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Title: Two asset-barrier option within stochastic volatility models.

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Two asset-barrier option within stochastic volatility models.

Abstract

Financial products which depend on hitting times for two underlying assets have become very popular in the last years, for example double-digital barrier options, two-asset barrier spread options and double lookback options. Analytical expressions of the joint distribution of the maximum and/or minimum values of two assets have been derived by He et al. [15] and Zhou [33],[34] leading to closed-form pricing of those derivatives in the context of constant volatility and correlation. The financial crisis has shown that constant covariances are an assumption which is not valid. Thus, we introduce a third stochastic factor to the geometric Brownian model governing the covariance and derive closed-form expressions for some two-asset barrier options.

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