ภาคผนวก

ภาคผนวก ก

ผลการคำนวณของหลักทรัพย์บริษัทเงินทุน สินเอเซีย จำกัด (มหาชน)

1. Unit root

1.1 Intercept

ADF Test Statistic	-18.71126	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ACL)

Method: Least Squares

Date: 04/24/03 Time: 13:08

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ACL(-1)	-1.152554	0.061597	-18.71126	0.0000
C	0.624957	0.726612	0.860097	0.3905

R-squared	0.576684	Mean dependent var	0.022422
Adjusted R-squared	0.575037	S.D. dependent var	17.92049
S.E. of regression	11.68223	Akaike info criterion	7.761706
Sum squared resid	35073.93	Schwarz criterion	7.789172
Log likelihood	-1003.141	F-statistic	350.1112
Durbin-Watson stat	1.963074	Prob(F-statistic)	0.000000

1.2 Trend and Intercept

ADF Test Statistic	-18.74494	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ACL)

Method: Least Squares

Date: 04/24/03 Time: 13:11

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ACL(-1)	-1.155897	0.061665	-18.74494	0.0000
C	1.960505	1.458925	1.343802	0.1802
@TREND(1/11/1998)	-0.010260	0.009720	-1.055603	0.2921

R-squared	0.578518	Mean dependent var	0.022422
Adjusted R-squared	0.575226	S.D. dependent var	17.92049
S.E. of regression	11.67963	Akaike info criterion	7.765085
Sum squared resid	34921.92	Schwarz criterion	7.806284
Log likelihood	-1002.579	F-statistic	175.6906
Durbin-Watson stat	1.964112	Prob(F-statistic)	0.000000

1.3 None

ADF Test Statistic	-18.70094	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ACL)

Method: Least Squares

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ACL(-1)	-1.150206	0.061505	-18.70094	0.0000

R-squared	0.575465	Mean dependent var	0.022422
Adjusted R-squared	0.575465	S.D. dependent var	17.92049
S.E. of regression	11.67633	Akaike info criterion	7.756859
Sum squared resid	35174.89	Schwarz criterion	7.770592
Log likelihood	-1003.513	Durbin-Watson stat	1.962703

2. Cointegration

Dependent Variable: ACL

Method: Least Squares

Sample: 1/11/1998 12/29/2002

Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.369062	0.581063	0.635150	0.5259
RM	1.488562	0.120751	12.32751	0.0000

R-squared	0.370682	Mean dependent var	0.514618
Adjusted R-squared	0.368242	S.D. dependent var	11.78541
S.E. of regression	9.367418	Akaike info criterion	7.320015
Sum squared resid	22639.12	Schwarz criterion	7.347404
Log likelihood	-949.6019	F-statistic	151.9674
Durbin-Watson stat	2.548672	Prob(F-statistic)	0.000000

3. Residual

ADF Test Statistic	-21.29378	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.275143	0.059883	-21.29378	0.0000

R-squared	0.637347	Mean dependent var	-0.023701
Adjusted R-squared	0.637347	S.D. dependent var	14.95465
S.E. of regression	9.005796	Akaike info criterion	7.237467
Sum squared resid	20924.93	Schwarz criterion	7.251200
Log likelihood	-936.2520	Durbin-Watson stat	1.946054

4. ECM

Dependent Variable: D(ACL)

Method: Least Squares

Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.019450	0.720150	0.027009	0.9785
D(RM(-1))	-0.258848	0.148384	-1.744450	0.0823
D(ACL(-1))	-0.338292	0.060552	-5.586765	0.0000
RESID01(-1)	-1.053994	0.101138	-10.42132	0.0000

R-squared	0.589463	Mean dependent var	-0.010631
Adjusted R-squared	0.584614	S.D. dependent var	17.94741
S.E. of regression	11.56719	Akaike info criterion	7.749605
Sum squared resid	33985.17	Schwarz criterion	7.804689
Log likelihood	-995.6990	F-statistic	121.5671
Durbin-Watson stat	2.113659	Prob(F-statistic)	0.000000

5. Tobit

Dependent Variable: ACL

Method: ML - Censored Normal (TOBIT)

Sample: 1/11/1998 12/29/2002

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: I

	Coefficient	Std. Error	z-Statistic	Prob.
C	7.149002	1.089035	6.564530	0.0000
RM	2.752333	0.240068	11.46479	0.0000
	Error Distribution			
SCALE:C(3)	13.41732	0.858005	15.63780	0.0000
Mean dependent var	0.514618	S.D. dependent var		11.78541
Akaike info criterion	4.778332	Schwarz criterion		4.819417
Log likelihood	-618.1832	Hannan-Quinn criter.		4.794849
Avg. log likelihood	-2.377628			
Left censored obs	0	Right censored obs		122
Uncensored obs	138	Total obs		260

