



Appendices

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved



Appendix A

The Bayesian Approach is used to analyze risk (η)
in Capital Asset Pricing Model by R software.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved

Appendix A-1: Quantiles for each variable

	Agro & Food	Cons Products	Financial	Industrial	Prop & Cons	Resources	Services	Technology
2.50%	-0.0218	-0.0490	-0.0445	-0.0910	-0.0826	0.0037	-0.0319	-0.0594
25%	0.0022	-0.0294	-0.0191	-0.0603	-0.0596	0.0318	-0.0116	-0.0211
50%	0.0159	-0.0183	-0.0047	-0.0427	-0.0466	0.0478	0.0000	0.0007
75%	0.0287	-0.0079	0.0088	-0.0264	-0.0344	0.0626	0.0107	0.0210
97.50%	0.0523	0.0114	0.0337	0.0038	-0.0119	0.0902	0.0307	0.0586
2.50%	0.4539	0.2444	1.0627	0.8309	0.9234	1.1594	0.6537	0.9287
25%	0.4697	0.2573	1.0794	0.8512	0.9385	1.1779	0.6671	0.9539
50%	0.4781	0.2642	1.0883	0.8619	0.9465	1.1877	0.6742	0.9672
75%	0.4860	0.2706	1.0966	0.8720	0.9540	1.1969	0.6808	0.9798
97.50%	0.5013	0.2831	1.1127	0.8916	0.9686	1.2148	0.6938	1.0042
2.50%	0.4071	0.2705	0.4538	0.6672	0.3704	0.5559	0.2906	1.0334
25%	0.4300	0.2857	0.4793	0.7047	0.3912	0.5871	0.3069	1.0915
50%	0.4415	0.2934	0.4922	0.7236	0.4017	0.6029	0.3152	1.1208
75%	0.4537	0.3015	0.5058	0.7436	0.4128	0.6196	0.3239	1.1517
97.50%	0.4759	0.3163	0.5305	0.7800	0.4330	0.6499	0.3397	1.2081

Source: calculation

Appendix A-2: Test Alpha Value

	Agro & Food	Cons Products	Financial	Industrial	Prop & Cons	Resources	Services	Technology
Mean	-0.9847	-1.0188	-1.0053	-1.0435	-1.0472	-0.9530	-1.0006	-1.0003
SD	0.0192	0.0157	0.0203	0.0246	0.0183	0.0225	0.0162	0.0306
Naïve SE	0.0006	0.0005	0.0006	0.0008	0.0006	0.0007	0.0005	0.0010
Time series SE	0.0007	0.0005	0.0007	0.0008	0.0006	0.0008	0.0006	0.0010
2.50%	-1.0218	-1.0490	-1.0445	-1.0910	-1.0830	-0.9963	-1.0319	-1.0594
25%	-0.9978	-1.0294	-1.0191	-1.0602	-1.0600	-0.9683	-1.0116	-1.0211
50%	-0.9841	-1.0183	-1.0047	-1.0427	-1.0470	-0.9522	-1.0000	-0.9993
75%	-0.9713	-1.0079	-0.9912	-1.0264	-1.0340	-0.9374	-0.9893	-0.9790
97.50%	-0.9477	-0.9886	-0.9663	-0.9962	-1.0218	-0.9098	-0.9693	-0.9414

Source: calculation

Appendix A-3: Test Beta Value

	Agro & Food	Cons Products	Financial	Industrial	Prop & Cons	Resources	Services	Technology
Mean	-0.5223	-0.7361	0.0879	-0.1386	-0.0539	0.1872	-0.3261	-0.0334
SD	0.0120	0.0098	0.0127	0.0154	0.0115	0.0140	0.0102	0.0191
Naïve SE	0.0004	0.0003	0.0004	0.0005	0.0004	0.0004	0.0003	0.0006
Time series SE	0.0004	0.0003	0.0004	0.0005	0.0004	0.0004	0.0003	0.0006
2.50%	-0.5461	-0.7556	0.0627	-0.1691	-0.0766	0.1594	-0.3463	-0.0713
25%	-0.5303	-0.7427	0.0794	-0.1488	-0.0615	0.1779	-0.3329	-0.0461
50%	-0.5219	-0.7358	0.0883	-0.1381	-0.0535	0.1877	-0.3258	-0.0328
75%	-0.5140	-0.7294	0.0966	-0.1280	-0.0460	0.1969	-0.3192	-0.0202
97.50%	-0.4987	-0.7169	0.1127	-0.1084	-0.0314	0.2148	-0.3062	0.0042

