



ภาคผนวก

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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ภาคผนวก ก

ตารางภาคผนวก ก ผลการทดสอบ Unit Root ของตัวแปรทั้งหมดที่ทำการศึกษาด้วยวิธีการ Augmented Dickey - Fuller test

1) ผลการทดสอบ Unit Root อัตราผลตอบแทนของหลักทรัพย์หมวดธนาคาร

1.1) Level without trend and intercept

Null Hypothesis: R1 has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.41610	0.0000
Test critical values:		
1% level	-2.567977	
5% level	-1.941236	
10% level	-1.616422	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(R1)
Method: Least Squares
Date: 05/10/10 Time: 17:14
Sample (adjusted): 2 769
Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R1(-1)	-0.951087	0.036004	-26.41610	0.0000

R-squared	0.476381	Mean dependent var	0.004719
Adjusted R-squared	0.476381	S.D. dependent var	2.945383
S.E. of regression	2.131323	Akaike info criterion	4.352664
Sum squared resid	3484.126	Schwarz criterion	4.358711
Log likelihood	-1670.423	Hannan-Quinn criter.	4.354991
Durbin-Watson stat	2.002158		

ที่มา : จากการคำนวณ

1.2) Level with trend and intercept

Null Hypothesis: R1 has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.38593	0.0000
Test critical values:		
1% level	-3.970046	
5% level	-3.415678	
10% level	-3.130086	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R1)
 Method: Least Squares
 Date: 05/10/10 Time: 17:13
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R1(-1)	-0.951275	0.036052	-26.38593	0.0000
C	-0.018795	0.154160	-0.121922	0.9030
@TREND(1)	9.44E-05	0.000347	0.271664	0.7860
R-squared	0.476467	Mean dependent var		0.004719
Adjusted R-squared	0.475098	S.D. dependent var		2.945383
S.E. of regression	2.133932	Akaike info criterion		4.357709
Sum squared resid	3483.555	Schwarz criterion		4.375848
Log likelihood	-1670.360	Hannan-Quinn criter.		4.364690
F-statistic	348.1132	Durbin-Watson stat		2.002114
Prob(F-statistic)	0.000000			

ที่มา : จากการคำนวณ

1.3) Level with intercept

Null Hypothesis: R1 has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.40067	0.0000
Test critical values:		
1% level	-3.438638	
5% level	-2.865088	
10% level	-2.568715	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R1)
 Method: Least Squares
 Date: 05/10/10 Time: 17:12
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R1(-1)	-0.951139	0.036027	-26.40067	0.0000
C	0.017485	0.076957	0.227212	0.8203
R-squared	0.476417	Mean dependent var		0.004719
Adjusted R-squared	0.475733	S.D. dependent var		2.945383
S.E. of regression	2.132642	Akaike info criterion		4.355201
Sum squared resid	3483.891	Schwarz criterion		4.367294
Log likelihood	-1670.397	Hannan-Quinn criter.		4.359855
F-statistic	696.9954	Durbin-Watson stat		2.002191
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

2) ผลการ ทดสอบ Unit Root อัตราผลตอบแทนของหลักทรัพย์หมวดพลังงาน

2.1) Level without trend and intercept

Null Hypothesis: R2 has a unit root
 Exogenous: None
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.42838	0.0000
Test critical values:		
1% level	-2.567977	
5% level	-1.941236	
10% level	-1.616422	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R2)
 Method: Least Squares
 Date: 05/10/10 Time: 17:16
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R2(-1)	-0.953347	0.036073	-26.42838	0.0000
R-squared	0.476614	Mean dependent var		0.003960
Adjusted R-squared	0.476614	S.D. dependent var		3.152643
S.E. of regression	2.280794	Akaike info criterion		4.488225
Sum squared resid	3989.949	Schwarz criterion		4.494272
Log likelihood	-1722.479	Hannan-Quinn criter.		4.490553
Durbin-Watson stat	2.005859			

