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The flattening of the yield curve in the United States

Juan Carlos Berganza and Alberto Fuertes

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The yield curve for US government debt securities has flattened significantly since late 2016 and its slope, while positive, has fallen to levels not observed since before the global financial crisis. The inversion of the yield curve slope is considered, on occasions, as a leading indicator of future recessions. And this, given moreover that the current expansionary phase is proving more durable than previous upturns, has prompted debate on the implications of the recent flattening of the curve. However, as illustrated in this article, unlike previous episodes, in which the flattening of the curve was explained by the behaviour of the interest rates expected at different terms, at this current juncture it is warranted substantially by the compression of term premia. Against this background, the historical relationship between the yield curve and predicted recessions in the US economy might have altered.

THE FLATTENING OF THE YIELD CURVE IN THE UNITED STATES

The authors of this article are Juan Carlos Berganza and Alberto Fuertes of the Directorate General Economics, Statistics and Research.*

Introduction

Since December 2016 the Federal Reserve has raised its policy interest rate by 100 bp and since October 2017 it has been gradually reducing the size of its balance sheet, ceasing to reinvest a portion of the maturing financial assets in its portfolio which were acquired during the quantitative easing programmes. This process of monetary normalisation and a communication policy geared to signalling further future rises in policy rates have led to increases in the shortest-dated market interest rates. However, the longest-dated interest rates have not increased by the same amount. Accordingly, the yield curve slope for US government securities has diminished, standing at levels not recorded since the months prior to the onset of the financial crisis. Given that, in recent decades, the episodes in which the slope of this curve turned negative – i.e. the longest-dated interest rates stood below their shorter-dated counterparts – were followed in most cases by a recession in the United States, the current reduction in the slope is prompting debate on its implications.

This article focuses on analysing the matter. In this connection, the following section analyses the past predictive power of the yield curve slope and the changes therein in recent quarters. The third section breaks down government bond yields into their two main components: i) expectations about policy interest rates, and ii) the term premium, given that the source of the changes in the yield curve may be relevant for predicting the attendant implications. The fourth section discusses some of the factors – domestic and global alike – that might explain the recent developments in the term premium and condition future changes. Finally, the last section draws some brief conclusions.

Changes in the yield curve and its predictive power in respect of recessions in the United States

The yield curve for US government debt securities captures, at a given moment in time, the relationship between the yield[1] on a broad set of US Treasury bonds (Treasuries) and the time remaining to their maturity. As these bonds are all issued by the Treasury, they have a similar default risk and are traded on the deepest and most liquid market in the world. This relationship is also known as the "term structure of interest rates". Chart 1.1 depicts this curve at three different points in time, illustrating how its slope varies over time. If the interest rates on the securities are very similar, irrespective of their maturity, the curve is practically flat (March 2006); if short-term interest rates are higher than long-term rates, the curve has a negative slope (November 2006); but what is "normal" is that the curve should have a positive slope, i.e. short-term interest rates are lower than long-term rates, since the compensation for the passage of time demanded by investors is usually on a rising course: this is what is known as the "term premium".[2]

As analysed below, the term premium is principally related to uncertainty over the future behaviour of the fundamental determinants of nominal interest rates: namely, inflation and the real short-term interest rate.[3] Naturally, this uncertainty will be greater the longer the

* The authors appreciate the excellent technical support provided by Emilio Muñoz de la Peña.

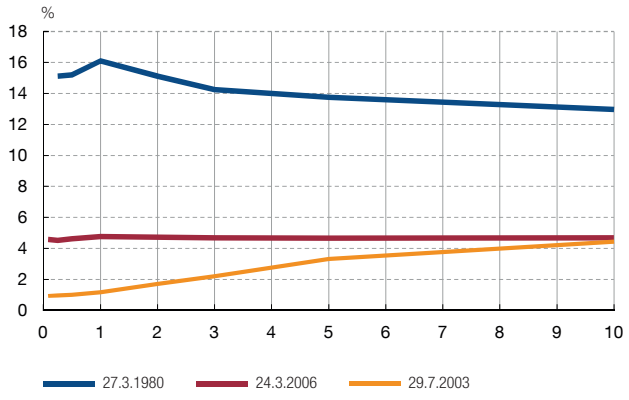
1 To calculate these yields, both the coupons associated with the bond and their market price are taken into account.

