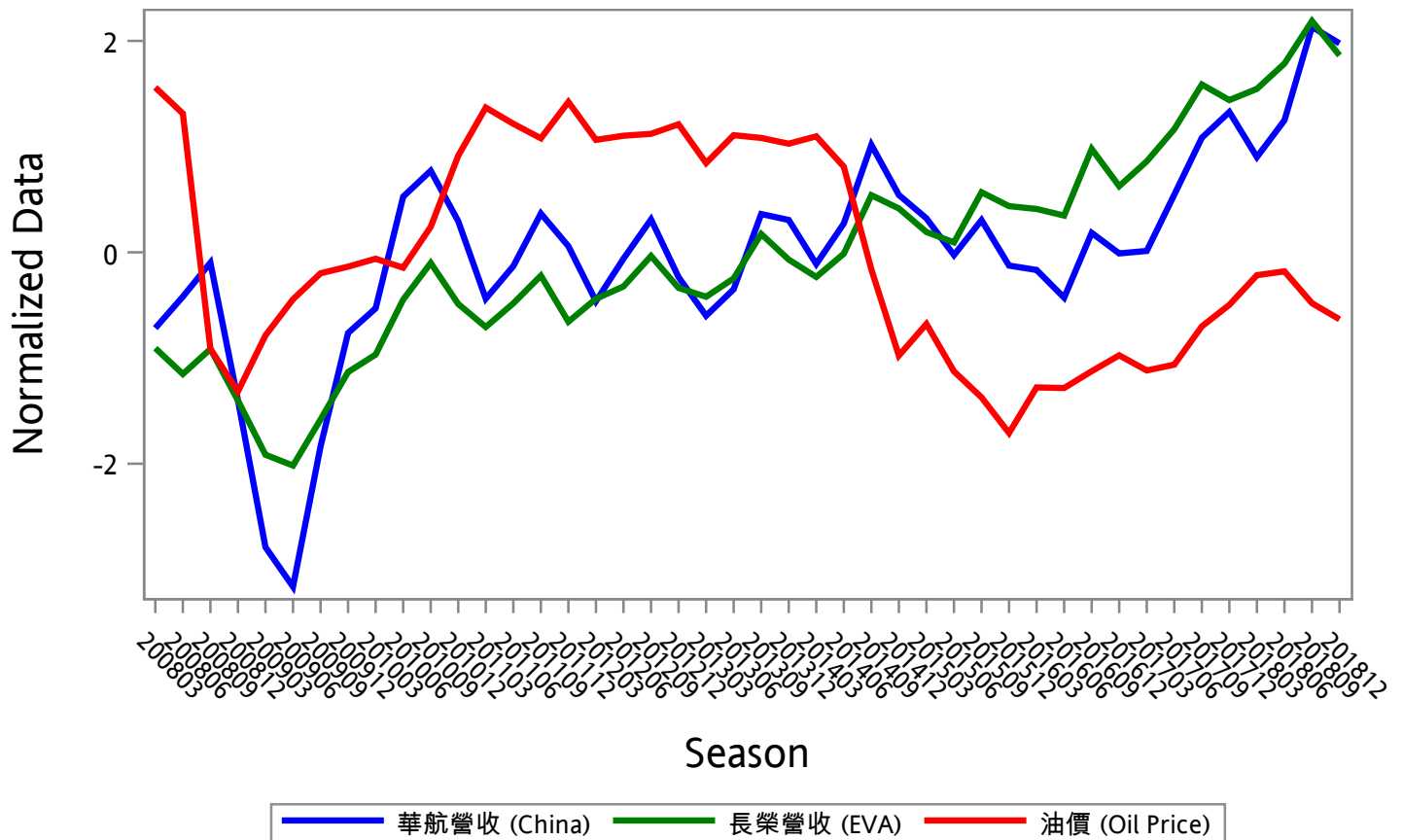


Obs	time	income_China	income_Eva	net_China	net_Eva	Oil_Price
1	200803	32558850	25666911	1869432	325532	122.2439177
2	200806	33877134	23950573	-1098628	-1652777	115.6047174
3	200809	35303015	25610852	1141696	-176836	55.77905072
4	200812	29541863	22195282	3505199	1043809	44.93356061
5	200903	23369555	18594170	2976190	1733069	59.18047619
6	200906	21708890	17879176	282551	-414058	68.36734488
7	200909	27597226	20937317	1611646	628078	74.97691919
8	200912	32354351	24085666	4141096	2754236	76.66638785
9	201003	33387059	25240676	5948628	3373843	78.67259019
10	201006	38074869	28892524	7449310	6024057	76.40515152
11	201009	39160671	31322921	9151309	8209996	86.79487233
12	201012	37043408	28598332	4513085	3949832	104.8970221
13	201103	33791797	27072445	2672331	2857583	117.1221284
14	201106	35159619	28642277	2302862	2659192	112.9963583
15	201109	37365477	30480808	4434156	3712718	109.3143795
16	201112	35993787	27423843	-64177	1025811	118.5415512
17	201203	33686686	28944597	642056	1484381	108.9005797
18	201206	35471724	29762217	2696584	2658879	109.9544697
19	201209	37117310	31787371	4478924	4187686	110.4417655
20	201212	34696419	29664282	2061207	2572014	112.8745652
21	201303	33075918	29080135	1943039	2146588	103.004137
22	201306	34187617	30295700	2883507	3154923	110.1008385
23	201309	37343853	33244731	4078100	4684201	109.3964778
24	201312	37095157	31543885	2122739	2982020	107.929383
25	201403	35246873	30392098	1675213	2095252	109.806645
26	201406	36947737	31938491	2640132	3487603	102.080596
27	201409	40244398	35820040	4548704	4501016	75.95686957
28	201412	38142734	34939379	4767321	2165129	54.04622727
29	201503	37163905	33374491	5716576	5296114	62.09896104
30	201506	35621247	32686440	4564806	4907729	50.03149445
31	201509	37089144	36014470	5290604	5906898	43.42099097
32	201512	35181921	35093143	4696388	4128701	34.35772257
33	201603	34999023	34906089	5748765	5072620	45.95284271
34	201606	33834966	34468468	3879073	4798619	45.80131219
35	201609	36552871	38887294	4924994	6138980	50.07821789
36	201612	35692247	36417814	3453074	3066432	54.11816271

