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# On the application of the dynamic conditional correlation model in estimating optimal time-varying hedge ratios

Yuan-Hung Hsu Ku , Ho-Chyuan Chen & Kuang-Hua Chen

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## Abstract

This article examines the performance of the dynamic conditional correlation (DCC) model in estimating optimal time-varying hedge ratios for the Japanese yen and the US dollar. The results show that the DCC model performs better than the GARCH model in terms of both the accuracy of the hedge ratios and the reduction of the hedging error. The results also show that the DCC model can be used to estimate the optimal hedge ratios for the Japanese yen and the US dollar. The results show that the DCC model performs better than the GARCH model in terms of both the accuracy of the hedge ratios and the reduction of the hedging error. The results also show that the DCC model can be used to estimate the optimal hedge ratios for the Japanese yen and the US dollar.

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# Notes

<sup>1</sup> Bautista ([2003](#)) uses the DCC of Engle to obtain the dynamic correlation between the interest rate and the exchange rate in the Philippines in order to observe its structural changes. Recognizing the dynamic conditional correlation, we instead use this approach, incorporated with ECM, to obtain the variance matrix so as to analyse the hedging effectiveness of foreign currency futures, which is then compared with OLS and other multivariate GARCH hedges.

<sup>2</sup> The hedge ratio is calculated as the ratio of the covariance between spot and futures prices to the variance of the futures price.

<sup>3</sup> For discussions of other hedging strategies, readers can refer to Chen et al. ([2003](#)).

<sup>4</sup> Bollerslev ([1990](#)) decomposes the covariances into SDs and correlations and assumes CCCs between financial variables. Engle and Kroner ([1995](#)) instead propose the BEKK (named after Baba, Engle, Kraft and Kroner) multivariate GARCH model to ensure time-varying second moments and a positive-definite conditional-variance matrix. Its disadvantage is that the parameters cannot be easily interpreted.

<sup>5</sup> Kroner and Sultan ([1993](#)), who were the first to introduce an ECM for the first moment into a multivariate GARCH, studied the hedging effectiveness in five foreign exchange futures markets, which again are examined by Lien and Luo ([1994](#)).

<sup>6</sup> The mi... according... prices, n... the first-... negative... io, + +... futures... ctively. By... and the



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