Final Project Description

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1. Final Project Title: Pricing CDS Option
2. Description: The term structure and price of interest rates of various bonds without default risk, which have similar conditions in other aspects, are changed with different maturities and interest rates. The Vasices equilibrium model and the least square method are used to estimate the parameters. The term structure model of bond interest rate is obtained, and then the pricing model of bond is obtained. This paper analyses the shift of interest rate curve, its sensitivity to price change, and the sensitivity of strike price change to option price.
3. Deliverables:
4. CDS pricing problem first needs to convert all market data into discrete data points, which are the sample points for our model parameter estimation.
5. We need to discretizated the Vasicek model then use the model and sample points to estimate model parameters. Option Interest Rate Structure Model Based on Parameters.
6. Monte Carlo method is used to simulate the value of interest rate at each time point. Through the value of interest rate at each time point and coupon at that time point, the discount value of option value can be obtained. Comparing the discount value with the execution price is the option value of implicit option in this simulation. Finally, the corresponding option value on the simulated sample path is obtained.
7. Analyze the sensitivity of interest rate curve translation to bond price after obtaining pricing model
8. Analyzing the Sensitivity of Strike Price Change to Option Price Results - Numerical Results in the form of a table and plot.