

Robust Pricing of Asian Options

Options are financial instruments whose payoff depends on the evolution of some underlying financial asset. A main theme in mathematical finance is to determine the rational price of a given option. Our problem of interest is the pricing of Asian options, particularly, obtaining robust bounds for them.

We are working in the model-independent framework, therefore, we do not assume any model for the price process. The only thing that we want to use is the available information from the market. We know the prices of liquidly traded options (e.g. European options) for all strikes for a single maturity. This means that we know the marginal distribution of the asset price process. At the same time, there may be many martingales with the same marginal distribution at a single fixed time. Any such martingale is a candidate price process. We are interested in finding the one that maximizes the price of the option. This is exactly the primal problem that will be discussed in the talk, together with the obtained solution.

Also we will focus on the dual problem that has a nice financial interpretation, and suggest the possible approach for the solution.