

```

1
2 *****TIME
3 SERIES CODING SAMPLE
4 import excel "C:\Users\Admin\Desktop\RAE FINAL.xlsx", sheet("Sheet1") firstrow
5   gen year2=quarterly(Year,"YQ")
6   tsset year2, quarterly
7   format year2 %tq
8   lab var rgdp "Real GDP"
9   lab var tb " Trade Balance % of GDP"
10  lab var npi " Net Primary Income % of GDP"
11  lab var CAD " Theoretical Current Account % of GDP"
12  lab var ACA " Actual Current Account % of GDP"
13  lab var BANKRATE " Bank of England bank rate"
14  lab var CAD " Current Account Deficit % of GDP"
15  lab var TBILL " Three Month Treasury bill rate"
16  lab var TEN_YR " Ten year government bond rate"
17  lab var NEER " Nominal effective exchange rate"
18  lab var REER " Real effective exchange rate"
19  lab var LRGDP " Log of real gdp"
20  lab var FB " Fiscal Balance % of GDP"
21  lab var FD " Fiscal Deficit % of GDP"
22  gen RBINT= BANKRATE- INFLATION
23  lab var RBINT "Real Bank Rate"
24  gen RTEN_YR= TEN_YR- INFLATION
25  lab var RTEN_YR "Real Bond Rate"
26  gen rgdpgr= d.LRGDP*100
27  lab var rgdpgr "growth rate of real gdp"
28  gen lREER= ln(REER)
29  gen reergr= d.lREER*100
30  lab var reergr "growth rate of REER"
31  gen dRBINT= d.RBINT
32  gen dRTEN_YR= d.RTEN_YR
33  gen dFD=d.FD
34  gen dCAD=d.CAD
35
36 *To install the kpss and gregory hansen test*
37 ssc install kpss
38 ssc install ghansen
39
40 *after exporting test results some minor adjustments were made in the table layouts in latex,
41 some results were exported manually where a stata command did not exist*
42
43 *ADF TESTS*
44 ac CAD
45 pac CAD
46 line CAD year2
47 dfuller CAD, reg lags(4)
48 dfuller CAD, reg lags(3)
49 dfuller CAD, reg lags(2)
50 * significant two, stationary at 10% p-value 0.07*
51 kpss CAD, notrend qs auto
52
53 line FD year2
54 ac FD
55 pac FD
56 dfuller FD, reg lags(4)
57 dfuller FD, reg lags(3)
58 dfuller FD, reg lags(2)
59 *sig, ns*
60 kpss FD, notrend qs auto
61
62 line LRGDP year2
63 ac LRGDP
64 pac LRGDP
65 *sig ns*
66 dfuller LRGDP, trend reg lags(4)
67 dfuller LRGDP, trend reg lags(3)

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67  dfuller LR GDP, trend reg lags(2)
68  dfuller LR GDP, trend reg lags(1)
69  kpss LR GDP, qs auto
70
71
72  line RBINT year2
73  ac RBINT
74  pac RBINT
75  dfuller RBINT, reg lags(4)
76  dfuller RBINT, reg lags(3)
77  dfuller RBINT, reg lags (2)
78  *sig, ns*
79
80  kpss RBINT, notrend qs auto
81
82  line RTEN_YR year2
83  ac RTEN_YR
84  pac RTEN_YR
85  dfuller RTEN_YR, reg lags(4)
86  dfuller RTEN_YR, reg lags(3)
87  dfuller RTEN_YR, reg lags (2)
88  *sig, ns*
89  kpss RTEN_YR, notrend qs auto
90
91  line REER year2
92  ac REER
93  pac REER
94  dfuller REER, reg lags(4)
95  dfuller REER, reg lags(3)
96  dfuller REER, reg lags(2)
97  dfuller REER, reg lags(1)
98  kpss REER, notrend qs auto
99
100 line REER year2
101 ac ACA
102 pac ca
103 dfuller ACA, reg lags(4)
104 dfuller ACA, reg lags(3)
105 dfuller ACA, reg lags(2)
106 kpss ACA, notrend qs auto
107
108
109
110 est clear