Dependent Variable: ACL

Method: ML - Censored Normal (TOBIT)

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: II

	Coefficient	Std. Error	z-Statistic	Prob.
C	9.333414	0.841813	11.08728	0.0000
RM	0.368435	0.163907	2.247823	0.0246
	Error Distribution			
SCALE:C(3)	8.700857	0.512734	16.96955	0.0000
Mean dependent var	0.514618	S.D. dependent var		11.78541
Akaike info criterion	3.541299	Schwarz criterion		3.582384
Log likelihood	-457.3689	Hannan-Quinn criter.		3.557816
Avg. log likelihood	-1.759111			
Left censored obs	0	Right censored obs		138
Uncensored obs	122	Total obs		260

6. Switching regression

```
+------------------------------------------------------------------------+
| Switching Regressions                                                  |
| Ordinary    least squares regression    Weighting variable = none      |
| Dep. var. = ACL      Mean=   9.292605703   , S.D.=   9.825709836       |
| Model size: Observations =     122, Parameters =   2, Deg.Fr.=    120  |
| Residuals:  Sum of squares= 10605.41312    , Std.Dev.=         9.40098 |
| Fit:        R-squared=  .092149, Adjusted R-squared =          .08458 |
| Model test: F[  1,    120] =   12.18,    Prob value =          .00068 |
| Diagnostic: Log-L =   -445.4815, Restricted(b=0) Log-L =    -451.3787 |
|             LogAmemiyaPrCrt.=    4.498, Akaike Info. Crt.=     7.336 |
| OLS estimates of equation 1                                            |
+------------------------------------------------------------------------+
+---------+-------------+----------------+-------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+-------+---------+----------+
 Constant  7.115398671      1.0552648       6.743    .0000
 RM        .7038851993      .20168424       3.490    .0005  3.0931280

+------------------------------------------------------------------------+
| Switching Regressions                                                  |
| Ordinary    least squares regression    Weighting variable = none      |
| Dep. var. = ACL      Mean=  -7.245632868   , S.D.=   6.930889588       |
| Model size: Observations =     138, Parameters =   2, Deg.Fr.=    136  |
| Residuals:  Sum of squares= 5510.046700    , Std.Dev.=         6.36514 |
| Fit:        R-squared=  .162747, Adjusted R-squared =          .15659 |
| Model test: F[  1,    136] =   26.44,    Prob value =          .00000 |
| Diagnostic: Log-L =   -450.2217, Restricted(b=0) Log-L =    -462.4781 |
|             LogAmemiyaPrCrt.=    3.716, Akaike Info. Crt.=     6.554 |
| OLS estimates of equation 0                                            |
+------------------------------------------------------------------------+
+---------+-------------+----------------+-------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+-------+---------+----------+
 Constant -5.402319841      .60453327      -8.936    .0000
 RM        .7227895355      .10512261       6.876    .0000 -2.5502763

Normal exit from iterations. Exit status=0.

          +--------------------------------------------+
          | Switching Regressions                      |
          | Maximum Likelihood Estimates               |
          | Dependent variable                   ACL   |
          | Weighting variable                   ONE   |
          | Number of observations               260   |
          | Iterations completed                  12   |
          | Log likelihood function       -1075.552    |
          | Sample separation variable is I            |
          | ACL      is the minimum  of y*(1) and y*(0)|
          +--------------------------------------------+
+---------+-------------+----------------+-------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+-------+---------+----------+
         RHS for Regime 1
 Constant  7.149002118      1.0692297       6.686    .0000
 RM        2.752333239      .31006704       8.877    .0000  3.0931280
         RHS for Regime 2
 Constant  9.333413338      1.0902375       8.561    .0000
 RM        .3684346425      .15010340       2.455    .0141 -2.5502763
 Sigma(1)  13.41731844      .67648072      19.834    .0000
 Sigma(0)  8.700857207      .51410963      16.924    .0000
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ภาคผนวก ข

ผลการคำนวณของหลักทรัพย์บริษัทเงินทุน กรุงเทพธนาทร จำกัด (มหาชน)

1. Unit root

1.1 Intercept

ADF Test Statistic	-16.44460	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(BFIT)

Method: Least Squares

Date: 04/24/03 Time: 13:23

