Expectations from the Term Structure

Arunima Sinha\(^1\)
Department of Economics, Leavey School of Business
Santa Clara University, California, USA

May 15, 2012

Abstract

Subjective investor expectations, which are distinct from rational expectations, are increasingly considered as central to resolving asset pricing puzzles in general equilibrium frameworks. While most analyses have imposed different models of expectations formation on optimizing agents, this paper attempts to extract expectations directly from the data. Parameters derived from fitting the daily nominal U.S. yield curve using the Nelson-Siegel-Svensson approach are found to contain significant information about the evolution of investor expectations and the implied discount factor. The parameters approximating the average level of the yield curve, its slope and curvature exhibit structural breaks over the 1972-2010 period. This paper investigates which model of expectations evolution best describes these parameters: rational expectations, constant-gain adaptive learning or Markov-switching. The hypothesis of rational expectations is tested by regressing the forecast error in parameter estimates at various forecasting horizons on the corresponding forecast revisions, conditional on different information sets. This hypothesis is rejected, across sample periods and forecast horizons. Next, the parameters are assumed to follow a constant-gain learning algorithm. The squared distance between the parameters implied by the mechanism and the actual parameters is minimized to estimate the updating or gain coefficient. Finally, the Markov-switching mechanism is used for describing the parameters. I find that the level parameter is best approximated by the constant-gain learning process during the Great Moderation - the distance between the level estimates implied by the updating mechanism is smaller than the alternative. For the slope parameter, the Markov-switching process yields smaller distance estimates for 1985-2007; the curvature parameter yields large deviations from both processes.

\(^1\)The full paper is available upon request. Email: asinha1@scu.edu.