```
                                                      ___  ____  ____  ____  ____(R)
                                                     /__    /   ____/   /   ____/
                                                    ___/   /   /___/   /   /___/
                                                      Statistics/Data Analysis

                                                         User: PT

  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
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Notes:
      1.  (/v# option or -set maxvar-) 5000 maximum variables

1 . use "F:\Tese\Tratamento dos dados\Dados\Portugal\BD\BD PT regressão B3.dta"

2 . log using "F:\Tese\Tratamento dos dados\Dados\Portugal\Resultados\Dados em painel\Output EF P
> l"
-------------------------------------------------------------------------------
      name:  <unnamed>
       log:  F:\Tese\Tratamento dos dados\Dados\Portugal\Resultados\Dados em painel\Output EF P
> l
  log type:  smcl
 opened on:  20 Jul 2016, 14:14:23

3 . regress BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT

      Source |       SS       df       MS              Number of obs =    3430
-------------+------------------------------           F(  7,  3422) =  338.65
       Model |  43.1261885     7  6.16088408           Prob > F      =  0.0000
    Residual |  62.2539574  3422  .018192273           R-squared     =  0.4092
-------------+------------------------------           Adj R-squared =  0.4080
       Total |  105.380146  3429  .030732034           Root MSE      =  .13488

------------------------------------------------------------------------------
        BCCO |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          ET |    .031006   .0094709     3.27   0.001     .0124369    .0495751
        DLAT |   .0507872    .003233    15.71   0.000     .0444485    .0571259
         ROI |   .6280737   .0394464    15.92   0.000     .5507328    .7054145
        ROI2 |    .538216   .0419131    12.84   0.000     .4560388    .6203932
         TAN |  -.2589449   .0085635   -30.24   0.000     -.275735   -.2421548
       RISVT |  -.2572456   .0194138   -13.25   0.000    -.2953094   -.2191818
     R_RISVT |   .4652887   .1709095     2.72   0.007     .1301938    .8003836
       _cons |   .6419589   .0100266    64.03   0.000     .6223002    .6616177
------------------------------------------------------------------------------

4 .
5 . estat ovtest

Ramsey RESET test using powers of the fitted values of BCCO
       Ho:  model has no omitted variables
                F(3, 3419) =     34.22
                  Prob > F =      0.0000
```

```
 6 .
 7 . estat ovtest, rhs
   (note:  ROI dropped because of collinearity)
   (note:  ROI^3 dropped because of collinearity)

   Ramsey RESET test using powers of the independent variables
          Ho:  model has no omitted variables
                  F(20, 3403) =     45.91
                     Prob > F =      0.0000

 8 .
 9 . pwcorr BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, sig star(.05)
```

	BCCO	ET	DLAT	ROI	ROI2	TAN	RISVT
BCCO	1.0000						
ET	-0.0998*	1.0000					
	0.0000						
DLAT	0.0509*	0.2454*	1.0000				
	0.0028	0.0000					
ROI	0.4223*	-0.1231*	0.0122	1.0000			
	0.0000	0.0000	0.4739				
ROI2	0.0319	-0.0017	-0.1707*	-0.3798*	1.0000		
	0.0617	0.9199	0.0000	0.0000			
TAN	-0.4143*	0.3050*	0.3519*	-0.1307*	-0.0940*	1.0000	
	0.0000	0.0000	0.0000	0.0000	0.0000		
RISVT	-0.2055*	0.0855*	-0.0043	-0.1708*	0.0829*	-0.0521*	1.0000
	0.0000	0.0000	0.8026	0.0000	0.0000	0.0023	
R_RISVT	0.2739*	-0.0716*	0.0476*	0.7979*	-0.6261*	-0.0453*	-0.1391*
	0.0000	0.0000	0.0053	0.0000	0.0000	0.0080	0.0000

