



Estimating the COP Exchange Rate Volatility Smile and the Market Effect of Central Bank Interventions: A CHARN Approach

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In this paper we estimated a volatility model for COP/US under two different samples, one containing the information before the “discretionary interventions” started, and the other using the whole sample. We use a nonparametric approach to estimate the mean and “volatility smile” return functions using daily data. For the pre-interventions sample, we found a nonlinear expected return function and, surprisingly, a non-symmetric “volatility smile”. These lack of linearity and symmetry are related to absolute returns above 1,5% and 1,0%, respectively. We also found that the “discretionary interventions” did not shift the mean response function, but moved the expected returns along the line towards the required levels. In contrast, the “volatility smile” tends to increase in a non-symmetric way after accounting for “discretionary interventions”. The Sep/29/2004 announcement does not seem to have had any effect on the expected conditional mean or variance functions, but the Dec/17/2004 announcement seems to be related to non-symmetric effects on the volatility smile. We concluded that the announcement of discretionary intervention by the monetary authority was more efficient when time and amount were unannounced.

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