ที่มา: จากการคำนวณ

2.2) Level with trend and intercept

Null Hypothesis: R2 has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.40173	0.0000
Test critical values:		
1% level	-3.970046	
5% level	-3.415678	
10% level	-3.130086	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R2)
 Method: Least Squares
 Date: 05/10/10 Time: 17:16
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R2(-1)	-0.953635	0.036120	-26.40173	0.0000
C	0.076842	0.164979	0.465771	0.6415
@TREND(1)	-0.000155	0.000372	-0.416618	0.6771
R-squared	0.476763	Mean dependent var		0.003960
Adjusted R-squared	0.475395	S.D. dependent var		3.152643
S.E. of regression	2.283448	Akaike info criterion		4.493149
Sum squared resid	3988.815	Schwarz criterion		4.511289
Log likelihood	-1722.369	Hannan-Quinn criter.		4.500131
F-statistic	348.5257	Durbin-Watson stat		2.005807
Prob(F-statistic)	0.000000			

ที่มา : จากการคำนวณ

2.3) Level with intercept

Null Hypothesis: R2 has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.41270	0.0000
Test critical values:		
1% level	-3.438638	
5% level	-2.865088	
10% level	-2.568715	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R2)
 Method: Least Squares
 Date: 05/10/10 Time: 17:15
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R2(-1)	-0.953394	0.036096	-26.41270	0.0000
C	0.017296	0.082354	0.210017	0.8337
R-squared	0.476644	Mean dependent var		0.003960
Adjusted R-squared	0.475961	S.D. dependent var		3.152643
S.E. of regression	2.282216	Akaike info criterion		4.490772
Sum squared resid	3989.720	Schwarz criterion		4.502865
Log likelihood	-1722.456	Hannan-Quinn criter.		4.495427
F-statistic	697.6305	Durbin-Watson stat		2.005874
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

3) ผลการทดสอบ Unit Root อัตราผลตอบแทนของหลักทรัพย์หมวดพัฒนาอสังหาริมทรัพย์

3.1) Level without trend and intercept

Null Hypothesis: R3 has a unit root
 Exogenous: None
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-24.89216	0.0000
Test critical values:		
1% level	-2.567977	
5% level	-1.941236	
10% level	-1.616422	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R3)
 Method: Least Squares
 Date: 05/10/10 Time: 17:19
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R3(-1)	-0.893269	0.035886	-24.89216	0.0000
R-squared	0.446856	Mean dependent var		0.001696
Adjusted R-squared	0.446856	S.D. dependent var		2.563749
S.E. of regression	1.906754	Akaike info criterion		4.129983
Sum squared resid	2788.590	Schwarz criterion		4.136030
Log likelihood	-1584.913	Hannan-Quinn criter.		4.132310
Durbin-Watson stat	2.006373			

ที่มา: จากการคำนวณ

3.2) Level with trend and intercept

Null Hypothesis: R3 has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-24.86429	0.0000
Test critical values:		
1% level	-3.970046	
5% level	-3.415678	
10% level	-3.130086	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R3)
 Method: Least Squares
 Date: 05/10/10 Time: 17:19
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R3(-1)	-0.893488	0.035935	-24.86429	0.0000
C	-0.041677	0.137926	-0.302168	0.7626
@TREND(1)	0.000112	0.000311	0.359268	0.7195
R-squared	0.446949	Mean dependent var		0.001696
Adjusted R-squared	0.445504	S.D. dependent var		2.563749
S.E. of regression	1.909083	Akaike info criterion		4.135022
Sum squared resid	2788.119	Schwarz criterion		4.153162
Log likelihood	-1584.848	Hannan-Quinn criter.		4.142004
F-statistic	309.1185	Durbin-Watson stat		2.006257
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

3.3) Level with intercept

Null Hypothesis: R3 has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-24.87592	0.0000
Test critical values:		
1% level	-3.438638	
5% level	-2.865088	
10% level	-2.568715	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R3)
 Method: Least Squares
 Date: 05/10/10 Time: 17:18
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R3(-1)	-0.893269	0.035909	-24.87592	0.0000
C	0.001252	0.068849	0.018190	0.9855
R-squared	0.446856	Mean dependent var		0.001696
Adjusted R-squared	0.446134	S.D. dependent var		2.563749
S.E. of regression	1.907998	Akaike info criterion		4.132587
Sum squared resid	2788.589	Schwarz criterion		4.144680
Log likelihood	-1584.913	Hannan-Quinn criter.		4.137241
F-statistic	618.8116	Durbin-Watson stat		2.006374
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

