ภาคผนวก

ภาคผนวก ก

ข้อมูลอัตราผลตอบแทนของตลาดหลักทรัพย์และหลักทรัพย์กลุ่มขนส่ง

DATE	Rm	Ri(THAI)	Ri(TTA)	Ri(BECL)	Ri(PSL)
1/3/99	-0.00098	0.04348	0.25862	-0.06581	0.60000
1/10/99	0.12259	0.29787	0.50000	0.04028	0.82857
1/17/99	-0.04409	-0.07500	0.63830	-0.06846	0.60256
1/24/99	-0.01399	0.08257	0.50000	-0.00870	0.66667
1/31/99	-0.03581	-0.12069	0.54717	-0.00147	0.80000
2/7/99	-0.06898	-0.04000	0.35088	-0.05333	0.50588
2/14/99	0.02802	0.12766	0.50000	-0.00945	0.67949
2/21/99	-0.03126	-0.03846	0.45283	-0.00160	0.69136
2/28/99	0.01298	0.02041	0.44231	-0.05806	0.52874
3/7/99	-0.01387	0.05102	0.42000	-0.00172	0.37349
3/14/99	0.02849	0.10891	0.47826	-0.00174	0.79688
3/21/99	0.06333	0.01818	0.65116	0.03333	0.87692
3/28/99	-0.00212	0.03636	0.52174	-0.02735	0.76389
4/4/99	-0.02674	0.03571	0.51111	-0.01062	0.63636
4/11/99	0.04158	0.08772	0.58140	-0.01081	0.59211
4/18/99	0.08224	0.17213	0.62791	0.10826	0.74648
4/25/99	-0.00365	-0.08511	0.57778	-0.00167	0.67568
5/2/99	0.14531	0.10236	0.78261	0.07395	0.66216
5/9/99	0.06313	0.05072	0.47368	-0.02520	0.82192
5/16/99	-0.02754	-0.03497	0.50847	0.01463	0.54217
5/23/99	0.00933	-0.00735	0.60938	-0.09032	0.56410
5/30/99	-0.05368	-0.03759	0.44872	-0.04643	0.72222
6/6/99	0.05042	0.14286	0.47727	0.04528	0.72973
6/13/99	0.06420	-0.02817	0.42857	-0.03818	1.14744
6/20/99	0.02317	-0.00735	0.44000	0.05524	0.63830
6/27/99	0.04826	0.06015	0.22581	-0.01091	0.50877
7/4/99	-0.01934	-0.00719	0.22727	-0.00185	0.24242
7/11/99	-0.04453	0.05147	0.01408	0.08224	0.20968
7/18/99	-0.04135	-0.00709	0.06452	-0.03652	0.32727
7/25/99	-0.02616	0.02899	0.10714	-0.04727	0.62264
8/1/99	-0.03977	-0.04286	0.07692	-0.04038	0.07576
8/8/99	-0.04328	0.01515	0.13043	-0.06263	0.27451
8/15/99	-0.03034	0.04545	0.19048	0.01957	0.33333
8/22/99	0.03948	0.02206	0.35000	0.01935	0.70000
8/29/99	0.03866	0.03650	0.29545	-0.02340	0.33333

DATE	Rm	Ri(THAI)	Ri(TTA)	Ri(BECL)	Ri(PSL)
9/5/99	-0.05774	-0.01429	0.19149	-0.12308	0.52273
9/12/99	-0.00049	-0.07353	0.21739	0.01013	0.38298
9/19/99	0.01682	0.00000	0.08696	0.02278	0.44444
9/26/99	-0.12815	-0.05738	0.15000	-0.10250	0.33333
10/3/99	0.06602	0.02655	0.26667	0.06761	0.62500
10/10/99	-0.03489	-0.07895	0.28090	-0.06933	0.37778
10/17/99	-0.01939	-0.02913	0.26966	-0.04638	0.50000
10/24/99	-0.02138	-0.01531	0.27273	0.05846	0.44186
10/31/99	0.04876	0.00000	0.28736	0.07059	0.85714
11/7/99	0.05794	0.16757	0.29885	0.03889	0.20690
11/14/99	0.03238	0.14151	0.26136	0.10541	0.32000
11/21/99	-0.04738	-0.03361	0.20930	-0.05185	0.47826
11/28/99	0.00185	-0.04425	0.27848	-0.02895	0.27083
12/12/99	0.01291	-0.01770	0.32911	0.01159	0.46341
12/19/99	0.04657	0.02752	0.23750	0.05507	0.57500
12/26/99	0.05001	0.05455	0.36486	0.03889	0.39535
1/2/00	0.04472	0.00877	0.30263	0.01081	0.50000
1/9/00	-0.05937	-0.05310	0.24324	-0.02973	0.50000
1/23/00	0.00959	-0.01835	0.59322	0.07059	0.70000
1/30/00	-0.00307	0.01905	0.34783	-0.01667	0.39583
2/6/00	-0.01489	0.00000	0.35294	-0.06000	0.44681
2/13/00	-0.03023	-0.15049	0.28358	-0.01846	0.37500
2/20/00	-0.10473	0.02339	0.47541	-0.19365	0.52174
2/27/00	-0.00414	0.00585	0.29231	-0.02400	0.32000
3/5/00	-0.05786	-0.14881	0.32203	-0.06667	0.39130
3/12/00	0.05030	0.07194	0.56604	0.04091	0.36364
3/19/00	-0.00661	0.15862	0.46552	-0.02667	0.52500
3/26/00	0.01106	0.09146	0.33333	0.06512	0.46341
4/2/00	-0.00950	0.02857	0.47273	-0.00444	0.52500
4/9/00	0.00782	0.02841	0.46429	0.01818	0.46341
4/16/00	0.02726	0.03955	0.42105	0.20000	0.62500
4/23/00	-0.04678	-0.05000	0.51786	0.01538	0.33333
4/30/00	-0.01180	0.00599	0.40000	-0.06154	0.55000
5/7/00	-0.02672	0.02439	0.44068	-0.04583	0.47619
5/14/00	-0.09027	-0.03049	0.35000	-0.04889	0.57143
5/21/00	-0.00657	0.03226	0.46429	-0.00476	0.32609
5/28/00	-0.08829	0.03846	0.35088	-0.03415	0.46341
6/4/00	0.08368	0.00000	0.53846	0.05155	0.47000
6/11/00	0.00610	0.02597	0.43636	0.01000	0.54639
6/18/00	0.00920	0.00649	0.57407	0.03030	0.50000
6/25/00	-0.03245	0.04636	0.48333	0.01000	0.52500
7/2/00	-0.02286	-0.03247	0.32813	0.03030	0.46341
7/9/00	-0.00866	0.15172	0.43333	0.01000	0.52500
7/16/00	-0.02258	0.00613	0.45902	-0.02020	0.53659

