

The aim of the thesis is to get acquainted with the theory of Markov chains and to show how it is used in banking for estimation of credit rating transitions. In the first part, an introduction to the theory of discrete-time and continuous-time Markov chain with discrete state space is provided. In the next part three estimating methods that are used to calculate credit rating transitions - namely cohort method, durability method and Aalen-Johansen estimator are described theoretically. In the last part these methods are applied to calculate the matrices of transition probabilities on the basis of real rating migrations. Next an empirical transition matrix is used to simulate set of rating progressions, which are then used for estimating the original matrix by all the above mentioned methods. Finally the distance between the original and estimated matrices is evaluated to show the differences between the methods.