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

                                                         User: Total

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

1 . use "F:\Tese\Tratamento dos dados\Dados\Total B2.dta"

2 . log using "F:\Tese\Tratamento dos dados\Dados\Portugal\Resultados\Dados em painel\Output EF T
-------------------------------------------------------------------------------
      name:  <unnamed>
       log:  F:\Tese\Tratamento dos dados\Dados\Portugal\Resultados\Dados em painel\Output EF T
  log type:  smcl
 opened on:  20 Jul 2016, 14:19:09

3 . regress BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT

      Source |       SS       df       MS              Number of obs =    7980
-------------+------------------------------           F( 11,  7968) =  439.67
       Model |  73.1561267    11  6.65055697           Prob > F      =  0.0000
    Residual |  120.527186  7968  .015126404           R-squared     =  0.3777
-------------+------------------------------           Adj R-squared =  0.3769
       Total |  193.683313  7979  .024274134           Root MSE      =  .12299

------------------------------------------------------------------------------
        BCCO |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          ET |    .058343   .006888     8.47   0.000     .0448407    .0718453
        P_ET |  -.0385546   .0109665    -3.52   0.000    -.0600518   -.0170573
        DLAT |   .0064121   .002174     2.95   0.003     .0021505    .0106737
      P_DLAT |   .0265848   .002457    10.82   0.000     .0217685     .031401
         ROI |   .8361509   .0249203   33.55   0.000     .7873007    .8850012
        ROI2 |   .4780225   .0297929   16.04   0.000     .4196207    .5364243
       P_ROI |  -.1431701   .0336861   -4.25   0.000    -.2092037   -.0771365
         TAN |  -.1263488   .0068021  -18.58   0.000    -.1396826    -.113015
       P_TAN |  -.1399259   .0101535  -13.78   0.000    -.1598294   -.1200223
       RISVT |  -.0730101    .020483   -3.56   0.000    -.1131621    -.032858
     P_RISVT |  -.2235945   .0265144   -8.43   0.000    -.2755696   -.1716194
       _cons |    .713677   .0072778   98.06   0.000     .6994107    .7279433
------------------------------------------------------------------------------

4 .
5 . estat ovtest

Ramsey RESET test using powers of the fitted values of BCCO
       Ho:  model has no omitted variables
                F(3, 7965) =     43.32
                  Prob > F =    0.0000
```

```
6 .
7 . estat ovtest, rhs
  (note:  ROI dropped because of collinearity)
  (note:  ROI^2 dropped because of collinearity)

  Ramsey RESET test using powers of the independent variables
         Ho:  model has no omitted variables
                 F(32, 7937) =    128.25
                    Prob > F =    0.0000

