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Short Positions, Rally Fears and Option Markets

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Abstract

Index option pricing on world market indices are investigated using Lévy processes with no positive jumps. Economically this is motivated by the possible absence of longer horizon short positions while mathematically we are able to evaluate for such processes the probability of a rally before a crash. Three models are used to effectively calibrate index options at an annual maturity, and it is observed that positive jumps may be needed for FTSE, N225 and HSI. Rally before a crash probabilities are shown to have fallen by 10 points after July 2007. Typical implied volatility curves for such models are also described and illustrated. They have smirks and never smile.

Key Words:

Spectrally negative processes | implied volatility smiles | two-sided exit problems

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