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BFIT(-1)	-1.017121	0.061851	-16.44460	0.0000
C	0.886455	0.717634	1.235247	0.2179

R-squared	0.512727	Mean dependent var	0.108142
Adjusted R-squared	0.510831	S.D. dependent var	16.47694
S.E. of regression	11.52408	Akaike info criterion	7.734446
Sum squared resid	34130.73	Schwarz criterion	7.761912
Log likelihood	-999.6108	F-statistic	270.4248
Durbin-Watson stat	1.938948	Prob(F-statistic)	0.000000

1.2 Trend and Intercept

ADF Test Statistic	-16.54256	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(BFIT)

Method: Least Squares

Date: 04/24/03 Time: 13:25

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BFIT(-1)	-1.023961	0.061899	-16.54256	0.0000
C	2.699644	1.440264	1.874409	0.0620
@TREND(1/11/1998)	-0.013907	0.009585	-1.450984	0.1480

R-squared	0.516701	Mean dependent var	0.108142
Adjusted R-squared	0.512926	S.D. dependent var	16.47694
S.E. of regression	11.49938	Akaike info criterion	7.733978
Sum squared resid	33852.33	Schwarz criterion	7.775177
Log likelihood	-998.5502	F-statistic	136.8466
Durbin-Watson stat	1.941198	Prob(F-statistic)	0.000000

1.3 None

ADF Test Statistic	-16.38215	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(BFIT)

Method: Least Squares

Date: 04/24/03 Time: 13:26

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BFIT(-1)	-1.012082	0.061780	-16.38215	0.0000

R-squared	0.509834	Mean dependent var	0.108142
Adjusted R-squared	0.509834	S.D. dependent var	16.47694
S.E. of regression	11.53582	Akaike info criterion	7.732644
Sum squared resid	34333.37	Schwarz criterion	7.746377
Log likelihood	-1000.377	Durbin-Watson stat	1.937562

2. Cointegration

Dependent Variable: BFIT

Method: Least Squares

Sample: 1/11/1998 12/29/2002

Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.673031	0.640910	1.050118	0.2946
RM	1.092773	0.133188	8.204731	0.0000

R-squared	0.206929	Mean dependent var	0.779885
Adjusted R-squared	0.203855	S.D. dependent var	11.57971
S.E. of regression	10.33222	Akaike info criterion	7.516074
Sum squared resid	27542.74	Schwarz criterion	7.543464
Log likelihood	-975.0897	F-statistic	67.31762
Durbin-Watson stat	2.232842	Prob(F-statistic)	0.000000

3. Residual

ADF Test Statistic	-18.25417	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID02)

Method: Least Squares

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID02(-1)	-1.121773	0.061453	-18.25417	0.0000

R-squared	0.563600	Mean dependent var	0.074363
Adjusted R-squared	0.563600	S.D. dependent var	15.43750
S.E. of regression	10.19810	Akaike info criterion	7.486134
Sum squared resid	26832.33	Schwarz criterion	7.499867
Log likelihood	-968.4543	Durbin-Watson stat	1.961793

4. ECM

Dependent Variable: D(BFIT)

Method: Least Squares

Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.033284	0.715880	-0.046494	0.9630
D(RM(-1))	-0.499954	0.131409	-3.804553	0.0002
D(BFIT(-1))	0.040932	0.069851	0.585991	0.5584
RESID01(-1)	-1.144939	0.104955	-10.90883	0.0000

R-squared	0.501462	Mean dependent var	-0.092163
Adjusted R-squared	0.495574	S.D. dependent var	16.18994
S.E. of regression	11.49857	Akaike info criterion	7.737705
Sum squared resid	33583.14	Schwarz criterion	7.792789
Log likelihood	-994.1639	F-statistic	85.16336
Durbin-Watson stat	2.053530	Prob(F-statistic)	0.000000

5. Tobit

Dependent Variable: BFIT

Method: ML - Censored Normal (TOBIT)

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: I

	Coefficient	Std. Error	z-Statistic	Prob.
C	10.02001	1.382986	7.245198	0.0000
RM	2.411659	0.280855	8.586838	0.0000
	Error Distribution			
SCALE:C(3)	16.13302	1.118461	14.42430	0.0000
Mean dependent var	0.779885	S.D. dependent var		11.57971
Akaike info criterion	4.427716	Schwarz criterion		4.468801
Log likelihood	-572.6031	Hannan-Quinn criter.		4.444233
Avg. log likelihood	-2.202320			
Left censored obs	0	Right censored obs		141
Uncensored obs	119	Total obs		260

Dependent Variable: BFIT

Method: ML - Censored Normal (TOBIT)

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: II

	Coefficient	Std. Error	z-Statistic	Prob.
C	8.464818	0.834033	10.14926	0.0000
RM	0.177467	0.166755	1.064239	0.2872
	Error Distribution			
SCALE:C(3)	10.03160	0.556000	18.04245	0.0000
Mean dependent var	0.779885	S.D. dependent var		11.57971
Akaike info criterion	4.250946	Schwarz criterion		4.292031
Log likelihood	-549.6230	Hannan-Quinn criter.		4.267463
Avg. log likelihood	-2.113935			
Left censored obs	0	Right censored obs		119
Uncensored obs	141	Total obs		260

6. Switching regression

