Applying a GARCH Model to an Index and a Stock

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Abstract

Can a GARCH model be used to accurately forecast Value at Risk of a single stock and an index portfolio? To answer this question, we fit a GARCH(1,1)-t model to the Samp;P500 index and to a bank's stock. Using this model with a rolling window procedure, we perform 1000 one-day ahead Value at Risk forecasts. These forecasts are then backtested—mainly using Christoffersen's conditional coverage test—after which we draw the conclusion that the model is indeed appropriate for our return series.

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