VALUE-AT-RISK MEASURING FOR SUBDIFFUSION OPTION PRICING MODELS

N. Shchestyuk, S. Tyshchenko
National University "Kyiv-Mohyla Academy", Ukraine
Nataliya.shchestiuk@ukma.edu, Natalyshch@gmail.com

The value-at-risk is a useful tool for investors and can be used for understanding the past and making medium-term and strategic decisions for the future. The paper focuses on the risk measuring in the option price subdiffusive model under the unusual behavior of the market, when the price may not be changed for some time, which is quite a common situation in modern illiquid financial markets or during global crises.

The risk-free bond and classical geometrical Brownian motion (GBM) are time-changed by an inverted inverse Gaussian (IG) subordinator in the model. For option pricing, the two techniques were considered. The first very common approach for the time-changed model is to find option prices as the discounted expected payoff under the risk-neutral measure. The second technique for option pricing is based on a fractional version of what is called Dupire's equation.

The Value-at-Risk evaluating procedure for the proposed model was discussed and we show that this procedure is based on the Fractional Fokker-Planck equation (FFPE).

References

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