Source: calculation

Appendix A-4: Test Sigma Value

	Agro & Food	Cons Products	Financial	Industrial	Prop & Cons	Resources	Services	Technology
Mean	-0.5583	-0.7065	-0.5076	-0.2760	-0.5981	-0.3968	-0.6847	0.1213
SD	0.0177	0.0118	0.0197	0.0290	0.0161	0.0242	0.0126	0.0449
Naïve SE	0.0006	0.0004	0.0006	0.0009	0.0005	0.0008	0.0004	0.0014
Time series SE	0.0006	0.0004	0.0007	0.0010	0.0005	0.0008	0.0004	0.0015
2.50%	-0.5929	-0.7295	-0.5462	-0.3328	-0.6296	-0.4441	-0.7094	0.0334
25%	-0.5700	-0.7143	-0.5207	-0.2953	-0.6088	-0.4129	-0.6931	0.0915
50%	-0.5585	-0.7066	-0.5078	-0.2764	-0.5983	-0.3971	-0.6848	0.1208
75%	-0.5463	-0.6985	-0.4942	-0.2564	-0.5872	-0.3805	-0.6761	0.1517
97.50%	-0.5241	-0.6837	-0.4695	-0.2200	-0.5670	-0.3501	-0.6603	0.2081

Source: calculation

Appendix A-5: Bayesian Code that used in R software

```

##install.packages("MCMCpack")

library(MCMCpack)

library(lattice)

library(MASS)

##read data

data1=read.table(file='D:\\Thesis\\.....\\Agriculture and Food.txt')

##name data

R....=matrix(data1[,2])

RThai=matrix(data1[,1])

## scatterplot of (R....,RThai)

win.graph()

plot(R....,RThai,main="scatterplot of (R....,RThai)")

## svar of R.... on RThai

svar<-(summary(lm(R....~RThai))$sigma)^2

##MCMC regress with burn-in 2000

posterior<-MCMCregress(R....~RThai, burnin=2000,b0=c(0,1),B0=c(1e-2), c0=5,
d0=svar/3, mcmc=1000, verbose=200)

##trace plot and histogam

win.graph()

plot(posterior)

```

```
##test of MCMC  
raftery.diag(posterior)
```

```
##output of estimation  
summary(posterior)
```

```
# Testing Hypothesis H0: beta=-1 alpha
```

```
beta1h<-posterior[,1]-1
```

```
summary(beta1h)
```

```
# Testing Hypothesis H0: beta=-1 beta
```

```
beta1h<-posterior[,2]-1
```

```
summary(beta1h)
```

```
# Testing Hypothesis H0: beta=-1 sigma
```

```
beta1h<-posterior[,3]-1
```

```
summary(beta1h)
```

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved



Appendix B

The Ordinary Least Square (OLS) is used to analyze risk (η)
in Capital Asset Pricing Model by Eview program.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved

Appendix B-1: Ordinary Least Square equation of each asset group index

Dependent Variable: RAGRO

Method: Least Squares

Date: 02/14/09 Time: 16:22

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.014748	0.018807	0.784164	0.4331
RTHI	-0.477976	0.012173	39.26653	0.0000
R-squared	0.552468	Mean dependent var		-0.007536
Adjusted R-squared	0.552109	S.D. dependent var		0.993508
S.E. of regression	0.664902	Akaike info criterion		2.023242
Sum squared resid	552.1754	Schwarz criterion		2.031446
Log likelihood	-1263.538	Hannan-Quinn criter.		2.026326
F-statistic	1541.860	Durbin-Watson stat		1.990730
Prob(F-statistic)	0.000000			

