

# Supplementary Material for “Testing for Symmetric Correlation Matrices with Applications to Factor Models”

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This supplementary material provides additional simulation results for series with a larger sample size, and additional plots for data applications.

- Figures S1 and S2: Experiment 1 for  $T = 1000$
- Figure S3: Experiment 2 for  $T = 1000$
- Figure S4: Experiment 3 for  $T = 1000$
- Figure S5: Experiment 5 for  $T = 1000$
- Figure S6 and S7: Experiment 6 for  $T = 1000$
- Figure S8: Time series plots for Dataset 1
- Figure S9: Time series plots for Dataset 2
- Figure S10: CCF plots for Dataset 2

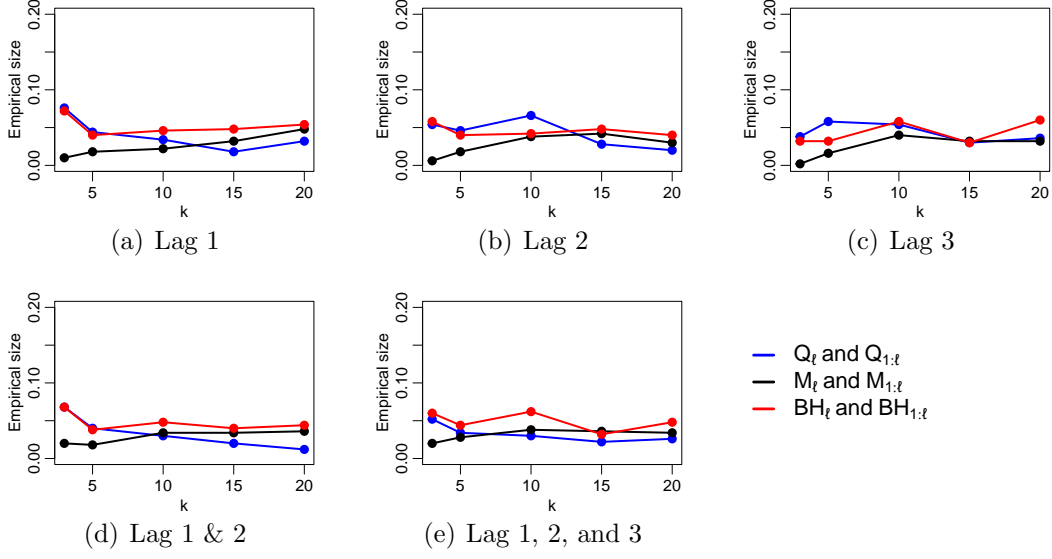


Figure S1: Empirical sizes of the proposed test statistics in Experiment 1 for  $T = 1000$ , based on 500 simulation replicates ( $\alpha = 0.05$ ).

