Ann Inst Stat Math (2018) 70:373–393
https://doi.org/10.1007/s10463-016-0591-8

Self-exciting jump processes with applications to energy markets

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Received: 4 August 2015 / Revised: 20 October 2016 / Published online: 6 January 2017

Abstract In this paper, we discuss a class of mean-reverting, and self-exciting continuous-time jump processes. We give a short overview, with references, of the development of such processes, discuss maximum likelihood estimation, and put them into context with processes that have been proposed recently. More specifically, we introduce a class of SDE-governed intensity processes with varying jump intensity. We study Markovian aspects of this process, and analyse its stability properties. Finally, we consider parameter estimation of our model class with daily quotes of UK electricity prices over a specific period.

Keywords Self-exciting processes · Jump processes · Markov processes · Energy markets

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