

Watch out for the impact of Scottish independence opinion polls on UK's borrowing costs

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1. Introduction

As the date of the Scottish independence referendum approaches, the debate of both sides of the campaign has increasingly focused on the economic consequences for an independent Scotland and the Rest of the UK. Perhaps surprisingly, very little (if any) attention has been given to the implications of Scottish independence polls for *current* economic developments and in particular what Scottish opinion polls imply for *current* borrowing costs in the UK. This note tests the impact of opinion poll results on the spread between the UK 10-year government bond yield and the UK 5-year government bond yield over and above the impact of other economic fundamentals. We estimate that a 12 percentage point increase in the Yes rating relative to the No rating increases the 10-year borrowing costs relative to the 5 year borrowing costs by up to 24 basis points; in fact, a smaller No lead leads to a bigger impact. Our methodology, data and empirical estimates are reported in Section 2. Section 3 discusses our findings and concludes.

2. Methodology, data and empirical estimates

To test the impact of opinion poll results on the spread between the UK 10-year government bond yield and the UK 5-year government bond yield over and above the impact of other economic fundamentals, we estimate the following non-linear model using daily data over the period from 31 January 2012 to 26 March 2014:

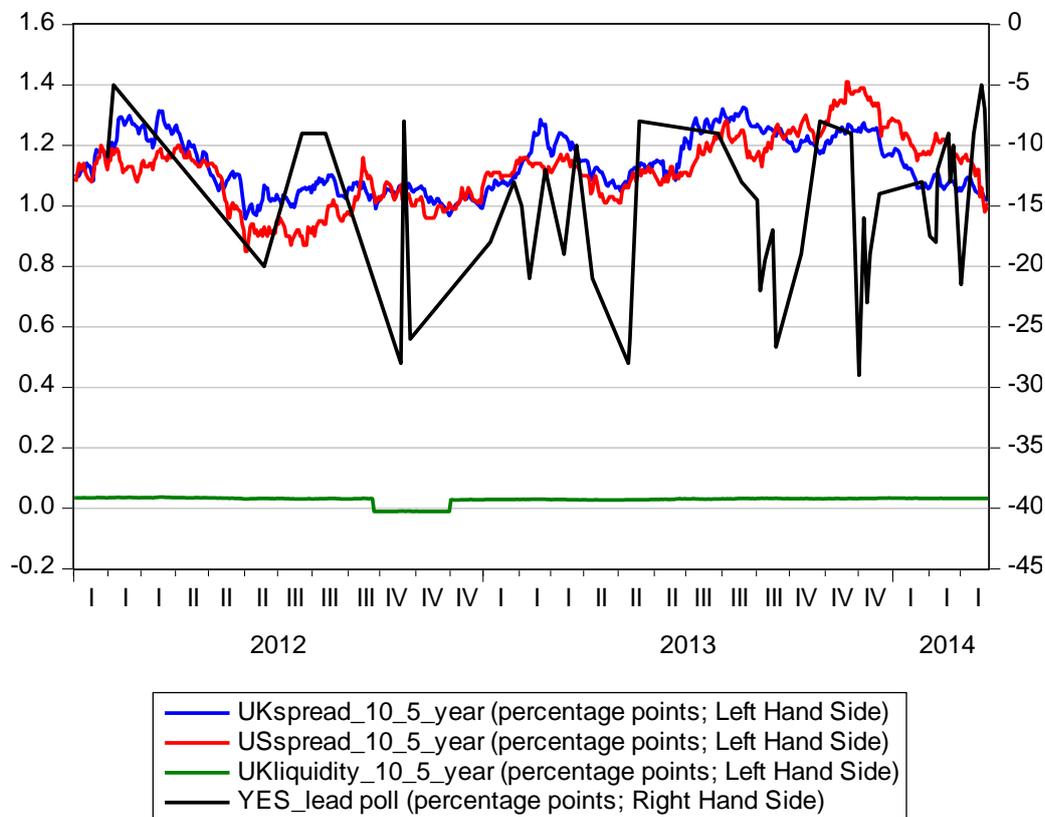
$$UKspread_10_5year_t = \beta_0 + \beta_{US}USspread_10_5year_t + \beta_{liq}UKliquidity_10_5year_t + dpoll_t * (\beta_{YES,1}Yes_lead_t + \beta_{YES,2}Yes_lead_t^2) + \beta_{HMT}HMT_announc_t + u_t \quad (1)$$

where $UKspread_10_5year_t$ is the spread between the UK 10-year government bond yield and the UK 5-year government bond yield and $USspread_10_5year_t$ is the spread between the US 10-year government bond yield and the US 5-year government bond yield. Liquidity considerations (risk) in the UK (denoted by $UKliquidity_10_5year_t$) are proxied by the difference between the 10-year bid-ask spread and the 5-year bid-ask spread. $dpoll_t$ is a dummy variable taking the value of 1 if a poll result is released and 0 otherwise. The Yes_lead_t variable refers to the Yes lead in the opinion polls. Under the assumption that both $\beta_{YES,1} > 0$ and $\beta_{YES,2} > 0$, this model suggests that when a poll opinion result is released, the impact of Yes_lead_t is positive and increases with the size of the Yes_lead

opinion poll result. $HMT_announc_t$ is a dummy variable taking the value of 1 on January 13 2014, and 0 otherwise. It captures Treasury’s pledge to guarantee all of Britain’s debt even if Scotland votes to leave the UK. u_t are independent and identically distributed shocks.

