

APPENDICES

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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APPENDIX A
UNIT ROOT TEST

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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Appendix A – (1.1): Unit Root Test PM_{10} – Intercept

Null Hypothesis: PM has a unit root

Exogenous: Constant

Lag Length: 7 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.104520	0.0000
Test critical values:		
1% level	-3.431422	
5% level	-2.861899	
10% level	-2.567003	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(PM)

Method: Least Squares

Date: 02/17/11 Time: 01:13

Sample (adjusted): 9 5234

Included observations: 5217 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PM(-1)	-0.065168	0.007158	-9.104520	0.0000
D(PM(-1))	-0.158135	0.014639	-10.80257	0.0000
D(PM(-2))	-0.174060	0.014680	-11.85657	0.0000
D(PM(-3))	-0.168348	0.014721	-11.43614	0.0000
D(PM(-4))	-0.121364	0.014682	-8.266480	0.0000
D(PM(-5))	-0.091859	0.014422	-6.369513	0.0000
D(PM(-6))	-0.069918	0.014096	-4.960081	0.0000
D(PM(-7))	-0.093125	0.013790	-6.753230	0.0000
C	3.985817	0.517238	7.705962	0.0000

R-squared	0.104536	Mean dependent var	-0.015540
Adjusted R-squared	0.103160	S.D. dependent var	20.59548
S.E. of regression	19.50426	Akaike info criterion	8.780866
Sum squared resid	1981206.	Schwarz criterion	8.792182
Log likelihood	-22895.89	Hannan-Quinn criter.	8.784824
F-statistic	75.99710	Durbin-Watson stat	2.005305
Prob(F-statistic)	0.000000		

Source: calculation

Appendix A – (1.2): Unit Root Test PM_{10} – Trend and Intercept

Null Hypothesis: PM has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 7 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.248677	0.0000
Test critical values:		
1% level	-3.959796	
5% level	-3.410666	
10% level	-3.127115	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(PM)

Method: Least Squares

Date: 02/17/11 Time: 02:01

Sample (adjusted): 9 5234

Included observations: 5217 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PM(-1)	-0.067547	0.007303	-9.248677	0.0000
D(PM(-1))	-0.156335	0.014678	-10.65122	0.0000
D(PM(-2))	-0.172416	0.014713	-11.71890	0.0000
D(PM(-3))	-0.166881	0.014746	-11.31718	0.0000
D(PM(-4))	-0.120098	0.014700	-8.170152	0.0000
D(PM(-5))	-0.090809	0.014434	-6.291439	0.0000
D(PM(-6))	-0.069070	0.014104	-4.897350	0.0000
D(PM(-7))	-0.092448	0.013794	-6.702146	0.0000
C	4.916236	0.769520	6.388702	0.0000
@TREND(1)	-0.000299	0.000183	-1.632786	0.1026
R-squared	0.104994	Mean dependent var		-0.015540
Adjusted R-squared	0.103447	S.D. dependent var		20.59548
S.E. of regression	19.50114	Akaike info criterion		8.780738
Sum squared resid	1980193.	Schwarz criterion		8.793311
Log likelihood	-22894.55	Hannan-Quinn criter.		8.785135
F-statistic	67.87081	Durbin-Watson stat		2.005135
Prob(F-statistic)	0.000000			

Source: calculation

Appendix A – (1.3): Unit Root Test PM₁₀ – No Trend, No Intercept

Null Hypothesis: PM has a unit root
 Exogenous: None
 Lag Length: 7 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.823133	0.0000
Test critical values:		
1% level	-2.565405	
5% level	-1.940885	
10% level	-1.616659	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(PM)
 Method: Least Squares
 Date: 02/17/11 Time: 02:04
 Sample (adjusted): 9 5234
 Included observations: 5217 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PM(-1)	-0.018124	0.003758	-4.823133	0.0000
D(PM(-1))	-0.192744	0.014010	-13.75718	0.0000
D(PM(-2))	-0.205301	0.014188	-14.46956	0.0000
D(PM(-3))	-0.195871	0.014361	-13.63937	0.0000
D(PM(-4))	-0.144856	0.014442	-10.03030	0.0000
D(PM(-5))	-0.111316	0.014278	-7.796176	0.0000
D(PM(-6))	-0.085629	0.014026	-6.105080	0.0000
D(PM(-7))	-0.105508	0.013772	-7.660856	0.0000
R-squared	0.094326	Mean dependent var		-0.015540
Adjusted R-squared	0.093108	S.D. dependent var		20.59548
S.E. of regression	19.61325	Akaike info criterion		8.791820
Sum squared resid	2003796.	Schwarz criterion		8.801879
Log likelihood	-22925.46	Hannan-Quinn criter.		8.795338
Durbin-Watson stat	2.008261			

Source: calculation

Appendix A – (2.1): Unit Root Test O₃ - Intercept

Null Hypothesis: OZ has a unit root

Exogenous: Constant

Lag Length: 6 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-8.684302	0.0000
Test critical values:		
1% level	-3.431422	
5% level	-2.861899	
10% level	-2.567003	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(OZ)

Method: Least Squares

Date: 02/17/11 Time: 02:05

Sample (adjusted): 8 5234

Included observations: 5219 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OZ(-1)	-0.062429	0.007189	-8.684302	0.0000
D(OZ(-1))	-0.272732	0.014759	-18.47904	0.0000
D(OZ(-2))	-0.234934	0.015067	-15.59313	0.0000
D(OZ(-3))	-0.160332	0.015171	-10.56837	0.0000
D(OZ(-4))	-0.133054	0.015014	-8.861764	0.0000
D(OZ(-5))	-0.098458	0.014552	-6.765947	0.0000
D(OZ(-6))	-0.050944	0.013855	-3.676789	0.0002
C	0.940541	0.119284	7.884883	0.0000
R-squared	0.135265	Mean dependent var		0.005047
Adjusted R-squared	0.134104	S.D. dependent var		4.054705
S.E. of regression	3.773047	Akaike info criterion		5.495174
Sum squared resid	74183.17	Schwarz criterion		5.505230
Log likelihood	-14331.66	Hannan-Quinn criter.		5.498691
F-statistic	116.4467	Durbin-Watson stat		2.002435
Prob(F-statistic)	0.000000			

Source: calculation

Appendix A – (2.2): Unit Root Test O_3 – Trend and Intercept

Null Hypothesis: OZ has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 6 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.165099	0.0000
Test critical values:		
1% level	-3.959796	
5% level	-3.410665	
10% level	-3.127115	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: $D(OZ)$
 Method: Least Squares
 Date: 02/17/11 Time: 02:06
 Sample (adjusted): 8 5234
 Included observations: 5219 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$OZ(-1)$	-0.068892	0.007517	-9.165099	0.0000
$D(OZ(-1))$	-0.267990	0.014837	-18.06174	0.0000
$D(OZ(-2))$	-0.230875	0.015120	-15.26980	0.0000
$D(OZ(-3))$	-0.156919	0.015205	-10.32025	0.0000
$D(OZ(-4))$	-0.130229	0.015035	-8.661807	0.0000
$D(OZ(-5))$	-0.096271	0.014561	-6.611716	0.0000
$D(OZ(-6))$	-0.049388	0.013856	-3.564412	0.0004
C	0.759314	0.134387	5.650201	0.0000
@TREND(1)	0.000106	3.62E-05	2.920067	0.0035
R-squared	0.136678	Mean dependent var		0.005047
Adjusted R-squared	0.135353	S.D. dependent var		4.054705
S.E. of regression	3.770325	Akaike info criterion		5.493922
Sum squared resid	74061.96	Schwarz criterion		5.505235
Log likelihood	-14327.39	Hannan-Quinn criter.		5.497879
F-statistic	103.1038	Durbin-Watson stat		2.002172
Prob(F-statistic)	0.000000			

Source: calculation

Appendix A – (2.3): Unit Root Test O₃ – No Trend, No Intercept

Null Hypothesis: OZ has a unit root
 Exogenous: None
 Lag Length: 9 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.082548	0.0020
Test critical values:		
1% level	-2.565406	
5% level	-1.940885	
10% level	-1.616659	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(OZ)
 Method: Least Squares
 Date: 02/17/11 Time: 02:07
 Sample (adjusted): 11 5234
 Included observations: 5213 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OZ(-1)	-0.009780	0.003173	-3.082548	0.0021
D(OZ(-1))	-0.318788	0.014059	-22.67548	0.0000
D(OZ(-2))	-0.280430	0.014711	-19.06294	0.0000
D(OZ(-3))	-0.206534	0.015175	-13.61011	0.0000
D(OZ(-4))	-0.179496	0.015365	-11.68196	0.0000
D(OZ(-5))	-0.146389	0.015422	-9.492315	0.0000
D(OZ(-6))	-0.100388	0.015338	-6.545109	0.0000
D(OZ(-7))	-0.071083	0.015105	-4.705803	0.0000
D(OZ(-8))	-0.054780	0.014582	-3.756783	0.0002
D(OZ(-9))	-0.055191	0.013860	-3.982015	0.0001
R-squared	0.130193	Mean dependent var		0.004574
Adjusted R-squared	0.128689	S.D. dependent var		4.055086
S.E. of regression	3.785182	Akaike info criterion		5.501981
Sum squared resid	74546.50	Schwarz criterion		5.514563
Log likelihood	-14330.91	Hannan-Quinn criter.		5.506382
Durbin-Watson stat	2.004535			

