



ภาคผนวก ก
การทดสอบความนึ่งของข้อมูล

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ค่าสถิติการทดสอบ Unit root
ของหลักทรัพย์กลุ่มพลังงาน ข้อมูลรายสัปดาห์

At level with intercept but without trend

Null Hypothesis: RM has a unit root

Exogenous: Constant

Lag Length: 1 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.009794
Test critical values:	
1% level	-2.579967
5% level	-1.942896
10% level	-1.615342

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:32

Sample (adjusted): 1/15/2004 12/28/2006

Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.180564	0.059992	-3.009794	0.0031
D(GLSRESID(-1))	-0.423081	0.075218	-5.624715	0.0000

R-squared	0.304788	Mean dependent var	-0.009879
Adjusted R-squared	0.300244	S.D. dependent var	3.657703
S.E. of regression	3.059720	Akaike info criterion	5.087343
Sum squared resid	1432.369	Schwarz criterion	5.126613
Log likelihood	-392.2691	Durbin-Watson stat	2.219301

At level with intercept and trend
 Null Hypothesis: RM has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 3 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.617075
Test critical values: 1% level	-3.516400
5% level	-2.977000
10% level	-2.687000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals
 Dependent Variable: D(GLSRESID)
 Method: Least Squares
 Date: 09/17/07 Time: 15:47
 Sample (adjusted): 1/29/2004 12/28/2006
 Included observations: 153 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.351600	0.097206	-3.617075	0.0004
D(GLSRESID(-1))	-0.486096	0.105762	-4.596132	0.0000
D(GLSRESID(-2))	-0.271232	0.102476	-2.646784	0.0090
D(GLSRESID(-3))	-0.080330	0.081441	-0.986366	0.3256
R-squared	0.421735	Mean dependent var		0.053819
Adjusted R-squared	0.410092	S.D. dependent var		3.672355
S.E. of regression	2.820569	Akaike info criterion		4.937550
Sum squared resid	1185.385	Schwarz criterion		5.016777
Log likelihood	-373.7226	Durbin-Watson stat		2.052261

At level with intercept but without trend

Null Hypothesis: RSETENERG has a unit root

Exogenous: Constant

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.476364
Test critical values:	
1% level	-2.579870
5% level	-1.942883
10% level	-1.615351

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:35

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.147132	0.042323	-3.476364	0.0007
R-squared	0.072115	Mean dependent var		-0.071514
Adjusted R-squared	0.072115	S.D. dependent var		4.718186
S.E. of regression	4.544878	Akaike info criterion		5.872268
Sum squared resid	3201.667	Schwarz criterion		5.891819
Log likelihood	-457.0369	Durbin-Watson stat		2.737961

At level with intercept and trend

Null Hypothesis: RSETENERG has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.694787
Test critical values: 1% level	-3.514000
5% level	-2.975000
10% level	-2.685000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:51

Sample (adjusted): 1/15/2004 12/28/2006

Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.235112	0.063633	-3.694787	0.0003
D(GLSRESID(-1))	-0.420852	0.069757	-6.033152	0.0000
R-squared	0.367398	Mean dependent var		0.112537
Adjusted R-squared	0.363264	S.D. dependent var		4.534515
S.E. of regression	3.618351	Akaike info criterion		5.422733
Sum squared resid	2003.147	Schwarz criterion		5.462003
Log likelihood	-418.2618	Durbin-Watson stat		2.365150

At level with intercept but without trend

Null Hypothesis: GOIL has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on Modified SIC, MAXLAG=13)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-6.078578
Test critical values:	
1% level	-2.580065
5% level	-1.942910
10% level	-1.615334

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:36

Sample (adjusted): 1/22/2004 12/28/2006

Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.860376	0.141542	-6.078578	0.0000
D(GLSRESID(-1))	-0.180885	0.116573	-1.551689	0.1228
D(GLSRESID(-2))	-0.120719	0.080785	-1.494319	0.1372
R-squared	0.525432	Mean dependent var		-0.015372
Adjusted R-squared	0.519146	S.D. dependent var		6.239374
S.E. of regression	4.326609	Akaike info criterion		5.786733
Sum squared resid	2826.651	Schwarz criterion		5.845895
Log likelihood	-442.5785	Durbin-Watson stat		1.951728

At level with intercept and trend

Null Hypothesis: GOIL has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Automatic based on Modified SIC, MAXLAG=13)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-6.050818
Test critical values:	
1% level	-3.515200
5% level	-2.976000
10% level	-2.686000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:37

