

概率论系列报告 Probability Seminar

报告题目(Title): **Fast mean-reverting volatility asymptotics in large portfolio modeling**

报告人(Speaker): Nikolaos Kolliopoulos (BICMR)

时间(Time): **2020/09/28 14:00-15:00**

地点(Venue): 理科一号楼 1304 Science Building No.1

摘要(Abstract):

We consider an asymptotic SPDE description of a large portfolio model where the underlying asset prices evolve according to certain stochastic volatility models with default upon hitting a lower barrier. The asset prices and their volatilities are correlated through systemic Brownian motions, and the SPDE is obtained on the positive half-space along with a Dirichlet boundary condition. We study the convergence of the loss from the system, which is given in terms of the total mass of a solution to our stochastic initial-boundary value problem, under fast mean-reversion of the volatility. We consider two cases. In the first case, the volatilities are sped up towards a limiting distribution and the system converges only in a weak sense. On the other hand, when only the mean-reversion coefficients of the volatilities are allowed to grow large, we see a stronger form of convergence of the system to its limit. Our results show that in a fast mean-reverting volatility environment, we can accurately estimate the distribution of the loss from a large portfolio by using an approximate constant volatility model which is easier to handle.

欢迎参加

Everyone is welcome.