ภาคผนวก

ภาคผนวก ก

ข้อมูลอัตราผลตอบแทนของตลาดหลักทรัพย์แห่งประเทศไทย และหลักทรัพย์กลุ่มธุรกิจการเกษตร

Date	%Rm(Seti)	%Ri(CPF)	%Ri(LEE)	%Ri(GFRT)	%Ri(CM)
3-ม.ค.-1999	-0.10	0.52	1.68	1.41	-6.90
10-ม.ค.-1999	12.26	-1.28	0.00	0.00	14.81
17-ม.ค.-1999	-4.41	-4.42	8.35	-4.17	3.23
24-ม.ค.-1999	-1.40	0.54	-1.57	1.45	0.00
31-ม.ค.-1999	-3.58	1.08	1.59	4.29	-3.13
7-ก.พ.-1999	-6.90	-2.14	9.23	4.11	-2.42
14-ก.พ.-1999	2.80	-4.37	1.39	-3.95	0.83
21-ก.พ.-1999	-3.13	14.57	2.79	6.85	4.92
28-ก.พ.-1999	1.30	-0.50	35.10	2.56	0.00
7-มี.ค.-1999	-1.39	-0.75	5.01	-7.50	-3.13
14-มี.ค.-1999	2.85	-13.13	-10.49	-2.70	3.23
21-มี.ค.-1999	6.33	-2.03	6.38	5.56	0.00
28-มี.ค.-1999	-0.21	0.00	10.02	-2.63	2.34
4-เม.ย.-1999	-2.67	-0.59	-11.84	0.00	3.82
11-เม.ย.-1999	4.16	1.19	13.42	2.70	-1.47
18-เม.ย.-1999	8.22	2.65	0.00	1.32	-2.24
25-เม.ย.-1999	-0.37	2.01	9.08	0.00	0.00
2-พ.ค.-1999	14.53	21.69	22.93	11.69	0.00
9-พ.ค.-1999	6.31	18.98	1.69	2.33	-11.45
16-พ.ค.-1999	-2.75	0.00	10.00	5.68	3.45
23-พ.ค.-1999	0.93	-7.59	-1.51	16.13	-6.67
30-พ.ค.-1999	-5.37	-8.21	3.06	3.70	-3.57
6-มิ.ย.-1999	5.04	-4.36	-10.44	6.25	2.78

13-มิ.ย.-1999	6.42	29.02	21.66	21.85	3.60
20-มิ.ย.-1999	2.32	4.46	4.11	2.07	0.87
27-มิ.ย.-1999	4.83	-0.89	-5.26	4.05	-1.72
4-ก.ค.-1999	-1.93	11.31	23.62	27.92	7.89
11-ก.ค.-1999	-4.45	25.81	7.86	-5.58	4.07
18-ก.ค.-1999	-4.13	-1.28	12.50	5.91	-10.94
25-ก.ค.-1999	-2.62	-2.47	-3.70	-5.58	0.00
1-ส.ค.-1999	-3.98	-7.06	0.00	-3.23	3.51
8-ส.ค.-1999	-4.33	0.57	-0.97	-1.67	-1.69
15-ส.ค.-1999	-3.03	21.51	0.00	0.00	-0.86
22-ส.ค.-1999	3.95	5.63	-2.91	1.69	-2.61
29-ส.ค.-1999	3.87	25.86	11.00	5.00	0.00
5-ก.ย.-1999	-5.77	0.00	-7.21	-3.17	3.57
12-ก.ย.-1999	-0.05	-5.20	-2.91	1.64	10.34
19-ก.ย.-1999	1.68	3.63	1.01	3.23	2.34
26-ก.ย.-1999	-12.81	-9.52	-1.00	-16.67	-3.05
3-ต.ค.-1999	6.60	-2.88	1.01	3.75	-4.72
10-ต.ค.-1999	-3.49	1.94	1.97	-5.42	-0.83
17-ต.ค.-1999	-1.94	-4.41	-1.93	-3.82	2.50
24-ต.ค.-1999	-2.14	-3.56	5.94	-1.99	-2.44
31-ต.ค.-1999	4.88	-3.15	-4.68	0.00	3.33
7-พ.ย.-1999	5.79	7.07	3.92	2.03	0.00
14-พ.ย.-1999	3.24	4.61	-1.88	5.96	3.23
21-พ.ย.-1999	-4.74	1.00	9.61	-11.25	-4.69
28-พ.ย.-1999	0.18	1.98	8.77	2.11	3.28
5-ธ.ค.-1999	0.51	8.85	-1.61	-4.14	-2.38
12-ธ.ค.-1999	1.29	0.00	8.19	0.00	6.50
19-ธ.ค.-1999	4.66	-0.98	3.03	-2.16	0.00

26-ธ.ค.-1999	5.00	-1.90	-2.94	6.62	2.29
2-ม.ค.-2000	4.47	1.01	-3.03	-2.07	3.73
9-ม.ค.-2000	-5.94	1.91	1.56	-2.11	-3.60
16-ม.ค.-2000	4.65	1.88	3.08	0.00	2.24
23-ม.ค.-2000	0.96	11.23	3.73	10.79	2.92
30-ม.ค.-2000	-0.31	7.57	-17.98	0.00	0.71
6-ก.พ.-2000	-1.49	-1.54	5.26	-1.95	-0.70
13-ก.พ.-2000	-3.02	11.91	11.67	5.96	4.96
20-ก.พ.-2000	-10.47	-3.59	-1.50	-1.88	0.00
27-ก.พ.-2000	-0.41	3.73	-15.15	-3.82	-7.43
5-มี.ค.-2000	-5.79	-0.73	25.01	-30.46	-2.92
12-มี.ค.-2000	5.03	9.32	0.00	4.76	0.00
19-มี.ค.-2000	-0.66	-5.89	-0.72	2.73	-0.75
26-มี.ค.-2000	1.11	-5.60	0.00	0.00	3.03
2-เม.ย.-2000	-0.95	5.18	-7.19	0.00	2.21
9-เม.ย.-2000	0.78	0.00	-7.75	0.88	4.32
16-เม.ย.-2000	2.73	2.82	0.84	1.75	2.76
23-เม.ย.-2000	-4.68	2.68	2.50	0.00	-0.67
30-เม.ย.-2000	-1.18	-3.05	5.69	0.00	0.00
7-พ.ค.-2000	-2.67	-6.41	-0.77	0.00	-10.81
14-พ.ค.-2000	-9.03	-15.07	-3.88	-40.88	-6.06
21-พ.ค.-2000	-0.66	-3.23	4.04	-2.38	0.81
28-พ.ค.-2000	-8.83	-8.33	11.63	-12.20	-4.00
4-มิ.ย.-2000	8.37	10.91	0.00	-1.39	0.00
11-มิ.ย.-2000	0.61	-3.28	-1.39	4.23	0.00
18-มิ.ย.-2000	0.92	0.85	-5.63	-2.70	-12.50
25-มิ.ย.-2000	-3.25	-0.84	1.49	1.39	2.86
2-ก.ค.-2000	-2.29	-0.85	0.00	0.00	-3.70

