

Market expectations of future Bank Rate

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This article discusses various financial instruments that can be used to infer the Bank Rate expectations of financial market participants and examines how well these measures have predicted Bank Rate in the past. It also examines the role of model-based and survey information in assessing financial market Bank Rate expectations. The article suggests that it is important to adjust market interest rates for credit, liquidity and term premia when inferring expectations. It finds that credit and liquidity premia can largely be accounted for, either through the choice of financial instrument or by making some simple adjustments. Although recent advances in term structure modelling provide some useful techniques for adjusting for term premia, there is considerable uncertainty about how robust they are. It remains prudent therefore not to rely on any one measure and instead to use a variety of methods and information for this purpose.

Introduction

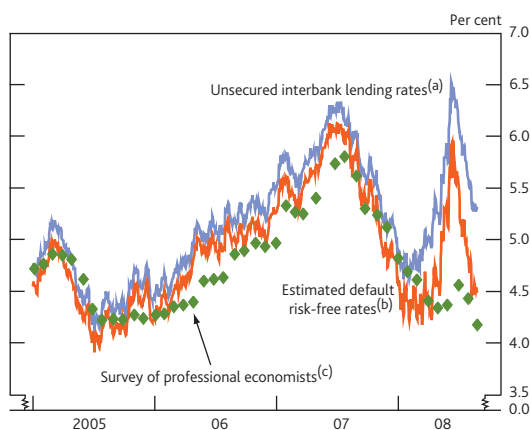
The Bank of England's Monetary Policy Committee (MPC) is interested in what financial market participants think will happen to Bank Rate, the UK policy rate, for a variety of reasons. Most obviously, investors' interest rate expectations affect the lending and borrowing rates facing firms and consumers and so play an important role in the transmission mechanism of monetary policy to the real economy. Monetary policy makers naturally want to know how their decisions and communications are affecting these expectations. Moreover, market expectations may themselves contain useful information about investors' perceptions of current and future economic developments, which policymakers might want to incorporate into their own view of the outlook. In addition, the MPC conditions its inflation and output projections published in the *Inflation Report* on a profile for market interest rate expectations and therefore needs a method of producing this profile that delivers consistent and plausible results.

The interest rates on a variety of financial market instruments will be closely related to the current level and future expectations of Bank Rate and so can provide indications of those expectations. However, different instruments vary in terms of their credit quality (default risk) and liquidity (the ease with which investors can take or close positions in the market for the instrument). The resulting credit and liquidity risk premia required by investors in compensation may drive the interest rates associated with these instruments away from genuine Bank Rate expectations. Moreover, all market

interest rates, particularly over more distant future periods ahead, may embody term premia — the compensation investors require for the risk of future interest rate changes — which will further complicate their relationship with policy rate expectations.

As **Chart 1** illustrates, there can sometimes be material differences between different market interest rates, as well as between market interest rates and the survey-measured expectations of professional forecasters. These differences have been particularly marked since the onset of the current turmoil in financial markets, which has accompanied large

Chart 1 Forward interest rates and survey expectations of Bank Rate a year ahead



Sources: Bank of England, Bloomberg and Reuters.

- (a) Derived from Libor rates and derivative instruments that settle on Libor.
- (b) Calculated to be consistent with the methods used to produce the market profiles of interest rates published in previous *Inflation Reports* (see discussion in main text).
- (c) The Reuters survey of City forecasts closest to one year ahead.

increases in the credit and liquidity premia associated with some instruments. But the general issue of how best to take account of risk premia in deriving financial market expectations of Bank Rate — the focus of this article — is an important question that always faces the MPC and others monitoring market expectations. (The 'Markets and operations' article in this *Quarterly Bulletin* contains a more detailed discussion of recent developments in sterling short-term interest rates.)

