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Portfolio optimization with a self-exciting Jump process

Abstract:
We investigate the classical portfolio optimization problem à la Merton where the risky asset dynamic is driven by a jump process defined by a self-exciting Poisson intensity.
Then we study the PIDE arising from the Hamilton-Jacobi-Bellman equation and, in particular, we check if there exists a solution and whether it is unique and finally we make use of numerical methods to solve the PIDE.
In the last a real case example will be presented.

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