111 tabstat CAD FD REER RBINT RTEN_YR LR GDP, statistics( mean sd median skewness kurtosis N) columns(
statistics)
112 estpost tabstat CAD FD REER RBINT RTEN_YR LR GDP, statistics( mean sd median skewness kurtosis N)
columns(statistics)
113 esttab, replace cells("mean(fmt(%13.2fc)) sd(fmt(%13.2fc)) p50(fmt(%13.2fc))
skewness(fmt(%13.2fc)) kurtosis(fmt(%13.2fc)) count(fmt(%13.0fc))") nonumber nomtitle nonote noobs
booktabs f label collabels ("Mean" "SD" "Median" "Skewness" "Kurtosis" "N") coelabels (CAD
"Current Account" FD "Fiscal Deficit" REER "Real Exchange Rate" RBINT "Real Bank Rate" RTEN_YR
"Real Bond Rate" LR GDP "Log Real GDP")
114 esttab using summary.tex, replace cells(" mean(fmt(%13.2fc)) sd(fmt(%13.2fc)) p50(fmt(%13.2fc))
skewness kurtosis count(fmt(%13.0fc))") nonumber nomtitle nonote noobs label collabels("Mean" "SD"
"Median" "Skewness" "Kurtosis" "N") coelabels(CAD "Current Account deficit" FD "Fiscal Deficit"
REER "Real Exchange Rate" RBINT "Real Bank Rate" RTEN_YR "Real Bond Rate" LR GDP "Log Real GDP")
115
116
117
118 *suggests AIC-2 BIC-1*
119 varsoc LR GDP FD RBINT REER CAD
120 varsoc LR GDP FD RTEN_YR REER CAD
121 *RBINT specification*
122 *serial correlation at one lag*
123 var LR GDP FD RBINT REER CAD, lags(1)
124 varlmar, mlag(4)
125 varstable

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126
127 var LR GDP FD RBINT REER CAD, lags(1/2)
128 varlmar, mlag(4)
129 varstable
130
131
132 *RTEN_YR specification*
133 var LR GDP FD RTEN_YR REER CAD, lags(1)
134 *first order serial correlation*
135 varlmar, mlag(4)
136 varstable
137
138
139 *serial correlation at one lag*
140 var LR GDP FD RTEN_YR REER CAD, lags(1/2)
141 varlmar, mlag(4)
142 varstable
143
144 var LR GDP FD RTEN_YR REER CAD, lags(1/3)
145 varlmar, mlag(4)
146 varstable
147
148 *nominals specification*
149
150 *BANKRATE*
151 *First and Second Order Serial Correlation*
152 var LR GDP FD BANKRATE NEER CAD, lags(1)
153 varlmar, mlag(4)
154
155 var LR GDP FD BANKRATE NEER CAD, lags(1/2)
156 varlmar, mlag(4)
157
158 *TEN_YR*
159 *first and second order serial correlation*
160 var LR GDP FD TEN_YR NEER CAD, lags(1)
161 varlmar, mlag(4)
162
163 var LR GDP FD TEN_YR NEER CAD, lags(1/2)
164 varlmar, mlag(4)
165
166 *Johansen*
167
168 *Reals*
169 *RBINT*
170 *one cointegrating vector*
171 vecrank LR GDP FD RBINT REER CAD, lags(2) trend(constant)
172 *RTEN_YR*
173 *one*
174 vecrank LR GDP FD RTEN_YR REER CAD, lags(3) trend(constant)
175
176 *nominals*
177 *BANKRATE*
178 *one*
179 vecrank LR GDP FD BANKRATE NEER CAD, lags(2) trend(constant)
180
181 *TEN_YR*
182 *one*
183 vecrank LR GDP FD TEN_YR NEER CAD, lags(2) trend(constant)
184
185
186 *For VECMs the Long run estimates were added manually as esttab could'nt export them*
187 *VECMs*
188 constraint define 1 CAD=1
189 constraint define 2 FD=-1
190 constraint define 3 [D_FD]L._ce1=0
191 constraint define 4 [D_CAD]L._ce1=0
192 constraint define 5 [D_REER]L._ce1=0
193 constraint define 6 [D_RBINT]L._ce1=0