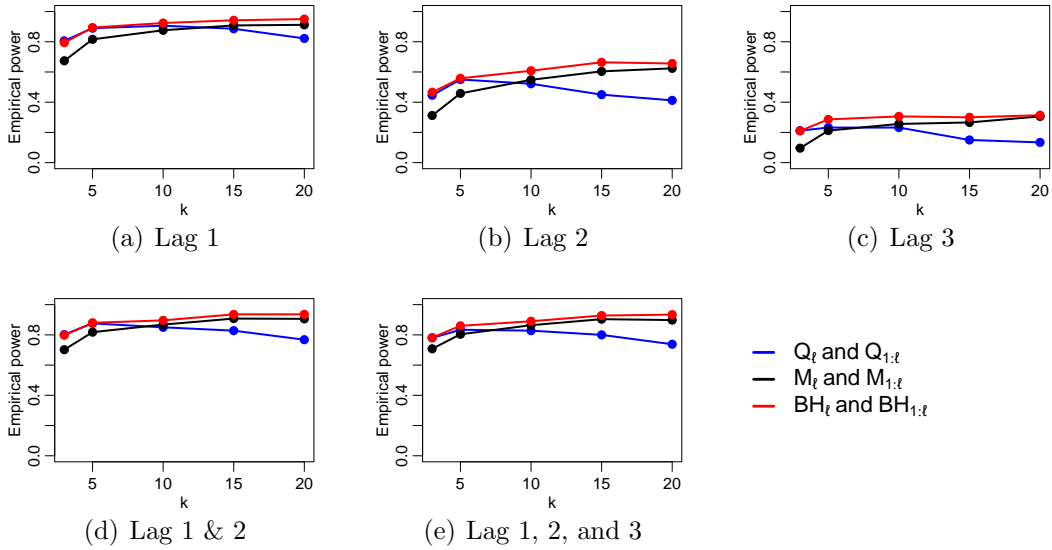


Figure S2: Empirical powers of the proposed test statistics in Experiment 1 for  $T = 1000$ , based on 500 simulation replicates ( $\alpha = 0.05$ ).

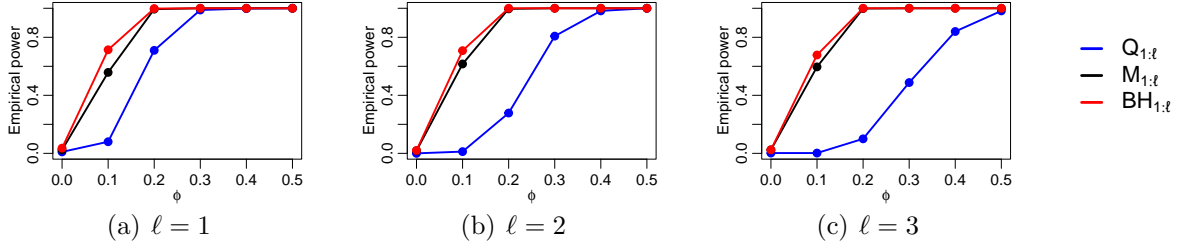


Figure S3: Empirical powers of the proposed test statistics in Experiment 2 for  $T = 1000$ , based on 500 simulation replicates ( $\alpha = 0.05$ ).

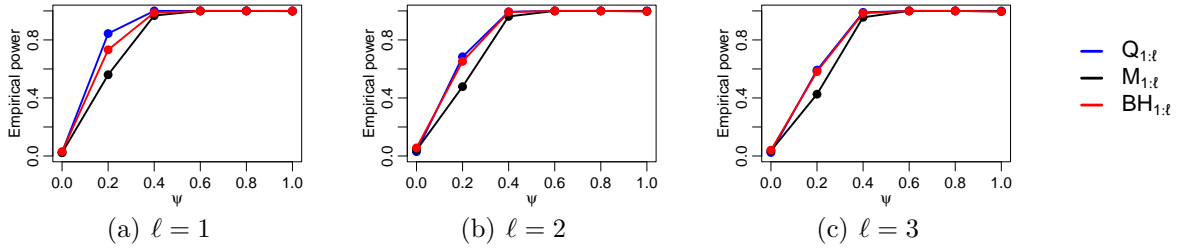


Figure S4: Empirical powers of the proposed test statistics in Experiment 3 for  $T = 1000$ , based on 500 simulation replicates ( $\alpha = 0.05$ ).

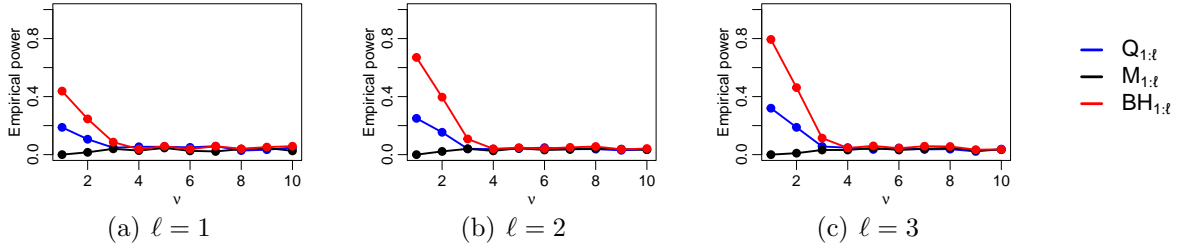


Figure S5: Empirical sizes of the proposed test statistics in Experiment 5 for  $T = 1000$ , based on 500 simulation replicates ( $\alpha = 0.05$ ).

