

1038-90-264

Tao Pang* (tpang@ncsu.edu), Department of Mathematics, NCSU, Box 8205, Raleigh, NC 27695, and **Yipeng Yang** and **Dai Zhao**. *Convergence Studies on Monte Carlo Methods for Pricing Mortgage-Backed Securities*.

Monte Carlo method is a widely used tool in modern finance which has been shown to be powerful and flexible. In the problem of pricing Mortgage-Backed Securities (MBS), the Monte Carlo method is considered the best approach so far to apply, because of the special structures of MBS. In classical methods, the Option Adjusted Spread (OAS) is obtained first before estimating the associated Greeks. This convergence is usually very slow and desired accuracy can only be reached by thousands of paths. In this paper, we investigate the convergence speeds of the OAS and the Greeks using the Monte Carlo simulation in pricing mortgage-backed securities. Based on our numerical results, a new approach is proposed to price the Greeks of the MBS. In our approach, only hundreds of paths are needed to obtain the desired accuracy of the Greeks, although the OAS may not reach its desired accuracies. (Received February 11, 2008)