Optimality of claims with fixed payoff structure

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Abstract

We apply the concept of cost efficient claims to Lévy market models and find in an application to German stock prizes considerable potential savings the optimal payoffs provide. The magnitude of savings is related to the strength of the market trend. It is shown that the cost-efficient options also exhibit an improved behaviour concerning hedging errors.

In the second part we introduce additional state dependent constraints and determine explicitly optimal claims satisfying these constraints. We give an extension of the classical Merton result on portfolio optimization to the case of state dependent payoffs and consider applications to several optimal hedging and quantile hedging problems.