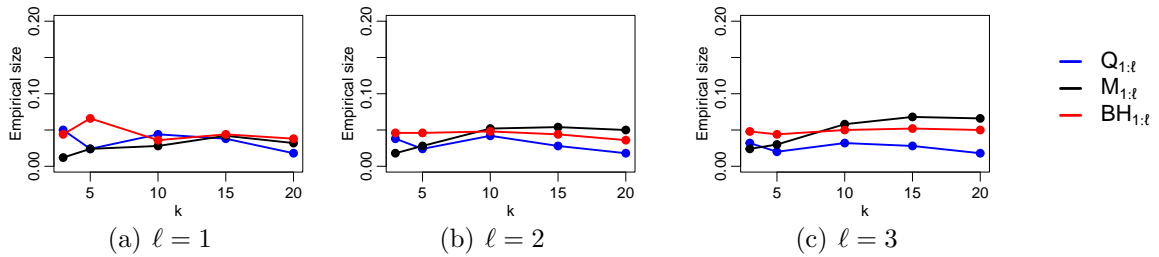


Figure S6: Empirical sizes of joint statistics in Experiment 6 for  $T = 1000$ , based on 500 simulation replicates ( $\alpha = 0.05$ ).

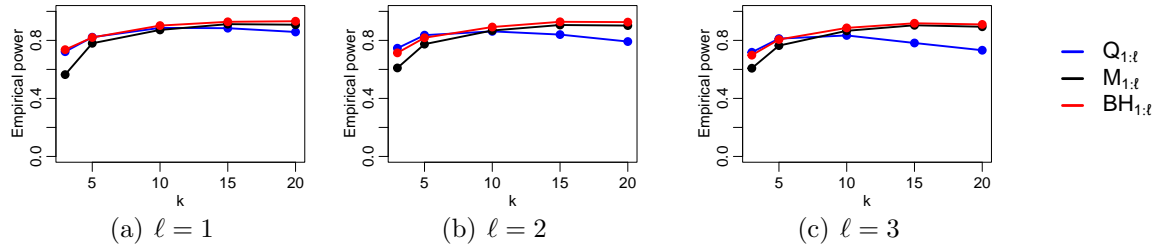


Figure S7: Empirical powers of joint statistics in Experiment 6 for  $T = 1000$ , based on 500 simulation replicates ( $\alpha = 0.05$ ).

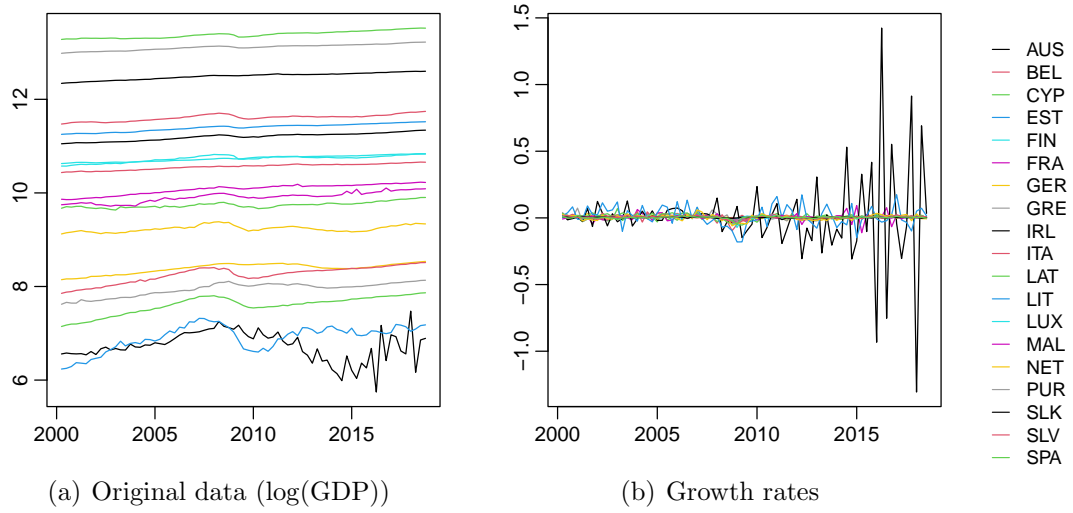


Figure S8: The log series and their growth rates of quarterly gross domestic products of 19 European countries from 2000.II to 2018.IV.

