ภาคผนวก

ภาคผนวก ก

ผลการทดสอบความนิ่งของข้อมูล (Unit Root) โดยวิธี Augmented Dickey-Fuller test (ADF)

1) ผลการทดสอบยูนิทรูท ของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังสวิสเซอร์แลนด์

1.1) intercept

Null Hypothesis: D(SWX) has a unit root
Exogenous: Constant
Lag Length: 5 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.761299	0.0000
Test critical values:	1% level	-3.483312	
	5% level	-2.884665	
	10% level	-2.579180	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SWX,2)
Method: Least Squares
Date: 08/02/11 Time: 22:08
Sample (adjusted): 8 132
Included observations: 125 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SWX(-1))	-3.440938	0.352508	-9.761299	0.0000
D(SWX(-1),2)	2.088967	0.310848	6.720219	0.0000
D(SWX(-2),2)	1.588808	0.264403	6.009038	0.0000
D(SWX(-3),2)	1.059057	0.204089	5.189182	0.0000
D(SWX(-4),2)	0.748325	0.146480	5.108723	0.0000
D(SWX(-5),2)	0.469127	0.094450	4.966913	0.0000
C	248.0141	302.8541	0.818923	0.4145

R-squared	0.702347	Mean dependent var	-32.97280
Adjusted R-squared	0.687212	S.D. dependent var	6029.974
S.E. of regression	3372.412	Akaike info criterion	19.13901
Sum squared resid	1.34E+09	Schwarz criterion	19.29740
Log likelihood	-1189.188	Hannan-Quinn criter.	19.20336
F-statistic	46.40574	Durbin-Watson stat	1.987697
Prob(F-statistic)	0.000000		

1.2) intercept with trend

Null Hypothesis: D(SWX) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 5 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.778023	0.0000
Test critical values:	1% level	-4.033108	
	5% level	-3.446168	
	10% level	-3.148049	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SWX,2)
Method: Least Squares
Date: 08/02/11 Time: 22:08
Sample (adjusted): 8 132
Included observations: 125 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SWX(-1))	-3.464812	0.354347	-9.778023	0.0000
D(SWX(-1),2)	2.109405	0.312404	6.752159	0.0000
D(SWX(-2),2)	1.605615	0.265668	6.043693	0.0000
D(SWX(-3),2)	1.070781	0.204946	5.224699	0.0000
D(SWX(-4),2)	0.756711	0.147092	5.144477	0.0000
D(SWX(-5),2)	0.475376	0.094927	5.007787	0.0000
C	-210.1536	652.7530	-0.321950	0.7481
@TREND(1)	6.670885	8.415535	0.792687	0.4296

R-squared	0.703937	Mean dependent var	-32.97280
Adjusted R-squared	0.686224	S.D. dependent var	6029.974
S.E. of regression	3377.735	Akaike info criterion	19.14966
Sum squared resid	1.33E+09	Schwarz criterion	19.33067
Log likelihood	-1188.854	Hannan-Quinn criter.	19.22319
F-statistic	39.74083	Durbin-Watson stat	1.992846
Prob(F-statistic)	0.000000		

1.3) None

Null Hypothesis: D(SWX) has a unit root
Exogenous: None
Lag Length: 5 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.740377	0.0000
Test critical values:	1% level	-2.583593	
	5% level	-1.943406	
	10% level	-1.615024	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SWX,2)
Method: Least Squares
Date: 08/02/11 Time: 22:09
Sample (adjusted): 8 132
Included observations: 125 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SWX(-1))	-3.416587	0.350765	-9.740377	0.0000
D(SWX(-1),2)	2.068145	0.309377	6.684861	0.0000
D(SWX(-2),2)	1.571760	0.263217	5.971342	0.0000
D(SWX(-3),2)	1.047037	0.203279	5.150737	0.0000
D(SWX(-4),2)	0.740231	0.145944	5.072035	0.0000
D(SWX(-5),2)	0.463949	0.094108	4.929967	0.0000

R-squared	0.700655	Mean dependent var	-32.97280
Adjusted R-squared	0.688078	S.D. dependent var	6029.974
S.E. of regression	3367.742	Akaike info criterion	19.12868
Sum squared resid	1.35E+09	Schwarz criterion	19.26444
Log likelihood	-1189.543	Hannan-Quinn criter.	19.18383
Durbin-Watson stat	1.982807		

2) ผลการทดสอบยูนิทรูท ของอัตราแลกเปลี่ยนเงินบาทต่อฟรังก์สวิสเซอร์แลนด์

2.1) Intercept

Null Hypothesis: D(SWCHF) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.934916	0.0000
Test critical values:	1% level	-3.481217	
	5% level	-2.883753	
	10% level	-2.578694	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SWCHF,2)
Method: Least Squares
Date: 08/02/11 Time: 22:23
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SWCHF(-1))	-0.872083	0.087780	-9.934916	0.0000
C	0.054772	0.054860	0.998400	0.3200

R-squared	0.435384	Mean dependent var	0.008748
Adjusted R-squared	0.430972	S.D. dependent var	0.826243
S.E. of regression	0.623267	Akaike info criterion	1.907582
Sum squared resid	49.72312	Schwarz criterion	1.951698
Log likelihood	-121.9928	Hannan-Quinn criter.	1.925508
F-statistic	98.70256	Durbin-Watson stat	1.960096
Prob(F-statistic)	0.000000		

2.2) intercept with trend

Null Hypothesis: D(SWCHF) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.00331	0.0000
Test critical values:	1% level	-4.030157	
	5% level	-3.444756	
	10% level	-3.147221	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SWCHF,2)
Method: Least Squares
Date: 08/02/11 Time: 22:23
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SWCHF(-1))	-0.882997	0.088270	-10.00331	0.0000
C	0.162313	0.112232	1.446220	0.1506
@TREND(1)	-0.001608	0.001465	-1.098077	0.2742

R-squared	0.440694	Mean dependent var	0.008748
Adjusted R-squared	0.431886	S.D. dependent var	0.826243
S.E. of regression	0.622767	Akaike info criterion	1.913517
Sum squared resid	49.25548	Schwarz criterion	1.979691
Log likelihood	-121.3786	Hannan-Quinn criter.	1.940406
F-statistic	50.03350	Durbin-Watson stat	1.960230
Prob(F-statistic)	0.000000		

2.3) none

Null Hypothesis: D(SWCHF) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.886040	0.0000
Test critical values:	1% level	-2.582872	
	5% level	-1.943304	
	10% level	-1.615087	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SWCHF,2)
Method: Least Squares
Date: 08/02/11 Time: 22:23
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SWCHF(-1))	-0.864682	0.087465	-9.886040	0.0000

