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ภาคผนวก ก

ผลการวิเคราะห์ ARIMA ด้วย EVIEWS

Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:40
Sample (adjusted): 1996M07 2007M07
Included observations: 133 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.080519	1.546319	0.052071	0.9586

R-squared	0.000000	Mean dependent var	0.080519
Adjusted R-squared	0.000000	S.D. dependent var	17.83302
S.E. of regression	17.83302	Akaike info criterion	8.607471
Sum squared resid	41978.18	Schwarz criterion	8.629203
Log likelihood	-571.3968	Durbin-Watson stat	3.031318

Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:40
Sample (adjusted): 1996M08 2007M07
Included observations: 132 after adjustments
Convergence achieved after 12 iterations
Backcast: 1996M07

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.026926	0.030374	0.886488	0.3770
AR(1)	-0.072456	0.087865	-0.824633	0.4111
MA(1)	-0.986632	0.010240	-96.35127	0.0000

R-squared	0.527165	Mean dependent var	-0.073879
Adjusted R-squared	0.519835	S.D. dependent var	17.81150
S.E. of regression	12.34229	Akaike info criterion	7.886406
Sum squared resid	19650.85	Schwarz criterion	7.951924
Log likelihood	-517.5028	F-statistic	71.91134
Durbin-Watson stat	1.989654	Prob(F-statistic)	0.000000

Inverted AR Roots	-.07
Inverted MA Roots	.99

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:40
Sample (adjusted): 1996M11 2007M07
Included observations: 129 after adjustments
Convergence achieved after 13 iterations
Backcast: 1996M10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.022442	0.027869	0.805251	0.4222
AR(1)	-0.081490	0.089065	-0.914945	0.3620
AR(4)	-0.126738	0.088833	-1.426696	0.1562
MA(1)	-0.986599	0.011059	-89.21379	0.0000

R-squared	0.532435	Mean dependent var	-0.075535
Adjusted R-squared	0.521214	S.D. dependent var	17.81701
S.E. of regression	12.32837	Akaike info criterion	7.892201
Sum squared resid	18998.60	Schwarz criterion	7.980877
Log likelihood	-505.0470	F-statistic	47.44754
Durbin-Watson stat	2.009252	Prob(F-statistic)	0.000000

Inverted AR Roots	.40-.42i	.40+.42i	-.44+.42i	-.44-.42i
Inverted MA Roots	.99			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:41
Sample (adjusted): 1996M12 2007M07
Included observations: 128 after adjustments
Convergence achieved after 14 iterations
Backcast: 1996M11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.019362	0.026777	0.723087	0.4710
AR(1)	-0.095802	0.089526	-1.070104	0.2867
AR(4)	-0.134913	0.088873	-1.518051	0.1316
AR(5)	-0.125369	0.089253	-1.404645	0.1626
MA(1)	-0.985466	0.014354	-68.65660	0.0000

R-squared	0.538970	Mean dependent var	0.060773
Adjusted R-squared	0.523977	S.D. dependent var	17.81937
S.E. of regression	12.29437	Akaike info criterion	7.894438
Sum squared resid	18591.62	Schwarz criterion	8.005846
Log likelihood	-500.2440	F-statistic	35.94851
Durbin-Watson stat	1.944971	Prob(F-statistic)	0.000000

Inverted AR Roots	.55-.46i	.55+.46i	-.31+.58i	-.31-.58i
	-.57			
Inverted MA Roots	.99			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:41
Sample (adjusted): 1997M04 2007M07
Included observations: 124 after adjustments
Convergence achieved after 13 iterations
Backcast: 1997M03

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010363	0.026203	0.395496	0.6932
AR(1)	-0.106458	0.091489	-1.163623	0.2469
AR(4)	-0.149333	0.092083	-1.621722	0.1075
AR(5)	-0.129636	0.092027	-1.408665	0.1616
AR(9)	0.007367	0.091173	0.080807	0.9357
MA(1)	-0.986301	0.012837	-76.83223	0.0000

R-squared	0.543757	Mean dependent var	0.005702
Adjusted R-squared	0.524425	S.D. dependent var	18.06988
S.E. of regression	12.46134	Akaike info criterion	7.930316
Sum squared resid	18323.62	Schwarz criterion	8.066781
Log likelihood	-485.6796	F-statistic	28.12687
Durbin-Watson stat	1.939460	Prob(F-statistic)	0.000000

