

มหาวิทยาลัยเชียงใหม่  
Chiang Mai University

**ภาคผนวก**

## ภาคผนวก ก

ผลการทดสอบยูนิตรูท (Unit Root) ด้วยวิธีการ Augmented Dickey-Fuller (โดยข้อมูลได้  
จากโปรแกรม Eview 3.1)

บริษัทแอดวานซ์ อินโฟร์ เซอร์วิส จำกัด (มหาชน)

สมการแนวโน้มเชิงสุ่ม และจุดตัดแกน (Intercept)

ADF Test Statistic	-16.53085	1% Critical Value*	-3.4571
		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(RAD)

Method: Least Squares

Date: 04/26/03 Time: 14:41

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RAD(-1)	-1.033109	0.062496	-16.53085	0.0000
C	0.004248	0.004332	0.980483	0.3278
R-squared	0.514370	Mean dependent var		0.000353
Adjusted R-squared	0.512488	S.D. dependent var		0.099904
S.E. of regression	0.069755	Akaike info criterion		-2.479989
Sum squared resid	1.255370	Schwarz criterion		-2.452599
Log likelihood	324.3986	F-statistic		273.2691
Durbin-Watson stat	1.984516	Prob(F-statistic)		0.000000

สมการแนวโน้มเชิงเส้น จุดตัดแกน และแนวโน้ม (Trend & Intercept)

ADF Test Statistic	-16.54599	1% Critical Value*	-3.9966
		5% Critical Value	-3.4284
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RAD)

Method: Least Squares

Date: 04/26/03 Time: 14:44

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RAD(-1)	-1.036648	0.062653	-16.54599	0.0000
C	0.010895	0.008711	1.250701	0.2122
@TREND(1/04/1998)	-5.08E-05	5.78E-05	-0.879671	0.3799
R-squared	0.515828	Mean dependent var		0.000353
Adjusted R-squared	0.512060	S.D. dependent var		0.099904
S.E. of regression	0.069786	Akaike info criterion		-2.475303
Sum squared resid	1.251602	Schwarz criterion		-2.434219
Log likelihood	324.7895	F-statistic		136.9017
Durbin-Watson stat	1.983172	Prob(F-statistic)		0.000000

สมการแนวโน้มเชิงสุ่ม (None)

ADF Test Statistic	-16.50318	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(RAD)

Method: Least Squares

Date: 04/26/03 Time: 14:44

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RAD(-1)	-1.029777	0.062399	-16.50318	0.0000
R-squared	0.512561	Mean dependent var		0.000353
Adjusted R-squared	0.512561	S.D. dependent var		0.099904
S.E. of regression	0.069750	Akaike info criterion		-2.483962
Sum squared resid	1.260048	Schwarz criterion		-2.470267
Log likelihood	323.9151	Durbin-Watson stat		1.984053

## บริษัทชินเซทเทลไลท์ จำกัด (มหาชน)

## สมการแนวโน้มเชิงเส้น และจุดตัดแกน (Intercept)

ADF Test Statistic	-13.05354	1% Critical Value*	-3.4571
		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(RSATTEL)

Method: Least Squares

Date: 04/26/03 Time: 15:09

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RSATTEL(-1)	-0.795048	0.060907	-13.05354	0.0000
C	0.007670	0.005712	1.342712	0.1805
R-squared	0.397752	Mean dependent var		0.000125
Adjusted R-squared	0.395418	S.D. dependent var		0.117848
S.E. of regression	0.091633	Akaike info criterion		-1.934393
Sum squared resid	2.166315	Schwarz criterion		-1.907003
Log likelihood	253.4710	F-statistic		170.3950
Durbin-Watson stat	2.071816	Prob(F-statistic)		0.000000

สมการแนวโน้มเชิงเส้น จุดตัดแกน และแนวโน้ม (Trend & Intercept)

ADF Test Statistic	-13.44353	1% Critical Value*	-3.9966
		5% Critical Value	-3.4284
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RSATTEL)

Method: Least Squares

Date: 04/26/03 Time: 15:09

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RSATTEL(-1)	-0.824397	0.061323	-13.44353	0.0000
C	0.033554	0.011536	2.908726	0.0039
@TREND(1/04/1998)	-0.000196	7.62E-05	-2.573815	0.0106
R-squared	0.412886	Mean dependent var		0.000125
Adjusted R-squared	0.408317	S.D. dependent var		0.117848
S.E. of regression	0.090650	Akaike info criterion		-1.952150
Sum squared resid	2.111878	Schwarz criterion		-1.911065
Log likelihood	256.7795	F-statistic		90.36708
Durbin-Watson stat	2.055834	Prob(F-statistic)		0.000000

สมการแนวโน้มเชิงสุ่ม (None)

ADF Test Statistic	-12.96424	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(RSATTEL)

