

```

-----
> -----
      name: <unnamed>
      log: /Users/Pavel/Documents/GitHub/Book/Ch_Synthetic///Docs/Tables/tp_
> panel_regs.txt
      log type: text
      opened on: 22 Jul 2019, 22:23:34

1 . *log using "/Users/Pavel/Documents/GitHub/Book/Ch_Synthetic/Docs/Tables/tp_p
  > anel_regs.txt",
  > text replace
2 .
3 . * Define variables
4 . global y1 TP

5 . *global y2 log_VIX FFR USTP10 SPX INF UNE IP STX OIL
6 . *global x1 log_VIX FFR RSP ROI
7 . *global x2 log_VIX FFR USTP10 RSP ROI
8 . *global x3 INF UNE IP RFX RSX
9 . *global x4 log_VIX FFR RSP ROI INF UNE IP RFX RSX
10 . *global x5 log_VIX FFR USTP10 RSP INF UNE IP RFX RSX
11 . *global x6 log_VIX FFR USTP10 INF UNE IP RFX RSX
12 . *global x7 log_VIX FFR RSP ROI INF UNE IP RFX RSX
13 . *global x8 log_VIX FFR USTP10 RSP ROI INF UNE IP RFX RSX
14 . global y2 log_VIX FFR USTP10 RSP INF UNE IP RSX ROI

15 . global x1 log_VIX FFR RSP ROI

16 . global x2 log_VIX FFR USTP10 RSP ROI

17 . global x3 INF UNE IP RFX RSX

18 . global x4 log_VIX FFR RSP ROI INF UNE IP RFX RSX

19 . global x5 log_VIX FFR USTP10 RSP INF UNE IP RFX RSX

20 . global x6 log_VIX FFR USTP10 INF UNE IP RFX RSX

```

```

21 . *global x8 INF UNE IP RFX RSX
22 .
23 . * Summary statistics
24 . describe $id $t $y2

```

variable name	storage type	display format	value label	variable label

> -----				
CODE	int	%10.0g		Countries
DATE	float	%td		
log_VIX	float	%9.0g		log(Vix)
FFR	double	%10.0g		FFR
USTP10	double	%10.0g		USTP10
RSP	float	%9.0g		Return S\&P
INF	double	%10.0g		INF
UNE	double	%10.0g		UNE
IP	double	%10.0g		IP
RSX	float	%9.0g		Return Stocks
ROI	float	%9.0g		Return Oil

```

25 . summarize $y2

```

Variable	Obs	Mean	Std. Dev.	Min	Max
-----+-----					
log_VIX	3,435	2.91314	.35511	2.252344	4.09251
FFR	3,435	1.772795	1.984437	.04	6.86
USTP10	3,435	.3212284	.6206493	-.8608	1.924
RSP	3,420	.2904658	4.246718	-18.56365	10.23068
INF	3,435	5.213633	6.338618	-4.4	73.2
-----+-----					
UNE	2,691	8.282687	6.141397	.39	31.2
IP	2,714	3.062826	6.764114	-28.7	38.73
RSX	3,402	.7329087	6.487492	-46.6485	43.27831
ROI	3,420	.2920279	9.382498	-39.48402	26.0165

```

26 . correlate $y2
    (obs=2,267)

```

```

>      | log_VIX      FFR      USTP10      RSP      INF      UNE      IP
>      RSX
-----+-----
> -----
log_VIX | 1.0000
FFR     | -0.1097 1.0000
USTP10  | 0.3048 0.3423 1.0000
RSP     | -0.4502 -0.0819 -0.1057 1.0000
INF     | 0.2105 0.1960 0.2789 -0.1051 1.0000
UNE     | 0.0957 0.0685 0.1847 -0.0105 0.2511 1.0000
IP      | -0.1537 0.2393 0.1110 -0.0098 0.0238 -0.0747 1.0000
RSX     | -0.2111 0.0261 0.0109 0.5182 -0.0029 0.0397 -0.0450
> 1.0000
ROI     | -0.1717 0.0735 0.0602 0.3435 -0.0148 0.0316 0.0159
> 0.3000

      | ROI
-----+-----
ROI   | 1.0000

