VOLTERRA SANDWICHED VOLATILITY MODEL: MARKOVIAN APPROXIMATION AND HEDGING

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We propose a new market model with a stochastic volatility driven by a general Hölder continuous Gaussian Volterra process, i.e. the resulting price is not a Markov process. On the one hand, it is consistent with empirically observed phenomenon of market memory, but, on the other hand, brings a vast amount of issues of a technical nature, especially in optimization problems. In the talk, we describe a way to obtain a Markovian approximation to the model as well as exploit it for the numerical computation of the optimal hedge. Two numerical methods are considered: Nested Monte Carlo and Least Squares Monte Carlo. The results are illustrated by simulations.

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The present research is carried out within the frame and support of the ToppForsk project nr. 274410 of the Research Council of Norway with title STORM: Stochastics for Time-Space Risk Models.