Banking Crises, Early Warning Models, and Efficiency

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Abstract

We propose a general model that combines the Mixture Hazard Model with the Stochastic Frontier Model to investigate the main determinants of the failures and performances of a panel of U.S. commercial banks during the financial distress that began in 2007. The combined model provides measures of the probability and time to failure conditional on a bank's performance and vice versa. We consider both continuous-time semi-parametric and discrete-time mixture hazard model specifications. The estimation of the models is carried out via an expectation-maximization algorithm due to the incomplete information regarding the identity of at-risk banks. In- and out-of-sample predictive accuracy of these models is investigated in order to assess their potential to serve as early warning tools.