Sample (adjusted): 1/22/2004 12/28/2006

Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.845716	0.139769	-6.050818	0.0000
D(GLSRESID(-1))	-0.190550	0.115667	-1.647399	0.1016
D(GLSRESID(-2))	-0.125490	0.080512	-1.558656	0.1212
R-squared	0.524622	Mean dependent var		-0.001827
Adjusted R-squared	0.518325	S.D. dependent var		6.239374
S.E. of regression	4.330300	Akaike info criterion		5.788439
Sum squared resid	2831.476	Schwarz criterion		5.847600
Log likelihood	-442.7098	Durbin-Watson stat		1.956813

At level with intercept but without trend

Null Hypothesis: RBAFS has a unit root

Exogenous: Constant

Lag Length: 4 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.232912
Test critical values:	
1% level	-2.580264
5% level	-1.942938
10% level	-1.615316

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:39

Sample (adjusted): 2/05/2004 12/28/2006

Included observations: 152 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.384868	0.119047	-3.232912	0.0015
D(GLSRESID(-1))	-0.629712	0.121231	-5.194337	0.0000
D(GLSRESID(-2))	-0.607687	0.120464	-5.044549	0.0000
D(GLSRESID(-3))	-0.307421	0.104978	-2.928436	0.0039
D(GLSRESID(-4))	-0.241403	0.075679	-3.189827	0.0017
R-squared	0.572717	Mean dependent var		0.072093
Adjusted R-squared	0.561090	S.D. dependent var		4.318013
S.E. of regression	2.860695	Akaike info criterion		4.972348
Sum squared resid	1202.986	Schwarz criterion		5.071818
Log likelihood	-372.8984	Durbin-Watson stat		1.952868

At level with intercept and trend

Null Hypothesis: RBAFS has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 5 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.673911
Test critical values: 1% level	-3.518800
5% level	-2.979000
10% level	-2.689000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:54

Sample (adjusted): 2/12/2004 12/28/2006

Included observations: 151 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.646720	0.176030	-3.673911	0.0003
D(GLSRESID(-1))	-0.439928	0.162629	-2.705097	0.0076
D(GLSRESID(-2))	-0.475121	0.147799	-3.214647	0.0016
D(GLSRESID(-3))	-0.281394	0.134334	-2.094729	0.0379
D(GLSRESID(-4))	-0.316740	0.107352	-2.950469	0.0037
D(GLSRESID(-5))	-0.163376	0.074723	-2.186436	0.0304
R-squared	0.598992	Mean dependent var	-0.023574	
Adjusted R-squared	0.585165	S.D. dependent var	4.125395	
S.E. of regression	2.657073	Akaike info criterion	4.831251	
Sum squared resid	1023.705	Schwarz criterion	4.951143	
Log likelihood	-358.7595	Durbin-Watson stat	2.145875	

At level with intercept but without trend

Null Hypothesis: RBANPU has a unit root

Exogenous: Constant

Lag Length: 1 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.849342
Test critical values:	
1% level	-2.579967
5% level	-1.942896
10% level	-1.615342

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:06

Sample (adjusted): 1/15/2004 12/28/2006

Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.158435	0.055604	-2.849342	0.0050
D(GLSRESID(-1))	-0.480673	0.070856	-6.783849	0.0000
R-squared	0.349724	Mean dependent var		-0.093638
Adjusted R-squared	0.345473	S.D. dependent var		6.778702
S.E. of regression	5.484161	Akaike info criterion		6.254424
Sum squared resid	4601.631	Schwarz criterion		6.293694
Log likelihood	-482.7179	Durbin-Watson stat		2.097624

At level with intercept and trend

Null Hypothesis: RBANPU has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.627494
Test critical values:	
1% level	-3.515200
5% level	-2.976000
10% level	-2.686000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:56

Sample (adjusted): 1/22/2004 12/28/2006

Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.313672	0.086471	-3.627494	0.0004
D(GLSRESID(-1))	-0.503547	0.090511	-5.563363	0.0000
D(GLSRESID(-2))	-0.207020	0.074327	-2.785243	0.0060
R-squared	0.448053	Mean dependent var		0.148539
Adjusted R-squared	0.440743	S.D. dependent var		6.438100
S.E. of regression	4.814636	Akaike info criterion		6.000486
Sum squared resid	3500.289	Schwarz criterion		6.059648
Log likelihood	-459.0375	Durbin-Watson stat		2.091312

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At level with intercept but without trend

Null Hypothesis: RBCP has a unit root

Exogenous: Constant

Lag Length: 12 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.812160
Test critical values:	
1% level	-2.581120
5% level	-1.943058
10% level	-1.615241

