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## tr\_blackkarasinski1d\_swaption

Black-Karasinski models [1] are defined by an EDS which describes the evolution of the spot rate  $r(t)$ :

$$\left\{ \begin{array}{l} d \ln r_t = (\theta_t - a \ln r_t) dt + \sigma dW(t), \quad r(0) = r_0 \end{array} \right.$$

Where the function  $\theta$  is a deterministic function totally given by the market values of the zero coupon bonds.

The pricing procedure [?] is in two steps: in the first step built the short-rate tree that fit yield curve data, the second step is standard backward pricing algorithm.

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### References

- [1] F.Black and P.Karasinski. Bond and option pricing when short rates are lognormal. *Financial Analyst Journal*, Juli-August:52–59, 1991. 1