

มหาวิทยาลัยเชียงใหม่
Chiang Mai University

ภาคผนวก ก

ผลการทดสอบ บริษัทปูนซีเมนต์ไทยจำกัด

1. Unit Root Test

1.1 Trend and Intercept at I(0)

ADF Test Statistic	-16.00547	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SCC)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCC(-1)	-0.987237	0.061681	-16.00547	0.0000
C	1.388270	1.047637	1.325144	0.1863
@TREND(1/04/1998)	-0.002846	0.006972	-0.408196	0.6835

R-squared	0.500229	Mean dependent var	0.094788
Adjusted R-squared	0.496325	S.D. dependent var	11.81974
S.E. of regression	8.388477	Akaike info criterion	7.103110
Sum squared resid	18013.84	Schwarz criterion	7.144309
Log likelihood	-916.8528	F-statistic	128.1175
Durbin-Watson stat	1.937025	Prob(F-statistic)	0.000000

1.1 Intercept at I(0)

ADF Test Statistic	-16.02814	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SCC)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCC(-1)	-0.986980	0.061578	-16.02814	0.0000
C	1.018064	0.523567	1.944476	0.0529

R-squared	0.499904	Mean dependent var	0.094788
Adjusted R-squared	0.497958	S.D. dependent var	11.81974
S.E. of regression	8.374865	Akaike info criterion	7.096039
Sum squared resid	18025.56	Schwarz criterion	7.123505
Log likelihood	-916.9371	F-statistic	256.9014
Durbin-Watson stat	1.936351	Prob(F-statistic)	0.000000

1.3 None at I(0)

ADF Test Statistic	-15.82574	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SCC)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCC(-1)	-0.973807	0.061533	-15.82574	0.0000

R-squared	0.492547	Mean dependent var	0.094788
Adjusted R-squared	0.492547	S.D. dependent var	11.81974
S.E. of regression	8.419881	Akaike info criterion	7.102922
Sum squared resid	18290.75	Schwarz criterion	7.116655
Log likelihood	-918.8284	Durbin-Watson stat	1.937980

1.4 Cointegration

Dependent Variable: SCC
 Method: Least Squares
 Date: 05/31/03 Time: 14:51
 Sample: 1/11/1998 12/29/2002
 Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.816955	0.345386	2.365336	0.0188
SETI	1.321273	0.071775	18.40849	0.0000
R-squared	0.567747	Mean dependent var		0.946153
Adjusted R-squared	0.566072	S.D. dependent var		8.452656
S.E. of regression	5.568039	Akaike info criterion		6.279625
Sum squared resid	7998.789	Schwarz criterion		6.307015
Log likelihood	-814.3513	F-statistic		338.8726
Durbin-Watson stat	2.253501	Prob(F-statistic)		0.000000
Sum squared resid	1148619.	Schwarz criterion		11.27803
Log likelihood	-1454.948	F-statistic		10.29356
Durbin-Watson stat	2.006137	Prob(F-statistic)		0.001504

1.5 Residuals

ADF Test Statistic	-18.67580	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 05/31/03 Time: 14:51

Sample(adjusted): 1/18/1998 12/29/2002

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.138141	0.060942	-18.67580	0.0000
R-squared	0.574791	Mean dependent var		0.053848
Adjusted R-squared	0.574791	S.D. dependent var		8.358380
S.E. of regression	5.450337	Akaike info criterion		6.233086
Sum squared resid	7664.194	Schwarz criterion		6.246818
Log likelihood	-806.1846	Durbin-Watson stat		1.980381

1.6 Error Correction Method

Dependent Variable: D(SCC)

Method: Least Squares

Date: 05/31/03 Time: 14:53

Sample(adjusted): 1/25/1998 12/29/2002

Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005927	0.536020	0.011058	0.9912
D(SETI(-1))	-0.813088	0.152103	-5.345625	0.0000
D(SCC(-1))	0.035797	0.097400	0.367526	0.7135
RESID01(-1)	-1.157730	0.147867	-7.829550	0.0000
R-squared	0.452369	Mean dependent var		
Adjusted R-squared	0.445900	S.D. dependent var		
S.E. of regression	8.609314	Akaike info criterion		
Sum squared resid	18826.55	Schwarz criterion		
Log likelihood	-919.5044	F-statistic		
Durbin-Watson stat	2.275058	Prob(F-statistic)		