2 The curve may also evidence "humps", indicating that certain intermediate terms have higher interest rates for liquidity and tax reasons, among others.

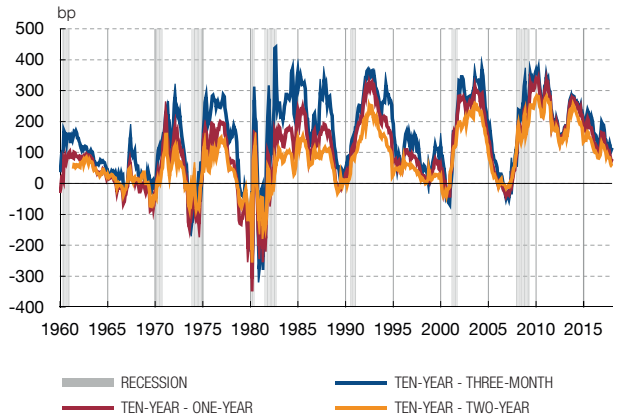
3 At certain points in time, other factors, such as the liquidity premium or credit risk, may take on greater significance.

UNITED STATES: YIELD CURVE SLOPE CHART 1

1 YIELD CURVES OF TREASURY SECURITIES



2 TEN-YEAR BOND SPREAD



SOURCES: Banco de España and Thomson-Reuters.

term; accordingly, situations in which the curve has a negative (i.e. inverted) slope are considered as exceptional.

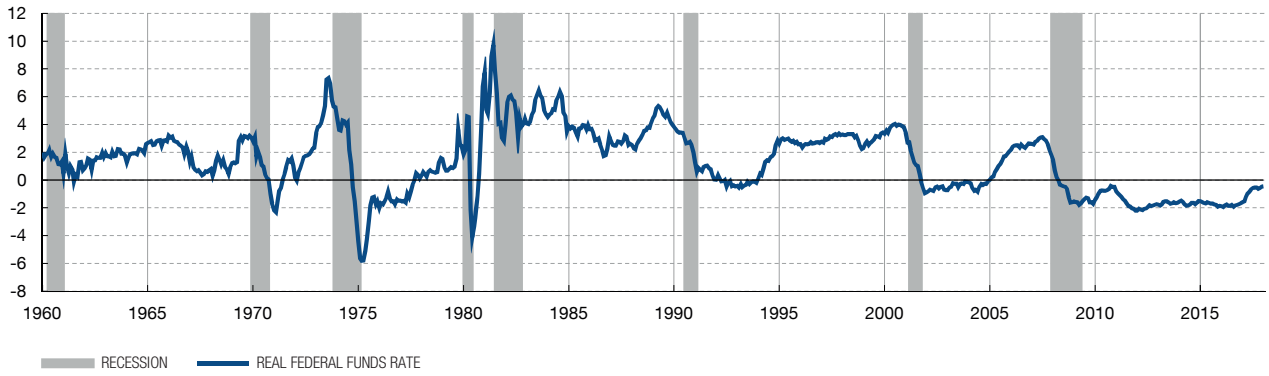
The slope indicator most used is the spread between the yield on ten-year securities and that on short-term securities, with the most usual terms being three months, one year and two years.[4] In particular, the spread calculated taking the two-year interest rate is that most frequently used, given the greater liquidity of the security, a desirable feature when compared with the ten-year security, which is also prominent in respect of its high liquidity. As can be seen in Chart 1.2, all these spreads are very closely interrelated.[5]

Chart 1.2 also shows how, since 1960, the US economy has undergone eight recessions, meaning that the country has been in recession 14.2% of the time. In all cases, the economy's entry into recession was preceded by a yield curve negative slope situation, some months before. Moreover, only on one occasion, in late 1966[6], was there a false signal, i.e. a negative value for the slope that was not followed by the economy going into recession. As Table 1 shows, on the occasions on which the negative slope correctly augured a recession, the inversion of the curve came about, on average, 13 months before, except in the case of the recession following the global financial crisis, when the lead was 22 months. Estrella and Hardouvelis (1991) demonstrated that the slope of the curve is a better predictor of recessions than other variables or indicators.[7]

