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On the resolution of the Vasicek-type interest rate model

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Abstract

This work considers the resolution of the Vasicek-type interest rate model. A deterministic process is adopted to model the random behaviour of interest rate variation as a deterministic perturbation. It shows that the solution of the Vasicek-type interest rate model can be obtained by solving a non-linear semi-infinite programming problem. A relaxed cutting plane algorithm is then proposed for solving the resulting optimization problem. The numerical results illustrate that our approach essentially generates the yield functions with minimal fitting errors and small oscillation.

Keywords:

semi-infinite programming   interest rate model

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