	R_RISVT
R_RISVT	1.0000

```
10 .
11 . estat vif
```

Variable	VIF	1/VIF
R_RISVT	4.16	0.240443
ROI	3.04	0.328430
ROI2	1.82	0.548153
TAN	1.25	0.797473
DLAT	1.20	0.831261
ET	1.15	0.868795
RISVT	1.05	0.956592
Mean VIF	1.95	

```
12 .
13 . estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of BCCO

         chi2(1)      =     2.08
         Prob > chi2  =   0.1489

14 .
15 . estat imtest, white

White's test for Ho: homoskedasticity
         against Ha: unrestricted heteroskedasticity

         chi2(32)     =    547.19
         Prob > chi2  =    0.0000

Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	**547.19**	**32**	**0.0000**
Skewness	**56.86**	**7**	**0.0000**
Kurtosis	**19.03**	**1**	**0.0000**
Total	**623.08**	**40**	**0.0000**

```
16 .
17 . regress BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, vce(cluster id)

Linear regression                               Number of obs =    3430
                                                F(  7,   685) =  137.73
                                                Prob > F      =  0.0000
                                                R-squared     =  0.4092
                                                Root MSE      =  .13488

                                   (Std. Err. adjusted for 686 clusters in id)
```

BCCO	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ET	**.031006**	**.0144742**	**2.14**	**0.033**	**.002587**	**.059425**
DLAT	**.0507872**	**.0065458**	**7.76**	**0.000**	**.037935**	**.0636394**
ROI	**.6280737**	**.0686083**	**9.15**	**0.000**	**.4933659**	**.7627814**
ROI2	**.538216**	**.0716399**	**7.51**	**0.000**	**.397556**	**.6788761**
TAN	**-.2589449**	**.0145337**	**-17.82**	**0.000**	**-.2874808**	**-.2304089**
RISVT	**-.2572456**	**.0372731**	**-6.90**	**0.000**	**-.3304289**	**-.1840623**
R_RISVT	**.4652887**	**.3324907**	**1.40**	**0.162**	**-.1875345**	**1.118112**
_cons	**.6419589**	**.0200358**	**32.04**	**0.000**	**.60262**	**.6812979**

```
18 .
19 . xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, fe

Fixed-effects (within) regression               Number of obs      =      3430
Group variable: id                              Number of groups   =       686

R-sq:  within  = 0.2390                         Obs per group: min =         5
       between = 0.2997                                        avg =       5.0
       overall = 0.2796                                        max =         5

                                                F(7,2737)          =    122.82
corr(u_i, Xb)  = -0.0196                        Prob > F           =    0.0000
```

BCCO	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ET	-.0328674	.0203989	-1.61	0.107	-.0728662	.0071313
DLAT	-.0267519	.0214939	-1.24	0.213	-.0688978	.0153939
ROI	.5108928	.0390824	13.07	0.000	.4342589	.5875267
ROI2	.3076566	.0354111	8.69	0.000	.2382215	.3770917
TAN	-.1758791	.0218731	-8.04	0.000	-.2187686	-.1329896
RISVT	-.1481185	.0189415	-7.82	0.000	-.1852597	-.1109774
R_RISVT	.2827126	.1504565	1.88	0.060	-.0123073	.5777325
_cons	.84435	.0631134	13.38	0.000	.7205954	.9681046
sigma_u	.12022985					
sigma_e	.0982505					
rho	.59959312	(fraction of variance due to u_i)				

F test that all u_i=0: F(**685**, **2737**) = **5.42** Prob > F = **0.0000**

```
20 .
21 . xttest3
```

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (686) = **1.5e+05**
Prob>chi2 = **0.0000**