Source: calculation

Appendix A – (3.1): Unit Root Test SO₂–Intercept

Null Hypothesis: SO has a unit root
 Exogenous: Constant
 Lag Length: 2 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-15.86580	0.0000
Test critical values:		
1% level	-3.431420	
5% level	-2.861898	
10% level	-2.567003	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(SO)
 Method: Least Squares
 Date: 02/17/11 Time: 02:10
 Sample (adjusted): 4 5234
 Included observations: 5227 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SO(-1)	-0.138592	0.008735	-15.86580	0.0000
D(SO(-1))	-0.220493	0.014244	-15.48003	0.0000
D(SO(-2))	-0.146105	0.013692	-10.67111	0.0000
C	0.276215	0.022819	12.10471	0.0000
R-squared	0.143230	Mean dependent var		-0.000635
Adjusted R-squared	0.142737	S.D. dependent var		1.145690
S.E. of regression	1.060777	Akaike info criterion		2.956645
Sum squared resid	5877.165	Schwarz criterion		2.961666
Log likelihood	-7723.190	Hannan-Quinn criter.		2.958400
F-statistic	291.0495	Durbin-Watson stat		2.007417
Prob(F-statistic)	0.000000			

Source: calculation

Appendix A – (3.2): Unit Root Test SO₂ – Trend and Intercept

Null Hypothesis: SO has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 2 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-18.40270	0.0000
Test critical values:		
1% level	-3.959793	
5% level	-3.410664	
10% level	-3.127114	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(SO)
 Method: Least Squares
 Date: 02/17/11 Time: 02:11
 Sample (adjusted): 4 5234
 Included observations: 5227 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SO(-1)	-0.183563	0.009975	-18.40270	0.0000
D(SO(-1))	-0.193430	0.014442	-13.39350	0.0000
D(SO(-2))	-0.128099	0.013728	-9.330925	0.0000
C	0.630932	0.045043	14.00728	0.0000
@TREND(1)	-0.000101	1.11E-05	-9.109586	0.0000
R-squared	0.156632	Mean dependent var		-0.000635
Adjusted R-squared	0.155986	S.D. dependent var		1.145690
S.E. of regression	1.052548	Akaike info criterion		2.941261
Sum squared resid	5785.230	Schwarz criterion		2.947537
Log likelihood	-7681.985	Hannan-Quinn criter.		2.943456
F-statistic	242.4597	Durbin-Watson stat		2.002240
Prob(F-statistic)	0.000000			

Source: calculation

Appendix A – (3.3): Unit Root Test SO₂ – No Trend, No Intercept

Null Hypothesis: SO has a unit root
 Exogenous: None
 Lag Length: 12 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.049945	0.0000
Test critical values:		
1% level	-2.565406	
5% level	-1.940885	
10% level	-1.616659	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(SO)
 Method: Least Squares
 Date: 02/17/11 Time: 02:11
 Sample (adjusted): 14 5234
 Included observations: 5207 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SO(-1)	-0.036251	0.005992	-6.049945	0.0000
D(SO(-1))	-0.320116	0.014614	-21.90469	0.0000
D(SO(-2))	-0.246563	0.015209	-16.21178	0.0000
D(SO(-3))	-0.122142	0.015499	-7.880543	0.0000
D(SO(-4))	-0.104584	0.015516	-6.740423	0.0000
D(SO(-5))	-0.098564	0.015503	-6.357570	0.0000
D(SO(-6))	-0.127732	0.015491	-8.245431	0.0000
D(SO(-7))	-0.072252	0.015419	-4.685745	0.0000
D(SO(-8))	-0.077651	0.015335	-5.063563	0.0000
D(SO(-9))	-0.073954	0.015249	-4.849738	0.0000
D(SO(-10))	-0.081641	0.015123	-5.398534	0.0000
D(SO(-11))	-0.065204	0.014658	-4.448429	0.0000
D(SO(-12))	-0.040458	0.013836	-2.924218	0.0035

R-squared	0.140294	Mean dependent var	-0.000682
Adjusted R-squared	0.138308	S.D. dependent var	1.144499
S.E. of regression	1.062408	Akaike info criterion	2.961447
Sum squared resid	5862.529	Schwarz criterion	2.977820
Log likelihood	-7697.129	Hannan-Quinn criter.	2.967174
Durbin-Watson stat	2.001846		

Source: calculation

Appendix A – (4.1): Unit Root Test NO₂–Intercept

Null Hypothesis: NO has a unit root

Exogenous: Constant

Lag Length: 10 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.687983	0.0000
Test critical values:		
1% level	-3.431424	
5% level	-2.861899	
10% level	-2.567004	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NO)

Method: Least Squares

Date: 02/17/11 Time: 02:14

Sample (adjusted): 12 5234

Included observations: 5211 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NO(-1)	-0.032844	0.005774	-5.687983	0.0000
D(NO(-1))	-0.278666	0.014547	-19.15565	0.0000
D(NO(-2))	-0.257756	0.015006	-17.17710	0.0000
D(NO(-3))	-0.173217	0.015382	-11.26100	0.0000
D(NO(-4))	-0.203691	0.015464	-13.17230	0.0000
D(NO(-5))	-0.174485	0.015573	-11.20456	0.0000
D(NO(-6))	-0.121801	0.015483	-7.866985	0.0000
D(NO(-7))	-0.096307	0.015233	-6.322218	0.0000
D(NO(-8))	-0.057299	0.015023	-3.814036	0.0001
D(NO(-9))	-0.052663	0.014499	-3.632276	0.0003
D(NO(-10))	-0.060060	0.013857	-4.334117	0.0000
C	0.431763	0.087795	4.917858	0.0000

R-squared	0.132845	Mean dependent var	-0.000892
Adjusted R-squared	0.131011	S.D. dependent var	3.379787
S.E. of regression	3.150624	Akaike info criterion	5.135378
Sum squared resid	51607.51	Schwarz criterion	5.150481
Log likelihood	-13368.23	Hannan-Quinn criter.	5.140661
F-statistic	72.40640	Durbin-Watson stat	2.000645
Prob(F-statistic)	0.000000		

Source: calculation

Appendix A – (4.2): Unit Root Test NO₂– Trend and Intercept

Null Hypothesis: NO has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 7 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-7.972755	0.0000
Test critical values:		
1% level	-3.959796	
5% level	-3.410666	
10% level	-3.127115	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(NO)
 Method: Least Squares
 Date: 02/17/11 Time: 02:15
 Sample (adjusted): 9 5234
 Included observations: 5217 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NO(-1)	-0.054792	0.006872	-7.972755	0.0000
D(NO(-1))	-0.255920	0.014706	-17.40265	0.0000
D(NO(-2))	-0.233759	0.014999	-15.58463	0.0000
D(NO(-3))	-0.145532	0.015099	-9.638784	0.0000
D(NO(-4))	-0.173251	0.014908	-11.62153	0.0000
D(NO(-5))	-0.141922	0.014847	-9.559050	0.0000
D(NO(-6))	-0.087450	0.014438	-6.057120	0.0000
D(NO(-7))	-0.061423	0.013838	-4.438811	0.0000
C	0.305318	0.096154	3.175310	0.0015
@TREND(1)	0.000159	3.48E-05	4.552900	0.0000
R-squared	0.131354	Mean dependent var		-0.001383
Adjusted R-squared	0.129853	S.D. dependent var		3.377958
S.E. of regression	3.151016	Akaike info criterion		5.135242
Sum squared resid	51699.80	Schwarz criterion		5.147816
Log likelihood	-13385.28	Hannan-Quinn criter.		5.139639
F-statistic	87.48748	Durbin-Watson stat		2.003328
Prob(F-statistic)	0.000000			

Source: calculation

Appendix A – (4.3): Unit Root Test NO₂– No Trend, No Intercept

Null Hypothesis: NO has a unit root

Exogenous: None

Lag Length: 10 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.851806	0.0042
Test critical values:		
1% level	-2.565406	
5% level	-1.940885	
10% level	-1.616659	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NO)

