

Large deviations in an interbank lending system

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We propose a simple model of inter-bank lending system and analyze a process-level large deviation principle. The monetary reserves of banks are modeled as a system of Bessel-like diffusions with interactions through the drifts from the inter-bank lending system. From the perspective of a financial regulator the empirical measure of the monetary reserves is an important quantity to be monitored over time. By establishing weak uniqueness for the limiting Stochastic Differential Equation of McKean-Vlasov type, we obtain a propagation of chaos result and the law of large numbers of the empirical measure. We also study local behaviors of monetary reserves of the banks near their defaults and asymptotic properties of the resulting SDE. Some parts of this talk come from joint work with J.-P. Fouque and M. Shkolnikov.