Source: calculation

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
 Copyright© by Chiang Mai University
 All rights reserved

Appendix B-2: Ordinary Least Square equation of each asset group index

Dependent Variable: RCONS

Method: Least Squares

Date: 02/14/09 Time: 17:11

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.019228	0.015331	-1.254178	0.2100
RTHI	0.264072	0.009923	26.61229	0.0000
R-squared	0.361848	Mean dependent var		-0.031540
Adjusted R-squared	0.361337	S.D. dependent var		0.678233
S.E. of regression	0.542019	Akaike info criterion		1.614566
Sum squared resid	366.9371	Schwarz criterion		1.622770
Log likelihood	-1007.911	Hannan-Quinn criter.		1.617650
F-statistic	708.2139	Durbin-Watson stat		2.251151
Prob(F-statistic)	0.000000			

Source: calculation

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
 Copyright© by Chiang Mai University
 All rights reserved

Appendix B-3: Ordinary Least Square equation of each asset group index

Dependent Variable: RFIN

Method: Least Squares

Date: 02/14/09 Time: 17:13

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.005917	0.019858	-0.297993	0.7658
RTHI	1.088126	0.012852	84.66342	0.0000
R-squared	0.851608	Mean dependent var		-0.056648
Adjusted R-squared	0.851489	S.D. dependent var		1.821707
S.E. of regression	0.702033	Akaike info criterion		2.131925
Sum squared resid	615.5701	Schwarz criterion		2.140129
Log likelihood	-1331.519	Hannan-Quinn criter.		2.135009
F-statistic	7167.894	Durbin-Watson stat		1.826509
Prob(F-statistic)	0.000000			

Source: calculation

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
 Copyright© by Chiang Mai University
 All rights reserved

Appendix B-4: Ordinary Least Square equation of each asset group index

Dependent Variable: RINDUS

Method: Least Squares

Date: 02/14/09 Time: 17:14

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.044224	0.024077	-1.836729	0.0665
RTHI	0.861757	0.015584	55.29925	0.0000
R-squared	0.710007	Mean dependent var		-0.084400
Adjusted R-squared	0.709775	S.D. dependent var		1.580056
S.E. of regression	0.851216	Akaike info criterion		2.517295
Sum squared resid	904.9857	Schwarz criterion		2.525499
Log likelihood	-1572.568	Hannan-Quinn criter.		2.520379
F-statistic	3058.007	Durbin-Watson stat		1.859227
Prob(F-statistic)	0.000000			

Source: calculation

Appendix B-5: Ordinary Least Square equation of each asset group index

Dependent Variable: RPROP

Method: Least Squares

Date: 02/14/09 Time: 17:16

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.047690	0.017939	-2.658488	0.0079
RTHI	0.946343	0.011611	81.50711	0.0000
R-squared	0.841747	Mean dependent var		-0.091810
Adjusted R-squared	0.841620	S.D. dependent var		1.593591
S.E. of regression	0.634201	Akaike info criterion		1.928697
Sum squared resid	502.3618	Schwarz criterion		1.936901
Log likelihood	-1204.400	Hannan-Quinn criter.		1.931781
F-statistic	6643.409	Durbin-Watson stat		1.960307
Prob(F-statistic)	0.000000			

Source: calculation

Appendix B-6: Ordinary Least Square equation of each asset group index

Dependent Variable: RRES

Method: Least Squares

Date: 02/14/09 Time: 17:18

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.046374	0.021977	2.110065	0.0351
RTHI	1.187525	0.014224	83.48488	0.0000
R-squared	0.848030	Mean dependent var		-0.008990
Adjusted R-squared	0.847908	S.D. dependent var		1.992306
S.E. of regression	0.776978	Akaike info criterion		2.334789
Sum squared resid	754.0152	Schwarz criterion		2.342993
Log likelihood	-1458.410	Hannan-Quinn criter.		2.337873
F-statistic	6969.726	Durbin-Watson stat		1.782280
Prob(F-statistic)	0.000000			