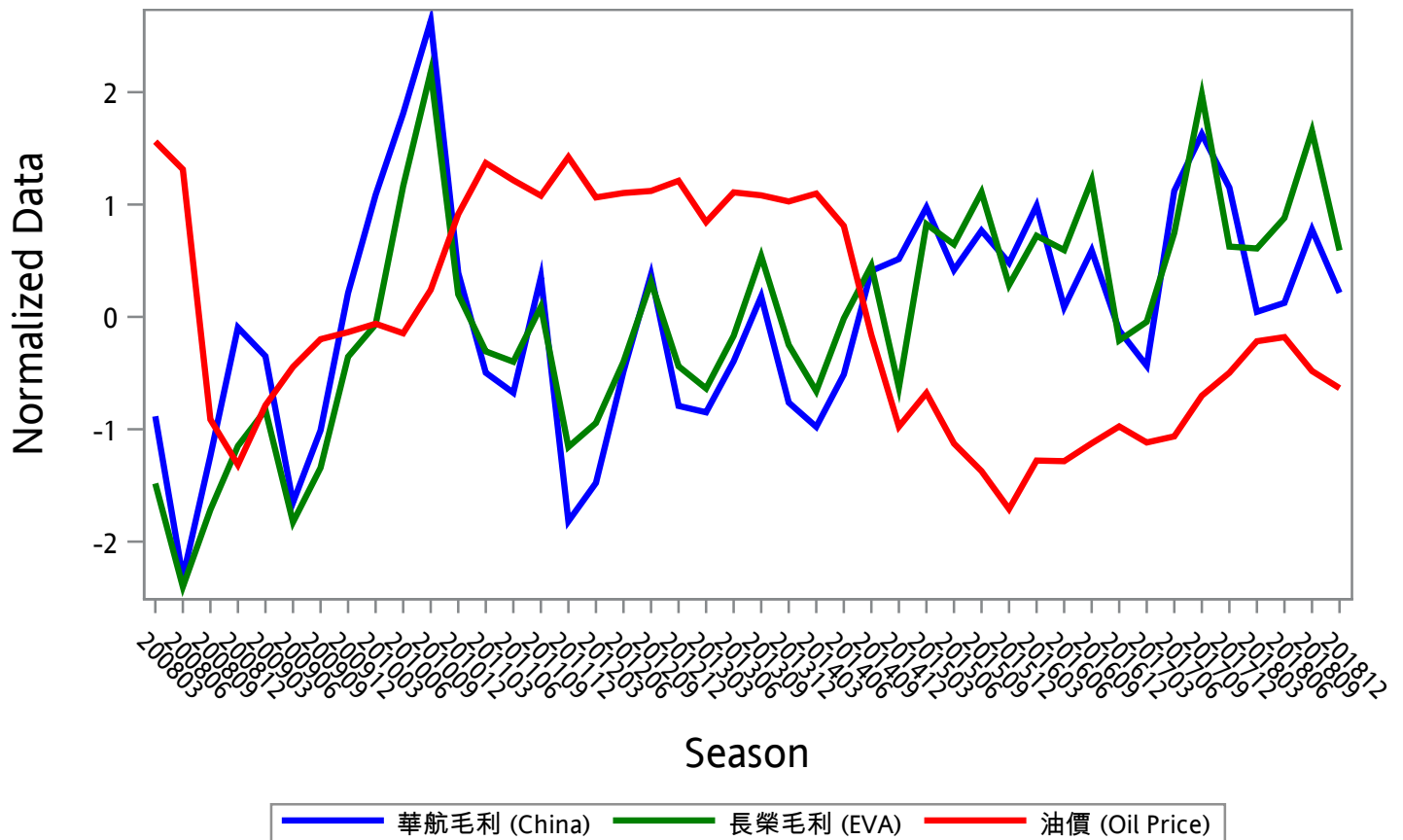
Obs	time	income_China	income_Eva	net_China	net_Eva	Oil_Price
37	201703	35796465	38064697	2799380	3424482	50.27630501
38	201706	38156614	40200582	6022797	5128473	51.74080745
39	201709	40542703	43166421	7068240	7775831	61.46836219
40	201712	41626003	42130031	6081994	4865142	66.95132543
41	201803	39735027	42878322	3794007	4829346	74.48866805
42	201806	41275835	44554750	3959170	5415316	75.47547431
43	201809	45196764	47379049	5310156	7080708	67.36929356
44	201812	44503981	45095211	4144198	4792320	63.27252036

Obs	time	income_China	income_Eva	net_China	net_Eva	Oil_Price
1	201903	40405348	44312727	4213439	7002903	68.33977997
2	201906	42892312	43864832	4296535	4479449	61.85909091
3	201909	43004648	45528073	5126524	5734779	62.65627706