In all instances, the inversion of the curve came about during episodes in which a restrictive monetary policy was being implemented (see Chart 2), in which nominal short-term interest rates increased more than long rates. The increases in policy interest rates feed through to longer-dated interest rates, which are an average of the short-term interest rates expected in the future; nonetheless, when a restrictive monetary policy that reduces expected inflation is implemented, the policy interest rates expected in the

4 It is common in the literature to use monthly averages of spreads, since the daily data may be somewhat erratic.
5 The correlation coefficients between the three series are close to 0.9.
6 In late 1998 it stood close to zero, but it did not ultimately invert. Some analysts also consider it a case of false positive.
7 Estrella and Mishkin (1997) and Bernard and Gerlach (1998) show that this relationship also arises in other developed economies, such as Germany, Canada and the United Kingdom.

REAL FEDERAL FUNDS RATE (a) CHART 2



SOURCE: Thomson-Reuters.

a Effective federal funds rate less core inflation.

UNITED STATES: TIME INTERVAL BETWEEN YIELD CURVE INVERSION AND START OF RECESSION TABLE 1

Month in which curve inverts for first time	Month recession starts	Difference between curve inversion and start of recession (months)	Difference between curve slope of 50 bp and inversion (months)
September 1959 (a)	April 1960	8	
January 1969	December 1969	11	20
March 1973	November 1973	8	3
September 1978	January 1980	16	9
September 1980	July 1981	10	1
January 1989	July 1990	18	4
February 2000	March 2001	13	36
February 2006	December 2007	22	9

SOURCES: Banco de España and Thomson-Reuters.

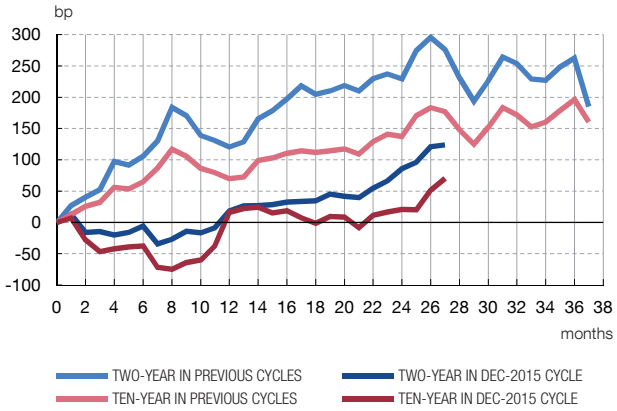
a In the absence of data for the two-year bond yield, the one-year bond is used.

longest-dated terms also progressively fall. Moreover, restrictive monetary policy may contribute to reducing uncertainty by correcting potential imbalances in the economy, thereby compressing the term premium. In sum, long-term interest rates increase by a lesser amount than short rates, and, on some occasions, they may post falls (see Chart 3.1). Indeed, the pattern of behaviour of long-term interest rates is far from uniform in cycles of monetary restraint.

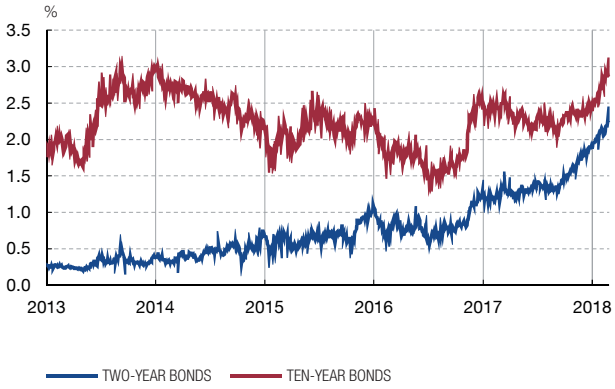
The current situation of the US economy is characterised by 120 consecutive months of growth to end-2017, far above the usual duration of expansionary phases, in a period in which the Federal Reserve has raised its policy interest rate by 100 bp since late 2016 and has begun the process of reducing the size of its balance sheet, through the non-reinvestment of a portion of the maturing public debt securities and mortgage-backed securities (MBS) in its portfolio. In these circumstances, the slope of the yield curve (measured as the difference between the ten-year and two-year yields) has fallen by 75 bp since late 2016, to stand at around 50-60 bp (the historical average of this spread since the early 1960s has stood at 80 bp).

