

## **Drift Sign**

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### **Abstract:**

This paper introduces novel methodologies for estimating the sign of integrated drift in financial time series using intraday high-frequency data. The proposed Realized Half-power Semi-Autocovariance Differential (RHSACD) estimator, combined with a bootstrapping technique for critical values, provides a powerful tool for detecting the presence of drift and determining its directional sign. Additionally, we propose an alternative method based on aggregated truncated returns (TR), incorporating two distinct truncation mechanisms, also supported by a bootstrapping approach for critical values. Through comprehensive theoretical analysis within an infill asymptotic framework and simulation studies, we demonstrate the robust performance of all three methods in identifying both the existence and sign of drift, with the TR method with a time-varying truncation threshold exhibiting slightly superior performance in finite samples. The practical utility of these estimators is highlighted through an application to an intraday momentum trading strategy, where the drift sign estimator facilitates profitable trading outcomes. These findings underscore the importance of accurate drift sign detection in high-frequency financial data and its potential for improving trading strategies and market analysis.