This article provides an overview of the available financial market instruments that can be used to infer Bank Rate expectations and evaluates them in terms of their ability to predict Bank Rate over the period predating the onset of the market turbulence last summer. It goes on to examine ways of adjusting market rates for term premia and the use of survey information on expectations. The article suggests that credit and liquidity premia can be largely accounted for, either through the choice of financial instrument or by applying some simple adjustments. This is consistent with the approach taken for producing a profile for market interest rate expectations to condition the *Inflation Report* projections. Adjusting for term premia remains more challenging. Though recent advances in term structure modelling can provide some useful techniques for this purpose, there is still considerable uncertainty about the robustness of these methods.⁽¹⁾

Market measures of Bank Rate expectations

The MPC sets Bank Rate, the official rate paid on commercial bank reserves at the Bank of England. As explained above, while market participants' expectations of the future path of Bank Rate cannot be observed directly, the interest rates on a variety of financial market instruments can be used to indicate market expectations. The associated interest rates at different maturities can be used to infer so-called forward interest rates — the interest rates available now, at which people can borrow or lend over some future period. If there were no credit, liquidity and term premia, these forward market interest rates would provide a measure of the implied market expectations of future policy rates at different future horizons.⁽²⁾ But even if there are premia, provided they remain reasonably constant, changes in market rates may still provide useful information on changes in Bank Rate expectations.

The available instruments that can be used for this purpose can be broadly grouped into three categories:

- (1) measures based on government bonds and repo (secured) interbank lending rates;
- (2) measures based on Libor (unsecured) interbank lending rates; and
- (3) measures based on SONIA (unsecured) overnight interbank lending rates.

(1) Government bonds and secured lending rates

A conventional UK government bond, or 'gilt', is a promise by the government to pay the holder a fixed cash payment (coupon) every six months until the maturity date, at which point the holder receives the final coupon payment and the principal.

Since gilts are issued by the UK government, they can be regarded as free of credit risk, and therefore might be thought of as an obvious instrument to use for inferring future policy rate expectations. However, one difficulty of using them for this purpose is that there are generally few government bonds with short maturities.⁽³⁾

General collateral (GC) repo contracts are a method of short-term borrowing that involves the temporary exchange of cash and gilts between two parties. Since the lender of funds receives high-quality assets as collateral, it is protected if the borrower were to default; hence this is a form of *secured* lending. GC repo rates should therefore, in principle, reflect only minimal credit risk premia. They may, however, be affected by liquidity conditions in money markets and, as a result, include liquidity risk premia.

(2) Libor lending rates

An interbank loan is a cash loan where the borrower receives an agreed amount of money at an agreed interest rate. The loan is unsecured, as the lender does not receive collateral as protection against default by the borrower.

The London interbank offered rate (Libor) provides a measure of the interest rate at which banks can raise unsecured funds from other financial institutions. The British Bankers' Association publishes sterling Libor for maturities ranging from overnight to one year. The financial institutions that are part of the Libor panel are long-established creditworthy institutions, but the loans are unsecured and so carry some possibility of default. The interest rates required by the lender will reflect this repayment risk, so Libor rates include credit premia relative to default risk-free rates. Furthermore, Libor rates will also be affected by liquidity conditions in money markets and so will also contain liquidity risk premia.

A number of other instruments are linked to future values of Libor, including sterling short-term interest rate futures contracts, forward rate agreements (FRAs) and Libor swaps. Since they are linked to three or six-month Libor, their associated interest rates also contain credit and liquidity premia.

(1) Joyce, Sorensen and Weeken (2008) discuss some of these methods in more detail.

(2) Such an inference also requires that financial markets operate efficiently and without frictions and that investors have no *a priori* reasons for investing at particular horizons ('preferred habitats').

(3) This article does not examine Treasury bills, which are government bonds with a year or less to maturity when issued, because the secondary market for these instruments has not been sufficiently liquid.

(3) SONIA lending rates

An overnight index swap (OIS) is a contract that involves the exchange at maturity of a payment linked to a predefined interest rate for one linked to the compounded overnight interest rate that has prevailed over the life of the contract. The relevant overnight rate for sterling contracts is the sterling overnight index average (SONIA), which is calculated by the Wholesale Market Brokers' Association. As SONIA is an overnight rate, and credit risk in overnight transactions should generally be small compared with longer-maturity deals, it is usually close to Bank Rate. The OIS contracts themselves are structured so that they involve minimal counterparty risk, so OIS rates should not reflect material credit risk premia. Hence the expected path of SONIA embodied in OIS rates should be closely related to that of Bank Rate.

