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From:

Is the market curve an accurate measure of contacts' expectations for Bank Rate?

Key Points

- Over recent months we reported that the sterling curve appeared to have fallen below contacts' expectations of the most likely path for Bank Rate. That gap has closed in the past six weeks, as the sterling curve has steepened significantly – driven by the April MPC Minutes and rising bond yields internationally. Although most contacts still see the market curve as lower than their expected path for Bank Rate, they are now more comfortable with it.

- Perhaps consistent with that, MFAD's no-arbitrage term structure models suggest that short-maturity term premia have been negative over the past six months, but have become less negative over 2015 and are now close to zero.

- Over the past fortnight we have conducted an MI round . There were four main themes to the MI. They can help to explain why the market curve has been below contacts own expectations for the most likely path of Bank Rate and why that might have been slow to correct:

  1. The sterling curve isn't mispriced; there is just significant weight on downside risks and greater uncertainty. Contacts describe a fat downside tail of possible bad outcomes, which is being reflected in market pricing – dragging down the curve. They don't see the current pricing as reflecting the most likely outcome, which most see as a higher path for Bank Rate.

  2. Those traders who feel that the sterling curve is too low, and who have traditionally taken big positions in sterling markets, are less willing / able to position, meaning 'mispricing' *in either direction* could persist for longer. Lighter position-taking in sterling rates is borne out by a fall in open short sterling futures contracts, which is at its lowest since January 2014. Lighter sterling position taking could be cyclical – e.g. contacts will return to sterling rates markets when they looked more attractive, or they had more conviction over UK policy. But there could also be structural drivers – e.g. banks have scaled back proprietary trading activity.

  3. Contacts point to ECB QE, and QE programmes more broadly, pushing down the sterling curve. This has happened as some managers of short-dated cash have sought positive returns.

  4. Contacts note that the importance of *timing* their positioning for higher rates. There are costs to going short too soon. In time, contacts expect the sterling curve to steepen further towards what they see as the most likely path for Bank Rate. But that is not expected to happen until perceived downside risks have to some extent dissipated and there is more conviction over MPC policy. Contacts frequently said that UK tightening will hinge on a successful rate rise by the FOMC. They also pointed to MPC members starting to vote for an increase in Bank Rate again, and a strengthening in UK wage growth. Any of those signals is likely to cause the UK curve to steepen.

How significant is the difference between the sterling curve and market contacts' views currently?

1. Over the past six weeks, the sterling curve has steepened. This has been driven by two factors: firstly, at the short end, rates increased after the MPC noted in their April Minutes that the expected pace of tightening price by the market was "exceptionally slow"; and secondly, the recent global sell off of core government bonds.

2. Consequently, the sterling forward curve reaches 75bps in June 2016, from September 2016 at the April MPC (**Table 1**). The pace of tightening has also increased, from 3bps per quarter to 11bps per quarter. Finally, the medium-term rate has increase to 2.1% from 1.6%.

Table 1: Summary of monetary policy expectations measures

	Latest	May MPC	April MPC
Implied first Bank Rate rise*	June 2016	July 2016	September 2016
Pace of tightening (bp/quarter)**	11bps	11bps	3bps
Implied medium-term rate***	2.1%	2.0%	1.6%

* - measured as the date when the instantaneous forward OIS curve crosses Bank Rate + 25bps (UK).
** - measured as the pace between current policy rate +25bps and current policy rate +125bps.
*** - measured by the instantaneous forward OIS rate 5 years after the implied first rate rise. This may include (positive or negative) term premia, and so strictly speaking cannot be read as expectations of medium-term policy rate.

3. We typically use Reuters' economist polls and the Survey of Economic Forecasters (SEF) carried out in the *Inflation Report* round as a summary of market participants views. Since 2009 economists' expectations have mostly remained above the market curve (**Chart 2**). This wedge closed a little with the latest SEF survey conducted in April. And, the latest Reuters poll, suggested it has closed a little further by 19 May (**Chart 3**).

