

## Hull White Term Structure Simulation

Information input:  
S: asset price  
K: option strike price  
 $\sigma$ : volatility  
a: changing speed of interest rate  
dt: period per year  
Length: Simulation period  
Forward rate: given a forward rate  
Todays: starting date

Using QuantLib to generate  
Hull White process required

Monte Carlo simulation:  
generate 1000 term structures

Monte Carlo simulation:  
GBM => Align the term  
structure into asset price  
simulation

Obtain the payoff of derivative  
at the end of the simulation

Calculate the expected return  
of their present value to  
determine option price

Put and call price