The volume of trading in the OIS market has risen rapidly over the past few years. One recent innovation has been the introduction of so-called meeting-to-meeting swaps that are aligned with future MPC meeting dates. The box at the end of this article discusses the different types of OIS contract and the ways in which their associated interest rates can be used to compute forward rates.

Yield curves

One difficulty when interpreting the quoted interest rates for the instruments discussed above is that they do not all refer to the same future periods. There may also be gaps between those periods, so it is not straightforward to make inferences about Bank Rate expectations at all future horizons. The Bank of England therefore uses several financial market instruments to estimate smooth and continuous forward yield curves for the United Kingdom. These curves show the interest rates for future periods that are implied by current market prices.

The Bank of England estimates two main kinds of yield curve, which are also made publicly available on its website.⁽¹⁾ One — called the government liability curve (GLC) — is based on the interest rates on UK government bonds, and on GC repo rates at horizons of up to one year. The other — called the bank liability curve (BLC) — is based on Libor interest rates and market rates on derivative instruments linked to Libor: short-term interest rate futures, FRAs and Libor swaps.

The market profile used for the MPC's *Inflation Report* projections

The inflation and GDP projections published in the quarterly *Inflation Report* are conditioned on a path for official interest rates implied by market yields. For these purposes, information from different instruments and yield curves is combined together. Currently this profile is based on OIS rates at horizons out to a year and BLC forward rates adjusted for credit and liquidity premia at longer horizons (the August 2008 *Inflation Report* states which instruments were used; further details of the current and earlier methods are provided

on the Bank of England website).⁽²⁾ For conciseness, this article refers to the interest rate profile constructed for the purposes of conditioning the *Inflation Report* projections as the 'adjusted BLC'.

How well do market interest rates predict Bank Rate?

Given the large number of instruments that can potentially be used to infer Bank Rate expectations, it is desirable to have a means of choosing between them. One approach is to examine how well they have predicted Bank Rate over a reasonably long period in the past. While superior predictive content does not necessarily guarantee a measure is representative of market expectations, it seems reasonable to assume that those instruments that have more accurately predicted Bank Rate are less likely to have been affected by other factors and to place correspondingly more weight on them.

In order to carry out a comparative analysis, it is necessary to construct comparable forward rates from each instrument which can then be compared to Bank Rate outturns over the same period. To include as many instruments as possible, the forward rates used refer to three-month periods. The range of forecast horizons considered in the empirical analysis went up to two years ahead (although it varied across instruments depending on the maturities actively traded in each market).

To test the predictive content of the derived forward rates, the change in Bank Rate from the current period to each future horizon was regressed onto the change in rates implied by the appropriate forward rate. More specifically, this meant running the following regression for each curve or instrument being considered:

$$\Delta BR_{t,t+h} = \alpha + \beta(f_{t,t+h} - BR_t) + \varepsilon_t$$

where $\Delta BR_{t,t+h}$ is the change in Bank Rate between time t and $t+h$, $f_{t,t+h}$ is the forward rate from each measure being assessed at horizon h , BR_t is the Bank Rate at time t , α and β are respectively the constant and slope coefficients from the regression and ε_t is an error term.⁽³⁾

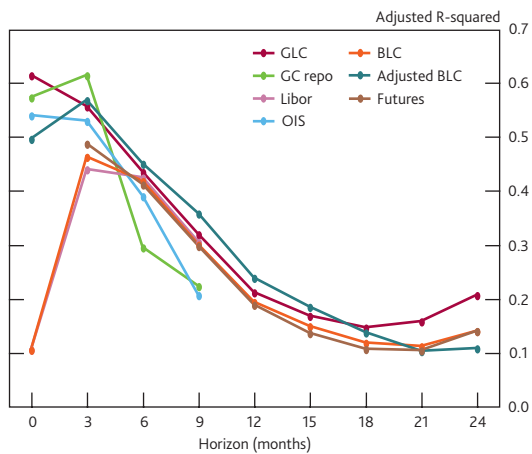
If forward rates are unbiased estimates of future policy rates then the α and β coefficients would be expected to be zero and one respectively. More realistically, if term, credit and

(1) The method used to produce both these curves is a smoothed cubic spline technique and is explained by Anderson and Sleath (1999, 2001). Its application to bank liability instruments is described by Brooke, Cooper and Scholtes (2000). Estimates can be downloaded from: www.bankofengland.co.uk/statistics/yieldcurve/index.htm.