DATE	Rm	Ri(THAI)	Ri(TTA)	Ri(BECL)	Ri(PSL)
7/23/00	-0.03143	-0.00625	0.35938	-0.09474	0.65116
7/30/00	-0.04600	0.03226	0.35484	-0.02381	0.25490
8/6/00	0.06797	0.06410	0.44068	0.07500	0.36364
8/13/00	0.01663	0.02469	0.43333	0.00000	0.52500
8/20/00	0.00828	0.04321	0.37705	0.00000	0.73171
8/27/00	-0.03878	-0.03030	0.38983	-0.01250	0.41176
9/3/00	0.01268	-0.01282	0.45614	0.02597	0.53846
9/10/00	-0.04396	-0.06000	0.46552	-0.07792	0.26667
9/17/00	-0.01269	0.03650	0.43333	0.01449	0.21429
9/24/00	-0.06533	0.01449	0.36066	-0.07353	0.29167
10/1/00	0.01149	0.04412	0.44828	0.06557	0.52381
10/8/00	-0.03466	-0.00725	0.37288	-0.01587	0.34545
10/15/00	-0.05013	-0.06767	0.48214	-0.03333	0.70918
10/22/00	0.08786	0.09167	0.43103	0.05357	0.42553
10/29/00	-0.00817	0.03150	0.44828	0.05263	0.31915
11/5/00	0.04921	0.07874	0.44068	0.05172	0.42857
11/12/00	0.01873	0.03759	0.43333	0.08475	0.49000
11/19/00	0.00505	0.02985	0.39344	0.01613	0.51515
11/26/00	-0.03152	0.01493	0.41667	-0.01639	0.48000
12/3/00	-0.04050	0.00000	0.41667	0.01724	0.55612
12/10/00	-0.00062	0.03906	0.41667	0.01754	0.44390
12/17/00	-0.00190	0.02326	0.40000	0.03571	0.58163
12/24/00	-0.02226	0.03125	0.44068	0.03571	0.50000
12/31/00	0.00786	0.03125	0.40000	0.10714	0.46512
1/7/01	0.06527	0.09375	0.42373	0.01667	0.46512
1/14/01	0.08540	0.12500	0.38983	0.35593	0.46512
1/21/01	0.01802	0.00671	0.43860	0.16667	0.46512
1/28/01	0.04819	0.02055	0.43860	0.10112	0.46512
2/4/01	0.00593	0.02069	0.43860	0.06250	0.48837
2/11/01	-0.02808	-0.00694	0.45614	-0.02000	0.45455
2/18/01	-0.02685	-0.05036	0.39655	0.06250	0.45455
2/25/01	0.02608	0.01563	0.41071	0.07000	0.52273
3/4/01	-0.05610	0.00000	0.46296	0.01905	0.29787
3/11/01	0.00310	0.02459	0.44444	-0.02857	0.48780
3/18/01	-0.04560	-0.01653	0.39623	-0.01000	0.51220
3/25/01	-0.00939	0.01739	0.40816	0.01031	0.52381
4/1/01	0.00582	0.02655	0.59091	0.02083	0.43182
4/8/01	-0.03398	0.00000	0.51111	0.02083	0.46512
4/15/01	0.03283	0.04630	0.60465	0.06250	0.46512
4/22/01	0.00446	0.02752	0.59091	0.07000	0.46512
4/29/01	0.01582	0.04630	0.53333	0.01905	0.48837
5/6/01	0.03119	0.20183	0.63636	0.07143	0.45455
5/13/01	0.01452	0.02362	0.53191	0.11905	0.45455
5/20/01	-0.03309	-0.03968	0.82979	0.09091	0.47727

