CHAPTER 4

RESULT

The objective of this thesis on risk and return analysis in the Stock Exchange of Thailand by Bayesian approach was to compare standard errors (S.E.) between the ordinary least squares (OLS) method and the Bayesian approach on the relationship between an 8-industry group indexes with the Thai SET¹⁸ index. Eight-industry group indexes are Agro-industry and Food-industry, Consumer Products, Finance, Manufacture, Property and Construction, Resources, Services and Technology.

4.1 General appearance of variable

Research variables can be separated into two parts, firstly is rate of return of the Stock Exchange of Thailand (SET) index¹⁹ and secondly it is rate of return of 8-indurtry group indexes as follows; Agro-industry and Food-industry, Consumer Products, Finance, Manufacture, Property and Construction, Resources, Services and Technology group index²⁰.

For research, the researcher used the daily closing price of 1,253 days for 5 years started from January, 5 2004 to February, 11 2009 for representing rate of returns totally 1,252 days.

¹⁸ Stock Exchange Thailand index

¹⁹ See in Chapter 3.2

²⁰ See in Chapter 3.2

The study of general appearance of variables is shown in table 4.1 and additional in table 4.2 shows the correlate value between expected return of each asset group index with market return.

Table 4.1 shows that expected return of all index groups are less than zero. In particular, the return of finance (RFIN), manufacture (RINDUS) and property and construction (RPROP) group indexes have more negative value that it is minus value than SET (RTHI) and harmonize with high standard deviation. Therefore the result shows that the return of this asset group is higher risk than market. Otherwise, it is found that the resource (RRES) and technology (RTECH) group index have value of return which is less negative than SET (RTHI) but it still has standard value higher than SET (RTHI). The prominent case is agriculture and food industry (RAGRO) group index which has lower negative value than other group indexes and the risk value is also less than all others except consumer product (RCON) group index.

The asset group index which has maximum rate of return (lower minus value) is agriculture and food-industry (RAGRO) group index and asset group index which has maximum risk value (higher standard deviation) is resource (RRES) group index.

P-value from Jarque-Bera statistic test is the indicator to determine that its rate of return accepts normal distribution or not, table 4.1 shows that none of asset group index's rate of returns and market rate are normally distributed because the p-value are 0.0000. This means that group indexes reject null hypothesis therefore the data accept normal distribution.

Table 4.2 presents the correlation of other asset group indexes²¹ and the market index²²which shows that all asset group index's rate of return have high correlation to market rate of return except consumer product group index's rate of return. This reveals lower correlation than other groups and found that consumer product group index's rate of return has lower correlation with another group index.

However, all rates of return have positive correlation to the market rate of return



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²¹ Asset return group index

²² Stock Exchange of Thailand (RTHI), see in Chapter 3.2

	RTHI	RAGRO	RCONS	RFIN	RINDUS	RPROP	RRES	RSER	RTECH
Mean	-0.046622	-0.007536	-0.031540	-0.056648	-0.084400	-0.091810	-0.008990	-0.032442	-0.046248
Median	-0.035366	0.023554	0.000000	0.000000 -0.035860	-0.011699	-0.032468	0.014182	0.046353	-0.011936
Maximum	10.57703	6.354024	4.944719	10.72585	8.094238	10.02518	12.59985	8.062830	12.89585
Minimum	-16.06325	-9.448410	-6.628935	-19.35633	-12.82468	-15.47247	-17.24965	-11.21112	-20.84361
Std. Dev.	1.544966	.544966 0.993508	0.678233	1.821707	1.580056	1.593591	1.992306	1.183192	1.831267
Skewness	-1.142868 -1.21217	-1.212171	-1.379325	-1.227979	-1.005198	-0.929250	-0.642110	-1.302260	-0.845343
Kurtosis	18.74670	15.28796	20.88200	18.98013	12.19745	14.31038	13.15012	17.29517	19.84389
Jarque-Bera ^a	13197.17	8176.926	17064.48	13625.28	4620.090	6848.114	5456.138	11005.43	14937.72
Probability ^b	0.000000	0.000000	0.000000	0.000000	0.00000.0	0.000000	0.000000 0.000000	0.000000	0.000000

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^b Probability of Jarque-Bera test statistic to test null hypothesis that the data has normal distribution Source: calculation

Source: calculation

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d

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	Table 4.2 C	Table 4.2 Correlation between expected rate of return from each asset group index and market rate of return.	en expected	rate of return	from each asse	t group index	and market ra	te of return.	
	RTHI	RAGRO	RCONS	RFIN	RINDUS	RPROP	RRES	RSER	RTECH
RTHI	1.000000	0.743282	0.601538	0.922826	0.842619	0.917468	0.920885	0.880206	0.815855
RAGRO	h	1.00000	0.504190	0.693096	0.626894	0.701321	0.650305	0.704756	0.583839
RCONS	t	أ	1.000000	0.566582	0.526497	0.567794	0.514905	0.580822	0.481058
RFIN	S	na hia	JI	1.000000	0.742990	0.862804	0.776992	0.811078	0.725875
RINDUS		e j s ang	17		1.000000	0.793017	0.741711	0.779193	0.657595
RPROP	r					1.000000	0.760661	0.848396	0.750279
RRES	e :	E Na		R			1.000000	0.734097	0.656289
RSER	56	lð i l		51				1.00000	0.723433
RTECH	9 1	38 Jn		4			0		1.000000
Source: calculation	ved	เงตาร ity			704		3		

4.2 Unit Root Test

The result of unit root test of each asset variable and the SET by Dickey-Fuller test can be shown in the table 4.3. The investigation revealed that the return data of all data asset group indexes are stationary at integrated order 0 or I(0). When we consider ADF test statistic value, we found that all of variables reject null hypothesis at significant 1% from all test equation (trend, trend and intercept, none).