Method: Least Squares

Date: 04/26/03 Time: 15:09

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RSATTEL(-1)	-0.786773	0.060688	-12.96424	0.0000
R-squared	0.393544	Mean dependent var		0.000125
Adjusted R-squared	0.393544	S.D. dependent var		0.117848
S.E. of regression	0.091775	Akaike info criterion		-1.935121
Sum squared resid	2.181453	Schwarz criterion		-1.921426
Log likelihood	252.5658	Durbin-Watson stat		2.076892

บริษัทเทเลคอมเอเชีย คอร์ปอเรชั่น จำกัด (มหาชน)

สมการแนวโน้มเชิงสุ่ม และจุดตัดแกน (Intercept)

ADF Test Statistic	-15.74899	1% Critical Value*	-3.4571
		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(RTA)

Method: Least Squares

Date: 04/26/03 Time: 15:24

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RTA(-1)	-0.980287	0.062244	-15.74899	0.0000
C	0.002676	0.006434	0.415962	0.6778
R-squared	0.490150	Mean dependent var		-4.42E-05
Adjusted R-squared	0.488173	S.D. dependent var		0.144970
S.E. of regression	0.103714	Akaike info criterion		-1.686693
Sum squared resid	2.775213	Schwarz criterion		-1.659303
Log likelihood	221.2700	F-statistic		248.0308
Durbin-Watson stat	2.001377	Prob(F-statistic)		0.000000



สมการแนวโน้มเชิงเส้น จุดตัดแกน และแนวโน้ม (Trend & Intercept)

ADF Test Statistic	-16.09004	1% Critical Value*	-3.9966
		5% Critical Value	-3.4284
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RTA)

Method: Least Squares

Date: 04/26/03 Time: 15:24

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RTA(-1)	-1.003710	0.062381	-16.09004	0.0000
C	0.030256	0.012916	2.342515	0.0199
@TREND(1/04/1998)	-0.000211	8.59E-05	-2.454896	0.0148
R-squared	0.501831	Mean dependent var		-4.42E-05
Adjusted R-squared	0.497955	S.D. dependent var		0.144970
S.E. of regression	0.102718	Akaike info criterion		-1.702179
Sum squared resid	2.711626	Schwarz criterion		-1.661094
Log likelihood	224.2833	F-statistic		129.4448
Durbin-Watson stat	1.996196	Prob(F-statistic)		0.000000

สมการแนวโน้มเชิงสุ่ม (None)

ADF Test Statistic	-15.76869	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(RTA)

Method: Least Squares

Date: 04/26/03 Time: 15:24

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RTA(-1)	-0.979592	0.062123	-15.76869	0.0000
R-squared	0.489808	Mean dependent var		-4.42E-05
Adjusted R-squared	0.489808	S.D. dependent var		0.144970
S.E. of regression	0.103549	Akaike info criterion		-1.693715
Sum squared resid	2.777074	Schwarz criterion		-1.680020
Log likelihood	221.1829	Durbin-Watson stat		2.001578

บริษัทยูไนเต็ด คอมมูนิเคชั่น อินดัสตรี จำกัด (มหาชน)

สมการแนวโน้มเชิงเส้น และจุดตัดแกน (Intercept)

ADF Test Statistic	-15.96244	1% Critical Value*	-3.4571
		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(RUCOM)

Method: Least Squares

Date: 04/26/03 Time: 15:33

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RUCOM(-1)	-0.993647	0.062249	-15.96244	0.0000
C	0.004786	0.007274	0.658015	0.5111
R-squared	0.496879	Mean dependent var		0.000161
Adjusted R-squared	0.494929	S.D. dependent var		0.164906
S.E. of regression	0.117196	Akaike info criterion		-1.442276
Sum squared resid	3.543602	Schwarz criterion		-1.414886
Log likelihood	189.4959	F-statistic		254.7995
Durbin-Watson stat	1.997873	Prob(F-statistic)		0.000000

สมการแนวโน้มเชิงเส้น จุดตัดแกน และแนวโน้ม (Trend & Intercept)

ADF Test Statistic	-16.03126	1% Critical Value*	-3.9966
		5% Critical Value	-3.4284
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RUCOM)

Method: Least Squares

Date: 04/26/03 Time: 15:34

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RUCOM(-1)	-0.999804	0.062366	-16.03126	0.0000
C	0.020854	0.014617	1.426678	0.1549
@TREND(1/04/1998)	-0.000123	9.70E-05	-1.266798	0.2064
R-squared	0.500002	Mean dependent var		0.000161
Adjusted R-squared	0.496110	S.D. dependent var		0.164906
S.E. of regression	0.117059	Akaike info criterion		-1.440809
Sum squared resid	3.521612	Schwarz criterion		-1.399724
Log likelihood	190.3051	F-statistic		128.5008
Durbin-Watson stat	1.997310	Prob(F-statistic)		0.000000

**สมการแนวโน้มเชิงสุ่ม (None)**

ADF Test Statistic	-15.96637	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(RUCOM)

