Asset prices and macroeconomics: towards a unified macro-finance framework

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Abstract

The dissertation consists of three papers focused on fiscal policy and explaining what determines the dynamics of cross-sectional distribution of bond prices. The connecting factor of the thesis is however not just its main theme but also the used methodology. The valuation of bonds and effects of studied policies are endogenous outcome of the full-fledged macro-finance dynamic stochastic general equilibrium model.

The first chapter provides broader context and non-technical summary of the three papers in following chapters. The first paper studies the role of trend inflation in bond pricing. Motivated by recent empirical findings that emphasize low-frequency movements in inflation as a key determinant of term structure, we introduce trend inflation into the workhorse macro-finance model. We show that this compromises the earlier model success and delivers implausible business cycle and bond price dynamics. We document that this result applies more generally to non-linearly solved models with Calvo pricing and trend inflation and is driven by the behavior of price dispersion, which is i) counterfactually high and ii) highly inaccurately approximated. We highlight the channels behind the undesired performance under the trend inflation and show that several modeling features like price indexation or Rotemberg pricing can restore the model performance.

The second paper highlights how different types of government expenditures affect term structure of interest rates. We explore asset pricing implications of productive, wasteful and utility enhancing government expenditures in a New Keynesian macro-finance model with Epstein-Zin preferences. We decompose the pricing kernel into four underlying macroeconomic factors (consumption growth, inflation, time preference shocks, long run risks for consumption and leisure) and design novel method to quantify the contribution of each factor to bond prices. Our methodology extends the performance attribution analysis typically used in finance literature on portfolio analysis. Using this framework, we show that the property of bonds to serve as an insurance vehicle against the fluctuations in investors wealth induced by government spending is the main component in bond valuation. Increase in uncertainty surrounding government

spending rises the demand for bonds leading to decrease in yields over the whole maturity profile. Bonds insure investors by $i)$ providing buffer against bad times, ii) hedging inflation risk and iii) hedging real risks by putting current consumption gains against future losses. We also document that the structure of government spending and related response of monetary policy is consequential for compensation investors require for holding bonds.

In the third paper we generalize a simple New Keynesian model and show that a flattening of the Phillips curve reduces the size of fiscal multipliers at the zero lower bound (ZLB) on the nominal interest rate. The factors behind the flatting are consistent with micro and macroeconomic empirical evidence: it is a result of, not a higher level of price rigidity, but an increase in the degree of strategic complementarity in price-setting -- invoked by the assumption of a specific instead of an economy-wide labour market, and decreasing instead of constant-returns-to-scale. In normal times, the efficacy of fiscal policy and resulting multipliers tends to be small because negative wealth effects crowd out consumption, and because monetary policy endogenously reacts to fiscally-driven increases in inflation and output by raising rates, offsetting part of the stimulus. In times of a binding ZLB and a fixed nominal rate, an increase in (expected) inflation instead lowers the real rate, leading to larger fiscal multipliers. Conditional on being in a ZLB-environment, under a flatter Phillips curve, increases in expected inflation are lower, so that fiscal multipliers at the ZLB tend to be lower. Finally, we also discuss the role of solution methods in determining the size of fiscal multipliers.