

---

# An analysis of the relationship between international bond markets

Working Paper No. 123

Andrew Clare and Ilias Lekkos

This paper focuses on the relationship between international capital markets, in particular government bond markets, in response to a concern that the apparent growing globalisation of capital markets might limit the influence of monetary authorities over their domestic economies, especially in times of financial market crisis. We attempt to gauge: the amount of influence that monetary authorities can have on the shape of the yield curve via changes in short rates; the extent (in terms of duration and magnitude) to which the slope of the yield curve is influenced by international factors during periods of financial crisis; and, finally, by how much co-movements in long bond rates, or indeed the components of these co-movements, change during periods of financial market stress.

The starting-point of the analysis is the rational expectations hypothesis of the term structure (REHTS), which is used to calculate measures of the covariance between the UK, German and US government bond markets. We decompose government bond yields from the three markets into 'fundamental' and 'risk premium' components. We define the fundamental long bond yield as the yield that would prevail if the REHTS held, and define the (*ex post*) bond market risk premium as the difference between this theoretical yield and the actual long bond yield.

The theoretical yield is derived by estimating a system of equations that contains the changes in a short rate and a measure of the slopes of the yield curves from the German, UK and US government bond markets. Thus, unlike similar studies, which use this methodology with only domestic variables, our system allows for the

possibility that long rates are determined by international factors, proxied in each case by information from the yield curves of the other two major markets.

Estimation of this system allows us to decompose the variance of the slopes of both the domestic and foreign term spreads. This decomposition provides an estimate of the proportion of the movement in any one yield spread that can be attributed to shocks from other government bond markets. Since we estimate the system on a rolling basis we can also create a time series of this variance decomposition allowing us, for example, to gauge the time-varying impact of shocks to overseas interest rates on the slope of the UK yield curve.

The main result is that during global financial turmoil (for example, the sterling exchange rate crisis of 1992, the Asian financial crisis of 1997, or the Russian debt crisis of 1998) these slopes respond mainly to 'international factors', presumably as global investors reallocate their bond portfolio holdings and local investors readjust their expectations about domestic interest rates. However, these periods of international influence appear to exist for relatively short periods of time, with no clear sign of any longer-term, permanent effect on the relationship between the markets. The decomposition of the covariance between these government bond markets indicates that risk premia and/or contagion effects have played an important role during these periods, moving the covariance between the markets away from where we might have expected them to be if international bond rates were determined solely by REHTS arbitrage.