

Department of Decision Sciences

Statistics Seminar

Assessment of Mortgage Default Risk via Bayesian State Space Models

Refik Soyer

The George Washington University

Thursday, 14th March 2013

12:30pm Room 3-E4-SR03 Via Röntgen 1 Milano

Abstract

Managing risk at the aggregate level is crucial for banks and financial institutions as required by the Basel II framework. In this paper, we introduce discrete time Bayesian state space models with Poisson measurements to model aggregate mortgage default rate. We discuss parameter updating, filtering, smoothing, forecasting and estimation using Markov chain Monte Carlo methods. In addition, we investigate the dynamic behavior of the default rate and the effects of macroeconomic variables. We illustrate the use of the proposed models using actual U.S. residential mortgage data and discuss insights gained from Bayesian analysis.