(2) www.bankofengland.co.uk/publications/inflationreport/conditioning_path.htm.

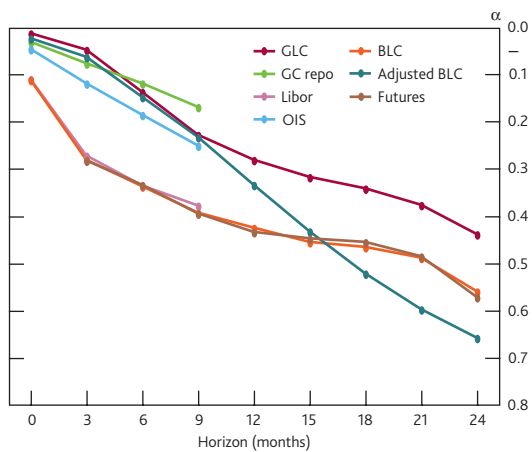
(3) Gurkaynak, Sack and Swanson (2007) perform a similar analysis using US financial market instruments.

Chart 2 Forecast regression results: explanatory power



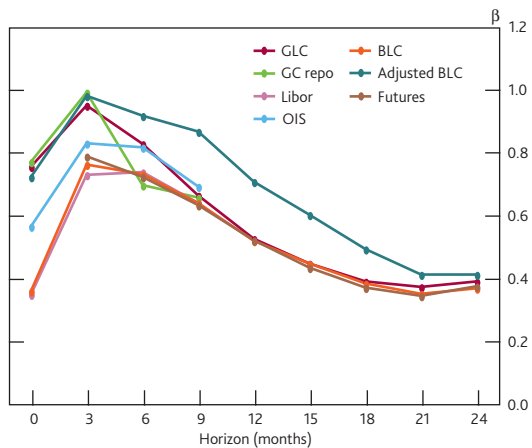
Source: Bank calculations.

Chart 3 Forecast regression results: value of constant term, α



Source: Bank calculations.

Chart 4 Forecast regression results: value of slope coefficient, β



Source: Bank calculations.

liquidity risk premia are different from zero on average, this would be reflected in the value of the constant term (α). And if premia vary over time, the slope coefficient (β) would be expected to be different from one because not all forward rate movements will reflect changes in expectations of future Bank Rate.

Charts 2–4 plot the adjusted R-squared (a measure of how well the regressions explain the data) and the α and β coefficients by horizon for each of the instruments and curves examined over the longest sample periods available since October 1992, when the United Kingdom first adopted an explicit inflation target, to March 2007.⁽¹⁾ For some instruments the sample period is much shorter than for others, although the results shown hold qualitatively if the regressions are run over common sample periods.

Perhaps the most striking result to emerge is how well some of the instruments and curves do in forecasting future interest changes, particularly at shorter horizons (**Chart 2**).⁽²⁾ For example, market forward rates can explain as much as 60% of the variation in Bank Rate at the three-month horizon. In fact, other analysis suggests that the predictive power of all the instruments and curves beats the common benchmark of assuming there is no change in rates going forward (interest rates follow a ‘random walk’), though, as might have been expected, the explanatory power of the instruments and curves tends to fall as the forecasting horizon lengthens.

No instrument or curve clearly dominates all the others consistently across all maturities. However, the clearest finding is that forward rates derived from instruments that are least likely to embody material credit and liquidity risk premia tend to do better in the forecasting regressions; and, of the yield curves that extend to longer horizons, the government curve and the adjusted BLC constructed in the same way as the market profile used for the *Inflation Report* projections tend to outperform the BLC. It is difficult to discriminate between the other instruments, but that is perhaps not surprising if the same expectations are consistently reflected in different instruments.