Method: Least Squares

Date: 04/26/03 Time: 15:34

Sample(adjusted): 1/11/1998 12/29/2002

Included observations: 260 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RUCOM(-1)	-0.992015	0.062132	-15.96637	0.0000
R-squared	0.496035	Mean dependent var		0.000161
Adjusted R-squared	0.496035	S.D. dependent var		0.164906
S.E. of regression	0.117068	Akaike info criterion		-1.448292
Sum squared resid	3.549549	Schwarz criterion		-1.434597
Log likelihood	189.2779	Durbin-Watson stat		1.997978

## ภาคผนวก ข

## ผลการทดสอบการรวมกันไปด้วยกัน (Cointegration)

## บริษัทแอดวานซ์ อินโฟร์ เซอร์วิส จำกัด (มหาชน)

Dependent Variable: RAD

Method: Least Squares

Sample: 1/04/1998 12/29/2002

Included observations: 261

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.00301370	0.003171286	0.950308626	0.342841379487
RM	0.97796575	0.065932710	14.83278550	1.90283452174e-36
R-squared	0.45930319	Mean dependent var		0.0021360267318
Adjusted R-squared	0.45721556	S.D. dependent var		0.069529061745
S.E. of regression	0.05122477	Akaike info criterion		-3.09755362182
Sum squared resid	0.67961019	Schwarz criterion		-3.0702392892
Log likelihood	406.230747	F-statistic		220.01152578
Durbin-Watson stat	1.92906011	Prob(F-statistic)		0

## บริษัทชินเซกเทคไลท์ จำกัด (มหาชน)

Method: Least Squares

Sample(adjusted): 1/4/1998 12/290/2002

Included observations: 260 after adjusting endpoints

Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.0091306266	0.005332225	1.71234814	0.0880387273069
RM	1.3731656914	0.078866731	17.4112159	2.22699324058e-45
AR(1)	0.2755951665	0.059802136	4.60845020	6.39417542281e-06
R-squared	0.5592441659	Mean dependent var		0.00757622860385
Adjusted R-squared	0.5558141594	S.D. dependent var		0.0934411301829
S.E. of regression	0.0622759609	Akaike info criterion		-2.70301119679
Sum squared resid	0.9967218958	Schwarz criterion		-2.66192640874
Log likelihood	354.39145558	F-statistic		163.044637812
Durbin-Watson stat	2.0162861404	Prob(F-statistic)		0
Inverted AR Roots	.28			

## บริษัทเทเลคอมเอเชีย คอร์ปอเรชั่น จำกัด (มหาชน)

Dependent Variable: RTA

Method: Least Squares

Sample: 1/04/1998 12/29/2002

Included observations: 261

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.0021890756464	0.004165904961	0.52547421671	0.5997031
RM	1.62993572027	0.086611363023	18.8189593532	2.213e-50
R-squared	0.577593353754	Mean dependent var		0.0007262
Adjusted R-squared	0.575962440062	S.D. dependent var		0.1033360
S.E. of regression	0.0672905381472	Akaike info criterion		-
				2.5519609
Sum squared resid	1.17275627975	Schwarz criterion		-
				2.5246466
Log likelihood	335.030905788	F-statistic		354.15323
Durbin-Watson stat	1.95933931568	Prob(F-statistic)		0



บริษัทยูไนเต็ด คอมมูนิเคชั่น อินดัสตรี จำกัด (มหาชน)

Dependent Variable: RUCOM

Method: Least Squares

Sample: 1/04/1998 12/29/2002

Included observations: 261

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.0040107059562	0.005678490725	0.706297879193	0.480637778342
RM	1.50416512973	0.118058819438	12.7408112065	3.4144445040e-29
R-squared	0.385277423048	Mean dependent var		0.00266079543295
Adjusted R-squared	0.382903976805	S.D. dependent var		0.116761909976
S.E. of regression	0.091722855012	Akaike info criterion		-1.93245706313
Sum squared resid	2.17898827207	Schwarz criterion		-1.90514273051
Log likelihood	254.185646738	F-statistic		162.3282702
Durbin-Watson stat	2.16684479287	Prob(F-statistic)		0

## ภาคผนวก ค

ผลการทดสอบความนิ่งของส่วนที่เหลือ (Residual) จากสมการถดถอยในการทดสอบการ  
ร่วมกันไปด้วยกัน โดยการทดสอบยูนิทรูท (Unit Root) ด้วยวิธีการ Augmented Dickey-  
Fuller Residual

บริษัทแอดวานซ์ อินโฟร์ เซอร์วิส จำกัด (มหาชน)

ADF Test Statistic	-11.84848	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: 04/27/03 Time: 13:15