4) ผลการ ทดสอบ Unit Root อัตราผลตอบแทนของหลักทรัพย์หมวดสื่อสารและเทคโนโลยี

4.1) Level without trend and intercept

Null Hypothesis: R4 has a unit root
 Exogenous: None
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-27.65606	0.0000
Test critical values:		
1% level	-2.567977	
5% level	-1.941236	
10% level	-1.616422	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R4)
 Method: Least Squares
 Date: 05/10/10 Time: 17:22
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R4(-1)	-0.997485	0.036067	-27.65606	0.0000
R-squared	0.499300	Mean dependent var		0.003235
Adjusted R-squared	0.499300	S.D. dependent var		2.534121
S.E. of regression	1.793148	Akaike info criterion		4.007124
Sum squared resid	2466.196	Schwarz criterion		4.013170
Log likelihood	-1537.736	Hannan-Quinn criter.		4.009451
Durbin-Watson stat	2.002148			

ที่มา: จากการคำนวณ

4.2) Level with trend and intercept

Null Hypothesis: R4 has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-27.62174	0.0000
Test critical values:		
1% level	-3.970046	
5% level	-3.415678	
10% level	-3.130086	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R4)
 Method: Least Squares
 Date: 05/10/10 Time: 17:21
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R4(-1)	-0.997526	0.036114	-27.62174	0.0000
C	0.029637	0.129702	0.228503	0.8193
@TREND(1)	-5.41E-05	0.000292	-0.185046	0.8532
R-squared	0.499335	Mean dependent var		0.003235
Adjusted R-squared	0.498026	S.D. dependent var		2.534121
S.E. of regression	1.795428	Akaike info criterion		4.012263
Sum squared resid	2466.026	Schwarz criterion		4.030403
Log likelihood	-1537.709	Hannan-Quinn criter.		4.019245
F-statistic	381.4832	Durbin-Watson stat		2.002200
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

4.3) Level with intercept

Null Hypothesis: R4 has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-27.63865	0.0000
Test critical values:		
1% level	-3.438638	
5% level	-2.865088	
10% level	-2.568715	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R4)
 Method: Least Squares
 Date: 05/10/10 Time: 17:21
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R4(-1)	-0.997500	0.036091	-27.63865	0.0000
C	0.008845	0.064746	0.136612	0.8914
R-squared	0.499312	Mean dependent var		0.003235
Adjusted R-squared	0.498658	S.D. dependent var		2.534121
S.E. of regression	1.794296	Akaike info criterion		4.009704
Sum squared resid	2466.136	Schwarz criterion		4.021797
Log likelihood	-1537.726	Hannan-Quinn criter.		4.014358
F-statistic	763.8952	Durbin-Watson stat		2.002164
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

5) ผลการ ทดสอบ Unit Root อัตราผลตอบแทนของหลักทรัพย์หมวดวัสดุก่อสร้าง

5.1) Level without trend and intercept

Null Hypothesis: R5 has a unit root
 Exogenous: None
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-24.23658	0.0000
Test critical values:		
1% level	-2.567977	
5% level	-1.941236	
10% level	-1.616422	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R5)
 Method: Least Squares
 Date: 05/10/10 Time: 17:30
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R5(-1)	-0.867837	0.035807	-24.23658	0.0000
R-squared	0.433701	Mean dependent var		0.003327
Adjusted R-squared	0.433701	S.D. dependent var		2.324096
S.E. of regression	1.748947	Akaike info criterion		3.957207
Sum squared resid	2346.113	Schwarz criterion		3.963253
Log likelihood	-1518.567	Hannan-Quinn criter.		3.959534
Durbin-Watson stat	2.001162			