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194 constraint define 7 [D_NEER]L._ce1=0
195 constraint define 8 [D_BANKRATE]L._ce1=0
196 constraint define 9 [D_LRGP]L._ce1=0
197 constraint define 10 LRGP=0
198 constraint define 11 RTEN_YR=0
199 constraint define 12 RBINT=0
200 constraint define 13 REER=0
201 constraint define 14 CAD=0
202 constraint define 15 FD=0
203 constraint define 16 FD=1
204 constraint define 17 TCA=1
205 constraint define 18 NEER=0
206
207
208
209 est clear
210 *RBINT*
211 eststo: vec LRGP FD RBINT REER CAD, trend(constant) bconstraints(1) lags(2)
212 *first order serial correlation*
213 vecmlar, mlag(4)
214 mat A= r(lm)
215 mat colnames A = "Lags" "chi2" "df" "P-value"
216 esttab mat(A, fmt(0 2 0 4)), nomtitles
217
218 outtable using vecmlarrint2.tex, mat(A) center f(%9.0f %9.2f %9.0f %9.4f )
219
220 eststo: vec LRGP FD RBINT REER CAD, trend(constant) bconstraints(1) lags(3)
221 *no first order serial correlation, but FD no longer significant *
222 vecmlar, mlag(4)
223 vecstable, graph
224
225
226 *reject an overidentifying restrictions test with p value 0.036*
227 eststo:vec LRGP FD RBINT REER CAD, trend(constant) bconstraints(1 2) lags(3)
228 *no first order serial correlation, but FD no longer significant *
229 vecmlar, mlag(4)
230 vecstable, graph
231
232 *Testing for zero restriction on RBINT, can only be marginally rejected- pvalue 0.055*
233 vec LRGP FD RBINT REER CAD, trend(constant) bconstraints(1 12) lags(3)
234 vecstable, graph
235 esttab est1 est2 est3 using rintvecm.tex, se(%9.3f) b(%9.3f) star(* 0.10 ** 0.05 *** 0.01) noobs
    k(L._ce1) mtitles("Model A" "Model A(i)" "Model A(ii)")
236
237
238 *RTEN_YR*
239 * 1:-0.42, CAD and REER not adjusting*
240 eststo:vec LRGP FD RTEN_YR REER CAD, trend(constant) bconstraints(1) lags(3)
241 *no serial correlation *
242 vecmlar, mlag(4)
243
244 vecstable, graph
245
246 *cannot reject the test of overidentifying restrictions that FD and CAD move 1 to 1 but the vecm
does not converge suggesting the model does not fit the data well*
247 eststo:vec LRGP FD RTEN_YR REER CAD, trend(constant) bconstraints(1 16) lags(3)
248 *no serial correlation *
249 vecmlar, mlag(4)
250 vecstable, graph
251
252 *cannot reject the null that FD seems to be driving the system at the 5% level with a pvalue of
0.06 but the FD becomes insignificant in the long run equation*
253 eststo:vec LRGP FD RTEN_YR REER CAD, trend(constant) bconstraints(1) aconstraints(3) lags(3)
254 *no serial correlation *
255 vecmlar, mlag(4)
256 vecstable, graph
257
258

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259  * we do not reject the null that CAD seems to be driving the system, the long run relation ship
    is 1:-0.36, however REER still not adjusting*
260  eststo:vec LR GDP FD RTEN_YR REER CAD, trend(constant) bconstraints(1) aconstraints(4) lags(3)
261  *no serial correlation *
262  vec lmar, mlag(4)
263  vec stable, graph
264
265
266  *we do not reject the null that REER seems to be driving the system, the long run relation ship