```
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = BFIT     Mean=   7.340280499    , S.D.=   10.95230047    |
| Model size: Observations =     141, Parameters =   2, Deg.Fr.=    139 |
| Residuals:  Sum of squares= 16160.61888    , Std.Dev.=       10.78255 |
| Fit:        R-squared=  .037681, Adjusted R-squared =          .03076 |
| Model test: F[  1,    139] =    5.44,    Prob value =          .02109 |
| Diagnostic: Log-L =   -534.3512, Restricted(b=0) Log-L =   -537.0590 |
|             LogAmemiyaPrCrt.=    4.770, Akaike Info. Crt.=     7.608 |
| OLS estimates of equation 1                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+-------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+-------+---------+----------+
 Constant  6.153591833      .97062826       6.340   .0000
 RM        .5553368533      .16045073       3.461   .0005  2.1368808

+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = BFIT     Mean=  -6.993356627    , S.D.=   6.295663628    |
| Model size: Observations =     119, Parameters =   2, Deg.Fr.=    117 |
| Residuals:  Sum of squares= 4133.547517    , Std.Dev.=       5.94386 |
| Fit:        R-squared=  .116192, Adjusted R-squared =          .10864 |
| Model test: F[  1,    117] =   15.38,    Prob value =          .00015 |
| Diagnostic: Log-L =   -379.9459, Restricted(b=0) Log-L =   -387.2950 |
|             LogAmemiyaPrCrt.=    3.581, Akaike Info. Crt.=     6.419 |
| OLS estimates of equation 0                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+-------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+-------+---------+----------+
 Constant -6.137064178      .58319902     -10.523   .0000
 RM        .3693635565      .89690992E-01   4.118   .0000 -2.3182917

Normal exit from iterations. Exit status=0.

          +--------------------------------------------+
          | Switching Regressions                      |
          | Maximum Likelihood Estimates               |
          | Dependent variable                  BFIT   |
          | Weighting variable                  ONE    |
          | Number of observations              260    |
          | Iterations completed                 12    |
          | Log likelihood function       -1122.226    |
          | Sample separation variable is I            |
          | BFIT     is the minimum  of y*(1) and y*(0)|
          +--------------------------------------------+
+---------+-------------+----------------+-------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+-------+---------+----------+
         RHS for Regime 1
 Constant  10.02001082      1.3142909       7.624   .0000
 RM         2.411658916     .37639914       6.407   .0000  2.1368808
         RHS for Regime 2
 Constant  8.464817785      1.2940091       6.542   .0000
 RM         .1774668291     .12927432       1.373   .1698 -2.3182917
 Sigma(1)  16.13302475      1.6833818       9.584   .0000
 Sigma(0)  10.03160143      .56669538      17.702   .0000
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ภาคผนวก ค

ผลการคำนวณของหลักทรัพย์บริษัทเงินทุน เกียรตินาคิน จำกัด (มหาชน)

1. Unit root

1.1Intercept

ADF Test Statistic	-15.33628	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KK)

Method: Least Squares

Date: 04/24/03 Time: 13:38

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KK(-1)	-0.955698	0.062316	-15.33628	0.0000
C	1.090054	0.799868	1.362792	0.1741

R-squared	0.477856	Mean dependent var	0.002993
Adjusted R-squared	0.475824	S.D. dependent var	17.70997
S.E. of regression	12.82202	Akaike info criterion	7.947897
Sum squared resid	42251.86	Schwarz criterion	7.975362
Log likelihood	-1027.253	F-statistic	235.2014
Durbin-Watson stat	2.006454	Prob(F-statistic)	0.000000

1.1 Trend and Intercept

ADF Test Statistic	-15.31801	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KK)