UNITED STATES: YIELDS AND THEIR DECOMPOSITION FOR TWO- AND TEN-YEAR BONDS CHART 3

1 CHANGE IN YIELDS ON TWO- AND TEN-YEAR BONDS IN CYCLES OF MONETARY POLICY RISES (a)

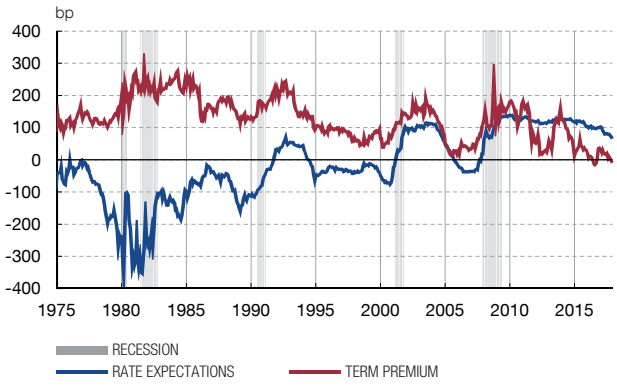


2 TWO- AND TEN-YEAR BOND INTEREST RATES



3 DECOMPOSITION OF THE YIELD ON TWO- AND TEN-YEAR BONDS

4 DECOMPOSITION OF THE SPREAD BETWEEN THE TEN- AND TWO-YEAR BOND YIELD



SOURCES: Banco de España, Thomson-Reuters and Federal Reserve Bank of New York.

a Difference in basis points in two- and ten-year rates in the months following the start of cycles compared with their level at the outset. The data for the previous cycles correspond in each month to the average of the values attained in the eight cycles started between November 1967 and June 2004.

This has led some analysts and certain members of the Federal Open Market Committee (FOMC)[8] to consider whether, if the reduction in the slope of the curve continues in the coming months, that might be indicative of the end of the expansion being closer.[9] Table 1 includes a column with the time interval observed between the point at which the slope of the curve stands at 50 bp and the point at which it turns negative in the curve-inversion episodes that are captured by the table.[10] As can be seen, excluding the recessions that began in December 1969 and in March 2001, this interval is less than a year.

8 See the recent presentation by J. Bullard, Chairman of the Federal Reserve of Saint Louis ("Assessing the risk of yield curve inversion", https://www.stlouisfed.org/~/media/Files/PDFs/Bullard/remarks/2017/Bullard_Little_Rock_AR_1_ December_2017.pdf?la=en). See also Bauer and Mertens (2018), who point out that, in the current environment of low interest rates and term premia, the predictive power of the curve slope remains intact.

9 In the euro area and in Japan, the slope of the curve has not fallen since late 2016, and in the United Kingdom the reduction has been on a lesser scale.

10 Only in mid-1984 did the curve slope stand close to current levels, without falling to the point of inverting, as can be seen in Chart 1.

As Chart 3.2 shows, the reduction in the slope from late 2016 is chiefly in response to the increase in the two-year interest rate, which has stood at a peak from summer 2008. At the same time, the increase in the ten-year interest rate was on a lesser scale, something previously observed in the behaviour of this variable in the run-up to the financial crisis. The behaviour of the ten-year bond yield is pivotal since, if its course were due mainly to the greater demand for these bonds beyond macroeconomic factors (i.e. for structural or regulatory reasons, or in light of central banks' exceptional policies), the slope of the curve would have lost some of its predictive power in respect of future recessions.[11] In that case, the probabilistic models of the occurrence of recessions that include the curve slope[12] as an explanatory factor would be overestimating that probability.[13] The following section seeks precisely to identify the factors determining the movements in debt yields, since the implications in terms of the probability of recession differ depending on the factors that are most prominent.

Decomposition of debt security yields

The yields on government debt securities with a specific maturity can be broken down into: i) *interest rate expectations,* which show the expected path for the policy interest rates set by the Federal Reserve until the security matures, and ii) *the term premium* or the compensation to investors in exchange for the risk of holding bonds with a specific maturity in their portfolio, although, in practice, it includes all the factors other than the expectations component. These components are not observable, although the results of different decompositions are usually highly interrelated.[14] Chart 3.3 depicts a potential decomposition[15] of the yields on government debt securities at two and at ten years.

