Simulation-based Estimation of Discrete Stochastic Volatility Models and Applications

I/ Overview of the Existing Simulation-based Estimation Methods in the Literature

1) Simulation-based Estimation Methods applied to Classical Univariate Stochastic Volatility Model

- **Gaussian Mixture Sampling**
- **Simulated Method of Moments**
- **Methods based on Importance Sampling**
- **Other SImulation-based Methods** (e.g. Indirect Inference)
- **Other non-Simulation-based Methods** (e.g. QML)

→ Identify the most **performant** and most **robust** methods.

2) Simulation-based Estimation Methods applied to “Sophisticated” Univariate Stochastic Volatility

Models

- **Factor-based Stochastic Volatility Models**
- **Fractionally-integrated Stochastic Volatility Model**

3) Bayesian Methods appplied to Multivariate Stochastic Volatility Models

II/ Detailed Description of the Chosen Method and Implementation

1) Motivation

2) The Method in Details

3) Monte Carlo Experiments

III/ Applications

1) Volatility Risk Premium

2) Portfolio Allocation