Chart 2: Market rates minus SEF estimates

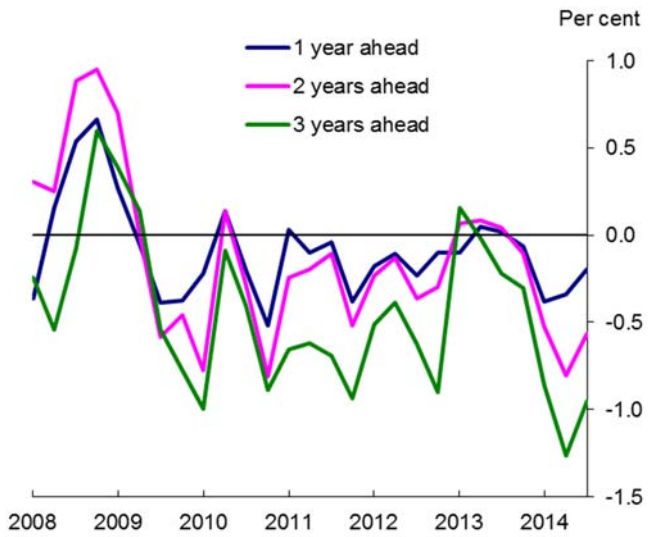
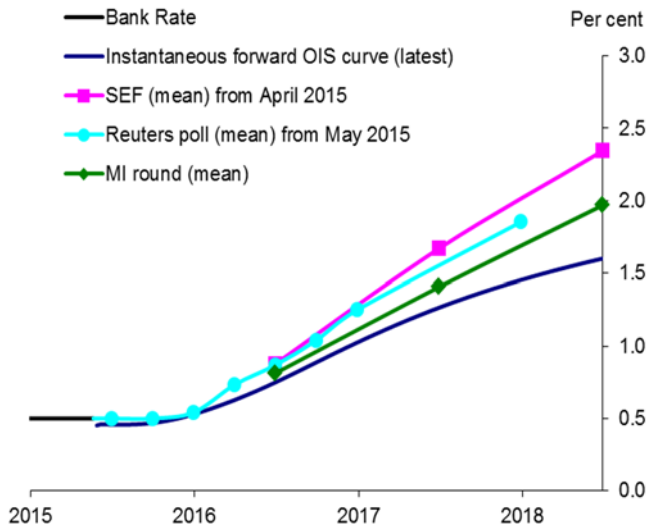


Chart 3: Bank Rate forecasts

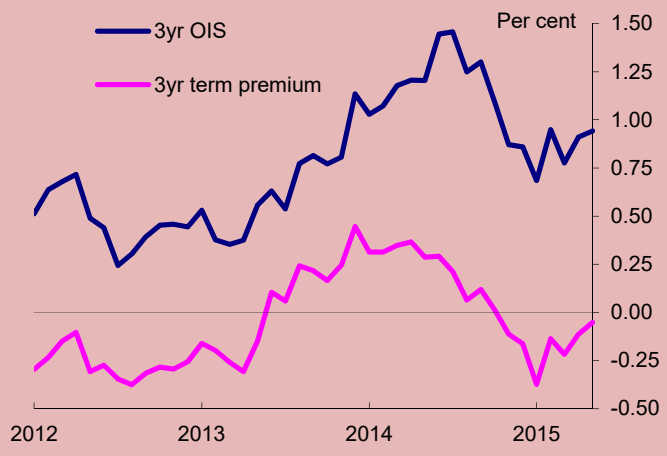


Box: What can MFAD's term structure models tell us about the gap between contacts' expectations and the market curve?

As well as using surveys and MI, we can use *no-arbitrage term structure models* to gauge whether movements in interest rates reflect changing expectations of the future path of Bank Rate or changing term premia.[1] We normally look at longer horizon term premia estimates (e.g. 10-year maturity), but we also have estimates for term premia at shorter maturities. There's substantial uncertainty involved in these term premia estimates, and this uncertainty is particularly high for shorter maturity estimates. Moreover, the term premia from this model, estimated using gilt yields, may differ from the term premia in the market (OIS) curve and the risk premia described by our market contacts.

Notwithstanding these caveats, MFAD's preferred term structure model for the UK suggests that 3-year term premia have been negative over the past six months (**Chart A**). This suggests 3-year OIS rates have been below market expectations of the average path of Bank Rate over the next three years. But 3-year term premia have become much less negative over 2015 and are now close to zero.

Chart A: 3yr OIS rate and 3yr term premium estimate[(a)]



Sources: Bloomberg and Bank calculations.
(a) Term premium estimate based on model from Malik and Meldrum (2014).

[1] See

4. We need to be careful when using polls of economists to summarise "market" views. They are at best an approximation to a market view because most economists are not active position takers in financial markets – although they will influence positioning to a varying degree.

