

# On a Markov Model for the Evolution of an Open Population of a Credit Portfolio

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## Abstract

Let us consider a Credit Scoring model where bank clients are classified into risk credit classes according to their estimated *default* probability.

Each client *default* probability is function of explanatory variables which may change overtime. In this way, population characteristics will not be stable. In order to manage a Credit Portfolio it is important to have information about each risk class size.

Our treatment will be based on finite, discrete parameter, homogeneous Markov chains.

Assuming an open portfolio and a recession scenario, we use Stochastic Vortices model, see [2], [3] and [4], to describe the law of population evolution in each of the risk classes, in a long time perspective.

We benchmark predicted results against observed situation.

**Keywords:** Markov Chains, Stochastic Vortices, Credit Scoring.

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