Inverted AR Roots	.56+.48i	.56-.48i	.43	.06+.45i
	.06-.45i	-.35+.60i	-.35-.60i	-.54-.14i
	-.54+.14i			
Inverted MA Roots	.99			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:41
Sample (adjusted): 1996M11 2007M07
Included observations: 129 after adjustments
Convergence achieved after 44 iterations
Backcast: OFF (Roots of MA process too large)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.099716	0.091744	-1.086897	0.2792
AR(4)	-0.313139	0.083753	-3.738858	0.0003
MA(1)	-1.070131	0.031799	-33.65319	0.0000

R-squared	0.545641	Mean dependent var	-0.075535
Adjusted R-squared	0.538429	S.D. dependent var	17.81701
S.E. of regression	12.10471	Akaike info criterion	7.848047
Sum squared resid	18462.02	Schwarz criterion	7.914555
Log likelihood	-503.1991	F-statistic	75.65677
Durbin-Watson stat	2.227553	Prob(F-statistic)	0.000000

Inverted AR Roots	.53-.53i	.53+.53i	-.53+.53i	-.53+.53i
Inverted MA Roots	1.07			
	Estimated MA process is noninvertible			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:42
Sample (adjusted): 1996M12 2007M07
Included observations: 128 after adjustments
Convergence achieved after 12 iterations
Backcast: 1996M11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.018780	0.029464	0.637387	0.5250
AR(4)	-0.124364	0.088291	-1.408563	0.1615
AR(5)	-0.113685	0.088448	-1.285331	0.2011
MA(1)	-0.984795	0.013952	-70.58270	0.0000

R-squared	0.534698	Mean dependent var	0.060773
Adjusted R-squared	0.523441	S.D. dependent var	17.81937
S.E. of regression	12.30129	Akaike info criterion	7.888037
Sum squared resid	18763.90	Schwarz criterion	7.977163
Log likelihood	-500.8344	F-statistic	47.49791
Durbin-Watson stat	2.131188	Prob(F-statistic)	0.000000

Inverted AR Roots	.55+.46i	.55-.46i	-.28-.57i	-.28+.57i
	-.54			
Inverted MA Roots	.98			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 10:42
Sample (adjusted): 1997M04 2007M07
Included observations: 124 after adjustments
Convergence achieved after 14 iterations
Backcast: 1997M03

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010025	0.029587	0.338821	0.7353
AR(4)	-0.136237	0.091467	-1.489467	0.1390
AR(5)	-0.115464	0.091202	-1.266028	0.2080
AR(9)	0.011418	0.091127	0.125297	0.9005
MA(1)	-0.985382	0.012564	-78.43161	0.0000

R-squared	0.538579	Mean dependent var	0.005702
Adjusted R-squared	0.523069	S.D. dependent var	18.06988
S.E. of regression	12.47909	Akaike info criterion	7.925473
Sum squared resid	18531.60	Schwarz criterion	8.039194
Log likelihood	-486.3793	F-statistic	34.72476
Durbin-Watson stat	2.143406	Prob(F-statistic)	0.000000

Inverted AR Roots	.58-.48i	.58+.48i	.48	.07+.50i
	.07-.50i	-.33+.60i	-.33-.60i	-.56-.17i
	-.56+.17i			
Inverted MA Roots	.99			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 11:49
Sample (adjusted): 1996M12 2007M07
Included observations: 128 after adjustments
Convergence achieved after 16 iterations
Backcast: 1996M11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.018046	0.032778	0.550548	0.5829
AR(5)	-0.104918	0.088484	-1.185739	0.2380
MA(1)	-0.984857	0.013643	-72.18886	0.0000

R-squared	0.527268	Mean dependent var	0.060773
Adjusted R-squared	0.519704	S.D. dependent var	17.81937
S.E. of regression	12.34942	Akaike info criterion	7.888254
Sum squared resid	19063.52	Schwarz criterion	7.955098
Log likelihood	-501.8482	F-statistic	69.71026
Durbin-Watson stat	2.102534	Prob(F-statistic)	0.000000