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:07

Sample (adjusted): 4/01/2004 12/28/2006

Included observations: 144 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-1.114669	0.396375	-2.812160	0.0057
D(GLSRESID(-1))	-0.024173	0.378113	-0.063929	0.9491
D(GLSRESID(-2))	-0.024751	0.354653	-0.069790	0.9445
D(GLSRESID(-3))	-0.127747	0.333826	-0.382676	0.7026
D(GLSRESID(-4))	-0.305385	0.313520	-0.974051	0.3318
D(GLSRESID(-5))	-0.301645	0.286785	-1.051817	0.2948
D(GLSRESID(-6))	-0.313451	0.259792	-1.206547	0.2298
D(GLSRESID(-7))	-0.369107	0.234026	-1.577210	0.1172
D(GLSRESID(-8))	-0.407589	0.206596	-1.972885	0.0506
D(GLSRESID(-9))	-0.312086	0.176392	-1.769271	0.0792
D(GLSRESID(-10))	-0.359218	0.146428	-2.453199	0.0155
D(GLSRESID(-11))	-0.431860	0.113318	-3.811034	0.0002
D(GLSRESID(-12))	-0.282410	0.076545	-3.689472	0.0003
R-squared	0.630983	Mean dependent var		0.054478
Adjusted R-squared	0.597180	S.D. dependent var		7.607564
S.E. of regression	4.828374	Akaike info criterion		6.072836
Sum squared resid	3054.029	Schwarz criterion		6.340945
Log likelihood	-424.2442	Durbin-Watson stat		2.032759

At level with intercept and trend

Null Hypothesis: RBCP has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 11 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-4.283970
Test critical values:	
1% level	-3.526000
5% level	-2.985000
10% level	-2.695000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:44

Sample (adjusted): 3/25/2004 12/28/2006

Included observations: 145 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-1.758172	0.410407	-4.283970	0.0000
D(GLSRESID(-1))	0.661178	0.383902	1.722255	0.0873
D(GLSRESID(-2))	0.612066	0.360881	1.696031	0.0922
D(GLSRESID(-3))	0.485961	0.339635	1.430831	0.1548
D(GLSRESID(-4))	0.334915	0.311145	1.076395	0.2837
D(GLSRESID(-5))	0.309640	0.281187	1.101192	0.2728
D(GLSRESID(-6))	0.251214	0.252944	0.993159	0.3224
D(GLSRESID(-7))	0.158641	0.223311	0.710404	0.4787
D(GLSRESID(-8))	0.061794	0.189620	0.325884	0.7450
D(GLSRESID(-9))	0.130470	0.156615	0.833059	0.4063
D(GLSRESID(-10))	0.052669	0.121066	0.435045	0.6642
D(GLSRESID(-11))	-0.097375	0.080505	-1.209550	0.2286
R-squared	0.589282	Mean dependent var		0.052972
Adjusted R-squared	0.555312	S.D. dependent var		7.582495
S.E. of regression	5.056379	Akaike info criterion		6.158311
Sum squared resid	3400.407	Schwarz criterion		6.404661
Log likelihood	-434.4775	Durbin-Watson stat		2.083355

At level with intercept but without trend

Null Hypothesis: REASW has a unit root

Exogenous: Constant

Lag Length: 1 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.894637
Test critical values:	
1% level	-2.580065
5% level	-1.942910
10% level	-1.615334

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:08

Sample (adjusted): 1/22/2004 12/28/2006

Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.282139	0.072443	-3.894637	0.0001
D(GLSRESID(-1))	-0.398139	0.074090	-5.373705	0.0000
R-squared	0.359959	Mean dependent var		0.011806
Adjusted R-squared	0.355748	S.D. dependent var		4.378470
S.E. of regression	3.514393	Akaike info criterion		5.364513
Sum squared resid	1877.346	Schwarz criterion		5.403954
Log likelihood	-411.0675	Durbin-Watson stat		2.298114

At level with intercept and trend

Null Hypothesis: REASW has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.921703
Test critical values:	
1% level	-3.516400
5% level	-2.977000
10% level	-2.687000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:58

Sample (adjusted): 1/29/2004 12/28/2006

Included observations: 153 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.393728	0.100397	-3.921703	0.0001
D(GLSRESID(-1))	-0.510615	0.097595	-5.231980	0.0000
D(GLSRESID(-2))	-0.290514	0.077102	-3.767940	0.0002
R-squared	0.476335	Mean dependent var		0.034137
Adjusted R-squared	0.469352	S.D. dependent var		4.392265
S.E. of regression	3.199570	Akaike info criterion		5.183323
Sum squared resid	1535.588	Schwarz criterion		5.242744
Log likelihood	-393.5242	Durbin-Watson stat		2.116982

