



Low global bond yields: low growth, monetary policy, market dynamics

Keynote speech by Jaime Caruana
General Manager, Bank for International Settlements

Crédit Agricole CIB Asset Managers Summit
London, 14 November 2016

Today my topic is the global bond market, a subject of keen interest to asset managers.

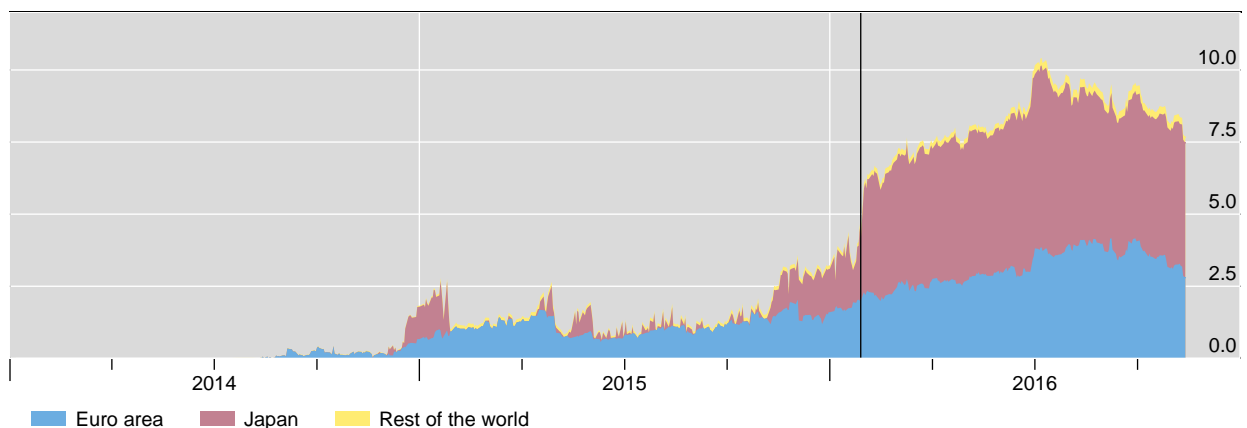
The bond market in major currencies plays a much larger role than funding the gap between government spending and revenues. Nowadays the yields on such bonds ramify widely in the real economy and financial markets. Corporate treasurers use these yields to assess the value to shareholders of real investment projects. These yields determine how much households pay on their fixed rate mortgages. And they have become the cornerstone of valuation of other long-term assets, ranging from equities and real estate, to gold and foreign exchange. Futures and options based on benchmark bonds are used to hedge other long-term bonds. Long-term sovereign bonds help pension funds and insurance companies to measure the value of their liabilities and are their core investment.

Today, however, major bond markets are sending signals that are very hard to decipher. A previously unthinkable portion of major government bond markets is trading at negative yields. More than \$7.5 trillion of sovereign bonds in major countries is trading at negative rates as of 11 November 2016 (Graph 1). Investors are paying governments for the privilege of lending to them! You know this, but my theme today is that there is a risk that we lose our sense of wonder in facing that fact.

Stock of government bonds with negative yields¹

In trillions of US dollars

Graph 1



¹ Analysis based on the constituents of the Bank of America Merrill Lynch World Sovereign index. The vertical line indicates 29 January 2016, the date on which the Bank of Japan announced its move to negative interest rates on reserves. Data as of 11 November 2016.

Sources: Bank of America Merrill Lynch; Bloomberg; BIS calculations.



I shall consider in order the three stories that we tell ourselves about why long-term yields are so low: low growth, monetary policy and market dynamics. I hope to leave you today with two suggestions. First, that we risk putting too much weight on slow growth, or even secular stagnation, in our understanding of these very low yields. And second, that there is a corresponding risk that we put too little weight on unconventional monetary policy and market dynamics. One implication is that asset managers should reflect upon snapback risk – and risk managers should make sure that they do.

Low growth, perhaps secular stagnation

The most widely credited story for why major government bonds trade at such low yields is the combination of low growth and sub-par inflation. Low real growth is often ascribed to an excess of desired saving over investment. This excess is itself variously attributed, first, to Asian savings (the “savings glut”), second, to a technology-driven decline in the price of investment goods, third, to corporate caution, or fourth, to a managerial agency problem that leads to firms not investing their cash flow.¹

The second, and sometimes the first, has been dubbed secular stagnation. This evokes the 1937 pessimism that presumed the American frontier was closing and technology had nothing more to offer. These are all stories that could result in growth being relatively low for the indefinite future.

In emerging market economies, there are a variety of reasons to foresee growth headwinds in the future. Credit cycles are maturing and China is rebalancing from export-oriented manufacturing to services. Its approach to the international frontier in manufacturing and the peaking of its labour force all suggest slower growth. Elsewhere, productivity growth has fallen and in several countries demographics suggest slower growth.

