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Long run trends and volatility spillovers in daily exchange rates

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Notes

Whilst non-negativity constraints on the parameters of [Equation 4](#) are sufficient to ensure a non-negative GARCH variance, they are not necessary since weaker sufficiency conditions on the ARCH (∞) inversion of [Equation 4](#) also exist (Nelson and Cao, [1992](#)). For example, in the empirically relevant GARCH (1,2) case below, $\omega > 0$, $\alpha_1 \geq 0$, $\beta_1 \geq 0$ and $(\beta_1 \alpha_1 + \alpha_2) \geq 0$ are sufficient to ensure

, such that α_2 may be negative. For generalizations of this results see Nelson and Cao ([1992](#)) and Drost and Nijman ([1993](#)). However, it remains necessary and sufficient that the sum

in order for a finite unconditional variance to exist, that sum also providing a measure of the persistence of shocks to

, permitting the quantification of shock half lives as $\lambda = [\ln(0.5)/\ln(\rho)]$, and defining the limiting integrated-GARCH (IGARCH) case for $\rho = 1$, $\lambda = \infty$.

See Engle and Lee ([1993](#)) for further details of stationarity and non-negativity conditions

Nevertheless, exchange rates are determined by a common set of fundamental processes, the potential for cointegration relationships between five cointegration of Johansen (1991, 1) equilibrium Diebold (197), test statistics and test subset of



results are not presented here although these are available upon request from the authors.

All the estimation in this paper is executed using EViews 4.0.

Although the AR(1) coefficient for the Lira is statistically insignificant its inclusion was preferred on the basis of the BIC and residual tests.

These results are similar to those presented in Baxter ([1994](#)) for the level of quarterly real exchange rates.

A possible explanation for this difference lies in the fact that the continental European exchange rates have operated under a (semi-) fixed exchange rate regime for much of this period, such that volatility in their exchange rates will be subject to transitory movements within the currencies that were in the exchange rate mechanism, while sterling is determined by its long-run equilibrium value and therefore less prone to transitory movements.

The authors' are grateful to an anonymous referee for suggesting this approach.

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