1.SCC Switching by Limdep

--> RESET

--> READ;file="C:\Documents and Settings\wiodows\My Documents\My eBooks\IS\SC...

this is record 512. expect len=10, found 10

--> SWITCH;Lhs=SCC;Rh1=ONE,SETI;Rh2=ONE,SETI;Sep=I\$

```
Switching Regressions
Ordinary least squares regression   Weighting variable = none
Dep. var. = SCC      Mean= 6.061441645 , S.D.= 7.471288417
Model size: Observations = 143, Parameters = 2, Deg.Fr.= 141
Residuals: Sum of squares= 4974.618544 , Std.Dev.= 5.93978
Fit:      R-squared= .372404, Adjusted R-squared = .36795
Model test: F[ 1, 141] = 83.67, Prob value = .00000
Diagnostic: Log-L = -456.6803, Restricted(b=0) Log-L = -489.9891
           LogAmemiyaPrCrt.= 3.577, Akaike Info. Crt.= 6.415
OLS estimates of equation 1
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	3.250229206	.58410384	5.564	.0000	
SETI	1.077805873	.11783228	9.147	.0000	2.6082734

```
Switching Regressions
Ordinary least squares regression   Weighting variable = none
Dep. var. = SCC      Mean= -5.305867422 , S.D.= 4.417228284
Model size: Observations = 117, Parameters = 2, Deg.Fr.=115
Residuals: Sum of squares= 1452.237529 , Std.Dev.= 3.55361
Fit:      R-squared= .358377, Adjusted R-squared = .35280
Model test: F[ 1, 115] = 64.23, Prob value = .00000
Diagnostic: Log-L = -313.3590, Restricted(b=0) Log-L = -339.3186
           LogAmemiyaPrCrt.= 2.553, Akaike Info. Crt.= 5.391
OLS estimates of equation 0
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	-2.436382450	.37157281	-6.557	.0000	
SETI	.9659630387	.58436048E-01	16.530	.0000	-2.9705950