UK bond yields are retrieved from the Bank of England’s website. US bond yields are retrieved from the website of the Federal Reserve Bank of St. Louis and the bid-ask spreads come from Datastream. The UK polling report lists 54 opinion polls conducted since the start of 2012 (available from: <http://ukpollingreport.co.uk/scottish-independence-referendum>). These show that the Yes support has lagged behind the No support by an average of 15.5 percentage points over the period. The Yes campaign point out that gap between Yes and No has narrowed and, in particular, has halved from 24 points in November 2013 to 12 points in March 2014. **Figure 1** plots the data.

Figure 1: UK and US data, 31 January 2012-26 March 2014.



Note: Liquidity risk is defined in terms of the percentage Bid-Ask spread:

$$100 * \left(\frac{Ask_{10year} - Bid_{10year}}{0.5 * (Ask_{10year} + Bid_{10year})} \right) - 100 * \left(\frac{Ask_{5year} - Bid_{5year}}{0.5 * (Ask_{5year} + Bid_{5year})} \right),$$

where *Ask* and *Bid* refer to the Ask and Bid price of the 10-year and 5-year UK government bond, respectively.

OLS estimates of (1) are reported in **Table 1**.

Table 1: OLS Estimates of model (1). Sample: 31 January 2012-26 March 2014.

Dependent Variable: *UKspread_10_5year_t*

Method: Least Squares

HAC standard errors & covariance (Bartlett kernel, Newey-West fixed
bandwidth = 6.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>Intercept</i>	0.472885	0.039436	11.99122	0.0000
<i>USspread_10_5year_t</i>	0.562485	0.037503	14.99837	0.0000
<i>UKliquidity_10_5year_t</i>	1.366933	0.257106	5.316617	0.0000
<i>dpoll_t*Yes_lead_t</i>	0.003203	0.002043	1.568156	0.1175
<i>dpoll_t*Yes_lead_t²</i>	0.000115	8.43E-05	1.361131	0.1741
<i>HMT_announc_t</i>	-0.081269	0.009250	-8.785963	0.0000
R-squared	0.574830	Mean dependent var		1.137737
Adjusted R-squared	0.570749	S.D. dependent var		0.093773
S.E. of regression	0.061438	Akaike info criterion		-2.730269
Sum squared resid	1.966557	Schwarz criterion		-2.681686
Log likelihood	725.4258	Hannan-Quinn criter.		-2.711248
F-statistic	140.8782	Durbin-Watson stat		0.090861
Prob(F-statistic)	0.000000	Wald F-statistic		76.79277
Prob(Wald F-statistic)	0.000000			

Note: Newey-West Autocorrelation and Heteroskedasticity robust standard errors are reported.

From **Table 1**, we estimate that a 12 percentage point increase in the Yes rating relative to the No rating lifts the 10-year borrowing costs relative to the 5-year borrowing costs by 3.6 basis points. The impact is quite small and the *t*-ratio is only statistically significant at the 11% level (the quadratic term is also positive but statistically significant only at the 17% level). Therefore, the evidence that markets are pricing opinion poll results in Scotland (over and above the positive impact of the US spread variable and the positive impact of liquidity) considerations is weak. Notice also from **Table 1** that the spread between the 10-year and the 5-year yield shrinks in response to Treasury's pledge (on January 13, 2014) to guarantee all of Britain's debt even if Scotland votes to leave the UK.

Model (1) assumes that financial markets are taking notice of an opinion poll result only when this is released. Another possibility is that once an opinion poll result is released, this is evaluated by the markets until the following opinion poll outcome becomes available. To account for this possibility, we estimate model (2) below

$$\begin{aligned}
UKspread_10_5year_t = & \beta_0 + \beta_{US}USspread_10_5year_t + \beta_{liq}UKliquidity_10_5year_t + \\
& + dpoll_t * (\beta_{YES,1}Yes_lead_t + \beta_{YES,2}Yes_lead_t^2) + \\
& + (1 - dpoll_t) * (\beta_{YES,3}Yes_lead_{t-1} + \beta_{YES,4}Yes_lead_{t-1}^2) + \\
& + \beta_{HMT}HMT_announc_t + v_t
\end{aligned}
\tag{2}$$

In this model, financial markets are taking notice of the *Yes_lead* poll result in a regime-switching manner. If $dpoll_t=1$ (that is, when a new opinion poll result becomes available) the impacts are $\beta_{YES,1}$ and $\beta_{YES,2}$. On the other hand, if, $dpoll_t=0$ (that is, in the absence of a new poll), the impacts are $\beta_{YES,3}$ and $\beta_{YES,4}$. In this latter case, markets “keep an eye” on the previously released result. OLS estimates of (2) are reported in **Table 2**.

