Jump-robust estimation of realized volatility in the EU Emissions Trading Scheme

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Auteur	Chevallier, Julien [1], Sévi, Benoît [2]
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Résumé en anglais	With the increased availability of high-frequency financial market data in recentyears, the extraction of “realized” volatility (from intraday squared returns) has led to numerous theoretical developments and empirical applications for a wide range of equity and commodity markets. This paper documents the measure of realized volatility in the European Union Emission Trading Scheme (EU ETS) with respect to the presence of microstructure noise and jumps in the estimation procedure. In order to include jumps in the modeling of CO2 intraday volatility returns, we use the bipower variation measure as well as the more recent median realized volatility estimator. To deal with microstructure noise effects we apply Awartani et al’s ZT test to the price series of CO2 intraday futures for both bipower variation and median realized volatility and identify 20-minute returns as the optimal sampling frequency. Subsequently, the empirical analysis of both bipower variation and median realized volatility measures for CO2 prices reveals the presence of around 5% of “significant” jumps, especially during the “panicto- cash” period of October 2008 in the EU ETS, and a lower range of estimates .around OE0I 0:15 for bipower variation and OE0I 0:10 for median realized volatility/ compared with the “naive” estimator .around OE0I 0:23/.
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