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Are implied volatilities more informative? The Brazilian real exchange rate case

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Abstract

This article examines the relation between dollar–real exchange rate volatility implied in option prices and subsequent realized volatility. It investigates whether implied volatilities contain information about volatility over the remaining life of the option that is not present in past returns. Using Generalized Method of Movements [GMM] estimation consistent with telescoping observations evidence suggests that implied volatilities give superior forecasts of realized volatility if compared with Generalized Autoregressive Conditional Heteroskedasticity [GARCH] (p, q) and moving average predictors. Besides, econometric models do not add significant information to that contained in implied volatilities.

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Notes

[1] Jorion (1995), Xu and Taylor (1995), Taylor and Xu (1997), Christensen and Prabhala (1998), Fleming (1998) and Blair et al . (2001).

[2] However, their results depend on the symmetry hypothesis of the loss function used to evaluate forecasts.

[3] There was a major change of regime in January 1999, when Brazil moved from a quasi-fixed to a floating exchange rate. Before February 1999, the dollar-real options market was very illiquid and restricted to deep out-of-the-money calls.

[4] To the best of our knowledge the only paper that addresses this issue for the Brazilian exchange rate is Andrade and Tabak (2001). However, the authors only evaluate two years of data and do not take into account the nature of the options expiration cycle.

[5] The closest-to-the money call for each expiration date is the one whose strike price is nearer to the futures price maturing on the same date.

[6] We employ this approach, using the futures market, because the spot and the options market do not necessarily have the same closing time. Therefore, closing prices would not be synchronous. Since prices from the options and futures markets close simultaneously we avoid the lack of synchronicity that many studies incur.

[7]Xu and Taylor (1995) and Fleming (1998) use options with at least 10 and 15 calendar days to expiration, respectively. Jorion (1995) selects options maturing in more than 3 business days.

[8] We also tested the one-day-ahead conditional volatility and qualitative results are the same.

[9] This approach is also taken by Canina and Figlewski (1993), Jorion (1995), Amin and Ng (1997), Campa and Chang (1998), Christensen and Prabhala (1998) and Blair et al . (2001).

[10] Unit roots tests were done for all series and no evidence of nonstationarity was found for volatility measures.

[11] The R [2] provides a direct assessment of the variability in realized volatility that is explained by the estimates. It is considered a simple gauge of the degree of predictability in the volatility process and hence of the potential economic significance of the volatility forecasts.

[12] This approach of comparing multiple forecasts, often called ‘encompassing regression’, is discussed in Jorion (1995), Christensen and Prabhala (1998) and Campa and Chang (1998).

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