R-squared	0.430987	Mean dependent var	0.008748
Adjusted R-squared	0.430987	S.D. dependent var	0.826243
S.E. of regression	0.623259	Akaike info criterion	1.899955
Sum squared resid	50.11034	Schwarz criterion	1.922013
Log likelihood	-122.4971	Hannan-Quinn criter.	1.908918
Durbin-Watson stat	1.957545		

3) ผลการทดสอบยูนิทรูท ของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังฮ่องกง

3.1) Intercept

Null Hypothesis: D(HKX) has a unit root
Exogenous: Constant
Lag Length: 10 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.726229	0.0000
Test critical values:	1% level	-3.485586	
	5% level	-2.885654	
	10% level	-2.579708	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HKX,2)
Method: Least Squares
Date: 08/02/11 Time: 23:18
Sample (adjusted): 13 132
Included observations: 120 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HKX(-1))	-7.180833	1.254025	-5.726229	0.0000
D(HKX(-1),2)	5.291547	1.224715	4.320636	0.0000
D(HKX(-2),2)	4.460007	1.170693	3.809714	0.0002
D(HKX(-3),2)	3.658207	1.083290	3.376940	0.0010
D(HKX(-4),2)	2.858888	0.963190	2.968144	0.0037
D(HKX(-5),2)	1.983778	0.816587	2.429353	0.0168
D(HKX(-6),2)	1.408364	0.660736	2.131509	0.0353
D(HKX(-7),2)	1.055816	0.512946	2.058339	0.0420
D(HKX(-8),2)	0.792886	0.369280	2.147111	0.0340
D(HKX(-9),2)	0.733389	0.232352	3.156366	0.0021
D(HKX(-10),2)	0.408842	0.107343	3.808757	0.0002
C	392.4073	206.7648	1.897844	0.0604

R-squared	0.864891	Mean dependent var	11.18550
Adjusted R-squared	0.851130	S.D. dependent var	5538.266
S.E. of regression	2136.868	Akaike info criterion	18.26671
Sum squared resid	4.93E+08	Schwarz criterion	18.54546
Log likelihood	-1084.003	Hannan-Quinn criter.	18.37991
F-statistic	62.85038	Durbin-Watson stat	1.924310
Prob(F-statistic)	0.000000		

3.2) Intercept with trend

Null Hypothesis: D(HKX) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 10 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.017426	0.0000
Test critical values:	1% level	-4.036310	
	5% level	-3.447699	
	10% level	-3.148946	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HKX,2)
Method: Least Squares
Date: 08/02/11 Time: 23:18
Sample (adjusted): 13 132
Included observations: 120 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HKX(-1))	-7.816546	1.298985	-6.017426	0.0000
D(HKX(-1),2)	5.906024	1.267537	4.659448	0.0000
D(HKX(-2),2)	5.032466	1.209127	4.162065	0.0001
D(HKX(-3),2)	4.166090	1.115307	3.735376	0.0003
D(HKX(-4),2)	3.292007	0.988773	3.329387	0.0012
D(HKX(-5),2)	2.333144	0.835605	2.792160	0.0062
D(HKX(-6),2)	1.666020	0.672616	2.476927	0.0148
D(HKX(-7),2)	1.227458	0.518623	2.366764	0.0197
D(HKX(-8),2)	0.891814	0.370790	2.405174	0.0179
D(HKX(-9),2)	0.777319	0.231839	3.352833	0.0011
D(HKX(-10),2)	0.422365	0.106731	3.957285	0.0001
C	-279.4018	447.1303	-0.624878	0.5334
@TREND(1)	9.898523	5.854793	1.690670	0.0938

R-squared	0.868406	Mean dependent var	11.18550
Adjusted R-squared	0.853648	S.D. dependent var	5538.266
S.E. of regression	2118.717	Akaike info criterion	18.25701
Sum squared resid	4.80E+08	Schwarz criterion	18.55899
Log likelihood	-1082.421	Hannan-Quinn criter.	18.37965
F-statistic	58.84239	Durbin-Watson stat	1.931502
Prob(F-statistic)	0.000000		

3.3) none

Null Hypothesis: D(HKX) has a unit root
Exogenous: None
Lag Length: 10 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.339288	0.0000
Test critical values:	1% level	-2.584375	
	5% level	-1.943516	
	10% level	-1.614956	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HKX,2)
Method: Least Squares
Date: 08/02/11 Time: 23:19
Sample (adjusted): 13 132
Included observations: 120 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HKX(-1))	-6.401628	1.198966	-5.339288	0.0000
D(HKX(-1),2)	4.536241	1.171990	3.870547	0.0002
D(HKX(-2),2)	3.751498	1.122738	3.341384	0.0011
D(HKX(-3),2)	3.022876	1.042491	2.899666	0.0045
D(HKX(-4),2)	2.314029	0.930317	2.487354	0.0144
D(HKX(-5),2)	1.542962	0.792145	1.947828	0.0540
D(HKX(-6),2)	1.079706	0.645203	1.673436	0.0971
D(HKX(-7),2)	0.831303	0.505040	1.646014	0.1026
D(HKX(-8),2)	0.657929	0.366668	1.794344	0.0755
D(HKX(-9),2)	0.668748	0.232569	2.875478	0.0049
D(HKX(-10),2)	0.387637	0.108026	3.588363	0.0005

R-squared	0.860385	Mean dependent var	11.18550
Adjusted R-squared	0.847576	S.D. dependent var	5538.266
S.E. of regression	2162.221	Akaike info criterion	18.28285
Sum squared resid	5.10E+08	Schwarz criterion	18.53837
Log likelihood	-1085.971	Hannan-Quinn criter.	18.38662
Durbin-Watson stat	1.912771		

4) ผลการทดสอบยูนิทรูท ของอัตราแลกเปลี่ยนเงินบาทต่อดอลลาร์ฮ่องกง

4.1) intercept

Null Hypothesis: D(HKD) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.486358	0.0000
Test critical values:	1% level	-3.481217	
	5% level	-2.883753	
	10% level	-2.578694	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HKD,2)
Method: Least Squares
Date: 08/02/11 Time: 23:22
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HKD(-1))	-0.607558	0.081155	-7.486358	0.0000
C	-0.004568	0.005898	-0.774532	0.4400

R-squared	0.304520	Mean dependent var	-0.000192
Adjusted R-squared	0.299087	S.D. dependent var	0.079922
S.E. of regression	0.066911	Akaike info criterion	-2.555639
Sum squared resid	0.573068	Schwarz criterion	-2.511523
Log likelihood	168.1166	Hannan-Quinn criter.	-2.537714
F-statistic	56.04555	Durbin-Watson stat	1.994448
Prob(F-statistic)	0.000000		

4.2) Intercept with trend

Null Hypothesis: D(HKD) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.678863	0.0000
Test critical values:	1% level	-4.030157	
	5% level	-3.444756	
	10% level	-3.147221	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HKD,2)
Method: Least Squares
Date: 08/02/11 Time: 23:22
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HKD(-1))	-0.635970	0.082821	-7.678863	0.0000
C	0.011526	0.012010	0.959711	0.3390
@TREND(1)	-0.000245	0.000160	-1.535736	0.1271