    is 1:-0.414, however CAD still not adjusting*
267
268  eststo:vec LR GDP FD RTEN_YR REER CAD, trend(constant) bconstraints(1) aconstraints(5) lags(3)
269  *no serial correlation *
270  vec lmar, mlag(4)
271  vec stable, graph
272
273  *cannot reject the overidentifying restricitons that REER and CAD seem to be driving the system*
274  eststo:vec LR GDP FD RTEN_YR REER CAD, trend(constant) bconstraints(1) aconstraints(5 4) lags(3)
275  *no serial correlation *
276  vec lmar, mlag(4)
277  vec stable, graph
278  predict res, resid
279  tsline res
280
281
282  esttab est4 est5 est6 est7 est8 est9 using rten_yrvecmx.tex, se(%9.3f) b(%9.3f) star(* 0.10 **
    0.05 *** 0.01) noobs k(L._ce1) mtitles("Model B(i)" "Model B(ii)" "Model B(iii)" " "Model B(iv)" "
    "Model B(v)" " "Model B(vi)" ")
283
284
285
286  *nominals*
287  *Bank rate*
288
289  eststo:vec LR GDP FD BANKRATE NEER CAD, trend(constant) bconstraints(1) lags(2)
290  vec lmar, mlag(4)
291  vec stable, graph
292
293
294  *TEN_YR*
295  vec LR GDP FD TEN_YR NEER CAD, lags(2) trend(constant) bconstraints(1)
296  *first order serial corr at 5%*
297  vec lmar, mlag(4)
298  vec stable, graph
299
300  *1:0.2, only sig at 10%, CAD NEER non adjusting*
301  eststo:vec LR GDP FD TEN_YR NEER CAD, lags(3) trend(constant) bconstraints(1)
302  vec lmar, mlag(4)
303  vec stable, graph
304
305  *cannot reject the test of overidentifiygn restrictions that FD and CAD diverge 1 to 1 at 10%
    level but the vecm does not converge suggesting the model does not fit the data well*
306  vec LR GDP FD TEN_YR NEER CAD, lags(3) trend(constant) bconstraints(1 16)
307  vec lmar, mlag(4)
308  vec stable, graph
309
310  *cannot reject the null that FD drives the system at the 10% level, but the long run coefficient
    on FD is no longer significant*
311  eststo: vec LR GDP FD TEN_YR NEER CAD, lags(3) trend(constant) bconstraints(1) aconstraints(3)
312  vec lmar, mlag(4)
313  vec stable, graph
314
315  *cannot reject null that CAD drives the system, NEER still not adjusting and at 10%, 1:-0.2*
316  eststo:vec LR GDP FD TEN_YR NEER CAD, lags(3) trend(constant) bconstraints(1) aconstraints(4)
317  vec lmar, mlag(4)
318  vec stable, graph
319
320  *cannot reject that NEER drives the system, but FD and NEER no longer signifcant in the long run

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equation*
321 eststo:vec LR GDP FD TEN_YR NEER CAD, lags(3) trend(constant) bconstraints(1) aconstraints(7)
322 vec lmar, mlag(4)
323 vecstable, graph
324
325 *same result as above*
326 vec LR GDP FD TEN_YR NEER CAD, lags(3) trend(constant) bconstraints(1) aconstraints( 4 7)
327 vec lmar, mlag(4)
328 vecstable, graph
329
330 esttab est10 est11 est12 est13 est14 using ten_yrvecmx.tex, se(%9.3f) b(%9.3f) star(* 0.10 **
0.05 *** 0.01) noobs k(L._ce1) mtitles("Model A" "Model B(i)" "Model B(iii)" "Model B(iv)"
"Model B(v) ")
331
332
333
334 *IRFS*
335 * Choleski Decomposition*
336 matrix A0=(.,0,0,0,0 \.,.,0,0,0 \.,.,.,0,0 \.,.,.,.,0 \.,.,.,.,.)
