

THE RECENT FLATTENING OF THE EURO AREA YIELD CURVE: WHAT ROLE WAS PLAYED BY RISK PREMIA?

The term structure of interest rates, i.e. the “yield curve”, is an important source of information for central banks. For instance, the slope of the yield curve, as measured by the difference between a long-term and a short-term interest rate (the “term spread”), gained much popularity as a leading indicator of the business cycle, in particular in the 1980s and 1990s. The term spread tended to be a relatively good predictor of future economic activity over typical business cycle horizons, with a widening of this spread heralding an acceleration of economic growth and a narrowing indicating an imminent slowdown in economic activity.¹ In particular, a negative spread (“inverted yield curve”) has typically been interpreted as signalling a high probability of a recession.² Where does this predictive ability come from? The explanation mainly seems to rest on the fact that the yield curve embodies information about the expected path of future short-term interest rates which, in turn, is linked to market participants’ expectations about future economic activity. In this sense, a large positive term spread may indicate that the market anticipates an increase in short-term interest rates in the light of a more positive outlook for economic growth. If such expectations are not systematically wrong, the spread of the yield curve tends to predict economic activity relatively well in a statistical sense. However, apart from expected future short-term interest rates, the yield curve also includes unobservable risk or “term premia” which are likely to vary over time.

The term premium is defined as the difference between the yield on a long-term bond and the expected average value of the short-term interest rate until the maturity of the bond. In the context of this box the terms “risk premium” and “term premium” are used synonymously. Therefore, changes in these term premia might sometimes blunt the yield curve’s usefulness as a leading indicator. This box provides estimates of term premia for the euro area and describes how the recent flattening of the euro area yield curve can be related to movements in term premia.

Based on historical data, the term spread has, on average, been positive for over the last 30 years. This indicates the existence of term premia that are generally positive because, over time, expectations of increases and decreases in short-term interest rates should offset each other. This implies that the slope of the yield curve combines information about future changes in short-term rates – the “expectations component” – with information about term premia – the “risk component”. To disentangle these two components, estimates of term premia are needed. Chart A shows estimates of the euro area term structure of term premia as at January 2004 and October 2006.³ In January 2004 the term premia incorporated in long-term interest rates were

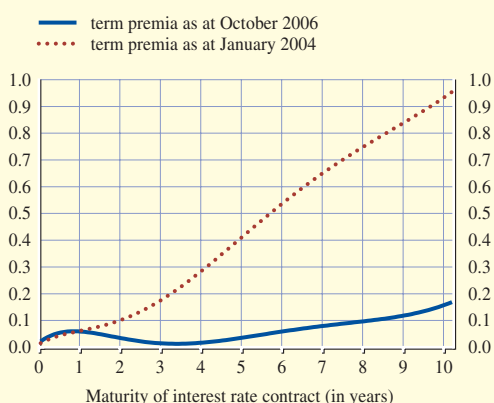
1 See, for example, A. Estrella and G. Hardouvelis, “The term structure as a predictor of real economic activity”, *Journal of Finance*, 46(2), 1991, pp. 555-576.

2 See the box entitled “Does the flattening of the yield curve signal lower growth ahead?” in the February 2006 issue of the Monthly Bulletin.

3 The term premia presented here are ECB estimates based on a two-factor affine term structure model similar to the model proposed by D. H. Kim and A. Orphanides for the United States (“Term structure estimation with survey data on interest rate forecasts,” Finance and Economics Discussion Series 2005-48, Board of Governors of the US Federal Reserve System, 2005). The model for the euro area is estimated using German swap rates from January 1995 to December 1998 and euro area swap rates from January 1999 onwards. It should be stressed, however, that term premia estimates are subject to a considerable degree of uncertainty, reflecting not only the usual uncertainty surrounding statistical estimates of model parameters, but also the existence of a variety of possible structural specifications of such term structure models.

Chart A Term premia in the euro area

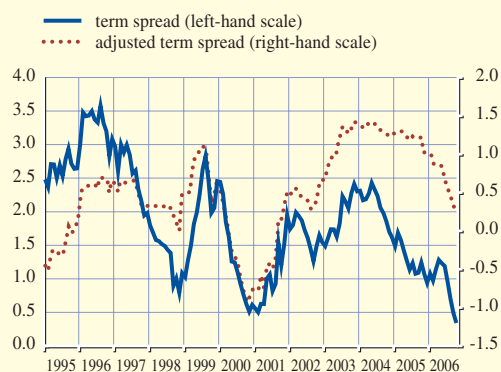
(percentage points; end-of-month data)



Sources: Bloomberg and ECB calculations.

Chart B Euro area term spread and adjusted term spread

(percentage points; monthly data)



Sources: Bloomberg and ECB calculations.

considerably higher than the risk premia included in shorter-term rates. In October 2006, by contrast, the term structure of term premia was unusually flat at levels close to zero across the entire maturity spectrum. According to these estimates, the observed flattening of the euro area yield curve during this period was therefore partly due to a significant decline in risk premia.

Chart B shows developments in the euro area term spread as measured by the difference between ten-year and three-month interest rates.⁴ The term spread is currently very low, standing at its lowest level for around ten years. According to the above-mentioned predictive properties of the term spread, this would indicate that the euro area is facing a significant risk of a slowdown in economic activity. However, such a view would neglect the recent movements in term premia as displayed in Chart A. In fact, recent research on the US yield curve has shown that developments in term premia tend to blunt the usefulness of the term spread as a leading indicator of the business cycle. To improve the information content of the yield curve, it is therefore suggested that estimated term premia be subtracted from the term spread.⁵

Accordingly, Chart B shows the term spread adjusted for the estimated ten-year term premium. The recent movements in the adjusted term spread clearly reflect the increase in ECB interest rates since December 2005. In contrast, unlike the unadjusted term spread, the adjusted spread was not unusually low recently, standing at a level close to its average since 1995. Hence, the term spread corrected for risk premia does not seem to indicate heightened risks of an economic downturn in the euro area, as could be inferred from the unusually low level of the unadjusted spread. However, one has to bear in mind that term premia can only be estimated with a considerable degree of uncertainty.

4 The term spread shown in Chart B is calculated on the basis of the swap rates used for model estimation of term premia. Due to the relatively low and constant swap spread in the euro area (at about 10-15 basis points), the term spread calculated by using the yield on ten-year bonds and the three-month Euribor shows a very similar development.

5 See A. Ang, M. Piazzesi and M. Wei, "What does the yield curve tell us about GDP growth?", *Journal of Econometrics*, 2006, pp. 359-403.