BANK FOR INTERNATIONAL SETTLEMENTS

Can central banks talk too much?

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I am happy to be at this conference on central bank communication. I was asked to address the question of whether central banks can talk too much. This is a timely question, with central bank accountability and transparency high on the policy agenda. Central bankers are giving more speeches, holding more news conferences and embracing new communication channels on social media. With so much going on, the onus is on clarity, simplicity and consistency. Andy Haldane gave an eloquent statement along these lines recently.[2]

However, communication is a two-way street. It is not just about talking. It is also about listening. Before the central bank can steer the economy, it needs to listen in order to learn where to steer the economy. However, the louder the central bank talks, the more likely it is to hear its own echo. In my earlier work with Stephen Morris,[3] we put it in more prosaic terms – that the signal value of financial market prices is impaired when market participants place too much weight on the central bank's pronouncements. Let me give you an example, so as to fix ideas. It comes from the very common task of inferring inflation expectations from market prices.

To set the stage, think of a defined benefit pension fund, whose pension obligations are linked to wages and hence faces inflation risk. The pension fund can hedge the inflation risk by buying inflation protection through an inflation swap. By entering the swap, the pension fund promises to pay a fixed nominal amount per year in return for a floating payment that depends on realised inflation.

In the past, when defined benefit pension schemes were common, the demand for inflation protection was not particularly price-sensitive, and there was a cushion of demand that pushed up the swap rate. A sizeable premium over expected inflation attracted inflation sellers.

Over time, as defined benefit pension schemes have become less common, the demand for long-dated inflation protection from this segment of the market has declined, squeezing the inflation risk premium and putting downward pressure on inflation swap rates more generally. As part of these developments, inflation swap rates have become more sensitive to short-term economic news, especially news emanating from central banks. This is so even for long-dated swaps that, in theory, should not be buffeted by short-term news.

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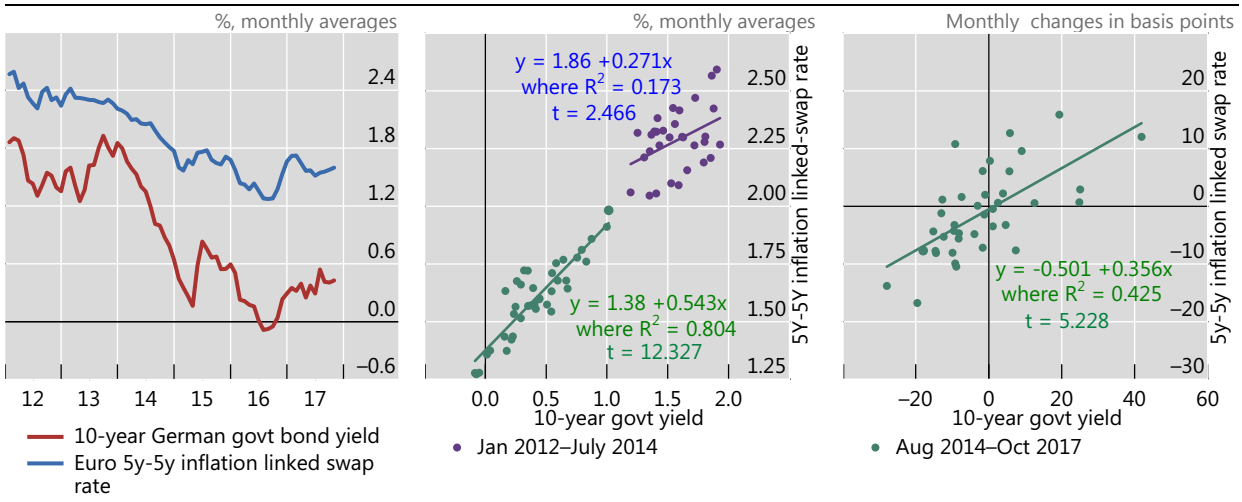
[2] See A Haldane, "A little more conversation. A little less action", speech at the Federal Reserve Bank of San Francisco Macroeconomics and Monetary Policy Conference, 31 March 2017.

[3] S Morris and H S Shin, "Central bank transparency and the signal value of prices", *Brookings Papers on Economic Activity*, no 2, 2005, pp 1–66.

