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Fast and Flexible Non-linear Modeling of Financial Assets

The last few decades have featured numerous examples of delicately inter-related financial products. Stochastic models have gone very far in the financial modeling field. However, many of the complex multi-factor models used at present incur a large computational burden which increases dramatically with the size of the data. We propose a nonlinear framework including observable proxies for latent volatility components. Inference for the proposed framework is very fast and scalable to high frequency data, and therefore amenable to large-scale model comparisons and goodness-of-fit assessments. A number of case studies illustrating the methodology will be presented.