Turning to the parameter estimates, in all the forecasting regressions, the constant term (though not always statistically significant) takes a negative sign, which increases in absolute size with maturity (**Chart 3**). The implication that forward rates have tended to overpredict policy rate outcomes, irrespective of whether the related instruments are likely to embody material credit and liquidity risk premia, is consistent with there being a positive term premium *on average*,

(1) This analysis draws extensively on Joyce, Relleen and Sorensen (2008). The sample period predates the turbulence in financial markets that started in Summer 2007, when credit and liquidity premia increased sharply.
 (2) This is consistent with other research (for example, Lildholdt and Vila Wetherilt (2004)) that suggests that the predictability of UK policy rates improved notably after the introduction of inflation targeting in the United Kingdom.

particularly at the longer horizons. **Chart 4** shows that the β coefficient is positive throughout (and tests suggest it is often statistically significant), though less than one and generally decreasing in maturity. Though the pattern varies slightly according to the instrument/curve and sample period, on the whole, formal statistical tests cannot reject β being equal to one at short horizons out to a year, but at longer horizons this hypothesis tends to be rejected.

The evidence on the way the α and β coefficients vary with horizon is consistent with term premia becoming important at horizons of a year and beyond, which potentially obscures the information in market rates about future policy rate expectations.

Accounting for term premia

The empirical analysis described in the previous section suggests that forward rates that are less likely to embody significant credit and liquidity premia, or that have been adjusted to take account of such premia in the same way as the market profile used for the *Inflation Report* projections, have provided the more reliable forecasts of Bank Rate. But all financial instruments have provided biased estimates of future Bank Rate movements, at least beyond horizons of a year ahead. Although other causes are possible (including that expectations were persistently higher than outturns over the estimation period), these results are consistent with the presence of time-varying term premia, raising the issue of how best to take these premia into account when interpreting forward rates.

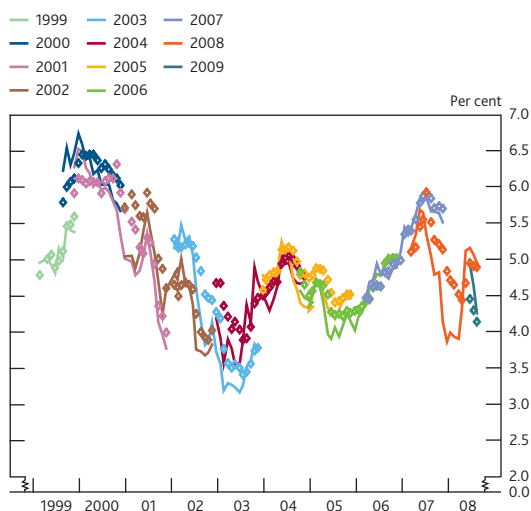
Before discussing how this can be done, however, it is worth asking whether the issue can be avoided entirely by relying on survey information on policy rate expectations.

Survey measures

Surveys of Bank Rate expectations provide measures that do not reflect any credit, liquidity or term premia. However, one difficulty with using survey information is that respondents — who are typically professional economists — may have expectations that are not representative of market participants. There are also other caveats with surveys, including the fact that respondents may take time to revise their reported views and the fact that some surveys are carried out over a period of several days rather than referring to a specific point in time. Another potential difficulty is that surveys may capture the Bank Rate thought most likely to occur (the modal expectation) rather than the average (mean) expectation implicit in market interest rates. This difference can matter, for example, when the perceived balance of risks around the expected future path of Bank Rate is particularly skewed one way or another. In addition to these caveats, surveys are also not typically available at a sufficiently high frequency for those monitoring financial markets on a day-to-day basis.

Of the available surveys of Bank Rate expectations, the most suitable is probably the Reuters survey of professional City economists, which has run in some form since the late 1990s.⁽¹⁾ While the precise format has varied, in recent months the survey has asked around 70 economists every month for their expectations of future Bank Rate at the end of each quarter, up to about 18 months ahead. **Chart 5** shows how Reuters survey expectations for Bank Rate at the end of successive calendar years compare with comparable forward rates. The surveys and forward rates tend to move in a broadly similar fashion, although there have sometimes been material gaps between the two. It is not obvious, however, whether these gaps are caused by the presence of term premia in forward rates or any of the caveats related to surveys listed above. In conclusion, therefore, while surveys can provide a useful source of information on Bank Rate expectations, they do not circumvent the need to interpret market interest rates. Nevertheless, as will be discussed further below, it is possible to use modelling methods that incorporate survey information as a noisy signal of expectations.

