

Mechanics of Patell-Test*

Return Model: Market Model; Testing CAAR = 0

Draft Version

1) Event Parameters

Parameter	Value	Comment
Event date:	30.04.1997	
Sample Size	4	
Pointer to the end of the estimation window:	2	
Length of estimation window:	10	
Event window:	(-1, 1)	
Length of event window:	3	
Degrees of freedom:	2	(Df = 2 as we chose the market model)

Legend
EW = Estimation Window

2) Returns

Firm / Market	Estimation window										Event window		
	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1
Firm 1	-0.9%	-0.4%	0.5%	0.0%	-0.4%	0.7%	0.0%	-0.4%	-0.3%	-0.9%	1.1%	0.5%	1.8%
Firm 2	0.9%	1.5%	1.8%	2.4%	2.6%	3.9%	-3.0%	2.5%	-3.8%	0.3%	2.3%	-0.6%	0.0%
Firm 3	0.3%	-0.3%	-0.3%	0.9%	0.6%	0.0%	2.2%	1.5%	-1.5%	1.2%	1.2%	1.8%	0.6%
Firm 4	1.6%	0.0%	9.8%	2.1%	-1.2%	-0.2%	3.5%	-0.5%	-0.3%	2.2%	1.8%	-0.8%	-0.2%
Market	1.5%	1.2%	-0.2%	0.6%	-0.8%	1.9%	-0.1%	-0.3%	-0.8%	1.0%	2.7%	0.9%	-0.4%

Market model	
Alpha	Beta
-0.002	-0.002
0.005	1.051
0.005	0.001
0.018	-0.308

Mean Market (EW):
0.4%

3) Abnormal Return

Firm / Stock	Estimation window										Event window		
	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1
Firm 1	-1%	-0.2%	0.7%	0.2%	-0.2%	0.9%	0.2%	-0.3%	-0.1%	-0.7%	1.3%	0.7%	2.0%
Firm 2	-1.1%	-0.2%	1.5%	1.2%	2.9%	1.5%	-3.3%	2.3%	-3.5%	-1.3%	-1.1%	-2.0%	-0.1%
Firm 3	-0.2%	-0.8%	-0.8%	0.5%	0.2%	-0.5%	1.7%	1.1%	-2.0%	0.7%	0.7%	1.3%	0.1%
Firm 4	0.2%	-1.5%	7.9%	0.5%	-3.3%	-1.4%	1.6%	-2.4%	-2.4%	0.7%	0.8%	-2.3%	-2.1%

3) Standard Deviation (for Standardizing Abnormal Returns)

$$\text{Standard Deviation: } S(AR_{i,t}) = \hat{\sigma}_{AR_i} \sqrt{1 + 1/M_i + \frac{(R_{m,t} - R_{m,EW})^2}{\sum_{EW_{min}}^{EW_{max}} (R_{m,t} - R_m)^2}}$$

Components 1 (Firms)													
Firm / Stock	Estimation window										Event window		
	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1
Firm 1	0.001%	0.000%	0.005%	0.000%	0.000%	0.008%	0.000%	0.001%	0.000%	0.005%	0.017%	0.005%	0.040%
Firm 2	0.013%	0.000%	0.024%	0.015%	0.085%	0.021%	0.112%	0.055%	0.124%	0.016%	0.013%	0.041%	0.000%
Firm 3	0.000%	0.006%	0.006%	0.002%	0.000%	0.002%	0.029%	0.011%	0.038%	0.006%	0.005%	0.017%	0.000%
Firm 4	0.000%	0.021%	0.628%	0.002%	0.106%	0.020%	0.026%	0.058%	0.057%	0.005%	0.007%	0.055%	0.044%

Standard Deviation (EW)
0.0052
0.0241
0.0112
0.0340

Components 2 (Market)													
$(R_{m,t} - R_{m,EW})^2$	0.000118237	6.04E-05	3.85E-05	4.39E-06	0.0001367	0.00022	2.66E-05	5.02E-05	0.000131	3.62E-05	0.000547	2.79E-05	5.49E-05
$\sum_{EW_{min}}^{EW_{max}} (R_{m,t} - R_m)^2$	0.000821772												
RHS Square Root	1.115294113	1.083264	1.070935	1.051354	1.1253392	1.169374	1.064115	1.077523	1.122133	1.069583	1.328636	1.064845	1.080195

Standard Deviation													
Firm / Stock	Estimation window										Event window		
	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1
Firm 1	0.005782967	0.005617	0.005553	0.005451	0.0058351	0.006063	0.005518	0.005587	0.005818	0.005546	0.006889	0.005521	0.005601
Firm 2	0.026862779	0.026091	0.025794	0.025323	0.0271047	0.028165	0.02563	0.025953	0.027028	0.025762	0.032001	0.025648	0.026017
Firm 3	0.012527799	0.012168	0.01203	0.01181	0.0126406	0.013135	0.011953	0.012104	0.012605	0.012014	0.014924	0.011961	0.012134
Firm 4	0.037899171	0.036811	0.036392	0.035726	0.0382405	0.039737	0.03616	0.036616	0.038132	0.036346	0.045149	0.036185	0.036706

3) Standardized Abnormal Returns

Firm / Stock	Event window			CSAR	SD (CSAR)
	-1	0	1		
Firm 1	1.877664483	1.337145	3.549065	6.763875	2.3094011
Firm 2	-0.349765619	-0.78781	-0.05217	-1.18974	
Firm 3	0.489087911	1.094453	0.095992	1.679533	
Firm 4	0.188182036	-0.64826	-0.56824	-1.02832	

4) Patell Test Statistic for Testint the Null Hypothesis that CAAR = 0

Patell (Z) test statistic	0.673913233
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*Synonym names: 'Standardized Abnormal Return Test'