

# MONETARY POLICY AND THE TERM STRUCTURE: A FULLY STRUCTURAL DSGE APPROACH

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## 1. EXTENDED ABSTRACT

This paper highlights the analysis of the term structure of interest rate within a full DSGE model. Our goal consists in setting up a full model including the feed-back from the economy to the term structure and vice-versa. Contrary to existing models of the term structure (TS, henceforth) (for example Ravenna and Seppala, 2005; Rudebusch and Wu, 2005), our framework includes different interest rates for different maturities within a full DSGE model. In this way, we obtain the link between interest rates at various maturities and the macroeconomy and vice-versa. The model presents time varying risk premia, according to the most recent evidence on Expectation Hypothesis of the Term Structure of Interest Rates. The stylized economy can replicate all the main facts of the empirical evidence as well as the in-sample forecasts. In particular, macro shocks account for the almost 90% of the variance in the five years spread. Moreover, demand shocks have a persistent positive effect on all yields; technology shocks have a persistent negative effect on all yields, a small effect on the slope and term premia, first increase and then fall. Fiscal policy shocks have a very small effect on yields, the slope and term premia.

The structure of the economy is a standard DSGE model with nominal and real rigidities. The utility function includes consumption with habit formation as well as real money balances and working time. Nominal rigidities are represented by quadratic cost of price adjustment, à la Rotemberg (1982). Real rigidities are inserted via quadratic cost of capital installment. The term structure is inserted by including four types of government bonds with four different maturities: very short term (money market assets), short term (3-months bonds), medium (5-years bonds) and long term (10-years) bonds. In order not to make any financial asset redundant, we introduce financial frictions under the form of quadratic adjustment of bond holdings with respect to the steady state. Moreover, there is imperfect substitutability between money and the various types of bonds.

We solve the model up to first and second order. We evaluate the quantitative properties of the model and we study the in-sample fit of predictive regressions of the yield spread with respect to future output growth. We find that the sizable rejection of the Expectations Hypothesis is the key for accounting for the predictive power of the yield spread.

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