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Drift and diffusion function specification for short-term interest rates. (English)

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Summary: Various stochastic differential equation models for short rates (r_t) are proposed, where the change ($\Delta r_t = r_t - r_{t-1}$) is modeled as a sum of drift and diffusion terms depending on r_{t-1} . These models, however, have some shortcomings. First, the same model may not apply to all countries. Second, the drift and diffusion may depend not only on r_{t-1} but also on further lags. Third, not just the own lagged rates, but also other countries' rates may matter. These questions are empirically analyzed for six major countries with the following findings. First, there are considerable differences in drift and diffusion across the countries. Second, the drift and diffusion often depend on r_{t-2} (and r_{t-3}). Third, foreign rates exert substantial effects.

MSC:

91G30 Interest rates, asset pricing, etc. (stochastic models)

62H30 Classification and discrimination; cluster analysis (statistical aspects)

62H10 Multivariate distribution of statistics

Keywords:

short rate; diffusion; spatial correlation

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