Quantitative Finance > Computational Finance

Error Estimates for Multinomial Approximations of American Options in Merton's Model

Yan Dolinsky

(Submitted on 8 Apr 2010)

We derive error estimates for multinomial approximations of American options in a multidimensional jump--diffusion Merton's model. We assume that the payoffs are Markovian and satisfy Lipschitz type conditions. Error estimates for such type of approximations were not obtained before. Our main tool is the strong approximations theorems for i.i.d. random vectors which were obtained [14]. For the multidimensional Black--Scholes model our results can be extended also to a general path dependent payoffs which satisfy Lipschitz type conditions. For the case of multinomial approximations of American options for the Black--Scholes model our estimates are a significant improvement of those which were obtained in [8] (for game options in a more general setup)

Subjects: **Computational Finance (q-fin.CP)**; Probability (math.PR); Pricing of Securities (q-fin.PR)

Cite as: **arXiv:1004.1575v1 [q-fin.CP]**

Submission history

From: Yan Dolinsky [view email]

[v1] Thu, 8 Apr 2010 10:25:14 GMT (12kb)

Which authors of this paper are endorsers?