At level with intercept but without trend

Null Hypothesis: RECOMP has a unit root

Exogenous: Constant

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.610101
Test critical values:	
1% level	-2.579870
5% level	-1.942883
10% level	-1.615351

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:00

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.088012	0.033720	-2.610101	0.0099
R-squared	0.041594	Mean dependent var		-0.129475
Adjusted R-squared	0.041594	S.D. dependent var		5.642010
S.E. of regression	5.523426	Akaike info criterion		6.262263
Sum squared resid	4728.777	Schwarz criterion		6.281814
Log likelihood	-487.4565	Durbin-Watson stat		2.847551

At level with intercept and trend

Null Hypothesis: RECOMP has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-4.931148
Test critical values:	
1% level	-3.512800
5% level	-2.974000
10% level	-2.684000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 15:59

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.270622	0.054880	-4.931148	0.0000
R-squared	0.135603	Mean dependent var	-0.009363	
Adjusted R-squared	0.135603	S.D. dependent var	5.642010	
S.E. of regression	5.245544	Akaike info criterion	6.159025	
Sum squared resid	4264.938	Schwarz criterion	6.178575	
Log likelihood	-479.4039	Durbin-Watson stat	2.571426	

At level with intercept but without trend

Null Hypothesis: RLANNA has a unit root

Exogenous: Constant

Lag Length: 2 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.827230
Test critical values:	
1% level	-2.580065
5% level	-1.942910
10% level	-1.615334

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:02

Sample (adjusted): 1/22/2004 12/28/2006

Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.233587	0.082620	-2.827230	0.0053
D(GLSRESID(-1))	-0.590957	0.091673	-6.446329	0.0000
D(GLSRESID(-2))	-0.336848	0.077179	-4.364492	0.0000
R-squared	0.435226	Mean dependent var		-0.035753
Adjusted R-squared	0.427746	S.D. dependent var		7.351277
S.E. of regression	5.561057	Akaike info criterion		6.288742
Sum squared resid	4669.728	Schwarz criterion		6.347903
Log likelihood	-481.2331	Durbin-Watson stat		2.038747

At level with intercept and trend

Null Hypothesis: RLANNA has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 5 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-4.005548
Test critical values:	
1% level	-3.518800
5% level	-2.979000
10% level	-2.689000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:03

Sample (adjusted): 2/12/2004 12/28/2006

Included observations: 151 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.548953	0.137048	-4.005548	0.0001
D(GLSRESID(-1))	-0.399165	0.135096	-2.954682	0.0037
D(GLSRESID(-2))	-0.271719	0.132571	-2.049618	0.0422
D(GLSRESID(-3))	-0.042334	0.127583	-0.331811	0.7405
D(GLSRESID(-4))	-0.033444	0.110980	-0.301350	0.7636
D(GLSRESID(-5))	0.011239	0.081459	0.137972	0.8905
R-squared	0.490383	Mean dependent var		0.022466
Adjusted R-squared	0.472810	S.D. dependent var		7.345236
S.E. of regression	5.333216	Akaike info criterion		6.224710
Sum squared resid	4124.263	Schwarz criterion		6.344602
Log likelihood	-463.9656	Durbin-Watson stat		1.986477

At level with intercept but without trend

Null Hypothesis: RPTT has a unit root

Exogenous: Constant

Lag Length: 1 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.663006
Test critical values:	
1% level	-2.579967
5% level	-1.942896
10% level	-1.615342

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:04

Sample (adjusted): 1/15/2004 12/28/2006

Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.137734	0.051721	-2.663006	0.0086
D(GLSRESID(-1))	-0.469564	0.069121	-6.793391	0.0000

R-squared	0.340679	Mean dependent var	0.046224
Adjusted R-squared	0.336370	S.D. dependent var	5.267134
S.E. of regression	4.290792	Akaike info criterion	5.763639
Sum squared resid	2816.868	Schwarz criterion	5.802909
Log likelihood	-444.6820	Durbin-Watson stat	2.386742

At level with intercept and trend

Null Hypothesis: RPTT has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.630646
Test critical values:	
1% level	-3.515200
5% level	-2.976000
10% level	-2.686000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:05

Sample (adjusted): 1/22/2004 12/28/2006

Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.306521	0.084426	-3.630646	0.0004
D(GLSRESID(-1))	-0.575333	0.090225	-6.376624	0.0000
D(GLSRESID(-2))	-0.300471	0.074058	-4.057232	0.0001
R-squared	0.466188	Mean dependent var		0.062507
Adjusted R-squared	0.459117	S.D. dependent var		5.254726
S.E. of regression	3.864574	Akaike info criterion		5.560868
Sum squared resid	2255.175	Schwarz criterion		5.620030
Log likelihood	-425.1869	Durbin-Watson stat		2.120669

