Recommended Reading

MPC MEMBERS

From (MFAD, MA)

PRE-MPC FOLLOW UP: Using news flow to identify the effect of ECB QE on sterling

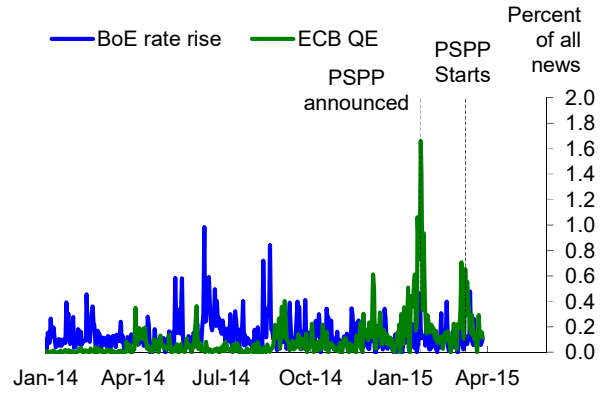
Chris Young (MFAD) presented analysis of the sterling-euro exchange rate that utilized a Bloomberg news flow variable. The Governor asked to see the results with OIS rates used to measure UK monetary policy expectations. Martin Weale asked to see the specification and results of the regression.

Main Message: **The frequency of Bloomberg News articles that refer to ECB QE is used as a measure of financial market attention to asset purchases. Analysis using this variable suggests a significant portion of the recent appreciation in sterling against the euro can be attributed to ECB QE. The underlying regressions are robust to different specifications, including using OIS to measure changes in Bank Rate expectations.**

I: Using Bloomberg news flow as a measure of market attention to ECB QE

1. A challenge in identifying the effects of QE on asset prices is that investors are likely to price in the impact of QE prior to announcements. One way to measure market attention to QE is to use the number of articles on Bloomberg news that mention QE-related words. **Chart 1** shows the frequency of news articles that mentioned ECB QE as percentage of all news. It illustrates that news flow increased prior to the official announcement of QE. This approach can also be used to measure anticipation of conventional policy rate changes, but evidence presented below suggests this may not yield better results than more traditional measures of monetary policy expectations. Regarding QE, however, there are few alternatives to the news flow approach[1].

Chart 1: Policy related news frequency

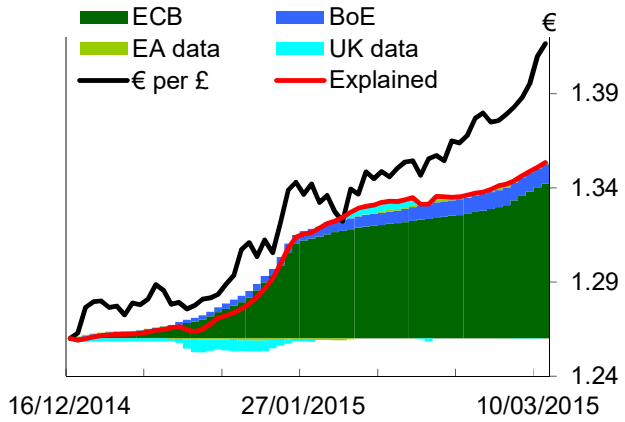


Source: Bloomberg

II: Identifying the role of monetary policy in the recent moves in the sterling-euro exchange rate

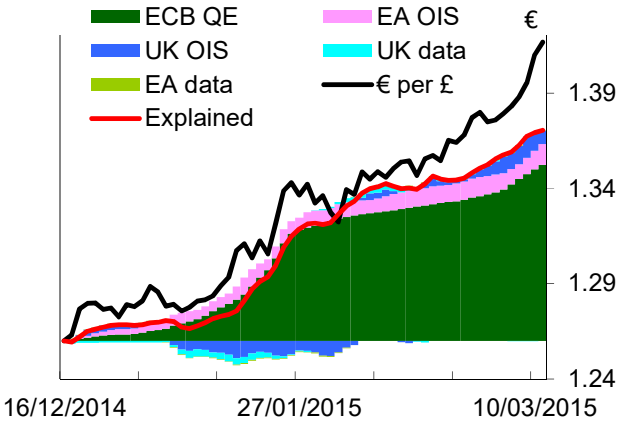
2. News flow measures can be used to assess how important the role of ECB QE has been in the recent appreciation of sterling against the euro. **Chart 2** was presented at pre-MPC and is constructed using coefficients from a regression of rolling two-day changes in GBP EUR on the ECB QE variable, a similar news

Chart 2: Original pre-MPC GBP EUR chart



Source: Bloomberg, Datastream, author calculations

Chart 3: GBP EUR with OIS variables



Source: Bloomberg, Datastream, author calculations

for a discussion of new flow variables for QE.

flow variable for Bank of England policy tightening and economic surprise indices for both economies. **Chart 3** is similar, but uses moves in the 2-year sterling OIS rate to capture changes in MPC policy expectations and both changes in the euro OIS rate and the QE variable for the ECB. The message of the two charts is similar, namely that ECB QE may explain a large portion of the recent appreciation. However, changes in the sterling OIS rate is found to be a significant explanatory variable and, together with the euro area OIS variable, improves the fit of the regressions, as discussed in more detail in the next section.