Euro area five-year, five-year-forward inflation swap rate vs 10-year bund yield Graph 1



Sources; Bloomberg; Thomson Reuters; BIS calculations.

Most intriguingly, the inflation swap rate has begun to move in lockstep with the nominal yield itself. As I am at the ECB today, let me illustrate this with an example from the euro area. Similar results hold for the United States, and also when forward nominal yields are used (see Annex).

Graph 1, left-hand panel, plots (in blue) the five-year, five-year-forward inflation swap rate for the euro area, which is the cost of hedging inflation risk from year 6 to the end of year 10. It is a popular measure of medium-term inflation expectations. Notice how the five-year, five-year inflation swap rate fluctuates in lockstep with the 10-year nominal yield (in red). The two series come from quite different markets and ought to convey different information, and yet they have ended up conveying the same information. The scatter charts in levels (centre panel) and in one-month changes (right-hand panel) show how tightly bound the two series are.

One possible explanation for the co-movement – and there are others[4] – is that it reflects in part the impact of central bank forward guidance. If the central bank lets it be known that the inflation swap rate enters future monetary policy actions, market participants will anticipate easier monetary policy when the inflation swap rate falls and chase nominal yields down. This type of front-running may be so effective that the central bank need not follow through with any actions of its own. Signalling its contingent plan of action would be enough. This is an example of Odyssean forward guidance, as discussed by Benoît Cœuré in a recent speech.[5]

An open question is to what extent the decline in nominal yields has made the fixed payments received by inflation sellers more attractive to investors who value nominal bond-like payoffs. If so, this

[4] For instance, one could argue (implausibly, in my view) that the neutral rate of interest jumps around at high frequency in such a way that it rises above the red line in periods when the blue line ticks up, but drops below the red line in periods when the blue line ticks down. A very different rationalisation is the Neo-Fisherian one, according to which nominal interest rates and inflation move to keep the real interest rate constant. See S Williamson, "Neo Fisherism: a radical idea or the most obvious solution to the low inflation problem?" Regional Economy, Federal Reserve Bank of St Louis, July 2016; and J Cochrane, "Do higher interest rates raise or lower inflation?" working paper, 2016.

[5] See B Cœuré, "Central bank communication in a low interest rate environment", speech at Bruegel event, Brussels, 31 March 2017; and C Evans, J Fisher, A Justiniano and J Campbell, "Macroeconomic effects of FOMC forward guidance", *Brookings Papers on Economic Activity*, spring 2012. See A Filardo and B Hofmann, "Forward guidance at the zero lower bound", *BIS Quarterly Review*, March 2014, pp 37–53 for a review of the impact of forward guidance.

would be an additional element that binds the inflation swap rate with the nominal rate, and subject the swap rate to the same amplification forces that push around the nominal yield itself.

These developments should give us pause for thought when we approach the task of reading market signals. As commentators, we give a lot of weight to market signals. We personify the market and endow it with foresight. But the market is not a person. Prices are the outcomes of the interaction of many actors, and not the beliefs of any one actor. Speaking of the "market's expectation" is fine as a shorthand for market prices, but we should be wary of falling into the trap of taking the shorthand literally and thinking of the market as a person you can sit down and reason with.

Experience has taught us that bond markets can move abruptly and "overreact" relative to the benchmark where the long-dated yield is the average of expected future policy rates. I discussed one of the possible mechanisms behind overreactions when I was last here in September. It was the mechanism driven by duration-matching by life insurers who chase long yields in an attempt to match the durations of their assets to their liabilities.[6] In one of the charts, I showed how total holdings by German insurers of ultra-long bonds (remaining maturity greater than 20 years) had more than quadrupled since 2008. This was at a time when long rates were falling sharply, so that the demand curve traced a downward-sloping relationship between yields and holdings. The more expensive long-dated bonds became, the more the insurance sector was drawn to them.

To an outside observer, this perverse demand response would appear as if market participants' preferences were changing with market prices themselves. Low rates beget low rates through the higher value placed on long-dated bonds, and high rates beget high rates due to the *lower* value placed on long-dated bonds. This perverse demand relationship gives greater impetus to the overreaction of bond markets.

