Quantitative Finance > Computational Finance

Basket Options Valuation for a Local Volatility Jump-Diffusion Model with the Asymptotic Expansion Method

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In this paper we discuss the basket options valuation for a jump-diffusion model. The underlying asset prices follow some correlated local volatility diffusion processes with systematic jumps. We derive a forward partial integral differential equation (PIDE) for general stochastic processes and use the asymptotic expansion method to approximate the conditional expectation of the stochastic variance associated with the basket value process. The numerical tests show that the suggested method is fast and accurate in comparison with the Monte Carlo and other methods in most cases.

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References & Citations

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