

Proposal

Loan Banking

Modern Methods of Hidden Markov Models and Clustering Applied: a Risk Management in the Financial Sector

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Loan banking serves for savings over different time horizons in order that at the end the saver has an amount of money needed to finance and build a house. The companies or societies – the loan banks - which offer contracts, to individuals, often: to parents for their children, need to understand the saving behaviours of their customers: Durations of contracts, cancellations done, etc., in order to predict the behaviour of future customers, better to say: to develop products (contracts) with short-, mid- or long-term duration. Hereby, the loan bank tries to predict and control its own liquidity, it is performing a risk management.

This needs appropriate and deep mathematical methods. Center of Applied Mathematics (ZAIK) of the University of Cologne has gained a lot of experience in this area in the last decades. To the most important ones among these methods, Hidden Markov Models and Clustering methods belong. Indeed, these so-called HMMs are becoming clustered in order to find those “prototypes” of behaviours in time - of customers of contracts, where the loan bank is interested in.

Our project aims at a well understanding of these methods, and at a further development of them. The Turkish situation in the sector of loan banking will be investigated, applications made and, possibly, offers made which could lead to an improvement in the saving behaviours, in the advice given to the companies and to people, to the development of the welfare in Turkey.

You are cordially welcome!

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