Source | Model | Option
| Model_Option | Help on fd methods | Archived Tests

fd_natalinibriani_affine3d_swaption

Input parameters:

- SpaceStepNumber $N1$
- SpaceStepNumber $N2$
- SpaceStepNumber $N3$

Output parameters:

- Price
- Delta

The instantaneous short rate is defined as a linear combination of 3 factors, $r(t) = \delta + \sum_{j=1} 3x_j(t)$, described by Markov processes $x_j(t)$, $j = 1, 2, 3$, following a Gaussian model:

$$dx_j(t) = -k_j x_j(t)dt + \sigma_j dW_j(t), \qquad j = 1, 2, 3,$$

where:

- δ, k_j, σ_j, are constants for all the factors.
- $W_j(t)$, $j = 1, 2, 3$ are three Brownian motions (under the risk-neutral measure) which are dependent with each other, with instantaneous correlation coefficients ρ_{ij}, for $i, j = 1, 2, 3$.

The algorithm compute the price on an option on coupon bearing.
The EDP associated with the option pricing problem is solved with a finite difference scheme. Details abouts this routine are in there.

References