Variable	Lag length	ADF Test Statistic ^b
RTHI	123	-23.01911
RAGRO	0	-34.10678
RCONS	0	-37.76944
RFIN	0	-35.51133
RINDUS		-22.13924
RPROP		-33.72171
RRES	1	-23.10888
RSER	AI INIVY	-22.05201
RTECH	0	-38.25189

Table 4.3 Result of unit root test by Dickey Fuller test at level

Note:

ADF statistic is t-statistic for testing θ value on regression equation as follows $\Delta X_t = \alpha + \beta t + \theta X_{t-1} + \sum_{i=1}^{\rho} \phi_i \Delta X_{t-i} + \varepsilon_t$ by $\rho = 1,2,3,...,22$ and $\phi_0 = 0$ By lag length (ρ) is determined from Schwarz criterion

^a DW is Durbin-Watson Statistic

^bADF test statistic shows that all of each return group index can reject null hypothesis that the variable is not stationary at significant 99% because critical value at significant 99% is -4.034

4.3 Capita Asset Pricing Model Result by Bayesian Approach

These testings use iteration values at 3,000 rounds and operate 200 iterations per round which can reflects the better data 2001 to 3000 iterate.

The estimation by Bayesian approach, we let the asset group index's rate of return as the dependent variable and the market rate of return (Stock Exchange of Thailand) as the independent variable to estimate beta value (value at risk from market in order to invest each asset group index) and standard error compare to standard error from Ordinary Least Square method. Thus this sector is explained regressed equation from each CAP-model.

4.3.1 Agriculture and food industry group index rate of return

From equation

$$RAGRI_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$$

(41)

From empirical data we can generate the following equation:

AGRI = 0.0153 + 0.4777RTHI (42) $(0.0192) \quad (0.012)$ $(0.0192) \quad (0.012)$ The result from equation (42), due to invest in technology group index the

investor will get return at 0.4777 times because the agriculture and food industry group index has beta (β) lower than 1, this means that the agriculture and food industry group index is defensive stock thus the result show that the investor will get

risk and return at 0.4777 times market return, if market rate of return change 100% investor will get expected rate of return from agriculture and food industry group index change the 47.77%.

4.3.2 Consumer products group index rate of return

From equation

 $RCONS_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$

(43)

(44)

From empirical data we can generate the following equation:

RCONS = -0.0188 + 0.2639RTHI $(0.0157) \quad (0.0098)$

The result from equation (44), due to invest in technology group index the investor will get return at 0.2639 times because the consumer products group index has beta (β) lower than 1, this means that the consumer products group index is defensive stock thus the result shows that the investor will get risk and return at 0.2639 times market return, if market rate of return change 100% investor will get expected rate of return from consumer products group index change at 26.39%.

4.3.3 Financial group index rate of return

From equation

$$RFIN_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$$

(45)

(46)

From empirical data we can generate the following equation:

$$RFIN = -0.0053 + 1.0879RTH$$

(0.0203) (0.0127)

The result from equation (46), due to invest in technology group index the investor will get return at 1.0879 times because the financial group index has beta (β) greater than 1, this its means that the financial group index is aggressive stock thus the result show that the investor will get risk and return at 1.0879 times market return, if market rate of return change 100% investor will get expected rate of return from financial group index change at 108.79%.

4.3.4 Manufacture group index rate of return From equation Copyright by Chiang Mai University A I I B $_{RINDUS_t} = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$ erv (47)

From empirical data we can generate the following equation:

RINDUS = -0.0435 + 0.8614RTHI(48)

(0.0246) (0.0154)

The result from equation (48), due to invest in technology group index the investor will get return at 0.8614 times because the manufacture group index has beta (β) lower than 1, this means that the manufacture group index is defensive stock thus the result show that the investor will get risk and return at 0.8614 times market return, if market rate of return change 100% investor will get expected rate of return from manufacture group index change at 86.14%.

4.3.5 Property and construction group index rate of return

From equation

$$RPROP_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t \tag{49}$$

From empirical data we can generate the following equation:

RPROP = -0.0472 + 0.9461RTHI(50)
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investor will get return at 0.9461 times because the property and construction group index has beta (β) lower than 1, this means that the property and construction group index is defensive stock thus the result show that the investor will get risk and return

at 0.9461 times market return, if market rate of return change 100% investor will get expected rate of return from property and construction group index change at 94.61%.

4.3.6 Resources group index rate of return

From equation

 $RRES_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$

2/07/09/10

(51)

(52)

From empirical data we can generate the following equation:

RRES = 0.047 + 1.1872RTHI(0.0225) (0.014)

The result from equation (52), due to invest in technology group index the investor will get return at 1.1872 times because the resources group index has beta (β) greater than 1, this means that the resources group index is aggressive stock thus the result show that the investor will get risk and return at 1.1872 times market return, if market rate of return change 100% investor will get expected rate of return from resources group index change at 118.72%.

4.3.7 Services group index rate of return

From equation

$$RFIN_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$$

(53)

(54)

From empirical data we can generate the following equation:

$$RFIN = -0.0006 + 0.6739RTHI$$

(0.0162) (0.0102)

The result from equation (54), due to invest in technology group index the investor will get return at 0.6739 times because the services group index has beta (β) lower than 1 its mean the services group index is defensive stock thus the result show that the investor will get risk and return at 0.6739 times market return, if market rate of return change 100% investor will get expected rate of return from services group index change at 67.39%.

