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fd_explicit_vasicek1d_zcbond

Input parameters:

- Time StepNumber M

Output parameters:

- Price

The stochastic differential equation representing the short rate is given by

$$dr_t = k(\theta - r_t)dt + \sigma \, dW(t)$$

The price of the zero-coupon bond is solution of the following PDE

$$u_t + \frac{1}{2}\sigma^2 u_{rr} + [k(\theta - r)]u_r - ru = 0 \quad u(r, T, T) = 1$$

that we solve using explicit scheme of Hull-White[1].

References

[1] J.Hull and A.WHITE. Valuing derivative securities using the explicit finite difference method. *Journal of Financial and Quantitative Analysis*, 25:87–100, 1990. 1