R-squared	0.317200	Mean dependent var	-0.000192
Adjusted R-squared	0.306447	S.D. dependent var	0.079922
S.E. of regression	0.066559	Akaike info criterion	-2.558655
Sum squared resid	0.562620	Schwarz criterion	-2.492481
Log likelihood	169.3126	Hannan-Quinn criter.	-2.531766
F-statistic	29.49943	Durbin-Watson stat	1.975282
Prob(F-statistic)	0.000000		

4.3) None

Null Hypothesis: D(HKD) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.457830	0.0000
Test critical values:	1% level	-2.582872	
	5% level	-1.943304	
	10% level	-1.615087	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HKD,2)
Method: Least Squares
Date: 08/02/11 Time: 23:23
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HKD(-1))	-0.601328	0.080630	-7.457830	0.0000

R-squared	0.301260	Mean dependent var	-0.000192
Adjusted R-squared	0.301260	S.D. dependent var	0.079922
S.E. of regression	0.066807	Akaike info criterion	-2.566348
Sum squared resid	0.575754	Schwarz criterion	-2.544290
Log likelihood	167.8126	Hannan-Quinn criter.	-2.557385
Durbin-Watson stat	1.997503		

5) ผลการทดสอบยูนิทรูท ของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังออสเตรเลีย

5.1) intercept

Null Hypothesis: D(AUSX) has a unit root
Exogenous: Constant
Lag Length: 5 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-13.44619	0.0000
Test critical values:	1% level	-3.483312	
	5% level	-2.884665	
	10% level	-2.579180	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AUSX,2)
Method: Least Squares
Date: 08/02/11 Time: 23:26
Sample (adjusted): 8 132
Included observations: 125 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AUSX(-1))	-4.666046	0.347016	-13.44619	0.0000
D(AUSX(-1),2)	3.067428	0.301351	10.17891	0.0000
D(AUSX(-2),2)	2.431336	0.247262	9.833022	0.0000
D(AUSX(-3),2)	1.713646	0.191548	8.946284	0.0000
D(AUSX(-4),2)	1.092244	0.136039	8.028903	0.0000
D(AUSX(-5),2)	0.568222	0.078305	7.256564	0.0000
C	107.5034	197.8430	0.543377	0.5879

R-squared	0.789532	Mean dependent var	-30.67272
Adjusted R-squared	0.778830	S.D. dependent var	4698.096
S.E. of regression	2209.453	Akaike info criterion	18.29325
Sum squared resid	5.76E+08	Schwarz criterion	18.45163
Log likelihood	-1136.328	Hannan-Quinn criter.	18.35759
F-statistic	73.77589	Durbin-Watson stat	2.043599
Prob(F-statistic)	0.000000		

5.2) Intercept with trend

Null Hypothesis: D(AUSX) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 5 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-13.38915	0.0000
Test critical values:	1% level	-4.033108	
	5% level	-3.446168	
	10% level	-3.148049	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AUSX,2)
Method: Least Squares
Date: 08/02/11 Time: 23:27
Sample (adjusted): 8 132
Included observations: 125 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AUSX(-1))	-4.665945	0.348487	-13.38915	0.0000
D(AUSX(-1),2)	3.067374	0.302628	10.13580	0.0000
D(AUSX(-2),2)	2.431365	0.248309	9.791689	0.0000
D(AUSX(-3),2)	1.713687	0.192360	8.908764	0.0000
D(AUSX(-4),2)	1.092235	0.136615	7.994997	0.0000
D(AUSX(-5),2)	0.568167	0.078638	7.225054	0.0000
C	140.2440	428.3700	0.327390	0.7440
@TREND(1)	-0.474621	5.501510	-0.086271	0.9314

R-squared	0.789545	Mean dependent var	-30.67272
Adjusted R-squared	0.776954	S.D. dependent var	4698.096
S.E. of regression	2218.804	Akaike info criterion	18.30918
Sum squared resid	5.76E+08	Schwarz criterion	18.49020
Log likelihood	-1136.324	Hannan-Quinn criter.	18.38272
F-statistic	62.70562	Durbin-Watson stat	2.043781
Prob(F-statistic)	0.000000		

5.3) None

Null Hypothesis: D(AUSX) has a unit root
Exogenous: None
Lag Length: 5 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-13.47534	0.0000
Test critical values:	1% level	-2.583593	
	5% level	-1.943406	
	10% level	-1.615024	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AUSX,2)
Method: Least Squares
Date: 08/02/11 Time: 23:27
Sample (adjusted): 8 132
Included observations: 125 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AUSX(-1))	-4.657476	0.345630	-13.47534	0.0000
D(AUSX(-1),2)	3.060251	0.300169	10.19509	0.0000
D(AUSX(-2),2)	2.425888	0.246326	9.848270	0.0000
D(AUSX(-3),2)	1.709678	0.190841	8.958628	0.0000
D(AUSX(-4),2)	1.089547	0.135545	8.038251	0.0000
D(AUSX(-5),2)	0.566802	0.078029	7.264009	0.0000

R-squared	0.789005	Mean dependent var	-30.67272
Adjusted R-squared	0.780140	S.D. dependent var	4698.096
S.E. of regression	2202.901	Akaike info criterion	18.27975
Sum squared resid	5.77E+08	Schwarz criterion	18.41551
Log likelihood	-1136.484	Hannan-Quinn criter.	18.33490
Durbin-Watson stat	2.040996		

6) ผลการทดสอบยูนิทรูท ของอัตราแลกเปลี่ยนเงินบาทต่อดอลลาร์ออสเตรเลีย

6.1) Intercept

Null Hypothesis: D(AUD) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.115908	0.0000
Test critical values:	1% level	-3.481217	
	5% level	-2.883753	
	10% level	-2.578694	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AUD,2)
Method: Least Squares
Date: 08/02/11 Time: 23:30
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AUD(-1))	-0.674846	0.083151	-8.115908	0.0000
C	0.034955	0.064972	0.537998	0.5915

R-squared	0.339757	Mean dependent var	0.008698
Adjusted R-squared	0.334599	S.D. dependent var	0.907016
S.E. of regression	0.739872	Akaike info criterion	2.250586
Sum squared resid	70.06859	Schwarz criterion	2.294702
Log likelihood	-144.2881	Hannan-Quinn criter.	2.268512
F-statistic	65.86797	Durbin-Watson stat	1.920280
Prob(F-statistic)	0.000000		