At level with intercept but without trend

Null Hypothesis: RPTTEP has a unit root

Exogenous: Constant

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.909776
Test critical values:	
1% level	-2.579870
5% level	-1.942883
10% level	-1.615351

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:06

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.106041	0.036443	-2.909776	0.0041
R-squared	0.051490	Mean dependent var		-0.111130
Adjusted R-squared	0.051490	S.D. dependent var		6.211769
S.E. of regression	6.049734	Akaike info criterion		6.444295
Sum squared resid	5672.889	Schwarz criterion		6.463846
Log likelihood	-501.6550	Durbin-Watson stat		2.857113

At level with intercept and trend

Null Hypothesis: RPTTEP has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-5.564932
Test critical values:	
1% level	-3.512800
5% level	-2.974000
10% level	-2.684000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:07

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.333777	0.059979	-5.564932	0.0000
R-squared	0.166524	Mean dependent var		0.008512
Adjusted R-squared	0.166524	S.D. dependent var		6.211769
S.E. of regression	5.671029	Akaike info criterion		6.315008
Sum squared resid	4984.889	Schwarz criterion		6.334558
Log likelihood	-491.5706	Durbin-Watson stat		2.531478

At level with intercept but without trend

Null Hypothesis: RRPC has a unit root

Exogenous: Constant

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.540196
Test critical values:	
1% level	-2.579870
5% level	-1.942883
10% level	-1.615351

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:07

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.152609	0.043108	-3.540196	0.0005
R-squared	0.074575	Mean dependent var	-0.102787	
Adjusted R-squared	0.074575	S.D. dependent var	6.482721	
S.E. of regression	6.236313	Akaike info criterion	6.505045	
Sum squared resid	6028.199	Schwarz criterion	6.524595	
Log likelihood	-506.3935	Durbin-Watson stat	2.649183	

At level with intercept and trend

Null Hypothesis: RRPC has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-4.012241
Test critical values:	
1% level	-3.514000
5% level	-2.975000
10% level	-2.685000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:08

Sample (adjusted): 1/15/2004 12/28/2006

Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.260691	0.064974	-4.012241	0.0001
D(GLSRESID(-1))	-0.362524	0.070317	-5.155554	0.0000
R-squared	0.338454	Mean dependent var		0.165060
Adjusted R-squared	0.334130	S.D. dependent var		6.168275
S.E. of regression	5.033365	Akaike info criterion		6.082874
Sum squared resid	3876.219	Schwarz criterion		6.122144
Log likelihood	-469.4227	Durbin-Watson stat		2.325550

At level with intercept but without trend

Null Hypothesis: RSUSCO has a unit root

Exogenous: Constant

Lag Length: 2 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.008098
Test critical values:	
1% level	-2.580065
5% level	-1.942910
10% level	-1.615334

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:09

Sample (adjusted): 1/22/2004 12/28/2006

Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.234604	0.077991	-3.008098	0.0031
D(GLSRESID(-1))	-0.521705	0.091796	-5.683295	0.0000
D(GLSRESID(-2))	-0.245348	0.079134	-3.100426	0.0023
R-squared	0.378435	Mean dependent var		-0.009990
Adjusted R-squared	0.370202	S.D. dependent var		6.197704
S.E. of regression	4.918484	Akaike info criterion		6.043166
Sum squared resid	3652.915	Schwarz criterion		6.102328
Log likelihood	-462.3238	Durbin-Watson stat		2.103843

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At level with intercept and trend

Null Hypothesis: RSUSCO has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 5 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.624189
Test critical values:	
1% level	-3.518800
5% level	-2.979000
10% level	-2.689000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:11

Sample (adjusted): 2/12/2004 12/28/2006

Included observations: 151 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.478456	0.132017	-3.624189	0.0004
D(GLSRESID(-1))	-0.473268	0.133858	-3.535590	0.0005
D(GLSRESID(-2))	-0.379720	0.133307	-2.848451	0.0050
D(GLSRESID(-3))	-0.282818	0.124972	-2.263055	0.0251
D(GLSRESID(-4))	-0.085555	0.109729	-0.779699	0.4368
D(GLSRESID(-5))	0.025367	0.080515	0.315056	0.7532
R-squared	0.484078	Mean dependent var		0.041662
Adjusted R-squared	0.466288	S.D. dependent var		6.176507
S.E. of regression	4.512285	Akaike info criterion		5.890409
Sum squared resid	2952.304	Schwarz criterion		6.010301
Log likelihood	-438.7259	Durbin-Watson stat		1.990328

At level with intercept but without trend

Null Hypothesis: RTOP has a unit root

Exogenous: Constant

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.893461
Test critical values:	
1% level	-2.579870
5% level	-1.942883
10% level	-1.615351