# Time Series Plot for Income and Oil Price



# Time Series Plot for Net Income and Oil Price



## Check Breakpoint of Log Income of China

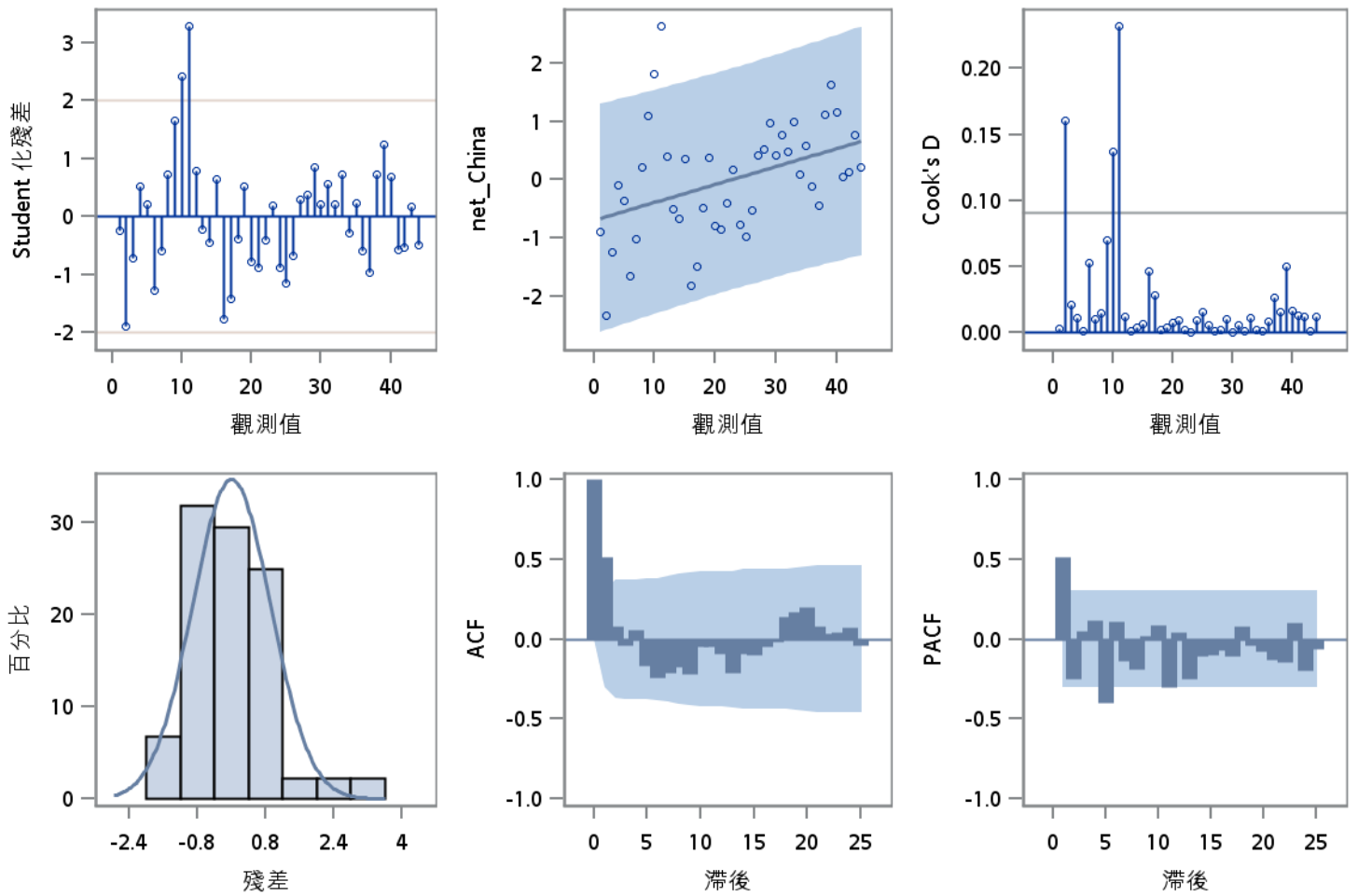
## AUTOREG 程序

結構變更檢定					
檢定	轉折點	分子自由度	分母自由度	F 值	Pr > F
Chow	5	2	40	1.23	0.3032
Chow	6	2	40	1.23	0.3033
Chow	7	2	40	1.71	0.1945
Chow	8	2	40	2.27	0.1165

## Check Breakpoint of Log Income of China

AUTOREG 程序

以下項目的配適診斷 net\_China



觀測值 44 MSE 0.864824 模型自由度 2

## Check Breakpoint of Log Income of China

## AUTOREG 程序

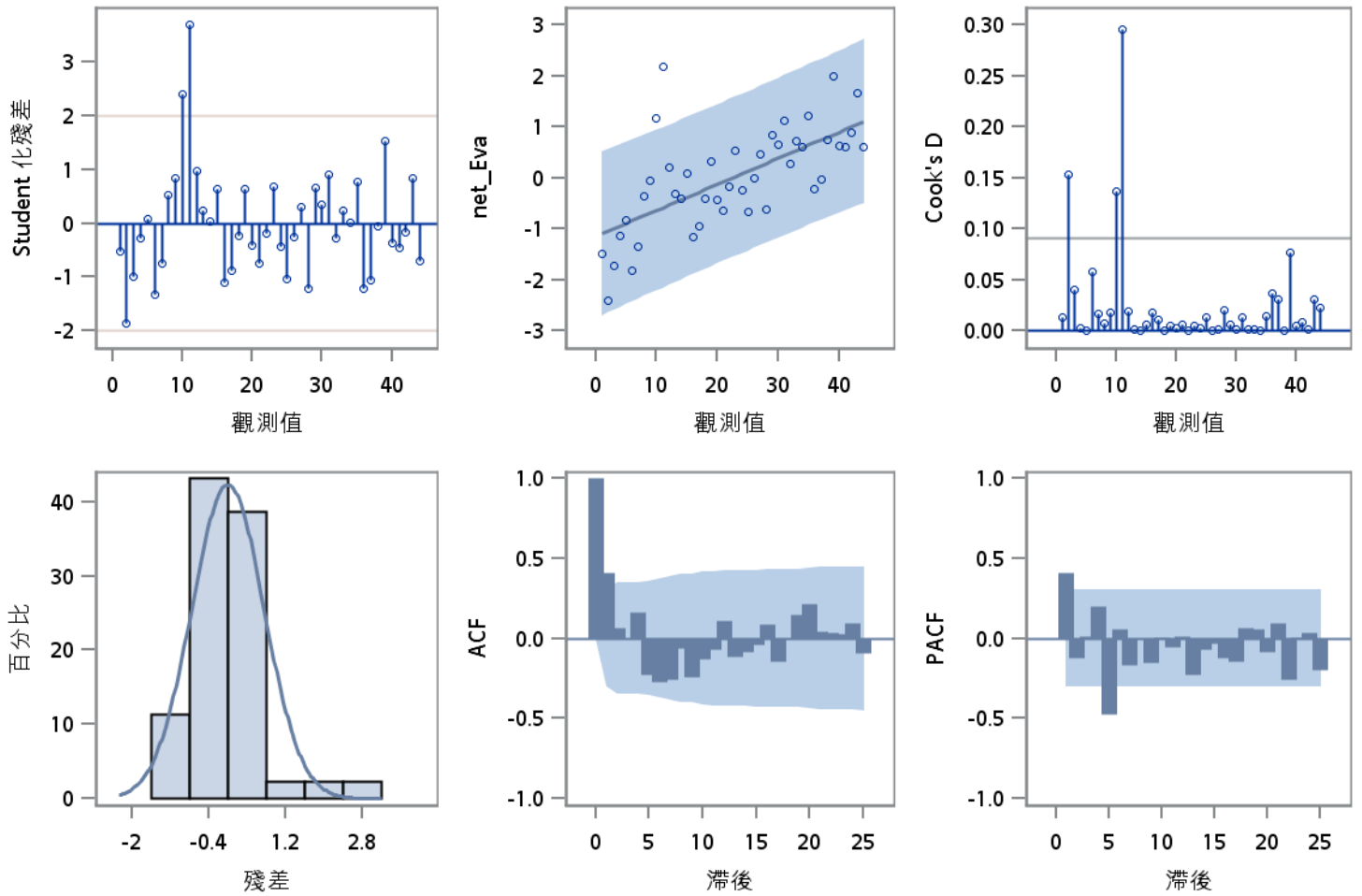
結構變更檢定					
檢定	轉折點	分子自由度	分母自由度	F 值	Pr > F
Chow	10	2	40	4.31	0.0202
Chow	11	2	40	5.20	0.0098
Chow	12	2	40	14.12	<.0001
Chow	13	2	40	13.36	<.0001