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.032233	0.087119	-11.84848	0.0000
D(RESID01(-1))	0.064030	0.062590	1.023005	0.3073
R-squared	0.484334	Mean dependent var		0.000319
Adjusted R-squared	0.482327	S.D. dependent var		0.071252
S.E. of regression	0.051266	Akaike info criterion		-3.095894
Sum squared resid	0.675442	Schwarz criterion		-3.068428
Log likelihood	402.9183	F-statistic		241.3841
Durbin-Watson stat	1.968202	Prob(F-statistic)		0.000000

## บริษัทชินแสเทคโนโลยี จำกัด (มหาชน)

ADF Test Statistic	-8.669105	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: 04/27/03 Time: 13:31

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.641511	0.074000	-8.669105	0.0000
D(RESID01(-1))	-0.099657	0.061318	-1.625244	0.1053
R-squared	0.364868	Mean dependent var		-0.000506
Adjusted R-squared	0.362397	S.D. dependent var		0.077028
S.E. of regression	0.061507	Akaike info criterion		-2.731653
Sum squared resid	0.972247	Schwarz criterion		-2.704187
Log likelihood	355.7490	F-statistic		147.6402
Durbin-Watson stat	2.013800	Prob(F-statistic)		0.000000

บริษัท เทเลคอมเอเชีย คอร์ปอเรชั่น จำกัด (มหาชน)

ADF Test Statistic	-10.87160	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: 04/27/03 Time: 13:52

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.932180	0.085744	-10.87160	0.0000
D(RESID01(-1))	-0.039658	0.061144	-0.648594	0.5172
R-squared	0.495018	Mean dependent var		-0.000900
Adjusted R-squared	0.493054	S.D. dependent var		0.092943
S.E. of regression	0.066176	Akaike info criterion		-2.585310
Sum squared resid	1.125466	Schwarz criterion		-2.557844
Log likelihood	336.7976	F-statistic		251.9294
Durbin-Watson stat	2.027324	Prob(F-statistic)		0.000000

บริษัทยูไนเต็ด คอมมูนิเคชั่น จำกัด (มหาชน)

ADF Test Statistic	-13.10933	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: 04/27/03 Time: 14:03

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.190269	0.090796	-13.10933	0.0000
D(RESID01(-1))	0.102883	0.061553	1.671465	0.0958
R-squared	0.547455	Mean dependent var		-0.000709
Adjusted R-squared	0.545695	S.D. dependent var		0.134283
S.E. of regression	0.090509	Akaike info criterion		-1.959033
Sum squared resid	2.105334	Schwarz criterion		-1.931567
Log likelihood	255.6948	F-statistic		310.8999
Durbin-Watson stat	2.006480	Prob(F-statistic)		0.000000

## ภาคผนวก ง

ผลการประมาณค่าสัมประสิทธิ์ โดยใช้ Error Correction (ECM)

บริษัทแอดวานซ์ อินโฟร์ เซอร์วิส จำกัด (มหาชน)

Dependent Variable: D(RAD)

Method: Least Squares

Date: 04/26/03 Time: 14:59

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000263	0.004746	0.055473	0.9558
D(RM(-1))	-0.690602	0.116631	-5.921257	0.0000
D(RAD(-1))	0.052952	0.093260	0.567793	0.5707
RESID02(-1)	-0.933237	0.130208	-7.167278	0.0000
R-squared	0.423351	Mean dependent var		0.000622
Adjusted R-squared	0.416567	S.D. dependent var		0.100003
S.E. of regression	0.076385	Akaike info criterion		-2.290730
Sum squared resid	1.487852	Schwarz criterion		-2.235798
Log likelihood	300.6495	F-statistic		62.40347
Durbin-Watson stat	2.084383	Prob(F-statistic)		0.000000

## บริษัทชินแซทเทลไลท์ จำกัด (มหาชน)

Dependent Variable: D(RSATTEL)

Method: Least Squares

Date: 04/26/03 Time: 15:20

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000101	0.005994	0.016931	0.9865
D(RM(-1))	-0.734169	0.158100	-4.643707	0.0000
D(RSATTEL(-1))	-0.063321	0.096306	-0.657499	0.5115
RESID02(-1)	-0.609479	0.116117	-5.248855	0.0000
R-squared	0.339868	Mean dependent var		-7.45E-05
Adjusted R-squared	0.332102	S.D. dependent var		0.118032
S.E. of regression	0.096462	Akaike info criterion		-1.824011
Sum squared resid	2.372756	Schwarz criterion		-1.769079
Log likelihood	240.2094	F-statistic		43.76217
Durbin-Watson stat	2.118733	Prob(F-statistic)		0.000000

## บริษัทเทเลคอมเอเชีย คอร์ปอเรชั่น จำกัด (มหาชน)

Dependent Variable: D(RTA)