DATE	Rm	Ri(THAI)	Ri(TTA)	Ri(BECL)	Ri(PSL)
5/27/01	0.03483	0.06838	0.85246	0.08889	0.53333
6/3/01	0.00305	-0.00826	0.40909	0.00000	0.48980
6/10/01	0.00074	0.00862	0.21212	0.00000	0.32075
6/17/01	0.03740	0.04425	0.26316	0.10000	0.42000
6/24/01	-0.01636	0.01754	0.42105	0.04878	0.39216
7/1/01	0.01218	0.02679	0.50000	0.07500	0.39216
7/8/01	0.00722	0.06306	0.08929	0.06500	0.56863
7/15/01	-0.03254	-0.00877	0.11765	0.01515	0.33333
7/22/01	-0.00649	0.01835	0.21277	0.13441	0.31667
7/29/01	-0.03580	0.04673	0.31915	0.06633	0.35593
8/5/01	0.04935	0.03704	0.13462	0.09794	0.30000
8/12/01	-0.00025	0.04630	0.42857	0.06566	0.62069
8/19/01	0.02336	0.08257	0.23333	0.08673	0.21622
8/26/01	0.02759	0.08772	0.21875	0.11111	0.37143
9/2/01	0.01024	-0.00833	0.11765	0.03902	0.21053
9/9/01	0.02012	0.12174	0.12121	0.11111	0.27778
9/16/01	-0.15839	-0.24000	-0.04688	-0.02927	0.16667
9/23/01	-0.04686	-0.09890	0.19608	0.02717	0.17188
9/30/01	0.00889	-0.03846	0.21569	0.10920	0.36364
10/7/01	0.01386	0.08451	0.17308	0.10674	0.38182
10/14/01	0.01456	0.04110	0.21569	0.09341	0.35714
10/21/01	-0.00088	0.05556	0.19231	0.08152	0.35714
10/28/01	-0.01447	0.08333	0.21154	0.07065	0.35714
11/4/01	-0.02274	0.00000	0.16981	0.02747	0.32143
11/11/01	-0.02228	0.01714	0.23077	0.05814	0.40741
11/18/01	0.02771	0.06548	0.19259	0.17964	0.35714
11/25/01	0.07705	0.33728	0.20588	0.10989	0.40000
12/2/01	0.01971	-0.04167	0.21583	0.10695	0.57534
12/9/01	0.00473	0.05584	0.09028	0.08333	0.13889
12/16/01	-0.03305	0.01515	0.25000	0.05181	0.20645
12/23/01	0.00915	0.04712	0.17857	0.08511	0.35766
12/30/01	0.02413	0.07895	0.20000	0.11111	0.41912
1/6/02	0.03910	0.08718	0.15385	0.09231	0.31469
1/13/02	0.02160	0.05446	0.17857	0.17677	0.36957
1/20/02	-0.01559	0.05911	0.20714	0.06881	0.37410
1/27/02	0.06762	0.42683	0.22222	0.34404	0.36170
2/3/02	-0.00690	-0.01770	0.17219	0.07554	0.30282
2/10/02	0.05032	0.22430	0.34211	0.10211	0.46667
2/17/02	0.05495	0.02362	0.44134	0.11074	0.50676
2/24/02	-0.05817	-0.03968	-0.00429	0.00949	0.27746
3/3/02	0.08349	0.11966	0.18357	0.10197	0.35088
3/10/02	0.02627	0.04724	0.10909	0.07187	0.26519
3/17/02	-0.03394	-0.00775	0.03653	0.11280	0.24022
3/24/02	0.03159	0.00000	0.24752	-0.06000	0.30233

DATE	Rm	Ri(THAI)	Ri(TTA)	Ri(BECL)	Ri(PSL)
3/31/02	-0.03945	0.04167	0.15859	-0.04140	0.26437
4/7/02	-0.01059	0.04959	0.15546	0.01049	0.40588
4/14/02	0.02605	0.00813	0.30000	0.18613	0.28042
4/21/02	0.01812	0.10833	0.05000	0.05484	0.25000
4/28/02	-0.02605	0.10853	0.09483	0.01603	0.33158
5/5/02	-0.00635	0.02878	0.14530	0.06291	0.25616
5/12/02	0.02149	0.02878	0.16129	0.09804	0.26341
5/19/02	-0.01010	-0.04317	0.04478	0.06329	0.24880
5/26/02	0.03664	0.10078	0.09231	0.12025	0.29384
6/2/02	0.04048	0.13043	0.13636	0.17365	0.22870
6/9/02	0.02297	0.05921	0.10000	0.06989	0.25446
6/16/02	0.01224	0.17834	0.11806	0.07937	0.22511
6/23/02	-0.06387	-0.09945	0.01987	-0.07732	0.18884
6/30/02	-0.01608	0.03774	0.06944	0.01183	0.21145
7/7/02	0.03084	0.02484	0.06250	0.09938	0.11111
7/14/02	-0.00110	0.06211	0.08392	0.04790	0.15500
7/21/02	-0.01595	0.00599	0.04828	0.12121	0.28729
7/28/02	-0.07051	-0.06707	0.02113	-0.02286	0.15847
8/4/02	0.01089	0.04698	0.14074	0.08075	0.35802
8/11/02	-0.00915	0.00658	0.02083	0.05488	0.30588
8/18/02	0.01624	0.07383	0.10949	0.09202	0.33721
8/25/02	-0.01614	0.02564	0.06338	0.03571	0.25000
9/1/02	-0.01594	-0.02564	0.07801	0.06098	0.25714
9/8/02	-0.02107	-0.08108	0.00704	0.01829	0.45294
9/15/02	0.01018	0.04545	0.06767	0.08280	0.17766
9/22/02	-0.01576	-0.06716	0.10606	0.01875	0.18681
9/29/02	-0.03641	-0.06612	0.06618	0.03268	0.33133
10/6/02	0.00650	0.00000	0.12593	0.06757	0.30409
10/13/02	-0.03083	0.00952	0.07746	0.07432	0.31792
10/20/02	0.03647	0.03922	0.03497	0.10738	0.30337
10/27/02	0.01752	0.17647	0.09420	0.07097	0.26374
11/3/02	0.02646	0.12069	0.10922	0.07692	0.26667
11/10/02	-0.00749	0.02381	0.05738	0.02532	0.32022
11/17/02	0.00349	0.05600	0.08011	0.07237	0.21622
11/24/02	0.01783	0.07031	0.08470	0.09804	0.26286
12/1/02	0.00637	0.10526	0.08333	0.03165	0.31579
12/8/02	0.00052	0.04895	0.10847	0.04575	0.30286
12/15/02	-0.02435	0.02740	0.03807	0.04667	0.51685
12/22/02	-0.01738	-0.05479	0.06510	0.05442	0.13636
12/29/02	0.01849	0.00000	0.08073	0.09655	0.25000
1/5/03	0.00210	0.00769	0.04872	0.06711	0.24000
1/12/03	0.00879	-0.01575	-0.03906	0.01342	0.21212
1/19/03	0.01884	0.05785	0.11337	0.07801	0.30526
1/26/03	0.02489	0.08065	0.08101	0.09859	0.38889