```
22 .
23 . xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, fe vce(cluster id)
```

Fixed-effects (within) regression Number of obs = **3430**
Group variable: **id** Number of groups = **686**

R-sq: within = **0.2390** Obs per group: min = **5**
between = **0.2997** avg = **5.0**
overall = **0.2796** max = **5**

F(**7**,**685**) = **64.24**
corr(u_i, Xb) = **-0.0196** Prob > F = **0.0000**

(Std. Err. adjusted for **686** clusters in id)

BCCO	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ET	-.0328674	.0196908	-1.67	0.096	-.071529	.0057941
DLAT	-.0267519	.021442	-1.25	0.213	-.0688519	.0153481
ROI	.5108928	.0558235	9.15	0.000	.4012871	.6204985
ROI2	.3076566	.0600572	5.12	0.000	.1897382	.4255749
TAN	-.1758791	.0265092	-6.63	0.000	-.2279281	-.1238301
RISVT	-.1481185	.0303972	-4.87	0.000	-.2078014	-.0884356
R_RISVT	.2827126	.275667	1.03	0.305	-.2585412	.8239664
_cons	.84435	.0648308	13.02	0.000	.7170591	.9716409
sigma_u	.12022985					
sigma_e	.0982505					
rho	.59959312	(fraction of variance due to u_i)				

```
24 .
25 . xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, re

Random-effects GLS regression                   Number of obs      =      3430
Group variable: id                              Number of groups   =       686

R-sq:  within  = 0.2334                         Obs per group: min =         5
       between = 0.5012                                        avg =       5.0
       overall = 0.4047                                        max =         5

                                                Wald chi2(7)       =   1490.60
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

BCCO	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ET	.004669	.0128638	0.36	0.717	-.0205436	.0298816
DLAT	.0444509	.0051032	8.71	0.000	.0344488	.054453
ROI	.553698	.0363009	15.25	0.000	.4825496	.6248464
ROI2	.3659708	.0346325	10.57	0.000	.2980924	.4338492
TAN	-.2372691	.0121529	-19.52	0.000	-.2610882	-.2134499
RISVT	-.1838151	.0178512	-10.30	0.000	-.2188027	-.1488275
R_RISVT	.2783745	.1457643	1.91	0.056	-.0073182	.5640673
_cons	.6536263	.0153121	42.69	0.000	.6236152	.6836374
sigma_u	.08734299					
sigma_e	.0982505					
rho	.44143133	(fraction of variance due to u_i)				

```
26 .
27 . xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, re vce(cluster id)

Random-effects GLS regression                   Number of obs      =      3430
Group variable: id                              Number of groups   =       686

R-sq:  within  = 0.2334                         Obs per group: min =         5
       between = 0.5012                                        avg =       5.0
       overall = 0.4047                                        max =         5

                                                Wald chi2(7)       =    945.22
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                  (Std. Err. adjusted for 686 clusters in id)
```

BCCO	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
ET	.004669	.0129784	0.36	0.719	-.0207682	.0301062
DLAT	.0444509	.0064497	6.89	0.000	.0318097	.0570921
ROI	.553698	.0538829	10.28	0.000	.4480894	.6593065
ROI2	.3659708	.0587217	6.23	0.000	.2508784	.4810632
TAN	-.2372691	.0135869	-17.46	0.000	-.2638989	-.2106392
RISVT	-.1838151	.0301114	-6.10	0.000	-.2428324	-.1247979
R_RISVT	.2783745	.2812131	0.99	0.322	-.272793	.8295421
_cons	.6536263	.018996	34.41	0.000	.6163948	.6908578
sigma_u	.08734299					
sigma_e	.0982505					
rho	.44143133	(fraction of variance due to u_i)				

```
28 .
29 . quietly regress BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, vce(cluster id)

30 .
31 . estimates store POLS_rob

32 .
33 . quietly xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, fe

34 .
35 . estimates store FE

36 .
37 . quietly xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, fe vce(cluster id)

38 .
39 . estimates store FE_rob

40 .
41 . quietly xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, re

42 .
43 . estimates store RE

44 .
45 . quietly xtreg BCCO ET DLAT ROI ROI2 TAN RISVT R_RISVT, re vce(cluster id)

46 .
47 . estimates store RE_rob

48 .
49 . estimates table POLS_rob FE FE_rob RE RE_rob, b se stats(N r2 r2_o r2_b r2_w F chi2) b(%7.5f)
```

