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Pierre-Emmanuel Jabin* (pjabin@umd.edu) and **Denis Talay**. *Reduction in complexity in Multi-agents models.*

We consider a certain number of economical agents, each described by a random variable and solving a system of Stochastic Differential Equations coupled through a mean field interaction. Some coefficients in the coupled system are optimized by a centralized authority (central bank, government) in order to maximize the average utility. Solving this system would thus require the resolution of a N-dimensional visquous Hamilton-Jacobi equation which far too costly computationally. Instead, we derive a 1 dimensional coupled system giving a good approximation. (Received September 16, 2013)