DATE	Rm	Ri(THAI)	Ri(TTA)	Ri(BECL)	Ri(PSL)
2/2/03	-0.01672	-0.00769	0.08011	0.06849	0.19556
2/9/03	0.02416	0.04800	-0.00273	0.07534	0.28311
2/16/03	-0.02702	-0.04724	0.06176	0.06803	0.24675
2/23/03	-0.02490	0.07692	0.08036	0.07483	0.29202
3/2/03	0.00498	0.00000	0.21302	0.08108	0.20388
3/9/03	-0.00786	0.03390	0.11111	0.06667	0.03846
3/16/03	-0.00067	0.02542	0.10857	0.03333	0.31818
3/23/03	0.01502	0.09402	0.24260	0.08276	0.20833
3/30/03	0.01625	0.02419	0.12973	0.10884	0.22917
4/6/03	0.00649	-0.05691	0.14674	0.01307	0.32653
4/13/03	0.03073	0.06250	0.20968	0.11034	0.19091
4/20/03	0.00297	0.02609	0.15500	0.06623	0.29730
4/27/03	-0.04153	-0.04386	0.12621	0.02649	0.21774
5/4/03	0.01821	0.04762	0.20773	0.10345	0.14504
5/11/03	0.02420	0.09434	0.30000	0.08000	0.22308
5/18/03	-0.00343	0.05357	0.14019	0.04605	0.14388
5/25/03	0.03269	0.06140	0.26786	0.08725	0.31655
6/1/03	0.02099	0.01709	0.06061	0.11842	0.12270
6/8/03	0.03563	0.18261	0.06154	0.20000	0.19632
6/15/03	0.02334	0.15152	0.17969	0.14620	0.10857
6/22/03	0.05769	0.03378	0.13475	0.12155	0.18966
6/29/03	0.01071	0.04027	0.04000	0.12766	0.10160
7/6/03	0.08352	0.08609	0.20548	0.16751	0.45161
7/13/03	-0.02286	0.16875	0.14458	0.04651	0.08000
7/20/03	0.01786	0.01639	0.14444	0.10476	0.22400
7/27/03	-0.01659	0.03297	0.07143	0.01382	0.03497
8/3/03	0.01378	0.03804	0.06000	0.13659	0.08696
8/10/03	0.02372	-0.01604	0.12871	0.15138	0.22857
8/17/03	0.03148	0.02778	0.17431	0.05085	0.49383
8/24/03	0.03038	0.21547	0.14634	0.21245	-0.00862
8/31/03	0.00542	0.07407	0.13971	-0.08411	0.06364
9/7/03	0.03738	0.01754	0.01333	0.03478	0.08036
9/14/03	0.01893	0.02632	0.05442	0.04036	0.09483
9/21/03	-0.00204	-0.06087	0.05333	0.04608	0.06557
9/28/03	0.02408	0.02830	0.24837	0.09906	0.24000
10/5/03	-0.03879	-0.07944	-0.02688	0.06422	0.00000
10/12/03	0.04264	0.11917	0.32386	0.07834	0.23448
10/19/03	0.01108	-0.03774	0.16228	0.04110	0.10920
10/26/03	0.03508	0.02000	-0.01923	0.06573	0.01596
11/2/03	0.04957	0.05000	0.23000	0.10849	0.18280
11/9/03	0.04934	0.14563	0.14050	0.11818	0.24419
11/16/03	-0.02030	0.00000	-0.02941	0.06926	0.01905
11/23/03	-0.06686	-0.08772	-0.03077	0.01293	-0.05143
11/30/03	0.05314	-0.00490	0.09677	0.09545	0.08607

