Estimation of Credit Rating Migration through Transition Matrices

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Abstract:
In risk management, migration from one credit rating to another rating is usually modeled using a Markov process. In this talk, we obtain a model by extending Maximum Likelihood Estimators and Componentwise Optimization Method to estimate credit rat- ing migration using transition probability matrices. This is done by incorporating cluster- ing techniques and 'business' time changes in the existing methods. The extended models improve the accuracy by as much as 30% which could be pivotal in mitigating credit losses through better prediction of default probabilities. We also observe that macroeconomic factors such as GDP growth and national savings have significant impact on rating mi- grations. Quadratic programming technique is used to estimate rating migration using Bangko Sentral ng Pilipinas (BSP) proportions data. This approach is helpful in cases when transitions data is not readily available, as is the case in the Philippine setting.