Inflation is generally below targets in Japan, Europe and the United States. Inflation outcomes are much more diverse in emerging market economies, with important economies struggling to bring down inflation in excess of declared norms, but, on balance, it is comparatively low there too.

Putting together low real growth and sub-par inflation in major economies, nominal GDP growth and nominal bond yields have fallen broadly together since 1980. By this rough metric, the trend towards lower bond yields in recent years makes sense.

However, in these major bond markets, current yields are a little on the low side compared to nominal GDP (Graph 2). In the US Treasury market, the German bund market, the Japanese government bond market and the British gilt market, nominal GDP has been growing at a rate noticeably higher than the 10-year bond yield. Both the coincidence of this observation and the observed size of the current deviation are worth noting.

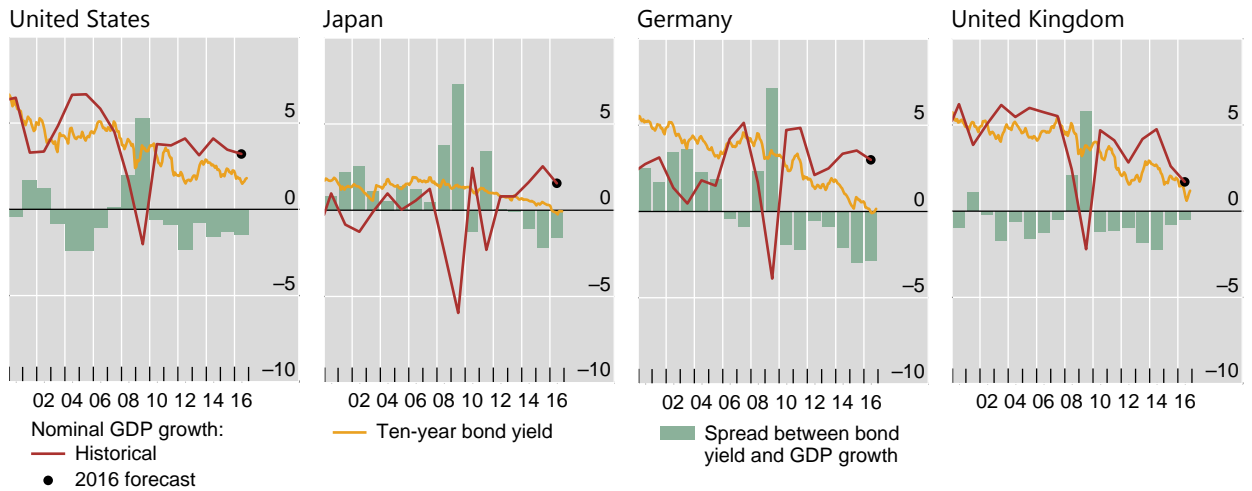
¹ See B Bernanke, “Why are interest rates so low, part 3: The Global Savings Glut”, Ben Bernanke’s Blog, Brookings Institute, 1 April 2015; L Summers, “Macroeconomic policy and secular stagnation”, International Monetary Fund, Mundell-Fleming Lecture, 3 November 2016, www.imf.org/external/mmedia/view.aspx?vid=5196724125001; J Gruber and S Kamin, “The corporate saving glut in the aftermath of the Global Financial Crisis”, *International Finance Discussion Papers*, no 1150, November 2015.



Ten-year bond yields sink below nominal GDP growth rates

In per cent

Graph 2



Sources: OECD, *Economic Outlook*; Global Financial Data; BIS calculations.

