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*Optimal Investment in Markets with Over and Under-Reaction to Information*

In this paper we introduce a new jump-diffusion model for stock prices, which takes into account over and under-reaction of the market to incoming news. The jumps' impact on the assets dynamics is twofold: on one hand we use a Poisson process as a driver to obtain discontinuous trajectories and on the other hand the presence of jumps in the drift, via a shot noise process, allows to incorporate "fade-away" effects, meaning that the effects of these abrupt changes fade away as time goes by. Our model is a partial information one: the drift direction after a jump is not accessible to standard investors immediately after the jump.

We focus on a maximization of expected utility from terminal wealth problem, providing, in a logarithmic utility setting, the optimal investment strategy in explicit form, both under full (i.e., from the insider point of view) and under partial information (i.e., from the standard investor viewpoint). We test our results on real market data relative to Enron and Ahold.

The three main contributions of this paper are: the introduction of a new market model dealing with over and under-reaction to news, the explicit computation of the optimal filter dynamics using an approach based on enlargement of filtrations and the application of the optimal portfolio allocation rule to real market data in both full and partial information setting.