Method: Least Squares

Date: 04/24/03 Time: 13:39

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KK(-1)	-0.956433	0.062438	-15.31801	0.0000
C	1.688887	1.604308	1.052720	0.2935
@TREND(1/11/1998)	-0.004600	0.010677	-0.430828	0.6670

R-squared	0.478234	Mean dependent var	0.002993
Adjusted R-squared	0.474158	S.D. dependent var	17.70997
S.E. of regression	12.84238	Akaike info criterion	7.954894
Sum squared resid	42221.25	Schwarz criterion	7.996093
Log likelihood	-1027.159	F-statistic	117.3209
Durbin-Watson stat	2.006334	Prob(F-statistic)	0.000000

1.2 None

ADF Test Statistic	-15.25030	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KK)

Method: Least Squares

Date: 04/24/03 Time: 13:39

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KK(-1)	-0.948173	0.062174	-15.25030	0.0000

R-squared	0.474083	Mean dependent var	0.002993
Adjusted R-squared	0.474083	S.D. dependent var	17.70997
S.E. of regression	12.84330	Akaike info criterion	7.947375
Sum squared resid	42557.19	Schwarz criterion	7.961108
Log likelihood	-1028.185	Durbin-Watson stat	2.008194

2. Cointegration

Dependent Variable: KK

Method: Least Squares

Sample: 1/11/1998 12/29/2002

Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.994981	0.666758	1.492267	0.1369
RM	1.442769	0.138560	10.41261	0.0000

R-squared	0.295895	Mean dependent var	1.136058
Adjusted R-squared	0.293166	S.D. dependent var	12.78516
S.E. of regression	10.74893	Akaike info criterion	7.595151
Sum squared resid	29809.17	Schwarz criterion	7.622541
Log likelihood	-985.3697	F-statistic	108.4225
Durbin-Watson stat	2.142048	Prob(F-statistic)	0.000000

3. Residual

ADF Test Statistic	-16.04304	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 06/01/03 Time: 22:38

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.995535	0.062054	-16.04304	0.0000

R-squared	0.499388	Mean dependent var	-0.070501
Adjusted R-squared	0.499388	S.D. dependent var	16.09818
S.E. of regression	11.39010	Akaike info criterion	7.707219
Sum squared resid	33471.45	Schwarz criterion	7.720952
Log likelihood	-997.0849	Durbin-Watson stat	1.991062

4. ECM

Dependent Variable: D(KK)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.060736	0.831883	-0.073011	0.9419
D(KK(-1))	-0.011886	0.072817	-0.163237	0.8705
D(RM(-1))	-0.683852	0.161979	-4.221870	0.0000
RESID01(-1)	-1.012964	0.103043	-9.830459	0.0000

R-squared	0.457887	Mean dependent var	-0.024862
Adjusted R-squared	0.451484	S.D. dependent var	18.04147
S.E. of regression	13.36185	Akaike info criterion	8.038066
Sum squared resid	45348.89	Schwarz criterion	8.093151
Log likelihood	-1032.911	F-statistic	71.51244
Durbin-Watson stat	2.071975	Prob(F-statistic)	0.000000

5. Tobit

Dependent Variable: KK

Method: ML - Censored Normal (TOBIT)

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: I

	Coefficient	Std. Error	z-Statistic	Prob.
C	12.63340	1.567758	8.058260	0.0000
RM	3.500977	0.335720	10.42825	0.0000
	Error Distribution			
SCALE:C(3)	16.44130	1.161553	14.15459	0.0000
Mean dependent var	1.136058	S.D. dependent var		12.78516
Akaike info criterion	4.179988	Schwarz criterion		4.221073
Log likelihood	-540.3985	Hannan-Quinn criter.		4.196505
Avg. log likelihood	-2.078456			
Left censored obs	0	Right censored obs		147
Uncensored obs	113	Total obs		260

Dependent Variable: KK

Method: ML - Censored Normal (TOBIT)

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: II

	Coefficient	Std. Error	z-Statistic	Prob.
C	8.965770	0.871414	10.28876	0.0000
RM	0.290701	0.175973	1.651959	0.0985
	Error Distribution			
SCALE:C(3)	10.35823	0.566087	18.29795	0.0000
Mean dependent var	1.136058	S.D. dependent var		12.78516
Akaike info criterion	4.433910	Schwarz criterion		4.474995
Log likelihood	-573.4083	Hannan-Quinn criter.		4.450427
Avg. log likelihood	-2.205417			
Left censored obs	0	Right censored obs		113
Uncensored obs	147	Total obs		260