337 matrix B0= (1,0,0,0,0 \ 0,1,0,0,0 \ 0,0,1,0,0 \ 0,0,0,1,0 \ 0,0,0,0,1)
338
339 var LR GDP FD RTEN_YR REER CAD, lags(1/3)
340 irf set raefinal
341 irf create modelB, step(40)
342 irf table oirf, irf(modelB) impulse(FD CAD) response(FD CAD REER RTEN_YR)
343 irf graph oirf, irf(modelB) impulse(FD) response(CAD FD REER RTEN_YR)
344 irf graph oirf, irf(modelB) impulse(CAD) response(CAD FD REER RTEN_YR)
345
346
347 vec LR GDP FD RTEN_YR REER CAD, trend(constant) bconstraints(1) aconstraints(5 4) lags(3)
348 irf create modelbvi, step(40)
349 irf table oirf, irf(modelbvi) impulse(CAD) response(FD CAD REER RTEN_YR)
350 irf graph oirf, irf(modelbvi) impulse(CAD) response(FD CAD REER RTEN_YR)
351
352
353 *Toda and Yamamoto test*
354 var LR GDP FD RTEN_YR REER CAD, lags(1/3) exo(14.LR GDP 14.FD 14.RTEN_YR 14.REER 14.CAD)
355 vargranger
356
357 *Testing for zero restriction on RBINT, can only be marginally rejected- pvalue 0.055*
358 eststo: vec LR GDP FD RBINT REER CAD, trend(constant) bconstraints(1 12) lags(3)
359 esttab est15 using zero.tex, se(%9.3f) b(%9.3f) star(* 0.10 ** 0.05 *** 0.01) noobs k(L._ce1)
mtitles("Model A(Zero Restriction)")
360
361
362 *Gregory Hansen Cointegration test*
363 ghansen LR GDP FD RTEN_YR REER CAD, break(regime) lagmethod(bic)
364
365 *Exporting ADF results*
366
367 mat stats= J(6,6,.)
368 dfuller CAD, reg lags(2)
369 mat stats[1,1]= r(Zt)
370 mat stats[1,2]= r(cv_1)
371 mat stats[1,3]= r(cv_5)
372 mat stats[1,4]= r(cv_10)
373 mat stats[1,5]= r(p)
374 mat stats[1,6]= r(lags)
375 dfuller FD, reg lags(2)
376 mat stats[2,1]= r(Zt)
377 mat stats[2,2]= r(cv_1)
378 mat stats[2,3]= r(cv_5)
379 mat stats[2,4]= r(cv_10)
380 mat stats[2,5]= r(p)
381 mat stats[2,6]= r(lags)
382 dfuller LR GDP, trend reg lags(1)
383 mat stats[3,1]= r(Zt)
384 mat stats[3,2]= r(cv_1)

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385  mat stats[3,3]= r(cv_5)
386  mat stats[3,4]= r(cv_10)
387  mat stats[3,5]= r(p)
388  mat stats[3,6]= r(lags)
389  dfuller RBINT, reg lags (2)
390  mat stats[4,1]= r(Zt)
391  mat stats[4,2]= r(cv_1)
392  mat stats[4,3]= r(cv_5)
393  mat stats[4,4]= r(cv_10)
394  mat stats[4,5]= r(p)
395  mat stats[4,6]= r(lags)
396  dfuller RTEN_YR, reg lags (2)
397  mat stats[5,1]= r(Zt)
398  mat stats[5,2]= r(cv_1)
399  mat stats[5,3]= r(cv_5)
400  mat stats[5,4]= r(cv_10)
401  mat stats[5,5]= r(p)
402  mat stats[5,6]= r(lags)
403  dfuller REER, reg lags(1)
404  mat stats[6,1]= r(Zt)
405  mat stats[6,2]= r(cv_1)
406  mat stats[6,3]= r(cv_5)
407  mat stats[6,4]= r(cv_10)
408  mat stats[6,5]= r(p)
409  mat stats[6,6]= r(lags)
410
411  mat rownames stats= "CA" "FD" "LRGDP" "RBINT" "RTEN_YR" "REER"
412
413  mat colnames stats= "Z" "CV-1%" "CV-5%" "CV-10%" "P-value" "Lags"
414
415  esttab matrix(stats, fmt(2 2 2 2 2 0)),nomtitle
416
417
418  outtable using adfstats.tex, replace mat(stats) center f(%9.2f %9.2f %9.2f %9.2f %9.2f %9.0f )
419
420
421
422  * Exporting veclmar results*
423  veclmar, mlag(4) estimates(est2)
