The GSHD may be a relevant distributional assumption for finance econometric models. Its flexibility in capturing heterogenous shapes of asset returns is very attractive. For instance, very heavy-tailed data such as those that come from a Cauchy distribution can be approximated by the GSHD, which has the advantage that all moments are finite. A possible direction for our future research is testing nonzero skewness detected in the empirical portion of our current study.

Likelihood surface

GARCH(1,1) residuals are assumed to follow the GSHD.

Adaptive procedures

A selection procedure may be based on either the T or LQW estimator or on a combination of both.

Tail classifiers

We suggest using the Hogg’s T, and Brys’s, LQW, tail classifiers:

\[ T = \frac{X_{0.975} - X_{0.025}}{X_{0.125} - X_{0.875}} \]

\[ LQW_{0.125} = \frac{X_{0.125} + X_{0.875} - 2X_{0.5}}{X_{0.875} - X_{0.125}} \]

where \( X_{·.·} \) are the sample percentiles.

Conclusions

The GSHD may be a relevant distributional assumption for finance econometric models. Its flexibility in capturing heterogeneous shapes of asset returns is very attractive. For instance, very heavy-tailed data such as those that come from a Cauchy distribution can be approximated by the GSHD, which has the advantage that all moments are finite. A possible direction for our future research is testing nonzero skewness detected in the empirical portion of our current study.