6.2) Intercept with trend

Null Hypothesis: D(AUD) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.085367	0.0000
Test critical values:	1% level	-4.030157	
	5% level	-3.444756	
	10% level	-3.147221	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AUD,2)
Method: Least Squares
Date: 08/02/11 Time: 23:30
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AUD(-1))	-0.674886	0.083470	-8.085367	0.0000
C	0.053098	0.132592	0.400459	0.6895
@TREND(1)	-0.000273	0.001736	-0.157162	0.8754

R-squared	0.339885	Mean dependent var	0.008698
Adjusted R-squared	0.329490	S.D. dependent var	0.907016
S.E. of regression	0.742707	Akaike info criterion	2.265777
Sum squared resid	70.05496	Schwarz criterion	2.331950
Log likelihood	-144.2755	Hannan-Quinn criter.	2.292665
F-statistic	32.69539	Durbin-Watson stat	1.920589
Prob(F-statistic)	0.000000		

6.3) None

Null Hypothesis: D(AUD) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.121565	0.0000
Test critical values:	1% level	-2.582872	
	5% level	-1.943304	
	10% level	-1.615087	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AUD,2)
Method: Least Squares
Date: 08/02/11 Time: 23:31
Sample (adjusted): 3 132
Included observations: 130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AUD(-1))	-0.672619	0.082819	-8.121565	0.0000

R-squared	0.338264	Mean dependent var	0.008698
Adjusted R-squared	0.338264	S.D. dependent var	0.907016
S.E. of regression	0.737832	Akaike info criterion	2.237460
Sum squared resid	70.22703	Schwarz criterion	2.259518
Log likelihood	-144.4349	Hannan-Quinn criter.	2.246423
Durbin-Watson stat	1.919828		

ภาคผนวก ข

ผลการประมาณแบบจำลองAutoregressive Moving Average (ARMA(p,q))

1) ผลการประมาณแบบจำลอง(ARMA(p,q)) ของอัตราแลกเปลี่ยนเงินบาทต่อฟรังก์สวิสเซอร์แลนด์

Dependent Variable: D(SWCHF)

Method: Least Squares

Date: 08/03/11 Time: 15:16

Sample (adjusted): 3 132

Included observations: 130 after adjustments

Convergence achieved after 17 iterations

MA Backcast: 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.061633	0.060095	1.025581	0.3070
AR(1)	-0.599614	0.204958	-2.925540	0.0041
MA(1)	0.784285	0.157316	4.985426	0.0000

R-squared	0.050076	Mean dependent var	0.061523
Adjusted R-squared	0.035116	S.D. dependent var	0.625976
S.E. of regression	0.614886	Akaike info criterion	1.888048
Sum squared resid	48.01683	Schwarz criterion	1.954222
Log likelihood	-119.7231	Hannan-Quinn criter.	1.914937
F-statistic	3.347431	Durbin-Watson stat	2.023053
Prob(F-statistic)	0.038305		

Inverted AR Roots	-.60
Inverted MA Roots	-.78

Residual LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.080383	Prob. F(2,125)	0.9228
Obs*R-squared	0.166740	Prob. Chi-Square(2)	0.9200

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 08/03/11 Time: 15:30

Sample: 3 132

Included observations: 130

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.54E-06	0.060539	0.000158	0.9999
AR(1)	0.099584	0.579883	0.171731	0.8639
MA(1)	-0.047217	0.262275	-0.180029	0.8574
RESID(-1)	-0.068856	0.353194	-0.194952	0.8457
RESID(-2)	-0.005205	0.190642	-0.027303	0.9783

R-squared	0.001283	Mean dependent var	0.000829
Adjusted R-squared	-0.030676	S.D. dependent var	0.610101
S.E. of regression	0.619388	Akaike info criterion	1.917532
Sum squared resid	47.95516	Schwarz criterion	2.027822
Log likelihood	-119.6396	Hannan-Quinn criter.	1.962346
F-statistic	0.040133	Durbin-Watson stat	1.990638
Prob(F-statistic)	0.996902		

2) ผลการประมาณแบบจำลอง(ARMA(p,q)) ของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังสวิสเซอร์แลนด์

Dependent Variable: D(SWX)

Method: Least Squares

Date: 08/03/11 Time: 15:53

Sample (adjusted): 3 132

Included observations: 130 after adjustments

Convergence achieved after 16 iterations

MA Backcast: 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	64.28887	20.80816	3.089599	0.0025
AR(1)	0.480053	0.079073	6.070998	0.0000
MA(1)	-0.981012	0.013443	-72.97351	0.0000

R-squared	0.245237	Mean dependent var	41.18000
Adjusted R-squared	0.233351	S.D. dependent var	3986.080
S.E. of regression	3490.151	Akaike info criterion	19.17608
Sum squared resid	1.55E+09	Schwarz criterion	19.24226
Log likelihood	-1243.445	Hannan-Quinn criter.	19.20297
F-statistic	20.63240	Durbin-Watson stat	1.793864
Prob(F-statistic)	0.000000		

Inverted AR Roots	.48
Inverted MA Roots	.98

Residual LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.923181	Prob. F(2,125)	0.0574
Obs*R-squared	5.755774	Prob. Chi-Square(2)	0.0563

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 08/03/11 Time: 15:53

Sample: 3 132

Included observations: 130

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023810	20.60288	0.001156	0.9991
AR(1)	-0.203280	0.322182	-0.630949	0.5292
MA(1)	0.001065	0.013405	0.079445	0.9368
RESID(-1)	0.311333	0.320610	0.971066	0.3334
RESID(-2)	-0.081211	0.180772	-0.449245	0.6540

R-squared	0.044275	Mean dependent var	71.09515
Adjusted R-squared	0.013692	S.D. dependent var	3462.254
S.E. of regression	3438.470	Akaike info criterion	19.16114
Sum squared resid	1.48E+09	Schwarz criterion	19.27143
Log likelihood	-1240.474	Hannan-Quinn criter.	19.20596
F-statistic	1.447696	Durbin-Watson stat	2.006109
Prob(F-statistic)	0.222240		

3) ผลการประมาณแบบจำลอง(ARMA(p,q)) ของอัตราแลกเปลี่ยนเงินบาทต่อดอลลาร์ฮ่องกง

Dependent Variable: D(HKD)

Method: Least Squares

Date: 08/04/11 Time: 16:04

Sample (adjusted): 2 132

Included observations: 131 after adjustments

Convergence achieved after 8 iterations

MA Backcast: 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.006884	0.008018	-0.858631	0.3921
MA(1)	0.365192	0.081950	4.456273	0.0000

R-squared	0.140883	Mean dependent var	-0.006991
Adjusted R-squared	0.134223	S.D. dependent var	0.072353
S.E. of regression	0.067322	Akaike info criterion	-2.543511
Sum squared resid	0.584660	Schwarz criterion	-2.499615
Log likelihood	168.6000	Hannan-Quinn criter.	-2.525674
F-statistic	21.15417	Durbin-Watson stat	1.913596
Prob(F-statistic)	0.000010		

