Pricing Average Options under Stochastic Volatility Models

Kenichiro Shiraya^{*}, Akihiko Takahashi[†], Masashi Toda[‡]

Abstract

This paper derives an approximation formula for average options under two stochastic volatility models such as Heston and λ -SABR models by using an asymptotic expansion method. Moreover, numerical examples with various parameters, some of which are obtained by calibration to WTI futures options prices in NYMEX confirm the effectiveness of our formula.

^{*} Mizuho-DL Financial Technology Co., Ltd.

[†] Associate Research Fellow, Financial Services Agency

[‡] Graduate School of Economics, University of Tokyo