Hedging Strategies Against Path-dependent Contingent Claims

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The construction of hedging strategies against path-dependent contingent claims is one of the most important financial challenges. In the literature, many static and dynamic hedgings are proposed to solve this problem. Since dynamic hedging comprises more relocation opportunities than static one, it is usually superior to static hedging in terms of risk reduction. However, the increasing frequency of portfolio rebalancing costs more transaction fees. Due to the trade-off between risk reduction and transaction costs, we propose a new hedging strategy which rebalances the hedging positions only once during the duration of the contingent claim. We illustrate the proposed hedging strategy for single-asset barrier options and multi-asset Himalaya options when the underlying assets follow the geometric Brownian motion processes. The hedging positions of the portfolio are derived and simulation studies show that the proposed strategy provides good hedging performance for barrier and Himalaya options.