Inverted MA Roots	-.37

Residual LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.093898	Prob. F(2,127)	0.3380
Obs*R-squared	2.218368	Prob. Chi-Square(2)	0.3298

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 08/04/11 Time: 16:04

Sample: 2 132

Included observations: 131

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.64E-05	0.008013	0.005793	0.9954
MA(1)	0.162273	0.611290	0.265461	0.7911
RESID(-1)	-0.128668	0.626773	-0.205287	0.8377
RESID(-2)	0.180841	0.240332	0.752461	0.4532

R-squared	0.016934	Mean dependent var	-6.41E-05
Adjusted R-squared	-0.006288	S.D. dependent var	0.067063
S.E. of regression	0.067273	Akaike info criterion	-2.530057
Sum squared resid	0.574759	Schwarz criterion	-2.442264
Log likelihood	169.7187	Hannan-Quinn criter.	-2.494383
F-statistic	0.729226	Durbin-Watson stat	2.002488
Prob(F-statistic)	0.536384		

4) ผลการประมาณแบบจำลอง(ARMA(p,q)) ของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังฮ่องกง

Dependent Variable: D(HKX)

Method: Least Squares

Date: 08/04/11 Time: 16:08

Sample (adjusted): 3 132

Included observations: 130 after adjustments

Convergence achieved after 26 iterations

MA Backcast: 1 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	55.45712	20.42790	2.714773	0.0076
AR(1)	-0.886054	0.058244	-15.21284	0.0000
MA(2)	-0.833844	0.072191	-11.55059	0.0000

R-squared	0.442562	Mean dependent var	65.65385
Adjusted R-squared	0.433784	S.D. dependent var	3158.179
S.E. of regression	2376.446	Akaike info criterion	18.40741
Sum squared resid	7.17E+08	Schwarz criterion	18.47358
Log likelihood	-1193.481	Hannan-Quinn criter.	18.43430
F-statistic	50.41404	Durbin-Watson stat	2.000578
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.89	
Inverted MA Roots	.91	-.91

Residual LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.092591	Prob. F(2,125)	0.3385
Obs*R-squared	2.231046	Prob. Chi-Square(2)	0.3277

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 08/04/11 Time: 16:08

Sample: 3 132

Included observations: 130

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.368084	20.53635	0.115312	0.9084
AR(1)	-0.008901	0.075872	-0.117314	0.9068
MA(2)	0.051174	0.088163	0.580447	0.5627
RESID(-1)	0.009233	0.115711	0.079796	0.9365
RESID(-2)	-0.163994	0.110965	-1.477887	0.1420

R-squared	0.017162	Mean dependent var	-10.38672
Adjusted R-squared	-0.014289	S.D. dependent var	2357.929
S.E. of regression	2374.716	Akaike info criterion	18.42085
Sum squared resid	7.05E+08	Schwarz criterion	18.53114
Log likelihood	-1192.355	Hannan-Quinn criter.	18.46566
F-statistic	0.545674	Durbin-Watson stat	2.001615
Prob(F-statistic)	0.702495		

5) ผลการประมาณแบบจำลอง(ARMA(p,q)) ของอัตราแลกเปลี่ยนเงินบาทต่อดอลลาร์ออสเตรเลีย

Dependent Variable: D(AUD)

Method: Least Squares

Date: 08/04/11 Time: 16:14

Sample (adjusted): 2 132

Included observations: 131 after adjustments

Convergence achieved after 6 iterations

MA Backcast: 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.040580	0.088632	0.457844	0.6478
MA(1)	0.385844	0.081163	4.753942	0.0000

R-squared	0.124918	Mean dependent var	0.040779
Adjusted R-squared	0.118134	S.D. dependent var	0.780694
S.E. of regression	0.733132	Akaike info criterion	2.232168
Sum squared resid	69.33527	Schwarz criterion	2.276064
Log likelihood	-144.2070	Hannan-Quinn criter.	2.250005
F-statistic	18.41470	Durbin-Watson stat	2.012135
Prob(F-statistic)	0.000035		

Inverted MA Roots	-.39

Residual LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.160729	Prob. F(2,127)	0.8517
Obs*R-squared	0.330361	Prob. Chi-Square(2)	0.8477

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 08/04/11 Time: 16:15

Sample: 2 132

Included observations: 131

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001507	0.089256	0.016887	0.9866
MA(1)	0.282593	0.515742	0.547935	0.5847
RESID(-1)	-0.292391	0.521050	-0.561157	0.5757
RESID(-2)	0.102214	0.217828	0.469240	0.6397

R-squared	0.002522	Mean dependent var	0.001248
Adjusted R-squared	-0.021041	S.D. dependent var	0.730306
S.E. of regression	0.737949	Akaike info criterion	2.260174
Sum squared resid	69.16021	Schwarz criterion	2.347966
Log likelihood	-144.0414	Hannan-Quinn criter.	2.295848
F-statistic	0.107028	Durbin-Watson stat	1.989368
Prob(F-statistic)	0.955851		

6) ผลการประมาณแบบจำลอง(ARMA(p,q)) ของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังออสเตรเลีย

Dependent Variable: D(AUSX)

Method: Least Squares

Date: 08/04/11 Time: 16:32

Sample (adjusted): 2 132

Included observations: 131 after adjustments

Convergence achieved after 8 iterations

MA Backcast: -4 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.81517	201.4797	0.068569	0.9454
MA(6)	-0.227065	0.091825	-2.472790	0.0147

R-squared	0.032769	Mean dependent var	7.957252
Adjusted R-squared	0.025271	S.D. dependent var	2977.220
S.E. of regression	2939.361	Akaike info criterion	18.82492
Sum squared resid	1.11E+09	Schwarz criterion	18.86882
Log likelihood	-1231.032	Hannan-Quinn criter.	18.84276
F-statistic	4.370390	Durbin-Watson stat	2.212043
Prob(F-statistic)	0.038531		

Inverted MA Roots	.78	.39-.68i	.39+.68i	-.39-.68i
	-.39+.68i	-.78		

Residual LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.697734	Prob. F(2,127)	0.0712
Obs*R-squared	5.338599	Prob. Chi-Square(2)	0.0693

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 08/04/11 Time: 16:33

Sample: 2 132

Included observations: 131

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.61944	198.9657	0.068451	0.9455
MA(6)	-0.057557	0.094286	-0.610452	0.5427
RESID(-1)	-0.149774	0.089607	-1.671450	0.0971
RESID(-2)	-0.171507	0.092163	-1.860903	0.0651

R-squared	0.040753	Mean dependent var	-0.196687
Adjusted R-squared	0.018093	S.D. dependent var	2928.034
S.E. of regression	2901.424	Akaike info criterion	18.81385
Sum squared resid	1.07E+09	Schwarz criterion	18.90164
Log likelihood	-1228.307	Hannan-Quinn criter.	18.84952
F-statistic	1.798489	Durbin-Watson stat	2.051843
Prob(F-statistic)	0.150800		