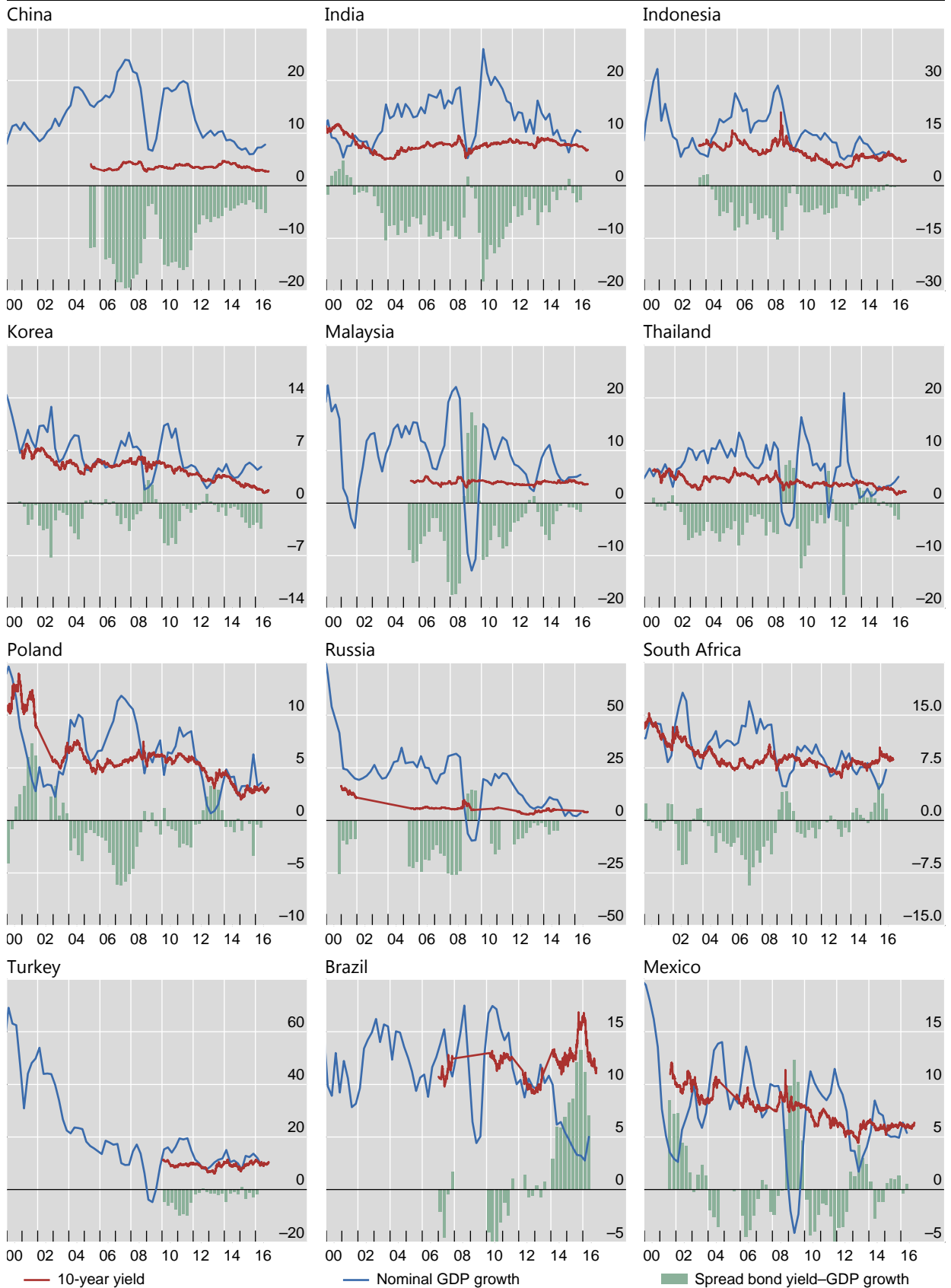
As with inflation performance, matters are more diverse in emerging market economies, but there is still evidence of low bond yields. Asian yields are broadly below nominal GDP growth, although not by unusual margins (Graph 3). In Poland and Turkey as well, bond yields are below nominal GDP growth. In the commodity-exporting economies of Latin America, Russia and South Africa, where central banks are contending with the inflationary consequences of exchange rate depreciation, bond yields are above nominal GDP growth.

To sum up, government bond yields have fallen *below* nominal GDP growth in the G4 currencies and many emerging market economies. While the margin is not large relative to historical experience, the breadth of the observation across many bond markets should give us pause. But we should not neglect the other two stories, monetary policy and market dynamics.



Bond yields and nominal GDP growth in 12 emerging market economies, per cent

Graph 3



Sources: Bloomberg; IMF; BIS calculations

Monetary (balance sheet) policy of central banks

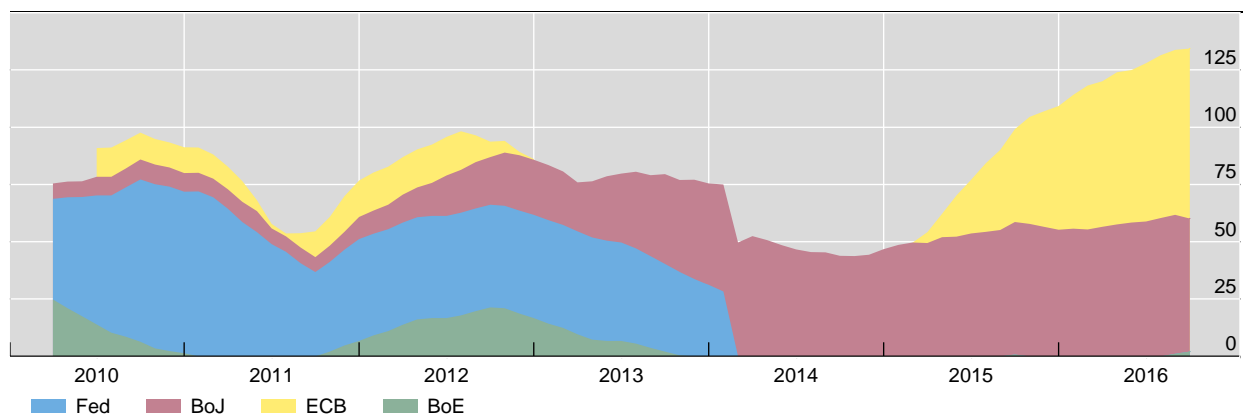
Central banks have influenced global bond yields in a variety of ways. They have set their short-term policy rates at low, even negative, levels; they have guided market participants to expect such rates to be low in the future; and they have published low forecasts of their future equilibrium rates. The Federal Reserve's Federal Open Market Committee, for instance, published a median long-term federal funds rate projection of 3.8% in July 2015, but only 2.9% in September 2016.²

