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American stochastic volatility call option pricing: A lattice based approach

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Abstract

This study presents a new method of pricing options on assets with stochastic volatility that is lattice based, and can easily accommodate early exercise for American options. Unlike traditional lattice methods, recombination is not a problem in the new model, and it is easily adapted to alternative volatility processes. Approximations are developed for European C.E.V. calls and American stochastic volatility calls. The application of the pricing model to exchange traded calls is also illustrated using a sample of market prices. Modifying the model to price American puts is straightforward, and the approach can easily be extended to other non-recombining lattices.

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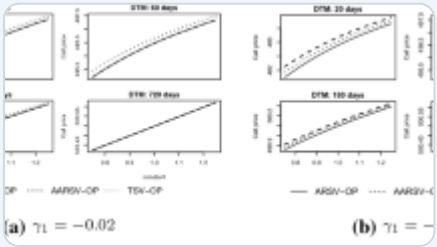

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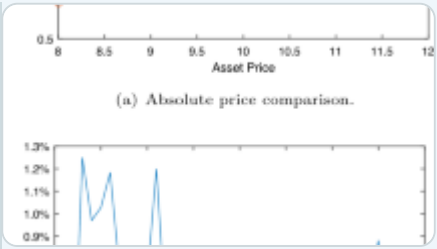

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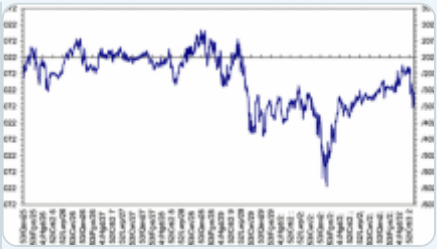

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