Table 2: OLS Estimates of model (2). Sample: 31 January 2012-26 March 2014.

Dependent Variable: *UKspread_10_5year_t*

Method: Least Squares

HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 6.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>Intercept</i>	0.533303	0.050624	10.53449	0.0000
<i>USspread_10_5year_t</i>	0.571770	0.037992	15.04955	0.0000
<i>UKliquidity_10_5year_t</i>	1.077157	0.275524	3.909484	0.0001
<i>dpoll_t*Yes_lead_t</i>	0.011029	0.004653	2.370240	0.0181
<i>dpoll_t*Yes_lead_t²</i>	0.000326	0.000149	2.186293	0.0292
<i>(1-dpoll_t)*Yes_lead_{t-1}</i>	0.007895	0.004247	1.858945	0.0636
<i>(1-dpoll_t)*Yes_lead_{t-1}²</i>	0.000185	0.000131	1.414152	0.1579
<i>HMT_announc_t</i>	-0.069404	0.012019	-5.774590	0.0000
R-squared	0.607220	Mean dependent var		1.137725
Adjusted R-squared	0.601912	S.D. dependent var		0.093862
S.E. of regression	0.059222	Akaike info criterion		-2.799970
Sum squared resid	1.816726	Schwarz criterion		-2.735099
Log likelihood	744.3921	Hannan-Quinn criter.		-2.774570
F-statistic	114.4006	Durbin-Watson stat		0.096610
Prob(F-statistic)	0.000000	Wald F-statistic		53.66748
Prob(Wald F-statistic)	0.000000			

Note: Newey-West Autocorrelation and Heteroskedasticity robust standard errors are reported.

From **Table 2**, the $\beta_{YES,1}$ and $\beta_{YES,2}$ coefficients are statistically significant. On the other hand, there is weak evidence of statistical significance of $\beta_{YES,3}$ and $\beta_{YES,4}$ which suggests that markets give priority to new information. Focussing on the linear part, our results suggest approximately a (0.002-0.020) basis points 95% confidence interval for $\beta_{YES,1}$ when a poll is released (in which case $dpoll_t=1$). Therefore, a 12 percentage point increase in the Yes rating relative to the No rating lifts the 10-year borrowing costs relative to the 5-year borrowing costs by up to 24 basis points (notice also the impact rises with the size of the Yes_lead result). Model (2) fits the data better than model (1) as it has a higher adjusted R^2 and a lower regression standard error.

3. Discussion and conclusions

What do we learn from all these? This research note attempts to examine whether the UK term structure is affected by Scottish independence opinion poll results. We identify a positive impact from the poll variable on the UK term structure. Our results suggest that a 12 percentage point increase in the Yes rating relative to the No rating lifts the 10-year borrowing costs relative to the 5-year borrowing costs by up to 24 basis points; it also rises with the size of the Yes_lead poll result.

This link between the UK's cost of borrowing and Scottish independence opinion polls has important implications for current fiscal and monetary policy decisions. The Debt Management Office ("Debt and Reserves Management report 2014-15") is planning gilt sales of £128.4bn in 2014-2015. A significant share (25.2%) of these sales is for bonds with maturities of between 1 and 7 years while 21.0% of the share is accounted for by bonds with maturities of between 7 and 15 years (the remainder are longer dated and indexed linked bonds). Assuming that the 10-year yield is a proxy for the cost of bonds (with maturities between 7 and 15 years), we believe that fiscal authorities should be prepared to hedge against the possibility of a sudden increase in the 10-year cost (implied by the Scottish opinion poll results) by purchasing shorter-term bonds at the expense of longer-term ones. Given current plans to sell £26.9 billion in long-term gilts at par value, and assuming these sales are of 10-year coupon bonds, a rise of 24 basis points in the long-term yield, increases the coupon payments by approximately 8.54% or about £129.12 million per annum. Although this upper estimate is a small percentage of UK GDP, it is approximately equal to the £130 million budget announced by the government to help to secure and maintain critical flood defences before next winter hits (<https://www.gov.uk/government/news/forty-two-new-flood-defences-given-the-green-light>).

In reviewing their monthly Quantitative Easing decisions, Bank of England's Monetary Policy Committee members might also want to keep an eye on movements in the Scottish opinion poll results and indeed be prepared to prioritise repurchases of longer-term UK bonds in an attempt to keep a lid on the longer-term cost of borrowing.