ภาคผนวก ค

ผลการประมาณแบบจำลองGeneralized Autoregressive Conditional Heteroscedasticity: GARCH(*p,q*)

1) ผลการประมาณแบบจำลอง GARCH(*p,q*)ของอัตราแลกเปลี่ยนเงินบาทต่อฟรังก์สวิสเซอร์แลนด์

Dependent Variable: D(SWCHF)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/03/11 Time: 17:43
Sample (adjusted): 3 132
Included observations: 130 after adjustments
Convergence achieved after 38 iterations
MA Backcast: 2
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.036937	0.060661	0.608917	0.5426
AR(1)	-0.652883	0.194175	-3.362347	0.0008
MA(1)	0.796559	0.155486	5.123030	0.0000
Variance Equation				
C	0.407687	0.055040	7.407085	0.0000
RESID(-1)^2	-0.110825	0.055558	-1.994770	0.0461

R-squared	0.046508	Mean dependent var	0.061523
Adjusted R-squared	0.031492	S.D. dependent var	0.625976
S.E. of regression	0.616040	Akaike info criterion	1.889709
Sum squared resid	48.19719	Schwarz criterion	1.999999
Log likelihood	-117.8311	Hannan-Quinn criter.	1.934523
Durbin-Watson stat	1.943848		

Inverted AR Roots	-.65
Inverted MA Roots	-.80

2) ผลการประมาณแบบจำลอง GARCH(*p,q*)ของมูลค่าส่งออกอัญมณีและเครื่องประดับของไทยไปยังสวิสเซอร์แลนด์

Dependent Variable: D(SWX)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/03/11 Time: 17:45
Sample (adjusted): 3 132
Included observations: 130 after adjustments
Failure to improve Likelihood after 19 iterations
MA Backcast: 2
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*RESID(-2)^2 + C(7)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	42.04247	97.98584	0.429067	0.6679
AR(1)	0.319241	0.186708	1.709837	0.0873
MA(1)	-0.884379	0.093573	-9.451177	0.0000
Variance Equation				
C	10861441	2984845.	3.638862	0.0003
RESID(-1)^2	0.411891	0.206674	1.992945	0.0463
RESID(-2)^2	0.426329	0.107197	3.977044	0.0001
GARCH(-1)	-0.352686	0.149242	-2.363174	0.0181

R-squared	0.220785	Mean dependent var	41.18000
Adjusted R-squared	0.208514	S.D. dependent var	3986.080
S.E. of regression	3546.236	Akaike info criterion	18.63443
Sum squared resid	1.60E+09	Schwarz criterion	18.78883
Log likelihood	-1204.238	Hannan-Quinn criter.	18.69717
Durbin-Watson stat	1.678138		

Inverted AR Roots	.32
Inverted MA Roots	.88

3) ผลการประมาณแบบจำลอง GARCH(*p*,*q*)ของอัตราแลกเปลี่ยนเงินบาทต่อดอลลาร์ฮ่องกง

Dependent Variable: D(HKD)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/04/11 Time: 16:48
Sample (adjusted): 2 132
Included observations: 131 after adjustments
Convergence achieved after 15 iterations
MA Backcast: 1
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.007002	0.006710	-1.043507	0.2967
MA(1)	0.366574	0.071204	5.148234	0.0000
	Variance Equation			
C	0.009008	0.001047	8.602446	0.0000
GARCH(-1)	-1.023448	0.016661	-61.42598	0.0000

R-squared	0.140879	Mean dependent var	-0.006991
Adjusted R-squared	0.134219	S.D. dependent var	0.072353
S.E. of regression	0.067322	Akaike info criterion	-2.531204
Sum squared resid	0.584662	Schwarz criterion	-2.443412
Log likelihood	169.7939	Hannan-Quinn criter.	-2.495530
Durbin-Watson stat	1.916684		

Inverted MA Roots -.37

4) ผลการประมาณแบบจำลอง GARCH(*p,q*)ของมูลค่าส่งออกอัญมณีและเครื่องประดับของไทยไปยังฮ่องกง

Dependent Variable: D(HKX)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/04/11 Time: 16:52
Sample (adjusted): 3 132
Included observations: 130 after adjustments
Convergence achieved after 459 iterations
MA Backcast: 1 2
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	5.901790	0.043941	134.3115	0.0000
AR(1)	-0.921611	0.003816	-241.5378	0.0000
MA(2)	-0.916446	0.001545	-593.0998	0.0000
Variance Equation				
C	-1424.547	254.4474	-5.598593	0.0000
RESID(-1)^2	-0.032990	0.007656	-4.309026	0.0000
GARCH(-1)	1.140932	0.018230	62.58400	0.0000

R-squared	0.347414	Mean dependent var	65.65385
Adjusted R-squared	0.337137	S.D. dependent var	3158.179
S.E. of regression	2571.276	Akaike info criterion	16.05532
Sum squared resid	8.40E+08	Schwarz criterion	16.18767
Log likelihood	-1037.596	Hannan-Quinn criter.	16.10910
Durbin-Watson stat	1.683077		

Inverted AR Roots	-.92	
Inverted MA Roots	.96	-.96

5) ผลการประมาณแบบจำลอง GARCH(*p,q*)ของอัตราแลกเปลี่ยนเงินบาทต่อดอลลาร์ออสเตรเลีย

Dependent Variable: D(AUD)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/04/11 Time: 17:02
Sample (adjusted): 2 132
Included observations: 131 after adjustments
Convergence achieved after 39 iterations
MA Backcast: 1
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.023057	0.079217	0.291067	0.7710
MA(1)	0.339462	0.111039	3.057135	0.0022
Variance Equation				
C	0.059467	0.063764	0.932617	0.3510
RESID(-1)^2	0.144250	0.057621	2.503449	0.0123
GARCH(-1)	0.746940	0.168082	4.443907	0.0000

R-squared	0.122652	Mean dependent var	0.040779
Adjusted R-squared	0.115851	S.D. dependent var	0.780694
S.E. of regression	0.734080	Akaike info criterion	2.172677
Sum squared resid	69.51477	Schwarz criterion	2.282418
Log likelihood	-137.3104	Hannan-Quinn criter.	2.217270
Durbin-Watson stat	1.921296		

Inverted MA Roots -.34

6) ผลการประมาณแบบจำลอง GARCH(*p,q*)ของมูลค่าส่งออกอัญมณีและเครื่องประดับของไทยไปยังออสเตรเลีย

Dependent Variable: D(AUSX)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/04/11 Time: 17:10
Sample (adjusted): 2 132
Included observations: 131 after adjustments
Convergence achieved after 201 iterations
MA Backcast: -4 1
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	27.00429	4.118516	6.556801	0.0000
MA(6)	-0.491636	0.013238	-37.13945	0.0000
	Variance Equation			
C	8108.364	1916.152	4.231587	0.0000
RESID(-1)^2	5.228477	0.639293	8.178526	0.0000