Chart 5 End-year Reuters surveys and GLC forward rates^(a)



Sources: Bank of England, Bloomberg and Reuters.

(a) Solid lines show GLC forward rates. Diamonds show survey expectations.

Empirical models

One way of taking term premia into account when interpreting market interest rates (already adjusted for credit and liquidity premia) is to use an empirical interest rate model. A widely used approach for estimating term premia is to use a so-called 'affine term structure model'.⁽²⁾ There are many variants of

(1) Similar surveys are conducted by Bloomberg and HM Treasury. The Bank of England also conducts a quarterly poll of Bank Rate expectations, which is published in the *Inflation Report*.

(2) There are a variety of other possible ways of modelling term premia. For example, Peacock (2004) models survey-based term premia in terms of other financial market indicators. For a review and assessment of different methods, see Joyce, Relleen and Sorensen (2008) and Kim and Orphanides (2007).

these models;⁽¹⁾ but central to all these variants is an assumption that bond prices are set in such a way as to eliminate arbitrage opportunities, so that there are no risk-free profits to be made by trading combinations of bonds. The assumption of no arbitrage ensures that the models price risk consistently for all bonds.

In many models of this type, including the one discussed in the next section, bond prices, interest rate expectations and term premia are all driven by a small set of unobserved 'factors'. These factors are essentially combinations of interest rates of different maturities, where the weight attached to each interest rate is estimated from the data. This means that expectations of future interest rates can be thought of as being the forecasts from regressions of interest rates on their past values (where those past values are weighted together to form factors), and where all the parameters of the model are restricted to be consistent with the assumption of no arbitrage. The model's estimate of the term premium is then the difference between the forward rate and the model's estimate of the expected future short rate.

Combining information from interest rates and surveys

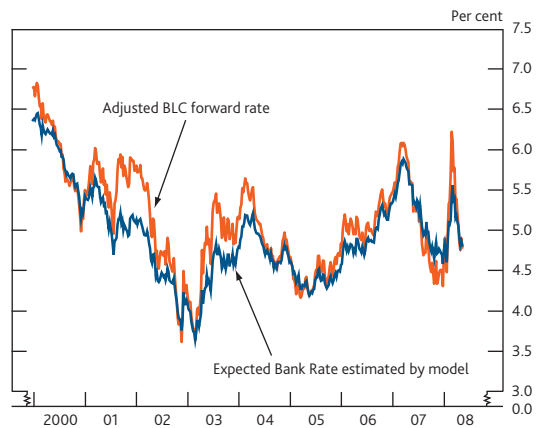
Some recent work at the Bank has applied the affine modelling approach to estimating the path of Bank Rate over the short to medium-term horizons discussed in this article.

The forward interest rates used to estimate the affine model are consistent with the market profiles of forward rates used to condition the MPC's *Inflation Report* projections and therefore should not reflect material credit or liquidity premia. The model also incorporates information from the Reuters survey of economists' expectations of Bank Rate as close as possible to a year ahead. It interprets the survey information as a noisy signal of market expectations, putting greater or lesser weight on the surveys according to how they have tended to comove with interest rates in the past. For example, if surveys provided especially good forecasts of interest rates when the yield curve took a particular shape in the past, the affine model would put more weight on surveys if those circumstances arose again. The expectations of Bank Rate implied by this particular affine model can therefore be thought of as being generated as the forecast from a regression of short-term interest rates on both interest rates of longer maturities and the surveys.

Evidence on time-varying term premia

Chart 6 shows the adjusted BLC forward rates used in the affine model alongside estimated Bank Rate expectations two years ahead — ie stripping out term premia — since April 2000. Estimated expectations of Bank Rate are broadly similar to forward rates over most of the sample, although there are periods where they have deviated substantially, with the largest differences being as much as 80 basis points.

