

# Statistical problems in a discrete time random field HJM type interest rate model

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## Abstract

We consider some statistical questions arising in a discrete time Heath-Jarrow-Morton (HJM) type forward interest rate model, where the interest rate curves are driven by a geometric spatial autoregression field. Such models were proposed by Gáll, Pap and Zuijlen [2].

Our aim is to test the autoregression parameter. We study strong consistency of the maximum likelihood estimator of the parameter  $\varrho$ . The difficulty is that the underlying sample consists of nonindependent random variables. Moreover, no explicit formula is available for the maximum likelihood estimators of  $\varrho$ .

In the stable ( $|\varrho| < 1$ ) and unstable ( $|\varrho| = 1$ ) cases we showed local asymptotic normality (LAN) of the sequence of the related statistical experiments in [1] in the sense of Le Cam [3], see also Van der Vaart [4]. The main gain of this result is that we obtain at once asymptotically optimal tests.

## References

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