16-ก.ค.-2000	-2.26	0.97	0.00	-2.70	3.85
23-ก.ค.-2000	-3.14	-4.81	3.03	-1.39	0.00
30-ก.ค.-2000	-4.60	-13.64	-0.73	-1.41	0.00
6-ส.ค.-2000	6.80	16.37	5.18	2.86	0.00
13-ส.ค.-2000	1.66	3.52	4.23	-2.78	0.00
20-ส.ค.-2000	0.83	5.83	-0.67	-2.86	9.26
3-ก.ย.-2000	1.27	2.02	-4.86	-1.47	0.00
10-ก.ย.-2000	-4.40	-0.99	-0.74	1.49	0.00
17-ก.ย.-2000	-1.27	-4.50	1.47	2.94	-1.69
24-ก.ย.-2000	-6.53	-2.09	0.00	5.71	-1.72
1-ต.ค.-2000	1.15	2.14	4.35	1.35	1.75
8-ต.ค.-2000	-3.47	-3.66	0.69	-5.33	0.00
15-ต.ค.-2000	-5.01	-9.24	26.90	-1.41	0.00
22-ต.ค.-2000	8.79	10.78	-16.30	0.00	1.72
29-ต.ค.-2000	-0.82	-2.16	-1.29	-1.43	-1.69
5-พ.ย.-2000	4.92	1.10	1.97	0.00	13.79
12-พ.ย.-2000	1.87	3.83	0.64	7.25	-1.52
19-พ.ย.-2000	0.50	-5.26	-1.28	8.11	1.54
26-พ.ย.-2000	-3.15	-5.56	-1.29	-3.75	-1.52
3-ธ.ค.-2000	-4.05	-5.88	0.00	-9.09	1.54
10-ธ.ค.-2000	-0.06	0.63	-1.32	0.00	-1.52
17-ธ.ค.-2000	-0.19	1.24	5.34	2.86	4.62
24-ธ.ค.-2000	-2.23	-1.84	-1.27	-4.17	-5.88
31-ธ.ค.-2000	0.79	-3.13	0.00	1.45	6.25
7-ม.ค.-2001	6.53	3.23	3.85	2.86	0.00
14-ม.ค.-2001	8.54	3.13	-1.24	2.78	0.00
21-ม.ค.-2001	1.80	0.00	5.00	6.76	-4.41
28-ม.ค.-2001	4.82	3.64	7.14	7.59	3.85

4-ก.พ.-2001	0.59	-0.58	-2.22	1.18	1.48
18-ก.พ.-2001	-2.69	0.00	2.27	1.16	0.00
25-ก.พ.-2001	2.61	0.00	4.45	2.30	0.00
4-มี.ค.-2001	-5.61	-2.94	6.38	8.98	2.19
11-มี.ค.-2001	0.31	2.42	-3.00	1.04	0.00
18-มี.ค.-2001	-4.56	-2.37	-1.03	-1.03	-7.86
25-มี.ค.-2001	-0.94	-5.45	3.64	1.04	5.43
1-เม.ย.-2001	0.58	1.92	0.51	0.00	2.21
8-เม.ย.-2001	-3.40	0.00	-3.00	2.05	-1.44
15-เม.ย.-2001	3.28	1.89	-16.50	2.50	3.65
22-เม.ย.-2001	0.45	-1.23	3.70	0.00	0.70
29-เม.ย.-2001	1.58	3.75	0.00	0.00	3.50
6-พ.ค.-2001	3.12	0.00	-1.19	4.88	0.00
13-พ.ค.-2001	1.45	-3.01	0.00	4.65	-10.81
20-พ.ค.-2001	-3.31	3.73	-1.81	6.66	-0.76
27-พ.ค.-2001	3.48	-1.80	4.30	10.41	3.05
3-มิ.ย.-2001	0.31	-1.22	3.53	30.20	5.19
10-มิ.ย.-2001	0.07	0.62	-4.55	-5.79	2.11
17-มิ.ย.-2001	3.74	4.29	2.38	7.69	0.69
24-มิ.ย.-2001	-1.64	-0.59	0.00	4.28	2.05
1-ก.ค.-2001	1.22	17.75	5.82	35.62	8.72
8-ก.ค.-2001	0.72	-2.51	0.00	1.01	8.02
15-ก.ค.-2001	-3.25	-2.58	-2.75	-11.00	-8.57
22-ก.ค.-2001	-0.65	1.59	0.56	3.37	-1.25
29-ก.ค.-2001	-3.58	-2.08	0.00	5.43	1.27
5-ส.ค.-2001	4.94	4.26	2.25	1.03	-0.63
12-ส.ค.-2001	-0.03	7.14	1.09	11.23	-4.40
19-ส.ค.-2001	2.34	3.81	-2.72	-0.92	2.63

26-ส.ค.-2001	2.76	0.00	-1.12	46.54	-0.64
2-ก.ย.-2001	1.02	-1.83	-0.56	0.00	-1.29
9-ก.ย.-2001	2.01	8.41	1.70	1.86	0.00
16-ก.ย.-2001	-15.84	-11.21	-6.70	-14.59	-3.27
23-ก.ย.-2001	-4.69	-2.91	2.99	-6.76	-5.41
30-ก.ย.-2001	0.89	6.00	0.00	14.50	3.57
7-ต.ค.-2001	1.39	0.00	2.33	4.33	1.38
14-ต.ค.-2001	1.46	-1.89	2.27	1.92	2.72
21-ต.ค.-2001	-0.09	0.00	-5.56	8.15	0.00
28-ต.ค.-2001	-1.45	-1.92	-1.76	1.74	1.99
4-พ.ย.-2001	-2.27	0.00	1.80	-1.71	1.95
11-พ.ย.-2001	-2.23	-0.98	0.59	1.74	-1.27
18-พ.ย.-2001	2.77	3.96	1.75	2.85	-0.65
25-พ.ย.-2001	7.70	-2.86	0.69	12.47	1.95
2-ธ.ค.-2001	1.97	0.00	1.37	-3.20	1.91
9-ธ.ค.-2001	0.47	2.94	1.35	-1.53	1.25
16-ธ.ค.-2001	-3.31	2.86	1.33	4.91	5.56
23-ธ.ค.-2001	0.91	-0.93	1.32	6.90	1.75
30-ธ.ค.-2001	2.41	1.87	2.60	11.98	-0.57
6-ม.ค.-2002	3.91	1.83	7.59	5.14	2.31
13-ม.ค.-2002	2.16	5.41	12.94	8.81	10.17
20-ม.ค.-2002	-1.56	0.85	-6.25	-4.14	-4.62
27-ม.ค.-2002	6.76	2.54	3.33	1.88	3.23
3-ก.พ.-2002	-0.69	0.83	-3.23	0.55	-0.52
10-ก.พ.-2002	5.03	10.66	5.56	17.03	1.57
17-ก.พ.-2002	5.50	8.15	2.11	2.03	-0.52
24-ก.พ.-2002	-5.82	-4.11	4.12	3.83	4.66
3-มี.ค.-2002	8.35	2.14	9.90	5.76	-4.95

10-มี.ค.-2002	2.63	2.80	23.42	7.12	1.04
17-มี.ค.-2002	-3.39	-5.44	-5.11	-0.91	-3.09
24-มี.ค.-2002	3.16	-7.19	-0.77	-27.24	-1.06
31-มี.ค.-2002	-3.95	2.33	0.78	11.57	1.61
7-เม.ย.-2002	-1.06	0.76	-8.46	0.97	0.00
14-เม.ย.-2002	2.61	0.75	8.40	9.79	3.17
21-เม.ย.-2002	1.81	5.22	0.78	0.88	-0.51
28-เม.ย.-2002	-2.61	-17.73	-1.54	1.88	1.55
5-พ.ค.-2002	-0.63	-2.59	-0.78	0.85	-0.51
12-พ.ค.-2002	2.15	0.00	0.00	4.51	-10.20
19-พ.ค.-2002	-1.01	0.00	-2.36	-2.56	-9.09
26-พ.ค.-2002	3.66	-2.65	1.61	-2.63	1.25
2-มิ.ย.-2002	4.05	1.82	-0.79	0.00	-0.62
9-มิ.ย.-2002	2.30	-2.68	-1.60	-1.85	-3.73
16-มิ.ย.-2002	1.22	0.00	0.00	7.39	-1.29
23-มิ.ย.-2002	-6.39	-3.67	-1.63	-6.88	-0.65
30-มิ.ย.-2002	-1.61	0.95	0.83	-11.59	-1.32
7-ก.ค.-2002	3.08	2.83	0.82	0.49	1.33
14-ก.ค.-2002	-0.11	-2.75	0.00	-11.42	2.63
21-ก.ค.-2002	-1.59	0.94	0.00	-0.55	-2.56
28-ก.ค.-2002	-7.05	-2.80	-1.63	-5.37	-1.97
4-ส.ค.-2002	1.09	-0.96	0.00	3.72	0.00
11-ส.ค.-2002	-0.92	-7.96	0.83	-7.17	0.67
18-ส.ค.-2002	1.62	3.80	-0.82	11.59	-1.33
25-ส.ค.-2002	-1.61	-0.81	1.65	-6.92	0.00
1-ก.ย.-2002	-1.59	-6.56	0.00	7.44	0.00
8-ก.ย.-2002	-2.11	-3.95	-6.50	0.00	-0.68
15-ก.ย.-2002	1.02	1.83	-0.87	-1.09	-2.04

