

Johansen Cointegration Test Vector Error Correction Model (VECM)

To perform Johansen cointegration test, Vector Error Correct model (VECM) should be estimated and compute the test index.

```
. vecrank inf thco neer vms2 rp14, lags(1/1) max
```

```
Johansen tests for cointegration
Trend: constant                               Number of obs =    88
Sample: 1997m2 - 2004m5                       Lags =          1
```

maxi mum rank	parms	LL	ei genval ue	trace statistic	5% cri tical value
0	5	-1267. 4154	.	113. 0442	68. 52
1	14	-1235. 827	0. 51223	49. 8674	47. 21
2	21	-1223. 6922	0. 24103	25. 5978*	29. 68
3	26	-1216. 0279	0. 15986	10. 2691	15. 41
4	29	-1210. 9262	0. 10948	0. 0658	3. 76
5	30	-1210. 8933	0. 00075		

maxi mum rank	parms	LL	ei genval ue	max statistic	5% cri tical value
0	5	-1267. 4154	.	63. 1768	33. 46
1	14	-1235. 827	0. 51223	24. 2696	27. 07
2	21	-1223. 6922	0. 24103	15. 3287	20. 97
3	26	-1216. 0279	0. 15986	10. 2033	14. 07
4	29	-1210. 9262	0. 10948	0. 0658	3. 76
5	30	-1210. 8933	0. 00075		

```
. vec inf thco neer vms2 rp14, lags(1/1)
```

```
Vector error-correction model
Sample: 1997m2 - 2004m5                               No. of obs =    88
Log likelihood = -1235. 827                             AIC = 28. 40516
Det(Sigma_ml) = 1085545                               HQIC = 28. 56394
SBI C = 28. 79928
```

Equation	Parms	RMSE	R-sq	chi 2	P>chi 2
D_inf	2	. 00472	0. 3514	46. 59861	0. 0000
D_thco	2	1. 31178	0. 1516	15. 36817	0. 0005
D_neer	2	3. 00162	0. 0241	2. 125663	0. 3455
D_vms2	2	42705. 2	0. 2821	33. 79565	0. 0000
D_rp14	2	1. 68757	0. 0276	2. 442627	0. 2948

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
D_inf						
_ce1						
L1.	-. 0644931	. 0094668	-6. 81	0. 000	-. 0830477	-. 0459386
_cons	-. 0097342	. 0014847	-6. 56	0. 000	-. 0126442	-. 0068242
D_thco						
_ce1						
L1.	10. 18172	2. 630959	3. 87	0. 000	5. 025134	15. 3383
_cons	1. 589864	. 4126283	3. 85	0. 000	. 7811275	2. 398601
D_neer						
_ce1						
L1.	5. 731973	6. 020191	0. 95	0. 341	-6. 067385	17. 53133
_cons	. 492486	. 9441806	0. 52	0. 602	-1. 358074	2. 343046
D_vms2						
_ce1						
L1.	-168742. 7	85651. 54	-1. 97	0. 049	-336616. 6	-868. 7359
_cons	. 0001369	13433. 22	0. 00	1. 000	-26328. 62	26328. 62
D_rp14						

_ce1						
L1.	-4.924644	3.384674	-1.45	0.146	-11.55848	1.709196
_cons	-.8293151	.5308376	-1.56	0.118	-1.869738	.2111075

Cointegrating equations

Equation	Parms	chi 2	P>chi 2
_ce1	4	133.5158	0.0000

Identification: beta is exactly identified
Johansen normalization restriction imposed

beta	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
_ce1					
inf	1				
thco	-.0083155	.0011756	-7.07	0.000	-.0106197 -.0060114
neer	.0050075	.0013058	3.83	0.000	.0024482 .0075667
vms2	1.44e-07	3.44e-08	4.17	0.000	7.61e-08 2.11e-07
rp14	-.0059911	.0015366	-3.90	0.000	-.0090027 -.0029795
_cons	-.27832				