5. Reflecting that, we spoke to twelve of our best sterling market contacts to get their view on the most likely path for Bank Rate. It was a small sample, but included seven large hedge funds and market makers and five strategists at major banks. While views over the path of Bank Rate over the next year were relatively concentrated, differences were more marked further out – this can be seen in the green line on **Chart 3**. Within that, 'position takers' had a lower profile for Bank Rate (and are therefore closer to the market curve) than 'strategists' (**Table 2**). We will return to the differences in views amongst types of investors below. The full results of the survey are in **Annex 1**.

Table 2: Average of market contacts' expectations

	Current market pricing (26 May)	Strategists	Position taking contacts[1]	Difference between contacts
Bank Rate at end Q2 2016	0.73%	0.88%	0.75%	13bps
Bank Rate at end Q2 2017	1.24%	1.56%	1.25%	31bps
Bank Rate at end Q2 2018	1.52%	2.25%	1.69%	56bps
"Fair value" of 5y5y rates	2.58%	3.13%	2.55%	58bps

How can we explain the market curve being below contacts' expectations for the most likely path of Bank Rate?

6. Our conversations with contacts brought out four main themes. They can help to explain why the market curve has been below contacts own expectations for the most likely path of Bank Rate and why that might have been slow to correct.

A. Contacts put significant weight on downside risks and greater uncertainty

7. Contacts say that they are currently putting significant weight on downside risks and greater uncertainty. Market pricing is reflecting those risks, which have dragged down the curve. In this sense the market curve is not 'mis-priced' but is instead a fair reflection of the current outlook.

8. The downside risk factors that contacts pointed to were:

a. Greek exit from the euro area.
b. Risks of a cut in Bank Rate. Since the effective lower bound was revealed to be below 0.5%, and Andy Haldane's comments that "the chances of a rate rise or cut are broadly evenly balanced", market participants have highlighted rate cuts as a risk to the profile for Bank Rate. A hedge fund contact mentioned that they assigned a 40% probability of a cut before the end of 2015.
c. Risks of later Fed rate hikes. Many contacts thought that the UK tightening cycle would be influenced by that of the US. With US economic data weakening recently, these contacts were cautious about calling for Fed tightening this year and felt that if the US first rate rise was delayed, so too would the UK first rate rise.
d. An increase in fiscal austerity following the surprise Conservative majority. If this is front-loaded as it had been under the previous government, this would present risks to growth and consumer confidence, implying a lower path for Bank Rate.
e. Greater uncertainty around the level of terminal rates and pace of tightening in this cycle. Some contacts thought that the market was having difficulty understanding what the 'new normal'

[1] Position-taking contacts includes risk-takers (hedge funds) and market makers.

tightening cycle would look like and therefore how it should be priced. This uncertainty would remain until central bank rhetoric on this became more clear or explicit.

9. To some extent the SEF and Reuters surveys of economists may underplay these risks – and hence exaggerate the apparent wedge between expectations and market pricing. Those completing economist surveys report their expected outcome (a modal outcome). Those who take positions on the other hand are more likely to consider the full distribution of possible outcomes and estimate the size of tail risks. They are likely to be under greater pressure to hedge downside risks. This difference is reflected in our own survey, where 'position takers' had a lower profile for Bank Rate than 'strategists'.

10. As we reported last month, the observed probability distribution of rate paths from short sterling options shows a positive skew in the distribution, with the mean *higher* than the modal expectation.[2] Contacts struggle to think in terms of distributions. And it is not clear from the MI conversations in this round how market participants view their own distribution for the path of Bank Rate. But, put simply, many said that the flatness of the curve may not reflect mispricing and may instead simply reflect those trading being cautious about downside risks and positioning for what they see as the most likely path for Bank Rate.

B. Traditionally active risk-takers are currently less willing / able to position

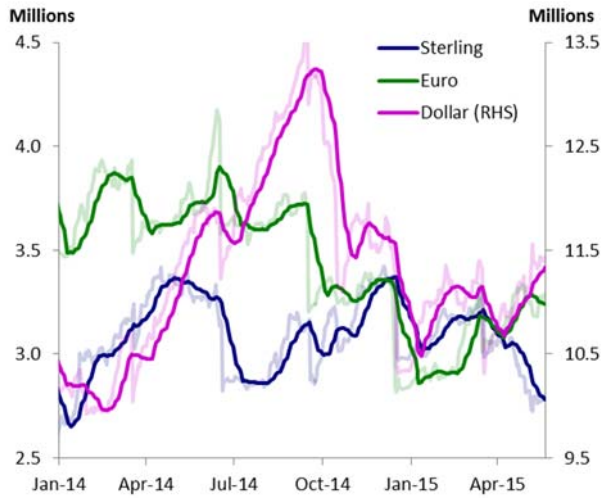
11. Some traditionally active speculators in sterling short rates have reduced positions in sterling rates. A lack of positioning does not necessarily result in *lower* market rates relative to expectations for Bank Rate (i.e. is not directional), but could cause the wedge to persist in the short-term.