6. Switching regression

```
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = KK       Mean=   8.409181947    , S.D.=   11.31919219    |
| Model size: Observations =     147, Parameters =   2, Deg.Fr.=    145 |
| Residuals:  Sum of squares= 17676.33229    , Std.Dev.=       11.04109 |
| Fit:        R-squared=  .055051, Adjusted R-squared =          .04853 |
| Model test: F[  1,    145] =    8.45,    Prob value =          .00423 |
| Diagnostic: Log-L =   -560.6158, Restricted(b=0) Log-L =    -564.7777 |
|             LogAmemiyaPrCrt.=    4.817, Akaike Info. Crt.=      7.655 |
| OLS estimates of equation 1                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant  6.834916426      .99204352        6.890   .0000
 RM        .6412282803      .16028901        4.000   .0001  2.4550781
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = KK       Mean=  -8.325438490    , S.D.=   7.157863051    |
| Model size: Observations =     113, Parameters =   2, Deg.Fr.=    111 |
| Residuals:  Sum of squares= 4685.395653    , Std.Dev.=        6.49698 |
| Fit:        R-squared=  .183490, Adjusted R-squared =          .17613 |
| Model test: F[  1,    111] =   24.94,    Prob value =          .00000 |
| Diagnostic: Log-L =   -370.7923, Restricted(b=0) Log-L =    -382.2457 |
|             LogAmemiyaPrCrt.=    3.760, Akaike Info. Crt.=      6.598 |
| OLS estimates of equation 0                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant -5.907773292      .68780593       -8.589   .0000
 RM        .8143611286      .10626705        7.663   .0000 -2.9687876
Normal exit from iterations. Exit status=0.

          +-------------------------------------------+
          | Switching Regressions                     |
          | Maximum Likelihood Estimates              |
          | Dependent variable                   KK   |
          | Weighting variable                  ONE   |
          | Number of observations              260   |
          | Iterations completed                 13   |
          | Log likelihood function       -1113.807   |
          | Sample separation variable is I           |
          | KK       is the minimum  of y*(1) and y*(0) |
          +-------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
          RHS for Regime 1
 Constant  12.63340275      1.5752052        8.020   .0000
 RM         3.500976712     .43665245        8.018   .0000  2.4550781
          RHS for Regime 2
 Constant  8.965769676      1.3552404        6.616   .0000
 RM        .2907006179      .16139771        1.801   .0717 -2.9687876
 Sigma(1)  16.44130022      1.1790392       13.945   .0000
 Sigma(0)  10.35822824      .42938408       24.123   .0000
```

ภาคผนวก ง

ผลการคำนวณของหลักทรัพย์บริษัทเงินทุน เกียรตินาคิน จำกัด (มหาชน)

1. Unit root

1.1 Intercept

ADF Test Statistic	-14.99348	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NFS)

Method: Least Squares

Date: 04/24/03 Time: 13:52

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NFS(-1)	-0.930627	0.062069	-14.99348	0.0000
C	0.826473	0.735526	1.123649	0.2622

R-squared	0.466589	Mean dependent var	0.058295
Adjusted R-squared	0.464513	S.D. dependent var	16.13680
S.E. of regression	11.80842	Akaike info criterion	7.783195
Sum squared resid	35835.78	Schwarz criterion	7.810661
Log likelihood	-1005.924	F-statistic	224.8044
Durbin-Watson stat	1.999236	Prob(F-statistic)	0.000000

1.2 Trend and Intercept

ADF Test Statistic	-14.98354	1% Critical Value*	-3.9968
		5% Critical Value	-3.4285
		10% Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NFS)

Method: Least Squares

Date: 04/24/03 Time: 13:53

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NFS(-1)	-0.931673	0.062180	-14.98354	0.0000
C	1.543703	1.476433	1.045563	0.2967
@TREND(1/11/1998)	-0.005511	0.009831	-0.560506	0.5756

R-squared	0.467242	Mean dependent var	0.058295
Adjusted R-squared	0.463080	S.D. dependent var	16.13680
S.E. of regression	11.82421	Akaike info criterion	7.789691
Sum squared resid	35791.85	Schwarz criterion	7.830889
Log likelihood	-1005.765	F-statistic	112.2593
Durbin-Watson stat	1.999290	Prob(F-statistic)	0.000000

1.3 None

ADF Test Statistic	-14.94392	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NFS)

Method: Least Squares

Date: 04/24/03 Time: 13:53

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NFS(-1)	-0.925769	0.061950	-14.94392	0.0000

