

Abstract

The dissertation consists of three papers which apply Bayesian econometric techniques to monitoring macroeconomic and macro-financial developments in the economy. Its aim is to illustrate how Bayesian methods can be employed in standard areas of economic research (estimating systemic risk in the banking sectors, nowcasting GDP growth) and also in a more original area (monitoring developments in sovereign bond markets).

In the first essay, we address a task which analytical departments in central banks or commercial banks face very often - nowcasting foreign demand of a small open economy. On the example of the Czech economy, we propose an approach to nowcast foreign GDP growth rates for the Czech economy. For presentation purposes, we focus on three major trading partners: Germany, Slovakia and France. We opt for a simple method which is very general and which has proved successful in the literature: the method based on bridge equation models. A battery of models is evaluated based on a pseudo-real-time forecasting exercise. The results for Germany and France suggest that the models are more successful at backcasting, nowcasting and forecasting than the naive random walk benchmark model. At the same time, the various models considered are more or less successful depending on the forecast horizon. On the other hand, the results for Slovakia are less convincing, possibly due to the stability of the GDP growth rate over the evaluation period and the weak relationship between GDP growth rates and monthly indicators in the training sample.

In the second essay, we turn to monitoring developments in euro area sovereign bond markets. To study the period since October 2005, with a particular focus on the financial and sovereign debt crises, we employ a factor model with time-varying loading coefficients and stochastic volatility, which allows for capturing changes in the pricing mechanism of bond yields. Our key contribution is exploring both the global and the local dimensions of bond yield determinants in individual euro area countries using a time-varying model. Using the reduced form results, we show decoupling of periphery euro area bond yields from the core countries' yields following the financial crisis and the scope of their subsequent re-integration. In addition, by means of the structural analysis based on identification via sign restrictions, we present time varying impulse responses of bond yields to EA and US monetary policy shocks and to confidence shocks.

The final essay analyses the evolution of the systematic risk of the banking industries in eight advanced countries using weekly data from 1990 to 2012. Time-varying betas are estimated using a Bayesian state-space model with stochastic volatility, whose results are contrasted with those of the standard M-GARCH and rolling-regression models. We show that both country-specific and global events affect the perceived systematic risk, while the impact of the latter differs considerably across countries. Finally, our results do not support fully the previous findings that equity prices did not reflect the build-up of systematic risk of the banking sector before the last financial crisis.