```

27 . xtdescribe

```

CODE: 186, 199, ..., 964 n = 15
DATE: 31jan2000, 29feb2000, ..., 31jan2019 T = 229
Delta(DATE) = 1 day
Span(DATE) = 6941 periods
(CODE*DATE uniquely identifies each observation)

Distribution of T_i: min 5% 25% 50% 75% 95% max
                   229 229 229 229 229 229

Freq. Percent Cum. | Pattern*
-----+-----
> -----
> -----
15 100.00 100.00 | 32232232223223223223223223223223223223223223
> 2223223223223222
> 3223223222322322322232232232232221
-----+-----
> -----
> -----
15 100.00 | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
> XXXXXXXXXXXXXXXXXXXX
> XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
-----+-----
> -----
> -----
*Each column represents 70 periods.

```

28 . xtsum \$id \$t \$y2

Variable		Mean	Std. Dev.	Min	Max	Observation	
> s							
-----+-----+-----							
> -							
CODE	overall	496.2	263.5774	186	964	N =	343
> 5							
	between		272.7888	186	964	n =	1
> 5							
	within		0	496.2	496.2	T =	22
> 9							
DATE	overall	18108.6	2012.394	14640	21580	N =	343
> 5							
	between		0	18108.6	18108.6	n =	1
> 5							
	within		2012.394	14640	21580	T =	22
> 9							
log_VIX	overall	2.91314	.35511	2.252344	4.09251	N =	343
> 5							
	between		0	2.91314	2.91314	n =	1
> 5							
	within		.35511	2.252344	4.09251	T =	22
> 9							
FFR	overall	1.772795	1.984437	.04	6.86	N =	343
> 5							
	between		0	1.772795	1.772795	n =	1
> 5							
	within		1.984437	.04	6.86	T =	22
> 9							
USTP10	overall	.3212284	.6206493	-.8608	1.924	N =	343
> 5							
	between		0	.3212284	.3212284	n =	1
> 5							
	within		.6206493	-.8608	1.924	T =	22
> 9							
RSP	overall	.2904658	4.246718	-18.56365	10.23068	N =	342
> 0							
	between		5.75e-17	.2904658	.2904658	n =	1
> 5							
	within		4.246718	-18.56365	10.23068	T =	22
> 8							

INF	overall	5.213633	6.338618	-4.4	73.2	N =	343
> 5	between		3.951767	1.578297	16.57354	n =	1
> 5	within		5.059493	-7.369904	61.8401	T =	22
> 9							
UNE	overall	8.282687	6.141397	.39	31.2	N =	269
> 1	between		5.667345	1.446406	25.96182	n =	1
> 5	within		1.671341	3.943434	14.73338	T-bar =	179.
> 4							
IP	overall	3.062826	6.764114	-28.7	38.73	N =	271
> 4	between		1.750917	.5210526	6.132664	n =	1
> 5	within		6.52995	-28.79729	36.09483	T-bar =	180.93
> 3							
RSX	overall	.7329087	6.487492	-46.6485	43.27831	N =	340
> 2	between		.2765989	.2640327	1.186392	n =	1
> 5	within		6.482039	-46.78952	43.20912	T-bar =	226.
> 8							
ROI	overall	.2920279	9.382498	-39.48402	26.0165	N =	342
> 0	between		0	.2920279	.2920279	n =	1
> 5	within		9.382498	-39.48402	26.0165	T =	22
> 8							

29 .

```

30 . * Panel regressions
31 . /*xtreg $y1 $x1, fe vce(robust)
    > xtreg $y1 $x2, fe vce(robust)
    > xtreg $y1 $x3, fe vce(robust)
    > xtreg $y1 $x4, fe vce(robust)
    > xtreg $y1 $x5, fe vce(robust)
    > xtreg $y1 $x6, fe vce(robust)
    > xtreg $y1 $x7, fe vce(robust)
    > xtreg $y1 $x8, fe vce(robust)*/
32 .
33 . * Save output in Excel file
34 . xtreg $y1 $x1, fe vce(cluster $id)

