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Persistence and Kurtosis in GARCH and Stochastic Volatility Models

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Abstract

This article shows that the relationship between kurtosis, persistence of shocks to volatility, and first-order autocorrelation of squares is different in GARCH and ARSV models. This difference can explain why, when these models are fitted to the same series, the persistence estimated is usually higher in GARCH than in ARSV models, and, why gaussian ARSV models seem to be adequate, whereas GARCH models often require leptokurtic conditional distributions. We also show that introducing the asymmetric response of volatility to positive and negative returns does not change the conclusions. These results are illustrated with the analysis of daily financial returns.

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