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fd_explicit_bs

Input parameters:

- TimeStepNumber N

Output parameters:

- Price
- Delta

/*Memory Allocation*/

/*Space localisation*/

Define the integration domain $D = [-l, l]$ using inequality [there](#).

/*Space Step*/

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

/*Peclet Condition*/

If $|r - \delta|/\sigma^2$ is not small, then a more stable finite difference approximation is used. [there](#).

/*Stability Condition Time Step*/

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

/*"Probabilities" associated to point*/

cf. [there](#)

/*Terminal Values*/

Put the value of the payoff saved in *Obst* into a vector P which will be used to save the option value.

/*Finite difference Cycle*/

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

/*Splitting for American case*/

For American options, we compare at each time step the solution in S with the payoff function saved in *Obst*. We save the result in P [there](#).

/*Price*/

/*Delta*/

/*Memory Desallocation*/