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Optimal hedge ratio and hedging effectiveness of stock index futures: evidence from India

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Abstract

In a free capital mobile world with increased volatility, the need for an optimal hedge ratio and its effectiveness is warranted to design a better hedging strategy with future contracts. This study analyses four competing time series econometric models with daily data on NSE Stock Index Futures and S&P CNX Nifty Index. The effectiveness of the optimal hedge ratios is examined through the mean returns and the average variance reduction between the hedged and the unhedged positions for 1-, 5-, 10- and 20-day horizons. The results clearly show that the time-varying hedge ratio derived from the multivariate GARCH model has higher mean return and higher average variance reduction across hedged and unhedged positions. Even though not outperforming the GARCH model, the simple OLS-based strategy performs well at shorter time horizons. The potential use of this multivariate GARCH model cannot be

sublined because of its estimation complexities. However, from a cost of computation point of view, one can equally consider the simple OLS strategy that performs well at the shorter time horizons.

Keywords:

- optimal hedge ratio
- multivariate GARCH model
- stock index futures

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Notes

1. Index futures' trading was started on 12 June 2000 in NSE. We have not considered the first three months of data since initial months on the futures market will have poor trading volumes and liquidity.
2. The entire results can be obtained from the authors upon request.
3. The model is estimated in MATLAB using a GARCH Tool Box.

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