Method: Least Squares

Date: 04/26/03 Time: 15:30

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000346	0.007009	-0.049402	0.9606
D(RM(-1))	-1.146848	0.196561	-5.834564	0.0000
D(RTA(-1))	0.060926	0.104329	0.583984	0.5597
RESID01(-1)	-0.871898	0.146824	-5.938395	0.0000
R-squared	0.403097	Mean dependent var		-0.000395
Adjusted R-squared	0.396075	S.D. dependent var		0.145140
S.E. of regression	0.112792	Akaike info criterion		-1.511221
Sum squared resid	3.244112	Schwarz criterion		-1.456290
Log likelihood	199.7032	F-statistic		57.40175
Durbin-Watson stat	2.240773	Prob(F-statistic)		0.000000



บริษัทยูไนเต็ด คอมมูนิเคชั่น จำกัด (มหาชน)

Dependent Variable: D(RUCOM)

Method: Least Squares

Date: 04/26/03 Time: 15:40

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000327	0.007333	0.044557	0.9645
D(RM(-1))	-1.012954	0.166334	-6.089891	0.0000
D(RUCOM(-1))	0.094822	0.080264	1.181371	0.2386
RESID02(-1)	-1.244094	0.118605	-10.48939	0.0000
R-squared	0.495068	Mean dependent var		-0.000243
Adjusted R-squared	0.489127	S.D. dependent var		0.165097
S.E. of regression	0.118004	Akaike info criterion		-1.420880
Sum squared resid	3.550835	Schwarz criterion		-1.365949
Log likelihood	188.0040	F-statistic		83.33939
Durbin-Watson stat	2.130655	Prob(F-statistic)		0.000000

## ภาคผนวก จ

ผลการประมาณค่าสัมประสิทธิ์โดยแบบจำลองถดถอยแบบสลับเปลี่ยน  
(Switching Regression Model)

บริษัทแอดวานซ์ อินโฟร์ เซอร์วิส จำกัด (มหาชน)

```
--> RESET
--> READ;file="A:\Rm-Rad1.xls";format=xls;names$
this is record 512. expect len=10, found 10
--> SWITCH;Lhs=RAD;Rh1=ONE, RM;Rh2=ONE, RM;Sep=I$
```

```
+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RAD Mean= .5192486030E-01, S.D.= .5107753905E-01
| Model size: Observations = 138, Parameters = 2, Deg.Fr.= 136
| Residuals: Sum of squares= .2453700180, Std.Dev.= .04248
| Fit: R-squared= .313499, Adjusted R-squared = .30845
| Model test: F[ 1, 136] = 62.11, Prob value = .00000
| Diagnostic: Log-L = 241.1112, Restricted(b=0) Log-L = 215.1569
| LogAmemiyaPrCrt.= -6.303, Akaike Info. Crt.= -3.465
| OLS estimates of equation 1
+-----+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	.3522715682E-01	.41908417E-02	8.406	.0000	
RM	.6625292350	.84069375E-01	7.881	.0000	.25202969E-01

```
+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RAD Mean= -.4939909975E-01, S.D.= .4359037343E-01
| Model size: Observations = 123, Parameters = 2, Deg.Fr.= 121
| Residuals: Sum of squares= .1965686095, Std.Dev.= .04031
| Fit: R-squared= .152044, Adjusted R-squared = .14504
| Model test: F[ 1, 121] = 21.70, Prob value = .00001
| Diagnostic: Log-L = 221.4646, Restricted(b=0) Log-L = 211.3216
| LogAmemiyaPrCrt.= -6.406, Akaike Info. Crt.= -3.569
| OLS estimates of equation 0
+-----+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	-.4143085272E-01	.37377782E-02	-11.084	.0000	
RM	.3081858935	.33792787E-01	9.120	.0000	-.25855327E-01

Normal exit from iterations. Exit status=0.

```

+-----+
| Switching Regressions |
| Maximum Likelihood Estimates |
| Dependent variable      RAD |
| Weighting variable      ONE |
| Number of observations   261 |
| Iterations completed     15 |
| Log likelihood function  292.7210 |
| Sample separation variable is I |
| RAD 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 .4776638125E-01 .65285946E-02  7.316  .0000
RM       1.683900238 .16109559  10.453  .0000  .25202969E-01
          RHS for Regime 2
Constant .4316023685E-01 .48796445E-02  8.845  .0000
RM       .5197556394 .58673483E-01  8.858  .0000  -.25855327E-01
Sigma(1) .8055171255E-01 .59897902E-02  13.448  .0000
Sigma(0) .4021888373E-01 .20335380E-02  19.778  .0000

```



มหาวิทยาลัยเชียงใหม่  
Chiang Mai University

## บริษัทชินแซทเทลไลท์ จำกัด (มหาชน)

```
--> RESET
--> READ;file="A:\Rm-Rsattel.xls";format=xls;names$
this is record 512. expect len=10, found 10
--> SWITCH;Lhs=RSATTEL;Rh1=ONE,RM;Rh2=ONE,RM;Sep=I$
```

```
-----+-----+-----+-----+-----+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RSATTEL Mean= .6402754856E-01, S.D.= .9402760050E-01
| Model size: Observations = 137, Parameters = 2, Deg.Fr.= 135
| Residuals: Sum of squares= .7779027831, Std.Dev.= .07591
| Fit: R-squared= .353043, Adjusted R-squared = .34825
| Model test: F[ 1, 135] = 73.67, Prob value = .00000
| Diagnostic: Log-L = 159.8281, Restricted(b=0) Log-L = 129.9981
| LogAmemiyaPrCrt.= -5.142, Akaike Info. Crt.= -2.304
| OLS estimates of equation 1
-----+-----+-----+-----+-----+-----+

