Predicting the ultimate maximum of a Lévy process

Erik Baurdoux

London School of Economics and Political Science, UK

Optimal prediction of the ultimate maximum is a non-standard optimal stopping problem in the sense that the pay-off function depends on a process which is not adapted to the given filtration, in this case the ultimate maximum. For a finite time horizon, this problem has been studied in various papers including Graversen, S. E. and Peskir, G. and Shiryaev, A. N. (2001 Theory Probab. Appl.), Du Toit, J. and Peskir, G. (2009 Ann. Appl. Probab.), Bernyk, V., Dalang, R. C. and Peskir, G. (2011 Ann. Probab.). In this work we consider the infinite horizon case for a Lévy process drifting to minus infinity. We also find a more explicit expression for the optimal stopping time in the spectrally one-sided case.

Author's email: e.j.baurdoux@lse.ac.uk