ที่มา: จากการคำนวณ

5.2) Level with trend and intercept

Null Hypothesis: R5 has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-24.24222	0.0000
Test critical values:		
1% level	-3.970046	
5% level	-3.415678	
10% level	-3.130086	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R5)
 Method: Least Squares
 Date: 05/10/10 Time: 17:29
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R5(-1)	-0.869313	0.035859	-24.24222	0.0000
C	-0.114945	0.126512	-0.908572	0.3639
@TREND(1)	0.000288	0.000285	1.009883	0.3129
R-squared	0.434459	Mean dependent var		0.003327
Adjusted R-squared	0.432980	S.D. dependent var		2.324096
S.E. of regression	1.750061	Akaike info criterion		3.961077
Sum squared resid	2342.975	Schwarz criterion		3.979217
Log likelihood	-1518.053	Hannan-Quinn criter.		3.968059
F-statistic	293.8431	Durbin-Watson stat		2.000851
Prob(F-statistic)	0.000000			

ที่มา : จากการคำนวณ

5.3) Level with intercept

Null Hypothesis: R5 has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-24.22088	0.0000
Test critical values:		
1% level	-3.438638	
5% level	-2.865088	
10% level	-2.568715	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(R5)
 Method: Least Squares
 Date: 05/10/10 Time: 17:28
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R5(-1)	-0.867849	0.035831	-24.22088	0.0000
C	-0.004238	0.063151	-0.067115	0.9465
R-squared	0.433705	Mean dependent var		0.003327
Adjusted R-squared	0.432965	S.D. dependent var		2.324096
S.E. of regression	1.750084	Akaike info criterion		3.959805
Sum squared resid	2346.099	Schwarz criterion		3.971898
Log likelihood	-1518.565	Hannan-Quinn criter.		3.964459
F-statistic	586.6511	Durbin-Watson stat		2.001150
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

6) ผลการ ทดสอบ Unit Root อัตราผลตอบแทนของSET100

6.1) Level without trend and intercept

Null Hypothesis: RM has a unit root
 Exogenous: None
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.26261	0.0000
Test critical values:		
1% level	-2.567977	
5% level	-1.941236	
10% level	-1.616422	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(RM)
 Method: Least Squares
 Date: 05/10/10 Time: 17:10
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.946479	0.036039	-26.26261	0.0000
R-squared	0.473476	Mean dependent var		0.003348
Adjusted R-squared	0.473476	S.D. dependent var		2.596313
S.E. of regression	1.883937	Akaike info criterion		4.105905
Sum squared resid	2722.250	Schwarz criterion		4.111952
Log likelihood	-1575.668	Hannan-Quinn criter.		4.108233
Durbin-Watson stat	2.008659			

ที่มา: จากการคำนวณ

6.2) Level with trend and intercept

Null Hypothesis: RM has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.22890	0.0000
Test critical values:		
1% level	-3.970046	
5% level	-3.415678	
10% level	-3.130086	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(RM)
 Method: Least Squares
 Date: 05/10/10 Time: 17:09
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.946494	0.036086	-26.22890	0.0000
C	0.007874	0.136271	0.057785	0.9539
@TREND(1)	2.68E-06	0.000307	0.008725	0.9930
R-squared	0.473487	Mean dependent var		0.003348
Adjusted R-squared	0.472111	S.D. dependent var		2.596313
S.E. of regression	1.886376	Akaike info criterion		4.111091
Sum squared resid	2722.188	Schwarz criterion		4.129231
Log likelihood	-1575.659	Hannan-Quinn criter.		4.118073
F-statistic	343.9782	Durbin-Watson stat		2.008672
Prob(F-statistic)	0.000000			

ที่มา: จากการคำนวณ

6.3) Level with intercept

Null Hypothesis: RM has a unit root
 Exogenous: None
 Lag Length: 0 (Automatic based on SIC, MAXLAG=19)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-26.26261	0.0000
Test critical values:		
1% level	-2.567977	
5% level	-1.941236	
10% level	-1.616422	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(RM)
 Method: Least Squares
 Date: 05/10/10 Time: 17:10
 Sample (adjusted): 2 769
 Included observations: 768 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.946479	0.036039	-26.26261	0.0000
R-squared	0.473476	Mean dependent var		0.003348
Adjusted R-squared	0.473476	S.D. dependent var		2.596313
S.E. of regression	1.883937	Akaike info criterion		4.105905
Sum squared resid	2722.250	Schwarz criterion		4.111952
Log likelihood	-1575.668	Hannan-Quinn criter.		4.108233
Durbin-Watson stat	2.008659			

