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Small sample properties of GARCH estimates and persistence

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Abstra

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Keywords

Small sample volatility GARCH persistence

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Notes

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

[2]The 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[illegible] stigated. Many va[illegible]tion, etc.) could be[illegible]would show similar p[illegible]CH models.

[3]We also[illegible]ollerslev's non-neg[illegible]

[4]We c[illegible]nulations with[illegible]l Chung (2001), f[illegible]

[5]We use[illegible]nvergence errors, b[illegible]

[6]We also[illegible]log-returns using th[illegible]s. The results are not reported here, but can be obtained from the authors upon request.

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

[8]This 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).

[9]The 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.

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