Method: Least Squares

Date: 02/17/11 Time: 02:16

Sample (adjusted): 12 5234

Included observations: 5211 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NO(-1)	-0.008205	0.002877	-2.851806	0.0044
D(NO(-1))	-0.298368	0.014016	-21.28755	0.0000
D(NO(-2))	-0.275746	0.014585	-18.90559	0.0000
D(NO(-3))	-0.189617	0.015050	-12.59950	0.0000
D(NO(-4))	-0.218676	0.015194	-14.39213	0.0000
D(NO(-5))	-0.187764	0.015371	-12.21550	0.0000
D(NO(-6))	-0.133254	0.015341	-8.686424	0.0000
D(NO(-7))	-0.106064	0.015137	-7.007011	0.0000
D(NO(-8))	-0.065638	0.014960	-4.387456	0.0000
D(NO(-9))	-0.059370	0.014466	-4.103963	0.0000
D(NO(-10))	-0.065042	0.013851	-4.695808	0.0000

R-squared	0.128811	Mean dependent var	-0.000892
Adjusted R-squared	0.127136	S.D. dependent var	3.379787
S.E. of regression	3.157640	Akaike info criterion	5.139636
Sum squared resid	51847.59	Schwarz criterion	5.153480
Log likelihood	-13380.32	Hannan-Quinn criter.	5.144478
Durbin-Watson stat	2.001415		

Source: calculation

Appendix A – (5.1): Unit Root Test CO–Intercept

Null Hypothesis: CO has a unit root

Exogenous: Constant

Lag Length: 11 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.002360	0.0000
Test critical values:		
1% level	-3.431421	
5% level	-2.861898	
10% level	-2.567003	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CO)

Method: Least Squares

Date: 02/17/11 Time: 02:17

Sample (adjusted): 13 5234

Included observations: 5222 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CO(-1)	-0.089165	0.009905	-9.002360	0.0000
D(CO(-1))	-0.293057	0.015929	-18.39754	0.0000
D(CO(-2))	-0.218425	0.016310	-13.39203	0.0000
D(CO(-3))	-0.178504	0.016432	-10.86292	0.0000
D(CO(-4))	-0.158742	0.016451	-9.649201	0.0000
D(CO(-5))	-0.118241	0.016394	-7.212645	0.0000
D(CO(-6))	-0.091290	0.016284	-5.606293	0.0000
D(CO(-7))	-0.098149	0.016079	-6.104204	0.0000
D(CO(-8))	-0.080069	0.015767	-5.078193	0.0000
D(CO(-9))	-0.074318	0.015363	-4.837390	0.0000
D(CO(-10))	-0.058823	0.014791	-3.976954	0.0001
D(CO(-11))	-0.047836	0.013835	-3.457519	0.0005
C	0.076646	0.009403	8.150853	0.0000

R-squared	0.158537	Mean dependent var	-9.24E-05
Adjusted R-squared	0.156599	S.D. dependent var	0.308455
S.E. of regression	0.283275	Akaike info criterion	0.317691
Sum squared resid	417.9954	Schwarz criterion	0.334023
Log likelihood	-816.4901	Hannan-Quinn criter.	0.323402
F-statistic	81.78432	Durbin-Watson stat	2.002690
Prob(F-statistic)	0.000000		

Source: calculation

Appendix A – (5.2): Unit Root Test CO – Trend and Intercept

Null Hypothesis: CO has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 11 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.060691	0.0000
Test critical values:		
1% level	-3.959795	
5% level	-3.410665	
10% level	-3.127115	

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(CO)
 Method: Least Squares
 Date: 02/17/11 Time: 02:18
 Sample (adjusted): 13 5234
 Included observations: 5222 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CO(-1)	-0.090303	0.009966	-9.060691	0.0000
D(CO(-1))	-0.292128	0.015955	-18.30973	0.0000
D(CO(-2))	-0.217580	0.016331	-13.32339	0.0000
D(CO(-3))	-0.177739	0.016449	-10.80526	0.0000
D(CO(-4))	-0.158047	0.016465	-9.598844	0.0000
D(CO(-5))	-0.117614	0.016405	-7.169439	0.0000
D(CO(-6))	-0.090718	0.016293	-5.567894	0.0000
D(CO(-7))	-0.097634	0.016087	-6.069271	0.0000
D(CO(-8))	-0.079619	0.015773	-5.047692	0.0000
D(CO(-9))	-0.073938	0.015368	-4.811305	0.0000
D(CO(-10))	-0.058532	0.014794	-3.956521	0.0001
D(CO(-11))	-0.047632	0.013837	-3.442452	0.0006
C	0.084670	0.012229	6.923431	0.0000
@TREND(1)	-2.69E-06	2.62E-06	-1.026227	0.3048

R-squared	0.158708	Mean dependent var	-9.24E-05
Adjusted R-squared	0.156608	S.D. dependent var	0.308455
S.E. of regression	0.283274	Akaike info criterion	0.317871
Sum squared resid	417.9109	Schwarz criterion	0.335460
Log likelihood	-815.9622	Hannan-Quinn criter.	0.324022
F-statistic	75.57500	Durbin-Watson stat	2.002667
Prob(F-statistic)	0.000000		

Source: calculation

Appendix A – (5.3): Unit Root Test CO – No Trend, No Intercept

Null Hypothesis: CO has a unit root
 Exogenous: None
 Lag Length: 11 (Automatic based on SIC, MAXLAG=32)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.798778	0.0001
Test critical values:		
1% level		
5% level		
10% level		

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

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(CO)
 Method: Least Squares
 Date: 02/17/11 Time: 02:19
 Sample (adjusted): 13 5234
 Included observations: 5222 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CO(-1)	-0.015783	0.004155	-3.798778	0.0001
D(CO(-1))	-0.353070	0.014214	-24.83987	0.0000
D(CO(-2))	-0.272788	0.014977	-18.21367	0.0000
D(CO(-3))	-0.227987	0.015366	-14.83752	0.0000
D(CO(-4))	-0.203781	0.015593	-13.06905	0.0000
D(CO(-5))	-0.158838	0.015716	-10.10653	0.0000
D(CO(-6))	-0.128058	0.015744	-8.133621	0.0000
D(CO(-7))	-0.131080	0.015660	-8.370146	0.0000
D(CO(-8))	-0.108529	0.015472	-7.014526	0.0000
D(CO(-9))	-0.098303	0.015173	-6.478724	0.0000
D(CO(-10))	-0.077922	0.014696	-5.302392	0.0000
D(CO(-11))	-0.061280	0.013823	-4.433299	0.0000
R-squared	0.147805	Mean dependent var		-9.24E-05
Adjusted R-squared	0.146006	S.D. dependent var		0.308455
S.E. of regression	0.285049	Akaike info criterion		0.329981
Sum squared resid	423.3265	Schwarz criterion		0.345057
Log likelihood	-849.5806	Hannan-Quinn criter.		0.335253
Durbin-Watson stat	2.004940			