In addition, central banks have bought bonds and other assets, so-called quantitative easing (QE). Most commentary by market participants concerns the *flow* of central bank bond purchases, but I would like to draw your attention to the accumulating *stock* of bonds held by officials. The flow numbers are impressive: with the Bank of England joining the Bank of Japan and the ECB, purchases are heading to \$200 billion per month (Graph 4).

Federal Reserve, ECB, Bank of England and Bank of Japan asset purchases

Monthly 12-month moving average, in billions of US dollars

Graph 4



Source: Bloomberg; BIS calculations.

But the real measure of the official thumb on the scale in major government bond markets is not the flows, but the stocks, and these are now very substantial indeed. What is often overlooked is that QE comes on top of long-standing ownership of major government bonds by official reserve managers. Here the policy is the sale of domestic currency – official foreign exchange intervention to hold down the domestic currency – and the investment of the proceeds in major government bond markets is a by-product. Thus, by official holdings, I mean not only those of central banks implementing QE, but also those of foreign exchange reserve managers. The upshot of both intentional and incidental official bond buying is that officials hold a large and growing fraction of G4 government bonds.

The fraction of US, euro area, Japanese and UK government bonds in official hands is high (Graph 5, left-hand panel): a third of government bonds in those economies are held by central banks and other reserve managers. While this fraction declined a bit in 2015 as a result of official reserve decumulation, it is stabilising in 2016 as reserve drawdowns slow and the ECB and Bank of Japan accelerate purchases and the Bank of England resumes them. Over half of the US Treasury market is held by the official sector (Graph 5, right-hand panel).

² See Federal Reserve Bank of St Louis and FOMC, "Longer Run FOMC Summary of Economic Projections for the Fed Funds Rate, Median [FEDTARMDLR]", retrieved from FRED, fred.stlouisfed.org/series/FEDTARMDLR, 11 October 2016.