4.3.8 Technology group index rate of return From equation $RTECH_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$ (55)

From empirical data we can generate the following equation:

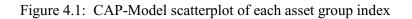
RTECH = -0.0003 + 0.9666RTHI(56)

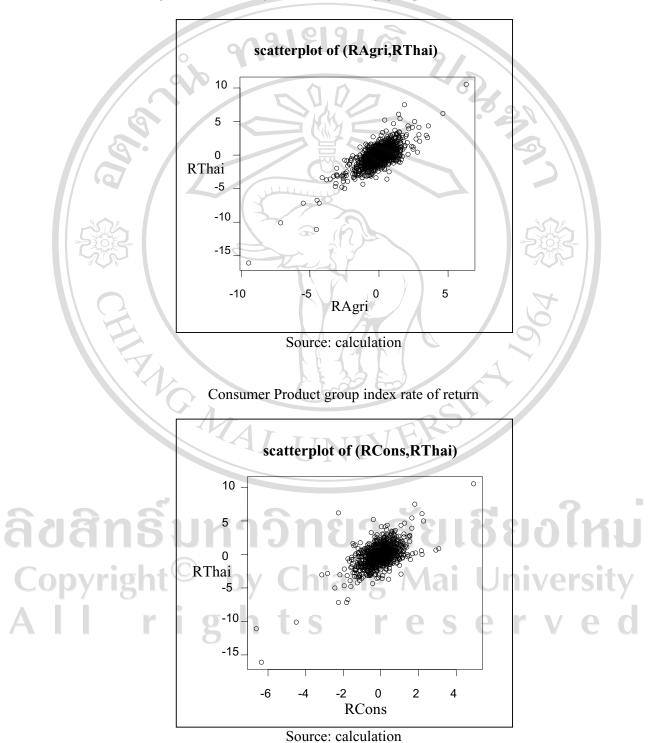
(0.0306) (0.0192)

The result from equation (56), due to invest in technology group index the investor will get return at 0.9666 times because the technology group index has beta (β) lower than 1, this means that the technology group index is defensive stock thus the result show that the investor will get risk and return at 0.9666 times market return, if market rate of return change 100% investor will get expected rate of return from technology group index change at 96.66%.

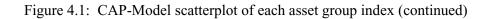
Furthermore, by Bayesian Approach, figure 4.1 shows the scatterplot after doing iteration and burnin. The industry index as shown in figure 4.1 which data are combine into a group that it has normal distribution. The additional data is shown as trace and density function in figure 4.2. The result can be noticed which its mean is practically stationary and distribute convert to normal distribution. Therefore, these values; alpha, beta and sigma square can be proved or test under other normal hypothesis.

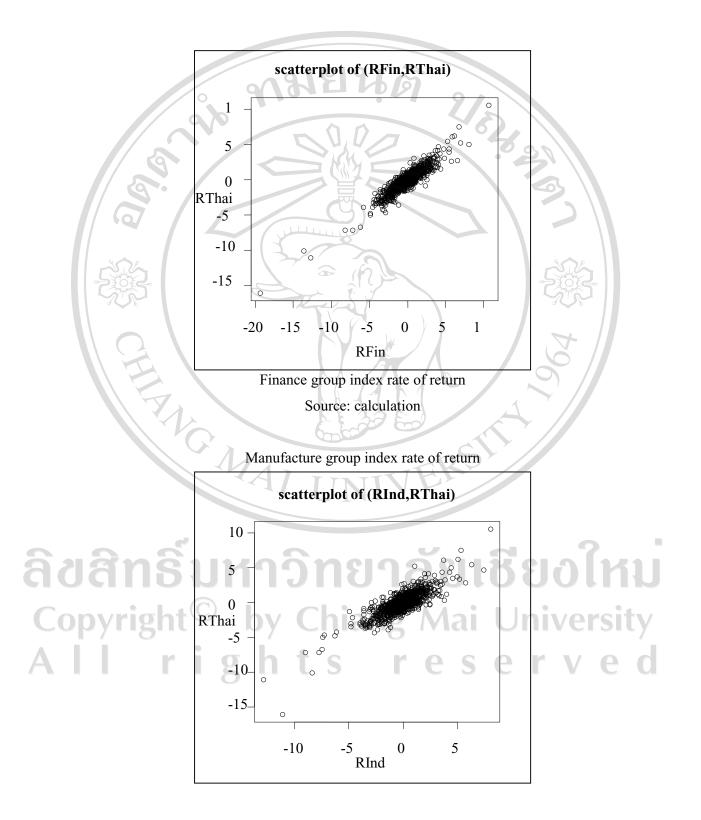
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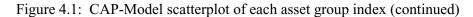


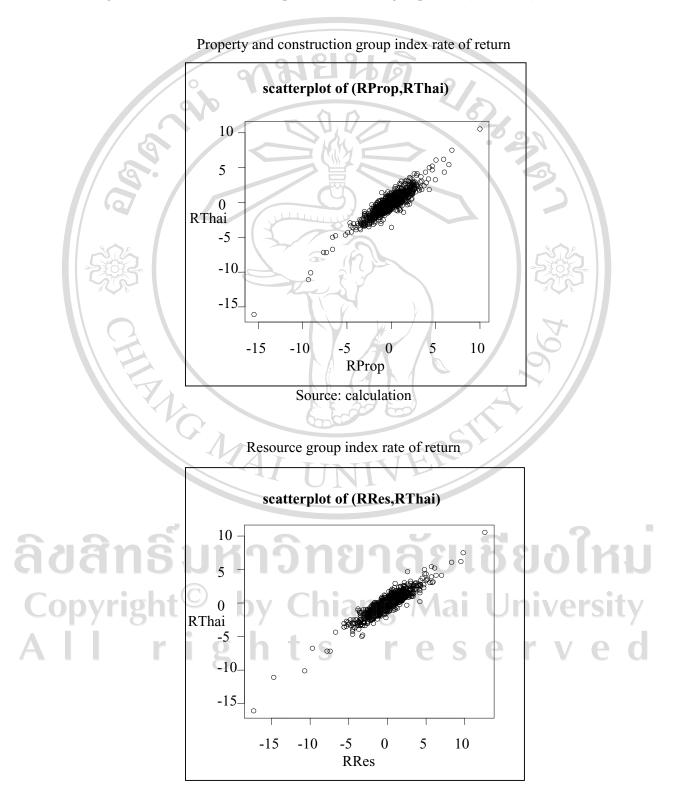


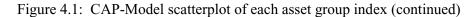
Agriculture-industry and food-industry group index rate of return

