Testing Continuous-Time Models of the Spot Interest Rate

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Abstract

Different continuous-time models for interest rates coexist in the literature. We test parametric models by comparing their implied parametric density to the same density estimated nonparametrically. We do not replace the continuous-time model by discrete approximations, even though the data are recorded at discrete intervals. The principal source of rejection of existing models is the strong non-linearity of the drift. Around its mean, where the drift is essentially zero, the spot rate behaves like a random walk. The drift then mean-reverts strongly when far away from the mean. The volatility is higher when away from the mean.

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