Quantitative Finance > Portfolio Management

Portfolio optimization in a defaults model under full/partial information

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(Submitted on 31 Mar 2010)

In this paper, we consider a financial market with assets exposed to some risks inducing jumps in the asset prices, and which can still be traded after default times. We use a default-intensity modeling approach, and address in this incomplete market context the problem of maximization of expected utility from terminal wealth for logarithmic, power and exponential utility functions. We study this problem as a stochastic control problem both under full and partial information. Our contribution consists in showing that the optimal strategy can be obtained by a direct approach for the logarithmic utility function, and the value function for the power utility function can be determined as the minimal solution of a backward stochastic differential equation. For the partial information case, we show how the problem can be divided into two problems: a filtering problem and an optimization problem. We also study the indifference pricing approach to evaluate the price of a contingent claim in an incomplete market and the information price for an agent with insider information.

Subjects: **Portfolio Management (q-fin.PM)**; Optimization and Control (math.OC); Computational Finance (q-fin.CP); Pricing of Securities (q-fin.PR)

Cite as: **arXiv:1003.6002v1 [q-fin.PM]**

Submission history

From: Thomas Lim [view email]

[v1] Wed, 31 Mar 2010 09:43:51 GMT (21kb)

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