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Abstract

Dollar cost averaging (DCA) is a widely employed investment strategy in financial markets. At the same time it is also well documented that such gradual policy is sub-optimal from the point of view of risk averse decision makers with a fixed investment horizon $T > 0$. However, an explicit strategy that would be preferred by *all* risk averse decision makers did not yet appear in the literature. In this paper, we give a novel proof for the suboptimality of DCA when (log) returns are governed by Lévy processes and we construct a dominating strategy explicitly. The optimal strategy we propose is static and consists in purchasing a suitable portfolio of path-independent options. Next, we discuss a market governed by a Brownian motion in more detail. We show that the dominating strategy amounts to setting up a portfolio of power options. We provide evidence that the relative performance of DCA becomes worse in volatile markets, but also give some motivation to support its use. We also analyse DCA in presence of a minimal guarantee, explore the continuous setting and discuss the (non) uniqueness of the dominating strategy.

Keywords: Lévy process ▪ minimal guarantee ▪ Jensen's inequality ▪ Brownian bridge ▪ hedging ▪ Esscher transform

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