Option Pricing Using Variance Gamma Markov Chains

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Abstract

This paper proposes a Markov Chain between homogeneous Lévy processesas a candidate class of processes for the statistical and risk neutral dynamicsof financial asset prices. The method is illustrated using the variance gammaprocess. Closed forms for the characteristic function are developed and thisrenders feasible, series and option prices respectively. It is observed inthe statistical and risk neutral process is fit to data on time period of4 to 6 months in a state while this reduces to month for indices. Risk neutrallythere is generally a low probability of a move to a state with higher moments.In some cases this is reversed.

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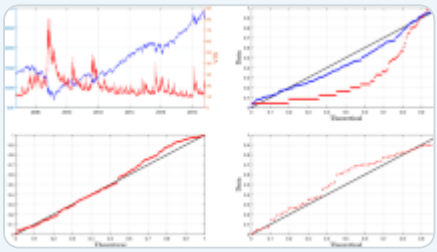

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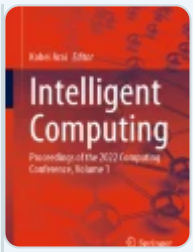

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