
ALEXANDER MELNIKOV, University of Alberta

On Market Completions Approach to Option Pricing and Related Questions

We consider a financial market with a reducible incompleteness. It means that the market can be embedded to a complete market by adding new risky assets. We call such embedding as a market completion. In the framework of such a market one can give a dual characterization of upper and lower option prices via maximization/minimization of expectations of discounted payoffs over market completions instead of martingale measures. Moreover, the method also works for the so-called indifference option pricing. To improve option price approximations, we explore a combination of the market completion method and machine learning technique in an incomplete jump-diffusion market model. Finally, we show how this approach work in life insurance applications.