Source: calculation



APPENDIX B
CORRELOGRAMS

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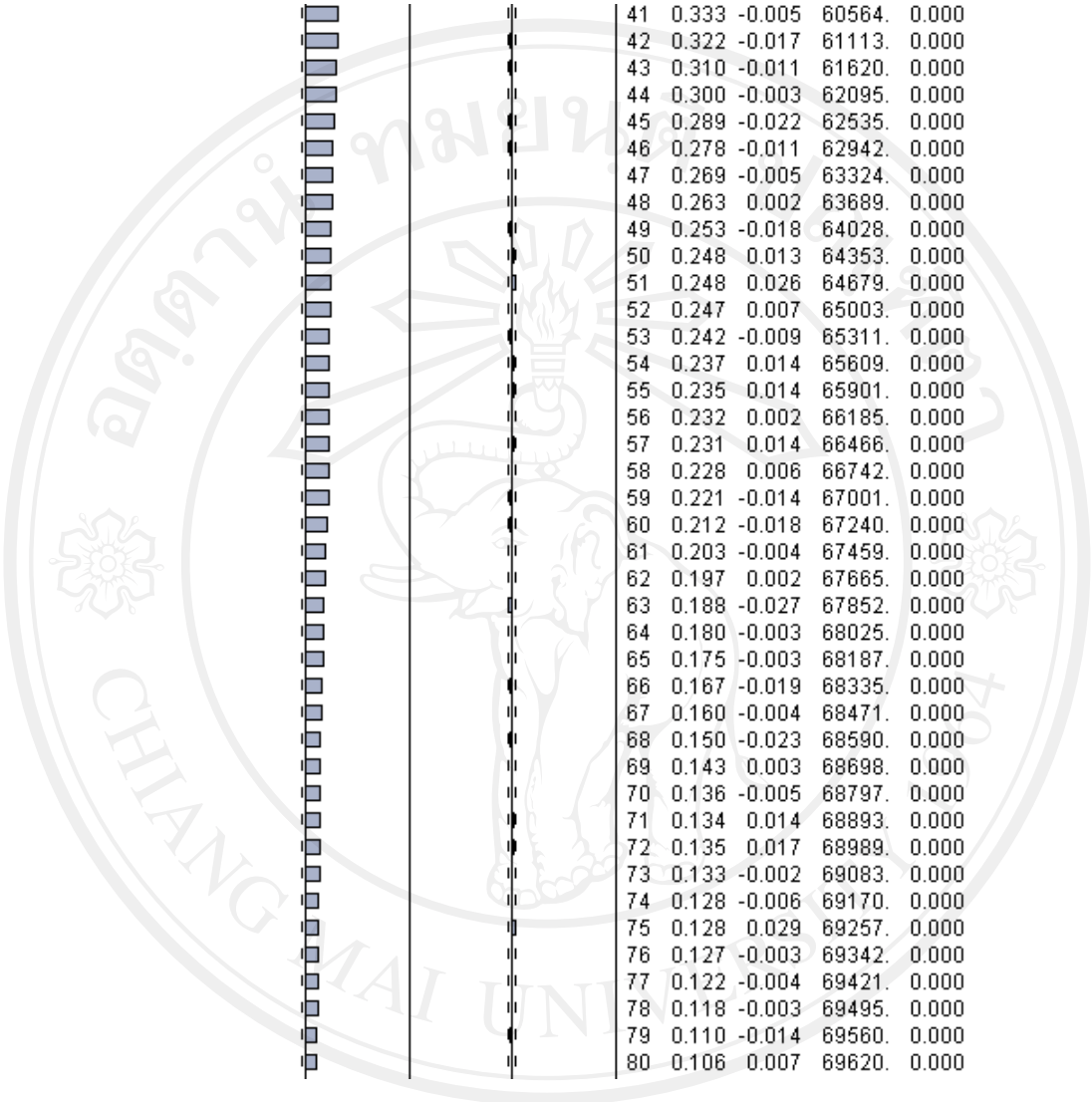
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Appendix B – (1): Correlogram of PM₁₀ at level (max lags by Eviews = 200)

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.883	0.883	4083.8	0.000
		2	0.796	0.075	7404.6	0.000
		3	0.739	0.102	10265.	0.000
		4	0.706	0.113	12875.	0.000
		5	0.682	0.076	15311.	0.000
		6	0.662	0.059	17606.	0.000
		7	0.644	0.050	19780.	0.000
		8	0.639	0.092	21918.	0.000
		9	0.628	0.028	23988.	0.000
		10	0.607	-0.014	25920.	0.000
		11	0.593	0.044	27764.	0.000
		12	0.582	0.029	29542.	0.000
		13	0.569	0.007	31244.	0.000
		14	0.563	0.044	32910.	0.000
		15	0.554	0.010	34520.	0.000
		16	0.545	0.015	36078.	0.000
		17	0.531	-0.011	37558.	0.000
		18	0.517	0.003	38962.	0.000
		19	0.505	0.008	40300.	0.000
		20	0.495	0.008	41590.	0.000
		21	0.492	0.035	42863.	0.000
		22	0.477	-0.041	44058.	0.000
		23	0.471	0.037	45226.	0.000
		24	0.471	0.035	46391.	0.000
		25	0.467	0.005	47540.	0.000
		26	0.462	0.011	48662.	0.000
		27	0.450	-0.016	49729.	0.000
		28	0.434	-0.024	50721.	0.000
		29	0.421	-0.010	51654.	0.000
		30	0.412	0.008	52548.	0.000
		31	0.407	0.019	53422.	0.000
		32	0.402	-0.003	54272.	0.000
		33	0.398	0.011	55105.	0.000
		34	0.389	-0.009	55903.	0.000
		35	0.377	-0.025	56652.	0.000
		36	0.370	0.018	57373.	0.000
		37	0.362	-0.003	58065.	0.000
		38	0.354	-0.004	58727.	0.000
		39	0.349	0.004	59368.	0.000
		40	0.341	-0.011	59981.	0.000

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Appendix B – (1): Correlogram of PM₁₀ at level (Continued)



41	0.333	-0.005	60564.	0.000
42	0.322	-0.017	61113.	0.000
43	0.310	-0.011	61620.	0.000
44	0.300	-0.003	62095.	0.000
45	0.289	-0.022	62535.	0.000
46	0.278	-0.011	62942.	0.000
47	0.269	-0.005	63324.	0.000
48	0.263	0.002	63689.	0.000
49	0.253	-0.018	64028.	0.000
50	0.248	0.013	64353.	0.000
51	0.248	0.026	64679.	0.000
52	0.247	0.007	65003.	0.000
53	0.242	-0.009	65311.	0.000
54	0.237	0.014	65609.	0.000
55	0.235	0.014	65901.	0.000
56	0.232	0.002	66185.	0.000
57	0.231	0.014	66466.	0.000
58	0.228	0.006	66742.	0.000
59	0.221	-0.014	67001.	0.000
60	0.212	-0.018	67240.	0.000
61	0.203	-0.004	67459.	0.000
62	0.197	0.002	67665.	0.000
63	0.188	-0.027	67852.	0.000
64	0.180	-0.003	68025.	0.000
65	0.175	-0.003	68187.	0.000
66	0.167	-0.019	68335.	0.000
67	0.160	-0.004	68471.	0.000
68	0.150	-0.023	68590.	0.000
69	0.143	0.003	68698.	0.000
70	0.136	-0.005	68797.	0.000
71	0.134	0.014	68893.	0.000
72	0.135	0.017	68989.	0.000
73	0.133	-0.002	69083.	0.000
74	0.128	-0.006	69170.	0.000
75	0.128	0.029	69257.	0.000
76	0.127	-0.003	69342.	0.000
77	0.122	-0.004	69421.	0.000
78	0.118	-0.003	69495.	0.000
79	0.110	-0.014	69560.	0.000
80	0.106	0.007	69620.	0.000

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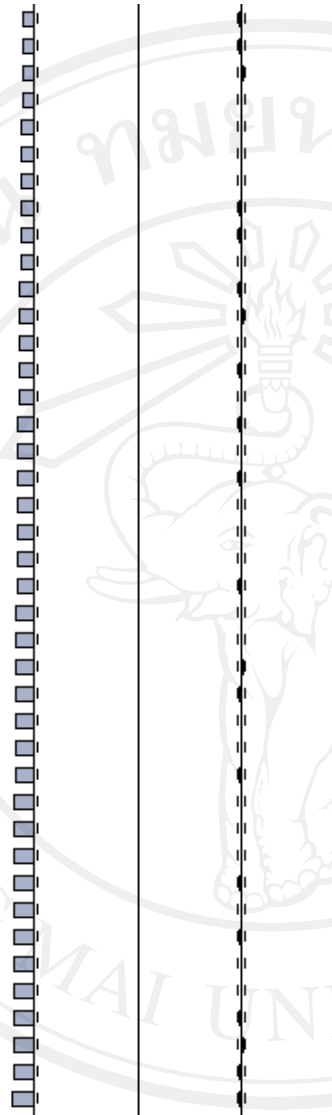
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Appendix B – (1): Correlogram of PM₁₀ at level (Continued)

81	0.100	-0.018	69673.	0.000
82	0.094	-0.003	69721.	0.000
83	0.091	0.001	69765.	0.000
84	0.087	-0.006	69805.	0.000
85	0.079	-0.018	69838.	0.000
86	0.070	-0.018	69865.	0.000
87	0.059	-0.022	69883.	0.000
88	0.053	0.001	69898.	0.000
89	0.048	-0.009	69911.	0.000
90	0.042	-0.009	69920.	0.000
91	0.034	-0.022	69927.	0.000
92	0.021	-0.038	69929.	0.000
93	0.013	-0.000	69930.	0.000
94	0.001	-0.031	69930.	0.000
95	-0.006	0.003	69930.	0.000
96	-0.014	-0.022	69931.	0.000
97	-0.022	-0.012	69934.	0.000
98	-0.027	-0.002	69938.	0.000
99	-0.030	0.004	69943.	0.000
1...	-0.037	-0.012	69950.	0.000
1...	-0.039	0.015	69958.	0.000
1...	-0.045	-0.010	69968.	0.000
1...	-0.050	-0.002	69982.	0.000
1...	-0.052	0.008	69996.	0.000
1...	-0.053	0.011	70011.	0.000
1...	-0.054	0.006	70027.	0.000
1...	-0.054	0.009	70043.	0.000
1...	-0.058	-0.007	70061.	0.000
1...	-0.061	-0.001	70081.	0.000
1...	-0.067	-0.023	70105.	0.000
1...	-0.074	-0.004	70134.	0.000
1...	-0.077	0.003	70166.	0.000
1...	-0.081	-0.012	70201.	0.000
1...	-0.081	0.014	70236.	0.000
1...	-0.077	0.017	70268.	0.000
1...	-0.078	-0.013	70301.	0.000
1...	-0.082	-0.006	70337.	0.000
1...	-0.089	-0.012	70379.	0.000
1...	-0.088	0.030	70420.	0.000
1...	-0.091	-0.018	70464.	0.000
1...	-0.098	-0.014	70515.	0.000