22-ก.ย.-2002	-1.58	-1.35	0.00	-1.84	0.00
29-ก.ย.-2002	-3.64	-3.64	0.88	-2.25	-2.08
6-ต.ค.-2002	0.65	2.36	0.00	0.58	2.13
13-ต.ค.-2002	-3.08	-1.38	-1.74	-1.15	-0.69
20-ต.ค.-2002	3.65	4.67	0.88	0.58	0.70
27-ต.ค.-2002	1.75	-0.89	0.00	0.00	0.00
3-พ.ย.-2002	2.65	1.35	-0.88	0.58	3.47
10-พ.ย.-2002	-0.75	-2.67	1.77	-1.15	-2.01
17-พ.ย.-2002	0.35	2.28	0.00	-1.35	5.48
24-พ.ย.-2002	1.78	0.00	-0.87	0.00	3.25
1-ธ.ค.-2002	0.64	-3.57	0.88	-0.59	0.63
8-ธ.ค.-2002	0.05	-3.70	0.87	6.30	2.50
15-ธ.ค.-2002	-2.44	0.96	1.72	-1.30	0.00
22-ธ.ค.-2002	-1.74	-0.48	-1.69	-1.13	-2.44
29-ธ.ค.-2002	1.85	0.48	1.72	3.61	1.25
5-ม.ค.-2003	0.21	0.48	0.00	1.28	-0.62
12-ม.ค.-2003	0.88	0.00	-0.85	-0.72	1.24
19-ม.ค.-2003	1.88	0.95	0.85	0.73	-1.23
26-ม.ค.-2003	2.49	3.29	0.00	7.96	0.62
2-ก.พ.-2003	-1.67	-1.36	0.00	1.68	1.23
9-ก.พ.-2003	2.42	-1.38	-0.85	-0.99	0.61
16-ก.พ.-2003	-2.70	0.00	1.71	-1.66	-1.21
23-ก.พ.-2003	-2.49	0.00	0.00	-17.77	2.45
2-มี.ค.-2003	0.50	-1.87	0.84	-2.67	-13.77
9-มี.ค.-2003	-0.79	-16.67	-2.50	-6.13	2.08
16-มี.ค.-2003	-0.07	-4.57	-0.85	-2.25	0.00
23-มี.ค.-2003	1.50	4.79	0.00	3.69	2.04
30-มี.ค.-2003	1.63	-2.29	0.00	-6.67	0.00

6-เม.ย.-2003	0.65	-1.75	0.86	-2.38	4.67
13-เม.ย.-2003	3.07	10.12	-3.42	1.46	0.00
20-เม.ย.-2003	0.30	-2.16	-0.88	1.92	1.91
27-เม.ย.-2003	-4.15	-5.52	-1.79	-4.25	0.00
4-พ.ค.-2003	1.82	1.17	-0.91	7.39	0.63
11-พ.ค.-2003	2.42	8.09	0.00	14.68	-6.83
18-พ.ค.-2003	-0.34	-5.88	-1.83	-7.60	-6.00
25-พ.ค.-2003	3.27	9.66	0.00	20.13	-0.71
1-มิ.ย.-2003	2.10	9.33	2.80	14.41	2.86
8-มิ.ย.-2003	3.56	-2.37	0.91	-3.94	-0.69
15-มิ.ย.-2003	2.33	0.97	1.80	-3.28	0.00
22-มิ.ย.-2003	5.77	4.81	1.77	5.08	0.70
29-มิ.ย.-2003	1.07	10.55	6.09	3.23	2.08
6-ก.ค.-2003	8.35	2.07	3.28	-0.78	3.40
13-ก.ค.-2003	-2.29	-3.66	-0.79	-2.36	-0.66
20-ก.ค.-2003	1.79	3.80	1.60	6.45	1.99
27-ก.ค.-2003	-1.66	-0.41	3.15	-2.27	-1.95
3-ส.ค.-2003	1.38	-0.41	19.85	0.00	1.32
10-ส.ค.-2003	2.37	0.82	2.55	2.33	5.88
17-ส.ค.-2003	3.15	9.76	-1.86	-3.03	11.11
24-ส.ค.-2003	3.04	-3.70	4.43	-1.56	-0.56
31-ส.ค.-2003	0.54	1.92	-0.61	4.76	6.15
7-ก.ย.-2003	3.74	0.94	-0.61	-2.27	2.11
14-ก.ย.-2003	1.89	-1.87	11.66	-1.55	-1.03
21-ก.ย.-2003	-0.20	-3.81	-8.79	-8.66	-0.52
28-ก.ย.-2003	2.41	-2.97	-0.60	-6.90	0.00
5-ต.ค.-2003	-3.88	0.82	-1.21	-0.93	-6.28
12-ต.ค.-2003	4.26	3.24	1.84	1.87	-1.68

19-ต.ค.-2003	1.11	-5.88	0.60	-1.83	-0.57
26-ต.ค.-2003	3.51	0.42	31.74	3.74	0.57
2-พ.ย.-2003	4.96	-1.24	21.82	3.60	-0.57
9-พ.ย.-2003	4.93	7.14	20.52	0.00	4.00
16-พ.ย.-2003	-2.03	-3.92	-32.51	-2.61	-1.65
23-พ.ย.-2003	-6.69	-8.98	-5.50	-4.46	1.12
30-พ.ย.-2003	5.31	2.69	1.94	1.87	-2.76
7-ธ.ค.-2003	2.05	0.44	-1.43	1.83	1.70
14-ธ.ค.-2003	2.30	-3.91	-5.31	-3.60	-1.68
21-ธ.ค.-2003	5.14	-3.17	-3.57	-6.54	0.57
28-ธ.ค.-2003	3.63	3.74	-6.88	11.00	1.69

ภาคผนวก ข

ผลการทดสอบจากโปรแกรมของตลาดหลักทรัพย์แห่งประเทศไทย

การทดสอบยูนิทรูท

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-15.35493	1% Critical Value*	-2.5736
		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: 03/07/02 Time: 13:58
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.960551	0.062557	-15.35493	0.0000

R-squared	0.479432	Mean dependent var	0.014514
Adjusted R-squared	0.479432	S.D. dependent var	5.421857
S.E. of regression	3.911893	Akaike info criterion	5.569803
Sum squared resid	3917.543	Schwarz criterion	5.583613
Log likelihood	-714.7197	Durbin-Watson stat	1.967925

2. แนวเดินเชิงสุ่ม และจุดตัดแกน

ADF Test Statistic	-15.47308	1% Critical Value*	-3.4574
		5% Critical Value	-2.8729
		10% Critical Value	-2.5728

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RM)
Method: Least Squares
Date: 03/07/02 Time: 14:01
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.969811	0.062677	-15.47308	0.0000
C	0.376966	0.244488	1.541859	0.1243

R-squared	0.484240	Mean dependent var	0.014514
Adjusted R-squared	0.482217	S.D. dependent var	5.421857
S.E. of regression	3.901412	Akaike info criterion	5.568306
Sum squared resid	3881.358	Schwarz criterion	5.595925
Log likelihood	-713.5273	F-statistic	239.4161
Durbin-Watson stat	1.965373	Prob(F-statistic)	0.000000