DATE	Rm	Ri(THAI)	Ri(TTA)	Ri(BECL)	Ri(PSL)
12/7/03	0.02053	0.00000	0.17910	0.07080	0.32692
12/14/03	0.02299	0.01026	0.02564	0.11894	0.01471
12/21/03	0.05145	0.00518	-0.01266	0.15063	-0.03676
12/28/03	0.03630	-0.03158	-0.02597	0.01923	-0.00775

ภาคผนวก ข

ผลการทดสอบยูนิทรูท (Unit root test)

MARKET

1.WITH INTERCEPT & TREND

ADF Test Statistic	-15.55089	1% Critical Value*	-3.9969
		5% Critical Value	-3.4285
		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: 04/20/04 Time: 11:57
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.974362	0.062656	-15.55089	0.0000
C	-0.003705	0.004857	-0.762784	0.4463
@TREND(1)	5.40E-05	3.26E-05	1.655633	0.0990

R-squared	0.486753	Mean dependent var	0.000144
Adjusted R-squared	0.482727	S.D. dependent var	0.054021
S.E. of regression	0.038853	Akaike info criterion	-3.646505
Sum squared resid	0.384936	Schwarz criterion	-3.605192
Log likelihood	473.3992	F-statistic	120.9182
Durbin-Watson stat	1.964329	Prob(F-statistic)	0.000000

2. WITH INTERCEPT AND WITHOUT TREND

ADF Test Statistic	-15.41039	1% Critical Value*	-3.4573
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RM)
Method: Least Squares
Date: 04/20/04 Time: 11:56
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.963846	0.062545	-15.41039	0.0000
C	0.003261	0.002435	1.338757	0.1818

R-squared	0.481236	Mean dependent var	0.000144
Adjusted R-squared	0.479209	S.D. dependent var	0.054021
S.E. of regression	0.038985	Akaike info criterion	-3.643565
Sum squared resid	0.389074	Schwarz criterion	-3.616023
Log likelihood	472.0199	F-statistic	237.4802
Durbin-Watson stat	1.966699	Prob(F-statistic)	0.000000

3. WITHOUT INTERCEPT AND TREND

ADF Test Statistic	-15.32864	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RM)
Method: Least Squares
Date: 04/20/04 Time: 11:55
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RM(-1)	-0.956894	0.062425	-15.32864	0.0000

R-squared	0.477604	Mean dependent var	0.000144
Adjusted R-squared	0.477604	S.D. dependent var	0.054021
S.E. of regression	0.039045	Akaike info criterion	-3.644340
Sum squared resid	0.391798	Schwarz criterion	-3.630569
Log likelihood	471.1199	Durbin-Watson stat	1.968546

หลักทรัพย์ BECL

1.WITH INTERCEPT & TREND

ADF Test Statistic	-14.03619	1% Critical Value*	-3.9969
		5% Critical Value	-3.4285
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(BECL)
Method: Least Squares
Date: 04/20/04 Time: 11:38
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BECL(-1)	-0.873928	0.062262	-14.03619	0.0000
C	-0.010182	0.007459	-1.365115	0.1734
@TREND(1)	0.000381	5.70E-05	6.694695	0.0000

R-squared	0.435935	Mean dependent var	0.000330
Adjusted R-squared	0.431511	S.D. dependent var	0.078686
S.E. of regression	0.059328	Akaike info criterion	-2.799920
Sum squared resid	0.897544	Schwarz criterion	-2.758606
Log likelihood	364.1897	F-statistic	98.53786
Durbin-Watson stat	2.023884	Prob(F-statistic)	0.000000

2. WITH INTERCEPT AND WITHOUT TREND

ADF Test Statistic	-11.40194	1% Critical Value*	-3.4573
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(BECL)
Method: Least Squares
Date: 04/20/04 Time: 11:38
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BECL(-1)	-0.668733	0.058651	-11.40194	0.0000
C	0.030084	0.004774	6.302031	0.0000

R-squared	0.336795	Mean dependent var	0.000330
Adjusted R-squared	0.334204	S.D. dependent var	0.078686
S.E. of regression	0.064205	Akaike info criterion	-2.645757
Sum squared resid	1.055297	Schwarz criterion	-2.618214
Log likelihood	343.3026	F-statistic	130.0042
Durbin-Watson stat	2.187362	Prob(F-statistic)	0.000000

2. WITHOUT INTERCEPT AND TREND

ADF Test Statistic	-8.858545	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(BECL)
Method: Least Squares
Date: 04/20/04 Time: 11:37
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BECL(-1)	-0.466677	0.052681	-8.858545	0.0000

R-squared	0.233906	Mean dependent var	0.000330
Adjusted R-squared	0.233906	S.D. dependent var	0.078686
S.E. of regression	0.068871	Akaike info criterion	-2.509288
Sum squared resid	1.219015	Schwarz criterion	-2.495517
Log likelihood	324.6981	Durbin-Watson stat	2.397164

หลักทรัพย์ TTA

1.WITH INTERCEPT & TREND

ADF Test Statistic	-7.473076	1% Critical Value*	-3.9969
		5% Critical Value	-3.4285
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TTA)
Method: Least Squares
Date: 04/20/04 Time: 11:35
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TTA(-1)	-0.354983	0.047502	-7.473076	0.0000
C	0.172654	0.026302	6.564309	0.0000
@TREND(1)	-0.000605	0.000117	-5.163639	0.0000

