



Macrofinance Dynamics, Heterogeneity, and Policy Design.
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Summary

The present dissertation contains four chapters: the first chapter is an introduction to motivate this dissertation and interlink the different chapters with each other. The second chapter is associated with the role of monetary policy when stock markets are driven by boundedly speculative traders. The third chapter explores the market outcome if fully rational and boundedly rational agents interact in a financial market. The last chapter is concerned with the dynamics of the distribution of wealth given capital gains taxation.

In the first chapter, the motivation of this thesis is briefly summarized. In particular, both the 2007 – 2010 financial crisis and the publication of the Piketty data had a major impact on economic science and called out for a shift in paradigms. For one, this had led to the inclusion of a financial sector and respective frictions into dynamic macro models, but also to a more careful treatment of heterogeneity. Further, this has led to methodological advances, especially with regard to techniques that allow the analysis of nonlinear Rational Expectations system and tools that enable properly to model heterogeneity.

The second chapter studies the macroeconomic consequences when – potentially speculative – stock prices affect macroeconomic aggregates, and whether monetary policy can mitigate potential spillovers from financial markets. I augment a model with financial constraints on working capital with stock markets, where excess volatility of these markets is endogenously amplified through behaviorally motivated financial speculation. The presence of credit constraints links asset returns to optimal leverage and the price level. Then, standard monetary policy rules can induce a dynamic feedback loop that actually amplifies stock price volatility. This model is estimated to match key moments of empirical European macroeconomic data. The endogenous process of financial market speculation and the feedback from asset prices to the price level are key features to replicate and explain these moments. Numerical analysis suggests that central banks can offset the impact of speculation on either output or inflation by carefully targeting asset prices, but not on both, and can furthermore dampen excess volatility of stock prices. However, the scope of such policy to stabilize economic activity is limited due to its undesirable response to real economic shocks.

Chapter three analyses the interaction of perfectly rational agents in a market with coexisting boundedly rational traders. Whether an individual agent is perfectly rational or boundedly rational is determined endogenously depending on each types market performance. Perfect rationality implies full knowledge of the model including the non-linear switching process itself. I make use of iterative numerical methods to find a recursive solution of the highly nonlinear system, which then only depends on the state space of the original model, and show furthermore that this solution is not necessarily bounded. Depending on the parameterization, agents' interaction can trigger complicated endogenous fluctuations that are well captured by our solution algorithm. In conclusion, in a financial market setup rational agents might adapt sentiment beliefs and so fail to mitigate speculative behavior, and boundedly rational agents are not necessarily driven out of the market. Although the presence of fully rational agents tends to have stabilizing effects it may also induce further endogenous fluctuations.

In the forth and last chapter, using a parsimonious economic model we are able to explain up to 100 years of the available data on the dynamics of top-wealth shares for the US, the UK, and France both in levels and transitions. We build a microfounded model of heterogeneous agents where additionally to stochastic returns on investment individuals disagree marginally on their expectations of future returns and thus hold different portfolios. Closed-form solutions confirm that without government intervention this process has a variance that explodes in time implying no

finite inequality. We then introduce a tax on capital gains and provide evidence that this converges to a double Pareto distribution for which the degree of wealth inequality is decreasing in the tax rate. We provide numerical simulations for the calibrated model as well as analytical representations for transitions and cross-sectional distributions, and discuss its ability to match the measured wealth inequality for several countries. The heterogeneous development in the different countries and across time can be traced back very precisely to different tax regimes.