

Efficient Pricing of American Options in Models with Stochastic Volatility and Jumps

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Abstract

Several models have been developed in order to account for various imperfections with the standard Black-Scholes-Merton option pricing paradigm. Most prominently are those that attempt to capture the occurrence of random jumps (jump-diffusion assumption) and volatility clustering (stochastic volatility) for the underlying asset. In this talk I present a new, efficient and accurate, numerical procedure to evaluate American options in such models. The technique relies on the efficient combination of (i) the Doob-Meyer decomposition formula for American option prices in a form involving the early exercise surface, and (ii) a coarse approximation of the latter through the least-squares algorithm of Carriere/Longstaff and Schwartz.

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