3. แนวเดินเชิงสุ่ม จุดตัดแกน และแนวโน้ม

ADF Test Statistic	-15.58447	1% Critical Value*	-3.9970
		5% Critical Value	-3.4286
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RM)
Method: Least Squares
Date: 03/07/02 Time: 14:01
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.978498	0.062787	-15.58447	0.0000
C	-0.258682	0.487183	-0.530976	0.5959
@TREND(1)	0.004953	0.003286	1.507184	0.1330

R-squared	0.488812	Mean dependent var	0.014514
Adjusted R-squared	0.484787	S.D. dependent var	5.421857
S.E. of regression	3.891720	Akaike info criterion	5.567184
Sum squared resid	3846.953	Schwarz criterion	5.608613
Log likelihood	-712.3831	F-statistic	121.4408
Durbin-Watson stat	1.963495	Prob(F-statistic)	0.000000

ภาคผนวก ค

ผลการทดสอบจากโปรแกรมของหลักทรัพย์
บริษัทเจริญโภคภัณฑ์อาหาร จำกัด (มหาชน)

การทดสอบยูนิทรูท

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-14.61862	1% Critical Value*	-2.5736
		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(RICPF)
Method: Least Squares
Date: 03/07/02 Time: 14:02
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RICPF(-1)	-0.910655	0.062294	-14.61862	0.0000

R-squared	0.454975	Mean dependent var	0.012529
Adjusted R-squared	0.454975	S.D. dependent var	8.330030
S.E. of regression	6.149713	Akaike info criterion	6.474571
Sum squared resid	9681.658	Schwarz criterion	6.488381
Log likelihood	-830.9824	Durbin-Watson stat	1.990876

2. แนวเดินเชิงสุ่ม และจุดตัดแกน

ADF Test Statistic	-14.71410	1%	Critical Value*	-3.4574
		5%	Critical Value	-2.8729
		10%	Critical Value	-2.5728

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RICPF)
Method: Least Squares
Date: 03/07/02 Time: 14:02
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RICPF(-1)	-0.918872	0.062448	-14.71410	0.0000
C	0.541399	0.384558	1.407847	0.1604

R-squared	0.459178	Mean dependent var	0.012529
Adjusted R-squared	0.457058	S.D. dependent var	8.330030
S.E. of regression	6.137952	Akaike info criterion	6.474611
Sum squared resid	9606.986	Schwarz criterion	6.502230
Log likelihood	-829.9875	F-statistic	216.5048
Durbin-Watson stat	1.990622	Prob(F-statistic)	0.000000

3. แนวเดินเชิงสุ่ม จุดตัดแกน และแนวโน้ม

ADF Test Statistic	-14.87785	1%	Critical Value*	-3.9970
		5%	Critical Value	-3.4286
		10%	Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RICPF)
Method: Least Squares
Date: 03/07/02 Time: 14:03
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RICPF(-1)	-0.932252	0.062660	-14.87785	0.0000
C	1.721700	0.773820	2.224937	0.0270
@TREND(1)	-0.009090	0.005178	-1.755380	0.0804

R-squared	0.465661	Mean dependent var	0.012529
Adjusted R-squared	0.461453	S.D. dependent var	8.330030
S.E. of regression	6.113055	Akaike info criterion	6.470335
Sum squared resid	9491.837	Schwarz criterion	6.511764
Log likelihood	-828.4380	F-statistic	110.6767
Durbin-Watson stat	1.989403	Prob(F-statistic)	0.000000

การทดสอบการร่วมกันไปด้วยกัน

Dependent Variable: RICPF
Method: Least Squares
Date: 03/07/02 Time: 14:28
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.274550	0.352995	0.777774	0.4374
RM	0.649519	0.090069	7.211360	0.0000
RICPF(-1)	0.106622	0.057117	1.866752	0.0631

R-squared	0.175402	Mean dependent var	0.588093
Adjusted R-squared	0.168909	S.D. dependent var	6.146191
S.E. of regression	5.603124	Akaike info criterion	6.296130
Sum squared resid	7974.329	Schwarz criterion	6.337559
Log likelihood	-806.0527	F-statistic	27.01449
Durbin-Watson stat	2.015636	Prob(F-statistic)	0.000000

Estimation Command:
==========
LS RICPF C RM RICPF(-1)

Estimation Equation:
==========
RICPF = C(1) + C(2)*RM + C(3)*RICPF(-1)

Substituted Coefficients:
==========
RICPF = 0.2745503726 + 0.6495186883*RM + 0.1066223603*RICPF(-1)

การทดสอบยูนิทรูทโดยใช้ส่วนที่เหลือ

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-16.28071	1% Critical Value*	-2.5736
		5% Critical Value	-1.9409
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(E)
Method: Least Squares
Date: 03/07/02 Time: 14:30
Sample(adjusted): 3 258
Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
E(-1)	-1.013699	0.062264	-16.28071	0.0000

R-squared	0.509659	Mean dependent var	0.043042
Adjusted R-squared	0.509659	S.D. dependent var	7.939198
S.E. of regression	5.559373	Akaike info criterion	6.272746
Sum squared resid	7881.189	Schwarz criterion	6.286594
Log likelihood	-801.9115	Durbin-Watson stat	2.005009

แบบจำลองเอเรอร์คอร์เรคชัน

Dependent Variable: D(RICPF)
Method: Least Squares
Date: 03/07/02 Time: 14:31
Sample(adjusted): 3 258
Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020899	0.398741	0.052413	0.9582
D(RM(-1))	-0.273144	0.090685	-3.012000	0.0029
D(RICPF(-1))	0.124545	0.079572	1.565194	0.1188
E(-1)	-1.079510	0.108255	-9.971962	0.0000

R-squared	0.422496	Mean dependent var	0.019609
Adjusted R-squared	0.415621	S.D. dependent var	8.345573
S.E. of regression	6.379748	Akaike info criterion	6.559636
Sum squared resid	10256.70	Schwarz criterion	6.615029
Log likelihood	-835.6334	F-statistic	61.45347
Durbin-Watson stat	2.059721	Prob(F-statistic)	0.000000

แบบจำลองสมการถดถอยแบบสลับเปลี่ยน

1. ภาวะขาขึ้น

Dependent Variable: RICPF
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:01
Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: I
Convergence achieved after 7 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	6.533146	0.694401	9.408323	0.0000
RM	2.053951	0.180568	11.37493	0.0000
Error Distribution				
SCALE:C(3)	6.758131	0.445806	15.15936	0.0000

Mean dependent var	0.587829	S.D. dependent var	6.134223
Akaike info criterion	3.191565	Schwarz criterion	3.232878
Log likelihood	-408.7119	Hannan-Quinn criter.	3.208177
Avg. log likelihood	-1.584154		
Left censored obs	0	Right censored obs	145
Uncensored obs	113	Total obs	258

2. ภาวะขาลง

Dependent Variable: RICPF
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:02
Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: II
Convergence achieved after 6 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	5.374784	0.622589	8.632953	0.0000
RM	-0.563727	0.165936	-3.397250	0.0007
Error Distribution				
SCALE:C(3)	6.491232	0.379932	17.08526	0.0000

Mean dependent var	0.587829	S.D. dependent var	6.134223
Akaike info criterion	3.965572	Schwarz criterion	4.006886
Log likelihood	-508.5588	Hannan-Quinn criter.	3.982185
Avg. log likelihood	-1.971158		
Left censored obs	0	Right censored obs	113
Uncensored obs	145	Total obs	258