As earlier noted, the power of yield curves to predict recessions is warranted because their inversion reflects an expectation that the policy interest rate will stand in the future below the expected short-term rate, as a result of the fact that the restrictive monetary policy at present will entail lower inflation and lower growth. In terms of the foregoing decomposition, the inversion of the slope should then stem from a negative spread between interest rate expectations for the ten-year and two-year terms, and not from the difference in premia between both terms. However, as was already discernible in Chart 3.3 and as can be clearly seen in Chart 3.4, in the current episode the rate expectations spread is holding at historically high levels, despite having fallen in recent years; conversely, the term premia spread between two- and ten-year securities is at a level close to its all-time low, which was reached in July 2016, and is even posting at certain times negative values. That is to say, investor demand has been for a similar (or even higher, at certain times) premium for continuing to hold bonds maturing at two and at ten years, which is an unusual behaviour in historical terms.

In sum, in the current setting the flattening of the yield curve and its possible inversion would not be the outcome of expectations of lower nominal short-term interest rates in the future, but of a very narrow term premium spread, especially given the low value of the

11 Indeed, it is considered that the curve slope in the United Kingdom may have lost some of its predictive power owing to the high demand by institutional investors for longer-dated securities. Thus, for example, defined-benefit pension funds, which are those that demand longer-dated assets, account for 96% of total UK pension funds, while in the United States they only represent 40%. See "Global Pension Asset Study", published by Willis Waters Watson (https://www.willistowerswatson.com/en/insights/2017/01/global-pensionsasset-study-2017).

12 See at https://www.newyorkfed.org/medialibrary/media/research/capital_markets/Prob_Rec.pdf the model estimated by the Federal Reserve Bank of New York.

13 J. Yellen appeared to support this hypothesis at the press conference given after the FOMC's December 2017 meeting (https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20171213.pdf).

14 The decomposition by the Federal Reserve Bank of San Francisco can be found at http://www.federalreserve.gov/pubs/feds/2006/200628/200628abs.html.

term premium for the longer-dated maturities. Indeed, in the setting described, some analysts have proposed using the slope of the interest rate expectations component of the yield curve as an indicator of recessions, given that there are papers [Rosenberg and Maurer (2008)] that show a greater predictive power of this component than that of the yield curve itself.

Such a low term premium, especially for the longer-dated maturities, may be due to various conditioning factors, such as holdings of US government debt securities by non-residents, the demand for these instruments as a safe asset, quantitative easing programmes or lower uncertainty over monetary policy, factors not linked necessarily to expectations about domestic macroeconomic developments. In the following section some of these factors are closely analysed.

The flattening of the curve and the term premium: what has changed?

DETERMINANTS OF THE TERM PREMIUM

As indicated, the specific conditioning factors of term premia are the risk of inflation, the risk in respect of the future course of real short-term interest rates and other factors that affect the supply of and demand for public debt. These factors are difficult to identify at each point in time and, in practice, premia are estimated as a residual encompassing everything beyond the expectations component.

This section analyses in detail the past and expected developments in the main factors affecting this premium, especially for the longer-dated terms, beginning with those relating to inflation risk and the future course of the real short-term rate. From an investor's standpoint, the term premium is the additional yield demanded for holding long-term debt instead of acquiring short-term debt and progressively rolling it over. This additional yield is warranted by the risk to the investor entailed by the possibility that in the future the level of prices or the real short-term interest rate may increase more than expected. This risk increases commensurately with the maturity, meaning that the longer the debt security is held, the greater the compensation the investor demands and, therefore, the higher the term premium, thereby contributing to the curve slope being positive.

For example, higher inflation entails a loss of purchasing power for the public debt holder, both in terms of interest accrued and the principal, with the loss being all the greater the higher the inflation recorded until the bond's maturity. Likewise, the investor may be adversely affected by holding long-term debt if the real short-term interest rate increases by more than expected, since the yield obtained on the long-term debt would be less than that the market would offer. If the risk of inflation is low, as it is currently considered to be for the developed countries, the inflation term premium should be low and might be lower for longer-dated maturities. It might even be the – extreme – case that this premium were negative in the event of a risk of deflation, since in that instance public debt would act as a hedging asset.[16]

The risk arising from the future course of the real short-term rate is related to the uncertainty over monetary policy and over the economy's growth rate in the long term. Hence, during periods in which the monetary authority's communication is not clear, the premium tends

15 Decomposition by the Federal Reserve Bank of New York, which can be found at https://www.newyorkfed.org/research/data_indicators/term_premia.html.

