
Required Gretl version: 1.8.4**Data requirement: Time-Series****Description: Lo's (1991) modified R/S test**

Help text:

Lo's (1991) modified R/S test

- Null Hypothesis: short-range dependence
- Alternative hypothesis: long-range dependence

Input:

- Variable: Time-series variable to be studied
- Q: # of autocovariances used in the long-run variance. Select -1 to allow the data dependent $Q, T^{(1/3)}$
- CV: Choose the level of the test (1-3): (1) 1%; (2) 5%; (3) 10%. Default: (2) 5%

Output:

scalar [b] Modified R/S test statistic

Note: The long-run variance is computed using the built-in function [Further details: Lo, A.W. (1991) "Long-Term Memory in Stock Market Prices"; *Econometrica*, Vol. 59 (5), pp. 1279-1313].

Reference: Teverovsky, V., Taqqu, M. S., & Willinger, W. (1999). A critical look at Lo's modified R/S statistic. *Journal of statistical Planning and Inference*, 80(1-2), 211-227.**Function written by:**Daniel Ventosa-Santaularia **CIDE**, Mexico City, Mexico.dvs.75e@gmail.comwww.ventosa-santaularia.com

v1.1 cosmetically edited by Sven, with permission.

v1.2 minor corrections. Q selection, several cosmetic changes, reference added.

Sample script:

```
include ModRS_test.gfn
```

```
open data9-7
```

```
# the "2" accounts for the level of the test (5% in this case)
```

```
Tstat = ModRS_test(QNC, 10, 2)
```