```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	.3027613839E-01	.75844145E-02	3.992	.0001	
RM	1.286359621	.14987177	8.583	.0000	.26237927E-01

```
-----+-----+-----+-----+-----+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RSATTEL Mean= -.5089045356E-01, S.D.= .4049789248E-01
| Model size: Observations = 124, Parameters = 2, Deg.Fr.= 122
| Residuals: Sum of squares= .1556982620, Std.Dev.= .03572
| Fit: R-squared= .228184, Adjusted R-squared = .22186
| Model test: F[ 1, 122] = 36.07, Prob value = .00000
| Diagnostic: Log-L = 238.2189, Restricted(b=0) Log-L = 222.1603
| LogAmemiyaPrCrt.= -6.648, Akaike Info. Crt.= -3.810
| OLS estimates of equation 0
-----+-----+-----+-----+-----+-----+

```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	-.4456332860E-01	.32660999E-02	-13.644	.0000	
RM	.2379778868	.23043493E-01	10.327	.0000	-.26587029E-01

Initial iterations cannot improve function.Status=3  
 Abnormal exit from iterations. If current results are shown  
 check convergence values shown below. This may not be a  
 solution value (especially if initial iterations stopped).  
 Gradient value: Tolerance= .1000D-05, current value= .5032D+10  
 Function chg. : Tolerance= .0000D+00, current value= .5901D+04  
 Parameters chg: Tolerance= .0000D+00, current value= .6407D+11  
 Smallest abs. parameter change from start value = .0000D+00  
 Note: At least one parameter did not leave start value.

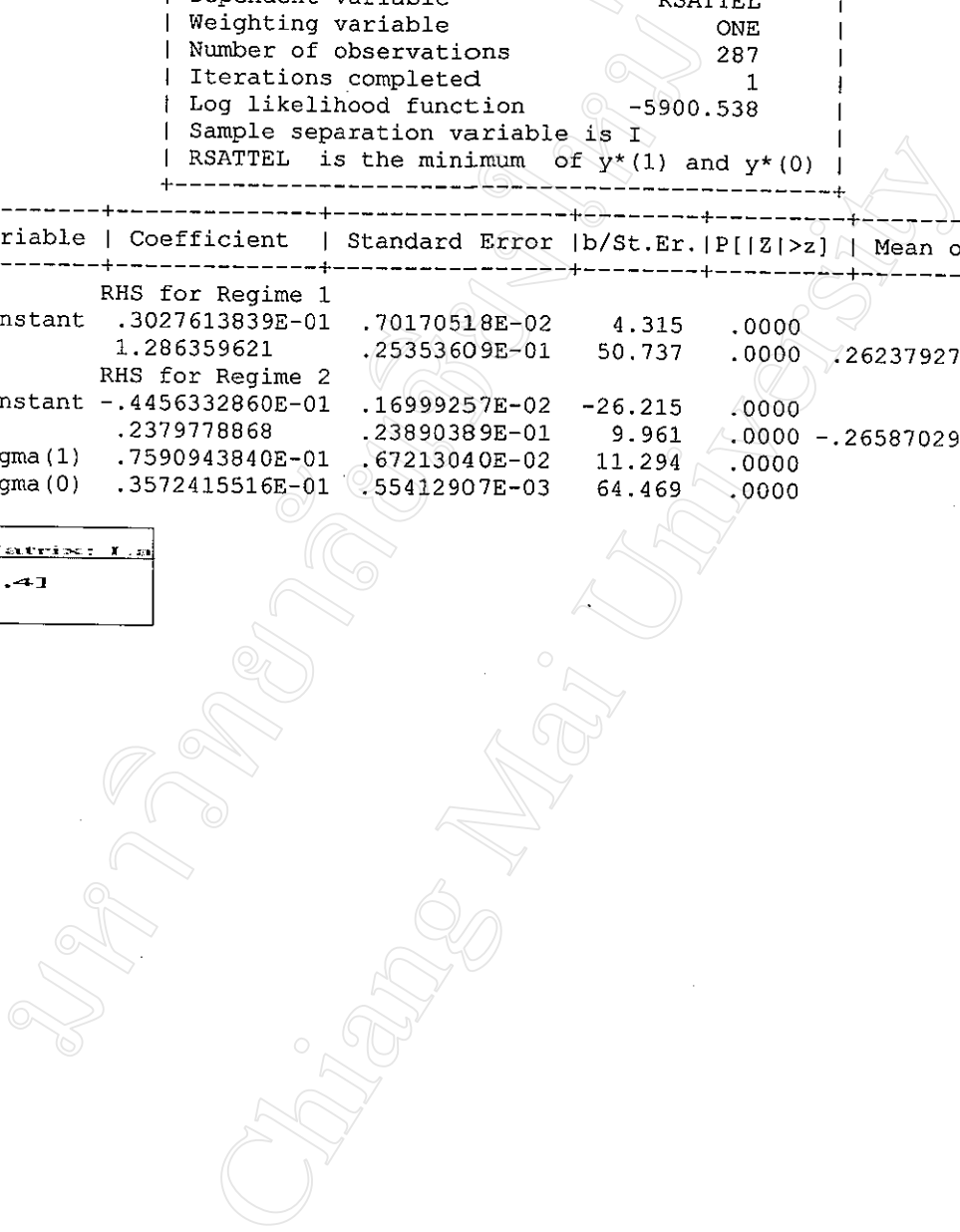
```

+-----+
| Switching Regressions
| Maximum Likelihood Estimates
| Dependent variable          RSATTEL
| Weighting variable          ONE
| Number of observations      287
| Iterations completed        1
| Log likelihood function     -5900.538
| Sample separation variable is I
| RSATTEL 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	.3027613839E-01	.70170518E-02	4.315	.0000	
RM	1.286359621	.25353609E-01	50.737	.0000	.26237927E-01
RHS for Regime 2					
Constant	-.4456332860E-01	.16999257E-02	-26.215	.0000	
RM	.2379778868	.23890389E-01	9.961	.0000	-.26587029E-01
Sigma(1)	.7590943840E-01	.67213040E-02	11.294	.0000	
Sigma(0)	.3572415516E-01	.55412907E-03	64.469	.0000	

Matrix: I,0  
[6,4]



## บริษัทเทคโนโลยีเอเชีย คอร์ปอเรชั่น จำกัด (มหาชน)