3. ทั้งภาวะขาขึ้น และขาลง

```
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = RICPF    Mean=   2.195508757    , S.D.=   5.829327626    |
| Model size: Observations =    145, Parameters =   2, Deg.Fr.=    143 |
| Residuals:  Sum of squares= 4376.017394    , Std.Dev.=        5.53186 |
| Fit:        R-squared=  .105707, Adjusted R-squared =          .09945 |
| Model test: F[  1,    143] =   16.90,    Prob value =          .00007 |
| Diagnostic: Log-L =   -452.7652, Restricted(b=0) Log-L =   -460.8651 |
|             LogAmemiyaPrCrt.=    3.435, Akaike Info. Crt.=     6.273 |
| OLS estimates of equation 1                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient  | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant -.1278121756      .72827691        -.175   .8607
 RM        .7756006043      .18865015        4.111   .0000  2.9955120
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = RICPF    Mean=  -1.475624373    , S.D.=   5.916733039    |
| Model size: Observations =    113, Parameters =   2, Deg.Fr.=    111 |
| Residuals:  Sum of squares= 3708.042740    , Std.Dev.=        5.77977 |
| Fit:        R-squared=  .054280, Adjusted R-squared =          .04576 |
| Model test: F[  1,    111] =    6.37,    Prob value =          .01302 |
| Diagnostic: Log-L =   -357.5743, Restricted(b=0) Log-L =   -360.7275 |
|             LogAmemiyaPrCrt.=    3.526, Akaike Info. Crt.=     6.364 |
| OLS estimates of equation 0                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient  | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant  .6728380148      .69641417         .966   .3340
 RM        .7255699151      .14696123        4.937   .0000 -2.9610687
Normal exit from iterations. Exit status=0.
              +---------------------------------------------+
              | Switching Regressions                       |
              | Maximum Likelihood Estimates                |
              | Dependent variable              RICPF       |
              | Weighting variable                ONE       |
              | Number of observations            261       |
              | Iterations completed               12       |
              | Log likelihood function       -948.3911     |
              | Sample separation variable is I             |
              | RICPF    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  6.533146852      .57341432         8.834   .0000
 RM        2.053951247      .36464734E-01    27.582   .0000  2.9955120
         RHS for Regime 2
 Constant  5.374711719      .68596666         7.835   .0000
 RM       -.5638292660      .13741004        -4.103   .0000 -2.9610687
 Sigma(1)  6.629406361      .39061915        16.972   .0000
 Sigma(0)  6.491258176      .39092720        16.605   .0000
```


ภาคผนวก ง

ผลการทดสอบจากโปรแกรมของหลักทรัพย์

บริษัทลีพัฒนาผลิตภัณฑ์ จำกัด (มหาชน)

การทดสอบยูนิทรูท

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-15.89323	1% Critical Value*	-2.5736
		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(RILEE)
Method: Least Squares
Date: 03/07/02 Time: 14:04
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RILEE(-1)	-0.994976	0.062604	-15.89323	0.0000

R-squared	0.496647	Mean dependent var	-0.033307
Adjusted R-squared	0.496647	S.D. dependent var	10.17307
S.E. of regression	7.217527	Akaike info criterion	6.794785
Sum squared resid	13335.73	Schwarz criterion	6.808595
Log likelihood	-872.1299	Durbin-Watson stat	1.996339

2. แนวเดินเชิงสุ่ม และจุดตัดแกน

ADF Test Statistic	-16.47884	1% Critical Value*	-3.4574

		5% Critical Value	-2.8729
		10% Critical Value	-2.5728

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RILEE)
Method: Least Squares
Date: 03/07/02 Time: 14:04
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RILEE(-1)	-1.034107	0.062754	-16.47884	0.0000
C	1.430095	0.451295	3.168872	0.0017

R-squared	0.515717	Mean dependent var	-0.033307
Adjusted R-squared	0.513818	S.D. dependent var	10.17307
S.E. of regression	7.093348	Akaike info criterion	6.763944
Sum squared resid	12830.47	Schwarz criterion	6.791563
Log likelihood	-867.1667	F-statistic	271.5522
Durbin-Watson stat	1.997945	Prob(F-statistic)	0.000000

3. แนวเดินเชิงสุ่ม จุดตัดแกน และแนวโน้ม

ADF Test Statistic	-16.65893	1% Critical Value*	-3.9970
		5% Critical Value	-3.4286
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RILEE)
Method: Least Squares
Date: 03/07/02 Time: 14:05
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RILEE(-1)	-1.046125	0.062797	-16.65893	0.0000
C	2.869449	0.899310	3.190721	0.0016
@TREND(1)	-0.011026	0.005968	-1.847450	0.0658

R-squared	0.522139	Mean dependent var	-0.033307
Adjusted R-squared	0.518376	S.D. dependent var	10.17307
S.E. of regression	7.060022	Akaike info criterion	6.758378
Sum squared resid	12660.35	Schwarz criterion	6.799807
Log likelihood	-865.4516	F-statistic	138.7675
Durbin-Watson stat	2.002099	Prob(F-statistic)	0.000000

การทดสอบการร่วมกันไปด้วยกัน

Dependent Variable: RILEE
Method: Least Squares

Date: 03/07/02 Time: 14:35
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.375388	0.451319	3.047484	0.0026
RM	0.180023	0.114144	1.577159	0.1160
RILEE(-1)	-0.044839	0.062940	-0.712398	0.4769

R-squared	0.010844	Mean dependent var	1.381829
Adjusted R-squared	0.003055	S.D. dependent var	7.083580
S.E. of regression	7.072750	Akaike info criterion	6.761980
Sum squared resid	12706.04	Schwarz criterion	6.803409
Log likelihood	-865.9145	F-statistic	1.392276
Durbin-Watson stat	2.014155	Prob(F-statistic)	0.250399

Estimation Command:
==========
LS RILEE C RM RILEE(-1)

Estimation Equation:
==========
RILEE = C(1) + C(2)*RM + C(3)*RILEE(-1)

Substituted Coefficients:
==========
RILEE = 1.375387736 + 0.1800227552*RM - 0.04483851281*RILEE(-1)

การทดสอบยูนิทรูทโดยใช้ส่วนที่เหลือ

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-16.09868	1%	Critical Value*	-2.5736
		5%	Critical Value	-1.9409
		10%	Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(E)
Method: Least Squares
Date: 03/07/02 Time: 14:38
Sample(adjusted): 3 258
Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
E(-1)	-1.010868	0.062792	-16.09868	0.0000

R-squared	0.504050	Mean dependent var	-0.021726
Adjusted R-squared	0.504050	S.D. dependent var	10.01799
S.E. of regression	7.055036	Akaike info criterion	6.749259
Sum squared resid	12692.25	Schwarz criterion	6.763107
Log likelihood	-862.9052	Durbin-Watson stat	1.985435

แบบจำลองเอเรอร์คอร์เรคชัน

Dependent Variable: D(RILEE)
Method: Least Squares
Date: 03/07/02 Time: 14:39
Sample(adjusted): 3 258
Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010312	0.443133	0.023271	0.9815
D(RM(-1))	0.035594	0.082056	0.433779	0.6648
D(RILEE(-1))	0.016475	0.060565	0.272028	0.7858
E(-1)	-1.060758	0.087901	-12.06766	0.0000

R-squared	0.521851	Mean dependent var	-0.026875
Adjusted R-squared	0.516159	S.D. dependent var	10.19247
S.E. of regression	7.089751	Akaike info criterion	6.770679
Sum squared resid	12666.67	Schwarz criterion	6.826072
Log likelihood	-862.6469	F-statistic	91.67750
Durbin-Watson stat	1.984213	Prob(F-statistic)	0.000000

แบบจำลองสมการถดถอยแบบสลับเปลี่ยน

1. ภาวะขาขึ้น

Dependent Variable: RILEE
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:03

Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: I
Convergence achieved after 7 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	3.711420	0.598006	6.206330	0.0000
RM	0.116618	0.073132	1.594629	0.1108
Error Distribution				
SCALE:C(3)	7.207103	0.543997	13.24842	0.0000
Mean dependent var	0.386357	S.D. dependent var		3.888088
Akaike info criterion	3.716140	Schwarz criterion		3.757454
Log likelihood	-476.3821	Hannan-Quinn criter.		3.732753
Avg. log likelihood	-1.846442			
Left censored obs	0	Right censored obs		145
Uncensored obs	113	Total obs		258

2. ภาวะขาลง

Dependent Variable: RILEE
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:03
Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: II
Convergence achieved after 8 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	3.018457	0.194406	15.52653	0.0000
RM	0.037889	0.026488	1.430430	0.1526
Error Distribution				
SCALE:C(3)	2.337124	0.129025	18.11376	0.0000
Mean dependent var	0.386357	S.D. dependent var		3.888088
Akaike info criterion	2.634784	Schwarz criterion		2.676098
Log likelihood	-336.8872	Hannan-Quinn criter.		2.651397
Avg. log likelihood	-1.305764			
Left censored obs	0	Right censored obs		113
Uncensored obs	145	Total obs		258

3. ทั้งภาวะขาขึ้น และขาลง

```
+--------------------------------------------------------------------+
| Switching Regressions                                              |
| Ordinary    least squares regression    Weighting variable = none  |
| Dep. var. = RILEE    Mean=   2.063956879    , S.D.=   7.020893532  |
| Model size: Observations =     145, Parameters =   2, Deg.Fr.=    143 |
| Residuals:  Sum of squares= 6972.210563    , Std.Dev.=        6.98260 |
| Fit:        R-squared=  .017747, Adjusted R-squared =         .01088 |
| Model test: F[  1,    143] =    2.58,    Prob value =         .11017 |
| Diagnostic: Log-L =   -486.5352, Restricted(b=0) Log-L =    -487.8335 |
```

```
|            LogAmemiyaPrCrt.=    3.901, Akaike Info. Crt.=      6.738 |
| OLS estimates of equation 1                                           |
+-----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant  .6857298928      .77868077         .881   .3785
 RM        .4600972979      .17349366        2.652   .0080  2.9955120
+-----------------------------------------------------------------------+
| Switching Regressions                                                 |
| Ordinary    least squares regression    Weighting variable = none     |
| Dep. var. = RILEE    Mean=   .5092542645    , S.D.=   7.067046664     |
| Model size: Observations =     113, Parameters =   2, Deg.Fr.=    111 |
| Residuals:  Sum of squares= 5627.710629    , Std.Dev.=       7.12040 |
| Fit:        R-squared= -.006092, Adjusted R-squared =       -.01516 |
| Diagnostic: Log-L =   -381.1460, Restricted(b=0) Log-L =    -380.8029 |
|            LogAmemiyaPrCrt.=    3.943, Akaike Info. Crt.=      6.781 |
| OLS estimates of equation 0                                           |
+-----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant  .6884878892     .85794828         .802   .4223
 RM        .6053004539E-01  .18104907         .334   .7381 -2.9610687

Normal exit from iterations. Exit status=0.
              +---------------------------------------------+
              | Switching Regressions                       |
              | Maximum Likelihood Estimates                |
              | Dependent variable               RILEE      |
              | Weighting variable                 ONE      |
              | Number of observations             261      |
              | Iterations completed                14      |
              | Log likelihood function       -998.5107     |
              | Sample separation variable is I             |
              | RILEE    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  3.711420235      .78348001        9.647   .0000
 RM        0.116618244      .75963683E-01   13.271   .0000  2.9955120
         RHS for Regime 2
 Constant  3.018457238      .81922411        8.991   .0000
 RM        0.037889546      .15394028       -7.856   .0000 -2.9610687
 Sigma(1)  8.535044258      .37656803       22.665   .0000
 Sigma(0)  7.830995444      .42971967       18.223   .0000
```


ภาคผนวก จ

ผลการทดสอบจากโปรแกรมของหลักทรัพย์

บริษัทจีเอฟพีที จำกัด (มหาชน)

การทดสอบยูนิทรูท

1. แนวเดินเชิงสุ่ม

ADF Test Statistic -15.26031 1% Critical Value* -2.5736

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(RIGFPT)
Method: Least Squares
Date: 03/07/02 Time: 14:05
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RIGFPT(-1)	-0.956315	0.062667	-15.26031	0.0000

R-squared	0.476345	Mean dependent var	0.037315
Adjusted R-squared	0.476345	S.D. dependent var	11.09183
S.E. of regression	8.026493	Akaike info criterion	7.007256
Sum squared resid	16492.70	Schwarz criterion	7.021065
Log likelihood	-899.4324	Durbin-Watson stat	2.002814

2. แนวเดินเชิงสุ่ม และจุดตัดแกน

ADF Test Statistic	-15.51893	1% Critical Value*	-3.4574
		5% Critical Value	-2.8729
		10% Critical Value	-2.5728

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RIGFPT)
Method: Least Squares
Date: 03/07/02 Time: 14:06
Sample(adjusted): 2 258

Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RIGFPT(-1)	-0.974472	0.062792	-15.51893	0.0000
C	1.081555	0.501682	2.155855	0.0320

R-squared	0.485718	Mean dependent var	0.037315
Adjusted R-squared	0.483702	S.D. dependent var	11.09183
S.E. of regression	7.969913	Akaike info criterion	6.996976
Sum squared resid	16197.47	Schwarz criterion	7.024595
Log likelihood	-897.1114	F-statistic	240.8373
Durbin-Watson stat	1.998958	Prob(F-statistic)	0.000000

3. แนวเดินเชิงสุ่ม จุดตัดแกน และแนวโน้ม

ADF Test Statistic	-15.49563	1% Critical Value*	-3.9970
		5% Critical Value	-3.4286
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RIGFPT)
Method: Least Squares
Date: 03/07/02 Time: 14:06
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RIGFPT(-1)	-0.975173	0.062932	-15.49563	0.0000
C	1.387186	1.003418	1.382460	0.1680
@TREND(1)	-0.002363	0.006716	-0.351906	0.7252

R-squared	0.485969	Mean dependent var	0.037315
Adjusted R-squared	0.481922	S.D. dependent var	11.09183
S.E. of regression	7.983640	Akaike info criterion	7.004270
Sum squared resid	16189.58	Schwarz criterion	7.045699
Log likelihood	-897.0487	F-statistic	120.0668
Durbin-Watson stat	1.998403	Prob(F-statistic)	0.000000

การทดสอบการร่วมกันไปด้วยกัน

Dependent Variable: RIGFRT
Method: Least Squares
Date: 03/07/02 Time: 14:42
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.806937	0.474766	1.699653	0.0904
RM	0.697939	0.120410	5.796344	0.0000
RIGFRT(-1)	0.028928	0.059130	0.489228	0.6251

R-squared	0.117394	Mean dependent var	1.108911
Adjusted R-squared	0.110444	S.D. dependent var	7.956909

S.E. of regression	7.504660	Akaike info criterion	6.880530
Sum squared resid	14305.26	Schwarz criterion	6.921959
Log likelihood	-881.1481	F-statistic	16.89201
Durbin-Watson stat	2.062895	Prob(F-statistic)	0.000000

Estimation Command:
==========
LS RIGFRT C RM RIGFRT(-1)

Estimation Equation:
==========
RIGFRT = C(1) + C(2)*RM + C(3)*RIGFRT(-1)

Substituted Coefficients:
==========
RIGFRT = 0.8069374461 + 0.6979386079*RM + 0.02892796676*RIGFRT(-1)

การทดสอบยูนิทรูทโดยใช้ส่วนที่เหลือ

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-16.58408	1% Critical Value*	-2.5736
		5% Critical Value	-1.9409
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(E)
Method: Least Squares
Date: 03/07/02 Time: 14:46
Sample(adjusted): 3 258

Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
E(-1)	-1.036851	0.062521	-16.58408	0.0000