R-squared	0.179916	Mean dependent var	-0.001103
Adjusted R-squared	0.173484	S.D. dependent var	0.115862
S.E. of regression	0.105333	Akaike info criterion	-1.651814
Sum squared resid	2.829253	Schwarz criterion	-1.610500
Log likelihood	216.0840	F-statistic	27.97180
Durbin-Watson stat	2.326793	Prob(F-statistic)	0.000000

2. WITH INTERCEPT AND WITHOUT TREND

ADF Test Statistic	-5.158740	1% Critical Value*	-3.4573
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TTA)
Method: Least Squares
Date: 04/20/04 Time: 11:34
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TTA(-1)	-0.193174	0.037446	-5.158740	0.0000
C	0.050819	0.012191	4.168606	0.0000

R-squared	0.094166	Mean dependent var	-0.001103
Adjusted R-squared	0.090628	S.D. dependent var	0.115862
S.E. of regression	0.110487	Akaike info criterion	-1.560118
Sum squared resid	3.125084	Schwarz criterion	-1.532575
Log likelihood	203.2552	F-statistic	26.61260
Durbin-Watson stat	2.506950	Prob(F-statistic)	0.000000

3. WITHOUT INTERCEPT AND TREND

ADF Test Statistic	-2.950633	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TTA)
Method: Least Squares
Date: 04/20/04 Time: 11:33
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TTA(-1)	-0.064299	0.021792	-2.950633	0.0035

R-squared	0.032678	Mean dependent var	-0.001103
Adjusted R-squared	0.032678	S.D. dependent var	0.115862
S.E. of regression	0.113953	Akaike info criterion	-1.502194
Sum squared resid	3.337215	Schwarz criterion	-1.488423
Log likelihood	194.7830	Durbin-Watson stat	2.684893

หลักทรัพย์ THAI

1.WITH INTERCEPT & TREND

ADF Test Statistic	-15.82548	1% Critical Value*	-3.9969
		5% Critical Value	-3.4285
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(THAI)
Method: Least Squares
Date: 04/20/04 Time: 11:29
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
THAI(-1)	-0.992776	0.062733	-15.82548	0.0000
C	0.018501	0.009118	2.029051	0.0435
@TREND(1)	8.75E-05	6.08E-05	1.438290	0.1516

R-squared	0.495500	Mean dependent var	-0.000291
Adjusted R-squared	0.491543	S.D. dependent var	0.101578
S.E. of regression	0.072431	Akaike info criterion	-2.400798
Sum squared resid	1.337803	Schwarz criterion	-2.359485
Log likelihood	312.7030	F-statistic	125.2256
Durbin-Watson stat	1.949193	Prob(F-statistic)	0.000000

2. WITH INTERCEPT AND WITHOUT TREND

ADF Test Statistic	-15.72736	1% Critical Value*	-3.4573
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(THAI)
Method: Least Squares
Date: 04/20/04 Time: 11:27
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
THAI(-1)	-0.984166	0.062577	-15.72736	0.0000
C	0.029569	0.004901	6.032696	0.0000

R-squared	0.491408	Mean dependent var	-0.000291
Adjusted R-squared	0.489421	S.D. dependent var	0.101578
S.E. of regression	0.072582	Akaike info criterion	-2.400470
Sum squared resid	1.348656	Schwarz criterion	-2.372928
Log likelihood	311.6607	F-statistic	247.3499
Durbin-Watson stat	1.951873	Prob(F-statistic)	0.000000

3. WITHOUT INTERCEPT AND TREND

ADF Test Statistic	-13.61706	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(THAI)
Method: Least Squares
Date: 04/20/04 Time: 11:25
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
THAI(-1)	-0.837937	0.061536	-13.61706	0.0000

R-squared	0.419105	Mean dependent var	-0.000291
Adjusted R-squared	0.419105	S.D. dependent var	0.101578
S.E. of regression	0.077419	Akaike info criterion	-2.275300
Sum squared resid	1.540383	Schwarz criterion	-2.261528
Log likelihood	294.5136	Durbin-Watson stat	2.021638

หลักทรัพย์ PSL

1.WITH INTERCEPT & TREND

ADF Test Statistic	-13.78342	1% Critical Value*	-3.9969
		5% Critical Value	-3.4285
		10% Critical Value	-3.1374

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PSL)
Method: Least Squares
Date: 04/20/04 Time: 11:43
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PSL(-1)	-0.856360	0.062130	-13.78342	0.0000
C	0.526413	0.041399	12.71555	0.0000
@TREND(1)	-0.001591	0.000156	-10.18651	0.0000

R-squared	0.426967	Mean dependent var	-0.002356
Adjusted R-squared	0.422473	S.D. dependent var	0.167443
S.E. of regression	0.127249	Akaike info criterion	-1.273782
Sum squared resid	4.129040	Schwarz criterion	-1.232468
Log likelihood	167.3179	F-statistic	95.00036
Durbin-Watson stat	2.020594	Prob(F-statistic)	0.000000

2. WITH INTERCEPT AND WITHOUT TREND

ADF Test Statistic	-7.844374	1% Critical Value*	-3.4573
		5% Critical Value	-2.8728
		10% Critical Value	-2.5727

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PSL)
Method: Least Squares
Date: 04/20/04 Time: 11:42
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PSL(-1)	-0.392844	0.050080	-7.844374	0.0000
C	0.145674	0.021073	6.912896	0.0000