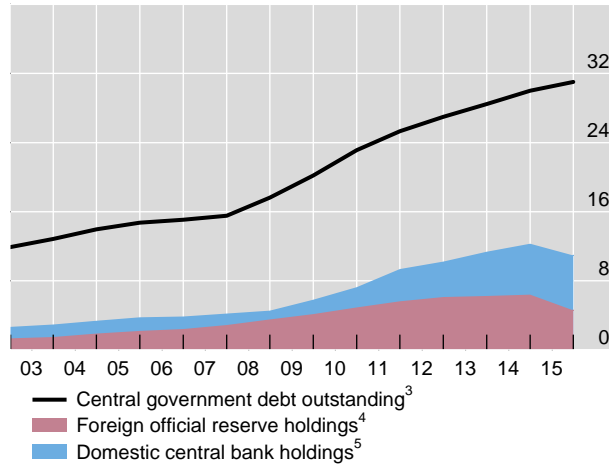


Official holdings of government securities are large

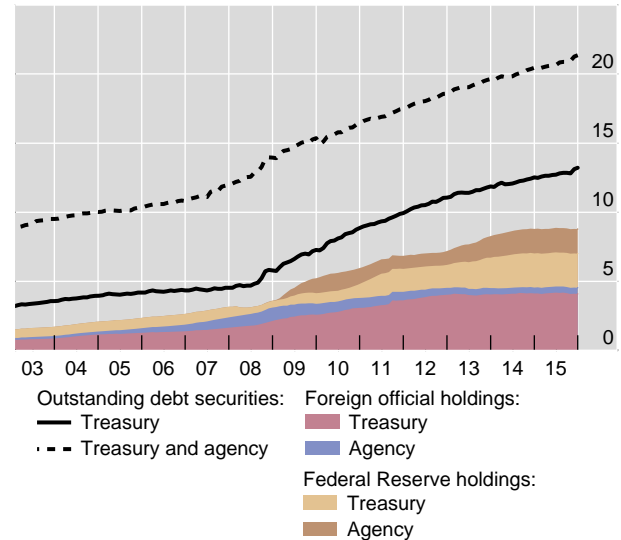
In trillions of US dollars

Graph 5

Official holdings of government securities²



Official holdings of US Treasury and agency securities⁶



¹ Different valuation methods based on source availability. ² Covers the euro area, Japan, the United Kingdom and the United States; for the euro area, Japan and the United Kingdom, converted into US dollars using end-2014 constant exchange rates. ³ For the United States, total marketable Treasury securities, excluding agency debt. ⁴ For euro- and yen-denominated reserves, 80% is assumed to be government debt securities; for dollar-denominated reserves, as reported by the US Treasury International Capital System; for sterling-denominated reserves, holdings by foreign central banks. ⁵ For the euro area, national central bank holdings of general government debt and ECB holdings under the Securities Market Programme. ⁶ Agency debt includes mortgage pools backed by agencies and government-sponsored enterprises (GSEs) as well as issues by GSEs; total outstanding Treasury securities are total marketable Treasury securities.

Sources: ECB; Bank of Japan flow of funds accounts; Federal Reserve flow of funds accounts; IMF, Currency Composition of Official Foreign Exchange Reserves (COFER); UK Debt Management Office; US Department of the Treasury; Datastream; national data; BIS calculations.

What is clear is that QE in one major bond market tends to push down yields in other major bond markets. This is evident from a range of studies using yields of different frequency and various techniques.³ As central banks remove duration from the market and thereby depress yields, investors scan the globe searching for yield with which to fulfil promises to policyholders and future pensioners. One symptom of this search for yield is the cross-currency basis, which makes hedging dollar investments more expensive for Japanese and euro area investors.⁴

In sum, the official thumb on the scale in global bond markets should not be underestimated. And what the central bank gives, it can take away – or market participants can fear that it will take away, especially if they are paying more attention to flows than to stocks. Just in July-August 2016, Japanese government bond yields rose sharply after the Bank of Japan said that it would perform a comprehensive assessment of its policy (Graph 6). Reactions can be swift, as demonstrated in the first of the series of market moves that came to be known as the taper tantrum in the United States (Graph 7).

³ See BIS, *85th Annual Report*, 2015, p 94.

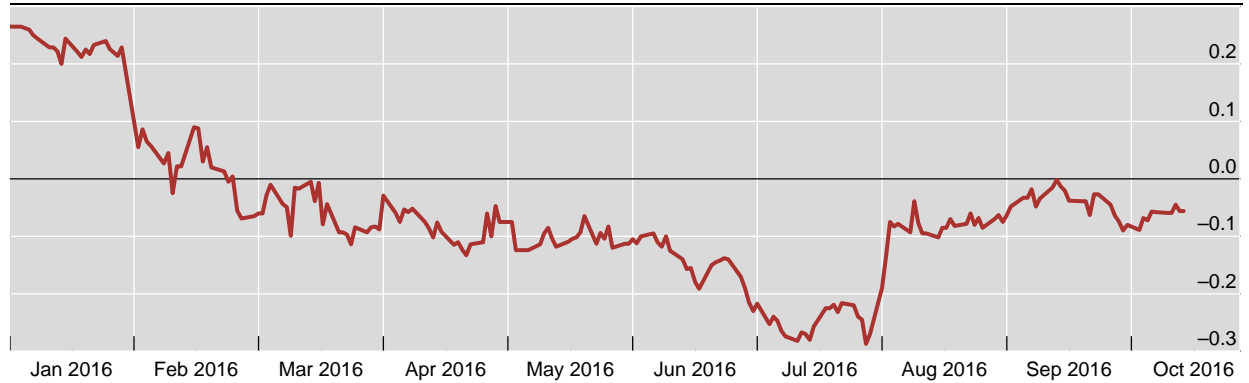
⁴ See C Borio, R McCauley, P McGuire and V Sushko, "Covered interest parity lost: understanding the cross-currency basis", *BIS Quarterly Review*, September 2016, pp 45–64.



Ten-year Japanese government bond yield

In per cent

Graph 6

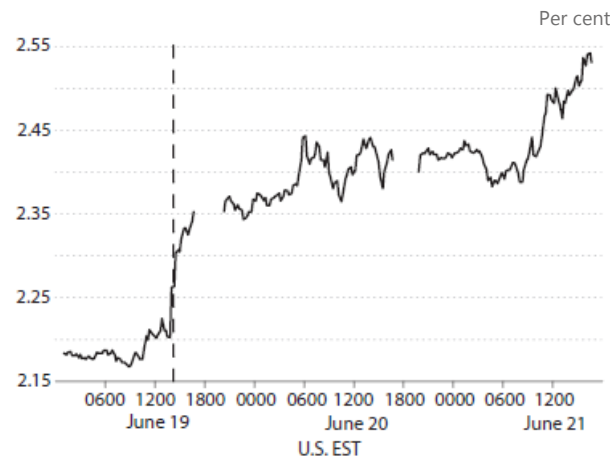


Source: Bloomberg.

