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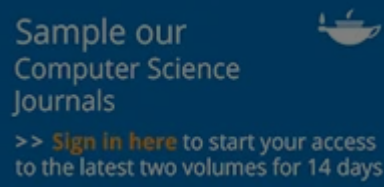
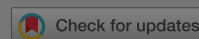
Original Articles

Some contributions to sequential Monte Carlo methods for option pricing

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densities over time. In particular, we approximate the optimal importance sampling distribution in the SMC algorithm by using a sequence of weighting functions. This is demonstrated on two examples, barrier options and target accrual redemption notes (TARNs). We also provide a proof of unbiasedness of our SMC estimate.

KEYWORDS:

- Diffusions
- sequential Monte Carlo
- option pricing

AMS SUBJECT CLASSIFICATION:

- 91G60 (primary)
- 65C05 (secondary)

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

1. We have $\sigma(n, S_n)$ and $\sigma(n, s_n)$ to denote the volatility of the stock price at time n and the volatility of the stock price at time n given the information up to time $n-1$.

2. If μ is a probability measure on \mathbb{R}^d , we propose. If μ is a probability measure on \mathbb{R}^d , it is a full support measure in the local sense if $\mu(B(x, \epsilon)) > 0$ for all $x \in \mathbb{R}^d$ and $\epsilon > 0$.

3. We have $\sigma(n, S_n)$ and $\sigma(n, s_n)$ to denote the volatility of the stock price at time n and the volatility of the stock price at time n given the information up to time $n-1$. There is a typo in the original paper, it should be $\sigma(n, S_n)$ and $\sigma(n, s_n)$.

4. Path of the stock price is simulated using the same random numbers as the SMC algorithm. The SMC algorithm is unreliable when the target distribution is highly multimodal.



Additional information

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