```

```

Fixed-effects (within) regression               Number of obs   =       2,406
Group variable: CODE                           Number of groups =        15

R-sq:                                           Obs per group:
    within = 0.0936                             min =           73
    between = 0.1813                            avg =        160.4
    overall = 0.0906                            max =        228

                                           F(4,14)         =        6.24
corr(u_i, Xb) = 0.0728                       Prob > F         =       0.0043

```

(Std. Err. adjusted for 15 clusters in CODE)

TP	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
log_VIX	1.1311	.4579283	2.47	0.027	.148941	2.113258
FFR	.2377997	.1350775	1.76	0.100	-.0519128	.5275122
RSP	.0075301	.0129183	0.58	0.569	-.0201769	.0352371
ROI	.002253	.003718	0.61	0.554	-.0057213	.0102274
_cons	-1.725021	1.452596	-1.19	0.255	-4.84053	1.390487
sigma_u	.9763414					
sigma_e	1.5352931					
rho	.2879567	(fraction of variance due to u_i)				

```

35 . outreg2 using tp_regs.xls, replace label dec(2) addtext(Country FE, Yes, Tim
    > e FE, No)
    tp_regs.xls
    dir : seeout

```

```

36 . xtreg $y1 $x2, fe vce(cluster $id)

```

```

Fixed-effects (within) regression           Number of obs   =       2,406
Group variable: CODE                       Number of groups =        15

R-sq:                                     Obs per group:
    within = 0.2931                        min =           73
    between = 0.1225                       avg =        160.4
    overall = 0.2389                       max =          228

                                           F(5,14)         =       19.06
corr(u_i, Xb) = 0.0311                     Prob > F         =       0.0000

```

(Std. Err. adjusted for 15 clusters in CODE)

TP	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
log_VIX	.1836656	.4076973	0.45	0.659	-.6907581	1.058089
FFR	.0833773	.1148952	0.73	0.480	-.1630485	.3298031
USTP10	1.54592	.283334	5.46	0.000	.9382291	2.153611
RSP	-.0080888	.0115999	-0.70	0.497	-.0329681	.0167905
ROI	-.0039008	.0035567	-1.10	0.291	-.0115291	.0037276
_cons	1.042713	1.273982	0.82	0.427	-1.689707	3.775132
sigma_u	.96331719					
sigma_e	1.3561617					
rho	.33535532	(fraction of variance due to u_i)				

```

37 . outreg2 using tp_regs.xls, replace label dec(2) addtext(Country FE, Yes, Tim
    > e FE, No)
    tp_regs.xls
    dir : seeout

```

```
38 . xtreg $y1 $x3, fe vce(cluster $id)
```

```
Fixed-effects (within) regression
Group variable: CODE
```

```
Number of obs      =      1,969
Number of groups   =       15
```

```
R-sq:
```

```
    within = 0.2729
    between = 0.0018
    overall = 0.0084
```

```
Obs per group:
```

```
    min =      73
    avg =    131.3
    max =     210
```

```
corr(u_i, Xb) = -0.8549
```

```
F(5,14)          =      8.37
Prob > F         =     0.0008
```

(Std. Err. adjusted for 15 clusters in CODE)