R-squared	-0.001685	Mean dependent var	7.957252
Adjusted R-squared	-0.009450	S.D. dependent var	2977.220
S.E. of regression	2991.254	Akaike info criterion	16.14389
Sum squared resid	1.15E+09	Schwarz criterion	16.23168
Log likelihood	-1053.425	Hannan-Quinn criter.	16.17956
Durbin-Watson stat	2.042431		

Inverted MA Roots	.89	.44-.77i	.44+.77i	-.44-.77i
	-.44+.77i	-.89		

ภาคผนวก ง

ผลการประมาณแบบจำลอง VARMA-GARCH และ DCC

1) ผลการประมาณแบบจำลอง VARMA-GARCH ของความสัมพันธ์ระหว่างผันผวนของอัตราแลกเปลี่ยนเงินบาทต่อเงินฟรังก์สวิสเซอร์แลนด์และความผันผวนของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังสวิสเซอร์แลนด์

```
MV_GARCH, DCC - Estimation by BFGS
Convergence in   101 Iterations. Final criterion was  0.0000000 <  0.0000100
Usable Observations    131
Log Likelihood              -1270.54668262
```

	Variable	Coeff	Std Error	T-Stat	Signif
1.	Constant	0.247571	0.000619	400.00088	0.00000000
2.	SWCHF{1}	0.986596	0.000005	192440.41163	0.00000000
3.	Mvg Avge{1}	0.199922	0.000401	499.11617	0.00000000
4.	Constant	0.520291	0.000004	138406.81489	0.00000000
5.	SWX{1}	0.476466	0.001376	346.33868	0.00000000
6.	Mvg Avge{1}	0.443707	0.000052	8467.33769	0.00000000
7.	Mvg Avge{2}	99.129629	0.000236	420169.48857	0.00000000
8.	C(1)	0.394188	0.000258	1529.17211	0.00000000
9.	C(2)	157017.292893	0.267922	586056.73022	0.00000000
10.	A(1,1)	0.009335	0.000062	151.08773	0.00000000
11.	A(1,2)	-0.000028	0.000000	-1837.49929	0.00000000
12.	A(2,1)	-0.642219	0.000196	-3274.03716	0.00000000
13.	A(2,2)	1.377319	0.000891	1545.95420	0.00000000
14.	B(1,1)	-0.007955	0.001646	-4.83251	0.00000135
15.	B(1,2)	0.000115	0.000000	355.06822	0.00000000
16.	B(2,1)	-1.495476	0.000041	-36115.28964	0.00000000
17.	B(2,2)	0.417105	0.002972	140.33884	0.00000000
18.	DCC(1)	0.006275	0.000000	2800341.57821	0.00000000
19.	DCC(2)	0.863077	0.000018	48207.95283	0.00000000

2) ผลการประมาณแบบจำลอง DCC ของความสัมพันธ์ระหว่างผันผวนของอัตราแลกเปลี่ยนเงินบาทต่อเงินฟรังก์สวิสเซอร์แลนด์และความผันผวนของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังสวิสเซอร์แลนด์

```
MV_GARCH, DCC - Estimation by BFGS
Convergence in     7 Iterations. Final criterion was  0.0000000 <  0.0000100
Usable Observations    131
Log Likelihood              -1251.54794277
```

	Variable	Coeff	Std Error	T-Stat	Signif
1.	Constant	2.389066	0.032221	74.14670	0.00000000
2.	SWCHF{1}	0.918543	0.001107	829.58278	0.00000000
3.	Mvg Avge{1}	0.166340	0.048093	3.45869	0.00054281
4.	Constant	-16.094219	8.476979	-1.89858	0.05761977
5.	SWX{1}	0.872002	0.030137	28.93433	0.00000000
6.	Mvg Avge{1}	136.893174	20.894066	6.55177	0.00000000
7.	Mvg Avge{2}	160.777585	42.544610	3.77904	0.00015744
8.	C(1)	0.348887	0.039889	8.74648	0.00000000
9.	C(2)	3796.525484	3741.798859	1.01463	0.31028426
10.	A(1)	-0.036862	0.049897	-0.73875	0.46005997
11.	A(2)	3.832709	0.294059	13.03379	0.00000000
12.	B(1)	0.143856	0.104590	1.37543	0.16899735
13.	B(2)	0.211704	0.017843	11.86460	0.00000000
14.	DCC(1)	0.949987	0.019946	47.62818	0.00000000
15.	DCC(2)	0.000000	0.019574	4.99116e-10	1.00000000

3) ผลการประมาณแบบจำลอง VARMA-GARCH ของความสัมพันธ์ระหว่างผันผวนของอัตราแลกเปลี่ยนเงินบาทต่อเงินดอลลาร์ฮ่องกงและความผันผวนของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังฮ่องกง

MV_GARCH, DCC - Estimation by BFGS
Convergence in 81 Iterations. Final criterion was 0.0000000 < 0.0000100
Usable Observations 131
Log Likelihood -1166.85793224

	Variable	Coeff	Std Error	T-Stat	Signif
1.	Constant	0.387492	0.000752	340.00543	0.00000000
2.	HKD{1}	0.958372	0.000005	654.75428	0.00000000
3.	Mvg Avge{1}	0.163748	0.000644	434.45458	0.00000000
4.	Constant	0.550487	0.000007	43535.64527	0.00000000
5.	HKX{1}	0.432395	0.002653	447.25479	0.00000000
6.	Mvg Avge{1}	0.498433	0.000065	970.46482	0.00000000
7.	Mvg Avge{2}	98.113332	0.000352	35236.76559	0.00000000
8.	C(1)	0.645378	0.000633	1447.54712	0.00000000
9.	C(2)	13287.393904	0.956652	677239.32511	0.00000000
10.	A(1,1)	0.010446	0.000045	156.43585	0.00000000
11.	A(1,2)	-0.000037	0.000000	-636.73218	0.00000000
12.	A(2,1)	-0.753388	0.000184	-3264.34597	0.00000000
13.	A(2,2)	1.473649	0.000902	1637.73323	0.00000000
14.	B(1,1)	-0.009734	0.001756	-56.16635	0.00000007
15.	B(1,2)	0.000295	0.000000	6522.54275	0.00000000
16.	B(2,1)	-1.507844	0.000055	-43564.12056	0.00000000
17.	B(2,2)	0.528375	0.002896	631.23326	0.00000000
18.	DCC(1)	0.004865	0.000000	4363770.32155	0.00000000
19.	DCC(2)	0.867442	0.000043	4213.25489	0.00000000