8 .
9 . pwcorr BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, sig star(.05)
```

	BCCO	ET	P_ET	DLAT	P_DLAT	ROI	ROI2
BCCO	1.0000						
ET	-0.0614*	1.0000					
	0.0000						
P_ET	-0.1605*	0.4047*	1.0000				
	0.0000	0.0000					
DLAT	0.0625*	0.1123*	-0.0902*	1.0000			
	0.0000	0.0000	0.0000				
P_DLAT	-0.1244*	0.0898*	0.8136*	0.0109	1.0000		
	0.0000	0.0000	0.0000	0.3300			
ROI	0.4365*	-0.0928*	-0.0296*	0.0674*	0.0322*	1.0000	
	0.0000	0.0000	0.0082	0.0000	0.0040		
ROI2	0.0376*	-0.0117	0.0370*	-0.1580*	-0.0097	-0.2919*	1.0000
	0.0008	0.2950	0.0010	0.0000	0.3875	0.0000	
P_ROI	0.2932*	-0.0732*	0.0199	-0.0181	0.1104*	0.7580*	-0.3570*
	0.0000	0.0000	0.0754	0.1064	0.0000	0.0000	0.0000
TAN	-0.3347*	0.2526*	-0.0009	0.1728*	-0.0652*	-0.1002*	-0.0973*
	0.0000	0.0000	0.9369	0.0000	0.0000	0.0000	0.0000
P_TAN	-0.2929*	0.1439*	0.7688*	-0.0521*	0.8426*	-0.0311*	-0.0129
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055	0.2493
RISVT	-0.2025*	0.1186*	0.1457*	-0.0662*	0.1248*	-0.1805*	0.0740*
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
P_RISVT	-0.2093*	0.0678*	0.5713*	-0.1587*	0.6200*	-0.0774*	0.0907*
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	P_ROI	TAN	P_TAN	RISVT	P_RISVT
P_ROI	1.0000				
TAN	-0.1082*	1.0000			
	0.0000				
P_TAN	0.0188	0.2705*	1.0000		
	0.0935	0.0000			
RISVT	-0.1125*	-0.0326*	0.0873*	1.0000	
	0.0000	0.0036	0.0000		
P_RISVT	-0.0538*	-0.1291*	0.5185*	0.6536*	1.0000
	0.0000	0.0000	0.0000	0.0000	

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

Variable	VIF	1/VIF
P_DLAT	**7.74**	**0.129130**
P_TAN	**6.55**	**0.152631**
P_ET	**5.44**	**0.183945**
P_RISVT	**4.13**	**0.242024**
P_ROI	**2.70**	**0.369710**
ROI	**2.53**	**0.394555**
RISVT	**2.48**	**0.403221**
TAN	**1.95**	**0.513585**
ET	**1.81**	**0.552516**
DLAT	**1.27**	**0.786173**
ROI2	**1.20**	**0.831218**
Mean VIF	**3.44**	

```
12 .
13 . estat hettest

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

         chi2(1)      =    20.69
         Prob > chi2  =   0.0000

14 .
15 . estat imtest, white

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

         chi2(51)     =  1520.86
         Prob > chi2  =   0.0000

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

Source	chi2	df	p
Heteroskedasticity	**1520.86**	**51**	**0.0000**
Skewness	**119.12**	**11**	**0.0000**
Kurtosis	**59.70**	**1**	**0.0000**
Total	**1699.68**	**63**	**0.0000**

```
16 .
17 . regress BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, vce(cluster id)

Linear regression                               Number of obs =    7980
                                                F( 11,  1595) =  151.41
                                                Prob > F      =  0.0000
                                                R-squared     =  0.3777
                                                Root MSE      =  .12299

                                  (Std. Err. adjusted for 1596 clusters in id)
```

BCCO	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ET	**.058343**	**.01255**	**4.65**	**0.000**	**.0337267**	**.0829593**
P_ET	**-.0385546**	**.0193847**	**-1.99**	**0.047**	**-.0765766**	**-.0005325**
DLAT	**.0064121**	**.0052728**	**1.22**	**0.224**	**-.0039303**	**.0167545**
P_DLAT	**.0265848**	**.0050595**	**5.25**	**0.000**	**.0166608**	**.0365088**
ROI	**.8361509**	**.0528816**	**15.81**	**0.000**	**.7324263**	**.9398756**
ROI2	**.4780225**	**.0499983**	**9.56**	**0.000**	**.3799533**	**.5760918**
P_ROI	**-.1431701**	**.0676942**	**-2.11**	**0.035**	**-.2759491**	**-.0103911**
TAN	**-.1263488**	**.0146893**	**-8.60**	**0.000**	**-.1551611**	**-.0975365**

P_TAN	-.1399259	.0201669	-6.94	0.000	-.1794822	-.1003695
RISVT	-.0730101	.0349527	-2.09	0.037	-.1415682	-.004452
P_RISVT	-.2235945	.0506227	-4.42	0.000	-.3228885	-.1243005
_cons	.713677	.0171907	41.52	0.000	.6799583	.7473957

18 .
19 . xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, fe

Fixed-effects (within) regression Number of obs = 7980
Group variable: id Number of groups = 1596

R-sq: within = 0.2557 Obs per group: min = 5
between = 0.1853 avg = 5.0
overall = 0.1874 max = 5