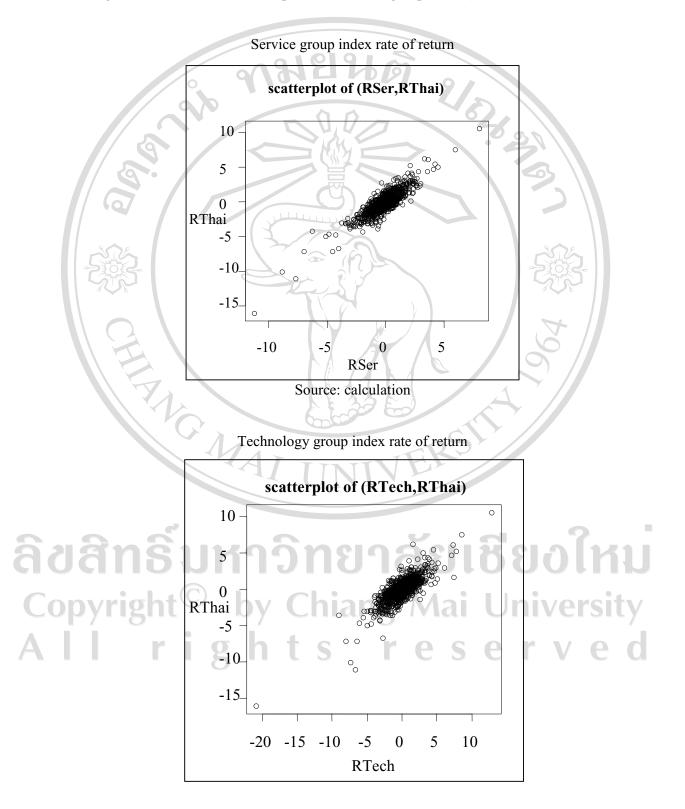


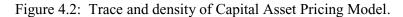


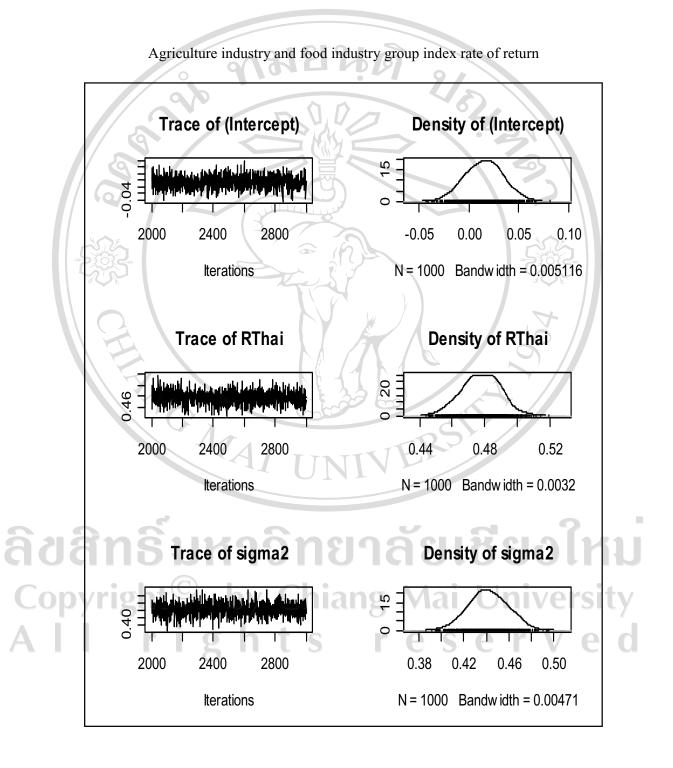


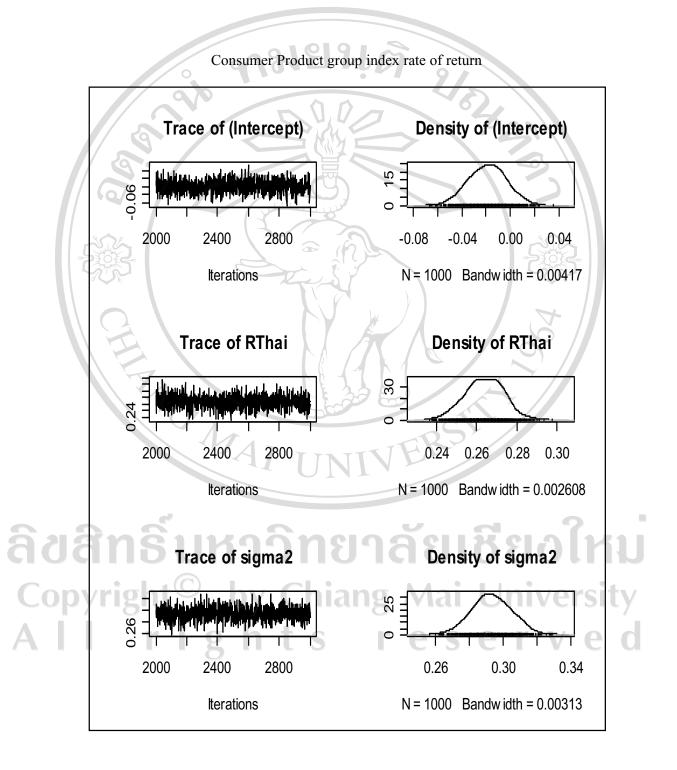


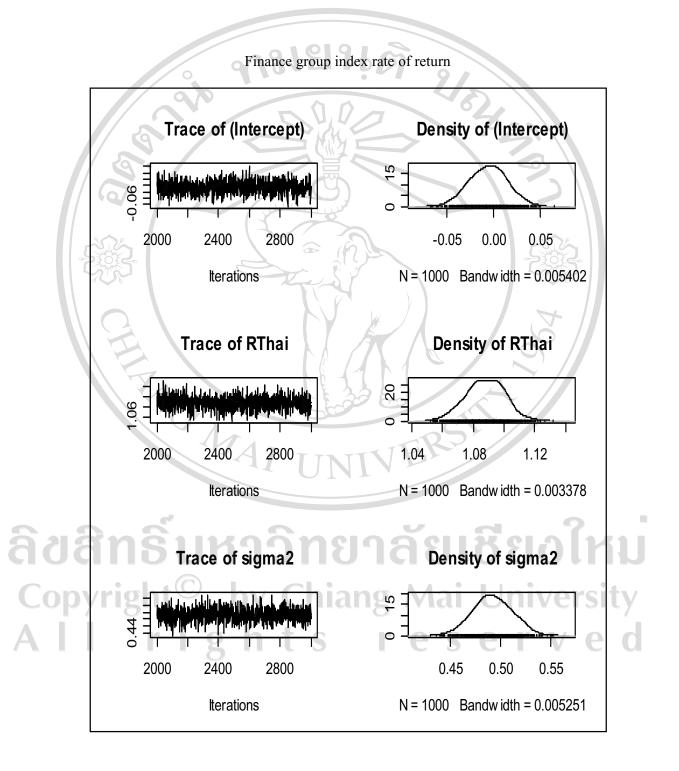


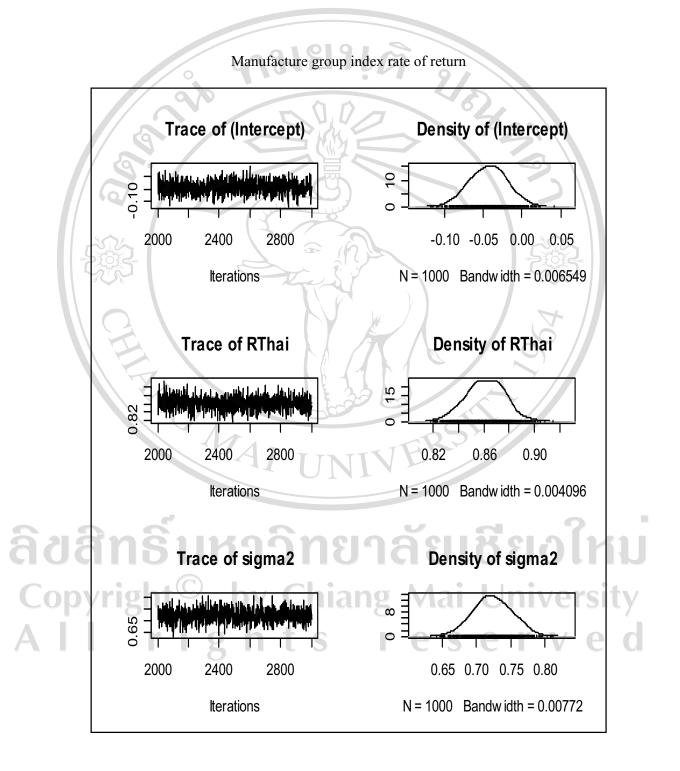


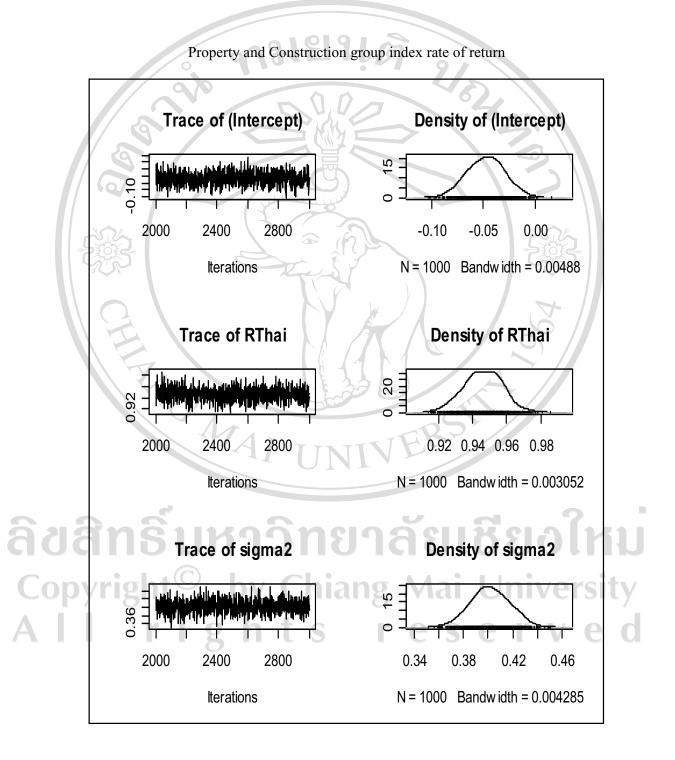


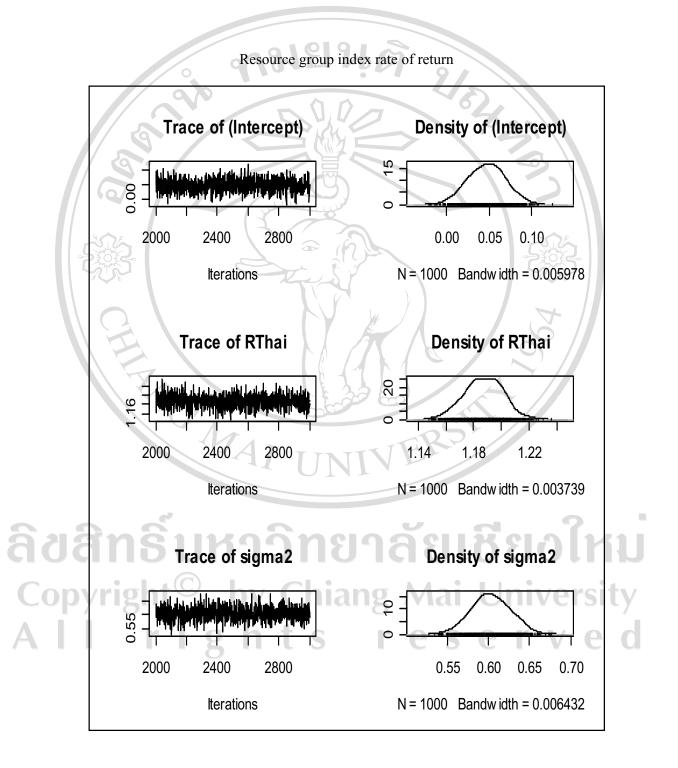


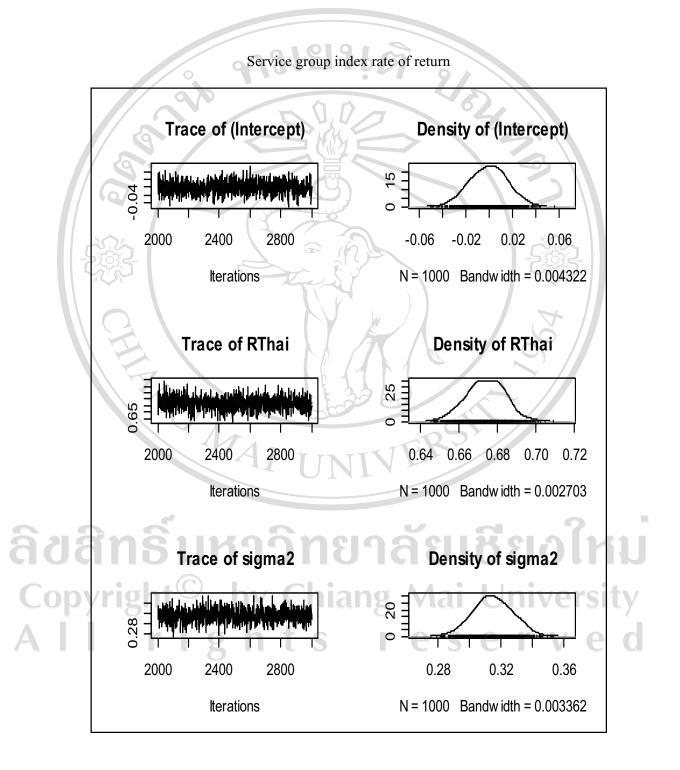


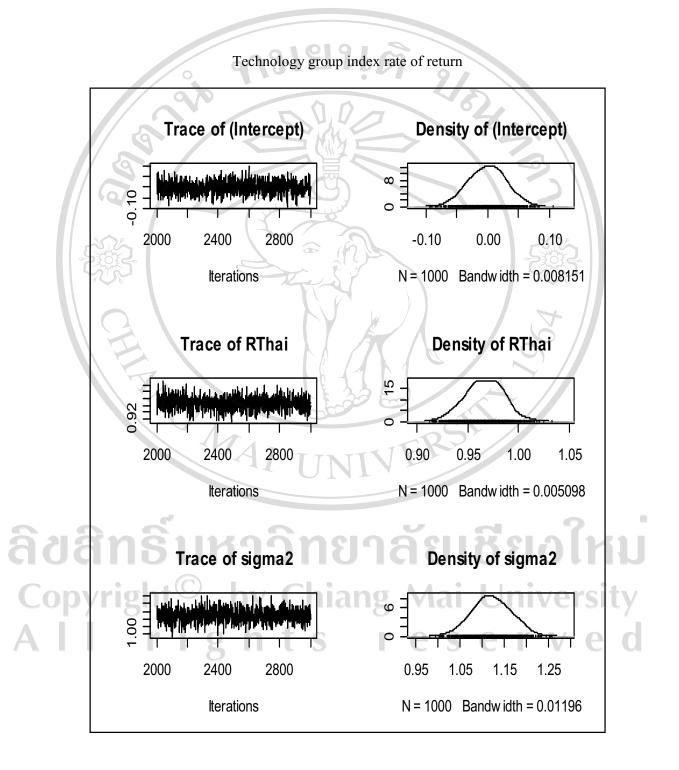












4.4 Capita Asset Pricing Model Result by Ordinary Least Square

From estimating by Ordinary Least Square, the researcher let the asset group index rate of return to be dependent variable and independent variable is market rate of return (Stock Exchange of Thailand) to estimate beta value (value at risk from market if we invest each asset group index) and standard error for comparing standard error from Bayesian Approach method. Thus in this sector is explain regressed equation from each CAP-model.

4.4.1 Agriculture and food industry group index rate of return

From equation

 $RAGRI_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$

(41)

From empirical data we can generate the following equation:

RAGRI = 0.0147 + 0.4780RTHI (47) (0.0188) (0.0122) The result from equation (47), due to invest in technology group index the investor will get return at 0.4780 times because the agriculture and food industry group index has beta (β) lower than 1, this means that the agriculture and food industry industry group index is defensive stock thus the result show that the investor will get return at 0.4780 times market return, if market rate of return change 100% investor will get expected rate of return from agriculture and food industry group index change at 47.80%.