12. Traders of UK rates said they had "short position fatigue" – several called it a case of "once bitten, twice shy" referring to a number of attempts to go short during 2014. Many had made a run of significant losses in taking those positions. This had meant that the amount of risk allocated to sterling rates was currently lower than in the recent past. For example, one hedge fund said, for them, it was lower than at any point since 2007. And on the London Horizon MI round[3], contacts reported that a fear of losses was inhibiting some traders risk taking.

13. This has perhaps also led to a bias that those still positioning in sterling rates markets are more likely to be those who profited from holding long positions. For example, one large hedge fund, which has traditionally held very big positions in sterling short rates, has since the start of this year been persistently downbeat on the UK outlook. This fund was one of the first contacts to raise with us the possibility of Bank Rate cuts, *before* the February *Inflation Report*. To the extent that others are less active, it may be that this funds' position is pushing the sterling curve around more than it would normally.

14. Lighter position-taking in sterling rates is borne out by a fall in the volume of open short sterling futures contracts – a measure of position taking in the LIBOR futures market (5-years or less), which is at its lowest since January 2014. These futures are used to speculate on the path of Bank Rate and hedge 3-month LIBOR exposure. The fall in open interest could indicate a reduced desire to hedge, or an increasing consensus among market participants about the path of Bank Rate. By comparison positioning in US dollar and euro rates markets remains robust (**Chart 4**).

Chart 4: Volume of open contracts in short rate futures markets



15. An increase in intraday volatility in sterling rates may have also reduced positioning. Some hedge fund contacts said that during 2015, VAR calculations had mechanically increased as a result of greater volatility, depressing the amount of intraday risk that they could take on. To avoid being repeatedly stopped out, contacts said that they were taking smaller positions but tolerated a larger stop loss range, keeping the total exposure within their VAR limits.

16. There may also be less risk taking in sterling rates markets for structural reasons. For example, bank treasurers now take little risk in sterling short rates. Some might have traditionally had the opportunity to position against an "incorrect" curve, but, almost universally, they are no longer able to take such positions. In contrast to hedge fund behaviour this change is very unlikely to reverse.

C. ECB QE has pushed down the level of longer-term yields

17. Contacts have for some time pointed to ECB QE, and QE programmes more broadly, as pushing down the sterling curve. We hear about flows into sterling money markets seeking a positive return (and willing to pay for a costly foreign exchange transaction in order to achieve it). Other things equal, this would push down on sterling money market rates. Further down the curve, we have also heard of some portfolio flows into gilts (from euros). And UK gilt yields have moved closely with German bund yields.

D. Whatever the underlying distribution, contacts note that the importance of *timing* their positioning for higher rates

18. Contacts note the importance of timing their positioning for higher rates. This reflects two factors: the cost of positioning too early for a Bank Rate rise and 'thresholds' contacts are watching to get more conviction over MPC policy.

19. On the first, market makers price market instruments to assign the correct probabilities of upside and downside risks. Market makers are particularly risk averse and one noted that he felt there was not enough probability assigned to a Bank Rate cut in the market curve. He worked through an example, showing that even if

only a small weight was placed on rate cuts rather than rates rises, the current probability-adjusted payoff meant that he should position long and that the market curve was too high (**see Annex 2**).

20. In particular, one swaps market maker explained that while 'Grexit' was not a central expectation, it was impossible to ignore, and very difficult to quantify, the risks associated with it. Similarly, some contacts, who make markets in sterling short rates, have said that their clients were positioned for a rate cut in November 2015, particularly earlier in the year following comments from Andy Haldane that he thought "the chances of a rate rise or cut are broadly evenly balanced". Despite being an extremely low probability event that was far from likely to materialise in their view, traders might still be positioned long on some MPC-dated contracts.

