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Equal Risk Pricing of Derivatives with Reinforcement Learning

The equal risk pricing methodology for derivatives pricing is introduced. The implementation of the approach based on reinforcement learning with neural networks is discussed. Results from numerical experiments assessing the impact of the risk measure serving as the objective function, the underlying asset model choice and the selection of hedging instruments are presented. The approach is also benchmarked against traditional pricing methods.

The talk is based on the following papers:

Carbonneau, A., & Godin, F. (2021). Equal risk pricing of derivatives with deep hedging. *Quantitative Finance*, 21(4), 593-608.

Carbonneau, A., & Godin, F. (2021). Deep Equal Risk Pricing of Financial Derivatives with Multiple Hedging Instruments. arXiv preprint arXiv:2102.12694.

Carbonneau, A., & Godin, F. (2021). Deep equal risk pricing of financial derivatives with non-translation invariant risk measures. Working paper.