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fd_explicit_bs2d

Input parameters:

- TimeStepNumber N

Output parameters:

- Price
- Delta1
- Delta2

/*Memory Allocation*/

/*Covariance Matrix*/

/*Space localisation*/

Define the integration domain $D = [-l, l]^2$ using probabilistic estimation.

/*Space Step*/

Define the space step $h = \frac{2l}{M}$.

/*Stability Condition Time Step*/

This stability condition is given [there](#)
The Time Step number is given by M .

/*"Probabilities" associated to point*/

/*Terminal Values*/

Put the value of the payoff into a vector P

/*Homegenous Dirichlet Conditions/*

/*Finite difference Cycle/*

At any time step, described by the loop in the variable *TimeIndex*, we have to explicitly the equation (cf. [there](#))

/*Splitting for American case*/

For American options, we compare at each time step the solution in P with the payoff function saved in iv . We save the result in P

/*Price*/

/*Delta*/

cf. [there](#).

/*Memory Desallocation*/