Variable	POLS_~b	FE	FE_rob	RE	RE_rob
ET	0.03101	-0.03287	-0.03287	0.00467	0.00467
	0.01447	0.02040	0.01969	0.01286	0.01298
DLAT	0.05079	-0.02675	-0.02675	0.04445	0.04445
	0.00655	0.02149	0.02144	0.00510	0.00645
ROI	0.62807	0.51089	0.51089	0.55370	0.55370
	0.06861	0.03908	0.05582	0.03630	0.05388
ROI2	0.53822	0.30766	0.30766	0.36597	0.36597
	0.07164	0.03541	0.06006	0.03463	0.05872
TAN	-0.25894	-0.17588	-0.17588	-0.23727	-0.23727
	0.01453	0.02187	0.02651	0.01215	0.01359
RISVT	-0.25725	-0.14812	-0.14812	-0.18382	-0.18382
	0.03727	0.01894	0.03040	0.01785	0.03011
R_RISVT	0.46529	0.28271	0.28271	0.27837	0.27837
	0.33249	0.15046	0.27567	0.14576	0.28121
_cons	0.64196	0.84435	0.84435	0.65363	0.65363
	0.02004	0.06311	0.06483	0.01531	0.01900
N	3430	3430	3430	3430	3430
r2	0.40924	0.23903	0.23903		
r2_o		0.27965	0.27965	0.40474	0.40474
r2_b		0.29971	0.29971	0.50119	0.50119
r2_w		0.23903	0.23903	0.23341	0.23341
F	1.4e+02	1.2e+02	64.23962		
chi2				1.5e+03	9.5e+02

legend: b/se

```
50 .
51 . xttest0

   Breusch and Pagan Lagrangian multiplier test for random effects

           BCCO[id,t] = Xb + u[id] + e[id,t]

           Estimated results:
                            |       Var     sd = sqrt(Var)
                   ---------+------------------------------
                       BCCO |     .030732       .1753055
                          e |    .0096532       .0982505
                          u |    .0076288        .087343

           Test:   Var(u) = 0
                                   chibar2(01) =  1337.83
                                Prob > chibar2 =   0.0000

52 .
53 . xtoverid

   Test of overidentifying restrictions: fixed vs random effects
   Cross-section time-series model: xtreg re  robust cluster(id)
   Sargan-Hansen statistic  95.477  Chi-sq(7)    P-value = 0.0000

54 .
55 . hausman FE RE, sigmamore

                    ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |       FE           RE         Difference          S.E.
   -------------+------------------------------------------------------------
             ET |   -.0328674     .004669       -.0375364        .0162603
           DLAT |   -.0267519    .0444509       -.0712028         .021242
            ROI |    .5108928     .553698       -.0428052        .0161304
           ROI2 |    .3076566    .3659708       -.0583142        .0097982
            TAN |   -.1758791   -.2372691           .06139        .0186162
          RISVT |   -.1481185   -.1838151        .0356966         .00721
         R_RISVT |    .2827126    .2783745        .0043381        .0462448
   ------------------------------------------------------------------------------
                              b = consistent under Ho and Ha; obtained from xtreg
               B = inconsistent under Ha, efficient under Ho; obtained from xtreg

       Test:  Ho:  difference in coefficients not systematic

                     chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                             =      116.32
                   Prob>chi2 =      0.0000

56 .
57 . log close
          name:  <unnamed>
           log:  F:\Tese\Tratamento dos dados\Dados\Portugal\Resultados\Dados em painel\Output EF P
   > l
     log type:  smcl
    closed on:  20 Jul 2016, 14:14:35
   ------------------------------------------------------------------------------------------------

58 .
```