

Optimal Portfolio Policies under Fixed and Proportional Transaction Costs

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Abstract

We consider the portfolio optimization problem of maximizing the asymptotic growth rate under a combination of fixed and proportional costs. Expressing the asymptotic growth rate in terms of the risky fraction process, the problem can be transformed to controlling a diffusion in one dimension. Then we use the corresponding quasi-variational inequalities to obtain the explicit shape together with the existence of an optimal impulse control strategy. This optimal strategy is given by only four parameters, two for the stopping boundaries and two for the new risky fractions the investor chooses at these times.

Keywords: Asymptotic growth rate; impulse control; fixed and proportional costs; portfolio optimization; transaction costs