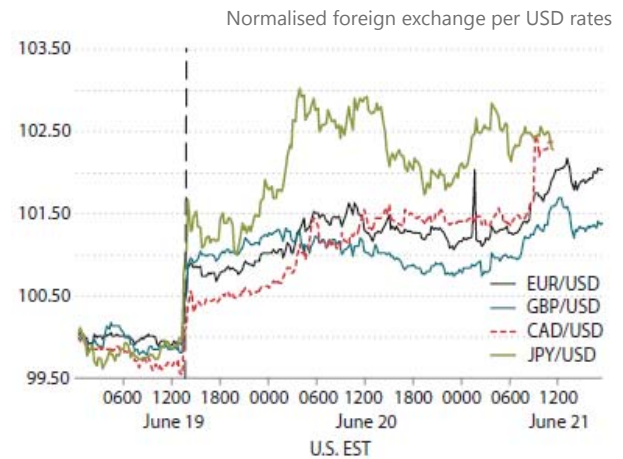
Asset prices around the 19 June 2013 FOMC meeting and press conference

Graph 7

US 10-year bond yield



Dollar exchange rates



CAD = Canadian dollar; EUR = euro; GBP = pound sterling; JPY = Japanese yen; USD = US dollar.

The left- and right-hand panels show US 10-year bond yields and the foreign exchange value of the dollar near the 19 June 2013 FOMC meeting and press conference. The dashed vertical lines denote 2:15 pm EST on that day. Missing values reflect no reported trading.

Source: C Neely, "Lessons from the taper tantrum", Federal Reserve Bank of St Louis, *Economic Synopses*, 28 January 2014.

Market dynamics

Just as official holdings should not be underestimated, neither should the effect of international market dynamics. These have arguably amplified the decline of rates from fundamental reasons and from official



purchases. Before I lay out five such market dynamics – I am sure that this audience could add to my list – let me comment on Robert Shiller’s call that the US bond market is in a bubble.⁵

Shiller defines a bubble as a sort of thought virus, a highly contagious feedback loop “where price increases generate enthusiasm among investors, who then bid up prices more, ... until prices get too high. During that period, people are motivated by envy of others who have made money doing it, regret in not have participated and the gambler’s excitement. Stories develop that justify the bubble ...”.⁶ While terming the bond market a “new normal” bubble, he recognises that it does not have all the characteristics of a bubble, in that it features less greed and more fear. He suggests that people are buying bonds to protect themselves, because they feel anxious about their future.

My own view is that, while bonds might have, through various social processes, reached prices that cannot be sustained, it is not all that useful to call this situation a bubble. Many investors, including perhaps those in this room, are far from enthusiastic about the prospects of the negative-yielding bonds in the portfolios that they manage as professionals. As I shall argue, institutional constraints may be forcing some of you to do at work what you are not doing at home in managing your family’s finances. The bond market strikes me as less a case of irrational exuberance and more a case of irrational, or even rational, despondency.

Let me now turn to the five market dynamics.

First, insurance companies that are short-duration have chased yields down.⁷ Data published by the European Insurance and Occupational Pensions Authority (EIOPA) show that German and Austrian insurers have a particularly large mismatch between the shorter duration assets and their longer duration liabilities. As bond yields fell, such duration-mismatched investors had to redouble their purchases of longer-dated bonds, contributing to a downward spiral of yields. More generally, insurers’ reluctance to part with long-term government bonds means that the price impact of central bank purchases tends to be magnified.

Second, the decline of bond yields has come at a time when many pension funds are shifting from equities to bond investments. In some cases, firms are closing defined benefit plans and funding them with bonds or annuities. Some have called this de-equitisation.⁸ In the United States, the Federal Reserve’s flow of funds data show that pension funds’ weight on equities and mutual fund shares hit 58% in 1999 and 55% in 2005, but was only 45% in the second quarter of 2016.

Third, the particular constraints put on QE can create market dynamics. In particular, the ECB constraint against buying bonds yielding less than the ECB deposit facility rate (currently –40 basis points) leads market participants to anticipate longer-duration purchases when bond yields threaten to become sufficiently negative in the euro area. The lower yields go, the farther out the yield curve the ECB must purchase.

Fourth, extrapolative expectations of further rate cuts or continued low volatility can drive down bond yields and implied volatility. For instance, skewed demand in hedging markets, ie strong demand for

⁵ See R Shiller, *Irrational exuberance*, Princeton University Press, 2015.

⁶ See C Rotblut, “Robert Shiller: beware the new normal bubble”, *Forbes*, 29 June 2015.

⁷ See D Domanski, H S Shin and V Sushko, “The hunt for duration: not waving but drowning?” *BIS Working Papers*, no 519, Octobe, 2015.