F(11,6373) = 199.01
corr(u_i, Xb) = -0.4387 Prob > F = 0.0000

BCCO	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ET	.047111	.0172748	2.73	0.006	.0132466	.0809754
P_ET	-.0774614	.0237541	-3.26	0.001	-.1240275	-.0308953
DLAT	.0007971	.0228636	0.03	0.972	-.0440233	.0456175
P_DLAT	-.0271466	.0285727	-0.95	0.342	-.0831586	.0288655
ROI	.7636705	.0264723	28.85	0.000	.7117759	.815565
ROI2	.2771622	.023291	11.90	0.000	.2315039	.3228205
P_ROI	-.1943524	.0328032	-5.92	0.000	-.2586576	-.1300471
TAN	-.0439614	.0195432	-2.25	0.025	-.0822727	-.0056502
P_TAN	-.1303795	.0262877	-4.96	0.000	-.1819123	-.0788467
RISVT	-.0301991	.0175598	-1.72	0.086	-.0646223	.004224
P_RISVT	-.1184789	.0232428	-5.10	0.000	-.1640426	-.0729153
_cons	.7506121	.0490432	15.31	0.000	.654471	.8467532
sigma_u	.13512664					
sigma_e	.07901355					
rho	.74520235	(fraction of variance due to u_i)				

F test that all u_i=0: F(1595, 6373) = 8.11 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 (1596) = 6.6e+07
Prob>chi2 = 0.0000

22 .
23 . xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, fe vce(cluster id)

Fixed-effects (within) regression Number of obs = 7980
Group variable: id Number of groups = 1596

R-sq: within = 0.2557 Obs per group: min = 5
between = 0.1853 avg = 5.0
overall = 0.1874 max = 5

F(11,1595) = 70.08
corr(u_i, Xb) = -0.4387 Prob > F = 0.0000

(Std. Err. adjusted for **1596** clusters in id)

BCCO	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ET	**.047111**	**.0207466**	**2.27**	**0.023**	**.0064175**	**.0878046**
P_ET	**-.0774614**	**.0289378**	**-2.68**	**0.008**	**-.1342215**	**-.0207013**
DLAT	**.0007971**	**.0318996**	**0.02**	**0.980**	**-.0617724**	**.0633666**
P_DLAT	**-.0271466**	**.038635**	**-0.70**	**0.482**	**-.1029274**	**.0486342**
ROI	**.7636705**	**.0459816**	**16.61**	**0.000**	**.6734797**	**.8538613**
ROI2	**.2771622**	**.037171**	**7.46**	**0.000**	**.2042531**	**.3500713**
P_ROI	**-.1943524**	**.059153**	**-3.29**	**0.001**	**-.3103782**	**-.0783265**
TAN	**-.0439614**	**.0239037**	**-1.84**	**0.066**	**-.0908474**	**.0029246**
P_TAN	**-.1303795**	**.0356337**	**-3.66**	**0.000**	**-.2002733**	**-.0604857**
RISVT	**-.0301991**	**.0229836**	**-1.31**	**0.189**	**-.0752804**	**.0148822**
P_RISVT	**-.1184789**	**.0382639**	**-3.10**	**0.002**	**-.1935318**	**-.0434261**
_cons	**.7506121**	**.0666928**	**11.25**	**0.000**	**.6197974**	**.8814269**
sigma_u	**.13512664**					
sigma_e	**.07901355**					
rho	**.74520235**	(fraction of variance due to u_i)				

```
24 .
25 . xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, re
```

Random-effects GLS regression — Number of obs = **7980**
Group variable: **id** — Number of groups = **1596**

R-sq: within = **0.2522** — Obs per group: min = **5**
between = **0.4251** — avg = **5.0**
overall = **0.3727** — max = **5**

Wald chi2(**11**) = **3275.14**
corr(u_i, X) = **0** (assumed) — Prob > chi2 = **0.0000**