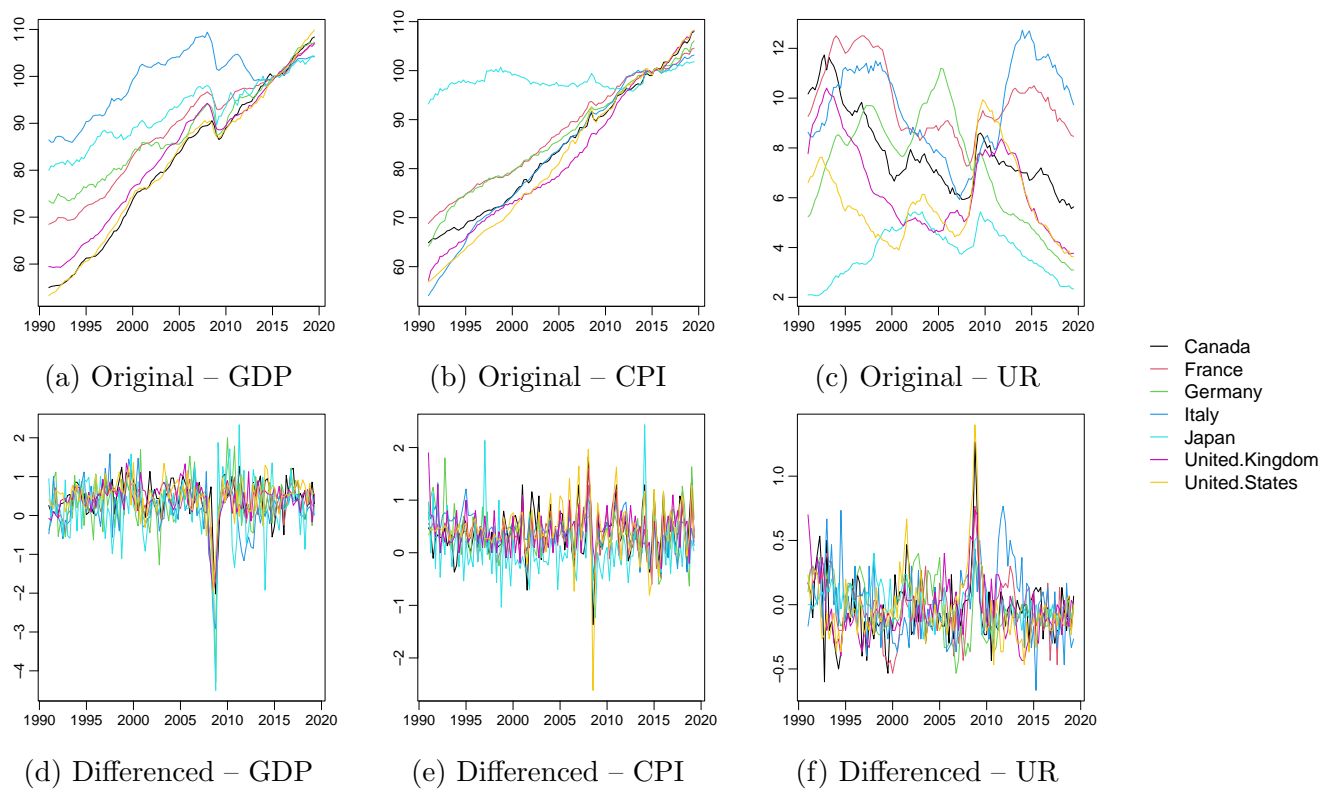


Figure S9: The original and first differenced series of Dataset 2.

