ภาคผนวก ข

การทดสอบความสัมพันธ์เชิงดุลยภาพในระยะยาว (Cointegration Test)

โดยวิธี Johansen and Juselius (1990)

ตารางผนวกที่ 8 ผลการทดสอบ Cointegration ระหว่างตัวแปร CS และตัวแปร G

Date: 04/10/06 Time: 23:02
Sample(adjusted): 1994:3 2004:4
Included observations: 42 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: CS G
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.350437	24.06229	15.41	20.04
At most 1 *	0.131907	5.941151	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 2 cointegrating equation(s) at the 5% level
Trace test indicates 1 cointegrating equation(s) at the 1% level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.350437	18.12114	14.07	18.63
At most 1 *	0.131907	5.941151	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 2 cointegrating equation(s) at the 5% level
Max-eigenvalue test indicates no cointegration at the 1% level

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CS	G
-0.055289	0.084474
0.211770	-0.038073

Unrestricted Adjustment Coefficients (alpha):

D(CS)	-0.846359	-0.681713
D(G)	-8.590964	3.327941

1 Cointegrating Equation(s): Log likelihood -265.4192

Normalized cointegrating coefficients (std.err. in parentheses)

CS	G
1.000000	-1.527875
	(0.28808)

Adjustment coefficients (std.err. in parentheses)

D(CS)	0.046794
	(0.01975)
D(G)	0.474984
	(0.13326)

ตารางผนวกที่ 9 ผลการทดสอบ Cointegration ระหว่างตัวแปร CS และตัวแปร R

Date: 04/10/06 Time: 23:04
Sample(adjusted): 1994:3 2004:4
Included observations: 42 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: CS R
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.230952	11.31959	15.41	20.04
At most 1	0.006888	0.290293	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates no cointegration at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.230952	11.02930	14.07	18.63
At most 1	0.006888	0.290293	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CS	R
0.121646	0.317864
-0.122670	0.419569

Unrestricted Adjustment Coefficients (alpha):

D(CS)	-1.038950	0.048813
D(R)	-0.309691	-0.062760

1 Cointegrating Equation(s): Log likelihood -143.0783

Normalized cointegrating coefficients (std.err. in parentheses)

CS	R
1.000000	2.613038
	(1.26818)

Adjustment coefficients (std.err. in parentheses)

D(CS)	-0.126384
	(0.03917)
D(R)	-0.037672
	(0.01863)

<u>ตารางผนวกที่ 10</u> ผลการทดสอบ Cointegration ระหว่างตัวแปร CS และตัวแปร W

Date: 04/10/06 Time: 23:06
Sample(adjusted): 1994:3 2004:4
Included observations: 42 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: CS W
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.241808	17.79221	15.41	20.04
At most 1 *	0.136538	6.165822	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 2 cointegrating equation(s) at the 5% level
Trace test indicates no cointegration at the 1% level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.241808	11.62639	14.07	18.63
At most 1 *	0.136538	6.165822	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CS	W
0.043202	0.166536
0.169092	-0.067933

Unrestricted Adjustment Coefficients (alpha):

D(CS)	-0.284836	-0.859541
D(W)	-2.255432	-0.018253

1 Cointegrating Equation(s): Log likelihood -212.6943

Normalized cointegrating coefficients (std.err. in parentheses)

CS	W
1.000000	3.854842
	(1.18466)

Adjustment coefficients (std.err. in parentheses)

D(CS)	-0.012305
	(0.01668)
D(W)	-0.097439
	(0.02799)

ตารางผนวกที่ 11 ผลการทดสอบ Cointegration ระหว่างตัวแปร CS และตัวแปร I

Date: 04/10/06 Time: 23:06
Sample(adjusted): 1994:3 2004:4
Included observations: 42 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: CS I
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.480526	32.71093	15.41	20.04
At most 1 *	0.116526	5.203533	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 2 cointegrating equation(s) at the 5% level
Trace test indicates 1 cointegrating equation(s) at the 1% level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.480526	27.50740	14.07	18.63
At most 1 *	0.116526	5.203533	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 2 cointegrating equation(s) at the 5% level
Max-eigenvalue test indicates 1 cointegrating equation(s) at the 1% level

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CS	I
-0.473496	0.126264
0.029225	0.039887

Unrestricted Adjustment Coefficients (alpha):

D(CS)	0.924588	-0.679587
D(I)	-6.555369	-3.525713

1 Cointegrating Equation(s): Log likelihood -251.7817

Normalized cointegrating coefficients (std.err. in parentheses)

CS	I
1.000000	-0.266664
	(0.01695)

Adjustment coefficients (std.err. in parentheses)

D(CS)	-0.437788
	(0.16981)
D(I)	3.103938
	(0.95051)

ตารางผนวกที่ 12 ผลการทดสอบ Cointegration ระหว่างตัวแปร CS และตัวแปร M

Date: 04/10/06 Time: 23:07
Sample(adjusted): 1994:3 2004:4
Included observations: 42 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: CS M
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.207025	12.33661	15.41	20.04
At most 1	0.059897	2.594164	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates no cointegration at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.207025	9.742446	14.07	18.63
At most 1	0.059897	2.594164	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CS	M
0.168343	-0.017498
0.062739	0.181318

Unrestricted Adjustment Coefficients (alpha):

D(CS)	-0.905587	-0.333862
D(M)	0.757307	-0.318541

1 Cointegrating Equation(s): Log likelihood -180.7319

Normalized cointegrating coefficients (std.err. in parentheses)

CS	M
1.000000	-0.103941
	(0.33195)

Adjustment coefficients (std.err. in parentheses)

D(CS)	-0.152449
	(0.06108)
D(M)	0.127487
	(0.05387)

<u>ตารางผนวกที่ 13</u> ผลการทดสอบ Cointegration ระหว่างตัวแปร CS และตัวแปร T

Date: 04/10/06 Time: 23:08
Sample(adjusted): 1994:3 2004:4
Included observations: 42 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: CS T
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.196506	11.86665	15.41	20.04
At most 1	0.061764	2.677658	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates no cointegration at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.196506	9.188991	14.07	18.63
At most 1	0.061764	2.677658	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CS	T
0.123982	0.194471
-0.132672	0.256114

Unrestricted Adjustment Coefficients (alpha):

D(CS)	-0.495918	0.477335
D(T)	-0.615321	-0.031470

1 Cointegrating Equation(s): Log likelihood -157.9559
Normalized cointegrating coefficients (std.err. in parentheses)

CS	T
1.000000	1.568549
	(0.83859)

Adjustment coefficients (std.err. in parentheses)

D(CS)	-0.061485
	(0.04358)
D(T)	-0.076288
	(0.02515)