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:12

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.103221	0.035674	-2.893461	0.0044
R-squared	0.051086	Mean dependent var		-0.057879
Adjusted R-squared	0.051086	S.D. dependent var		4.481522
S.E. of regression	4.365549	Akaike info criterion		5.791755
Sum squared resid	2953.993	Schwarz criterion		5.811305
Log likelihood	-450.7569	Durbin-Watson stat		2.654053

At level with intercept and trend

Null Hypothesis: RTOP has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Fixed)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-5.221658
Test critical values:	
1% level	-3.512800
5% level	-2.974000
10% level	-2.684000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/17/07 Time: 16:13

Sample (adjusted): 1/08/2004 12/28/2006

Included observations: 156 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.302273	0.057888	-5.221658	0.0000
R-squared	0.149575	Mean dependent var		0.020454
Adjusted R-squared	0.149575	S.D. dependent var		4.481522
S.E. of regression	4.132791	Akaike info criterion		5.682173
Sum squared resid	2647.394	Schwarz criterion		5.701723
Log likelihood	-442.2095	Durbin-Watson stat		2.357045



ภาคผนวก ข

ผลการวิเคราะห์ด้วยแบบจำลอง Sspace

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BAFS

SSpace: BAFS

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:12

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence not achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.159424	0.250059	0.637546	0.5248
C(2)	0.590904	0.109932	5.375186	0.0000
C(3)	0.189866	6.82E+08	2.78E-10	1.0000
ObVar(1,1)	5.212683	0.604212	8.627244	0.0000
SSVar(1,1)	0.070993	0.142020	0.499882	0.6179
Final SV1	0.000000	0.266445	0.000000	1.0000
Log Likelihood		-347.8284		
RBAFS=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.395701	Mean dependent var	0.059412	
Adjusted R-squared	0.391725	S.D. dependent var	2.783234	
S.E. of regression	2.170699	Sum squared resid	716.2141	
Durbin-Watson stat	2.463889			

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BANPU

SSpace: BANPU

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:13

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence achieved after 40 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.223462	0.263790	0.847120	0.3983
C(2)	1.125249	0.136568	8.239486	0.0000
C(3)	-0.247599	1.15E+08	-2.16E-09	1.0000
ObVar(1,1)	6.429422	0.910428	7.061978	0.0000
SSVar(1,1)	0.728964	0.203506	3.582025	0.0005
Final SV1	0.000000	0.853794	0.000000	1.0000
Log Likelihood		-394.7842		
RBANPU=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.748341	Mean dependent var	0.302519	
Adjusted R-squared	0.746685	S.D. dependent var	4.263357	
S.E. of regression	2.145764	Sum squared resid	699.8542	
Durbin-Watson stat	2.136418			

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BCP

SSpace: BCP

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:13

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence achieved after 81 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.175372	0.337332	-0.519880	0.6039
C(2)	1.014068	0.242093	4.188747	0.0000
C(3)	-4.852161	1.37E+08	-3.54E-08	1.0000
ObVar(1,1)	4.542421	0.799396	5.682319	0.0000
SSVar(1,1)	3.300187	0.282493	11.68237	0.0000
Final SV1	0.000000	1.816642	0.000000	1.0000
Log Likelihood		-431.1661		
RBCP=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.933305	Mean dependent var	-0.183301	
Adjusted R-squared	0.932866	S.D. dependent var	5.299532	
S.E. of regression	1.373117	Sum squared resid	286.5884	
Durbin-Watson stat	1.695381			

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EASW

SSpace: EASW

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:14

Model: Time-Varying Coefficient Model

Sample(adjusted): 1/08/2004 12/28/2006

Included Observations: 153

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.150328	0.250675	0.599692	0.5496
C(2)	0.224578	0.110921	2.024667	0.0447
C(3)	0.276238	9.51E+08	2.90E-10	1.0000
ObVar(1,1)	7.432535	0.913912	8.132659	0.0000
SSVar(1,1)	0.201142	0.138267	1.454739	0.1479
Final SV1	0.000000	0.448488	0.000000	1.0000
Log Likelihood		-381.2949		
REASW=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.261114	Mean dependent var	0.151061	
Adjusted R-squared	0.256221	S.D. dependent var	2.983862	
S.E. of regression	2.573361	Sum squared resid	999.9502	
Durbin-Watson stat	2.114684			

