

The role of implied volatility and jump risk component in forecasting realized volatility

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Abstract

This paper examines the forecasting ability of implied jump risk component as well as implied volatility on future realized volatility in stock market. The implied jump risk component could be embedded in variance swap rates when the stock price process has a jump component. This paper measures an implied large jump index by using two model-free measures calculated from option prices and apply it to time series models for realized volatility. The continuous and jump components in realized volatility are applied with implied volatility and large jump index as additional forecasting variables. Based on in-sample forecasting regression, we find that the implied volatility and large jump index incorporate information about future realized volatility. Out-of-sample forecasting evidence suggests that the implied large jump index could be useful in forecasting realized volatility during the 2008-09 financial crisis.

JEL Classification Numbers: C13, C22, C52.

Keywords: implied volatility, jumps, realized volatility, volatility forecasting, options.