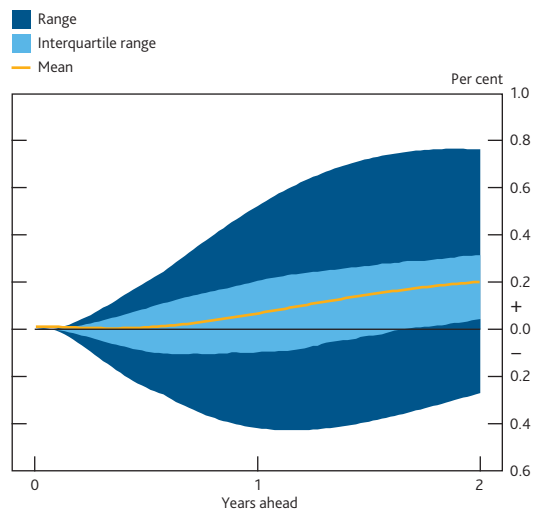
Chart 6 Model-based estimate of Bank Rate expectations two years ahead



Source: Bank calculations.

Chart 7 shows the estimated average term premium over different horizons, as well as the ranges and interquartile ranges of those premia over the same period. The average premium is positive for rates further than about six months ahead and rises for longer horizons. There is also substantial variation in the premium over time. Both of these findings are in line with the regressions presented in the previous section.

Chart 7 Estimated term premia since April 2000



Source: Bank calculations.

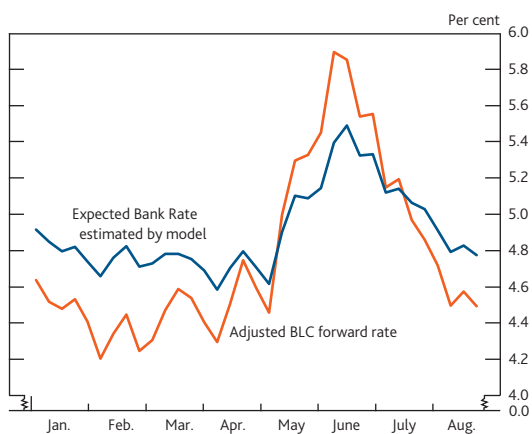
In general, economic theory would suggest that the absolute size of the term premium — the compensation investors demand for the risk surrounding future interest rates — will depend on how uncertain investors are about the future path of interest rates and the wider macroeconomic outlook; and on how much investors care about their exposure to risk.

(1) Joyce, Sorensen and Weeken (2008) discuss some different types of term structure model, including the affine model framework used in this article.

But term premia need not always be positive, as this will depend on how interest rates vary with the value investors place on high returns. When interest rates rise, this means that the price of, and hence returns on, assets such as bonds falls. So if interest rates tend to turn out particularly high during 'bad times', this means that bond returns will be low at the time when investors would most value greater returns. Investors in bonds would therefore require a higher rate of return — a positive term premium — to compensate them for this uncertainty. High interest rates might tend to be associated with low economic growth following an adverse shock to the supply capacity of the economy. So the positive average term premium might suggest that, on average over the period, investors were more concerned about shocks to supply than to demand.

Developments since the beginning of 2008 demonstrate the importance of taking likely movements in term premia into account when interpreting forward interest rates. **Chart 8** shows the one year ahead forward rate used in the affine model, alongside the model's estimated expectations of Bank Rate. This shows that market forward rates rose by around 1.5 percentage points between early May and the middle of June 2008, before falling by approximately the same amount by the end of August. In contrast, while the affine model-based expectations of Bank Rate moved in the same direction as forward interest rates, they did so by smaller amounts. This implies that the estimated term premium changed from negative (ie forward rates below expectations) to positive and back over the period shown in the chart. According to the economic theory described in the previous paragraphs, these changes in sign could be consistent with changes to the relative weights investors attached to shocks to supply and demand.

Chart 8 Model-based measure of Bank Rate expectations one year ahead



Source: Bank calculations.

These results should be interpreted with caution, however, since they are specific to one particular model; different

models may produce different results. Moreover, recent research in the Bank suggests that models that fit the term structure well in-sample do not always fit well outside the sample period over which they are estimated.⁽¹⁾ As a result, no mechanical adjustments for term premia are applied when estimating a market profile of forward interest rates for the purposes of conditioning the *Inflation Report* projections. Instead, the MPC monitors a number of different estimates of expectations — derived from both term structure models and surveys — when interpreting those forward interest rates.