## Check Breakpoint of Log Income of China

AUTOREG 程序

以下項目的配適診斷 net\_Eva



觀測值 44 MSE 0.583258 模型自由度 2

## Adjust Flight Data Table -- Original Version

Obs	time	income_China	income_Eva	net_China	net_Eva	Oil_Price	LogChina	LogEva	net_LogChina	net_LogEva	LogOil
1	200803	32558850	25666911	2968061	1978310	122.2439177	17.2986	17.0607	14.9034	14.4978	4.80602
2	200806	33877134	23950573	1	1	115.6047174	17.3383	16.9915	0.0000	0.0000	4.75018
3	200809	35303015	25610852	2240325	1475942	55.77905072	17.3795	17.0585	14.6221	14.2048	4.02140
4	200812	29541863	22195282	4603828	2696587	44.93356061	17.2013	16.9154	15.3424	14.8075	3.80518
5	200903	23369555	18594170	4074819	3385847	59.18047619	16.9669	16.7384	15.2203	15.0351	4.08059
6	200906	21708890	17879176	1381180	1238720	68.36734488	16.8932	16.6991	14.1384	14.0296	4.22490
7	200909	27597226	20937317	2710275	2280856	74.97691919	17.1332	16.8570	14.8126	14.6401	4.31718
8	200912	32354351	24085666	5239725	4407014	76.66638785	17.2923	16.9971	15.4718	15.2987	4.33946
9	201003	33387059	25240676	7047257	5026621	78.67259019	17.3237	17.0440	15.7681	15.4303	4.36529
10	201006	38074869	28892524	8547939	7676835	76.40515152	17.4551	17.1791	15.9612	15.8537	4.33605
11	201009	39160671	31322921	10249938	9862774	86.79487233	17.4832	17.2599	16.1428	16.1043	4.46355
12	201012	37043408	28598332	5611714	5602610	104.8970221	17.4276	17.1689	15.5404	15.5387	4.65298
13	201103	33791797	27072445	3770960	4510361	117.1221284	17.3357	17.1140	15.1428	15.3219	4.76322
14	201106	35159619	28642277	3401491	4311970	112.9963583	17.3754	17.1704	15.0397	15.2769	4.72736
15	201109	37365477	30480808	5532785	5365496	109.3143795	17.4363	17.2326	15.5262	15.4955	4.69423
16	201112	35993787	27423843	1034452	2678589	118.5415512	17.3989	17.1269	13.8494	14.8008	4.77526
17	201203	33686686	28944597	1740685	3137159	108.9005797	17.3326	17.1809	14.3698	14.9588	4.69044
18	201206	35471724	29762217	3795213	4311657	109.9544697	17.3842	17.2088	15.1493	15.2768	4.70007
19	201209	37117310	31787371	5577553	5840464	110.4417655	17.4296	17.2746	15.5343	15.5803	4.70449
20	201212	34696419	29664282	3159836	4224792	112.8745652	17.3621	17.2055	14.9660	15.2565	4.72628
21	201303	33075918	29080135	3041668	3799366	103.004137	17.3143	17.1856	14.9279	15.1503	4.63477
22	201306	34187617	30295700	3982136	4807701	110.1008385	17.3474	17.2265	15.1973	15.3857	4.70140
23	201309	37343853	33244731	5176729	6336979	109.3964778	17.4357	17.3194	15.4597	15.6619	4.69498
24	201312	37095157	31543885	3221368	4634798	107.929383	17.4290	17.2669	14.9853	15.3491	4.68148
25	201403	35246873	30392098	2773842	3748030	109.806645	17.3779	17.2297	14.8357	15.1367	4.69872
26	201406	36947737	31938491	3738761	5140381	102.080596	17.4250	17.2793	15.1343	15.4526	4.62576
27	201409	40244398	35820040	5647333	6153794	75.95686957	17.5105	17.3940	15.5467	15.6326	4.33017
28	201412	38142734	34939379	5865950	3817907	54.04622727	17.4568	17.3691	15.5847	15.1552	3.98984
29	201503	37163905	33374491	6815205	6948892	62.09896104	17.4308	17.3233	15.7347	15.7541	4.12873
30	201506	35621247	32686440	5663435	6560507	50.03149445	17.3885	17.3025	15.5495	15.6966	3.91265
31	201509	37089144	36014470	6389233	7559676	43.42099097	17.4288	17.3994	15.6701	15.8383	3.77094
32	201512	35181921	35093143	5795017	5781479	34.35772257	17.3760	17.3735	15.5725	15.5702	3.53683
33	201603	34999023	34906089	6847394	6725398	45.95284271	17.3708	17.3682	15.7394	15.7214	3.82762
34	201606	33834966	34468468	4977702	6451397	45.80131219	17.3370	17.3556	15.4205	15.6798	3.82431
35	201609	36552871	38887294	6023623	7791758	50.07821789	17.4143	17.4762	15.6112	15.8686	3.91359
36	201612	35692247	36417814	4551703	4719210	54.11816271	17.3904	17.4106	15.3310	15.3672	3.99117

## Adjust Flight Data Table -- Original Version

Obs	time	income_China	income_Eva	net_China	net_Eva	Oil_Price	LogChina	LogEva	net_LogChina	net_LogEva	LogOil
37	201703	35796465	38064697	3898009	5077260	50.27630501	17.3934	17.4548	15.1760	15.4403	3.91753
38	201706	38156614	40200582	7121426	6781251	51.74080745	17.4572	17.5094	15.7786	15.7297	3.94625
39	201709	40542703	43166421	8166869	9428609	61.46836219	17.5179	17.5806	15.9156	16.0593	4.11852
40	201712	41626003	42130031	7180623	6517920	66.95132543	17.5442	17.5563	15.7869	15.6901	4.20397
41	201803	39735027	42878322	4892636	6482124	74.48866805	17.4977	17.5739	15.4032	15.6846	4.31065
42	201806	41275835	44554750	5057799	7068094	75.47547431	17.5358	17.6122	15.4364	15.7711	4.32381
43	201809	45196764	47379049	6408785	8733486	67.36929356	17.6265	17.6737	15.6732	15.9827	4.21019
44	201812	44503981	45095211	5242827	6445098	63.27252036	17.6111	17.6243	15.4724	15.6788	4.14745

