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Option on a unit-type closed-end investment fund

Takashi Adachi

Fukushima Medical University,Fukushima City, Fukushima 960-1295, Japan

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Abstract. In this paper we study options on a unit-type closed-end investment fund. These options are included among the exotic options, because the underlying asset of the options is the value process of the investment fund and therefore depends on a fund manager (= an option writer)'s action. We prove that a fair price of such option is represented as the value function of the associated stochastic exit time control problem. Using Hajek's mean comparison theorem, we find an explicit form of the fair option premium in the case of a constant volatility. We also characterize the fair option premium as a limit of a sequence of classical solutions to the associated Hamilton-Jacobi-Bellman equations with a classical Dirichlet boundary condition in the case of a diffusion market model.

Key words: capital guaranteed fund, stochastic exit time control, fair option premium, dynamic programming principle