II: Regression results and alternative specifications

3. Charts 2 and 3 are constructed by using coefficients from the regressions detailed below, multiplied times the explanatory variables and cumulated over the period from 17 December to 11 March. The regression behind Chart 2 is specified as:

$$(GBPEUR)_t = \alpha_1(ECB\ QE)_t + \alpha_2(BoE\ Hike)_t + \alpha_3(EA\ ESI)_t + \alpha_4(UK\ ESI)_t + \varepsilon_t$$

GBPEUR	2-day percentage changes of sterling exchange rate against the euro
ECB QE	2-day sum of the share of Bloomberg news articles that refers to ECB QE
BoE Hike	2-day sum of the share of Bloomberg news articles that refers to BoE rate hikes
EA ESI	2-day sum of Euro area economic surprises, i.e actual - survey, normalized
UK ESI	2-day sum of UK economic surprises, i.e actual - survey normalized

The regression is estimated over 323 daily observations from 4 January 2014 to 27 March 2015. These dates were chosen using Quandt-Andrews break tests to identify the longest period that the coefficients are stable. Results of this regression are shown in row (1) in Table 1. Only the ECB QE news flow and the UK data are significant (using heteroskedasticity and autocorrelation consistent standard errors). Note this specification has no constant as this would mean the charts shown above would include a triangular area that would capture the trend but not have any economic interpretation. In any case, adding a constant to the regression does not meaningfully change the results (5), nor does using to 1-day changes/sums for all variables (6).

As suggested by the Governor, we have a more direct measure of Bank Rate expectations than news flow in the form of OIS rates. ECB policy rate expectations might also play a role in the exchange rate and adding euro OIS in addition to the QE news flow means we may be able to separate the effects of QE itself from the ECB's rate outlook. The following specification might therefore yield better results:

$$(GBPEUR)_t = \alpha_1(ECB\ QE)_t + \alpha_3(EA\ ESI)_t + \alpha_4(UK\ ESI)_t + \alpha_3(EA\ OIS)_t + \alpha_4(UK\ OIS)_t\ \varepsilon_t$$

EA OIS	2-day changes in the euro 2-year OIS rate
UK OIS	2-day changes in the sterling 2-year OIS rate

Table 1: Regression results

4 Jan 2014 - 27 March 2015 (323 obs)		ECB QE	BoE Hike	EA OIS	UK OIS	EA ESI	UK ESI	C	Adj R-sq
(1)	**2-day with BoE news (a)**	34.86 ***	12.04			1.86	18.81 ***		0.15
(2)	**2-day with constant**	36.35 ***	17.00			1.86	18.77 ***	-0.02	0.15
(3)	**2-day with BoE news & OIS**	39.12 ***	-1.37	-11.03 ***	6.71 ***	0.84	10.15 ***		0.36
(4)	**2-day with OIS**	38.63 ***		-11.01 ***	6.69 ***	0.88	10.27 ***		0.36
(5)	**2-day with OIS & constant**	40.68 ***		-11.11 ***	6.73 ***	0.81	9.97 ***	-0.02	0.36
(6)	**1-day (b)**	38.23 **	4.13			1.17	15.17 ***		0.10
(7)	**1-day with OIS**	39.09 ***		-9.72 ***	6.59 ***	0.95	9.64 ***		0.29

* P-value < 0.1, ** P-value < 0.05, *** P-value <0.01

(a) 2-day regressions use heteroskedasticity and autocorrelation consistent standard errors and covariance

(b) 1-day regressions use heteroskedasticity consistent standard errors and covariance

Row (4) shows the results from the regression using OIS. Both the sterling and euro area OIS variables are highly significant. The ECB QE variable remains significant after the addition of euro OIS. The new regression also has a much higher R-squared. Furthermore, the results are also robust to keeping the BoE news flow in the regression alongside OIS (3), adding a constant (5) or using 1-day changes.

Although the ECB QE and OIS variables are significant across numerous specifications, there are still some technical problems and difficulties in interpretation. The OIS and news flow variables are highly likely to be endogenous with exchange rates. Bloomberg news articles may be commenting on the change in the exchange rate and ascribing it to expectations of QE, for example. The QE and OIS variables are also not independent from economic data surprises, as both Bloomberg news and the financial markets will respond to data they think is relevant for monetary policy. So, neither of these allow us to truly disentangle data from monetary policy. Finally, it is not obvious that UK OIS is independent from ECB QE, as the start of actual asset purchases has been followed by a decline in OIS rates in both the UK and US. Despite these caveats, the results do suggest that ECB QE played an important role in the recent deprecation of the euro against sterling.

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