```
--> RESET
--> READ;file="A:\Book1.xls";format=xls;names$
this is record 512. expect len=10, found 10
--> SWITCH;Lhs=RTA;Rh1=ONE,RM;Rh2=ONE,RM;Sep=I$
```

```
+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RTA Mean= .7701978214E-01, S.D.= .8257279185E-01
| Model size: Observations = 129, Parameters = 2, Deg.Fr.= 127
| Residuals: Sum of squares= .5615698581, Std.Dev.= .06650
| Fit: R-squared= .356542, Adjusted R-squared = .35148
| Model test: F[ 1, 127] = 70.37, Prob value = .00000
| Diagnostic: Log-L = 167.6326, Restricted(b=0) Log-L = 139.1946
| LogAmemiyaPrCrt.= -5.406, Akaike Info. Crt.= -2.568
| OLS estimates of equation 1
+-----+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	.4569884569E-01	.69439159E-02	6.581	.0000	
RM	1.111732823	.13252654	8.389	.0000	.28173079E-01

```
+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RTA Mean= -.6980265967E-01, S.D.= .6160900066E-01
| Model size: Observations = 132, Parameters = 2, Deg.Fr.= 130
| Residuals: Sum of squares= .4041818342, Std.Dev.= .05576
| Fit: R-squared= .187137, Adjusted R-squared = .18088
| Model test: F[ 1, 130] = 29.93, Prob value = .00000
| Diagnostic: Log-L = 194.7538, Restricted(b=0) Log-L = 181.0791
| LogAmemiyaPrCrt.= -5.758, Akaike Info. Crt.= -2.921
| OLS estimates of equation 0
+-----+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	-.6285303112E-01	.49378005E-02	-12.729	.0000	
RM	.2749422215	.36002725E-01	7.637	.0000	-.25276687E-01

Initial iterations cannot improve function.Status=3  
 Abnormal exit from iterations. If current results are shown  
 check convergence values shown below. This may not be a  
 solution value (especially if initial iterations stopped).  
 Gradient value: Tolerance= .1000D-05, current value= .2764D+11  
 Function chg. : Tolerance= .0000D+00, current value= .1116D+06  
 Parameters chg: Tolerance= .0000D+00, current value= .3572D+12  
 Smallest abs. parameter change from start value = .0000D+00  
 Note: At least one parameter did not leave start value.