Inverted AR Roots	.52-.37i	.52+.37i	-.20+.61i	-.20-.61i
	-.64			
Inverted MA Roots	.98			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 11:49
Sample (adjusted): 1997M04 2007M07
Included observations: 124 after adjustments
Convergence achieved after 16 iterations
Backcast: 1997M03

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008978	0.033840	0.265295	0.7912
AR(5)	-0.105317	0.091336	-1.153072	0.2512
AR(9)	0.027269	0.090865	0.300108	0.7646
MA(1)	-0.985458	0.011855	-83.12729	0.0000

R-squared	0.529955	Mean dependent var	0.005702
Adjusted R-squared	0.518204	S.D. dependent var	18.06988
S.E. of regression	12.54258	Akaike info criterion	7.927861
Sum squared resid	18877.94	Schwarz criterion	8.018838
Log likelihood	-487.5274	F-statistic	45.09830
Durbin-Watson stat	2.104678	Prob(F-statistic)	0.000000

Inverted AR Roots	.61	.57-.45i	.57+.45i	.07+.62i
	.07-.62i	-.31+.63i	-.31-.63i	-.64-.17i
	-.64+.17i			
Inverted MA Roots	.99			

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Dependent Variable: D(GAIN50)
Method: Least Squares
Date: 09/22/07 Time: 11:49
Sample (adjusted): 1997M04 2007M07
Included observations: 124 after adjustments
Convergence achieved after 14 iterations
Backcast: 1997M03

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007267	0.037562	0.193478	0.8469
AR(9)	0.039452	0.090327	0.436771	0.6631
MA(1)	-0.985878	0.011647	-84.64862	0.0000

R-squared	0.524746	Mean dependent var	0.005702
Adjusted R-squared	0.516890	S.D. dependent var	18.06988
S.E. of regression	12.55967	Akaike info criterion	7.922754
Sum squared resid	19087.17	Schwarz criterion	7.990987
Log likelihood	-488.2108	F-statistic	66.80029
Durbin-Watson stat	2.119871	Prob(F-statistic)	0.000000

Inverted AR Roots	.70	.53-.45i	.53+.45i	.12+.69i
	.12-.69i	-.35+.60i	-.35-.60i	-.66-.24i
	-.66+.24i			
Inverted MA Roots	.99			

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Dependent Variable: D(GAIN50)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 09/22/07 Time: 17:17
Sample (adjusted): 1996M12 2007M08
Included observations: 129 after adjustments
Convergence achieved after 53 iterations
Bollerslev-Wooldrige robust standard errors & covariance
MA backcast: OFF (Roots of MA process too large), Variance backcast: ON
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*GARCH(-1)

	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.069359	0.057641	-1.203285	0.2289
AR(4)	-0.208697	0.075234	-2.773969	0.0055
MA(1)	-1.041857	0.018250	-57.08921	0.0000
Variance Equation				
C	0.260779	1.657192	0.157362	0.8750
RESID(-1)^2	0.032509	0.051880	0.626625	0.5309
GARCH(-1)	0.948301	0.069508	13.64296	0.0000

R-squared	0.539959	Mean dependent var	-0.075535
Adjusted R-squared	0.521258	S.D. dependent var	17.81701
S.E. of regression	12.32780	Akaike info criterion	7.571968
Sum squared resid	18692.88	Schwarz criterion	7.704983
Log likelihood	-482.3920	F-statistic	28.87351
Durbin-Watson stat	2.151981	Prob(F-statistic)	0.000000

Inverted AR Roots	.48-.48i	.48-.48i	-.48+.48i	-.48+.48i
Inverted MA Roots	1.04			
Estimated MA process is noninvertible				

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Dependent Variable: D(GAIN50)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 10/11/07 Time: 17:47
Sample (adjusted): 1996M12 2007M07
Included observations: 128 after adjustments
Convergence achieved after 57 iterations
Bollerslev-Wooldrige robust standard errors & covariance
MA backcast: 1996M11, Variance backcast: ON
GARCH = C(4) + C(5)*RESID(-1)^2

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.011590	0.034994	0.331204	0.7405
AR(4)	-0.139321	0.090113	-1.546071	0.1221
MA(1)	-0.986507	0.010709	-92.12344	0.0000
Variance Equation				
C	115.6497	22.73902	5.085958	0.0000
RESID(-1)^2	0.303698	0.185330	1.638692	0.1013

