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Valuation of Hedge Fund Investments under Alternative Fee Structures

We investigate the optimal withdrawal time of a first-loss or shared-loss hedge fund fee structure from an investor's perspective. Given that a hedge fund dynamic follows a geometric Brownian, calculating the optimal withdrawal time entails solving an optimal stopping problem with a continuous piece-wise linear payoff function. In particular, we explicitly solve the problem in the infinite horizon case. Next, we show that there exist two monotonic and continuous early exercise boundaries and derive an early exercise premium integral representation in the finite horizon case. Finally, we analyze the asymptotic behavior of the early exercise boundaries near maturity.