16 In a deflationary context, generally related to low-growth situations, public debt provides a hedging instrument for an investor's portfolio, since it increases the investor's purchasing power at a time when other assets, such as equities, might lose value. Fuertes and Gimeno (2017) calculate the probability of deflation for the United States and the euro area on the basis of inflation options and swaps. This probability stood in mid-2017 at around 5% in the United States.

to rise, and by a greater amount the longer the term is, as may have been the case during the episode known as the "taper tantrum" in 2013.[17] On the contrary, if communication of monetary policy decisions is made transparently and clearly, that will contribute to the term premium being low. The publication of the FOMC's projections about the course of the federal funds rate, as from 2012, may thus have contributed to reducing the premium, by lessening the uncertainty over monetary policy and improving its communication.

The term premium is affected by other factors besides inflation risk and the risk in respect of the course of the real short-term rate; these include most notably those relating to public debt supply and demand, which may explain in part the current low level of term premia and the changes therein for the different terms. The supply and demand factors affect the slope of the curve in terms of the maturity of the public debt being bought or sold. If, for example, there is demand for a greater volume of long-term rather than short-term debt, the slope of the curve falls. The most significant factors from this standpoint include:

— *Quantitative easing (QE) programmes*. These programmes were implemented by the Federal Reserve from December 2008 to October 2014, with purchases of different types of assets being made, including long-term government debt.[18] Various research papers associate the QE programmes with the decline in the long-term government debt yield [D'Amico *et al.* (2012), D'Amico and King (2013) and Engen *et al.* (2015), inter alia]. In one of the latest papers [Bonis *et al.* (2017)], published by the Federal Reserve, it is estimated that the term premium on US ten-year government debt in December 2016 had declined by 100 bp owing to the cumulative effect of the QE programmes, and this effect is projected to disappear only very gradually over the coming years as a consequence of the fall in the average maturity of the Federal Reserve's asset portfolio and of the partial cessation of reinvestment initiated in October 2017.

— *Holdings of US long-term government debt by non-residents:* the purchases of US public debt by non-residents have been another argument used to explain the low current level of the term premium. Indeed, this is not new, and it was previously argued that during the previous period of rises in policy rates by the Federal Reserve, from 2004 to 2006, entailing a 425 bp increase in the benchmark rate, holdings of public debt by non-residents could have been the cause of the scant movement in long-term interest rates, which was known as Greenspan's conundrum (named after the Federal Reserve chairman during those years).

— *Demand for US government debt as a safe asset:* this factor complements the previous one, since a portion of non-residents' purchases of long-term US debt is due to the need to include this type of safe asset in their portfolios. Moreover, there is a demand for long-term assets by insurers and pension funds which, in a large proportion, is channelled towards public debt purchases.

17 In May 2013, the erstwhile Chairman of the Federal Reserve, Ben Bernanke, announced the likely tapering of asset purchases by the Federal Reserve at the end of that year. This unexpected announcement meant that many investors also brought forward their expectations of a rise in the policy rate, prompting an increase in the yield on public debt.

18 Between 2008 and 2014 the Federal Reserve engaged in three rounds of large-scale asset purchases and implemented a maturity-extension programme, resulting in a total volume of purchases of $4.5 trillion and an increase in the duration of the portfolio on the Federal Reserve's balance sheet from 5.2 to 5.9 years.

The new regulatory requirements in the banking sector may also have increased the demand for US public debt, since such debt is treated preferentially by the regulations on capital requirements and liquidity. This is all against a background of growing scarcity of safe assets in the global economy [see, for example, Caballero and Fahri (2017)]. This demand by the banking sector would reduce the term premium if long-term debt were purchased, but the effect on the yield curve slope is not clear, since for the slope to flatten there would have to be a bias towards longer- rather than shorter-dated debt purchases.