ที่มา : จากการศึกษา

ภาคผนวก ข

ตารางภาคผนวก ข ผลการประมาณค่าความเสี่ยงเรียงลำดับของหมวดหลักทรัพย์โดยใช้
แบบจำลองออร์เดอร์โพรบิต (Ordered Probit Model)

1) หมวดธนาคาร

```
--> RESET
Initializing LIMDEP Version 9.0.1 (January 1, 2007).
--> READ;FILE="C:\Documents and
Settings\Administrator\Desktop\RUNagain1.xls"$
--> SAMPLE;1-769$
--> ORDERED;Lhs=y;Rhs=ONE,RM;Marginal Effects;Alg=Newton$
Normal exit from iterations. Exit status=0.
```

```
+-----+
| Ordered Probability Model |
| Maximum Likelihood Estimates |
| Model estimated: May 06, 2010 at 01:41:42PM. |
| Dependent variable Y |
| Weighting variable None |
| Number of observations 769 |
| Iterations completed 24 |
| Log likelihood function -286.1963 |
| Number of parameters 5 |
| Info. Criterion: AIC = .75734 |
| Finite Sample: AIC = .75744 |
| Info. Criterion: BIC = .78754 |
| Info. Criterion:HQIC = .76896 |
| Restricted log likelihood -630.8743 |
| McFadden Pseudo R-squared .5463498 |
| Chi squared 689.3560 |
| Degrees of freedom 1 |
| Prob[ChiSq > value] = .0000000 |
| Underlying probabilities based on Normal |
+-----+
```

```
+-----+
| Ordered Probability Model |
| Cell frequencies for outcomes |
| Y Count Freq Y Count Freq Y Count Freq |
| 0 2 .002 1 7 .009 2 253 .328 |
| 3 484 .629 4 23 .029 |
+-----+
```

```
+-----+-----+-----+-----+-----+-----+
-+
|Variable| Coefficient | Standard Error |b/St.Er.|P[|Z|>z]| Mean of X|
```

```

+-----+-----+-----+-----+-----+-----+-----+
-+
-----+Index function for probability
Constant| 11.5439095      1.37840040      8.375      .0000
RM      |  1.19099483      .07389375     16.118     .0000
.00688044
-----+Threshold parameters for index
Mu (1)  |  5.51022832      1.34939647      4.083     .0000
Mu (2)  | 10.7654850      1.37003448      7.858     .0000
Mu (3)  | 15.9078198      1.46908372     10.828     .0000
+-----+
-----+
| Summary of Marginal Effects for Ordered Probability Model (probit)
|
+-----+
-----+
Variable|  Y=00   Y=01   Y=02   Y=03   Y=04   Y=05   Y=06
Y=07 |
+-----+
RM      |  .0000   .0000  -.3487  .3487   .0000
+-----+
-----+
| Cross tabulation of predictions. Row is actual, column is
| predicted.
| Model = Probit      . Prediction is number of the most probable
| cell.
+-----+
+-----+
| Actual|Row Sum|  0 |  1 |  2 |  3 |  4 |  5 |  6 |  7 |  8
|  9 |
+-----+
-----+
|  0|      2|      2|      0|      0|      0|      0|
|  1|      7|      0|      5|      2|      0|      0|
|  2|     253|      0|      0|     191|     62|      0|
|  3|     484|      0|      0|      34|     444|      6|
|  4|      23|      0|      0|      0|      12|     11|
+-----+
-----+
| Col Sum|      769|      2|      5|     227|     518|      17|      0|      0|      0|
0|      0|
+-----+
-----+

```

ที่มา : จากการคำนวณ

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
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2) หมวดพลังงาน

--> RESET

Initializing LIMDEP Version 9.0.1 (January 1, 2007).

--> READ;FILE="C:\Documents and Settings\Administrator\Desktop\RUNagain2.xls"\$

--> SAMPLE;1-769\$

--> ORDERED;Lhs=y;Rhs=ONE,RM;Marginal Effects\$

Normal exit from iterations. Exit status=0.