R-squared	0.193788	Mean dependent var	-0.002356
Adjusted R-squared	0.190638	S.D. dependent var	0.167443
S.E. of regression	0.150640	Akaike info criterion	-0.940130
Sum squared resid	5.809237	Schwarz criterion	-0.912587
Log likelihood	123.2767	F-statistic	61.53421
Durbin-Watson stat	2.446628	Prob(F-statistic)	0.000000

3. WITHOUT INTERCEPT AND TREND

ADF Test Statistic	-3.417944	1% Critical Value*	-2.5735
		5% Critical Value	-1.9408
		10% Critical Value	-1.6163

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PSL)
Method: Least Squares
Date: 04/20/04 Time: 11:40
Sample(adjusted): 2 259
Included observations: 258 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PSL(-1)	-0.082824	0.024232	-3.417944	0.0007

R-squared	0.043290	Mean dependent var	-0.002356
Adjusted R-squared	0.043290	S.D. dependent var	0.167443
S.E. of regression	0.163779	Akaike info criterion	-0.776728
Sum squared resid	6.893661	Schwarz criterion	-0.762957
Log likelihood	101.1980	Durbin-Watson stat	2.881792

ภาคผนวก ค

ผลการทดสอบเส้นพรมแดนเชิงเฟ้นสุ่ม

หลักทรัพย์ BECL

Output from the program FRONTIER (Version 4.1c)

instruction file = terminal

data file = becl.dat

Error Components Frontier (see B&C 1992)

The model is a production function

The dependent variable is logged

the ols estimates are :

	coefficient	standard-error	t-ratio
beta 0	-0.22148511E-01	0.29666732E+00	-0.74657739E-01
beta 1	0.86857319E+00	0.76005580E-01	0.11427756E+02
sigma-squared	0.22611386E+02		

log likelihood function = -0.77034093E+03

the final mle estimates are :

	coefficient	standard-error	t-ratio
beta 0	-0.54196170E-02	0.33683237E+01	-0.16089953E-02
beta 1	0.86857296E+00	0.75327803E-01	0.11530576E+02
sigma-squared	0.22437053E+02	0.19639228E+01	0.11424611E+02
gamma	0.19304212E-04	0.86146601E-02	0.22408559E-02

mu is restricted to be zero

eta is restricted to be zero

log likelihood function = -0.77034093E+03

หลักทรัพย์ TTA

Output from the program FRONTIER (Version 4.1c)

instruction file = terminal

data file =   tta.dat

Error Components Frontier (see B&C 1992)

The model is a production function

The dependent variable is logged

the ols estimates are :

	coefficient	standard-error	t-ratio
beta 0	0.17575932E+01	0.49056930E+00	0.35827623E+01
beta 1	0.77329999E+00	0.12568288E+00	0.61527868E+01
sigma-squared	0.61828471E+02		

log likelihood function = -0.90060632E+03

the final mle estimates are :

	coefficient	standard-error	t-ratio
beta 0	0.17859926E+01	0.39422941E+01	0.45303384E+00
beta 1	0.77329907E+00	0.12104728E+00	0.63884054E+01
sigma-squared	0.61352815E+02	0.55173232E+01	0.11120033E+02
gamma	0.20172581E-04	0.61168463E-02	0.32978728E-02

mu is restricted to be zero

eta is restricted to be zero

log likelihood function = -0.90060633E+03

หลักทรัพย์ THAI

Output from the program FRONTIER (Version 4.1c)

instruction file = terminal

data file = thai.dat

Error Components Frontier (see B&C 1992)

The model is a production function

The dependent variable is logged

the ols estimates are :

	coefficient	standard-error	t-ratio
beta 0	-0.14233958E+00	0.35640363E+00	-0.39937746E+00
beta 1	0.10664039E+01	0.91309903E-01	0.11678951E+02
sigma-squared	0.32634127E+02		

log likelihood function = -0.81785513E+03

the final mle estimates are :

	coefficient	standard-error	t-ratio
beta 0	-0.12429761E+00	0.36963354E+01	- 0.33627255E-01
beta 1	0.10664204E+01	0.88800517E-01	0.12009169E+02
sigma-squared	0.32381960E+02	0.27748468E+01	0.11669819E+02
gamma	0.15528098E-04	0.70657553E-02	0.21976557E-02

mu is restricted to be zero

eta is restricted to be zero

log likelihood function = -0.81785513E+03

หลักทรัพย์ PSL

Output from the program FRONTIER (Version 4.1c)

instruction file = terminal

data file = psl.dat

Error Components Frontier (see B&C 1992)

The model is a production function

The dependent variable is logged

the ols estimates are :

	coefficient	standard-error	t-ratio
beta 0	0.16598774E+01	0.59166653E+00	0.28054272E+01
beta 1	0.75070477E+00	0.15158379E+00	0.49524079E+01
sigma-squared	0.89937698E+02		

log likelihood function = -0.94913687E+03

the final mle estimates are :

	coefficient	standard-error	t-ratio
beta 0	0.16534843E+01	0.13156040E+00	0.12568252E+02
beta 1	0.75084902E+00	0.15547735E+00	0.48293145E+01
sigma-squared	0.89559512E+02	0.27906142E+01	0.32093119E+02
gamma	0.10000000E-07	0.52721290E-03	0.18967669E-04

