Using regression techniques to estimate futures hedge ratios, some results from alternative approaches applied to Australian 10 Year Treasury Bond Futures.

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Using data from the Sydney futures market this paper critically assesses some of the potential problems involved in the use of cointegration techniques in the calculation of minimum variance hedge ratios. Following the work of Ghosh (1993a,b) there have been a number of papers which have made use of these techniques. The simple point made by Ghosh, and demonstrated clearly in Lien (1996), is that if spot and future prices are cointegrated then the non-inclusion of an error correction term in the VAR model used to estimate the hedge ratio will lead to mis-specification problems and the under-estimation of the true optimal hedge ratio. Using data from the Sydney Futures Exchange we examine the use of such regression techniques in the calculation of hedge ratios.

In particular we consider the extent to which the stacking of the data into a time series, which effectively constrains the estimated hedge ratio to a single value over the span of the data, influences the results of such techniques. If the hedge ratio differs by contract, the movement from one contract to the next is likely to lead to instability in the estimated regression coefficients. Tests for parameter instability in the estimated regression suggest that this is indeed the case and our conclusion is that it is preferable to consider the estimation of the hedge ratio in a panel setting with each individual contract considered as a panel of data. One problem in the past with such a move has been the lack of tests for cointegration and unit roots in such as setting, fortunately these now available and we take advantage of them in this paper. In such a panel setting we find that the result that the spot and futures prices are cointegrated still holds but that the estimated hedge ratios are not constant between contracts, throwing doubt on the applicability of regression methods which make such an assumption.

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