+-----+

```

| Ordered Probability Model
| Maximum Likelihood Estimates
| Model estimated: May 06, 2010 at 02:00:51PM.
| Dependent variable                Y
| Weighting variable                 None
| Number of observations             769
| Iterations completed               22
| Log likelihood function            -230.2197
| Number of parameters               5
| Info. Criterion: AIC =              .61175
|   Finite Sample: AIC =              .61186
| Info. Criterion: BIC =              .64196
| Info. Criterion: HQIC =             .62338
| Restricted log likelihood          -668.0494
| McFadden Pseudo R-squared         .6553853
| Chi squared                        875.6595
| Degrees of freedom                  1
| Prob[ChiSq > value] =                .0000000
| Underlying probabilities based on Normal

```

```

-----+-----+-----+-----+-----+-----+
| Ordered Probability Model
| Cell frequencies for outcomes
| Y Count Freq Y Count Freq Y Count Freq
| 0      2 .002  1      11 .014  2      364 .473
| 3     374 .486  4      18 .023

```

```

-----+-----+-----+-----+-----+-----+
| Variable | Coefficient | Standard Error | b/St.Er. | P[|Z|>z] | Mean of X|

```

```

-----+-----+-----+-----+-----+-----+
| Index function for probability
| Constant | 16.9939743 | 4.04466110 | 4.202 | .0000
| RM       | 1.76902471 | .11574730 | 15.284 | .0000
|.00688044
| Threshold parameters for index
| Mu (1)  | 9.48863285 | 3.95916372 | 2.397 | .0165
| Mu (2)  | 16.9862588 | 4.04502565 | 4.199 | .0000
| Mu (3)  | 23.9182014 | 4.18535257 | 5.715 | .0000

```

```

-----+-----+
| Summary of Marginal Effects for Ordered Probability Model (probit)

```

```

-----+
-----+
Variable|   Y=00   Y=01   Y=02   Y=03   Y=04   Y=05   Y=06
Y=07 |
-----+
-----+
RM       .0000   .0000  -.7056   .7056   .0000
-----+
-----+
| Cross tabulation of predictions. Row is actual, column is
predicted. |
| Model = Probit . Prediction is number of the most probable
cell. |
-----+
-----+
| Actual|Row Sum|  0 |  1 |  2 |  3 |  4 |  5 |  6 |  7 |  8
|  9 |
-----+
-----+
|  0|    2|    2|    0|    0|    0|    0|
|  1|   11|    0|    7|    4|    0|    0|
|  2|   364|   0|   3|  327|   34|    0|
|  3|   374|   0|   0|   38|  334|    2|
|  4|    18|   0|   0|    0|    6|   12|
-----+
-----+
| Col Sum|  769|    2|   10|  369|  374|   14|    0|    0|    0|
|  0|    0|
-----+
-----+

```

ที่มา: จากการคำนวณ

3) หมวดยพัฒนาอสังหาริมทรัพย์

```

--> RESET
Initializing LIMDEP Version 9.0.1 (January 1, 2007).
--> READ;FILE="C:\Documents and
Settings\Administrator\Desktop\RUNagain3.xls"$
--> SAMPLE;1-769$
--> ORDERED;Lhs=y;Rhs=ONE,RM;Marginal Effects;Alg=Newton$
Normal exit from iterations. Exit status=0.
-----+
| Ordered Probability Model
| Maximum Likelihood Estimates
| Model estimated: May 06, 2010 at 02:54:36PM.
| Dependent variable Y
| Weighting variable None
| Number of observations 769
| Iterations completed 40
| Log likelihood function -320.2831
| Number of parameters 5
| Info. Criterion: AIC = .84599
| Finite Sample: AIC = .84609
| Info. Criterion: BIC = .87619
| Info. Criterion:HQIC = .85761
-----+

```

```

| Restricted log likelihood      -624.9795 |
| McFadden Pseudo R-squared    .4875302 |
| Chi squared                   609.3927 |
| Degrees of freedom            1 |
| Prob[ChiSq > value] =        .0000000 |
| Underlying probabilities based on Normal |
+-----+

```

```

+-----+
| Ordered Probability Model |
| Cell frequencies for outcomes |
| Y Count Freq Y Count Freq Y Count Freq |
| 0 5 .006 1 40 .052 2 542 .704 |
| 3 175 .227 4 7 .009 |
+-----+