If we accept that the empirical relationship between market-implied inflation expectations and nominal yields is endogenous, and is affected by central bank forward guidance, there are important monetary policy implications. When the bond market is subject to overreactions, central bank forward guidance becomes more potent, not least because of more vigorous front-running by market participants. However, this also means that the echoes of the central bank's forward guidance are also amplified, reverberating in an echo chamber of its own making. In the worst case, the central bank may end up in a feedback loop where acting on signals from the market could distort those signals further.

All of this raises the question of how the market interactions outlined so far will play out when central banks normalise monetary policy. The amplification channels that pushed rates down so effectively could equally work in reverse.

Some further evidence

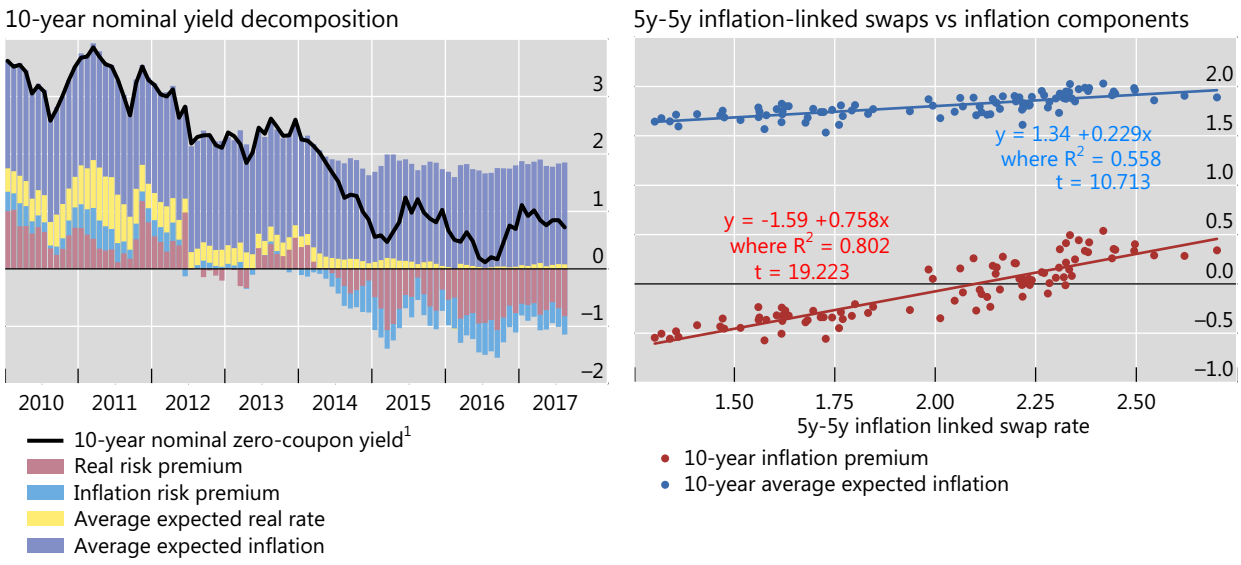
We should be modest about how much we understand about the underlying market mechanisms. We need to shed additional light on the key questions.

One way is through models of the term structure of interest rates that break out the nominal yield into its components. These models should always be taken with a grain of salt, but they are useful as a cross-check of market developments against the predictions of workhorse macro models used at central banks. According to these models, risk premia have been displaying some very odd behaviour lately.

[6] See H S Shin, "Is there a risk of snapback in long-dated yields?", speech at the ECB Annual Research Conference, 25 September 2017, www.bis.org/speeches/sp170925.htm.

Euro area nominal yield decomposition and five-year, five-year inflation-linked swap rates

In per cent; end-of-month figures from January 2010 to August 2017 Graph 2



[1] France, government zero coupon nominal yield.

Sources: P Hördahl, O Tristani and D Vestin, "A joint econometric model of macroeconomic and term structure dynamics", *Journal of Econometrics*, vol 131, no 1–2, 2006, pp 405–44; P Hördahl and O Tristani, "Inflation risk premia in the euro area and the United States", *International Journal of Central Banking*, vol 10, no 3, 2014, pp 1–47; Bloomberg; Datastream; BIS calculations.

