

Backtesting and Forecasting the DCC-GARCH model

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September 2025

Abstract

Modelling multiple assets requires multivariate approaches to capture co-movements in returns. While GARCH models are well established for volatility forecasting, their extension to multivariate settings allows analysis of portfolio risk. This thesis evaluates the DCC-GARCH(1,1) model, applied to daily stock returns from 2014-2024. Two specifications are considered, with Gaussian and multivariate Student's- t innovations. Their performance is assessed through Value-at-Risk backtesting and statistical tests. Results show that both models capture volatility dynamics well, with only minor differences between the Gaussian and Student's- t distributions.

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