424  mat Ai= r(lm)
425  mat colnames Ai = "Lags" "chi2" "df" "P-value"
426  esttab mat(Ai, fmt(0 2 0 4)),nomtitles
427  outtable using Ai, mat(Ai) center f(%9.0f %9.2f %9.0f %9.4f )
428
429  veclmar, mlag(4) estimates(est3)
430  mat Aii= r(lm)
431  mat colnames Ai = "Lags" "chi2" "df" "P-value"
432  esttab mat(Aii, fmt(0 2 0 4)),nomtitles
433  outtable using Aii, mat(Aii) center f(%9.0f %9.2f %9.0f %9.4f )
434
435  veclmar, mlag(4) estimates(est4)
436  mat Bi= r(lm)
437  mat colnames Bi = "Lags" "chi2" "df" "P-value"
438  esttab mat(Bi, fmt(0 2 0 4)),nomtitles
439  outtable using Bi, mat(Bi) center f(%9.0f %9.2f %9.0f %9.4f )
440
441  veclmar, mlag(4) estimates(est5)
442  mat Bii= r(lm)
443  mat colnames Bii = "Lags" "chi2" "df" "P-value"
444  esttab mat(Bii, fmt(0 2 0 4)),nomtitles
445  outtable using Bii, mat(Bii) center f(%9.0f %9.2f %9.0f %9.4f )
446
447  veclmar, mlag(4) estimates(est6)
448  mat Biii= r(lm)
449  mat colnames Biii = "Lags" "chi2" "df" "P-value"
450  esttab mat(Biii, fmt(0 2 0 4)),nomtitles
451  outtable using Biii, mat(Biii) center f(%9.0f %9.2f %9.0f %9.4f )
452

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```
453  veclmar, mlag(4) estimates(est7)
454  mat Biv= r(lm)
455  mat colnames Biv = "Lags" "chi2" "df" "P-value"
456  esttab mat(Biv, fmt(0 2 0 4)),nomtitles
457  outtable using Biv, mat(Biv) center f(%9.0f %9.2f %9.0f %9.4f )
458
459  veclmar, mlag(4) estimates(est8)
460  mat Bv= r(lm)
461  mat colnames Bv = "Lags" "chi2" "df" "P-value"
462  esttab mat(Bv, fmt(0 2 0 4)),nomtitles
463  outtable using Bv, mat(Bv) center f(%9.0f %9.2f %9.0f %9.4f )
464
465  veclmar, mlag(4) estimates(est9)
466  mat Bvi= r(lm)
467  mat colnames Bvi = "Lags" "chi2" "df" "P-value"
468  esttab mat(Bvi, fmt(0 2 0 4)),nomtitles
469  outtable using Bvi, mat(Bvi) center f(%9.0f %9.2f %9.0f %9.4f)
470
471
472  veclmar, mlag(4) estimates(est10)
473  mat a= r(lm)
474  mat colnames a = "Lags" "chi2" "df" "P-value"
475  esttab mat(a, fmt(0 2 0 4)),nomtitles
476  outtable using a, mat(a) center f(%9.0f %9.2f %9.0f %9.4f )
477
478  veclmar, mlag(4) estimates(est11)
479  mat bi= r(lm)
480  mat colnames bi = "Lags" "chi2" "df" "P-value"
481  esttab mat(bi, fmt(0 2 0 4)),nomtitles
482  outtable using ba, mat(bi) center f(%9.0f %9.2f %9.0f %9.4f )
483
484  veclmar, mlag(4) estimates(est12)
485  mat biii= r(lm)
486  mat colnames biii = "Lags" "chi2" "df" "P-value"
487  esttab mat(biii, fmt(0 2 0 4)),nomtitles
488  outtable using bc, mat(biii) center f(%9.0f %9.2f %9.0f %9.4f )
489
490  veclmar, mlag(4) estimates(est13)
491  mat biv= r(lm)
492  mat colnames biv = "Lags" "chi2" "df" "P-value"
493  esttab mat(biv, fmt(0 2 0 4)),nomtitles
494  outtable using bd, mat(biv) center f(%9.0f %9.2f %9.0f %9.4f)
495
496
497  veclmar, mlag(4) estimates(est14)
498  mat bv= r(lm)
499  mat colnames bv = "Lags" "chi2" "df" "P-value"
500  esttab mat(bv, fmt(0 2 0 4)),nomtitles
501  outtable using be, mat(bv) center f(%9.0f %9.2f %9.0f %9.4f)
502
503
```