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"No volatility in the rational lognormal model"

Abstract:

Stochastic interest rate models are the main tool used to value fixed income derivative securities. Models with a single factor are especially desirable due to their tractability. However, most standard one-factor models have intrinsic difficulties which make them theoretically implausible. A recent one-factor model to appear in the literature is the Rational Lognormal Model, which resides in the Hughston-Flesaker positive interest framework. While promising at a first glance, it turns out the the volatility seeps out of the model quickly. As a consequence, options are dramatically undervalued.

This lecture gives a brief overview of interest rate models and derivative security valuation. Following this are detailed theoretical and empirical analyses of the Rational Lognormal Model.