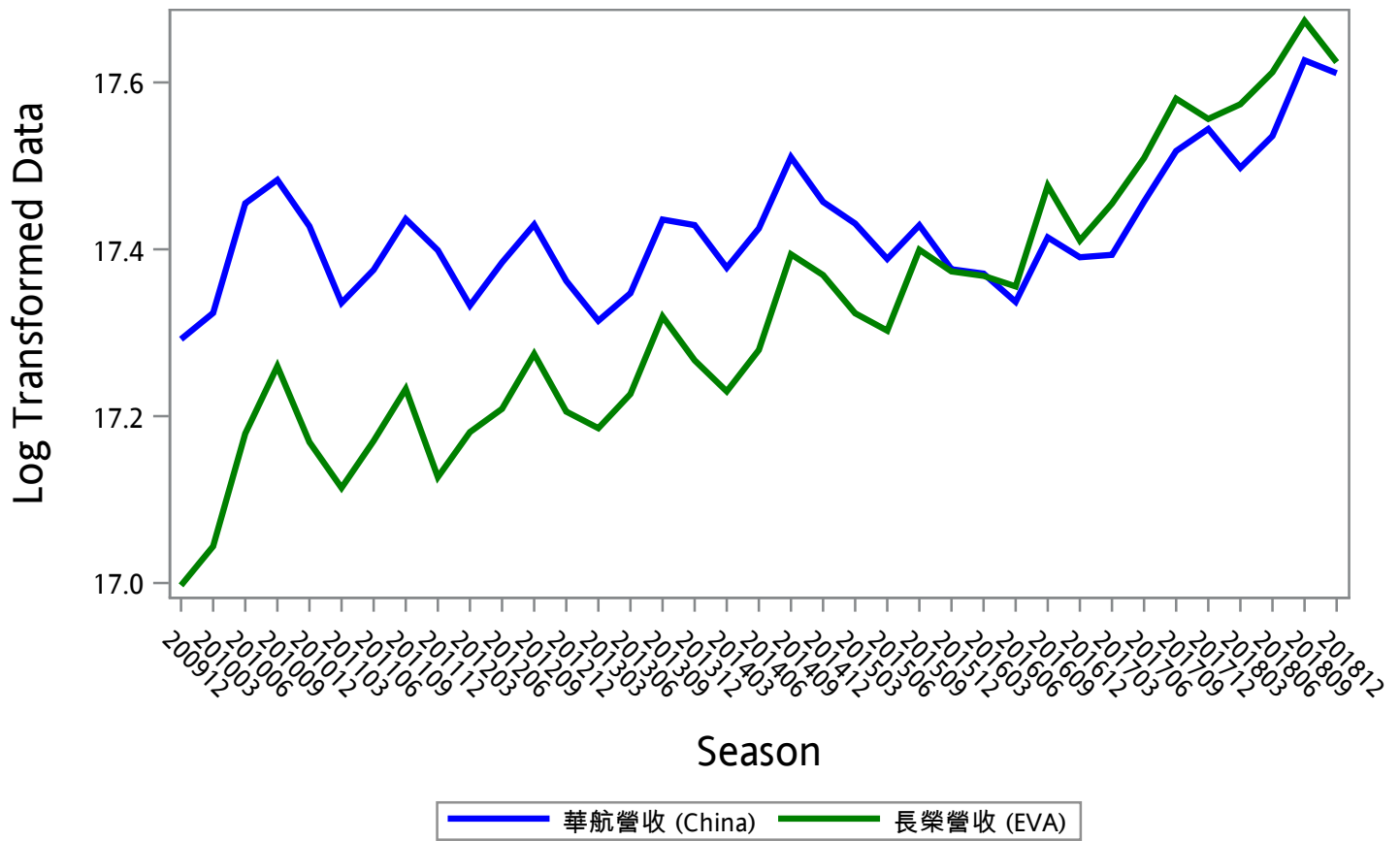
## Adjust Flight Data Table -- Remove Terms before the Breakpoint

Obs	time	income_China	income_Eva	net_China	net_Eva	Oil_Price	LogChina	LogEva	net_LogChina	net_LogEva	LogOil
1	200912	32354351	24085666	5239725	4407014	76.66638785	17.2923	16.9971	15.4718	15.2987	4.33946
2	201003	33387059	25240676	7047257	5026621	78.67259019	17.3237	17.0440	15.7681	15.4303	4.36529
3	201006	38074869	28892524	8547939	7676835	76.40515152	17.4551	17.1791	15.9612	15.8537	4.33605
4	201009	39160671	31322921	10249938	9862774	86.79487233	17.4832	17.2599	16.1428	16.1043	4.46355
5	201012	37043408	28598332	5611714	5602610	104.8970221	17.4276	17.1689	15.5404	15.5387	4.65298
6	201103	33791797	27072445	3770960	4510361	117.1221284	17.3357	17.1140	15.1428	15.3219	4.76322
7	201106	35159619	28642277	3401491	4311970	112.9963583	17.3754	17.1704	15.0397	15.2769	4.72736
8	201109	37365477	30480808	5532785	5365496	109.3143795	17.4363	17.2326	15.5262	15.4955	4.69423
9	201112	35993787	27423843	1034452	2678589	118.5415512	17.3989	17.1269	13.8494	14.8008	4.77526
10	201203	33686686	28944597	1740685	3137159	108.9005797	17.3326	17.1809	14.3698	14.9588	4.69044
11	201206	35471724	29762217	3795213	4311657	109.9544697	17.3842	17.2088	15.1493	15.2768	4.70007
12	201209	37117310	31787371	5577553	5840464	110.4417655	17.4296	17.2746	15.5343	15.5803	4.70449
13	201212	34696419	29664282	3159836	4224792	112.8745652	17.3621	17.2055	14.9660	15.2565	4.72628
14	201303	33075918	29080135	3041668	3799366	103.004137	17.3143	17.1856	14.9279	15.1503	4.63477
15	201306	34187617	30295700	3982136	4807701	110.1008385	17.3474	17.2265	15.1973	15.3857	4.70140
16	201309	37343853	33244731	5176729	6336979	109.3964778	17.4357	17.3194	15.4597	15.6619	4.69498
17	201312	37095157	31543885	3221368	4634798	107.929383	17.4290	17.2669	14.9853	15.3491	4.68148
18	201403	35246873	30392098	2773842	3748030	109.806645	17.3779	17.2297	14.8357	15.1367	4.69872
19	201406	36947737	31938491	3738761	5140381	102.080596	17.4250	17.2793	15.1343	15.4526	4.62576
20	201409	40244398	35820040	5647333	6153794	75.95686957	17.5105	17.3940	15.5467	15.6326	4.33017
21	201412	38142734	34939379	5865950	3817907	54.04622727	17.4568	17.3691	15.5847	15.1552	3.98984
22	201503	37163905	33374491	6815205	6948892	62.09896104	17.4308	17.3233	15.7347	15.7541	4.12873
23	201506	35621247	32686440	5663435	6560507	50.03149445	17.3885	17.3025	15.5495	15.6966	3.91265
24	201509	37089144	36014470	6389233	7559676	43.42099097	17.4288	17.3994	15.6701	15.8383	3.77094
25	201512	35181921	35093143	5795017	5781479	34.35772257	17.3760	17.3735	15.5725	15.5702	3.53683
26	201603	34999023	34906089	6847394	6725398	45.95284271	17.3708	17.3682	15.7394	15.7214	3.82762
27	201606	33834966	34468468	4977702	6451397	45.80131219	17.3370	17.3556	15.4205	15.6798	3.82431
28	201609	36552871	38887294	6023623	7791758	50.07821789	17.4143	17.4762	15.6112	15.8686	3.91359
29	201612	35692247	36417814	4551703	4719210	54.11816271	17.3904	17.4106	15.3310	15.3672	3.99117
30	201703	35796465	38064697	3898009	5077260	50.27630501	17.3934	17.4548	15.1760	15.4403	3.91753
31	201706	38156614	40200582	7121426	6781251	51.74080745	17.4572	17.5094	15.7786	15.7297	3.94625
32	201709	40542703	43166421	8166869	9428609	61.46836219	17.5179	17.5806	15.9156	16.0593	4.11852
33	201712	41626003	42130031	7180623	6517920	66.95132543	17.5442	17.5563	15.7869	15.6901	4.20397
34	201803	39735027	42878322	4892636	6482124	74.48866805	17.4977	17.5739	15.4032	15.6846	4.31065
35	201806	41275835	44554750	5057799	7068094	75.47547431	17.5358	17.6122	15.4364	15.7711	4.32381

