**Local Mispricing and Microstructural Noise: A Parametric Perspective**

Abstract: We extend the classical ''martingale-plus-noise'' model for high-frequency prices to accommodate both price endogeneity and an error correction mechanism. The strength of the price reversal relative to the signal-to-noise ratio separates two regimes, characterized by the signs of the return serial correlation and the bias in the realized variance estimates. We derive the model's properties, discuss parameter identification and estimate the model from data on the NASDAQ 100 constituents. We document randomly alternating regimes of positive and negative return autocorrelation arising from incomplete information and lagged feedback effects, along with intraday periodicities in the speed of price reversion and noise-to-signal ratio. The model links notions from high-frequency statistics and market microstructure theory, opening up new paths for (local) volatility estimation.