Normal exit from iterations. Exit status=0.

```
Switching Regressions
Maximum Likelihood Estimates
Dependent variable          SCC
Weighting variable          ONE
Number of observations       260
Iterations completed         13
Log likelihood function      -948.7486
Sample separation variable is I
SCC is the minimum of y*(1) and y*(0)
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
RHS for Regime 1					
Constant	6.203543431	.69579496	8.916	.0000	
SETI	2.243447102	.18469907	12.146	.0000	2.6082734
RHS for Regime 2					
Constant	4.992115769	.71154145	7.016	.0000	
SETI	.7683486327	.10555207	7.279	.0000	-2.9705950
Sigma(1)	7.880304467	.69196589	11.388	.0000	
Sigma(0)	5.648268841	.28200350	20.029	.0000	

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2.SSI

2.1 Trend and Intercept at I(0)

ADF Test Statistic	-14.04314	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SS1)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SS1(-1)	-0.870188	0.061965	-14.04314	0.0000
C	0.024021	0.014913	1.610818	0.1085
@TREND(1/04/1998)	-8.86E-05	9.90E-05	-0.895159	0.3715

R-squared	0.435142	Mean dependent var	-2.44E-05
Adjusted R-squared	0.430729	S.D. dependent var	0.157568
S.E. of regression	0.118885	Akaike info criterion	-1.409801
Sum squared resid	3.618226	Schwarz criterion	-1.368602
Log likelihood	185.5692	F-statistic	98.60544
Durbin-Watson stat	2.023682	Prob(F-statistic)	0.000000

2.2 Intercept at I(0)

ADF Test Statistic	-14.02004	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SS1)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SS1(-1)	-0.866777	0.061824	-14.02004	0.0000
C	0.012453	0.007438	1.674252	0.0953

R-squared	0.433373	Mean dependent var	-2.44E-05
Adjusted R-squared	0.431169	S.D. dependent var	0.157568
S.E. of regression	0.118839	Akaike info criterion	-1.414398
Sum squared resid	3.629552	Schwarz criterion	-1.386932
Log likelihood	185.1645	F-statistic	196.5615
Durbin-Watson stat	2.025102	Prob(F-statistic)	0.000000

2.3 None at I(0)

ADF Test Statistic	-13.87133	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SS1)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SS1(-1)	-0.854392	0.061594	-13.87133	0.0000

R-squared	0.427193	Mean dependent var	-2.44E-05
Adjusted R-squared	0.427193	S.D. dependent var	0.157568
S.E. of regression	0.119254	Akaike info criterion	-1.411272
Sum squared resid	3.669139	Schwarz criterion	-1.397539
Log likelihood	183.7597	Durbin-Watson stat	2.031348

2.4 Cointegration

Dependent Variable: SSI
 Method: Least Squares
 Date: 05/31/03 Time: 14:39
 Sample: 1/11/1998 12/29/2002
 Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.286315	0.594324	2.164334	0.0314
SETI	1.484885	0.123507	12.02267	0.0000
R-squared	0.359077	Mean dependent var		1.431511
Adjusted R-squared	0.356593	S.D. dependent var		11.94475
S.E. of regression	9.581202	Akaike info criterion		7.365146
Sum squared resid	23684.26	Schwarz criterion		7.392536
Log likelihood	-955.4689	F-statistic		144.5445
Durbin-Watson stat	1.889619	Prob(F-statistic)		0.000000

2.5 Residual

ADF Test Statistic	-15.23840	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 05/31/03 Time: 14:44

Sample(adjusted): 1/18/1998 12/29/2002

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.946533	0.062115	-15.23840	0.0000
R-squared	0.473687	Mean dependent var		-0.048453
Adjusted R-squared	0.473687	S.D. dependent var		13.17056
S.E. of regression	9.554907	Akaike info criterion		7.355840
Sum squared resid	23554.43	Schwarz criterion		7.369573
Log likelihood	-951.5813	Durbin-Watson stat		2.010979

2.6 ECM

Dependent Variable: D(SSI)

Method: Least Squares

Date: 05/31/03 Time: 14:45

Sample(adjusted): 1/25/1998 12/29/2002

Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.078118	0.754675	-0.103512	0.9176
D(SETI(-1))	-0.789647	0.158400	-4.985134	0.0000
D(SSI(-1))	-0.036896	0.079163	-0.466083	0.6416
RESID01(-1)	-0.871388	0.108744	-8.013210	0.0000
R-squared	0.413674	Mean dependent var		-0.079973
Adjusted R-squared	0.406748	S.D. dependent var		15.73786
S.E. of regression	12.12174	Akaike info criterion		7.843261
Sum squared resid	37321.91	Schwarz criterion		7.898346
Log likelihood	-1007.781	F-statistic		59.73525
Durbin-Watson stat	2.215230	Prob(F-statistic)		0.000000

2.SSI Switching by Limdep

--> RESET

--> READ;file="C:\Documents and Settings\wiodows\My Documents\My eBooks\IS\SS...

this is record 512. expect len=10, found 10

--> SWITCH;Lhs=SSI;Rh1=ONE,SETI;Rh2=ONE,SETI;Sep=I\$

```
Switching Regressions
Ordinary least squares regression Weighting variable = none
Dep. var. = SSI Mean= 7.739868210 , S.D.= 11.22814405
Model size: Observations = 152, Parameters = 2, Deg.Fr.=150
Residuals: Sum of squares= 15459.63509 , Std.Dev.= 10.15206
Fit: R-squared= .187906, Adjusted R-squared = .18249
Model test: F[ 1, 150] = 34.71, Prob value = .00000
Diagnostic: Log-L = -566.9588, Restricted(b=0) Log-L =-582.7774
LogAmemiyaPrCrt.= 4.648, Akaike Info. Crt.= 7.486
OLS estimates of equation 1
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	5.797672615	.87580905	6.620	.0000	
SETI	.9662017529	.14840172	6.511	.0000	2.0101346

```
Switching Regressions
Ordinary least squares regression Weighting variable = none
Dep. var. = SSI Mean= -7.446918060 S.D.= 5.599104524
Model size: Observations = 108, Parameters = 2, Deg.Fr.= 106
Residuals: Sum of squares= 2578.573228 , Std.Dev.= 4.93216
Fit: R-squared= .231297, Adjusted R-squared = .22405
Model test: F[ 1, 106] = 31.89, Prob value = .00000
Diagnostic: Log-L = -324.5798, Restricted(b=0) Log-L =-338.7846
LogAmemiyaPrCrt.= 3.210, Akaike Info. Crt.= 6.048
OLS estimates of equation 0
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	-4.882550564	.51347849	-9.509	.0000	
SETI	.9887001311	.75570312E-01	13.083	.0000	-2.5936757

Normal exit from iterations. Exit status=0.