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ECOMP

SSpace: ECOMP

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:14

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence achieved after 88 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.209184	0.236860	0.883153	0.3786
C(2)	0.567884	0.122949	4.618857	0.0000
C(3)	0.199272	2.78E+08	7.16E-10	1.0000
ObVar(1,1)	5.721339	1.273539	4.492474	0.0000
SSVar(1,1)	0.491330	0.207921	2.363065	0.0194
Final SV1	0.000000	0.700949	0.000000	1.0000
Log Likelihood		-379.9502		
RECOMP=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.596657	Mean dependent var	0.172164	
Adjusted R-squared	0.594003	S.D. dependent var	3.265629	
S.E. of regression	2.080789	Sum squared resid	658.1119	
Durbin-Watson stat	2.397095			

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LANNA

SSpace: LANNA

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:15

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence not achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.548407	0.413314	1.326854	0.1866
C(2)	1.137731	0.183670	6.194440	0.0000
C(3)	2.97E+08	3.45E+08	0.861379	0.3904
ObVar(1,1)	18.05129	2.095877	8.612762	0.0000
SSVar(1,1)	0.179451	0.278721	0.643839	0.5207
Final SV1	0.000000	0.423617	0.000000	1.0000
Log Likelihood		-443.8297		
RLANNA=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.370713	Mean dependent var	0.437119	
Adjusted R-squared	0.366573	S.D. dependent var	5.184033	
S.E. of regression	4.125876	Sum squared resid	2587.474	
Durbin-Watson stat	2.026178			

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PTT

SSpace: PTT

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:15

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence not achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.234386	0.180545	1.298211	0.1962
C(2)	1.066396	0.075383	14.14638	0.0000
C(3)	0.199434	3.46E+08	5.76E-10	1.0000
ObVar(1,1)	4.272446	0.496205	8.610242	0.0000
SSVar(1,1)	0.069598	0.101322	0.686898	0.4932
Final SV1	0.000000	0.263814	0.000000	1.0000
Log Likelihood		-337.2947		
RPTT=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.677473	Mean dependent var	0.205406	
Adjusted R-squared	0.675351	S.D. dependent var	3.496653	
S.E. of regression	1.992322	Sum squared resid	603.3407	
Durbin-Watson stat	1.935426			

PTTEP

SSpace: PTTEP

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:16

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence not achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.512615	0.287102	1.785480	0.0762
C(2)	0.853154	0.126825	6.727025	0.0000
C(3)	-1.10E+08	3.05E+08	-0.361915	0.7179
ObVar(1,1)	10.09011	1.487747	6.782139	0.0000
SSVar(1,1)	0.184167	0.252478	0.729440	0.4669
Final SV1	0.000000	0.429147	0.000000	1.0000
Log Likelihood		-403.6567		
RPTTEP=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.425791	Mean dependent var	0.432750	
Adjusted R-squared	0.422014	S.D. dependent var	4.001899	
S.E. of regression	3.042460	Sum squared resid	1406.998	
Durbin-Watson stat	2.180701			

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RPC

SSpace: RPC

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:18

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence not achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.059318	0.342402	-0.173242	0.8627
C(2)	0.771700	0.160809	4.798874	0.0000
C(3)	-89.37860	5.24E+08	-1.71E-07	1.0000
ObVar(1,1)	11.19981	1.651253	6.782616	0.0000
SSVar(1,1)	0.374432	0.349904	1.070100	0.2863
Final SV1	0.000000	0.611908	0.000000	1.0000
Log Likelihood		-415.2618		
RRPC=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.462624	Mean dependent var	-0.201135	
Adjusted R-squared	0.459089	S.D. dependent var	4.200807	
S.E. of regression	3.089554	Sum squared resid	1450.892	
Durbin-Watson stat	2.414542			

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SUSCO

SSpace: SUSCO

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:18

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.576919	0.307655	-1.875213	0.0627
C(2)	0.984891	0.136270	7.227509	0.0000
C(3)	6.568842	8.38E+08	7.84E-09	1.0000
ObVar(1,1)	11.93689	1.190701	10.02510	0.0000
SSVar(1,1)	0.045974	0.251138	0.183062	0.8550
Final SV1	0.000000	0.214415	0.000000	1.0000
Log Likelihood		-410.0322		
RSUSCO=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.374738	Mean dependent var	-0.647964	
Adjusted R-squared	0.370625	S.D. dependent var	4.304419	
S.E. of regression	3.414832	Sum squared resid	1772.484	
Durbin-Watson stat	2.167031			

