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Jia Li* (j1410@duke.edu), Box 90097 Duke Univ, Durham, NC 27708, and **Dacheng Xiu** (dacheng.xiu@chicagobooth.edu), University of Chicago Booth School of Business, 5807 S. Woodlawn Avenue, Chicago, IL 60637. *Generalized Method of Integrated Moments for High-Frequency Data.*

We propose a semiparametric two-step estimation procedure for a finite-dimensional parameter based on integrated moment conditions. These moment conditions take form of temporally integrated functionals of state variable processes, which include the latent stochastic volatility process of an asset. In the first step, we nonparametrically recover the volatility path from high frequency asset returns and then form sample moment functions. A high-order nonlinearity bias due to the nonparametric volatility estimation needs to be corrected. In the second step, we conduct GMM estimation using the bias-corrected sample moment functions. We show that the proposed estimator is consistent and asymptotically mixed Gaussian, and propose a consistent estimator for the conditional asymptotic variance. A Bierens-type consistent specification test is also constructed. These infill asymptotic results are based on a novel empirical-process-type theory for general integrated functionals of noisy semimartingale processes. (Received January 13, 2015)