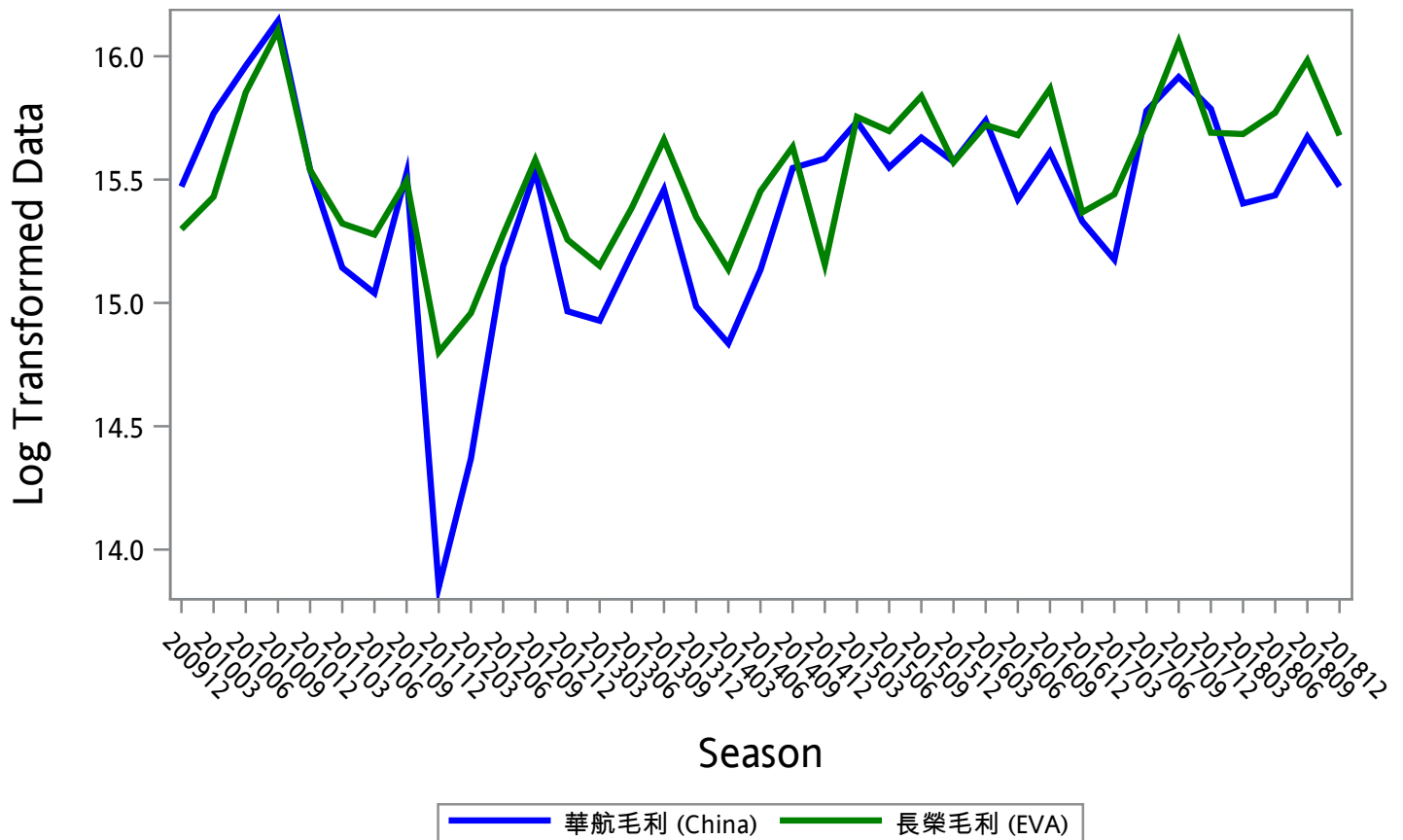
## Adjust Flight Data Table -- Remove Terms before the Breakpoint

Obs	time	income_China	income_Eva	net_China	net_Eva	Oil_Price	LogChina	LogEva	net_LogChina	net_LogEva	LogOil
36	201809	45196764	47379049	6408785	8733486	67.36929356	17.6265	17.6737	15.6732	15.9827	4.21019
37	201812	44503981	45095211	5242827	6445098	63.27252036	17.6111	17.6243	15.4724	15.6788	4.14745

# Time Series Plot for Income and Oil Price



# Time Series Plot for Net Income and Oil Price



## Dickey-Fuller Unit Root Test for Log Income

## VARMAX 程序

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
LogChina	Zero Mean	0.02	0.6802	0.79	0.8788
	Single Mean	-17.35	0.0112	-2.38	0.1541
	Trend	-30.15	0.0009	-3.24	0.0938
LogEva	Zero Mean	0.03	0.6842	1.66	0.9743
	Single Mean	-2.46	0.7108	-1.04	0.7269
	Trend	-40.83	<.0001	-4.18	0.0119