R-squared	0.463968	Mean dependent var	0.058295
Adjusted R-squared	0.463968	S.D. dependent var	16.13680
S.E. of regression	11.81443	Akaike info criterion	7.780374
Sum squared resid	36011.83	Schwarz criterion	7.794107
Log likelihood	-1006.558	Durbin-Watson stat	2.000573

2. Cointegration

Dependent Variable: NFS

Method: Least Squares

Sample: 1/11/1998 12/29/2002

Included observations: 260

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.645983	0.466909	1.383533	0.1677
RM	1.893579	0.097029	19.51564	0.0000

R-squared	0.596156	Mean dependent var	0.831142
Adjusted R-squared	0.594590	S.D. dependent var	11.82175
S.E. of regression	7.527120	Akaike info criterion	6.882565
Sum squared resid	14617.64	Schwarz criterion	6.909954
Log likelihood	-892.7334	F-statistic	380.8601
Durbin-Watson stat	1.956375	Prob(F-statistic)	0.000000

3. Residual

ADF Test Statistic	-15.71923	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID02)

Method: Least Squares

Date: 04/25/03 Time: 23:34

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID02(-1)	-0.978421	0.062244	-15.71923	0.0000

R-squared	0.489204	Mean dependent var	-0.000402
Adjusted R-squared	0.489204	S.D. dependent var	10.52833
S.E. of regression	7.524593	Akaike info criterion	6.878084
Sum squared resid	14607.83	Schwarz criterion	6.891817
Log likelihood	-889.7119	Durbin-Watson stat	1.997695

4. ECM

Dependent Variable: D(NFS)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.023868	0.744912	-0.032041	0.9745
D(NFS(-1))	-0.011265	0.099350	-0.113391	0.9098
D(RM(-1))	-1.045355	0.226312	-4.619083	0.0000
RESID01(-1)	-1.169466	0.139581	-8.378389	0.0000

R-squared	0.451343	Mean dependent var	-0.058239
Adjusted R-squared	0.444862	S.D. dependent var	16.05860
S.E. of regression	11.96487	Akaike info criterion	7.817209
Sum squared resid	36362.16	Schwarz criterion	7.872294
Log likelihood	-1004.420	F-statistic	69.64941
Durbin-Watson stat	2.206624	Prob(F-statistic)	0.000000

5. Tobit

Dependent Variable: NFS

Method: ML - Censored Normal (TOBIT)

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: I

	Coefficient	Std. Error	z-Statistic	Prob.
C	8.077965	0.981183	8.232881	0.0000
RM	3.265516	0.213646	15.28470	0.0000
	Error Distribution			
SCALE:C(3)	10.61343	0.710858	14.93045	0.0000
Mean dependent var	0.831142	S.D. dependent var		11.82175
Akaike info criterion	3.980670	Schwarz criterion		4.021755
Log likelihood	-514.4871	Hannan-Quinn criter.		3.997187
Avg. log likelihood	-1.978797			
Left censored obs	0	Right censored obs		139
Uncensored obs	121	Total obs		260

Dependent Variable: NFS

Method: ML - Censored Normal (TOBIT)

Included observations: 260

Left censoring (indicator) series: 0

Right censoring (indicator) series: II

	Coefficient	Std. Error	z-Statistic	Prob.
C	6.602577	0.670275	9.850553	0.0000
RM	1.031025	0.134883	7.643862	0.0000
	Error Distribution			
SCALE:C(3)	7.711941	0.439993	17.52741	0.0000
Mean dependent var	0.831142	S.D. dependent var		11.82175
Akaike info criterion	3.931377	Schwarz criterion		3.972461
Log likelihood	-508.0790	Hannan-Quinn criter.		3.947893
Avg. log likelihood	-1.954150			
Left censored obs	0	Right censored obs		121
Uncensored obs	139	Total obs		260