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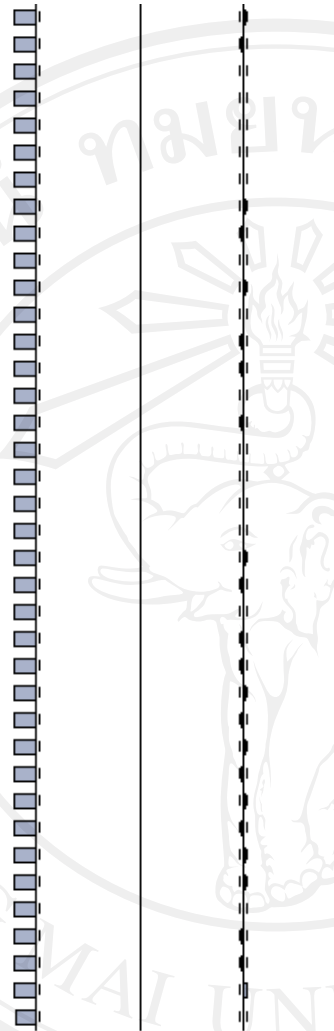
Appendix B – (1): Correlogram of PM₁₀ at level (Continued)



1...	-0.104	-0.009	70574.	0.000
1...	-0.110	-0.009	70638.	0.000
1...	-0.110	0.014	70703.	0.000
1...	-0.112	-0.005	70770.	0.000
1...	-0.117	-0.006	70843.	0.000
1...	-0.121	-0.004	70921.	0.000
1...	-0.122	0.001	71001.	0.000
1...	-0.127	-0.017	71088.	0.000
1...	-0.134	-0.021	71184.	0.000
1...	-0.139	-0.006	71288.	0.000
1...	-0.144	-0.013	71400.	0.000
1...	-0.143	0.012	71510.	0.000
1...	-0.142	0.006	71619.	0.000
1...	-0.146	-0.019	71733.	0.000
1...	-0.150	-0.008	71854.	0.000
1...	-0.157	-0.019	71986.	0.000
1...	-0.160	0.001	72124.	0.000
1...	-0.164	-0.011	72269.	0.000
1...	-0.166	-0.007	72418.	0.000
1...	-0.168	-0.002	72569.	0.000
1...	-0.168	0.000	72721.	0.000
1...	-0.170	-0.010	72877.	0.000
1...	-0.173	0.001	73038.	0.000
1...	-0.174	-0.000	73201.	0.000
1...	-0.174	0.009	73363.	0.000
1...	-0.175	-0.009	73529.	0.000
1...	-0.177	-0.001	73698.	0.000
1...	-0.180	-0.007	73873.	0.000
1...	-0.186	-0.019	74059.	0.000
1...	-0.189	0.003	74251.	0.000
1...	-0.189	0.005	74444.	0.000
1...	-0.190	-0.002	74639.	0.000
1...	-0.193	-0.010	74841.	0.000
1...	-0.194	0.006	75044.	0.000
1...	-0.198	-0.017	75257.	0.000
1...	-0.201	-0.005	75475.	0.000
1...	-0.202	0.003	75695.	0.000
1...	-0.204	-0.011	75919.	0.000
1...	-0.201	0.013	76138.	0.000
1...	-0.203	-0.020	76361.	0.000
1...	-0.209	-0.016	76596.	0.000

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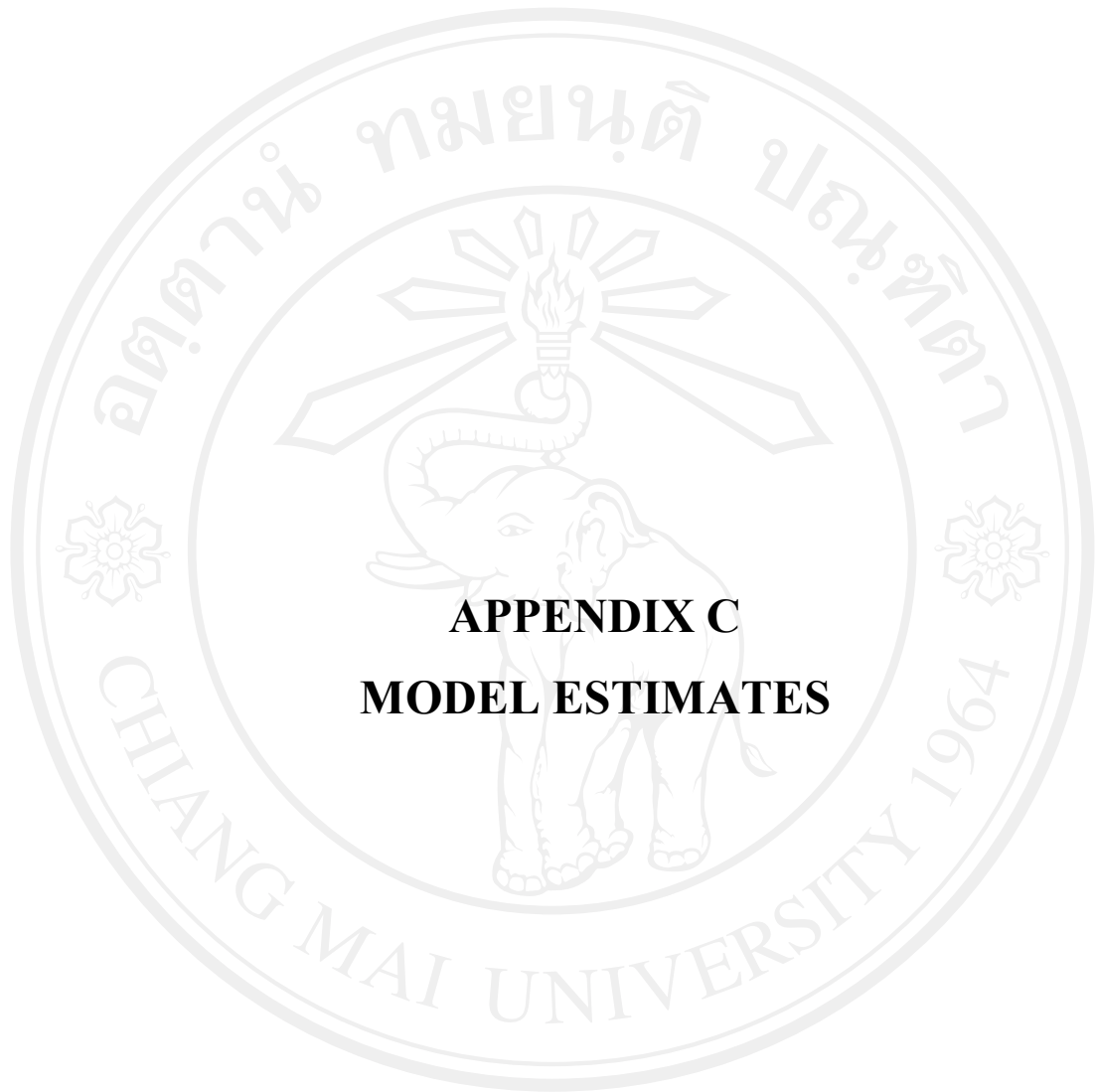
Appendix B – (1): Correlogram of PM₁₀ at level (Continued)



1...	-0.208	0.015	76831.	0.000
1...	-0.212	-0.018	77073.	0.000
1...	-0.213	0.003	77320.	0.000
1...	-0.214	-0.001	77567.	0.000
1...	-0.214	-0.002	77813.	0.000
1...	-0.215	-0.006	78064.	0.000
1...	-0.216	0.002	78316.	0.000
1...	-0.214	0.016	78564.	0.000
1...	-0.217	-0.020	78817.	0.000
1...	-0.218	-0.004	79075.	0.000
1...	-0.215	0.022	79326.	0.000
1...	-0.214	-0.004	79573.	0.000
1...	-0.217	-0.018	79829.	0.000
1...	-0.222	-0.011	80095.	0.000
1...	-0.226	-0.007	80371.	0.000
1...	-0.229	-0.012	80655.	0.000
1...	-0.229	-0.002	80939.	0.000
1...	-0.229	0.003	81224.	0.000
1...	-0.229	-0.007	81508.	0.000
1...	-0.227	0.006	81786.	0.000
1...	-0.223	0.018	82056.	0.000
1...	-0.223	-0.017	82325.	0.000
1...	-0.221	0.007	82591.	0.000
1...	-0.224	-0.023	82865.	0.000
1...	-0.228	-0.012	83147.	0.000
1...	-0.228	0.010	83429.	0.000
1...	-0.229	-0.013	83713.	0.000
1...	-0.225	0.016	83988.	0.000
1...	-0.225	-0.019	84263.	0.000
1...	-0.222	0.016	84530.	0.000
1...	-0.224	-0.020	84802.	0.000
1...	-0.220	0.014	85066.	0.000
1...	-0.215	0.018	85318.	0.000
1...	-0.210	0.007	85559.	0.000
1...	-0.209	-0.012	85796.	0.000
1...	-0.213	-0.021	86042.	0.000
1...	-0.208	0.027	86277.	0.000
2...	-0.202	0.003	86499.	0.000