Obs	p	LogLike	AICC	HQC	AIC	SBC	FPEC
1	1	193.074062	-361.225046	-363.173908	-368.148123	-353.896453	0.000004151
2	2	194.910648	-346.487962	-356.841518	-363.821295	-343.601771	0.000003501
3	3	195.648202	-319.046404	-348.447349	-357.296404	-331.348275	0.000003134
4	4	205.173996	-284.347991	-357.773877	-368.347991	-336.921332	0.000001649
5	5	207.938087	-149.209508	-353.729925	-365.876175	-329.232777	0.000001288
6	6	212.937788	1372.124424	-354.319698	-367.875576	-326.289947	0.000000874
7	7	209.708688	-914.417377	-338.624959	-353.417377	-307.177863	0.000001033
8	8	205.177433	-648.799310	-320.510726	-336.354866	-285.764920	0.000001423
9	9	206.494970	-576.989941	-314.291945	-330.989941	-276.369556	0.000001450
10	10	219.307117	-566.508971	-331.274824	-348.614234	-290.301575	0.000000763

Model for Log Income with  $p = 4$ 

## VARMAX 程序

觀測值數目	37
成對遺漏數目	0

簡單摘要統計值							
變數	類型	N	平均值	標準差	最小值	最大值	標籤
LogChina	相依	37	17.42308	0.07815	17.29226	17.62654	華航營收 (China)
LogEva	相依	37	17.32506	0.16839	16.99713	17.67369	長榮營收 (EVA)

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
LogChina	Zero Mean	0.02	0.6802	0.79	0.8788
	Single Mean	-17.35	0.0112	-2.38	0.1541
	Trend	-30.15	0.0009	-3.24	0.0938
LogEva	Zero Mean	0.03	0.6842	1.66	0.9743
	Single Mean	-2.46	0.7108	-1.04	0.7269
	Trend	-40.83	<.0001	-4.18	0.0119

使用追蹤的共整合秩檢定						
H0: Rank=r	H1: Rank>r	特徵值	追蹤	Pr > 追蹤	ECM 中的漂移	程序中的漂移
0	0	0.6041	33.9774	<.0001	NOINT	Constant
1	1	0.0980	3.4019	0.0769		

長期參數 Beta 估計值		
變數	1	2
LogChina	-3.88268	9.00355
LogEva	3.98151	-9.02144

調整係數 Alpha 估計值		
變數	1	2
LogChina	0.02274	-0.00859
LogEva	0.03780	-0.00103

Model for Log Income with  $p = 4$ 

## VARMAX 程序

模型類型	VAR(4)
估計法	Least Squares Estimation

AR 係數估計值			
滯後	變數	LogChina	LogEva
1	LogChina	0.70963	0.03496
	LogEva	0.03099	0.33006
2	LogChina	0.35753	-0.54230
	LogEva	0.27302	-0.17220
3	LogChina	0.09518	-0.06976
	LogEva	-0.00445	-0.02480
4	LogChina	-0.32793	0.74510
	LogEva	-0.45556	1.02669

參數估計值的圖示				
變數/滯後	AR1	AR2	AR3	AR4
LogChina	+	-	..	..+
LogEva	..	..	..	-+
+ is > 2*std error, - is < -2*std error, . is between, * is N/A				

模型參數估計值						
方程式	參數	估計值	標準 誤差	t 值	Pr >  t	變數
LogChina	AR1_1_1	0.70963	0.26309	2.70	0.0123	LogChina(t-1)
	AR1_1_2	0.03496	0.22103	0.16	0.8756	LogEva(t-1)
	AR2_1_1	0.35753	0.30716	1.16	0.2554	LogChina(t-2)
	AR2_1_2	-0.54230	0.22984	-2.36	0.0264	LogEva(t-2)
	AR3_1_1	0.09518	0.28112	0.34	0.7378	LogChina(t-3)
	AR3_1_2	-0.06976	0.23263	-0.30	0.7667	LogEva(t-3)
	AR4_1_1	-0.32793	0.22905	-1.43	0.1646	LogChina(t-4)
	AR4_1_2	0.74510	0.22819	3.27	0.0032	LogEva(t-4)
LogEva	AR1_2_1	0.03099	0.25364	0.12	0.9037	LogChina(t-1)
	AR1_2_2	0.33006	0.21309	1.55	0.1340	LogEva(t-1)
	AR2_2_1	0.27302	0.29613	0.92	0.3654	LogChina(t-2)
	AR2_2_2	-0.17220	0.22159	-0.78	0.4444	LogEva(t-2)
	AR3_2_1	-0.00445	0.27102	-0.02	0.9870	LogChina(t-3)

Model for Log Income with  $p = 4$ 

## VARMAX 程序

模型參數估計值						
方程式	參數	估計值	標準 誤差	t 值	Pr >  t	變數
	AR3_2_2	-0.02480	0.22428	-0.11	0.9128	LogEva(t-3)
	AR4_2_1	-0.45556	0.22082	-2.06	0.0496	LogChina(t-4)
	AR4_2_2	1.02669	0.21999	4.67	0.0001	LogEva(t-4)

創新的共變異數		
變數	LogChina	LogEva
LogChina	0.00134	0.00085
LogEva	0.00085	0.00125

對數概度	204.891
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訊息準則	
AICC	-313.321
HQC	-362.215
AIC	-371.782
SBC	-343.348
FPEC	1.473E-6

殘差的交叉共變異數			
滯後	變數	LogChina	LogEva
0	LogChina	0.00102	0.00064
	LogEva	0.00064	0.00095
1	LogChina	-0.00002	0.00000
	LogEva	-0.00009	-0.00008
2	LogChina	-0.00001	-0.00017
	LogEva	-0.00000	-0.00021
3	LogChina	-0.00004	-0.00015
	LogEva	-0.00002	-0.00010

Model for Log Income with  $p = 4$ 

## VARMAX 程序

殘差的交叉相關			
滯後	變數	LogChina	LogEva
0	LogChina	1.00000	0.65672
	LogEva	0.65672	1.00000
1	LogChina	-0.01800	0.00218
	LogEva	-0.09363	-0.08415
2	LogChina	-0.00887	-0.17371
	LogEva	-0.00500	-0.21806
3	LogChina	-0.03458	-0.15178
	LogEva	-0.01815	-0.10382

殘差的交叉相關示意圖				
變數/滯後	0	1	2	3
LogChina	++	..	..	..
LogEva	++	..	..	..
+ is > 2*std error, - is < -2*std error, . is between				