4) ผลการประมาณแบบจำลอง DCCของความสัมพันธ์ระหว่างผันผวนของอัตราแลกเปลี่ยนเงินบาทต่อเงินดอลลาร์ฮ่องกงและความผันผวนของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังฮ่องกง

MV_GARCH, DCC - Estimation by BFGS
Convergence in 25 Iterations. Final criterion was 0.0000000 < 0.0000100
Usable Observations 131
Log Likelihood -1211.78196937

	Variable	Coeff	Std Error	T-Stat	Signif
1.	Constant	4.853554	0.036250	133.89083	0.00000000
2.	HKD{1}	0.353452	0.012543	967.43527	0.00000000
3.	Mvg Avge{1}	0.889427	0.024363	36.50720	0.00002633
4.	Constant	1425.620728	5.940199	239.99544	0.02354752
5.	HKX{1}	0.123214	0.008505	14.48765	0.00000000
6.	Mvg Avge{1}	4647.899801	39.233526	118.46755	0.00000000
7.	Mvg Avge{2}	2531.343252	12.244785	6.83419	0.00472427
8.	C(1)	0.124845	0.000377	330.87703	0.00000000
9.	C(2)	-766.871213	49.234473	-94.93156	0.83794932
10.	A(1)	-0.124263	0.234537	-0.73875	0.90041756
11.	A(2)	6.233489	0.235903	44.23462	0.00000000
12.	B(1)	-0.353421	0.064322	-5.26846	0.22462865
13.	B(2)	2.453427	0.000012	73.79455	0.00000000
14.	DCC(1)	0.551336	0.005210	105.82680	0.00000000
15.	DCC(2)	0.040951	0.001577	25.96784	0.00000000

5) ผลการประมาณแบบจำลอง VARMA-GARCH ของความสัมพันธ์ระหว่างผันผวนของอัตราแลกเปลี่ยนเงินบาทต่อเงินดอลลาร์ออสเตรเลียและความผันผวนของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังออสเตรเลีย

```
MV_GARCH, DCC - Estimation by BFGS
NO CONVERGENCE IN 42 ITERATIONS
LAST CRITERION WAS  0.0000000
SUBITERATIONS LIMIT EXCEEDED. ESTIMATION POSSIBLY HAS STALLED OR MACHINE ROUNDOFF IS MAKING
FURTHER PROGRESS DIFFICULT.
TRY HIGHER SUBITERATIONS LIMIT, TIGHTER CVCRIT, DIFFERENT SETTING FOR EXACTLINE OR ALPHA ON
NLPAR.
RESTARTING ESTIMATION FROM LAST ESTIMATES OR DIFFERENT INITIAL GUESSES MIGHT ALSO WORK
Usable Observations    131
Log Likelihood              -1552.25742390
```

	Variable	Coeff	Std Error	T-Stat	Signif
1.	Constant	1.753123	0.140631	12.46616	0.00000000
2.	Mvg Avge{1}	0.988317	0.001410	700.77359	0.00000000
3.	Constant	1.503541	0.145173	10.35689	0.00000000
4.	AUSX{1}	-0.134953	0.004835	-27.91008	0.00000000
5.	Mvg Avge{1}	3.032508	0.036714	82.59731	0.00000000
6.	Mvg Avge{2}	2.423712	0.121725	19.91134	0.00000000
7.	Mvg Avge{3}	-0.213422	0.069620	-3.06555	0.00217272
8.	C(1)	239.772829	1.717832	139.57874	0.00000000
9.	C(2)	48.966321	13.272970	3.68918	0.00022498
10.	A(1,1)	-0.382866	0.002296	-166.74458	0.00000000
11.	A(1,2)	0.001315	0.000176	7.48774	0.00000000
12.	A(2,1)	0.109500	0.047666	2.29723	0.02160562
13.	A(2,2)	5.425753	0.036374	149.16530	0.00000000
14.	B(1,1)	-0.251387	0.007555	-33.27516	0.00000000
15.	B(1,2)	0.000220	0.000085	2.59586	0.00943535
16.	B(2,1)	-1.558279	0.004094	-380.64117	0.00000000
17.	B(2,2)	0.000175	0.000001	164.73469	0.00000000
18.	DCC(1)	0.021352	0.000001	38800.46309	0.00000000
19.	DCC(2)	0.978224	0.000249	3934.23500	0.00000000

6) ผลการประมาณแบบจำลอง DCC ของความสัมพันธ์ระหว่างผันผวนของอัตราแลกเปลี่ยนเงินบาทต่อเงินดอลลาร์ออสเตรเลียและความผันผวนของมูลค่าการส่งออกอัญมณีและเครื่องประดับของไทยไปยังออสเตรเลีย

```
MV_GARCH, DCC - Estimation by BFGS
Convergence in   105 Iterations. Final criterion was  0.0000059 <  0.0000100
Usable Observations    131
Log Likelihood              -1283.68623378
```

	Variable	Coeff	Std Error	T-Stat	Signif
1.	Constant	28.77954582	0.15041540	191.33378	0.00000000
2.	Mvg Avge{1}	0.86956917	0.04011572	21.67652	0.00000000
3.	Constant	86.45223237	3.41991608	25.27905	0.00000000
4.	AUSX{1}	-0.19795400	0.01474987	-13.42072	0.00000000
5.	Mvg Avge{1}	10.44812141	0.92800971	11.25863	0.00000000
6.	Mvg Avge{2}	2.69822728	0.68529097	3.93735	0.00008239
7.	Mvg Avge{3}	-5.96413656	0.85354311	-6.98750	0.00000000
8.	C(1)	0.11411944	0.05190605	2.19858	0.02790801
9.	C(2)	-15.66607205	21.10379851	-0.74233	0.45788486
10.	A(1)	0.41483137	0.10998383	3.77175	0.00016211
11.	A(2)	5.94268041	0.75094127	7.91364	0.00000000
12.	B(1)	0.61335053	0.06999044	8.76335	0.00000000
13.	B(2)	-0.00013990	0.00004760	-2.93929	0.00328964
14.	DCC(1)	0.54711420	0.06415977	8.52737	0.00000000
15.	DCC(2)	0.44910583	0.06630861	6.77296	0.00000000

ประวัติผู้เขียน

ชื่อ-สกุล	นายเอกพล พันธุ์พัฒน์
วันเดือนปีเกิด	วันที่ 6 พฤศจิกายน พ.ศ. 2526
ประวัติการศึกษา	สำเร็จการศึกษาระดับมัธยมศึกษาตอนปลาย โรงเรียน บุญวาทย์วิทยาลัย ปีการศึกษา 2544 สำเร็จการศึกษาระดับปริญญาตรี เศรษฐศาสตร์บัณฑิต คณะเศรษฐศาสตร์ มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2552
ประสบการณ์	เจ้าหน้าที่การตลาด (Local Store Marketing) บริษัท ซีพีออลล์ จำกัด (มหาชน)