Source: calculation

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APPENDIX C
MODEL ESTIMATES

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**Appendix C – (1): Eq (4.1): PM C AR(1) AR(2) MA(1) MA(2) MA(3)
MA(4) MA(5)**

Dependent Variable: LOG(PM)
Method: Least Squares
Date: 03/10/11 Time: 19:50
Sample (adjusted): 1/03/1996 4/30/2010
Included observations: 5232 after adjustments
Convergence achieved after 18 iterations
MA Backcast: 12/29/1995 1/02/1996

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.922019	0.082488	47.54651	0.0000
AR(1)	1.519853	0.227428	6.682795	0.0000
AR(2)	-0.526663	0.223686	-2.354470	0.0186
MA(1)	-0.828951	0.227820	-3.638621	0.0003
MA(2)	-0.009256	0.068837	-0.134463	0.8930
MA(3)	-0.025555	0.041899	-0.609902	0.5420
MA(4)	0.011515	0.031673	0.363570	0.7162
MA(5)	-0.002499	0.024937	-0.100230	0.9202
R-squared	0.783031	Mean dependent var		3.931866
Adjusted R-squared	0.782741	S.D. dependent var		0.599232
S.E. of regression	0.279308	Akaike info criterion		0.288528
Sum squared resid	407.5411	Schwarz criterion		0.298563
Log likelihood	-746.7896	Hannan-Quinn criter.		0.292037
F-statistic	2693.316	Durbin-Watson stat		1.999940
Prob(F-statistic)	0.000000			
Inverted AR Roots	.99	.53		
Inverted MA Roots	.86	.15+.13i	.15-.13i	-.16-.22i
		-.16+.22i		

**Appendix C – (2): Eq (4.1): PM C AR(1) AR(2) AR(3) MA(1) MA(2)
MA(3) MA(4)**

Dependent Variable: LOG(PM)

Method: Least Squares

Date: 03/10/11 Time: 19:35

Sample (adjusted): 1/04/1996 4/30/2010

Included observations: 5231 after adjustments

Convergence achieved after 154 iterations

MA Backcast: 12/31/1995 1/03/1996

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.922434	0.081998	47.83596	0.0000
AR(1)	0.499263	0.069460	7.187801	0.0000
AR(2)	0.954700	0.033942	28.12736	0.0000
AR(3)	-0.469004	0.067022	-6.997786	0.0000
MA(1)	0.192757	0.070413	2.737538	0.0062
MA(2)	-0.786468	0.053209	-14.78087	0.0000
MA(3)	-0.051463	0.042233	-1.218538	0.2231
MA(4)	-0.035780	0.024868	-1.438798	0.1503
R-squared	0.783101	Mean dependent var		3.931687
Adjusted R-squared	0.782811	S.D. dependent var		0.599150
S.E. of regression	0.279225	Akaike info criterion		0.287934
Sum squared resid	407.2208	Schwarz criterion		0.297970
Log likelihood	-745.0902	Hannan-Quinn criter.		0.291443
F-statistic	2693.910	Durbin-Watson stat		2.000393
Prob(F-statistic)	0.000000			
Inverted AR Roots	.99	.49	-.97	
Inverted MA Roots	.85	-.03+.20i	-.03-.20i	-.98

Appendix C – (3): Eq (4.3): PM C AR(1) MA(1) MA(2) MA(3) MA(4) MA(5)

Dependent Variable: LOG(PM)
 Method: Least Squares
 Date: 03/10/11 Time: 19:58
 Sample (adjusted): 1/02/1996 4/30/2010
 Included observations: 5233 after adjustments
 Convergence achieved after 9 iterations
 MA Backcast: 12/28/1995 1/01/1996

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.924029	0.079189	49.55292	0.0000
AR(1)	0.983644	0.003060	321.4875	0.0000
MA(1)	-0.293298	0.014178	-20.68753	0.0000
MA(2)	-0.167784	0.014576	-11.51126	0.0000
MA(3)	-0.117924	0.014630	-8.060427	0.0000
MA(4)	-0.054117	0.014541	-3.721715	0.0002
MA(5)	-0.031842	0.014072	-2.262849	0.0237
R-squared	0.782915	Mean dependent var		3.932023
Adjusted R-squared	0.782666	S.D. dependent var		0.599282
S.E. of regression	0.279380	Akaike info criterion		0.288851
Sum squared resid	407.9068	Schwarz criterion		0.297630
Log likelihood	-748.7790	Hannan-Quinn criter.		0.291921
F-statistic	3141.250	Durbin-Watson stat		1.998048
Prob(F-statistic)	0.000000			
Inverted AR Roots	.98			
Inverted MA Roots	.83	.08-.44i	.08+.44i	-.35+.26i
				-.35-.26i



APPENDIX D
RESIDUAL CORRELOGRAMS

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Appendix D – (1): Residual Correlogram Eq (4.1)

	Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.000	0.000	0.000	0.000	4.E-06	
2	-0.000	-0.000	-0.000	-0.000	5.E-05	
3	0.000	0.000	0.000	0.000	0.0003	
4	0.000	0.000	0.000	0.000	0.0004	
5	0.006	0.006	0.006	0.006	0.2108	
6	-0.011	-0.011	-0.011	-0.011	0.8889	
7	-0.010	-0.010	-0.010	-0.010	1.4611	
8	0.000	0.000	0.000	0.000	1.4612	0.227
9	0.034	0.034	0.034	0.034	7.3489	0.025
10	-0.011	-0.011	-0.011	-0.011	7.9605	0.047
11	-0.006	-0.006	-0.006	-0.006	8.1568	0.086
12	0.001	0.001	0.001	0.001	8.1605	0.148
13	-0.024	-0.024	-0.024	-0.024	11.226	0.082
14	0.004	0.003	0.003	0.003	11.296	0.126
15	0.029	0.030	0.030	0.030	15.761	0.046
16	0.023	0.024	0.024	0.024	18.551	0.029
17	-0.001	-0.002	-0.002	-0.002	18.559	0.046
18	-0.005	-0.006	-0.006	-0.006	18.669	0.067
19	-0.022	-0.022	-0.022	-0.022	21.233	0.047
20	-0.023	-0.023	-0.023	-0.023	23.956	0.032
21	0.025	0.025	0.025	0.025	27.231	0.018
22	-0.031	-0.028	-0.028	-0.028	32.362	0.006
23	-0.016	-0.016	-0.016	-0.016	33.678	0.006
24	-0.001	-0.003	-0.003	-0.003	33.685	0.009
25	0.022	0.021	0.021	0.021	36.300	0.006
26	-0.014	0.013	0.013	0.013	37.364	0.007
27	0.018	0.019	0.019	0.019	38.987	0.007
28	-0.005	-0.002	-0.002	-0.002	39.118	0.010
29	0.002	0.003	0.003	0.003	39.139	0.014
30	-0.011	-0.015	-0.015	-0.015	39.774	0.016
31	-0.007	-0.006	-0.006	-0.006	40.055	0.021
32	-0.005	-0.005	-0.005	-0.005	40.165	0.028
33	0.020	0.019	0.019	0.019	42.175	0.024
34	0.011	0.013	0.013	0.013	42.804	0.027
35	-0.004	-0.004	-0.004	-0.004	42.890	0.036
36	0.001	-0.001	-0.001	-0.001	42.895	0.047