R-squared	0.518878	Mean dependent var	0.067395
Adjusted R-squared	0.518878	S.D. dependent var	10.75741
S.E. of regression	7.461660	Akaike info criterion	6.861331
Sum squared resid	14197.47	Schwarz criterion	6.875180
Log likelihood	-877.2504	Durbin-Watson stat	1.991483

แบบจำลองเอเรอร์คอร์เรคชัน

Dependent Variable: D(RIGFPT)
Method: Least Squares
Date: 03/07/02 Time: 14:46
Sample(adjusted): 3 258
Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015455	0.501184	0.030838	0.9754
D(RM(-1))	-0.193750	0.104964	-1.845861	0.0661
D(RIGFPT(-1))	-0.087900	0.069474	-1.265226	0.2070
E(-1)	-0.937714	0.098219	-9.547183	0.0000

R-squared	0.485479	Mean dependent var	0.042969
Adjusted R-squared	0.479353	S.D. dependent var	11.11319
S.E. of regression	8.018813	Akaike info criterion	7.016959
Sum squared resid	16203.94	Schwarz criterion	7.072353
Log likelihood	-894.1708	F-statistic	79.25854
Durbin-Watson stat	2.051772	Prob(F-statistic)	0.000000

แบบจำลองสมการถดถอยแบบสลับเปลี่ยน

1. ภาวะขาขึ้น

Dependent Variable: RIGFPT
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:04
Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: I
Convergence achieved after 7 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	3.392815	0.541935	6.260563	0.0000
RM	0.400958	0.068141	5.884242	0.0000

Error Distribution

SCALE:C(3)	6.518467	0.487244	13.37823	0.0000
Mean dependent var	0.386357	S.D. dependent var		3.888088
Akaike info criterion	3.581509	Schwarz criterion		3.622822
Log likelihood	-459.0146	Hannan-Quinn criter.		3.598121
Avg. log likelihood	-1.779126			
Left censored obs	0	Right censored obs		145
Uncensored obs	113	Total obs		258

2. ภาวะขาลง

Dependent Variable: RIGFPT
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:05
Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: II
Convergence achieved after 8 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	3.075393	0.204947	15.00577	0.0000
RM	0.005150	0.025171	0.204612	0.8379
Error Distribution				
SCALE:C(3)	2.358149	0.130113	18.12387	0.0000
Mean dependent var	0.386357	S.D. dependent var		3.888088
Akaike info criterion	2.642383	Schwarz criterion		2.683697
Log likelihood	-337.8675	Hannan-Quinn criter.		2.658996
Avg. log likelihood	-1.309564			
Left censored obs	0	Right censored obs		113
Uncensored obs	145	Total obs		258

3. ทั้งภาวะขาขึ้น และขาลง

```
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = RIGFRT   Mean=   3.266765256    , S.D.=   7.607884310    |
| Model size: Observations =     145, Parameters =   2, Deg.Fr.=    143 |
| Residuals:  Sum of squares= 8358.219025    , Std.Dev.=        7.64520 |
| Fit:        R-squared= -.002821, Adjusted R-squared =        -.00983 |
| Diagnostic: Log-L =   -499.6804, Restricted(b=0) Log-L =   -499.4762 |
|             LogAmemiyaPrCrt.=    4.082, Akaike Info. Crt.=      6.920 |
| OLS estimates of equation 1                                          |
+----------------------------------------------------------------------+
+---------+-------------+---------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+---------------+--------+---------+----------+
 Constant  3.524277911     .85257202        4.134   .0000
 RM      -.8596615636E-01  .18995697        -.453   .6509  2.9955120
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = RIGFRT   Mean=  -1.657535575    , S.D.=   7.519691709    |
| Model size: Observations =     113, Parameters =   2, Deg.Fr.=    111 |
| Residuals:  Sum of squares= 5737.406456    , Std.Dev.=        7.18946 |
| Fit:        R-squared=  .094064, Adjusted R-squared =         .08590 |
| Model test: F[  1,    111] =   11.53,    Prob value =         .00095 |
| Diagnostic: Log-L =   -382.2367, Restricted(b=0) Log-L =   -387.8182 |
```

```
|             LogAmemiyaPrCrt.=    3.963, Akaike Info. Crt.=      6.801 |
| OLS estimates of equation 0                                           |
+-----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant  .1274888952E-01  .86626953          .015   .9883
 RM        .5640816263      .18280506        3.086   .0020 -2.9610687

Normal exit from iterations. Exit status=0.
             +--------------------------------------------+
             | Switching Regressions                      |
             | Maximum Likelihood Estimates               |
             | Dependent variable              RIGFRT     |
             | Weighting variable                 ONE     |
             | Number of observations             261     |
             | Iterations completed                13     |
             | Log likelihood function       -1015.297    |
             | Sample separation variable is I            |
             | RIGFRT   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  3.392815547      .81677809        8.642   .0000
 RM        0.400958632      .43368634E-01   23.248   .0000  2.9955120
          RHS for Regime 2
 Constant  3.075393515      .84634996        9.061   .0000
 RM        0.005150127      .19304927       -5.302   .0000 -2.9610687
 Sigma(1)  9.332597801      .43740563       21.336   .0000
 Sigma(0)  7.813637750      .29989183       26.055   .0000
```

ภาคผนวก ฉ

ผลการทดสอบจากโปรแกรมของหลักทรัพย์

บริษัทเชียงใหม่โฟรเซ่นฟูดส์ จำกัด (มหาชน)

การทดสอบยูนิทรูท

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-16.62104	1%	Critical Value*	-2.5736
		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(RICM)
Method: Least Squares
Date: 03/07/02 Time: 14:07
Sample(adjusted): 2 258

Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RICM(-1)	-1.032253	0.062105	-16.62104	0.0000

R-squared	0.519014	Mean dependent var	0.033424
Adjusted R-squared	0.519014	S.D. dependent var	5.573066
S.E. of regression	3.865098	Akaike info criterion	5.545734
Sum squared resid	3824.379	Schwarz criterion	5.559544
Log likelihood	-711.6269	Durbin-Watson stat	1.890448

2. แนวเดินเชิงสุ่ม และจุดตัดแกน

ADF Test Statistic	-16.67358	1% Critical Value*	-3.4574
		5% Critical Value	-2.8729
		10% Critical Value	-2.5728

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RICM)
Method: Least Squares
Date: 03/07/02 Time: 14:07
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RICM(-1)	-1.036756	0.062180	-16.67358	0.0000
C	0.282488	0.241387	1.170268	0.2430

R-squared	0.521583	Mean dependent var	0.033424
Adjusted R-squared	0.519707	S.D. dependent var	5.573066
S.E. of regression	3.862311	Akaike info criterion	5.548160
Sum squared resid	3803.949	Schwarz criterion	5.575779
Log likelihood	-710.9386	F-statistic	278.0082
Durbin-Watson stat	1.891760	Prob(F-statistic)	0.000000

3. แนวเดินเชิงสุ่ม จุดตัดแกน และแนวโน้ม

ADF Test Statistic	-16.64448	1% Critical Value*	-3.9970
		5% Critical Value	-3.4286
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RICM)
Method: Least Squares
Date: 03/07/02 Time: 14:07
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RICM(-1)	-1.036859	0.062294	-16.64448	0.0000
C	0.393489	0.484462	0.812218	0.4174
@TREND(1)	-0.000860	0.003253	-0.264422	0.7917

R-squared	0.521715	Mean dependent var	0.033424
Adjusted R-squared	0.517949	S.D. dependent var	5.573066
S.E. of regression	3.869374	Akaike info criterion	5.555667
Sum squared resid	3802.902	Schwarz criterion	5.597096
Log likelihood	-710.9032	F-statistic	138.5320
Durbin-Watson stat	1.892073	Prob(F-statistic)	0.000000

