04.12.2015

MPC MEMBERS

From:

PRE-MPC FOLLOW-UP: SHORT RATE SENSITIVITY TO DOMESTIC DATA SURPRISES OVER 2015

Question

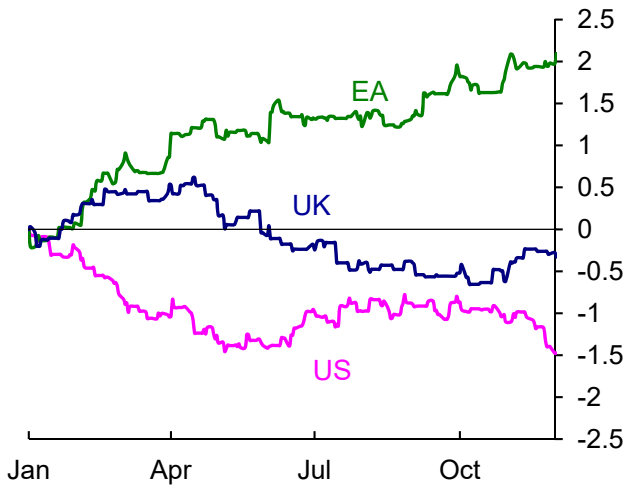
- Ben Broadbent asked for a regression of UK, US and EA 1y1y rates on data surprises to see how much of recent rate moves can be explained by the data news.

Main message

- *Based on simple bivariate regressions of short rates on evolutions in domestic data news, rates would have been expected to fall in the US and increase in the Euro area over 2015. But much of the variation in short rates remains largely unexplained over the 2015 period. This suggests that 1y1y rates are likely responding to a wide set of factors besides data news such as policy communications and changes in risk premia required by investors.*

1. We use the Bank's Economic Surprise Indices (ESIs) to quantify evolutions in data news since the start of 2015. These ESIs are time series of the sum of macroeconomic data surprises that take place in a given day[1]. These include activity indicators (such as GDP or retail sales), labour market indicators (such as the unemployment rate) and business surveys (such as the purchasing managers' index (PMI))[2]. The ESIs we have used exclude inflation (and other data on prices, including wages) since a given surprise may have ambiguous implications for some asset prices, depending on expectations about the reaction function of policy makers.

Chart 1: Cumulative Economic Surprises since January 2015 (SDs from the mean, normalised)



Source: Bloomberg and Bank calculations

2. **Chart 1** shows the evolution of these indices over 2015 for UK, US and euro area (EA) data respectively. We see that the UK index has remained broadly flat over the year. EA data releases have surprised on the upside throughout, while US news have been negative over the first half of the year, and largely flat since. At face value, this isn't particularly consistent with the move towards additional stimulus in the Euro area and imminent tightening of policy in the US.

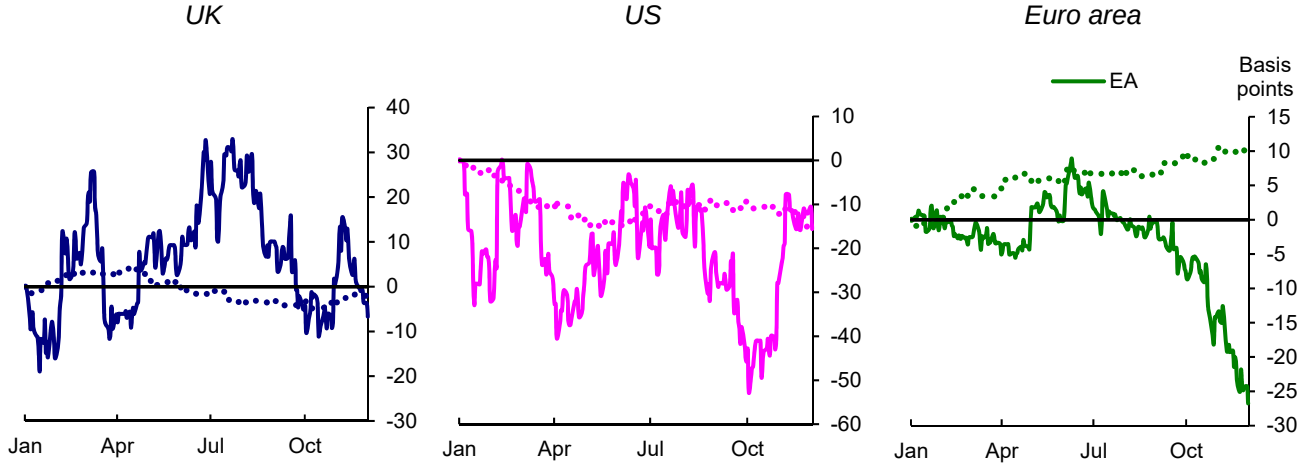
3. To explore this further, we conduct a simple bivariate regression of domestic ESIs on the respective country 1-year, 1-year forward (1y1y) rates to look at the historic relationship between ESIs and 1y1y rates. For the whole sample (January 2009 - December 2014) the coefficients are