```
Switching Regressions
Maximum Likelihood Estimates
Dependent variable SSI
Weighting variable ONE
Number of observations 260
Iterations completed 12
Log likelihood function -1100.453
Sample separation variable is I
SSI is the minimum of y*(1) and y*(0)
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
RHS for Regime 1					
Constant	11.39757224	1.2798914	8.905	.0000	
SETI	2.929040097	.41116147	7.124	.0000	2.0101346
RHS for Regime 2					
Constant	7.577709764	1.1126864	6.810	.0000	
SETI	.7566919642	.13949146	5.425	.0000	-2.5936757
Sigma(1)	14.91854634	1.5287448	9.759	.0000	
Sigma(0)	9.528895808	.47941150	19.876	.0000	

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3. TPI PL

3.1 Trend and Intercept at I(0)

ADF Test Statistic	-15.56733	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(TPI)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TPI(-1)	-0.972615	0.062478	-15.56733	0.0000
C	3.177841	2.072308	1.533479	0.1264
@TREND(1/04/1998)	-0.014333	0.013781	-1.040066	0.2993
R-squared	0.486297	Mean dependent var		-0.011372
Adjusted R-squared	0.482283	S.D. dependent var		22.99232
S.E. of regression	16.54355	Akaike info criterion		8.461385
Sum squared resid	70064.42	Schwarz criterion		8.502584
Log likelihood	-1092.749	F-statistic		121.1711
Durbin-Watson stat	2.003148	Prob(F-statistic)		0.000000

3.2 Intercept at I(0)

ADF Test Statistic	-15.53009	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(TPI)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TPI(-1)	-0.968180	0.062342	-15.53009	0.0000
C	1.308461	1.031636	1.268336	0.2058
R-squared	0.484126	Mean dependent var		-0.011372
Adjusted R-squared	0.482119	S.D. dependent var		22.99232
S.E. of regression	16.54618	Akaike info criterion		8.457880
Sum squared resid	70360.48	Schwarz criterion		8.485346
Log likelihood	-1093.295	F-statistic		241.1837
Durbin-Watson stat	2.004103	Prob(F-statistic)		0.000000

3.3 None at I(0)

ADF Test Statistic	-15.45999	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(TPI)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TPI(-1)	-0.961667	0.062204	-15.45999	0.0000
R-squared	0.480897	Mean dependent var		-0.011372
Adjusted R-squared	0.480897	S.D. dependent var		22.99232
S.E. of regression	16.56569	Akaike info criterion		8.456398
Sum squared resid	70800.89	Schwarz criterion		8.470131
Log likelihood	-1094.104	Durbin-Watson stat		2.005472

3.4 Cointegration

Dependent Variable: TPIPL
 Method: Least Squares
 Date: 05/31/03 Time: 15:06
 Sample: 1/11/1998 12/29/2002
 Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.178456	0.852628	1.382145	0.1681
SETI	1.898750	0.177186	10.71616	0.0000
R-squared	0.308007	Mean dependent var		1.364121
Adjusted R-squared	0.305325	S.D. dependent var		16.49172
S.E. of regression	13.74538	Akaike info criterion		8.086945
Sum squared resid	48745.35	Schwarz criterion		8.114335
Log likelihood	-1049.303	F-statistic		114.8361
Durbin-Watson stat	2.208666	Prob(F-statistic)		0.000000

3.5 Residual

ADF Test Statistic	-17.92056	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 05/31/03 Time: 15:07

Sample(adjusted): 1/18/1998 12/29/2002

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.106789	0.061761	-17.92056	0.0000
R-squared	0.554511	Mean dependent var		-0.070206
Adjusted R-squared	0.554511	S.D. dependent var		20.42769
S.E. of regression	13.63445	Akaike info criterion		8.066929
Sum squared resid	47961.71	Schwarz criterion		8.080662
Log likelihood	-1043.667	Durbin-Watson stat		2.003581

3.6 Error Correction Method

Dependent Variable: D(TPIPL)