4.4.2 Consumer products group index rate of return From equation $RCONS_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$ From empirical data we can generate the following equation: RCONS = -0.0192 + 0.2641RTHI(0.0153) (0.0099)

(43)

(58)

The result from equation (58), due to invest in technology group index the investor will get return at 0.2641 times because the consumer products group index has beta (β) lower than 1, this means that the consumer products group index is defensive stock thus the result show that the investor will get risk and return at 0.2641 times market return, if market rate of return change 100% investor will get expected rate of return from consumer products group index change at 26.41%.

4.4.3 Financial group index rate of return

From equation

$$RFIN_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t \tag{45}$$

From empirical data we can generate the following equation:

$$RFIN = -0.0059 + 1.0881RTHI$$
(59)
(0.0199) (0.0129)

The result from equation (59), due to invest in technology group index the investor will get return at 1.0881 times because the financial group index has beta (β) greater than 1, this means that the financial group index is aggressive stock thus the result show that the investor will get risk and return at 1.0881 times market return, if market rate of return change 100% investor will get expected rate of return from financial group index change at 108.81%.

4.4.4 Manufacture group index rate of return

From equation

$$RINDUS_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t \tag{47}$$

From empirical data we can generate the following equation: Copyright C by Chiang Mai University RINDUS = -0.0442 + 0.8618RTHI (60) (0.0241) (0.0156)

The result from equation (60), due to invest in technology group index the investor will get return at 0.8618 times because the manufacture group index has beta

(β) lower than 1, this means that the manufacture group index is defensive stock thus the result show that the investor will get risk and return at 0.8618 times market return, if market rate of return change 100% investor will get expected rate of return from manufacture group index change at 86.18%.

4.4.5 Property and construction group index rate of return

From equation

$$RPROP_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$$

(49)

(61)

From empirical data we can generate the following equation:

$$RPROP = -0.0477 + 0.9463RTHI$$

$$(0.0179) \quad (0.0116)$$

The result from equation (61), due to invest in technology group index the investor will get return at 0.9463 times because the property and construction group index has beta (β) lower than 1, this means that the property and construction group index is defensive stock thus the result show that the investor will get risk and return at 0.9463 times market return, if market rate of return change 100% investor will get expected rate of return from property and construction group index change at 94.63%.

4.4.6 Resources group index rate of return

From equation

$$RRES_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t \tag{51}$$

(62)

From empirical data we can generate the following equation:

$$RRES = 0.0464 + 1.1875RTHI$$

(0.0220) (0.0142)

The result from equation (62), due to invest in technology group index the investor will get return at 1.1875 times because the resources group index has beta (β) greater than 1, this means that the resources group index is aggressive stock thus the result show that the investor will get risk and return at 1.1875 times market return, if market rate of return change 100% investor will get expected rate of return from resources group index change at 118.75%.

4.4.7 Services group index rate of return From equation Copyright by Chiang Mai University A I B $RFIN_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t$ S e r V (53)

From empirical data we can generate the following equation:

RFIN = -0.0010 + 0.6741RTHI(63)

(0.0159) (0.0103)

The result from equation (63), due to invest in technology group index the investor will get return at 0.6741 times because the services group index has beta (β) lower than 1, this means that the services group index is defensive stock thus the result show that the investor will get risk and return at 0.6741 times market return, if market rate of return change 100% investor will get expected rate of return from services group index change at 67.41%.

4.4.8 Technology group index rate of return

From equation

$$RTECH_t = \beta_0 + \beta_1 RTHI_t + \varepsilon_t \tag{55}$$

From empirical data we can generate the following equation:

investor will get return at 0.9670 times because the technology group index has beta (β) lower than 1, this means that the technology group index is defensive stock thus the result show that the investor will get risk and return at 0.9670 times market return,

if market rate of return change 100% investor will get expected rate of return from technology group index change at 96.70%.

Table 4.4 presents mean and **standard error**²³ of each group index from Bayesian Approach shows the expected return (beta value) which is value at risk from the resources (RRES) group index has higher risk and return rate than other industry group indexes. In the other hand, the consumer product (RCONS) group index has lower risk and return value than other industry group indexes and its standard error value is lower than other index group. In the other hand, technology index group has risk and return value is the third level but its standard error is higher than another industry group index.

If the investor wants to invest in resources or financial group index, they will get higher return equal 1.1872 and 1.0879 times respectively because the resources or financial group index has beta (β) greater than 1, which means the resources group index is an aggressive stock. Thus, the result shows that the investor will get risk and return equal 1.1872 and 1.0879 times of market. When market rate of return changes 100%, the investor will get expected rate of return from resources and financial group index change equal 118.72% and 108.79% respectively. In other 6-industry group index is defensive stock ($\beta < 1$) especially consumer product group index equal 0.2639 times of market. When market rate of return changes 100%, the investor will get expected rate of return from consumer product group index change equal 26.39%.

²³ The relative numerical efficiency can be computed from the output of the function summary by dividing the square of the (robust) numerical standard error of the mean estimates (i.e., Time-series SE) by the square of the naive estimator of the numerical standard error (i.e., Naive SE)

