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Intraday Value-at-Risk: An Asymmetric Autoregressive Conditional Duration Approach

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Abstract: We propose to compute the Intraday Value-at-Risk (IVaR) for stocks using real-time transaction data. Tick-by-tick data filtered by price duration are modeled using a two-state asymmetric autoregressive conditional duration (AACD) model, and the IVaR is calculated using Monte Carlo simulation based on the estimated AACD model. Backtesting results for the New York Stock Exchange (NYSE) show that the IVaR calculated using the AACD method outperforms those using the Dionne, Duchesne and Pacurar (2009) and Giot (2005) methods.

JEL Codes: C41, G12

Keywords: High-frequency transaction data, Market microstructure noise, Asymmetric autoregressive conditional duration model, Intraday Value-at-Risk, Backtesting.

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