

---

**ROMAN MAKAROV**, Wilfrid Laurier University  
*Stochastic Modelling of Assets with Missing Pricing Data*

We present new multivariate diffusion and jump-diffusion models for dealing with financial securities that have missing or asynchronous pricing data. The models allow us to analyze a portfolio that combines a high activity asset such as a market index (or an exchange-traded fund tracking a market index) and several low-activity assets. The models are constructed in such a way that low-activity assets correlate with each other only through the high-activity asset price process. For the calibration of models, we estimate parameters for a high-activity asset first and then estimate parameters for each low-activity asset conditional on the parameters for the high-activity asset. In doing so, we use the maximum likelihood method. For the model that is based on a multivariate geometric Brownian motion, we derive analytical pricing formulas for basket options.