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Miscellany

Pricing Quanto Equity Swaps in a Stochastic Interest Rate Economy

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Abstra

This pap ... ating rate
swap in ... foreign
stock ret ... c currency.
We use t ... ha to
gener ... d under
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that the ... n the foreign
stock pri ... her
paramet ... e times
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domesti ... nterest rate
and the ... the foreign

stock are more important factors in pricing a quanto equity swap than other correlations.

Keywords:

Equity swaps · term structure of interest rates · risk-neutral valuation · arbitrage-free pricing model

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Notes

In this article, the 'domestic' setting is where the investor lives and receives his/her payoff. For example, to a US investor, US dollar and S&P 500 are his/her domestic currency

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Chance … pays a domesti … on problem consider … urns are conv … ntrast, we conside … this paper.

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The valu

under the

measure are shown in Lemma 1.

This assumption implies that both the domestic and foreign interest rates are normally distributed. Kijima and Muromachi (2001) make the same assumption so as to derive closed-form solutions for other types of equity swaps.

Under this assumption, the HJM model corresponds to the spot rate (extended-Vasicek) model of Hull and White (1990) with mean-reversion coefficients k_d (domestic) and k_f (foreign).

The properties of lognormally distributed variables used here are that the followings hold for normally distributed variables x and y:

Please see the Appendix for the key steps of the derivations.

As pointed out by the referee, this is a simple consequence of the fact that the payment of the equity leg is defined as a 'return' over two consecutive payment dates. If it is de

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