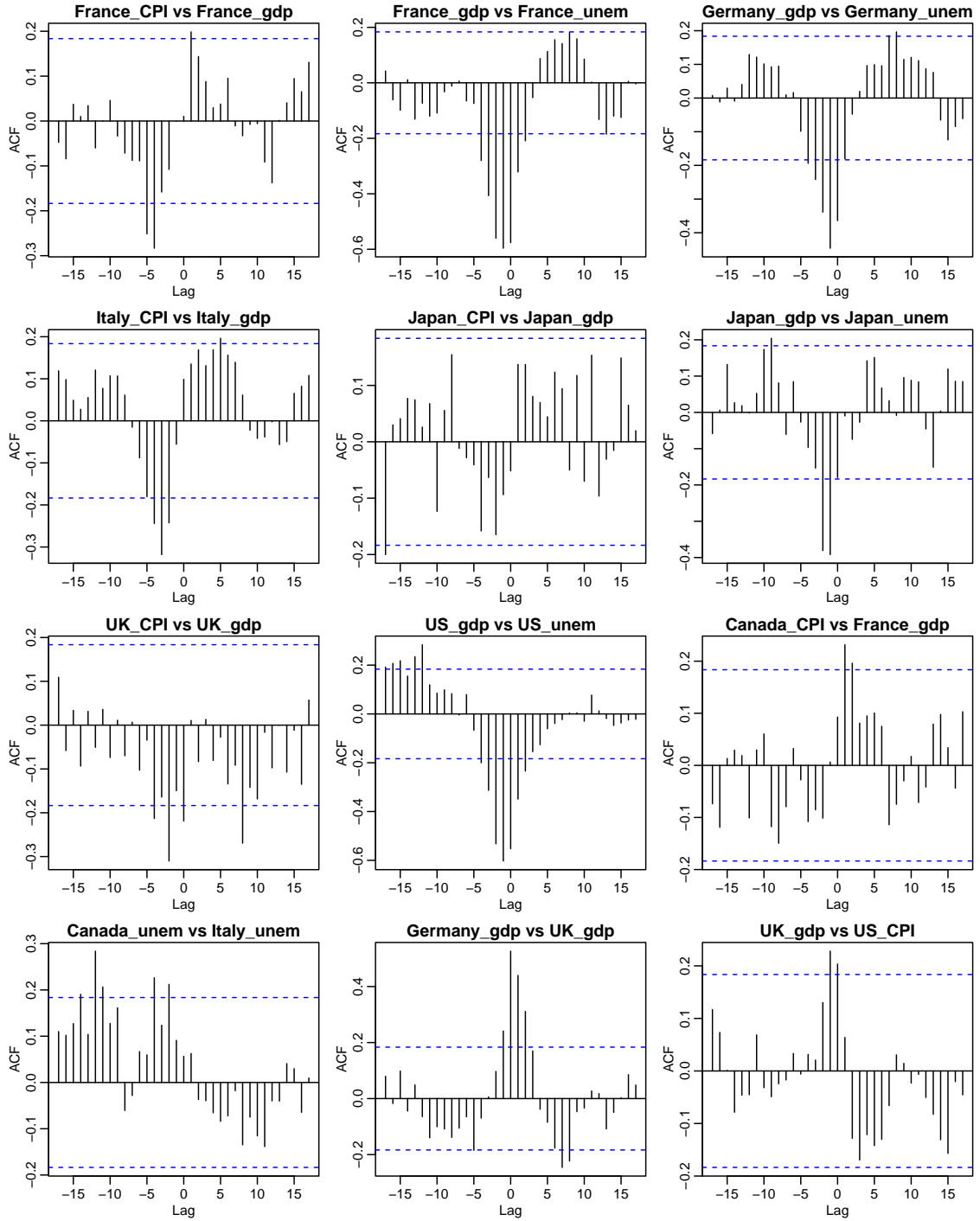


Figure S10: Sample CCFs for the selected pairs of series with the smallest p-values in the BH procedures for Dataset 2.