6. Switching regression

```
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = NFS      Mean=   8.260465092    , S.D.=   10.18393576    |
| Model size: Observations =     139, Parameters =   2, Deg.Fr.=    137 |
| Residuals:  Sum of squares= 9213.838373    , Std.Dev.=        8.20087 |
| Fit:        R-squared=  .356231, Adjusted R-squared =         .35153 |
| Model test: F[  1,    137] =   75.81,    Prob value =         .00000 |
| Diagnostic: Log-L =   -488.7146, Restricted(b=0) Log-L =   -519.3235 |
|             LogAmemiyaPrCrt.=    4.223, Akaike Info. Crt.=      7.061 |
| OLS estimates of equation 1                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant  4.637954740      .78658040        5.896   .0000
 RM        1.256952650      .12742620        9.864   .0000  2.8819784


+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = NFS      Mean=  -7.703368689    , S.D.=   6.707234880    |
| Model size: Observations =     121, Parameters =   2, Deg.Fr.=    119 |
| Residuals:  Sum of squares= 3240.453218    , Std.Dev.=        5.21830 |
| Fit:        R-squared=  .399743, Adjusted R-squared =         .39470 |
| Model test: F[  1,    119] =   79.25,    Prob value =         .00000 |
| Diagnostic: Log-L =   -370.5961, Restricted(b=0) Log-L =   -401.4751 |
|             LogAmemiyaPrCrt.=    3.321, Akaike Info. Crt.=      6.159 |
| OLS estimates of equation 0                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant -3.534915967      .54955550       -6.432   .0000
 RM        1.344405883      .89474599E-01   15.026   .0000 -3.1005910

Normal exit from iterations. Exit status=0.

            +-------------------------------------------+
            | Switching Regressions                     |
            | Maximum Likelihood Estimates              |
            | Dependent variable                  NFS   |
            | Weighting variable                  ONE   |
            | Number of observations              260   |
            | Iterations completed                 12   |
            | Log likelihood function       -1022.566   |
            | Sample separation variable is I           |
            | NFS      is the minimum  of y*(1) and y*(0) |
            +-------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
          RHS for Regime 1
 Constant  8.077964607      .97146508        8.315   .0000
 RM        3.265515779      .22340126       14.617   .0000  2.8819784
          RHS for Regime 2
 Constant  6.602576977      1.0019761        6.590   .0000
 RM        1.031024773      .14441923        7.139   .0000 -3.1005910
 Sigma(1)  10.61343017      .68134878       15.577   .0000
 Sigma(0)  7.711940852      .35802634       21.540   .0000
```

ภาคผนวก จ

ผลการคำนวณของตลาดหลักทรัพย์แห่งประเทศไทย

1. Unit root

1.1 Intercept

ADF Test Statistic	-15.00849	1% Critical Value*	-3.4572
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RM)

Method: Least Squares

Date: 04/24/03 Time: 14:07

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.931134	0.062040	-15.00849	0.0000
C	0.115740	0.299033	0.387047	0.6990

R-squared	0.467087	Mean dependent var	0.030985
Adjusted R-squared	0.465013	S.D. dependent var	6.578405
S.E. of regression	4.811629	Akaike info criterion	5.987641
Sum squared resid	5950.007	Schwarz criterion	6.015106
Log likelihood	-773.3995	F-statistic	225.2548
Durbin-Watson stat	1.990283	Prob(F-statistic)	0.000000

1.2 Trend and Intercept

ADF Test Statistic	-14.98103	1%	Critical Value*	-3.9968
		5%	Critical Value	-3.4285
		10%	Critical Value	-3.1373

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RM)

Method: Least Squares

Date: 04/24/03 Time: 14:08

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.931197	0.062158	-14.98103	0.0000
C	0.211463	0.600887	0.351918	0.7252
@TREND(1/11/1998)	-0.000736	0.004006	-0.183774	0.8543

R-squared	0.467157	Mean dependent var	0.030985
Adjusted R-squared	0.462994	S.D. dependent var	6.578405
S.E. of regression	4.820700	Akaike info criterion	5.995231
Sum squared resid	5949.222	Schwarz criterion	6.036429
Log likelihood	-773.3824	F-statistic	112.2208
Durbin-Watson stat	1.990394	Prob(F-statistic)	0.000000

1.3 None

ADF Test Statistic	-15.02864	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RM)

Method: Least Squares

Date: 04/24/03 Time: 14:09

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

Included observations: 259 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.930681	0.061927	-15.02864	0.0000

R-squared	0.466776	Mean dependent var	0.030985
Adjusted R-squared	0.466776	S.D. dependent var	6.578405
S.E. of regression	4.803695	Akaike info criterion	5.980501
Sum squared resid	5953.475	Schwarz criterion	5.994234
Log likelihood	-773.4749	Durbin-Watson stat	1.990204

ประวัติผู้เขียน

ชื่อ	นางสาวสุธีรา เอื้ออัมพร
วัน เดือน ปี เกิด	19 มีนาคม 2523
ประวัติการศึกษา	สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนมงฟอร์ตวิทยาลัย เชียงใหม่ ปีการศึกษา 2539 สำเร็จการศึกษาปริญญาวิศวกรรมศาสตรบัณฑิต สาขาวิชาวิศวกรรมอุตสาหการ มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2543