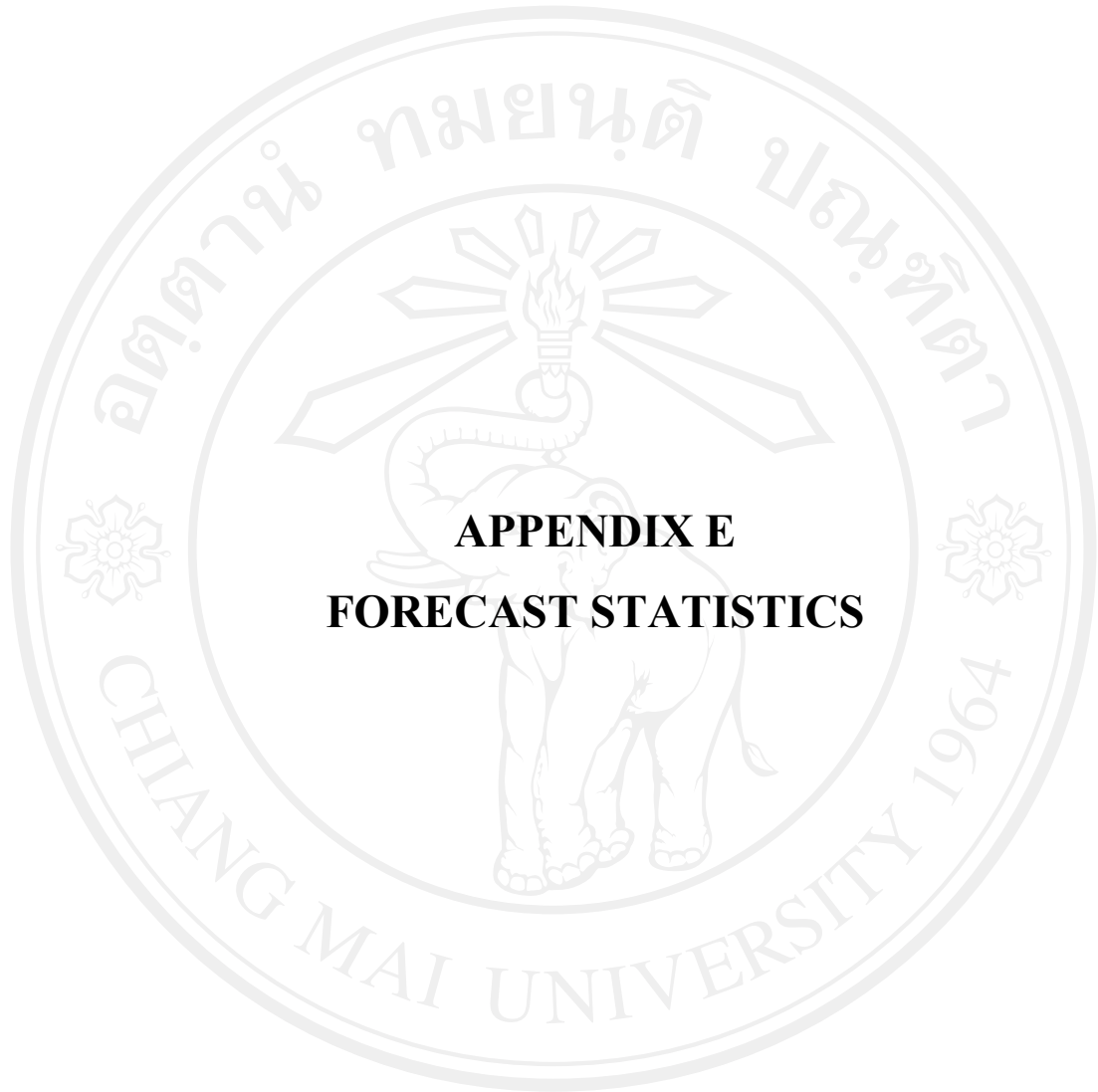
Appendix D – (2): Residual Correlogram Eq (4.2)

	Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	-0.000	-0.000	0.0002			
2	0.000	0.000	0.0003			
3	-0.004	-0.004	0.0815			
4	0.011	0.011	0.7113			
5	0.003	0.003	0.7494			
6	-0.008	-0.008	1.1194			
7	-0.016	-0.016	2.4213			
8	0.003	0.003	2.4623	0.117		
9	0.028	0.028	6.6743	0.036		
10	-0.008	-0.008	7.0228	0.071		
11	-0.010	-0.010	7.5987	0.107		
12	0.004	0.004	7.6647	0.176		
13	-0.028	-0.029	11.729	0.068		
14	0.006	0.006	11.928	0.103		
15	0.025	0.026	15.311	0.053		
16	0.026	0.026	18.760	0.027		
17	-0.005	-0.004	18.866	0.042		
18	-0.002	-0.003	18.891	0.063		
19	-0.025	-0.026	22.228	0.035		
20	-0.020	-0.021	24.255	0.029		
21	0.022	0.023	26.816	0.020		
22	-0.028	-0.026	31.033	0.009		
23	-0.019	-0.019	32.883	0.008		
24	0.001	-0.000	32.891	0.012		
25	0.020	0.018	34.980	0.010		
26	0.016	0.016	36.404	0.009		
27	0.015	0.016	37.580	0.010		
28	-0.003	0.000	37.618	0.014		
29	0.000	0.000	37.618	0.020		
30	-0.008	-0.013	37.998	0.025		
31	-0.009	-0.009	38.445	0.031		
32	-0.003	-0.002	38.481	0.041		
33	0.018	0.017	40.135	0.038		
34	0.013	0.015	41.002	0.041		
35	-0.006	-0.006	41.177	0.052		
36	0.003	0.002	41.220	0.066		

Appendix D – (3): Residual Correlogram Eq (4.3)

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.001	0.001	0.0050	
		2	0.002	0.002	0.0345	
		3	0.005	0.005	0.1665	
		4	0.008	0.008	0.4634	
		5	0.013	0.013	1.3682	
		6	-0.022	-0.023	4.0045	
		7	-0.019	-0.019	5.9270	0.015
		8	-0.007	-0.007	6.2141	0.045
		9	0.027	0.027	9.9815	0.019
		10	-0.016	-0.016	11.323	0.023
		11	-0.010	-0.009	11.854	0.037
		12	-0.002	-0.002	11.871	0.065
		13	-0.026	-0.027	15.407	0.031
		14	0.002	0.001	15.427	0.051
		15	0.027	0.029	19.207	0.023
		16	0.022	0.023	21.730	0.017
		17	-0.002	-0.003	21.756	0.026
		18	-0.006	-0.007	21.916	0.038
		19	-0.022	-0.024	24.521	0.027
		20	-0.022	-0.024	27.168	0.018
		21	0.025	0.026	30.484	0.010
		22	-0.031	-0.027	35.545	0.003
		23	-0.016	-0.015	36.834	0.004
		24	-0.001	-0.002	36.838	0.006
		25	0.023	0.022	39.541	0.004
		26	0.015	0.013	40.677	0.004
		27	-0.017	0.019	42.277	0.004
		28	-0.004	-0.002	42.363	0.006
		29	0.003	0.003	42.427	0.008
		30	-0.010	-0.015	42.918	0.010
		31	-0.006	-0.006	43.137	0.014
		32	-0.004	-0.004	43.218	0.018
		33	0.020	0.020	45.275	0.015
		34	0.011	0.014	45.953	0.018
		35	-0.003	-0.002	46.011	0.023
		36	0.002	0.000	46.035	0.031

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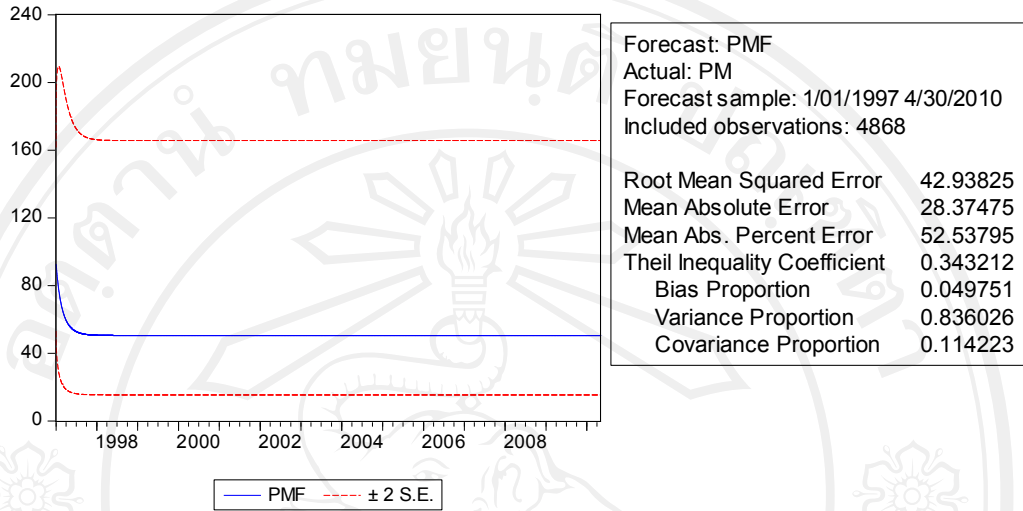
APPENDIX E
FORECAST STATISTICS