[1] Relative to Bloomberg expectations prior to the release

[2] ESIs tend to exclude inflation (and other data on prices, including wages) since a given surprise may have ambiguous implications for some asset prices, depending on expectations about the reaction function of policy makers.

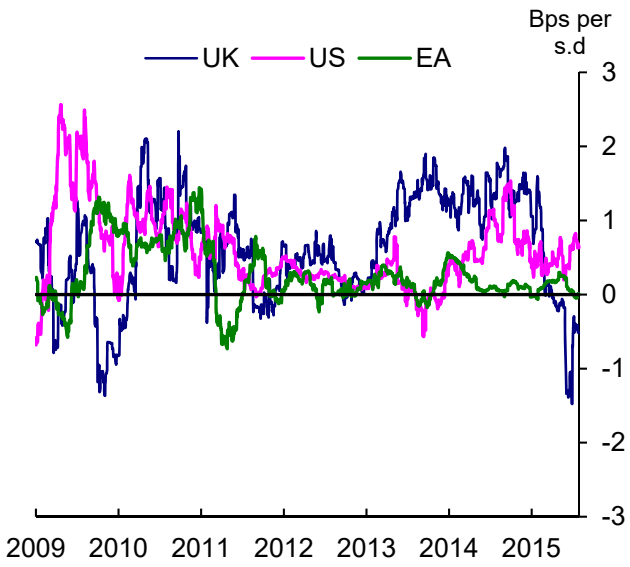
positive and significant (UK: +0.5; US: +0.6; EA: +0.25). **Chart 2** shows the cumulative change in 1y1y over 2015 and the predicted series derived from our regression, implying the vast majority of variation in 1y1y rates over 2015 is left unexplained. These coefficients imply that rates would've been expected to cumulatively fall 15bps in the US between January and December this year given data flow alone. Although the cumulative change in 1y1y rates in the US is broadly in line with that, the predicted series does not pick up the variation in US rates over this period. In contrast we would've expected rates to increase by 10bps in the Euro area, whereas in fact they have fallen by around 25 bps. In the UK, rates would have been expected to be broadly stable over 2015, whereas in fact they increased in the first half of the year and have fallen subsequently. This suggests that 1y1y rates are likely responding to a wider set of factors besides data news including policy communications, international data news and changes in risk premia required by investors.

Chart 2: Cumulative changes in 1-year rates, 1-year forward since January 2015



Source: Bloomberg and Bank calculations. *Dotted lines show the predicted values from a regression of 1-year, 1-year forward rates on domestic ESIs*

Chart 3: Sensitivity of 1-year, 1-year forward rates to domestic data news



Source: Bloomberg and Bank calculations

4. We should however exercise caution in interpreting the results in **Chart 2**. First, equally weighting the data surprises can introduce noise to the series- a more robust method would weight according to the effect each data release has had in the past on forward rates, as per McLaren and Eguren-Martin for the UK and US[3]. The weighted series isn't available for the EA. We have, therefore, used the equally weighted economic surprise index in this note. In addition, we implicitly assume that foreign releases don't affect domestic rates, which is unlikely to hold for the UK where data releases such as the NFPs can be quite important for the UK.

[3] See 'How much do UK market interest rates respond to macroeconomic data news?' McLaren & Eguren-Martin, QB (2015, Q3)

5. In addition, the sensitivity of forward rates to domestic data surprises varies significantly over the sample, particularly in the UK. To illustrate this, we conduct rolling (90-day) window regressions, the coefficients of which are shown in **Chart 3**. Positive coefficients imply that rates increase in response to positive surprises[4]. The R^2 of these regressions varies between 0-2%, reflecting poor explanatory power and inevitable misspecification of the model.

[4] It's worth acknowledging that that recently these rates and the sensitivity may have been affected by the lower bound.