Method: Least Squares

Date: 05/31/03 Time: 15:08

Sample(adjusted): 1/25/1998 12/29/2002

Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.045301	1.013832	-0.044683	0.9644
D(SETI(-1))	-1.146379	0.208218	-5.505681	0.0000
D(TPIPL(-1))	0.077316	0.074203	1.041955	0.2984
RESID01(-1)	-1.227150	0.110752	-11.08021	0.0000
R-squared	0.506152	Mean dependent var		-0.010650
Adjusted R-squared	0.500320	S.D. dependent var		23.03700
S.E. of regression	16.28441	Akaike info criterion		8.433676
Sum squared resid	67356.26	Schwarz criterion		8.488761
Log likelihood	-1083.944	F-statistic		86.77625
Durbin-Watson stat	2.104225	Prob(F-statistic)		0.000000

3.TPI Switching by Limdep

```
--> RESET
--> READ,file="C:\Documents and Settings\wiodows\My Documents\My
eBooks\IS\TP...
```

```
this is record 512. expect len=10, found 10
```

```
--> SWITCH;Lhs=TPIPL;Rh1=ONE,SETI;Rh2=ONE,SETI;Sep=I$
```

```
Switching Regressions
| Ordinary least squares regression weighting variable = none
| Dep. var. = TPIPL Mean= 9.155829263 , S.D.= 15.67195327
| Model size: Observations = 148, Parameters = 2, Deg.Fr.=146
| Residuals: Sum of squares= 29270.88405 , Std.Dev.= 14.15929
| Fit: R-squared= .189277, Adjusted R-squared = .18372
| Model test: F[ 1, 146] = 34.09, Prob value = .00000
| Diagnostic: Log-L = -601.2510, Restricted(b=0) Log-L = -616.7784
| LogAmemiyaPrCrt.= 5.314, Akaike Info. Crt.= 8.152
| OLS estimates of equation 1
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	7.031927647	1.2402638	5.670	.0000	
SETI	1.007123376	.20319411	4.956	.0000	2.1088793

```
Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = TPIPL Mean= -8.932064508 , S.D.=11.01955865
| Model size: Observations = 112, Parameters =2, Deg.Fr.=110
| Residuals: Sum of squares= 13412.19547 , Std.Dev.=11.04215
| Fit: R-squared= .004942, Adjusted R-squared = -.00410
| Model test: F[ 1, 110] = .55, Prob value = .46141
| Diagnostic: Log-L = -426.9047, Restricted(b=0) Log-L = -27.1821
| LogAmemiyaPrCrt.= 4.821, Akaike Info.Crt.=7.659
| OLS estimates of equation 0
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	-5.454678145	1.1306166	-4.825	.0000	
SETI	1.358493134	.17012622	7.985	.0000	-2.5597379

```
Normal exit from iterations. Exit status=0.
```

```
Switching Regressions
| Maximum Likelihood Estimates
| Dependent variable TPIPL
| Weighting variable ONE
| Number of observations 260
| Iterations completed 13
| Log likelihood function -1190.472
| Sample separation variable is I
| TPIPL is the minimum of y*(1) and y*(0)
```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
RHS for Regime 1					
Constant	15.00365306	1.9142099	7.838	.0000	
SETI	3.850875948	.48867320	7.880	.0000	2.1088793
RHS for Regime 2					
Constant	9.588626539	1.6683026	5.748	.0000	
SETI	1.013902377	.25338077	4.001	.0001	-2.5597379
Sigma(1)	20.93809171	.77205917	27.120	.0000	
Sigma(0)	13.10888756	.57093366	22.960	.0000	

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4.DCC

4.1 Trend and Intercept at I(0)

ADF Test Statistic	-16.86982	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(DCC)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DCC(-1)	-1.052786	0.062406	-16.86982	0.0000
C	-4.484700	3.471016	-1.292043	0.1975
@TREND(1/04/1998)	0.024199	0.023122	1.046574	0.2963
R-squared	0.526445	Mean dependent var		0.000283
Adjusted R-squared	0.522745	S.D. dependent var		40.19858
S.E. of regression	27.77064	Akaike info criterion		9.497351
Sum squared resid	197429.3	Schwarz criterion		9.538550
Log likelihood	-1226.907	F-statistic		142.2958
Durbin-Watson stat	1.996368	Prob(F-statistic)		0.000000