```

```

+-----+
-+
| Variable | Coefficient | Standard Error | b/St.Er. | P[|Z|>z] | Mean of X |
+-----+
-+
-----+Index function for probability
Constant | 6.17723936 | .40444831 | 15.273 | .0000 |
RM | .91382926 | .04888475 | 18.694 | .0000 |
.00688044
-----+Threshold parameters for index
Mu (1) | 3.22530012 | .39896566 | 8.084 | .0000 |
Mu (2) | 7.44773636 | .41867600 | 17.789 | .0000 |
Mu (3) | 11.1131162 | .55272740 | 20.106 | .0000 |
+-----+

```

```

+-----+
| Summary of Marginal Effects for Ordered Probability Model (probit) |
+-----+
Variable | Y=00 | Y=01 | Y=02 | Y=03 | Y=04 | Y=05 | Y=06 |
Y=07 |
-----+
RM | .0000 | -.0046 | -.1594 | .1640 | .0000 |
+-----+

```

```

+-----+
| Cross tabulation of predictions. Row is actual, column is |
| predicted. | | | | | | | | |
| Model = Probit . Prediction is number of the most probable |
| cell. | | | | | | | | |
+-----+
-+
+-----+

```


Actual	Row Sum	0	1	2	3	4	5	6	7	8
9										
0	5	5	0	0	0	0				
1	40	0	20	20	0	0				
2	542	0	8	502	32	0				
3	175	0	0	69	104	2				
4	7	0	0	0	4	3				
Col Sum	769	5	28	591	140	5	0	0	0	
0	0									

ที่มา : จากการคำนวณ

4) หมวดสื่อสารและเทคโนโลยี

--> RESET

Initializing LIMDEP Version 9.0.1 (January 1, 2007).

--> READ;FILE="C:\Documents and Settings\Administrator\Desktop\RUNagain4.xls"\$

--> SAMPLE;1-769\$

--> SAMPLE;1-769\$

--> ORDERED;Lhs=y;Rhs=ONE,RM;Marginal Effects\$

Normal exit from iterations. Exit status=0.

```

+-----+
| Ordered Probability Model
| Maximum Likelihood Estimates
| Model estimated: May 06, 2010 at 03:06:33PM.
| Dependent variable           Y
| Weighting variable           None
| Number of observations       769
| Iterations completed         14
| Log likelihood function      -417.4452
| Number of parameters         5
| Info. Criterion: AIC =       1.09869
| Finite Sample: AIC =        1.09879
| Info. Criterion: BIC =       1.12889
| Info. Criterion:HQIC =       1.11031
| Restricted log likelihood    -574.0629
| McFadden Pseudo R-squared   .2728232
| Chi squared                   313.2353
| Degrees of freedom           1
| Prob[ChiSq > value] =       .0000000
| Underlying probabilities based on Normal
+-----+

```

```

+-----+
| Ordered Probability Model
| Cell frequencies for outcomes
| Y Count Freq Y Count Freq Y Count Freq
| 0 5 .006 1 66 .085 2 591 .768
| 3 102 .132 4 5 .006
+-----+

```

```

-----+-----+-----+-----+-----+-----+
-+
|Variable| Coefficient | Standard Error |b/St.Er.|P[|Z|>z]| Mean of
X|
-----+-----+-----+-----+
-+
-----+Index function for probability
Constant| 3.92731661 .13928835 28.196 .0000
RM | .50487032 .03050161 16.552 .0000
.00688044
-----+Threshold parameters for index
Mu (1) | 2.17242951 .15002119 14.481 .0000
Mu (2) | 5.35365528 .14568398 36.748 .0000
Mu (3) | 7.41931623 .25489819 29.107 .0000
-----+
-----+
| Summary of Marginal Effects for Ordered Probability Model (probit)
|
-----+
Variable| Y=00 Y=01 Y=02 Y=03 Y=04 Y=05 Y=06
Y=07 |
-----+
RM -.0001 -.0428 -.0303 .0727 .0005
-----+
-----+
| Cross tabulation of predictions. Row is actual, column is
predicted. |
| Model = Probit . Prediction is number of the most probable
cell. |
-----+-----+-----+-----+-----+-----+-----+
| Actual|Row Sum| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8
| 9 |
-----+-----+-----+-----+-----+-----+-----+
| 0| 5| 3| 2| 0| 0| 0|
| 1| 66| 0| 11| 55| 0| 0|
| 2| 591| 0| 7| 566| 17| 1|
| 3| 102| 0| 0| 82| 20| 0|
| 4| 5| 0| 0| 1| 2| 2|
-----+-----+-----+-----+-----+-----+-----+
| Col Sum| 769| 3| 20| 704| 39| 3| 0| 0| 0|
0| 0|
-----+-----+-----+-----+-----+-----+
-----+