```

+-----+
| Switching Regressions |
| Maximum Likelihood Estimates |
| Dependent variable | RTA |
| Weighting variable | ONE |
| Number of observations | 822 |
| Iterations completed | 1 |
| Log likelihood function | -111587.4 |
| Sample separation variable is I |
| RTA 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 .4569884569E-01 .66229358E-02 6.900 .0000
RM 1.111732823 .68760469E-02 161.682 .0000 .28173079E-01
RHS for Regime 2
Constant -.6285303112E-01 .35340666E-02 -17.785 .0000
RM .2749422215 .51610811E-01 5.327 .0000 -.25276687E-01
Sigma(1) .6649669094E-01 .40906194E-02 16.256 .0000
Sigma(0) .5575922374E-01 .21177548E-02 26.329 .0000

```

Matrix: Ia
[6,4]

บริษัทยูไนเต็ด คอมมูนิเคชั่น จำกัด (มหาชน)

```
--> RESET
--> READ;file="A:\Rm-Rucom.xls";format=xls;names$
this is record 512. expect len=10, found 10
--> SWITCH;Lhs=RUCOM;Rh1=ONE, RM;Rh2=ONE, RM;Sep=I$
```

```
+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RUCOM Mean= .5249975401E-01, S.D.= .1230117812
| Model size: Observations = 133, Parameters = 2, Deg.Fr.= 131
| Residuals: Sum of squares= 1.279143741, Std.Dev.= .09882
| Fit: R-squared= .359599, Adjusted R-squared = .35471
| Model test: F[ 1, 131] = 73.56, Prob value = .00000
| Diagnostic: Log-L = 120.1177, Restricted(b=0) Log-L = 90.4813
| LogAmemiyaPrCrt.= -4.614, Akaike Info. Crt.= -1.776
| OLS estimates of equation 1
+-----+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	-.2583861892E-01	.12523772E-01	-2.063	.0391	
RM	2.136313133	.24908411	8.577	.0000	.36669892E-01

```
+-----+
| Switching Regressions
| Ordinary least squares regression Weighting variable = none
| Dep. var. = RUCOM Mean= -.4496844687E-01, S.D.= .8546344160E-01
| Model size: Observations = 128, Parameters = 2, Deg.Fr.= 126
| Residuals: Sum of squares= .8353481219, Std.Dev.= .08142
| Fit: R-squared= .099460, Adjusted R-squared = .09231
| Model test: F[ 1, 126] = 13.92, Prob value = .00029
| Diagnostic: Log-L = 140.4198, Restricted(b=0) Log-L = 133.7152
| LogAmemiyaPrCrt.= -5.001, Akaike Info. Crt.= -2.163
| OLS estimates of equation 0
+-----+
```

Variable	Coefficient	Standard Error	b/St.Er.	P[ Z >z]	Mean of X
Constant	-.2481168568E-01	.76528191E-02	-3.242	.0012	
RM	.5634202518	.72732716E-01	7.746	.0000	-.35775713E-01

Initial iterations cannot improve function.Status=3  
 Abnormal exit from iterations. If current results are shown  
 check convergence values shown below. This may not be a  
 solution value (especially if initial iterations stopped).  
 Gradient value: Tolerance= .1000D-05, current value= .1141D+11  
 Function chg. : Tolerance= .0000D+00, current value= .3272D+01  
 Parameters chg: Tolerance= .0000D+00, current value= .8119D+11  
 Smallest abs. parameter change from start value = .3856D-10  
 Note: At least one parameter did not leave start value.



```

+-----+
| Switching Regressions |
| Maximum Likelihood Estimates |
| Dependent variable RUCOM |
| Weighting variable ONE |
| Number of observations 285 |
| Iterations completed 2 |
| Log likelihood function -4863.430 |
| Sample separation variable is I |
| RUCOM 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 -.2583507593E-01 .18908388E-01 -1.366 .1718
RM 2.132776155 .96747746E-01 22.045 .0000 .36669892E-01
RHS for Regime 2
Constant -.2481168246E-01 .87953298E-02 -2.821 .0048
RM .5634202518 .65530750E-01 8.598 .0000 -.35775713E-01
Sigma(1) .1394892015 .11913904E-01 11.708 .0000
Sigma(0) .8142326239E-01 .29390680E-02 27.704 .0000

```

Matrix: I.a
[6.4]

## ประวัติผู้เขียน

ชื่อ	นางสาวพัชรี เหลืองรุ่งโรจน์
วัน เดือน ปี เกิด	29 มกราคม 2519
ประวัติการศึกษา	สำเร็จการศึกษาระดับมัธยมศึกษาตอนปลาย โรงเรียนเบญจมะมหาราช อุบลราชธานี ปีการศึกษา 2536 สำเร็จการศึกษาระดับปริญญาเศรษฐศาสตรบัณฑิต มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2541
ประวัติการทำงาน	เจ้าหน้าที่ฝ่ายประชาสัมพันธ์ โรงแรมอิมพีเรียล แม่ปิ้ง จังหวัดเชียงใหม่ ปี พ.ศ. 2541 - 2543 เจ้าหน้าที่ฝ่ายธุรการ บริษัทแมคเวียงฟิงค์ จังหวัดเชียงใหม่ ปี พ.ศ. 2543 - 2544 เจ้าหน้าที่ฝ่ายประชาสัมพันธ์ โรงแรมอมิตี กรีน ฮิลล์ จังหวัดเชียงใหม่ ปี พ.ศ. 2544