4.2 Intercept at I(0)

ADF Test Statistic	-16.83423	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(DCC)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DCC(-1)	-1.048839	0.062304	-16.83423	0.0000
C	-1.333830	1.727722	-0.772016	0.4408
R-squared	0.524419	Mean dependent var		0.000283
Adjusted R-squared	0.522568	S.D. dependent var		40.19858
S.E. of regression	27.77579	Akaike info criterion		9.493898
Sum squared resid	198274.1	Schwarz criterion		9.521364
Log likelihood	-1227.460	F-statistic		283.3913
Durbin-Watson stat	1.996041	Prob(F-statistic)		0.000000

4.3 None at I(0)

ADF Test Statistic	-16.82970	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(DCC)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DCC(-1)	-1.046632	0.062190	-16.82970	0.0000
R-squared	0.523316	Mean dependent var		0.000283
Adjusted R-squared	0.523316	S.D. dependent var		40.19858
S.E. of regression	27.75403	Akaike info criterion		9.488493
Sum squared resid	198733.9	Schwarz criterion		9.502226
Log likelihood	-1227.760	Durbin-Watson stat		1.996013

4.4 Cointegration

Dependent Variable: DCC
 Method: Least Squares
 Date: 05/31/03 Time: 15:02
 Sample: 1/11/1998 12/29/2002
 Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.310007	1.714440	-0.764102	0.4455
SETI	0.527212	0.356280	1.479770	0.1402
R-squared	0.008416	Mean dependent var		-1.258455
Adjusted R-squared	0.004573	S.D. dependent var		27.70222
S.E. of regression	27.63881	Akaike info criterion		9.483982
Sum squared resid	197087.2	Schwarz criterion		9.511371
Log likelihood	-1230.918	F-statistic		2.189720
Durbin-Watson stat	2.151966	Prob(F-statistic)		0.140155

4.5 Residual

ADF Test Statistic	-17.33702	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(RESID01)
 Method: Least Squares
 Date: 05/31/03 Time: 15:02
 Sample(adjusted): 1/18/1998 12/29/2002
 Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.076118	0.062071	-17.33702	0.0000
R-squared	0.538108	Mean dependent var		-0.016053
Adjusted R-squared	0.538108	S.D. dependent var		40.54497
S.E. of regression	27.55543	Akaike info criterion		9.474130
Sum squared resid	195899.9	Schwarz criterion		9.487863
Log likelihood	-1225.900	Durbin-Watson stat		1.994689

4.6 Error Correction Method

Dependent Variable: D(DCC)
 Method: Least Squares
 Date: 05/31/03 Time: 15:03
 Sample(adjusted): 1/25/1998 12/29/2002
 Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.047539	1.713910	-0.027737	0.9779
D(SETI(-1))	0.109229	0.263382	0.414718	0.6787
D(DCC(-1))	-0.021395	0.062338	-0.343214	0.7317
RESID01(-1)	-1.040621	0.091319	-11.39544	0.0000
R-squared	0.538269	Mean dependent var		-0.007783
Adjusted R-squared	0.532815	S.D. dependent var		40.27650
S.E. of regression	27.52935	Akaike info criterion		9.483765
Sum squared resid	192497.8	Schwarz criterion		9.538850
Log likelihood	-1219.406	F-statistic		98.70121
Durbin-Watson stat	2.004826	Prob(F-statistic)		0.000000

4.DCC Switching by Limdep

--> RESET

--> READ;file="C:\Documents and Settings\wiodows\My Documents\My eBooks\IS\DC...

this is record 512. expect len=10, found 10

--> SWITCH;Lhs=DCC;Rh1=ONE,SETI;Rh2=ONE,SETI;Sep=I\$

Switching Regressions

```

Ordinary least squares regression Weighting variable = none
Dep. var. = DCC Mean= 11.99115901 , S.D.= 20.58587324
Model size: Observations = 136, Parameters = 2, Deg.Fr.=134
Residuals: Sum of squares= 56856.50395 , Std.Dev.= 20.59860
Fit: R-squared= .006180, Adjusted R-squared = -.00124
Model test: F[ 1, 134] = .83, Prob value = .36297
Diagnostic: Log-L = -603.3986, Restricted(b=0) Log-L = -603.8201
LogAmemiyaPrCrt.= 6.065, Akaike Info. Crt.= 8.903
OLS estimates of equation 1