Conclusions

This article discussed the various instruments that can be used to measure the Bank Rate expectations of financial market participants and assessed how well they had predicted Bank Rate in the past. One of the main findings was that the forward rates that are least likely to embody significant credit and liquidity premia, or that have been adjusted to take account of such premia, have provided the most reliable forecasts. This supports the MPC's recent approach to the calculation of market profiles of interest rates to condition its *Inflation Report* projections: these profiles have been based on combinations of forward rates derived from instruments that are close to default risk-free (secured interbank lending rates and overnight index swaps) and Libor-based instruments adjusted to account for credit and liquidity premia.

The other main finding was that the available forward rates at horizons of a year and beyond have provided biased forecasts of Bank Rate expectations, irrespective of whether they embody significant credit and liquidity premia. This result could be consistent with the existence of additional, time-varying term premia. One way of potentially avoiding term premia is to focus on the expectations from surveys. But the available surveys may not be representative of market participants and have their own limitations. Instead, the article developed an empirical term structure model that incorporated both market interest rates and survey information as a means of estimating market expectations.

The model-based estimates provide a useful tool for assessing the information in market rates and surveys. However, given the uncertainties involved it would seem prudent to monitor alternative measures of expectations and attempt to understand what is driving the differences between them, rather than relying exclusively on any one particular method to adjust mechanically for term premia. This is consistent with the MPC's convention of conditioning the *Inflation Report* projections on a market profile of forward interest rates unadjusted for term premia. But this remains an active area of research at the Bank and elsewhere.

(1) This is discussed in more detail by Joyce, Relleen and Sorensen (2008).

Overnight index swaps

One class of instrument that can be used to calculate forward interest rates is that of 'overnight index swaps' (OIS). As explained in the main text of the article, sterling contracts settle on the sterling overnight index average (SONIA) and involve the exchange of a payment linked to a fixed interest rate for one linked to the compounded SONIA rates over the lifetime of the contract. Both legs are based on the same notional principal. There are two types of OIS contracts. This box explains in turn how they can be used to estimate forward interest rates.

Spot OIS

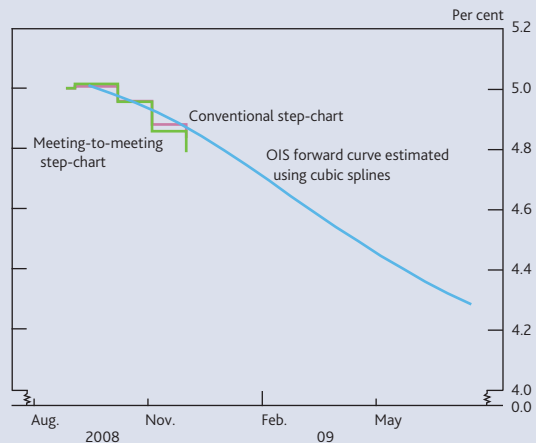
'Spot' OIS contracts refer to different periods ending in the future. These contracts are most widely used at horizons up to a year ahead but there has been increasing activity at longer horizons in recent months.

The quoted OIS rate (the fixed leg of the swap) should be equal to the compounded forward interest rates relating to each day over the contract. This means that spot OIS rates can be used to back-out implied forward rates. One method of doing this involves the assumption that forward rates should be constant between successive MPC decision dates, which allows the estimation of a piecewise constant forward curve (a 'conventional step-chart') such as that shown by the pink line in **Chart A**. A description of this technique is provided in Bank of England (2005).

This technique is only likely to be appropriate at very short horizons as it assumes that there are no term premia in forward interest rates. An alternative technique, which does not depend on any assumptions about term premia is to fit

continuous yield curves to spot OIS rates using the same techniques that are applied to other instruments discussed in this article. The blue line in **Chart A** shows an example of a forward curve estimated in this way.

Chart A Forward yield curves derived from OIS, 29 August 2008^(a)



Sources: Bank of England and Bloomberg.

(a) Step-charts shown over period for which future MPC meeting dates were published.

Forward-starting OIS

'Forward-starting' or 'meeting-to-meeting' OIS rates are those available today but referring to periods that start and end on future dates. In the sterling market, quotes are available for periods between future MPC meeting dates. Activity in these contracts is most liquid at horizons up to around six months ahead. The green line in **Chart A** shows an example of such a 'meeting-to-meeting step-chart', which on this particular date was close to the conventional step-chart.

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