Source: calculation

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
 Copyright© by Chiang Mai University
 All rights reserved

Appendix B-7: Ordinary Least Square equation of each asset group index

Dependent Variable: RSER

Method: Least Squares

Date: 02/14/09 Time: 17:20

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001015	0.015890	-0.063891	0.9491
RTHI	0.674094	0.010284	65.54574	0.0000
R-squared	0.774762	Mean dependent var		-0.032442
Adjusted R-squared	0.774582	S.D. dependent var		1.183192
S.E. of regression	0.561759	Akaike info criterion		1.686109
Sum squared resid	394.1504	Schwarz criterion		1.694313
Log likelihood	-1052.661	Hannan-Quinn criter.		1.689193
F-statistic	4296.243	Durbin-Watson stat		1.943937
Prob(F-statistic)	0.000000			

Source: calculation

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
 Copyright© by Chiang Mai University
 All rights reserved

Appendix B-8: Ordinary Least Square equation of each asset group index

Dependent Variable: RTECH

Method: Least Squares

Date: 02/14/09 Time: 17:21

Sample: 1 1251

Included observations: 1251

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001163	0.029965	-0.038809	0.9690
RTHI	0.967042	0.019394	49.86237	0.0000
R-squared	0.665619	Mean dependent var		-0.046248
Adjusted R-squared	0.665351	S.D. dependent var		1.831267
S.E. of regression	1.059367	Akaike info criterion		2.954818
Sum squared resid	1401.702	Schwarz criterion		2.963023
Log likelihood	-1846.239	Hannan-Quinn criter.		2.957902
F-statistic	2486.256	Durbin-Watson stat		2.024665
Prob(F-statistic)	0.000000			

Source: calculation

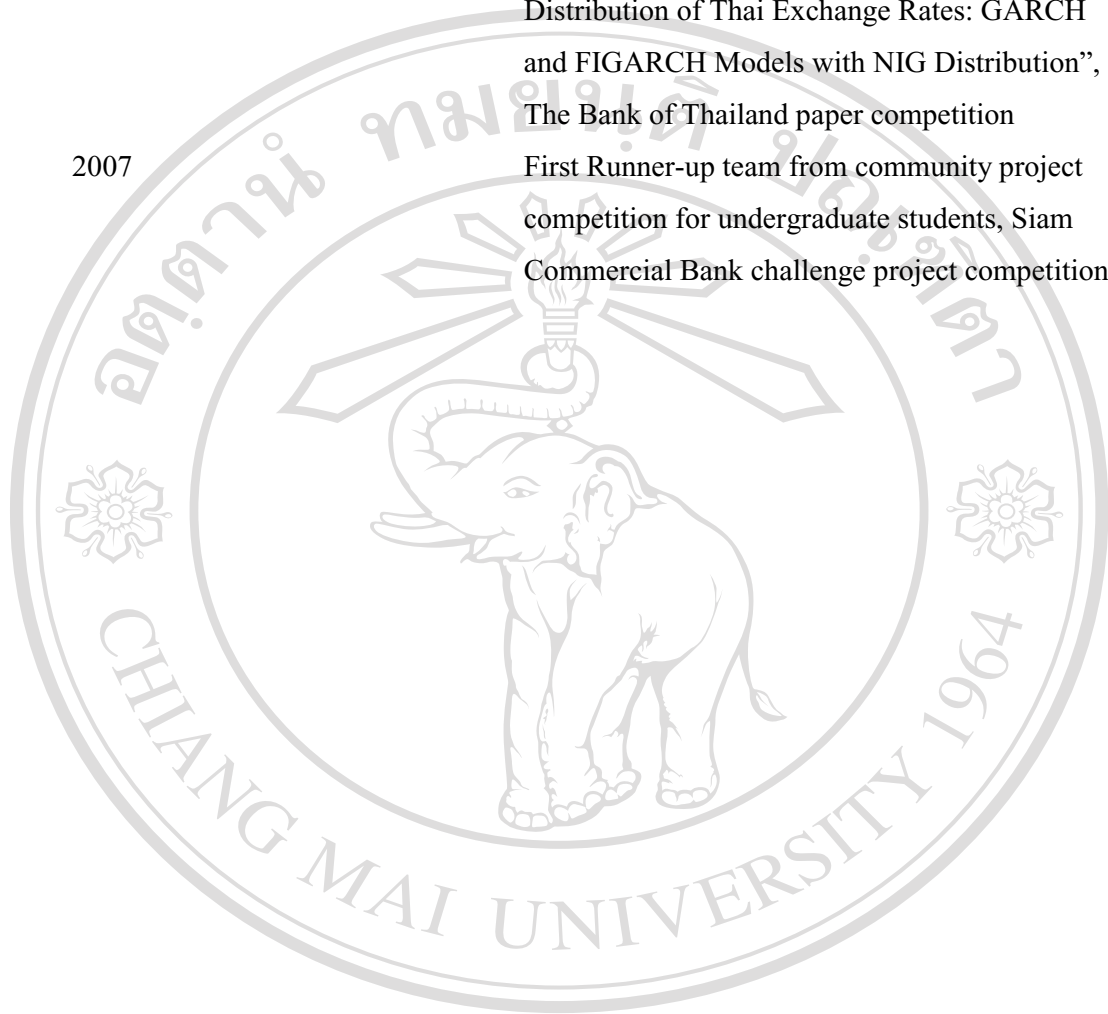
ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
 Copyright© by Chiang Mai University
 All rights reserved