21. On the second, most contacts said that they wanted greater conviction before they would position for higher sterling rates. In particular they wanted to "see the whites of the Fed's eyes" – and the market reaction to raising rates. Domestically they pointed to MPC members voting for a rate rise and stronger UK wage growth. At that point the UK curve would steepen, and look more like a "normal" tightening cycle.

26 May 2015

MFAD and SMD

Annex 1: Full results to quantitative questionnaire

		Strategists			
What do you expect the next change in Bank Rate to be (rise/fall)?		Rise	Rise	Rise	Rise
When do you expect the MPC to begin tightening policy Bank Rate from 50bps?		Feb-16	Feb-16	Feb-16	Feb-16
What do you expect Bank Rate to be at the end of:	Q2 2016	0.75%	0.75%	1.00%	1.00%
	Q2 2017	1.50%	1.50%	1.75%	1.50%
	Q2 2018	2.50%	2.00%	2.25%	2.25%
What is the "fair-value" level of OIS rates:	1y1y	1.06%	1.15%	1.33%	1.40%
	2y1y	1.96%	1.75%	1.50%	2.00%
	3y1y	2.85%	2.10%	1.65%	2.50%
What is the "fair-value" level of 5y5y gilt rates?		3.50%	2.13%	4.25%	2.65%
What is the "fair-value" level of 10y:	Gilts		2.20%	2.70%	2.10%
	Bunds		0.60%	1.00%	0.20%
	USTs		2.40%	3.20%	2.30%

		Market participants			
		Hedge funds		Market makers	
What do you expect the next change in Bank Rate to be (rise/fall)?		Rise	Rise	Rise	Rise
When do you expect the MPC to begin tightening policy Bank Rate from 50bps?		Feb-16	Dec-15	Nov-16	Aug-16
What do you expect Bank Rate to be at the end of:	Q2 2016	1.00%	0.75%	0.50%	0.75%
	Q2 2017	1.50%	1.25%	1.00%	1.25%
	Q2 2018	2.00%	1.75%	1.50%	1.50%
What is the "fair-value" level of OIS rates:	1y1y	0.95%	1.00%	0.75%	0.80%
	2y1y	1.30%	1.50%	1.25%	1.30%
	3y1y	1.55%	1.90%	1.60%	1.55%
What is the "fair-value" level of 5y5y gilt rates?		2.20%	3.00%	2.75%	2.25%
What is the "fair-value" level of 10y:	Gilts	1.99%	2.25%	2.25%	1.80%
	Bunds	0.66%	0.88%	1.00%	0.90%
	USTs	2.23%	2.50%	2.50%	2.50%

Full list of contacts:

Strategists:

Hedge funds:

Market makers:

Annex 2: Hedging a rate cut

One market maker noted the difficulty in pricing three distinct monetary policy outcomes over the short term. He noted that in order to hedge his downside risk, he had taken on a long position. That said, the market maker did not think that a rate cut was likely from the MPC, merely that it had a non-zero probability.

The following example shows his thought process:

Current SONIA rate: 46bps; November MPC swap rate: 51bps

At first glance this implies in a "20% chance" of a 25bps increase in SONIA [(51-46)/25 = 20%]

Assume SONIA can take three possible values in November:

46bps (unchanged); 71bps (25bps increase); 21bps (25bps decrease).

If the market maker assigns *any* probability to a cut in Bank Rate, he should go long in order to hedge.

In the example, we assume a 5% probability of a rate cut and 20% probability of a rate rise (using the pricing assumption above).

The probability adjusted payoff for the trader is positive 1.25bps if he goes long and negative 1.25bps if he goes short.

Essentially the upside from being short (positioning for a rate rise) is less than the downside of being wrong (and being surprised by a rate cut). This is because part of the upside of going short has already been priced into the curve.

The same market maker noted that hedge funds would like to achieve market exposure of up to £1mn per basis point. The market maker has a large incentive to hedge his exposure by going long – however unlikely he thinks a cut in rates is.

Table: Payoff structure

Event	Probability	Long position		Short position	
		Payoff	Probability adjusted payoff	Payoff	Probability adjusted payoff
Unchanged SONIA	75%	5bps (51-46)	3.75bps	-5bps (46-51)	-3.75bps
Bank Rate rise	20%	-20bps (51-71)	-4bps	20bps (51-71)	4bps
Bank Rate cut	5%	30bps (51-21)	1.5bps	-30bps (51-21)	-1.5bps
TOTAL			**1.25bps**		**-1.25bps**