BCCO	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ET	**.0484611**	**.0101713**	**4.76**	**0.000**	**.0285257**	**.0683964**
P_ET	**-.0572028**	**.0153581**	**-3.72**	**0.000**	**-.0873042**	**-.0271014**
DLAT	**.0039476**	**.0036746**	**1.07**	**0.283**	**-.0032546**	**.0111497**
P_DLAT	**.0228004**	**.003701**	**6.16**	**0.000**	**.0155465**	**.0300543**
ROI	**.7851551**	**.0238983**	**32.85**	**0.000**	**.7383152**	**.8319949**
ROI2	**.3188884**	**.022627**	**14.09**	**0.000**	**.2745404**	**.3632364**
P_ROI	**-.1938666**	**.0300898**	**-6.44**	**0.000**	**-.2528415**	**-.1348917**
TAN	**-.1074987**	**.0104221**	**-10.31**	**0.000**	**-.1279256**	**-.0870717**
P_TAN	**-.1231384**	**.0150828**	**-8.16**	**0.000**	**-.1527002**	**-.0935766**
RISVT	**-.0374342**	**.0168392**	**-2.22**	**0.026**	**-.0704384**	**-.0044299**
P_RISVT	**-.1419149**	**.0222179**	**-6.39**	**0.000**	**-.1854612**	**-.0983687**
_cons	**.711693**	**.0119769**	**59.42**	**0.000**	**.6882188**	**.7351672**
sigma_u	**.09220483**					
sigma_e	**.07901355**					
rho	**.57658899**	(fraction of variance due to u_i)				

```
26 .
27 . xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, re vce(cluster id)
```

Random-effects GLS regression — Number of obs = **7980**
Group variable: **id** — Number of groups = **1596**

R-sq: within = **0.2522** — Obs per group: min = **5**
between = **0.4251** — avg = **5.0**
overall = **0.3727** — max = **5**

Wald chi2(**11**) = **1441.74**
corr(u_i, X) = **0** (assumed) — Prob > chi2 = **0.0000**

(Std. Err. adjusted for **1596** clusters in id)

BCCO	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
ET	**.0484611**	**.0111792**	**4.33**	**0.000**	**.0265502**	**.0703719**
P_ET	**-.0572028**	**.017571**	**-3.26**	**0.001**	**-.0916413**	**-.0227643**
DLAT	**.0039476**	**.0050436**	**0.78**	**0.434**	**-.0059378**	**.0138329**
P_DLAT	**.0228004**	**.0046902**	**4.86**	**0.000**	**.0136079**	**.031993**
ROI	**.7851551**	**.0426623**	**18.40**	**0.000**	**.7015384**	**.8687717**
ROI2	**.3188884**	**.033201**	**9.60**	**0.000**	**.2538156**	**.3839612**
P_ROI	**-.1938666**	**.0558392**	**-3.47**	**0.001**	**-.3033095**	**-.0844237**
TAN	**-.1074987**	**.0129363**	**-8.31**	**0.000**	**-.1328534**	**-.082144**
P_TAN	**-.1231384**	**.0185991**	**-6.62**	**0.000**	**-.1595919**	**-.0866849**
RISVT	**-.0374342**	**.0233636**	**-1.60**	**0.109**	**-.083226**	**.0083577**
P_RISVT	**-.1419149**	**.0378792**	**-3.75**	**0.000**	**-.2161567**	**-.0676732**
_cons	**.711693**	**.0163766**	**43.46**	**0.000**	**.6795954**	**.7437906**
sigma_u	**.09220483**					
sigma_e	**.07901355**					
rho	**.57658899**	(fraction of variance due to u_i)				

```
28 .
29 . quietly regress BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, vce(cluster

30 .
31 . estimates store POLS_rob

32 .
33 . quietly xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, fe

34 .
35 . estimates store FE

36 .
37 . quietly xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, fe vce(cluster

38 .
39 . estimates store FE_rob

40 .
41 . quietly xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, re

42 .
43 . estimates store RE

44 .
45 . quietly xtreg BCCO ET P_ET DLAT P_DLAT ROI ROI2 P_ROI TAN P_TAN RISVT P_RISVT, re vce(cluster

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	**0.05834**	**0.04711**	**0.04711**	**0.04846**	**0.04846**
	0.01255	**0.01727**	**0.02075**	**0.01017**	**0.01118**
P_ET	**-0.03855**	**-0.07746**	**-0.07746**	**-0.05720**	**-0.05720**
	0.01938	**0.02375**	**0.02894**	**0.01536**	**0.01757**
DLAT	**0.00641**	**0.00080**	**0.00080**	**0.00395**	**0.00395**
	0.00527	**0.02286**	**0.03190**	**0.00367**	**0.00504**
P_DLAT	**0.02658**	**-0.02715**	**-0.02715**	**0.02280**	**0.02280**
	0.00506	**0.02857**	**0.03864**	**0.00370**	**0.00469**
ROI	**0.83615**	**0.76367**	**0.76367**	**0.78516**	**0.78516**
	0.05288	**0.02647**	**0.04598**	**0.02390**	**0.04266**
ROI2	**0.47802**	**0.27716**	**0.27716**	**0.31889**	**0.31889**
	0.05000	**0.02329**	**0.03717**	**0.02263**	**0.03320**
P_ROI	**-0.14317**	**-0.19435**	**-0.19435**	**-0.19387**	**-0.19387**

	0.06769	**0.03280**	**0.05915**	**0.03009**	**0.05584**
TAN	**-0.12635**	**-0.04396**	**-0.04396**	**-0.10750**	**-0.10750**
	0.01469	**0.01954**	**0.02390**	**0.01042**	**0.01294**
P_TAN	**-0.13993**	**-0.13038**	**-0.13038**	**-0.12314**	**-0.12314**
	0.02017	**0.02629**	**0.03563**	**0.01508**	**0.01860**
RISVT	**-0.07301**	**-0.03020**	**-0.03020**	**-0.03743**	**-0.03743**
	0.03495	**0.01756**	**0.02298**	**0.01684**	**0.02336**
P_RISVT	**-0.22359**	**-0.11848**	**-0.11848**	**-0.14191**	**-0.14191**
	0.05062	**0.02324**	**0.03826**	**0.02222**	**0.03788**
_cons	**0.71368**	**0.75061**	**0.75061**	**0.71169**	**0.71169**
	0.01719	**0.04904**	**0.06669**	**0.01198**	**0.01638**
N	**7980**	**7980**	**7980**	**7980**	**7980**
r2	**0.37771**	**0.25568**	**0.25568**		
r2_o		**0.18744**	**0.18744**	**0.37267**	**0.37267**
r2_b		**0.18530**	**0.18530**	**0.42506**	**0.42506**
r2_w		**0.25568**	**0.25568**	**0.25224**	**0.25224**
F	**1.5e+02**	**2.0e+02**	**70.07640**		
chi2				**3.3e+03**	**1.4e+03**

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	**.0242741**	**.1558016**
e	**.0062431**	**.0790136**
u	**.0085017**	**.0922048**

Test: Var(u) = 0

chibar2(01) = **5181.11**

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 **105.437** Chi-sq(**11**) P-value = **0.0000**

```
54 .
55 . hausman FE RE, sigmamore
```

	Coefficients (b) FE	(B) RE	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
ET	**.047111**	**.0484611**	**-.00135**	**.0141474**
P_ET	**-.0774614**	**-.0572028**	**-.0202586**	**.01839**
DLAT	**.0007971**	**.0039476**	**-.0031505**	**.0227668**
P_DLAT	**-.0271466**	**.0228004**	**-.049947**	**.0285812**
ROI	**.7636705**	**.7851551**	**-.0214846**	**.0119092**
ROI2	**.2771622**	**.3188884**	**-.0417262**	**.0063183**
P_ROI	**-.1943524**	**-.1938666**	**-.0004858**	**.0137605**
TAN	**-.0439614**	**-.1074987**	**.0635373**	**.0167318**
P_TAN	**-.1303795**	**-.1231384**	**-.0072411**	**.0218074**
RISVT	**-.0301991**	**-.0374342**	**.007235**	**.0054906**
P_RISVT	**-.1184789**	**-.1419149**	**.023436**	**.007482**

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(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =      146.91
                Prob>chi2 =      0.0000

56 .
57 . log close
          name:  <unnamed>
           log:  F:\Tese\Tratamento dos dados\Dados\Portugal\Resultados\Dados em painel\Output EF T
      log type:  smcl
     closed on:  20 Jul 2016, 14:19:24
-------------------------------------------------------------------------------

58 .
```