

FIM

Minicourse

Nizar Touzi (Ecole Polytechnique, Palaiseau)
Dylan Possamaï (Université Paris Dauphine)

Optimal transport and hedging

February 27 to March 27, 2013

Feb. 27	13:00 - 15:00	Nizar Touzi: Martingale optimal transport
March 13	13:00 - 15:00	Nizar Touzi: Martingale optimal transport
March 20	13:00 - 15:00	Dylan Possamaï: Quasi-sure hedging
March 27	13:00 - 15:00	Dylan Possamaï: 2BSDEs and robust utility maximization

HG G 43, Rämistrasse 101, ETH Zürich

Abstract

The aim of these lectures is to introduce model-free formulation of robust hedging and the related second order backward SDEs problems. The first part concentrates on discrete-time models. We introduce the martingale optimal transportation problem, and the corresponding dual. Both problems have relevant interpretations in financial mathematics. We prove a general duality result. Then, we provide an extension of the Brenier theorem in the present martingale framework. The continuous-time formulation of the problem involves the theory of quasi-sure analysis, and establishes an interesting connection with the Skorohod embedding problem. The quasi sure analysis is also a key-framework for the well-posedness of second order backward SDEs. This is the main focus of the second part of the lectures where the main wellposedness results are established.

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