⁸ See A Haldane, “The age of asset management?”, speech at the London Business School, London, 4 April 2014; Bank of England and Procyclicality Working Group, “Procyclicality and structural trends in investment allocation by insurance companies and pension funds”, *Discussion Paper*, 31 July 2014.



protection against a further fall in yields, was seen in the run-up to the “bund tantrum”.⁹ Investment strategies designed to profit from low volatility may have played a role in the flash rally in US bonds in October 2014.¹⁰

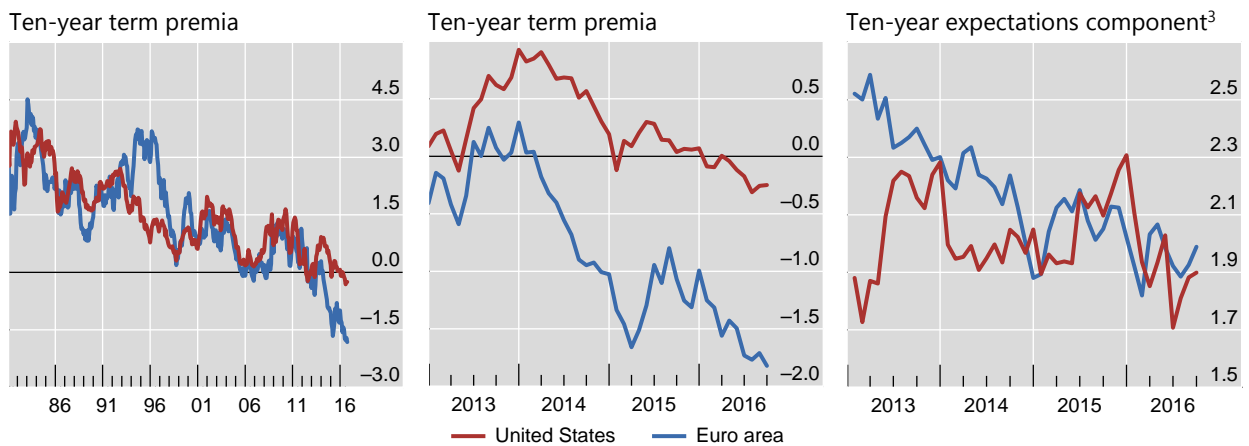
Fifth, negative yields in Japan and Europe and narrow corporate spreads in Europe have put pressure on US bond market yields and spreads.¹¹ This pressure recalls the lack of responsiveness of US bond yields to the Federal Reserve tightening in 2004–06, the so-called “conundrum”. US investors, despite the Federal Reserve’s mooted tightening, look at negative government bond yields abroad and see the purchases from abroad, and, for a time at least, accept lower yields on US Treasury bonds.

If too much weight is placed on the low growth story and not enough on the official holdings and market dynamics explanations, market participants may leave themselves vulnerable to what has become known as snapback risk. It is useful to distinguish two different types of snapback risk. These correspond to a decomposition of bond yields into two components: expected short-term rates over the life of the bond (the expectation component) and the rest, also known as the term premium. The latter is usually substantially positive, reflecting the demand by investors for compensation above and beyond expected short-term rates for holding an instrument with considerable price risk. The estimated term premium is at an unusually low level on both sides of the Atlantic (Graph 8, left-hand panel). So a snapback could take the form of a sudden rise in market participants’ expectations of short rates over the medium term or a sudden rise in the term premium.

Term premia estimates continue to sink to unusually low levels^{1,2}

In per cent

Graph 8



¹ Decomposition of the 10-year nominal yield according to an estimated joint macroeconomic and term structure model; see P Hördahl and O Tristani, “Inflation risk premia in the euro area and the United States”, *International Journal of Central Banking*, September 2014. Yields are expressed in zero coupon terms; for the euro area, French government bond data are used. ² Last date October 2016. ³ Difference between 10-year nominal zero coupon yield and 10-year estimated term premium.

Sources: Bloomberg; BIS calculations.

⁹ See S Sundaresan and V Sushko, “Recent dislocations in fixed income derivatives markets”, *BIS Quarterly Review*, December 2015, pp 8-9.

¹⁰ See L Kreicher and R McCauley, “Asset managers, eurodollars and unconventional monetary policy”, *BIS Working Papers*, no 578, August 2016, p 9.

¹¹ As noted above, this is evident in hedging markets, ie cross-currency swaps: see C Borio, R McCauley, P McGuire and V Sushko, “Covered interest parity lost: understanding the cross-currency basis”, *BIS Quarterly Review*, September 2016, pp 45–64.



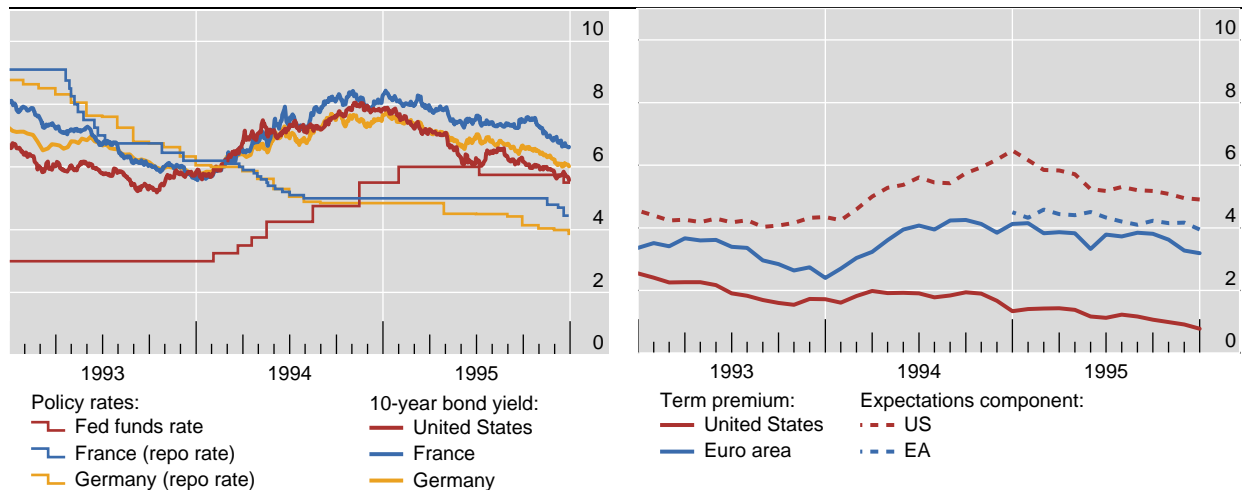
Both could go together, but the term premium may prove less controllable. Central bank communication can guide expectations of short-term rates. And central banks may use short-term rate setting, forward guidance and bond purchases to prevent the sudden decompression of the term premium. But market dynamics could play a particular role in a sudden rise in the term premium. The taper tantrum in the United States in the second quarter of 2013 featured a rise in the US term premium that seemed to spill over into Europe (Graph 8, centre panel). For its part, the bund tantrum of the second quarter of 2015 featured a rapid rise in the euro area bond market (Graph 8, centre panel).

One can see both types of snapback on either side of the Atlantic in 1994. That year, the Federal Reserve started a tightening cycle of short-term rates, and in response investors revised their expected short-term rates upwards. Meanwhile, the Bundesbank was actually lowering short-term rates and the Bank of France and others were following suit. Nevertheless, bond yields in Europe followed those in the United States very closely (Graph 9, left-hand panel), thanks to a widening of the term premium (right-hand panel). This is a helpful example although today central banks communicate their actions much better.

Transatlantic waves: from policy rates to bond yields

In per cent

Graph 9



¹ Decomposition of the 10-year nominal yield according to an estimated joint macroeconomic and term structure model; see P Hördahl and O Tristani, "Inflation risk premia in the euro area and the United States", *International Journal of Central Banking*, September 2014. Yields are expressed in zero coupon terms; for the euro area, French government bond data are used.

Sources: Bloomberg; national data; BIS calculations.

Markets are moving as we speak, and we would do well to recall that bond yields have been rising unevenly since July, reflecting both higher expected short-term rates and the term premium. Last week's events are striking, and a first reading of them points to the transatlantic transmission of higher bond term premia. The US 10-year Treasury bond yield rose 30 basis points last week and, according the analysts at the Federal Reserve Bank of New York, this reflected a similar increase in the term premium. European 10-year bond yields went up too, in a range from about half to as much as the rise of the US Treasury yield. Our preliminary assessment is that the European bond yield increases reflected a rise in the term premium as well.



Conclusions

To conclude, in understanding low global bond yields, it is easy to overstate the influence of slow-growth fundamentals and to understate the role of central bank actions and internal market dynamics.

The BIS view is that very low bond yields that are sustained for a very long time cannot be an equilibrium. This is because they tend to lead to financial imbalances that can misallocate resources and lead to lower productivity. If a boom ends in financial instability, it can have huge economic costs and further sap productivity.

If it turns out that the pessimists are right about the slow growth fundamentals, I would hope that we will not resign ourselves to low productivity. Nor should we forget that persistently low rates do not just reflect exogenous forces but also shape events. Instead, we should make the structural reforms necessary to restore productivity growth, which is so important to the standard of living of our children and grandchildren.

For asset managers, the appropriate interpretation of the signals coming from the bond market is a key call. If central bank actions or market dynamics matter, then portfolio managers and risk managers might well give some thought to the consequences of a change in them.