Realized Variance Disagreement

Abstract

We propose realized variance disagreement as a nonparametric measure of segmentation between equity and options markets over a fixed time interval. Defined as the aggregate difference between diffusive variance components of high-frequency asset returns and their risk-neutral conditional short-term expectations recovered from options expiring at the end of the trading day, this statistic captures realized violations of the fundamental no-arbitrage condition that diffusive variance coincides under the physical and risk-neutral probability measures. We derive a central limit theorem that enables feasible inference on integrated variance disagreement between equity and options markets. We further develop market integration tests that can detect spot and integrated variance disagreements. Empirically, we find evidence for episodes of disagreement between equity and options markets.
These periods exhibit mild persistence and differ in magnitude across assets.

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