Graph 2, left-hand panel, breaks down the nominal 10-year yield into two components: the real yield and the inflation component. Both are then broken down again into the part driven by expectations and the part driven by the risk premium.[7] Both the real term premium and the inflation risk premium are now deeply negative according to this model. Investors are now willing to pay to take on risk, even though they will lose money on average.

The inflation premium component – the inflation compensation not explained by expected inflation – has fallen a lot in recent years. This decline in the inflation premium chimes in with my earlier discussion on the reduced weight of inflation buyers in the swap market, such as through the diminished heft of defined benefit pension funds. In fact, we see from Graph 2 that the inflation premium turned negative in 2014, in tandem with the decline in the nominal 10-year yield.

The right-hand panel shows that the five-year, five-year inflation swap rate dances to the tune of the inflation premium (slope = 0.76) rather than expected inflation (slope = 0.23). If we take these results at face value, the information conveyed by the inflation swap market has less to do with expected inflation and more to do with other factors, including changes in the ecosystem of market participants in capital markets.

[7] The decompositions are based on the references cited in the explanatory notes in Graph 2. They use time series and cross-sectional data on nominal and inflation-linked bonds, as well as macro and survey data.

Can central banks talk too much?

So, what is the answer to the original question? Can central banks talk too much?

I would broaden the question. Communication is a two-way street. There is the talking part, but there is also the listening part. A better question is: what is the best balance between talking and listening?

My answer would be that there is something of a tradeoff. More of one implies less of the other. If central banks talk more to *influence* market prices, they should listen less to the signals emanating from those same markets. Otherwise, they could find themselves in an echo chamber of their own making, acting on market signals that are echoes of their own pronouncements.[8]

On the other hand, talking less is hardly a viable option. Central bank actions matter too much for the lives of ordinary people to turn the clock back to an era when silence was golden. Accountability demands that central banks make clear the basis for their actions.

Nevertheless, listening better is a skill that may have been underappreciated. Greater self-awareness of the central bank's outsized role in the financial markets is a good place to start in redressing the balance. Listening better with greater self-awareness would provide central banks space to take a more detached position and make more informed decisions.

How many times have we heard the argument that the market is pricing in this or that action of the central bank, and that any deviation would upset the market? This type of argument neglects how market participants have become conditioned to the manner in which they interact with the central bank. Jeremy Stein put it well in his last speech as a Fed Governor.[9] The more the central bank whispers in order not to upset markets, the more market participants lean in to hear better.

Predictability and gradualism may not be a virtue if market participants take them as a commitment not to pull the rug from under their feet while they build up leverage and risk-taking positions. Tobias Adrian and I argued in our 2008 Jackson Hole paper[10] that predictability and gradualism may have been enabling factors in the build-up of leverage before the Great Financial Crisis.

Even if there is a more desirable equilibrium to the "whisper equilibrium", the transition will be challenging. After all, the whisper equilibrium is an equilibrium precisely because market participants are leaning in to listen so intently, and the central bank feels it has no better response than to whisper.

Nor is it clear that the transition away from the whisper equilibrium to something more sensible becomes easier with time, as the risk of upsetting markets grows with the accumulation of risk-taking positions. In this respect, greater self-awareness in communication is a skill that central banks may need to deploy sooner rather than later.

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[8] For a formal model with this feature and a solution for the optimal weight on market signals, see S Morris and H S Shin "Central bank forward guidance and the signal value of market prices", paper for the 2018 American Economic Association meeting.