CURRICULUM VITAE

Name	Chaiwat Sowcharoensuk
Born	April 18 th 1985 in Kamphaengphet, Thailand
Academic degrees	
1991-2003	The Princes' Royal College, Chiang Mai
2003-2007	Bachelor of Economics, Chiang Mai University
Scholarship:	
2007-present	The Ryoichi Sasakawa Young Leaders Fellowship Fund, Scholarship Division, the Tokyo Foundation
Working experience	
March 2008-May 2008	Trainee in Economic Research Division at The Bank of Thailand, Northern Region Office.
November 2006-January 2007	Petroleum Authority of Thailand group's Lecturer in Royal Flora Ratchaphruek Chiang Mai, Thailand
2007-present	Committee chairman of Economics graduate student generation 50
2006	Administration Board of "Set @ Econ Café" coffee shop, Chiang Mai University
December 2005	Contribution to the World Bank's WDR 2007 Thailand consultation
2005	Committee chairman of student dormitory council, Chiang Mai University

2005	Committee chairman of light and sound of Economics student organization, Chiang Mai University
February 2005	Staff of academic seminar at Chiang Mai University
2003-present	Committee chairman of Economics undergraduate student generation 46
May 2004	Staff leader in Economics Summer Camp, cooperation Financial and Investing Center (FIC) cooperate with The Stock Exchange of Thailand (SET)
Training:	
August 2005	Training seminar from police station to resist drug addictive
November 2004	Training seminar about political development from Office of The Election Commission of Thailand and Office of The Commission on Higher Education
September 2004	Training seminar from Thailand Securities Institute about “Investing in stock”
February 2002	Training seminar from Maejo University to resist AIDS and drug addictive
October 2001	Training seminar from King Prajadhipok’s Institute
Honors and Awards:	
2008	First Runner-up paper from Setthatas project, Topic is “Risk and Return Analysis in the Stock Exchange of Thailand by Bayesian Approach”, The Bank of Thailand paper competition

- 2008 Second Runner-up paper (team) from Setthatas project, Topic is “Conditional Volatility and Distribution of Thai Exchange Rates: GARCH and FIGARCH Models with NIG Distribution”, The Bank of Thailand paper competition
- 2007 First Runner-up team from community project competition for undergraduate students, Siam Commercial Bank challenge project competition



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved