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H. Peter Boswijk, Roger J.A. Laeven, Xiye Yang

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Testing for Self-Excitation in Jumps

H. Peter Boswijk*
Amsterdam School of Economics
University of Amsterdam
and Tinbergen Institute

Roger J. A. Laeven†
Amsterdam School of Economics
University of Amsterdam, EURANDOM
and CentER

Xiye Yang‡
Department of Economics
Rutgers University

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This paper extends the notion of self-excitation in jumps to a rich class of continuous time semimartingale models, proposes statistical tests to detect its presence in a discretely observed sample path at high frequency, and derives the tests' asymptotic properties. Our statistical setting is semiparametric: except for necessary parametric assumptions on the jump size measure, the other components of the semimartingale model are left essentially unrestricted. We analyze the finite sample performance of our tests in Monte Carlo simulations.

Keywords: Self-excitation; jumps; semimartingale; spot jump intensity; discrete sampling; high frequency data; financial crisis.

JEL classification: C12, C14.

MSC classification: Primary: 62F12, 62M05; Secondary: 60J75, 91B25.

*University of Amsterdam and Tinbergen Institute, PO Box 15867, Amsterdam, 1001 NJ, The Netherlands. Email: H.P.Boswijk@uva.nl, Phone: +31 (0)20 5254316.

†University of Amsterdam, EURANDOM and CentER, PO Box 15867, Amsterdam, 1001 NJ, The Netherlands. Email: R.J.A.Laeven@uva.nl, Phone: +31 (0)20 5254219.

‡Corresponding author. Rutgers University, 75 Hamilton Street, New Jersey Hall, New Brunswick, NJ 08901, USA. Email: xiyeyang@econ.rutgers.edu, Phone: +1 848 932 8655.

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