TP	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
INF	.2597275	.049897	5.21	0.000	.152709	.366746
UNE	.221227	.0680931	3.25	0.006	.0751818	.3672722
IP	-.0153581	.0144818	-1.06	0.307	-.0464184	.0157022
RFX	.0172366	.0067017	2.57	0.022	.0028628	.0316104
RSX	.0010056	.0089294	0.11	0.912	-.018146	.0201572
_cons	-1.399772	.6657023	-2.10	0.054	-2.827562	.0280171
sigma_u	1.8817385					
sigma_e	1.1066086					
rho	.74303286	(fraction of variance due to u_i)				

```
39 . outreg2 using tp_regs.xls, append label dec(2) addtext(Country FE, Yes, Time
> FE, No)
tp_regs.xls
dir : seeout
```

```
40 . xtreg $y1 $x4, fe vce(cluster $id)
```

```
Fixed-effects (within) regression
Group variable: CODE
```

```
Number of obs      =      1,969
Number of groups   =       15
```

```
R-sq:
```

```
    within = 0.3360
    between = 0.0016
    overall = 0.0184
```

```
Obs per group:
```

```
    min =      73
    avg =    131.3
    max =     210
```

```
corr(u_i, Xb) = -0.8294
```

```
F(9,14)          =     41.89
Prob > F         =     0.0000
```


(Std. Err. adjusted for 15 clusters in CODE)

TP	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
log_VIX	.6469349	.2090431	3.09	0.008	.198582	1.095288
FFR	.2227353	.1032164	2.16	0.049	.001358	.4441125
RSP	.0024914	.0080941	0.31	0.763	-.0148687	.0198515
ROI	.0031842	.0023738	1.34	0.201	-.0019071	.0082754
INF	.2206823	.0504155	4.38	0.001	.1125519	.3288128
UNE	.208509	.0633276	3.29	0.005	.0726847	.3443332
IP	-.0160638	.0137622	-1.17	0.263	-.0455808	.0134532
RFX	.017617	.0094881	1.86	0.085	-.0027329	.037967
RSX	.0037071	.0098391	0.38	0.712	-.0173956	.0248099
_cons	-3.183423	.9331946	-3.41	0.004	-5.184927	-1.18192
sigma_u	1.8158203					
sigma_e	1.0585604					
rho	.74635297	(fraction of variance due to u_i)				

```

41 . outreg2 using tp_regs.xls, append label dec(2) addtext(Country FE, Yes, Time
    > FE, No)
    tp_regs.xls
    dir : seeout

```

```

42 . xtreg $y1 $x5, fe vce(cluster $id)

```

Fixed-effects (within) regression	Number of obs	=	1,969
Group variable: CODE	Number of groups	=	15
R-sq:	Obs per group:		
within = 0.4921	min =		73
between = 0.0078	avg =		131.3
overall = 0.0746	max =		210
	F(9,14)	=	51.59
corr(u_i, Xb) = -0.6922	Prob > F	=	0.0000

(Std. Err. adjusted for 15 clusters in CODE)

TP	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
log_VIX	.0978266	.1883919	0.52	0.612	-.3062339	.501887
FFR	.1148047	.10108	1.14	0.275	-.1019904	.3315998
USTP10	1.221814	.1569911	7.78	0.000	.8851016	1.558527
RSP	-.0078828	.0061193	-1.29	0.219	-.0210075	.0052419
INF	.205012	.0448598	4.57	0.000	.1087973	.3012267
UNE	.1265533	.050283	2.52	0.025	.0187069	.2343996
IP	-.0214475	.0116542	-1.84	0.087	-.0464433	.0035483
RFX	.0142091	.0087358	1.63	0.126	-.0045273	.0329455
RSX	.0048064	.0089469	0.54	0.600	-.0143828	.0239956
_cons	-.7323294	.8048808	-0.91	0.378	-2.458627	.9939683
sigma_u	1.5241964					
sigma_e	.92586507					
rho	.730466	(fraction of variance due to u_i)				

```

43 . outreg2 using tp_regs.xls, append label dec(2) addtext(Country FE, Yes, Time
> FE, No)
tp_regs.xls
dir : seeout

```

```

44 . xtreg $y1 $x6, fe vce(cluster $id)

```

Fixed-effects (within) regression	Number of obs	=	1,969
Group variable: CODE	Number of groups	=	15
R-sq:	Obs per group:		
within = 0.4918	min =		73
between = 0.0079	avg =		131.3
overall = 0.0748	max =		210
	F(8,14)	=	32.66
corr(u_i, Xb) = -0.6910	Prob > F	=	0.0000

(Std. Err. adjusted for 15 clusters in CODE)

TP	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
log_VIX	.135437	.1697227	0.80	0.438	-.2285819	.4994559
FFR	.1187378	.0993122	1.20	0.252	-.0942658	.3317413
USTP10	1.218091	.1583201	7.69	0.000	.8785284	1.557654
INF	.2050838	.0450683	4.55	0.000	.1084219	.3017457
UNE	.125753	.0503549	2.50	0.026	.0177525	.2337536
IP	-.0212688	.0116664	-1.82	0.090	-.0462907	.003753
RFX	.0160633	.0080409	2.00	0.066	-.0011826	.0333092
RSX	.0027171	.0089113	0.30	0.765	-.0163957	.0218299
_cons	-.8407813	.7571241	-1.11	0.285	-2.464651	.7830885
sigma_u	1.5221892					
sigma_e	.92590213					
rho	.72993103	(fraction of variance due to u_i)				

```
45 . outreg2 using tp_regs.xls, append label dec(2) addtext(Country FE, Yes)
    tp_regs.xls
    dir : seeout
```

```
46 . *xtreg $y1 $x8, fe vce(cluster $id)
47 . *outreg2 using tp_regs.xls, append label dec(2) addtext(Country FE, Yes, Tim
    > e FE, No)
48 . xtreg $y1 $x3 i.DATE, fe vce(cluster $id)
```

Fixed-effects (within) regression	Number of obs	=	1,969
Group variable: CODE	Number of groups	=	15
R-sq:	Obs per group:		
within = 0.5470	min =		73
between = 0.0081	avg =		131.3
overall = 0.0832	max =		210
corr(u_i, Xb) = -0.7050	F(14,14)	=	.
	Prob > F	=	.

(Std. Err. adjusted for 15 clusters in CODE)

TP	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
INF	.2216896	.0399664	5.55	0.000	.1359702	.307409
UNE	.1365912	.0583416	2.34	0.035	.0114609	.2617216
IP	-.0192662	.0079187	-2.43	0.029	-.0362501	-.0022822
RFX	.019949	.0103218	1.93	0.074	-.0021891	.042087
RSX	.0003733	.0075088	0.05	0.961	-.0157316	.0164781
DATE						
15246	.1014846	.1565565	0.65	0.527	-.2342957	.4372649
15279	-.2731098	.1693402	-1.61	0.129	-.6363085	.0900889
15309	-.5897579	.186337	-3.17	0.007	-.9894111	-.1901047
15340	-.1306199	.2265979	-0.58	0.573	-.616624	.3553842
15371	.793199	.1745028	4.55	0.000	.4189276	1.16747
15399	1.174531	.2380866	4.93	0.000	.6638864	1.685176
15428	1.698752	.3022017	5.62	0.000	1.050594	2.34691
15460	1.24885	.8603321	1.45	0.169	-.5963787	3.094079
15491	.8643181	.698132	1.24	0.236	-.6330261	2.361662
15519	.5010324	.4954662	1.01	0.329	-.5616368	1.563702
15552	.2708025	1.130212	0.24	0.814	-2.153261	2.694866
15582	.0563261	.897058	0.06	0.951	-1.867672	1.980324
15613	-.567125	.7216079	-0.79	0.445	-2.11482	.9805699
15644	-.5424803	.7660391	-0.71	0.490	-2.185471	1.10051
15673	-.9122876	1.068736	-0.85	0.408	-3.204498	1.379923
15705	-1.047122	.8631121	-1.21	0.245	-2.898313	.8040693
15736	-1.491139	.8435429	-1.77	0.099	-3.300358	.3180811
15764	-1.503287	.586501	-2.56	0.023	-2.761206	-.2453671
15795	-1.972797	.3806616	-5.18	0.000	-2.789235	-1.156359
15825	-1.415765	.4689331	-3.02	0.009	-2.421526	-.4100033
15855	-1.926135	.549016	-3.51	0.003	-3.103657	-.7486126
15886	-1.280313	.3293599	-3.89	0.002	-1.98672	-.5739061
15917	-.8595784	.4183137	-2.05	0.059	-1.756772	.0376152
15946	-.7727334	.5331296	-1.45	0.169	-1.916183	.3707159
15978	-.4972363	.0844194	-5.89	0.000	-.6782978	-.3161747
16009	-.350812	.0715483	-4.90	0.000	-.5042678	-.1973562
16037	-.1809409	.0657695	-2.75	0.016	-.3220025	-.0398793
16070	-.1581651	.0856512	-1.85	0.086	-.3418686	.0255384
16100	.020523	.0601631	0.34	0.738	-.108514	.14956
16128	.0595002	.1996988	0.30	0.770	-.3688111	.4878116
16161	.314485	.1668783	1.88	0.080	-.0434333	.6724033
16191	.0852529	.1169362	0.73	0.478	-.1655504	.3360561
16222	.2498612	.3667559	0.68	0.507	-.536752	1.036474
16252	.142223	.3349535	0.42	0.678	-.5761808	.8606269
16282	-.210103	.3074523	-0.68	0.506	-.8695226	.4493166
16314	-.7520457	.4764092	-1.58	0.137	-1.773842	.2697504
16344	-.5840351	.5080756	-1.15	0.270	-1.673749	.5056787