— *Monetary policy externalities:* the different monetary policy cycles in the main developed areas may affect the relative demand for public debt in each country. Thus, for instance, the current circumstances may be conducive towards higher demand for US public debt at the expense of Japanese or euro area debt, whose monetary policy cycles are lagging and where interest rates are lower.

CAN THE YIELD CURVE BE EXPECTED TO CONTINUE FLATTENING?

With a view to the future, it is important to question whether the tendency of the yield curve to flatten will continue, to the point of potentially inverting, or whether, on the contrary, such flattening will reverse because long-term rates react to a greater extent to rises in the federal funds rate and/or to the reduction in the Federal Reserve's balance sheet.

Once again, an attempt to answer this question can be made looking at the decomposition of the yield on government debt. On one hand, the expectations component of the curve would increase its slope if long-term expectations about the inflation level or the real short-term-term interest rate were to increase. The FOMC's projections do not suggest either of these two scenarios will occur, since long-term inflation expectations appear to be anchored at 2% and the long-term projections about the real neutral federal funds rate[19] have been revised downwards in recent years. In any event, any shock that were to increase expectations about the natural interest rate would be conducive to increasing the slope of the curve.

It is also possible to identify scenarios in which the spread between the longer-dated and the shorter-dated risk premia increases.[20] Some of these possible scenarios would be the following:

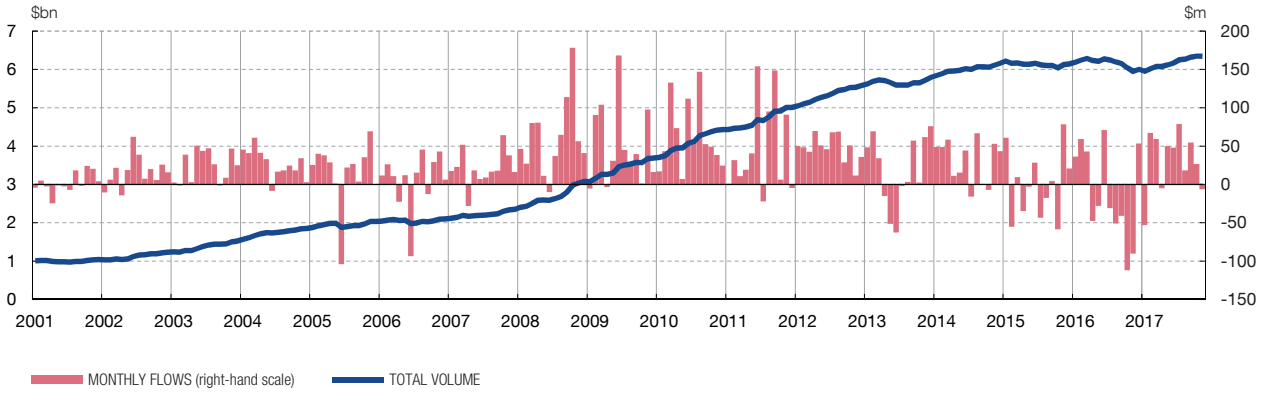
— *Inflation risk:* currently, the inflation risk is low, but any change or shock that were to make it increase might feed through to increases in the inflation risk premium. Thus, for example, the recent tax cut and the increase in discretionary federal public spending approved in the United States might prompt inflationary pressures.

— *Change in expectations about the Federal Reserve's monetary policy:* one of the arguments used to explain why the reduction in the Federal Reserve's balance sheet, which began last October, has not impacted long-term yields is because a very gradual process is expected and because any change will be

19 The real neutral federal funds rate is defined as the real interest rate that would prevail under circumstances considered as equilibrium conditions from the macroeconomic stabilisation standpoint (GDP, inflation, etc.). See Galesi et al. (2017).

20 Another possible scenario might be that in which, for financial stability reasons, the Federal Reserve were to continue raising policy interest rates by a greater amount than the markets had discounted or if it were even to accelerate the process and thereby prompt corrections on the financial markets and flights to quality, with reductions once again in term premia.

UNITED STATES: NON-RESIDENT HOLDINGS OF PUBLIC DEBT CHART 4



communicated clearly by the Federal Reserve. If this were not the case and there were surprises or uncertainty over this process, or in general over monetary policy and the pace of increase of interest rates, for example, as a consequence of the above-mentioned fiscal impulse, term premia might increase and do so to a greater extent for longer-dated premia.

— *Increase in Treasury debt issues:* the above-mentioned ongoing reduction in the Federal Reserve's balance sheet, and the prospect of higher fiscal deficits and tax cuts, augurs an increase in the Treasury's financing needs. That would entail the issuance of more debt, which might lead to an increase in the yield on the maturities at which the instruments are issued. In the latest report by the Treasury Borrowing Advisory Committee (TBAC)[21], it was advised covering a substantial portion of the growing financing needs with Treasury bills, which are debt securities with a maturity of less than one year. It was also proposed issuing at terms of between two and five years, while it was advised against increasing very long-dated issues since the average maturity is already far higher than those in the past. If these recommendations continue to be met, the new issues might continue to be conducive to a greater flattening of the yield curve. If, on the contrary, long-term debt were preferentially issued[22], the slope might increase.

— *Reduction in non-residents' holdings of US public debt:* the volume of US public debt held by non-residents has increased considerably since 2008, rising from $2.35 trillion at end-2007 to $6.24 trillion in November 2017 (see Chart 4). This volume accounts for around 31% of total public debt and 42% of debt held by the public.[23] Moreover, most of this debt is long-term[24], which might prompt increases in long-term interest rate yields if non-residents decide to sell a sufficient amount of such debt. In a setting in which other countries are capable of producing sufficiently safe assets, the demand for US assets might shift.

21 https://www.treasury.gov/press-center/press-releases/Pages/current_TBACReportPressRelease.aspx.

22 This is not currently the case: for example, on 31 January the U.S. Treasury announced a $2 billion-per-month increase for each of the auctions of debt maturing at two and at three years; and a $1 billion-per-month increase for all auctions of long-term debt (maturities at five, seven, ten and thirty years).

23 Debt held by the public accounts for the portion of government debt that has not been purchased by government agencies. The Federal Reserve's holdings are included in the debt held by the public.

24 In November 2017, the volume of Treasury bills (instruments that mature at less than one year) held by non-residents was $340 billion, while the volume of debt maturing at over one year was $3.72 trillion. The sum of these two amounts is not the total debt held by non-residents, since there is a portion of this debt about which maturity-related information is not released.

— *Change in the monetary policy of other developed areas:* if the normalisation of monetary policies begins in other areas, such as Japan and the euro area, US public debt would cease to be so attractive in relative terms and the demand for it would fall.

Conclusions

The flattening of the US government debt yield curve is prompting an intense debate (inside and outside the Federal Reserve), owing to the power attributed to this curve in predicting periods of recession in the past. This article argues that the factors that have influenced the current flattening are different from those of past periods, such that the inversion of the curve might not be anticipating a recession. Specifically, the decomposition of the government debt yield into the expectations component and the term premium shows how, in previous periods, an inverted yield curve reflected expectations of a future decline in the policy rate, in line with prospects of low inflation and lower growth. Conversely, in the current setting, expectations of increases in the policy interest rate remain in place, while term premia are very low, especially those for the longer-dated maturities, this being a considerable differential factor compared with the past. In any event, if the yield curve were to invert, albeit for reasons other than those observed on previous occasions, and this were to have an adverse effect on agents' confidence, the situation would pose a further communication challenge to the Federal Reserve.

The main factors behind the current course of term premia are the quantitative easing programmes implemented by the Federal Reserve, non-resident demand for debt securities and monetary policy externalities. Moreover, other conditioning factors, such as the low risk of inflation or the lower uncertainty over monetary policy, may also have contributed here.

Against this background, various factors might have been instrumental in leading the level of term premia to normalise, thereby preventing any further tendency of the curve to flatten. Thus, for example, positive inflation surprises, greater uncertainty over the course of US monetary policy, a reduction in non-residents' holdings of US long-term government debt and the increase in US long-term debt issues would contribute to raising the yield on long-term debt securities, thereby increasing the slope of the curve. From that standpoint, the fiscal stimulus approved in the United States in recent months might be another trigger for the increase.

Data cut-off date: 1.3.2018

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