```

ที่มา: จากการคำนวณ

5) หมวดวัสดุก่อสร้าง

```
--> RESET
Initializing LIMDEP Version 9.0.1 (January 1, 2007).
--> READ;FILE="C:\Documents and
Settings\Administrator\Desktop\RUNagain4.xls"$
--> SAMPLE;1-769$
--> SAMPLE;1-769$
--> ORDERED;Lhs=y;Rhs=ONE,RM;Marginal Effects$
Normal exit from iterations. Exit status=0.
```

```
+-----+
| Ordered Probability Model
| Maximum Likelihood Estimates
| Model estimated: May 06, 2010 at 03:06:33PM.
| Dependent variable           Y
| Weighting variable           None
| Number of observations       769
| Iterations completed         14
| Log likelihood function      -417.4452
| Number of parameters         5
| Info. Criterion: AIC =       1.09869
|   Finite Sample: AIC =       1.09879
| Info. Criterion: BIC =       1.12889
| Info. Criterion: HQIC =      1.11031
| Restricted log likelihood    -574.0629
| McFadden Pseudo R-squared   .2728232
| Chi squared                   313.2353
| Degrees of freedom           1
| Prob[ChiSqd > value] =      .0000000
| Underlying probabilities based on Normal
+-----+
```

```
+-----+
| Ordered Probability Model
| Cell frequencies for outcomes
| Y Count Freq Y Count Freq Y Count Freq
| 0 5 .006 1 66 .085 2 591 .768
| 3 102 .132 4 5 .006
+-----+
```

```

+-----+-----+-----+-----+-----+
-+
|Variable| Coefficient | Standard Error |b/St.Er.|P[|Z|>z]| Mean of
X|
+-----+-----+-----+-----+-----+
-+
-----+Index function for probability
Constant| 3.92731661 | .13928835 | 28.196 | .0000
RM | .50487032 | .03050161 | 16.552 | .0000
.00688044
-----+Threshold parameters for index
Mu (1) | 2.17242951 | .15002119 | 14.481 | .0000
Mu (2) | 5.35365528 | .14568398 | 36.748 | .0000
Mu (3) | 7.41931623 | .25489819 | 29.107 | .0000
+-----+
-----+
| Summary of Marginal Effects for Ordered Probability Model (probit)
|
+-----+
-----+
Variable| Y=00 | Y=01 | Y=02 | Y=03 | Y=04 | Y=05 | Y=06
Y=07 |
+-----+
-----+
RM | -.0001 | -.0428 | -.0303 | .0727 | .0005
+-----+
-----+
| Cross tabulation of predictions. Row is actual, column is
predicted.
| Model = Probit . Prediction is number of the most probable
cell.
+-----+
-----+
| Actual|Row Sum| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8
| 9 |
+-----+
-----+
| 0| 5| 3| 2| 0| 0| 0|
| 1| 66| 0| 11| 55| 0| 0|
| 2| 591| 0| 7| 566| 17| 1|
| 3| 102| 0| 0| 82| 20| 0|
| 4| 5| 0| 0| 1| 2| 2|
+-----+
-----+
| Col Sum| 769| 3| 20| 704| 39| 3| 0| 0| 0|
0| 0|
+-----+

```

ที่มา : จากกรคำนวณ

ประวัติผู้เขียน

ชื่อ - สกุล นางสาวกมลวรรณ งุ่มส่องแสง

วัน เดือน ปี เกิด 19 มีนาคม 2527

ประวัติการศึกษา สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนนาริรัตน์จังหวัดแพร่
ปีการศึกษา 2546
สำเร็จการศึกษาระดับปริญญาตรี วิทยาศาสตร์บัณฑิต คณะอุตสาหกรรมเกษตร
มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2550

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
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