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ap_fixedasian_levy

Output parameters:

- Price
- Delta

Description: Fixed Asian options are priced with Levy method that fits the parameters of lognormal distribution to the two first moments of arithmetic average [1]
/* Computation of the first two moments */

/* Fit the parameters m,v of lognormal distribution */

/*Adjusted input for Black-Scholes Formula*/

/* Call Price */

Taking the Call price formula from [1]

/* Put Price from Parity*/

Simple calculuous give the call-put parity relationship

$P_{T,t}(K) = C_{T,t}(K) + K * \exp(-r * (T-t)) - S(t) * \exp(-r * (T-t)) * (\exp(-(r-divid) * (T-t)) - 1) * \frac{1}{(T-t)*(r-divid)}$
/*Delta for call option*/

Here we derive the formula from [1] with respect to the variable $S(t)$

/*Delta for put option*/

We use again the call-put parity relation

$\Delta_P = \Delta_C - \exp(-r*(T-t))*(\exp(-(r-divid)*(T-t))-1)*\frac{1}{(T-t)*(r-divid)}$
/*Price*/
/*Delta */

References

[1] E.LEVY. Pricing european average rate currency options. *J.Of International Money and Finance*, 11:474–491, 1992. 1