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TOP

SSpace: TOP

Estimation Method: Maximum Likelihood

Date: 05/21/07 Time: 20:19

Model: Time-Varying Coefficient Model

Sample: 1/01/2004 12/28/2006

Included Observations: 154

Variance of observation equations: Diagonal

Variance of state equations: Diagonal

Convergence achieved after 100 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.123295	0.172271	0.715701	0.4753
C(2)	0.604557	0.079383	7.615733	0.0000
C(3)	0.200028	3.60E+08	5.56E-10	1.0000
ObVar(1,1)	3.759211	0.667302	5.633444	0.0000
SSVar(1,1)	0.128822	0.116017	1.110370	0.2686
Final SV1	0.000000	0.358918	0.000000	1.0000
Log Likelihood		-333.8006		
RTOP=C(1)+(SV1+C(2))*RM				
SV1=C(3)*GOIL				

R-squared	0.545492	Mean dependent var	0.054760	
Adjusted R-squared	0.542502	S.D. dependent var	2.671101	
S.E. of regression	1.806695	Sum squared resid	496.1504	
Durbin-Watson stat	2.298195			

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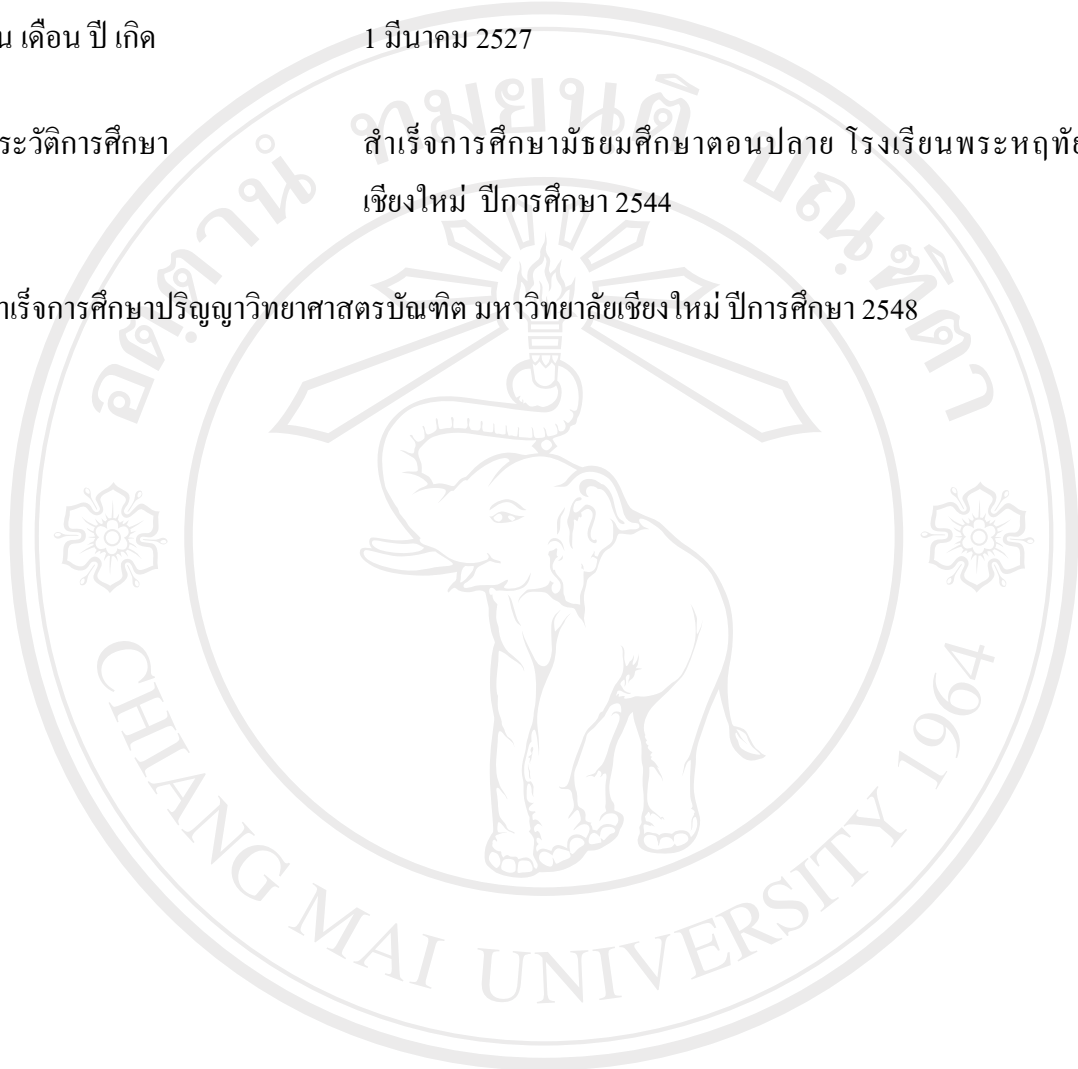
ประวัติผู้เขียน

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