

Superhedging duality for multi-action options under model uncertainty with information delay

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Abstract

We consider the superhedging price of an exotic option under nondominated model uncertainty in discrete time in which the option buyer chooses some action from an (uncountable) action space at each time step. By introducing an enlarged space, we reformulate the superhedging problem for such an exotic option as a problem for a European option, which enables us to prove the pricing-hedging duality. Next, we present a duality result that, when the option buyer's action is observed by the seller up to k periods later, the superhedging price equals the model-based price where the option buyer has the power to look into the future for k -periods.



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