**Variance Gamma**

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**Abstract:**

We examine Monte Carlo methods for simulation of Variance Gamma process. We implement algorithms for fitting Variance Gamma density, distribution and quantile functions. We use these to test the empirical evidence of non-normality in financial data. We develop algorithms for pricing European options and geometric Asian options where the underlying evolves as a Variance Gamma process using sequential Monte Carlo methods and benchmark our price against prices from Fourier transform techniques developed in papers based on Variance Gamma process. To reduce variance in our estimates we examine Control Variate, Importance sampling Bridge sampling techniques for Asian options. Finally we use pathwise estimation to develop Greeks for European options.