R-squared	0.523358	Mean dependent var	0.070477
Adjusted R-squared	0.507858	S.D. dependent var	17.80937
S.E. of regression	12.49378	Akaike info criterion	7.903137
Sum squared resid	19199.63	Schwarz criterion	8.014544
Log likelihood	-500.8008	F-statistic	33.76387
Durbin-Watson stat	2.147985	Prob(F-statistic)	0.000000

Inverted AR Roots	.43+.43i	.43+.43i	-.43-.43i	-.43-.43i
Inverted MA Roots	.99			

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Dependent Variable: D(GAIN50)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 10/11/07 Time: 17:53
Sample (adjusted): 1996M12 2007M07
Included observations: 128 after adjustments
Convergence achieved after 35 iterations
Bollerslev-Wooldrige robust standard errors & covariance
MA backcast: 1996M11, Variance backcast: ON
GARCH = C(4) + C(5)*GARCH(-1)

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.028298	0.027254	1.038302	0.2991
AR(4)	-0.120004	0.088443	-1.356855	0.1748
MA(1)	-0.983808	0.015453	-63.66511	0.0000
Variance Equation				
C	139.8945	480.4448	0.291177	0.7709
GARCH(-1)	0.062915	3.040716	0.020691	0.9835

R-squared	0.525580	Mean dependent var	0.070477
Adjusted R-squared	0.510151	S.D. dependent var	17.80937
S.E. of regression	12.46463	Akaike info criterion	7.921944
Sum squared resid	19110.15	Schwarz criterion	8.033351
Log likelihood	-502.0044	F-statistic	34.06595
Durbin-Watson stat	2.153506	Prob(F-statistic)	0.000000

Inverted AR Roots	.42+.42i	.42+.42i	-.42-.42i	-.42-.42i
Inverted MA Roots	.98			

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ภาคผนวก ข

ผลการวิเคราะห์ ARIMA with GARCH

Dependent Variable: D(GAIN50)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 10/11/07 Time: 17:55
Sample (adjusted): 1996M12 2007M07
Included observations: 128 after adjustments
Convergence achieved after 138 iterations
Bollerslev-Wooldrige robust standard errors & covariance
MA backcast: OFF (Roots of MA process too large), Variance backcast: ON
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*RESID(-2)^2 + C(7)*GARCH(-1) + C(8)*GARCH(-2)

	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.029513	0.025155	-1.173288	0.2407
AR(4)	-0.353257	0.058872	-6.000452	0.0000
MA(1)	-1.056519	0.009770	-108.1419	0.0000
Variance Equation				
C	8.048829	3.174371	2.535567	0.0112
RESID(-1)^2	-0.019091	0.035341	-0.540187	0.5891
RESID(-2)^2	0.788364	0.205110	3.843627	0.0001
GARCH(-1)	0.673891	0.106168	6.347413	0.0000
GARCH(-2)	**-0.248736**	**0.051828**	**-4.799232**	**0.0000**

R-squared	0.536551	Mean dependent var	0.070477
Adjusted R-squared	0.509517	S.D. dependent var	17.80937
S.E. of regression	12.47271	Akaike info criterion	7.553202
Sum squared resid	18668.21	Schwarz criterion	7.731454
Log likelihood	-475.4049	F-statistic	19.84689
Durbin-Watson stat	2.273019	Prob(F-statistic)	0.000000

Inverted AR Roots	.55+.55i	.55+.55i	-.55+.55i	-.55-.55i
Inverted MA Roots	1.06			
Estimated MA process is noninvertible				

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ภาคผนวก ค

ผลการวิเคราะห์ TARCH

Dependent Variable: D(GAIN50)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 02/23/08 Time: 23:46
Sample (adjusted): 1996M12 2007M08
Included observations: 129 after adjustments
Convergence achieved after 68 iterations
Bollerslev-Wooldrige robust standard errors & covariance
MA backcast: OFF (Roots of MA process too large), Variance backcast: ON
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*RESID(-1)^2*(RESID(-1)<0) + C(7)*RESID(-2)^2*(RESID(-2)<0) + C(8)*RESID(-3)^2*(RESID(-3)<0) + C(9)*GARCH(-1) + C(10)*GARCH(-2)

