MODEL SELECTION FOR EFFECTIVE HEDGING:

A COMPARISON BETWEEN CONVENTIONAL AND TIME-VARYING MODELS

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ABSTRACT

This study empirically assesses the calculation and performance of conventional, multi-scale and time varying time varying hedge ratios in the context of the Indian Derivative Market. For this purpose, 3 commodities – Zinc, Kapas and Crude Oil were chosen. These represent the three important segments of the Indian Commodity Market. These spot positions are hedged using futures of Lead, Cotton and Brent Crude. The ordinary log-returns and Wavelet Decomposed returns are calculated (up to Scale 4). The Hedge Ratios are estimated using the OLS Minimum Variance Strategy (Static Hedge) and based on the DCC GARCH model (Time-varying Hedge). The variances of returns are estimated for the Unhedged, Fully Hedged, Optimally Hedged portfolios and for those hedged using the DCC Hedge Ratio. This procedure is repeated for the in-sample and out-sample. Our results indicate that the Wavelet DCC and the DCC GARCH model have the lowest variance based on out-sample performance. Our findings validate and prove the hypothesis that there should exist one unique Hedge Ratio for every hedging horizon.

Keywords: Hedge Ratio, Commodity Markets, Conditional Volatility, Wavelet Decomposition, MGARCH Modelling