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tr_coxrossrubinstein

Input parameters:

- StepNumber N

Output parameters:

- Price
- Delta

This is binomial trees with parameters up factor u, down factor d and up probability p_u such that the contractual Strike itself coincides with a final node of the tree. In order to obtain a tree consistent with the Black-Scholes model in the limit of an infinite step number, we have to check two moments matching conditions. Of course, since we are provided with three equations with three unknowns, we cannot impose $u = 1/d$ like in the standard Cox-Rubinstein model. The solution of the system with three equations is easily explicited and we name the corresponding tree MSM (Moments and Strike Matching). The method is very easy to implement, since the parameters are explicitly given. Furthermore, it is possible to exploit the recovered regularity using a two-points Richardson extrapolation : this leads to the MSMR method.
Description of the algorithm is given in there

References