	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.052588	0.022596	-2.327292	0.0199
AR(4)	-0.209983	0.058378	-3.596933	0.0003
MA(1)	-1.036834	0.008873	-116.8480	0.0000
Variance Equation				
C	-0.144723	1.346701	-0.107465	0.9144
RESID(-1)^2	0.109413	0.031835	3.436920	0.0006
RESID(-1)^2*(RESID(-1)<0)	-0.209934	0.054139	-3.877687	0.0001
RESID(-2)^2*(RESID(-2)<0)	0.026635	0.071161	0.374294	0.7082
RESID(-3)^2*(RESID(-3)<0)	0.283609	0.069032	4.108388	0.0000
GARCH(-1)	-0.133942	0.031907	-4.197851	0.0000
GARCH(-2)	0.923122	0.057640	16.01534	0.0000

R-squared	0.539931	Mean dependent var	-0.075535
Adjusted R-squared	0.505136	S.D. dependent var	17.81701
S.E. of regression	12.53365	Akaike info criterion	7.424772
Sum squared resid	18694.01	Schwarz criterion	7.646463
Log likelihood	-468.8978	F-statistic	15.51746
Durbin-Watson stat	2.163756	Prob(F-statistic)	0.000000

Inverted AR Roots	.48-.48i	.48-.48i	-.48+.48i	-.48+.48i
Inverted MA Roots	1.04			
	Estimated MA process is noninvertible			

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ภาคผนวก ง

ผลการวิเคราะห์ EGARCH

Dependent Variable: D(GAIN50)
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 03/12/08 Time: 10:38
Sample (adjusted): 1996M12 2007M08
Included observations: 129 after adjustments
Convergence achieved after 29 iterations
Bollerslev-Wooldrige robust standard errors & covariance
MA backcast: 1996M11, Variance backcast: ON
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +
C(6)*RESID(-1)/@SQRT(GARCH(-1)) + C(7)*RESID(-2)
/@SQRT(GARCH(-2)) + C(8)*LOG(GARCH(-1)) + C(9)
*LOG(GARCH(-2))

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.033315	0.022109	1.506851	0.1318
AR(4)	-0.129290	0.051095	-2.530387	0.0114
MA(1)	-0.988240	0.003998	-247.1547	0.0000
Variance Equation				
C(4)	16.31307	0.591916	27.55980	0.0000
C(5)	-0.015865	0.150999	-0.105066	0.9163
C(6)	0.324173	0.050727	6.390489	0.0000
C(7)	0.234232	0.081274	2.882005	0.0040
C(8)	-1.508077	0.027319	-55.20186	0.0000
C(9)	-0.999446	0.022452	-44.51439	0.0000

R-squared	0.528063	Mean dependent var	-0.075535
Adjusted R-squared	0.496600	S.D. dependent var	17.81701
S.E. of regression	12.64129	Akaike info criterion	7.614590
Sum squared resid	19176.27	Schwarz criterion	7.814111
Log likelihood	-482.1410	F-statistic	16.78388
Durbin-Watson stat	2.158535	Prob(F-statistic)	0.000000

Inverted AR Roots	.42+.42i	.42+.42i	-.42-.42i	-.42-.42i
Inverted MA Roots	.99			

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ประวัติผู้เขียน

ชื่อ	ว่าที่ร้อยตรีอนุศร ต่ายหัวดง
วันเดือนปีเกิด	30 เมษายน 2523
ประวัติการศึกษา	สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนหัวดงราชพรหมาภรณ์ จ.นครสวรรค์ ปีการศึกษา 2541 สำเร็จการศึกษาปริญญาตรี วิทยาศาสตรบัณฑิต สาขาเศรษฐศาสตรเกษตร มหาวิทยาลัยแม่โจ้ ปีการศึกษา 2545
ประสบการณ์	พนักงาน บริษัท ออร์เนส เอสดิโอ จำกัด ตำแหน่งพนักงานขายเครดิต ปัจจุบันรับตำแหน่งพนักงานธนกิจ ธนาคารไทยพาณิชย์ จำกัด (มหาชน)

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