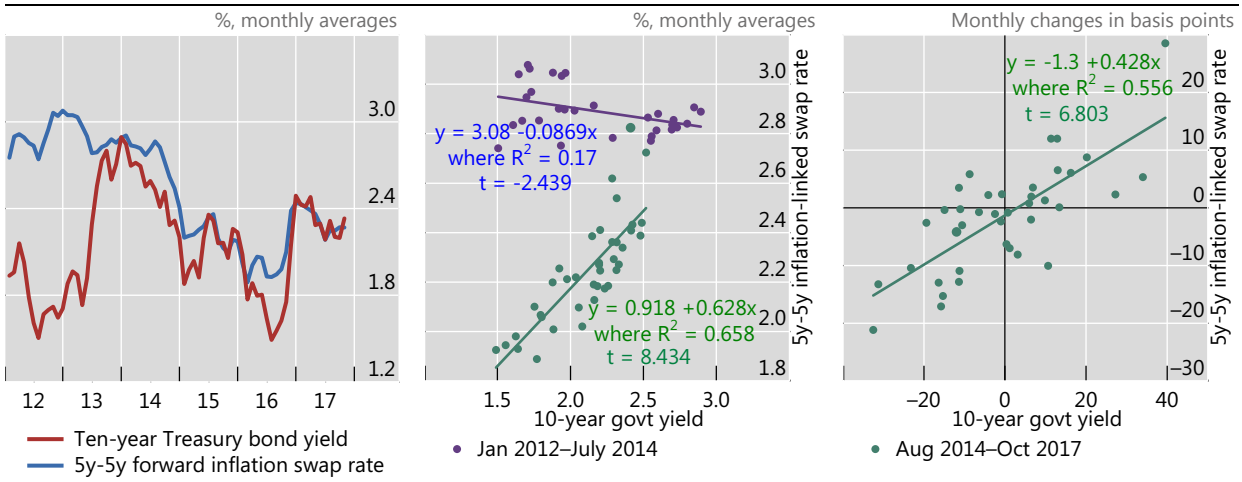
[9] See J Stein speech "Challenges for monetary policy communication", at the Money Marketeers of New York University, 6 May 2014.

[10] See T Adrian and H S Shin "Financial intermediaries, financial stability and monetary policy" in *Maintaining stability in a changing financial system*, proceedings of the Federal Reserve Bank of Kansas City Jackson Hole symposium, 2008. See also S Mallaby, "Why the Fed should surprise more", *Wall Street Journal*, 23 June 2017.

Annex: supplementary charts

US five-year, five-year-forward inflation swap rate vs 10-year Treasury yield

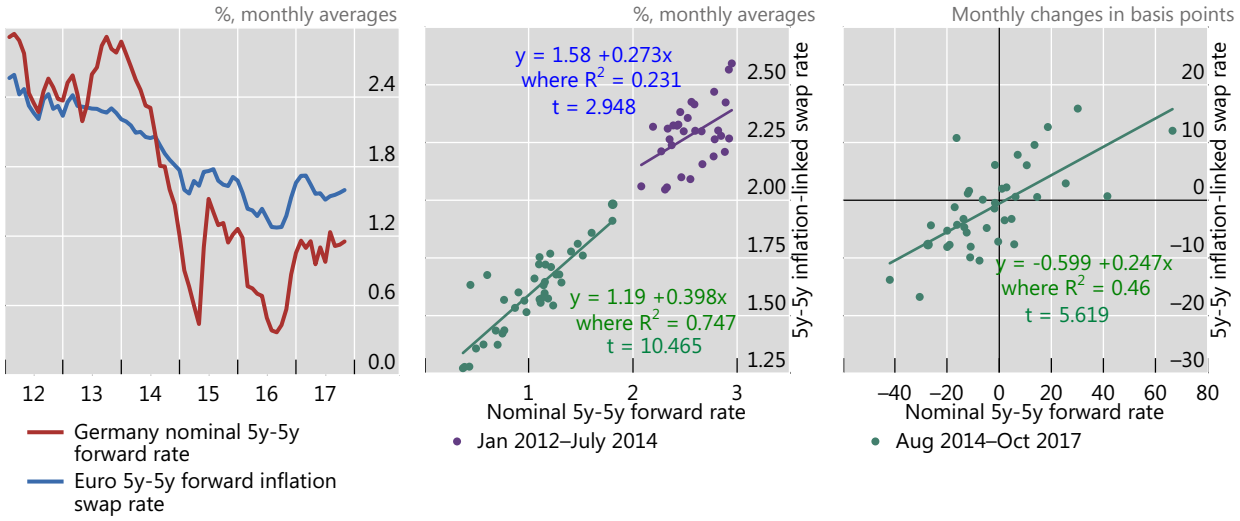
Graph A1



Sources; Bloomberg; Thomson Reuters; BIS calculations.

Euro area five-year, five-year-forward inflation swap rate vs bund yields

Graph A2



Sources: Bloomberg; Thomson Reuters; BIS calculations.