การทดสอบการร่วมกันไปด้วยกัน

Dependent Variable: RICM
Method: Least Squares
Date: 03/07/02 Time: 14:49
Sample(adjusted): 2 258
Included observations: 257 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.205336	0.237992	0.862786	0.3891
RM	0.200606	0.060807	3.299094	0.0011
RICM(-1)	-0.039812	0.061015	-0.652486	0.5147

R-squared	0.042402	Mean dependent var	0.273658
Adjusted R-squared	0.034862	S.D. dependent var	3.857400
S.E. of regression	3.789566	Akaike info criterion	5.513984
Sum squared resid	3647.645	Schwarz criterion	5.555413
Log likelihood	-705.5470	F-statistic	5.623495
Durbin-Watson stat	1.936478	Prob(F-statistic)	0.004076

Estimation Command:
==========
LS RICM C RM RICM(-1)

Estimation Equation:

==========
RICM = C(1) + C(2)*RM + C(3)*RICM(-1)

Substituted Coefficients:
==========
RICM = 0.2053364357 + 0.2006064651*RM - 0.0398117438*RICM(-1)

การทดสอบยูนิทรูทโดยใช้ส่วนที่เหลือ

1. แนวเดินเชิงสุ่ม

ADF Test Statistic	-16.08495	1% Critical Value*	-2.5736
		5% Critical Value	-1.9409
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(E)
Method: Least Squares
Date: 03/07/02 Time: 14:50
Sample(adjusted): 3 258
Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
E(-1)	-0.987635	0.061401	-16.08495	0.0000

R-squared	0.503592	Mean dependent var	-0.043326
Adjusted R-squared	0.503592	S.D. dependent var	5.262931
S.E. of regression	3.708061	Akaike info criterion	5.462794
Sum squared resid	3506.178	Schwarz criterion	5.476642

Log likelihood	-698.2376	Durbin-Watson stat	2.023808

แบบจำลองเอเรอร์คอร์เรคชัน

Dependent Variable: D(RICM)
Method: Least Squares
Date: 03/07/02 Time: 14:51
Sample(adjusted): 3 258
Included observations: 256 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.050930	0.233408	-0.218202	0.8274
D(RM(-1))	-0.143437	0.044673	-3.210782	0.0015
D(RICM(-1))	-0.016013	0.059023	-0.271296	0.7864
E(-1)	-1.013024	0.085967	-11.78382	0.0000

R-squared	0.530132	Mean dependent var	-0.051250
Adjusted R-squared	0.524538	S.D. dependent var	5.415813
S.E. of regression	3.734406	Akaike info criterion	5.488556
Sum squared resid	3514.339	Schwarz criterion	5.543950
Log likelihood	-698.5352	F-statistic	94.77347
Durbin-Watson stat	1.994511	Prob(F-statistic)	0.000000

แบบจำลองสมการถดถอยแบบสลับเปลี่ยน

1. ภาวะขาขึ้น

Dependent Variable: RICM
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:06
Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: I
Convergence achieved after 7 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	3.757655	0.582254	6.453636	0.0000
RM	0.474964	0.132698	3.579295	0.0003
Error Distribution				
SCALE:C(3)	7.011007	0.527328	13.29535	0.0000

Mean dependent var	0.386357	S.D. dependent var	3.888088
Akaike info criterion	3.675380	Schwarz criterion	3.716694
Log likelihood	-471.1240	Hannan-Quinn criter.	3.691992
Avg. log likelihood	-1.826062		
Left censored obs	0	Right censored obs	145

Uncensored obs	113	Total obs	258

2. ภาวะขาลง

Dependent Variable: RICM
Method: ML - Censored Normal (TOBIT)
Date: 03/07/02 Time: 22:06
Sample: 1 258
Included observations: 258
Left censoring (indicator) series: 0
Right censoring (indicator) series: II
Convergence achieved after 8 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	3.087972	0.194792	15.85266	0.0000
RM	0.003589	0.047884	0.074951	0.9403
Error Distribution				
SCALE:C(3)	2.359476	0.130100	18.13580	0.0000

Mean dependent var	0.386357	S.D. dependent var	3.888088
Akaike info criterion	2.642524	Schwarz criterion	2.683837
Log likelihood	-337.8855	Hannan-Quinn criter.	2.659136
Avg. log likelihood	-1.309634		
Left censored obs	0	Right censored obs	113
Uncensored obs	145	Total obs	258

3. ทั้งภาวะขาขึ้น และขาลง

```
+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = RICM     Mean=   .9438598166    , S.D.=   3.977034192    |
| Model size: Observations =     145, Parameters =   2, Deg.Fr.=    143 |
| Residuals:  Sum of squares= 2438.556539    , Std.Dev.=        4.12951 |
| Fit:        R-squared= -.070660, Adjusted R-squared =         -.07815 |
| Diagnostic: Log-L =   -410.3721, Restricted(b=0) Log-L =    -405.4221 |
|             LogAmemiyaPrCrt.=    2.850, Akaike Info. Crt.=      5.688 |
| OLS estimates of equation 1                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant -.4474730277      .46051165       -.972   .3312
 RM        .4644724625      .10260411       4.527   .0000  2.9955120


+----------------------------------------------------------------------+
| Switching Regressions                                                |
| Ordinary    least squares regression    Weighting variable = none    |
| Dep. var. = RICM     Mean=  -.6498192461    , S.D.=   3.563168132    |
| Model size: Observations =     113, Parameters =   2, Deg.Fr.=    111 |
| Residuals:  Sum of squares= 1410.895401    , Std.Dev.=        3.56522 |
| Fit:        R-squared=  .007789, Adjusted R-squared =         -.00115 |
| Model test: F[  1,    111] =     .87,    Prob value =          .35261 |
| Diagnostic: Log-L =   -302.9795, Restricted(b=0) Log-L =    -303.4213 |
|             LogAmemiyaPrCrt.=    2.560, Akaike Info. Crt.=      5.398 |
| OLS estimates of equation 0                                          |
+----------------------------------------------------------------------+
+---------+-------------+----------------+--------+---------+----------+
|Variable | Coefficient | Standard Error |b/St.Er.|P[|Z|>z] | Mean of X|
+---------+-------------+----------------+--------+---------+----------+
 Constant -.5288893689      .42957860      -1.231   .2183
 RM        .4083994264E-01  .90652089E-01     .451   .6523 -2.9610687
```

```
Normal exit from iterations. Exit status=0.

             +--------------------------------------------+
             | Switching Regressions                      |
             | Maximum Likelihood Estimates               |
             | Dependent variable                RICM     |
             | Weighting variable                 ONE     |
             | Number of observations             261     |
             | Iterations completed                14     |
             | Log likelihood function       -808.2667    |
             | Sample separation variable is I            |
             | RICM     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  3.757655263     .41602586        9.202   .0000
 RM        0.474964254     .76909207E-01   13.053   .0000  2.9955120
         RHS for Regime 2
 Constant  3.087972523     .50099540         7.277   .0000
 RM        0.003589474     .99840530E-01    -6.356   .0000 -2.9610687
 Sigma(1)  4.095343527     .24196393        16.925   .0000
 Sigma(0)  4.146712328     .15790836        26.260   .0000
```

ประวัติผู้เขียน

ชื่อ นายไชยวุฒิ พงศ์เมธีกุล

วัน เดือน ปี เกิด 28 มิถุนายน 2524

ประวัติการศึกษา สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนมงฟอร์ตวิทยาลัย ปีการศึกษา 2541

สำเร็จการศึกษาปริญญาวิทยาศาสตร์บัณฑิต สาขาภูมิศาสตร์ คณะสังคมศาสตร์ มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2546

ผลงานวิจัย การศึกษาพฤติกรรมผู้ใช้บริการสนามกอล์ฟในจังหวัดเชียงใหม่ คณะสังคมศาสตร์ มหาวิทยาลัยเชียงใหม่