Cons Products Finance Manufacture Prop & Cons Resources Services -0.0188 -0.0053 -0.0435 -0.0472 0.0470 -0.0006 -0.0157 0.0203 0.0246 0.0163 0.0162 0.0162 0.0157 0.0203 0.0246 0.0005 0.0007 0.0005 0.0162 0.0005 0.0006 0.0006 0.0006 0.0006 0.0006 0.0006 0.0005 0.0007 0.0008 0.0006 0.0006 0.0006 0.0006 0.0003 0.0004 0.0154 0.9115 0.0127 0.0127 0.0102 0.0003 0.0127 0.0154 0.0115 0.0116 0.0003 0.0003 0.0003 0.0004 0.0004 0.0004 0.0003 0.0003 0.0102 0.0126 0.0126 0.0126 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102 0.0102		Table 4.4 Mean	Table 4.4 Mean and Standard error of each group index from Bayesian Approach	or of each g	group index fro	m Bayesian Ap	proach		
0.0192 0.0157 0.0203 0.0246 0.0183 0.0225 0.0162 0.0006 0.0005 0.0006 0.0006 0.0007 0.0005 0.0007 0.0005 0.0006 0.0006 0.0006 0.0006 0.0007 0.0005 0.0006 0.0006 0.0006 0.0006 0.0007 0.0007 0.0006 0.0006 0.0006 0.0005 0.0120 0.0007 0.0007 0.0006 0.0006 0.0006 0.0120 0.0003 0.0127 0.0157 0.0115 0.0120 0.0004 0.0003 0.0004 0.0004 0.0004 0.0003 0.0004 0.0003 0.0004 0.0004 0.0004 0.0004 0.0004 0.0003 0.0004 0.0004 0.0004 0.0003 0.0004 0.0003 0.0004 0.0004 0.0003 0.0004 0.0003 0.0004 0.0004 0.0003 0.0004 0.0004 0.0004 0.0004 0.0003 0.0177 0.0118 0.0197 0.2290 0.0161 0.0242 0.0006 0.0006 0.0003 0.0003 0.0006 0.0006 0.0006 0.0006 0.0006 0.0008 0.0004 0.0006 0.0009 0.0006 0.0008 0.0004 0.0006 0.0009 0.0006 0.0008 0.0004	neem	po	Col	Finance -0.0053	Manufacture	Prop & Cons -0.0472	Resources	Services	Technology
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0.4777 0.2639 1.0879 0.8614 0.9461 1.1872 0.6739 0.0120 0.0098 0.0127 0.0154 0.0115 0.0102 0.0102 0.0004 0.0003 0.0004 0.0004 0.0003 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0003 0.0004 0.0004 0.0026 0.0004 0.0026 0.0004 0.0026 0.0004 0.0126 0.0126 0.0126 0.0126 0.0126 0.0004 0.0026 0.0004 0.0026 0.0006 0.0006 0.0006	Time series SE	y (0.0005	0.0007	0.0008	0.0006	0.0008	0.0006	0.0010
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0.00040.00030.00040.00050.00040.00040.00030.00040.00030.00040.00040.00040.00030.4170.29350.49240.72400.40190.60320.31530.01770.01180.01970.02900.01610.02420.01260.00060.00060.00060.00090.00050.00080.00040.00040.00060.00040.00000.00050.00050.00080.00040.0004	SE	0.0120	8600.0	0.0127	e.		0.0140	0.0102	0.0192
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0.4417 0.2935 0.4924 0.7240 0.4019 0.6032 0.3153 0.0177 0.0118 0.0197 0.0290 0.0161 0.0242 0.0126 0.0006 0.0006 0.0009 0.0005 0.0008 0.0004 0.0004 0.0006 0.0004 0.0007 0.0005 0.0008 0.0004 0.0004	Time series SI	5 1	0.0003	0.0004	0.0005	0.0004	0.0004	0.0003	0.0006
0.0177 0.0118 0.0197 0.0290 0.0161 0.0242 0.0126 0.0006 0.0004 0.0006 0.0005 0.0008 0.0004 0.0004 0.0006 0.0007 0.0010 0.0005 0.0008 0.0004 0.0004	mean	0.4417	0.2935	0.4924	0.7240	0.4019	0.6032	0.3153	1.1213
0.0006 0.0004 0.0006 0.0005 0.0008 0.0004 0.0004 0.0006 0.0007 0.0010 0.0005 0.0008 0.0004 0.0004	SE	0.0177	0.0118	0.0197	0.0290	0.0161	0.0242	0.0126	0.0449
0.0006 0.0004 0.0007 0.0010 0.0005 0.0008 0.0004	Naïve SE	0.0006	0.0004	0.0006	0.0009	0.0005	0.008	0.0004	0.0014
	Time series SI	iv	0.0004	0.0007	0.0010			0.0004	0.0015
		J							

Table 4.5 presents the mean and standard error of each group index comparing method between Bayesian approaches with Ordinary Least Square, the result can be noticed that all of the standard error values from Bayesian approach are lower than Ordinary Least Square, which means, if the investor wants to invest in asset group index, the Bayesian approach is more efficient than Ordinary Least Square. When the investor seeks the risk and return from beta (β) coefficient but in the other word standard error of Ordinary Least Square method is lower than Bayesian approach.



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Square Technology	-0.0003	0.0306	-0.0012	0.0300	0.9666	0.0192	0.9670	0.0194	
nary Least Squa Services Tec	-0.0006 -(0.0162 0	-0.0010	0.0159 0	0.6739 0	0.0102 0	0.6741 0	0.0103 0	
oach and Ordina	0.0470 -(0.0225 0	0.0464 -0	0.0220 0	1.1872 0	0.0140 0	1.1875 0	0.0142 0	52.001
n Bayesian approa	-0.0472	0.0183	-0.0477	0.0179	0.9461	0.0115	0.9463	0.0116	-031 -03
methods between	-0.0435	0.0246	-0.0442	0.0241	0.8614	0.0154	0.8618	0.0156	A A
mparing two m Finance M	-0.0053	0.0203	-0.0059	0.0199	1.0879	0.0127	1.0881	0.0129	A
group indexes co Cons Products	-0.0188	0.0157	-0.0192	0.0153	0.2639	0.0098	0.2641	0.0099	51
Table 4.5 Mean and Standard error of each group indexes comparing two methods between Bayesian approach and Ordinary Least Square Agro & Food Cons Products Finance Manufacture Prop & Cons Beources Services Techn	0.0153	0.0192	0.0147	0.0188	0.4777	0.0120	0.4780	0.0122	เชียงใหม่ i University
A I Star	mean	Dayesian SE		SE	mean		mean	SE SE	served
Table 4.5 N			Turer cept	Ď				Ď	Source: calculation