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PRESS RELEASE

Information in the yield curve: A Macro-Finance approach

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The term structure of interest rates has long been recognised as a potential source of information about future macroeconomic developments. This prevalent belief on the forward-looking characteristic of the yield curve is best represented by the expectations hypothesis (EH). According to this theory, the slope of the yield curve reflects market expectations of the average future path of short-term interest rates. Following the EH, it makes sense then to use yield curve information to forecast macroeconomic aggregates such as real economic activity and inflation.

In the EH framework, bond yields are fully determined by the expected path of the short-term interest rate with zero or constant term premium component. If bond yields are partly made up of time-varying term premia not only does the EH not hold but also the information content of the yield curve with respect to macroeconomic aggregates may be affected. Therefore, determining the contribution of the expectations and term premium components in bond yields might allow a more precise interpretation of the dynamics of the term structure of interest rates and the construction of better information variables for macroeconomic forecasting.

In this paper, we investigate the failure of the EH and its consequences for macroeconomic forecasting. We adopt the Dewachter and Iania (2011) Extended Macro-Finance (EMF) model, which augments standard Macro-Finance (MF) models of the term structure of interest rates with the inclusion of three financial factors and two stochastic trends. The first two financial factors reflect financial strains in the money market, while the third financial factor captures time variation in bond risk premia. The two stochastic trends allow for highly persistent processes capturing time variation in long-run inflation expectations and in the equilibrium real rate, two key components of long-run interest rate expectations. Through the lens of this MF model, we analyse two relevant issues related to the failure of the EH: the dynamics of bond risk premia and the information content of the term spread and its expectations and term premium components for forecasting economic activity and inflation.

Our analysis contributes to the current MF literature in several ways. First of all, we show that the EMF model is able to extract reasonable estimates for the term premium dynamics. The dynamics of our term premium are similar to those of Kim and Wright (2005), which are considered by Rudebusch Sack and Swanson (2007) to be the most representative among five measures examined by these authors. To do so, we use a single factor as the main driving force behind bond risk premia and which captures most of the co-movement in realised excess returns. This factor is similar to the return-forecasting factor proposed by Cochrane and Piazzesi (2005), the CP factor, which is however extracted by means of *ad-hoc* predictive regressions. When compared to realised excess returns, our model-implied risk premia are unbiased and generate an in-sample fit and out-of-sample forecasts that are in line with those generated by Cochrane and Piazzesi's method.

Second, we find that (i) the expectations component of short-term bonds is mainly driven by monetary policy shocks while that of long-term bonds is affected by all macro shocks and in particular long-run inflation shocks, and that (ii) movements in the term premium component are mainly associated with financial shocks, with some limited impact of liquidity and policy rate shocks. These results show that the relevance of introducing stochastic end-points and risk premia dynamics in a MF model is not limited to the improvement of the yield curve fit, but is also essential in the identification of bond yield expectations and term premium components.

Third, we show that while the decomposition of the term spread into its expectations and term premium components is crucial for forecasting inflation changes, it is less relevant in the forecasting of real activity. Our results suggest that looking at the term spread to infer future changes in inflation (via, for example, the Fisher hypothesis) might be sub-optimal since the information content of the term spread is affected by the presence of a risk premium component. This finding has remained stable for the past decade and is robust to the inclusion of control variables. For real activity measures like real GDP growth and the output gap, the decomposition of the term spread is less important. For GDP growth, we find that the increase in the adjusted R^2 is not statistically significant most of the time. For the output gap, the results are mixed. When the term spread is used as the only predictor variable, its decomposition in expectations and term premium components clearly increases the predictive content for the output gap. However, this improvement vanishes once we control for the current value of the output gap and the short-term interest rate. Furthermore, we document that, over the last decade, the decomposition of the term spread has lost forecasting power for both measures of real activity.