This repository contains R scripts and data used in the study by Hong et al. (2023): Hong, Yongmiao and Linton, Oliver B. and McCabe, Brendan and Sun, Jiajing and Wang, Shouyang, Kolmogorov-Smirnov type testing for structural breaks: A new adjusted-range based self-normalization approach. Available at SSRN: https://ssrn.com/abstract=3850894 or http://dx.doi.org/10.2139/ssrn.3850894.

Folder - Simulation

1. **dgp-1-4-alternative1-3.R**
   Purpose: Generates results for DGP 1-4 under alternative hypotheses 1-3.

2. **dgp-1-4-null.R**
   Purpose: Generates results for DGP 1-4 under the null hypothesis.

3. **KS1_KS2_KS3_statistics.R**
   Purpose: Simulates critical values for the KS test statistic using standard asymptotics, the self-normalized KS test based on the self-normalization method proposed by Shao (2010), and the adjusted-range based self-normalized KS test.

4. **EKS-test-critical-values-histogram-density.R**
   Purpose: Simulates critical values for the adjusted-range based KS-type statistics and visualizes the results using histograms and empirical densities.

Folder - Empirical

1. **data.csv**
   Description: Dataset used for empirical analysis.

2. **source-empirical.R**
   Description: Contains source files (functions) used in various analyses.

3. **arma-garch-constancy-parameter.R**
   Purpose: Tests the constancy of parameters for an ARMA(1,1)-GARCH(1,1) model.

4. **constant-correlation.R**
   Purpose: Assesses the suitability of the Constant Correlation (CC) model for the provided data.

5. **dcc-score-parallel.R**
   Purpose: Checks parameter constancy for the DCC-GARCH model.

6. **summary-statistics.R**
   Purpose: Generates summary statistics for the compounded rates of returns of

various stock indices.