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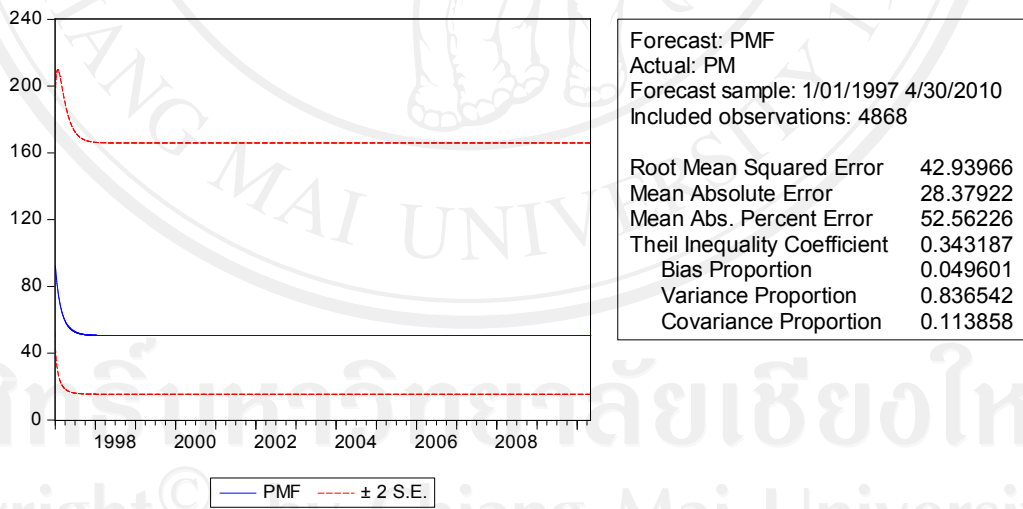
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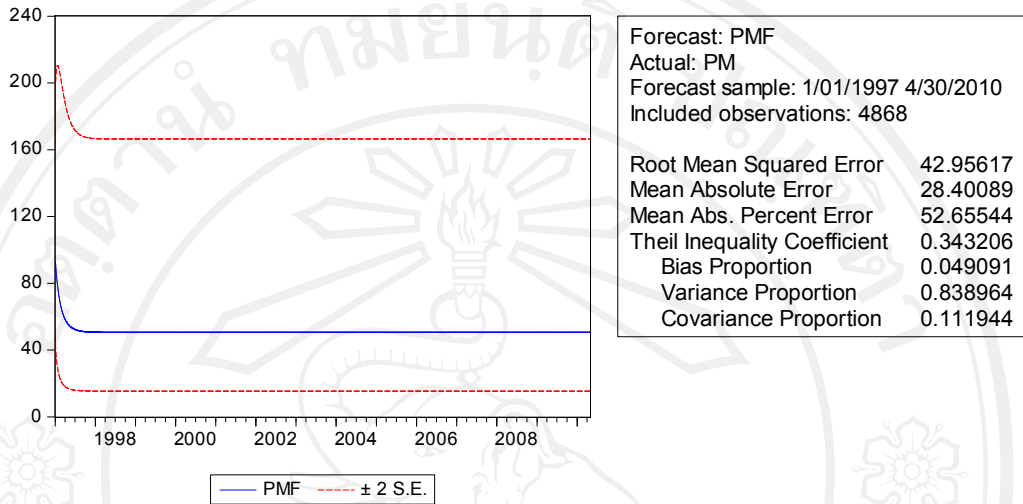
Appendix E – (1): Historical Forecast Eq (4.1)



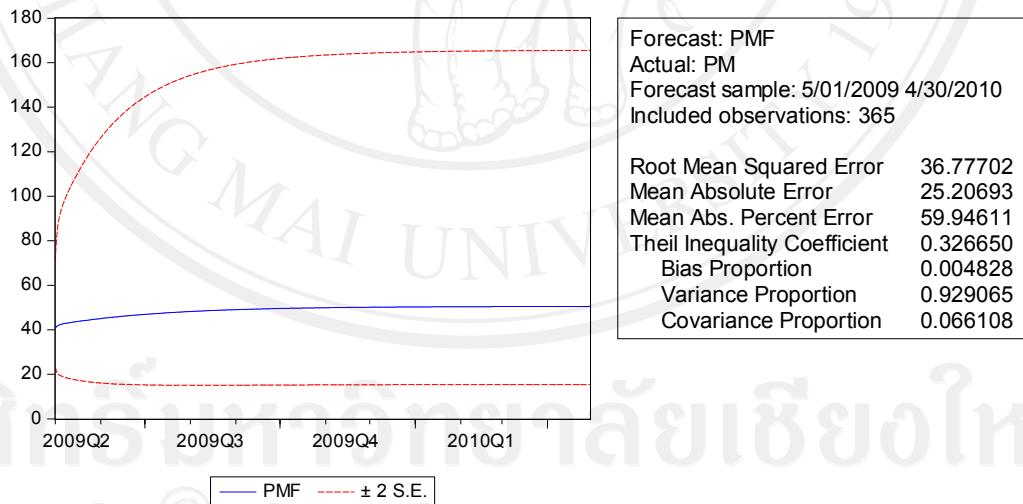
Appendix E – (2): Historical Forecast Eq (4.2)



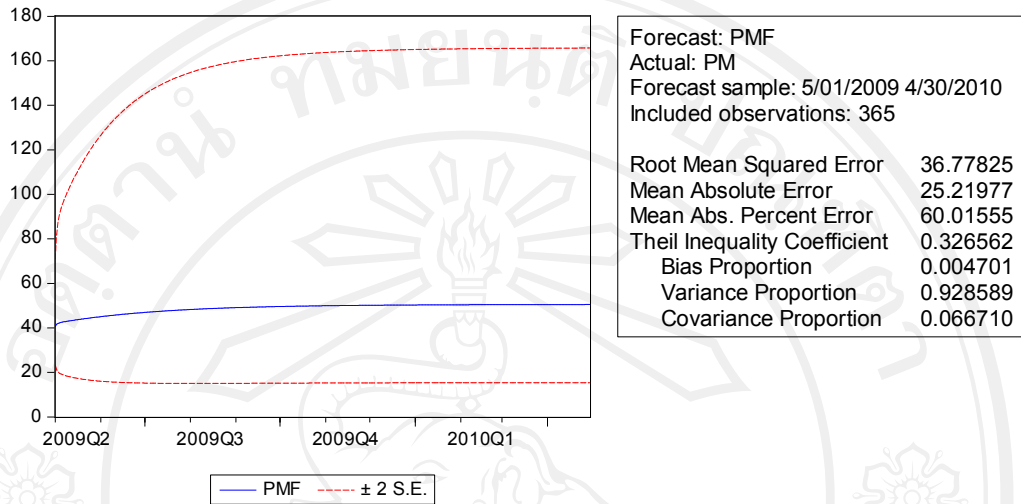
Appendix E – (3): Historical Forecast Eq (4.3)



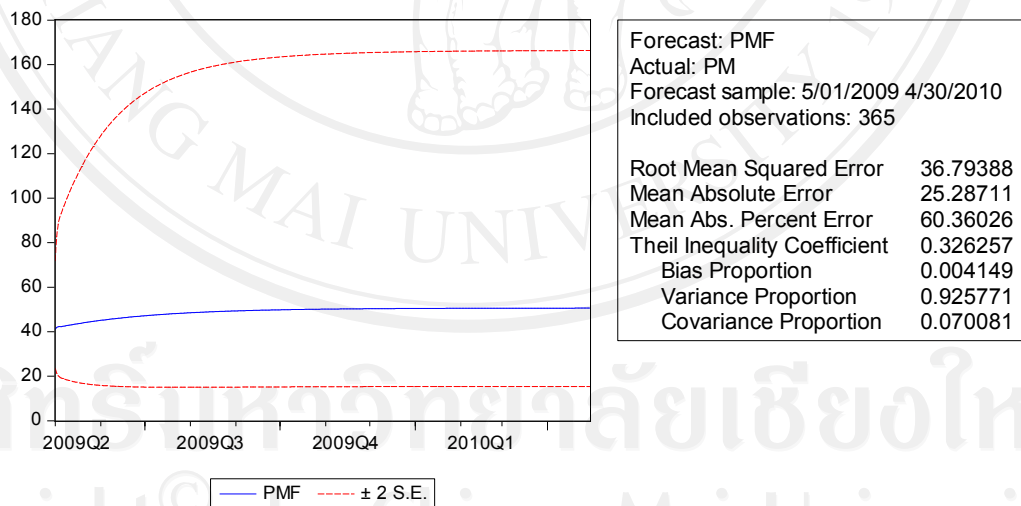
Appendix E – (4): Ex-post Forecast Eq (4.1)



Appendix E – (5): Ex-post Forecast Eq (4.2)



Appendix E – (6): Ex-post Forecast Eq (4.3)



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