16373	-.7776413	.3648483	-2.13	0.051	-1.560163	.0048805
16405	-1.161371	.1165964	-9.96	0.000	-1.411445	-.9112963
16436	-1.497621	.0933882	-16.04	0.000	-1.697918	-1.297323
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49 . outreg2 using tp_regs.xls, append label keep($x3) addtext(Country FE, Yes, T
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51 . * Test whether the time FE belong to the model  
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(154) 19904.DATE = 0
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(162) 20146.DATE = 0
(163) 20178.DATE = 0
(164) 20208.DATE = 0
(165) 20237.DATE = 0
(166) 20269.DATE = 0
(167) 20300.DATE = 0
(168) 20331.DATE = 0
(169) 20361.DATE = 0
(170) 20391.DATE = 0
(171) 20422.DATE = 0
(172) 20453.DATE = 0
(173) 20482.DATE = 0
(174) 20513.DATE = 0
(175) 20544.DATE = 0
(176) 20573.DATE = 0
(177) 20605.DATE = 0
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(180) 20697.DATE = 0
(181) 20727.DATE = 0
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(184) 20818.DATE = 0
(185) 20850.DATE = 0
(186) 20878.DATE = 0
(187) 20909.DATE = 0
(188) 20937.DATE = 0
(189) 20970.DATE = 0
(190) 21000.DATE = 0
(191) 21031.DATE = 0
(192) 21062.DATE = 0

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(193) 21091.DATE = 0
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(195) 21153.DATE = 0
(196) 21182.DATE = 0
(197) 21215.DATE = 0
(198) 21243.DATE = 0
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(205) 21455.DATE = 0
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(207) 21518.DATE = 0
(208) 21549.DATE = 0
(209) 21580.DATE = 0
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      Constraint 2 dropped
      Constraint 3 dropped
      Constraint 4 dropped
      Constraint 5 dropped
      Constraint 6 dropped
      Constraint 7 dropped
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      Constraint 9 dropped
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      Constraint 12 dropped
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      Constraint 33 dropped

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Constraint 207 dropped
Constraint 208 dropped
Constraint 209 dropped
```

```
F( 14,    14) =   183.56
    Prob > F =    0.0000
```

```
53 .
```

```
54 . log close
```

```
    name: <unnamed>
```

```
    log: /Users/Pavel/Documents/GitHub/Book/Ch_Synthetic///Docs/Tables/tp_
```

```
> panel_regs.txt
```

```
    log type: text
```

```
closed on: 22 Jul 2019, 22:23:37
```

```
> -----
```