Consistency and model uncertainty in affine interest rate models

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Abstract

Newly arriving market data may be inconsistent with the current model; this is called the recalibration problem. For affine factor models, which are among the most tractable and widely used interest rate models, this is the rule rather than the exception, and one encounters not a risk, but a certainty of model mis-specification. We show in the context of these models that the recalibration problem can be solved by treating model parameters as uncertain and subject to change. Moreover, the model uncertainty can be introduced in a way that preserves the efficiency of Monte Carlo methods. We call the resulting class of "tangent affine" models consistent recalibration (CRC) models. Joint work with David Stefanovits, Josef Teichmann, and Mario V. Wüthrich.

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