mu is restricted to be zero

eta is restricted to be zero

log likelihood function = -0.94913775E+03

ภาคผนวก ง

ผลการประมาณค่าด้วยวิธีกำลังสองน้อยที่สุด

หลักทรัพย์ BECL

```
+-------------------------------------------------------------------------------+
| Ordinary    least squares regression    Weighting variable = none             |
| Dep. var. = RIBECL10 Mean=   .2821068135    , S.D.=   5.828301864             |
| Model size: Observations =      259, Parameters =   2, Deg.Fr.=    257        |
| Residuals:  Sum of squares= 5811.126235    , Std.Dev.=          4.75514       |
| Fit:        R-squared=  .336934, Adjusted R-squared =            .33435       |
| Model test: F[  1,    257] =  130.59,    Prob value =            .00000       |
| Diagnostic: Log-L =    -770.3409, Restricted(b=0) Log-L =    -823.5501       |
|             LogAmemiyaPrCrt.=    3.126, Akaike Info. Crt.=        5.964       |
| Autocorrel: Durbin-Watson Statistic =   1.80287,    Rho =         .09856       |
+-------------------------------------------------------------------------------+
+---------+--------------+----------------+--------+---------+----------+
|Variable | Coefficient  | Standard Error |t-ratio |P[|T|>t] | Mean of X|
+---------+--------------+----------------+--------+---------+----------+
 Constant -.2214851135E-01  .29666732        -.075   .9405
 RM100     .8685731921      .76005580E-01   11.428   .0000     .35029325
```

หลักทรัพย์ TTA

```
+-------------------------------------------------------------------------------+
| Ordinary    least squares regression    Weighting variable = none             |
| Dep. var. = RITTA100 Mean=   2.028474983    , S.D.=   8.406011179             |
| Model size: Observations =      259, Parameters =   2, Deg.Fr.=    257        |
| Residuals:  Sum of squares= 15889.91701    , Std.Dev.=          7.86311       |
| Fit:        R-squared=  .128390, Adjusted R-squared =            .12500       |
| Model test: F[  1,    257] =   37.86,    Prob value =            .00000       |
| Diagnostic: Log-L =    -900.6063, Restricted(b=0) Log-L =    -918.4014       |
|             LogAmemiyaPrCrt.=    4.132, Akaike Info. Crt.=        6.970       |
| Autocorrel: Durbin-Watson Statistic =   1.54238,    Rho =         .22881       |
+-------------------------------------------------------------------------------+
+---------+--------------+----------------+--------+---------+----------+
|Variable | Coefficient  | Standard Error |t-ratio |P[|T|>t] | Mean of X|
+---------+--------------+----------------+--------+---------+----------+
 Constant  1.757593216      .49056930        3.583   .0004
 RM100     .7732999949      .12568288        6.153   .0000     .35029325
```

หลักทรัพย์ THAI

```
+-----------------------------------------------------------------------------+
| Ordinary    least squares regression    Weighting variable = none           |
| Dep. var. = RITHAI10 Mean=   .2312145184     , S.D.=   7.054108983          |
| Model size: Observations =      259, Parameters =    2, Deg.Fr.=     257    |
| Residuals:  Sum of squares= 8386.970512     , Std.Dev.=          5.71263    |
| Fit:        R-squared=  .346717, Adjusted R-squared =             .34418    |
| Model test: F[  1,    257] =  136.40,    Prob value =             .00000    |
| Diagnostic: Log-L =    -817.8551, Restricted(b=0) Log-L =     -872.9892    |
|             LogAmemiyaPrCrt.=     3.493, Akaike Info. Crt.=        6.331    |
| Autocorrel: Durbin-Watson Statistic =   2.11651,    Rho =        -.05825    |
+-----------------------------------------------------------------------------+
+---------+--------------+----------------+--------+---------+----------+
|Variable | Coefficient  | Standard Error |t-ratio |P[|T|>t] | Mean of X|
+---------+--------------+----------------+--------+---------+----------+
 Constant -.1423395753      .35640363         -.399   .6899
 RM100     1.066403921      .91309903E-01    11.679   .0000     .35029325
```

หลักทรัพย์ PSL

```
+-----------------------------------------------------------------------------+
| Ordinary    least squares regression    Weighting variable = none           |
| Dep. var. = RIPSL100 Mean=    1.922844176     , S.D.=   9.906506992         |
| Model size: Observations =      259, Parameters =    2, Deg.Fr.=     257    |
| Residuals:  Sum of squares= 23113.98834     , Std.Dev.=          9.48355    |
| Fit:        R-squared=  .087119, Adjusted R-squared =             .08357    |
| Model test: F[  1,    257] =   24.53,    Prob value =             .00000    |
| Diagnostic: Log-L =    -949.1369, Restricted(b=0) Log-L =     -960.9408    |
|             LogAmemiyaPrCrt.=     4.507, Akaike Info. Crt.=        7.345    |
| Autocorrel: Durbin-Watson Statistic =   2.14349,    Rho =        -.07174    |
+-----------------------------------------------------------------------------+
+---------+--------------+----------------+--------+---------+----------+
|Variable | Coefficient  | Standard Error |t-ratio |P[|T|>t] | Mean of X|
+---------+--------------+----------------+--------+---------+----------+
 Constant  1.659877363      .59166653         2.805   .0054
 RM100     .7507047713      .15158379         4.952   .0000  .35029325
```

ประวัติผู้เขียน

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วัน เดือน ปี เกิด 24 สิงหาคม 2524

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