```
  1  /*
  2
  3  /// Do-file written by Carlos Goes and Rania Papageorgiou
  4  /// for use at Dr Prakash Loungani's Macroeconometrics course
  5  /// at Johns Hopkins SAIS
  6
  7  *** This do file aims at
  8  **** (a) practicing time-series commands in STATA
  9  **** (b) creating 15 random walk series
 10  **** (c) provide examples of spurious regressions
 11
 12
 13   */
 14
 15  capture log close                                              // close any open logs
 16  clear                                                          // clear the memory
 17  set more off                                                   // makes sure STATA won't
     ask you to click "more" to continue running the code
 18  *log using randomwalk, replace                                 // chooses logfile
 19
 20  set obs 1500                                                   // sets up the number of
     observations to 1500
 21
 22  gen t = _n                                                     // generates a continuous
     time variable
 23  tsset t                                                        // sets up time series mode
 24
 25  // 1. Generate 15 random walk series with a loop
 26
 27  local x = 0                                                    // creates a temporary
     coumter that will be used in our loop
 28  while `x' < 16 {                                               // sets up the loop
 29
 30      local x = `x' + 1                                          // makes the counter add
     one everytime the loop restarts
 31      gen r_`x' = 0                                              // generates a new series
     starting with 0
 32      replace r_`x' = l.r_`x' + rnormal(0,1) if t > 1            // sets r_it = r_it-1 +
     [random value with normal distribution, mean=0 & sd=1]
 33
 34  }
 35
 36  // 2. Generate stationary series
 37
 38  gen stationary = rnormal(0,1)
 39
 40  // 3. Plot the random series over time
 41
 42  line stationary t, ///
 43    title("Stationary Series", position(11) margin(vsmall)) ///
 44    subtitle("random numbers with mean = zero", position(11) margin(vsmall)) ///
 45    caption("Source: what SOURCEry is this?") ///
 46    legend(off) name(stationary1, replace)
 47
 48  line stationary r_1-r_3 t, ///
 49    title("Stationary and Random Walk Series", position(11) margin(vsmall)) ///
 50    subtitle("aren't they cool?", position(11) margin(vsmall)) ///
 51    caption("Source: what SOURCEry is this?") ///
 52    legend(off) name(stationary2, replace)
 53
 54  line r_1-r_15 t, ///
 55    title("15 Random Walk Series", position(11) margin(vsmall)) ///
 56    subtitle("aren't they cool?", position(11) margin(vsmall)) ///
 57    caption("Source: what SOURCEry is this?") ///
 58    legend(off) name(rwalk, replace)
 59
 60  // 4. Regress the random series on each other
 61
 62  reg r_13 r_1
 63  reg r_8 r_4
```

```
64   reg r_2 r_11
65   reg r_14 r_3
66
67   /*
68
69   Note that the coefficients will be statistically significant even though the series are
     random,
70
71   That's called a SPURIOUS REGRESSION!
72
73   */
74
```