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Small sample properties of GARCH estimates and persistence

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Notes

¹See Drost and Nijman (1993) for further discussion of this topic.

²The general properties of small sample estimates in GARCH models are known in econometrics—Engle et al. (1985), Bollerslev (1988), Diebold and Pauly (1989), and Baillie and Chung (2001). However, they are not well known in applied areas such as finance and economics. In addition, the effects of Bollerslev's (1986) non-negativity condition stigated. X Many va tion, etc.) vould show could be CH models. similar p ³We also ollerslev's non-neg ⁴We g nulations with Chung (2001),⁵We use vergence errors, b ⁶We also log-returns s. The using th results are not reported here, but can be obtained from the authors upon request.

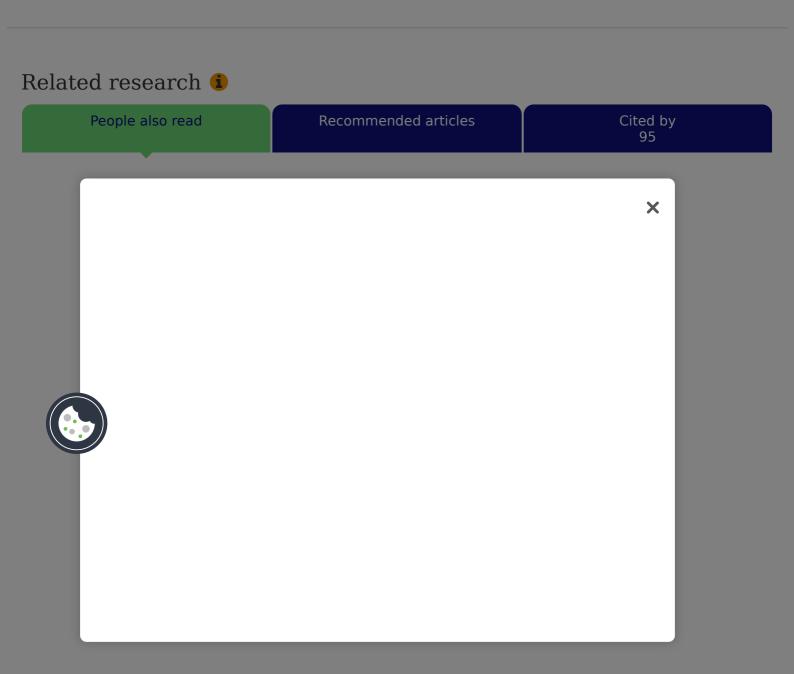
⁷See Nelson (1991), who raises this point.

⁸This is a reason why unit root tests are affected by the presence of MA components; see the simulation results of Phillips and Perron (1988) and Schwert (1989).

⁹The same experiments as those for GARCH models were carried out for SV models for the S&P500 index log-squared returns. The results are consistent with what we found in table 2 and can be obtained from authors by request.

 10 Andersen and Bollerslev (1998) calculate the population R 2 of the ex-post squared return – GARCH(1,1) volatility regression which is $\alpha^2/(1-\beta^2-2~\alpha~\beta)$. Their results are not different from Theorem 1 in the sense that for realistic parameter values of α and β , R 2 is very low and GARCH(1,1) does not explain squared returns well.

¹¹See Equation 4 in the previous section for the autocorrelations of ARCH(1) and GARCH(1,1) models.



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