

**Testing for An Explosive Bubble Using High-Frequency Volatility**

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Based on a continuous-time stochastic volatility model with a linear drift, we develop a test for explosive behavior in financial asset prices at a low frequency when prices are sampled at a higher frequency. The test exploits the volatility information in the high-frequency data. The method consists of devolating log-asset price increments with realized volatility measures and performing a supremum-type recursive Dickey-Fuller test on the devolating sample. The proposed test has a nuisance-parameter-free asymptotic distribution and is easy to implement. We study the size and power properties of the test in Monte Carlo simulations. A real-time date-stamping strategy based on the devolating sample is proposed for the origination and conclusion dates of the explosive regime. Conditions under which the real-time date-stamping strategy is consistent are established. The test and the date-stamping strategy are applied to study explosive behavior in cryptocurrency and stock markets.