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Pricing Average Interest Rate Options in the LIBOR Market Model

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A B S T R A C T

This paper employs the LIBOR market model (LMM) to price average interest rate options, which provides an alternative instrument to hedge interest rate risks at a lower cost. The forward LIBOR rates, modeled in the LMM, exhibit positive rates and are market-observable, which avoids pricing errors arising from negative rates and is easier for calibration. The underlying average rate is calculated by summing LIBOR rates rather than integrating instantaneous short rates, which makes our resulting formulas consistent with market practice. The resulting pricing formulas of average interest rate options are shown to be accurate as compared with the Monte Carlo simulation. The calibration procedure and its practical implementation are also examined.

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