premia, as evidenced by the linear fitted line (2009 – February 2020) in figure 1. This relationship tends to be stable over time, but this year seems to have shifted with Covid-19. After March 2020, as volatility has increased as the result of the pandemic, the corresponding risk premium for the US, as well as for the UK and most European countries, has remained low – suggesting a different regime. Why has that been so?

Treasury bond yields can change in response to the monetary policy stance, both conventional and unconventional, to the extent that they reflect changes in the expected path of future short-term interest rates or changes in the term premium. Unconventional monetary policy – including asset purchase programmes and forward guidance – is particularly instructive in this case, as it represents the central bank's commitment that policy is going to be lower for longer, but also that the market will not have to absorb large quantities of bonds onto its portfolios.

Ten-year government bond yields have been close to zero as the result of the European Central Bank, the Bank of England, and the Federal Reserve having adopted large-scale asset buying programmes and the commitment to keeping near-zero repo rates.[2] This commitment was restarted in March 2020. At the same time, the corresponding term-premia estimates show that the premia in many countries have been compressed and, in some cases, have turned negative.
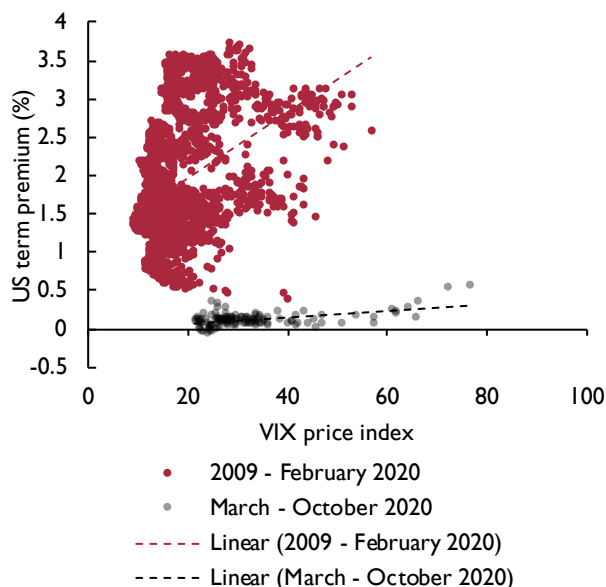
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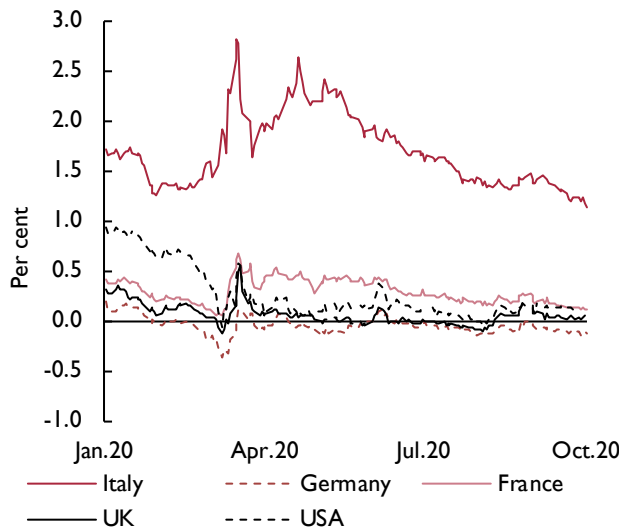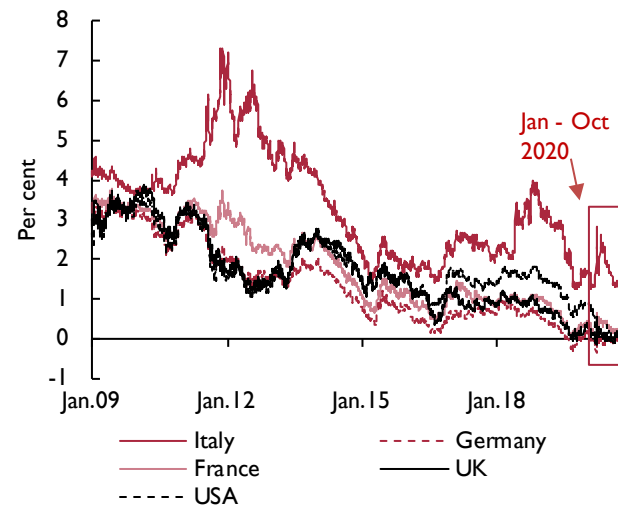Figure 2. 10-year Treasury bond risk premium component Jan–Oct 2020

Figure 3. 10-year Treasury bond risk premium component Jan–Oct 2020

The evolution of term premia has been of particular interest in the Covid-19 pandemic. Figure 2 looks at the experience of this year. The modelled term premia rose sharply in most countries at the onset of the crisis in March but then recovered after that. In particular, Italy recorded the highest increases in March, standing at 2.8%, whereas Germany recorded the lowest peak, 0.1%, followed by the US and the UK at 0.5%. The term premia compression observed after the peak in March was the case even though uncertainty remained high. Those dynamics can be ascribed to expansionary monetary policies of the type of QE. Evidence for the UK suggests, for instance, that much of the persistent compression in term premia was due because bond market participants correctly inferred that the central bank would pursue an accommodative monetary policy that would keep longer-term yields low (Chadha *et al.*, 2020; Mellina and Macchiarelli, 2020). Given financial markets' integration, a significant amount of the movements observed at the longer end of the yield curve also depends on changes in international risk and uncertainty, as well as monetary policy developments abroad and interest rate spillovers (Kaminska *et al.*, 2015; Kearns *et al.*, 2018). The co-movements in the UK, US and German term premia since 2009 are particularly suggestive of the role of such channels (figure 3).

With the current observed inflation rates, episodes where policy rates are constrained by their ELB are thus likely to become more frequent and prolonged (i.e. so much so that some countries have become at risk of losing the anchor of inflation expectations; see Lenoël *et al.*, 2020). Policy rates at the effective bound – be it zero or less – require the continuation of unconventional monetary policies but those have been shown to have diminishing returns (Bean, 2016). This means that the likelihood of nominal interest rates hitting the zero lower bound has increased compared to the period prior to the Great Financial Crisis. The observed slack in the economy, together with uncertainty on the shape and length of the recovery, means that monetary policy will have to stay looser for longer. The change in the US monetary policy in August supports this view, yet there is a lot of uncertainty on whether the current policy mix will be able to generate inflation over the medium run (Lenoël and Macchiarelli, 2020).

A world of persistently low interest rates and productivity growth may be more prone to generating a leveraged 'reach for yield' by which speculative asset-price cycles have become detached from fundamentals. In fact, while the real return on indexed sovereign debt has been shown to trend mostly downwards since 1985, returns on equities have remained consistently flat since the late 1990s, in line with an increasing preference for safe assets (Bean, 2016). This has also been the case after the March 2020 shock, where greater expected income gains, compared to government bonds, have swiftly driven stock prices back to their pre-Covid-19 levels – particularly in some sectors (Delle Monache *et al.*, 2020).

Looking at the data since the pandemic flared, there is thus no evidence that term premia have recorded sustained increases following an upsurge in volatility and uncertainty after the 2020 shock. This is consistent with the observed behaviour of the Treasury bond rates in the US, the UK and Europe, which reflect both low expected future short-term interest rates for now, and compressed risk premia.

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While our term premium measure is estimated and is naturally subject to some uncertainty, our conclusions are consistent with both short-term and long-term factors. Not only have bond yields been on a long-term declining path, but also shifts in safe assets and bond scarcity, as the result of the central banks' purchases, have played a role particularly in countries where bond demand increased as the result of 'flight to safety'. The risk premia observed since March 2020 therefore do not compare in scale with what was observed at the height of the Global Financial Crisis; since then, asset purchase programmes such as QE have been quantified to compress 10-year sovereign term premia by about 75–95 bps, with these effects changing depending on the country and period considered (see, e.g., Eser *et al.*, 2019). Recent evidence also suggests that the long-term borrowing costs are likely to decrease further in developed economies due to the increase in (precautionary) savings and lower investment demand because of Covid-19 (see Chudik *et al.*, 2020).

Expectations about changes in the future stance of monetary policy and the composition and riskiness of the central banks' balance sheets will influence term premia going forward. Therefore, the link between Treasury term premia and monetary policy is something to watch for, particularly as the boundary between non-conventional monetary policy and deficit-financed government support might change in the future.

Notes
1 For a discussion on developing economies, see Benigno *et al.* (2020).
2 To a lesser extent in the US, where government bond yields were above zero as 10-year short-term expected interest rates have remained higher, at around 1 per cent.

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