Diagnostic Checking Time Series Model with Conditional Heteroscedasticity Estimated by the LAD Approach

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Summary. The recent paper by Peng and Yao (2003) gave an interesting extension of the LAD estimation to generalized autoregressive conditional heteroscedasticity (GARCH) type time series models. Their result provides a useful approach to the robust modelling of such time series. The asymptotic distributions of absolute residual autocorrelations and squared residual autocorrelations from GRACH model estimated by the LAD method are derived in this paper. These results lead to two useful diagnostic tools which can be used to check whether a GARCH model fitted by using the LAD method is adequate or not. Some simulation experiments give further support to the asymptotic theory and an illustrative example is also reported.