```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	11.06452246	1.7818905	6.209	.0000	
SETI	1.165594583	.29570544	3.942	.0001	.79499044

Switching Regressions

```

Ordinary least squares regression Weighting variable = none
Dep. var. = DCC Mean= -15.7902901 S.D.= 27.27296202
Model size: Observations = 124, Parameters =2, Deg.Fr.=122
Residuals: Sum of squares= 91723.00412 , Std.Dev.=27.41948
Fit: R-squared= -.002556, Adjusted R-squared = -.01077
Diagnostic: Log-L = -585.5357, Restricted(b=0) Log-L = -85.3774
LogAmemiyaPrCrt.= 6.639, Akaike Info. Crt.=9.476
OLS estimates of equation 0

```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
Constant	-15.72888032	2.4741111	-6.357	.0000	
SETI	.9208295269E-01	.36142614	.255	.7989	-.66689687

Normal exit from iterations. Exit status=0.

Switching Regressions

Maximum Likelihood Estimates

```

Dependent variable DCC
Weighting variable ONE
Number of observations 260
Iterations completed 16
Log likelihood function -1353.785
Sample separation variable is I
DCC is the minimum of y*(1) and y*(0)

```

Variable	Coefficient	Standard Error	b/St.Er.	P[Z >z]	Mean of X
RHS for Regime 1					
Constant	19.61727250	4.0598458	4.832	.0000	
SETI	1.303708497	.64199247	2.031	.0423	.79499044
RHS for Regime 2					
Constant	15.44968515	2.4424289	6.326	.0000	
SETI	.2818624993	.34815111	.810	.4182	-.66689687
Sigma(1)	45.02465121	2.4870274	18.104	.0000	
Sigma(0)	18.83363149	.70872980	26.574	.0000	

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ผลการทดสอบ ตลาดหลักทรัพย์แห่งประเทศไทย

5. Set Index (Rm)

5.1 Trend and Intercept at I(0)

ADF Test Statistic	-14.98103	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SETI)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SETI(-1)	-0.931197	0.062158	-14.98103	0.0000
C	0.211463	0.600887	0.351918	0.7252
@TREND(1/04/1998)	-0.000736	0.004006	-0.183774	0.8543
R-squared	0.467157	Mean dependent var		0.030985
Adjusted R-squared	0.462994	S.D. dependent var		6.578405
S.E. of regression	4.820700	Akaike info criterion		5.995231
Sum squared resid	5949.222	Schwarz criterion		6.036429
Log likelihood	-773.3824	F-statistic		112.2208
Durbin-Watson stat	1.990394	Prob(F-statistic)		0.000000

5.2 Intercept at I(0)

ADF Test Statistic	-15.00849	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SETI)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SETI(-1)	-0.931134	0.062040	-15.00849	0.0000
C	0.115740	0.299033	0.387047	0.6990
R-squared	0.467087	Mean dependent var		0.030985
Adjusted R-squared	0.465013	S.D. dependent var		6.578405
S.E. of regression	4.811629	Akaike info criterion		5.987641
Sum squared resid	5950.007	Schwarz criterion		6.015106
Log likelihood	-773.3995	F-statistic		225.2548
Durbin-Watson stat	1.990283	Prob(F-statistic)		0.000000

5.3 None at I(0)

ADF Test Statistic	-15.02864	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SETI)

Method: Least Squares

Sample(adjusted): 1/11/1998 12/22/2002

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SETI(-1)	-0.930681	0.061927	-15.02864	0.0000
R-squared	0.466776	Mean dependent var		0.030985
Adjusted R-squared	0.466776	S.D. dependent var		6.578405
S.E. of regression	4.803695	Akaike info criterion		5.980501
Sum squared resid	5953.475	Schwarz criterion		5.994234
Log likelihood	-773.4749	Durbin-Watson stat		1.990204

ประวัติผู้เขียน

ชื่อ	สุพิมพรรณ ฟูเจริญ
วัน เดือน ปีเกิด	4 มีนาคม 2522
ประวัติการศึกษา	สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนคาราวีทยาลัย ปีการศึกษา 2539 สำเร็จการศึกษาปริญญาวิศวกรรมศาสตรบัณฑิต สาขาวิศวกรรมศาสตร์ มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2544