

Department of Applied Mathematics and Statistics
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SEMINAR

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January 31, 2008
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

**ARE VOLATILITY ESTIMATORS ROBUST WITH RESPECT TO
MODELING ASSUMPTIONS?**

ABSTRACT

We consider microstructure as an arbitrary contamination of the underlying latent securities price, through a Markov kernel. Special cases include additive error, rounding, and combinations thereof. We take the two scales realized volatility as an example of the volatility estimators. Our main result is that, subject to smoothness conditions, the two scales realized volatility is robust to the form of contamination. To push the limits of our result, we show what happens for some models involving rounding (which is not, of course, smooth) and see in this situation how the robustness deteriorates with decreasing smoothness. Our conclusion is that under reasonable smoothness, one does not need to consider too closely how the microstructure is formed, while if severe non-smoothness is suspected, one needs to pay attention to the precise structure and also the use to which the estimator of volatility will be put.

(This talk is mainly based on a paper of the same title, co-authored with Per A. Mykland.)