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PRESS RELEASE

"Forecasting with a Bayesian DSGE Model: an application to the euro area"

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Forecasts of inflation and output, whether or not conditional on a specific interest rate path, play an important role in monetary policy strategies geared towards maintaining price stability. It is important to take a forward view because of the lags in the monetary policy transmission mechanism. Central banks have therefore invested considerable effort in developing forecasting models for inflation and economic growth.

This paper illustrates how modern sticky-price-and-wage dynamic stochastic general equilibrium (DSGE) models, estimated using Bayesian techniques, can become an additional useful tool in the forecasting kit of central banks.

First, we show that the forecasting performance of such structural models compares well with a-theoretical vector autoregressions (pure statistical models that are aimed to capture the dynamic relations between variables in order to generate an optimal forecast performance). It also allows examination of the structural sources of the forecast errors, or the innovations in the macroeconomic time series, and their implications for monetary policy. The relative contribution of different shocks, such as productivity shocks, labour supply shocks, public or exogenous spending shocks and price and wage mark-up shocks over the business cycle can be identified.

Moreover, the paper illustrates how the posterior distribution of the model can be used to calculate the complete distribution of the forecast. This information can also be used to calculate various inflation risk measures that have been proposed in the literature, and to construct fan-charts around the forecast. These risk measures of inflation are becoming increasingly important in both the communication and the strategy of monetary policy. Risk measures can provide more information than the traditional mean forecast outcomes, and this additional information is relevant if monetary policy is not only oriented to the optimal feasible outcomes but is also concerned about the risks of alternative possible outcomes.

Finally, the structural nature of the model allows computing forecasts conditional on a policy path. The impact on both the mean forecast and the risk measures provides useful information for evaluating alternative policy scenarios.

Using those tools, we analyse macroeconomic developments in the euro area since the start of EMU. The forecasts, the interpretation in terms of the structural shocks, and the risk measures that are generated by the model are very similar to the published interpretation of the policy makers of the ECB.