On risk models and applications in finance

Abstract: We present first parametric risk models which are based on shock models where the sum of the shocks or the extreme shock are relevant. Some generalization will be discussed also. Then we introduce an intuitive non-parametric approach for shocks, as e.g. to model firms's default, using urn processes. The urn approach allows us to indirectly model the moving risky threshold in generalized extreme shock models. This plays the important role in modeling firms's default. The basic idea is to link the types of the balls in the urn with the risk or the levels of risk a system can face. The evolution of the process is given by a triangular reinforcement matrix. Some extensions of such models will be mentioned also.