

# Forms of Contamination in the Hidden Semimartingale Model

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**Abstract:** The availability of high frequency data for financial instruments has opened the possibility of accurately determining volatility in small time periods, such as one day. Recent work on such estimation indicates that it is necessary to treat the data with a hidden semimartingale model, typically by the addition of measurement error. Another error scheme is presented by “rounding”, which would naturally occur due to the discreteness of prices. More generally, one can consider a Markov kernel contamination of the underlying semimartingale. This talk explores the implications of different such schemes, and the robustness of estimators (such as the two scales realized volatility (TSRV)) to different error types.