單變量模型 ANOVA 診斷				
變數	R 平方	標準差	F 值	Pr > F
LogChina	0.8210	0.03665	16.38	<.0001
LogEva	0.9604	0.03534	86.60	<.0001

單變量模型白噪音診斷					
變數	Durbin Watson	常態性		ARCH	
		卡方	Pr > ChiSq	F 值	Pr > F
LogChina	1.98955	6.14	0.0465	1.01	0.3220
LogEva	2.06300	1.24	0.5372	1.45	0.2387

單變量模型 AR 診斷								
變數	AR1		AR2		AR3		AR4	
	F 值	Pr > F	F 值	Pr > F	F 值	Pr > F	F 值	Pr > F
LogChina	0.01	0.9203	0.01	0.9948	0.03	0.9935	0.45	0.7688
LogEva	0.23	0.6340	1.00	0.3800	1.00	0.4083	0.89	0.4871

## VARMAX 程序

Granger-Causality Wald 檢定			
檢定	自由度	卡方	Pr > ChiSq
1	8	13.97	0.0825
2	4	5.48	0.2418
3	4	3.23	0.5200
4	4	5.79	0.2157

檢定 1: 群組 1 變數:	LogChina LogEva
群組 2 變數:	LogOil

檢定 2: 群組 1 變數:	LogChina
群組 2 變數:	LogOil

檢定 3: 群組 1 變數:	LogEva
群組 2 變數:	LogOil

檢定 4: 群組 1 變數:	LogEva
群組 2 變數:	LogChina

## VARMAX 程序

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
LogChina	Zero Mean	0.02	0.6802	0.79	0.8788
	Single Mean	-17.35	0.0112	-2.38	0.1541
	Trend	-30.15	0.0009	-3.24	0.0938
LogEva	Zero Mean	0.03	0.6842	1.66	0.9743
	Single Mean	-2.46	0.7108	-1.04	0.7269
	Trend	-40.83	<.0001	-4.18	0.0119

## VARMAX 程序

觀測值數目	37
成對遺漏數目	0

簡單摘要統計值							
變數	類型	N	平均值	標準差	最小值	最大值	標籤
LogChina	相依	37	17.42308	0.07815	17.29226	17.62654	華航營收 (China)
LogEva	相依	37	17.32506	0.16839	16.99713	17.67369	長榮營收 (EVA)
LogOil	獨立	37	4.33459	0.35625	3.53683	4.77526	

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
LogChina	Zero Mean	0.02	0.6802	0.79	0.8788
	Single Mean	-17.35	0.0112	-2.38	0.1541
	Trend	-30.15	0.0009	-3.24	0.0938
LogEva	Zero Mean	0.03	0.6842	1.66	0.9743
	Single Mean	-2.46	0.7108	-1.04	0.7269
	Trend	-40.83	<.0001	-4.18	0.0119



## VARMAX 程序

模型類型	VARX(4,0)
估計法	Least Squares Estimation

模型參數估計值						
方程式	參數	估計值	標準 誤差	t 值	Pr >  t	變數
LogChina	CONST1	0.19340	2.56084	0.08	0.9405	1
	XL0_1_1	0.06422	0.02354	2.73	0.0120	LogOil(t)
	AR1_1_1	0.39250	0.26411	1.49	0.1508	LogChina(t-1)
	AR1_1_2	0.26127	0.21668	1.21	0.2401	LogEva(t-1)
	AR2_1_1	0.31656	0.28431	1.11	0.2770	LogChina(t-2)
	AR2_1_2	-0.44288	0.21084	-2.10	0.0468	LogEva(t-2)
	AR3_1_1	0.13759	0.25589	0.54	0.5960	LogChina(t-3)
	AR3_1_2	-0.13814	0.21221	-0.65	0.5215	LogEva(t-3)
	AR4_1_1	-0.20794	0.22600	-0.92	0.3671	LogChina(t-4)
	AR4_1_2	0.65704	0.20937	3.14	0.0046	LogEva(t-4)
LogEva	CONST2	1.73070	2.82385	0.61	0.5460	1
	XL0_2_1	0.00196	0.02596	0.08	0.9406	LogOil(t)
	AR1_2_1	0.01168	0.29123	0.04	0.9684	LogChina(t-1)
	AR1_2_2	0.33321	0.23893	1.39	0.1765	LogEva(t-1)
	AR2_2_1	0.23025	0.31351	0.73	0.4701	LogChina(t-2)
	AR2_2_2	-0.16362	0.23249	-0.70	0.4886	LogEva(t-2)
	AR3_2_1	-0.01940	0.28218	-0.07	0.9458	LogChina(t-3)
	AR3_2_2	-0.01945	0.23400	-0.08	0.9345	LogEva(t-3)
	AR4_2_1	-0.50096	0.24922	-2.01	0.0563	LogChina(t-4)
	AR4_2_2	1.03229	0.23088	4.47	0.0002	LogEva(t-4)

創新的共變異數		
變數	LogChina	LogEva
LogChina	0.00110	0.00090
LogEva	0.00090	0.00133

對數概度	213.8892
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## VARMAX 程序

訊息準則	
AICC	-259.112
HQC	-370.197
AIC	-381.778
SBC	-347.359
FPEC	1.11E-6

## Dickey-Fuller Unit Root Test for Log Net Income

## VARMAX 程序

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
net_LogChina	Zero Mean	-0.03	0.6710	-0.17	0.6177
	Single Mean	-21.43	0.0027	-3.17	0.0302
	Trend	-24.27	0.0083	-3.42	0.0648
net_LogEva	Zero Mean	0.02	0.6803	0.17	0.7299
	Single Mean	-22.66	0.0017	-3.17	0.0301
	Trend	-32.11	0.0004	-3.76	0.0311

## Model Criterion for Log Net Income

Obs	p	LogLike	AICC	HQC	AIC	SBC	FPEC
1	1	69.175874	-113.428671	-115.377533	-120.351748	-106.100077	0.004050
2	2	69.653828	-95.974323	-106.327879	-113.307656	-93.088131	0.004495
3	3	68.157429	-64.064857	-93.465802	-102.314857	-76.366728	0.005663
4	4	71.822537	-17.645073	-91.070959	-101.645073	-70.218414	0.005334
5	5	73.744942	119.176783	-85.343634	-97.489883	-60.846486	0.005652
6	6	71.844733	1654.310534	-72.133588	-85.689466	-44.103837	0.007848
7	7	70.697018	-636.394037	-60.601619	-75.394037	-29.154523	0.010934
8	8	76.098314	-390.641072	-62.352487	-78.196627	-27.606682	0.010455
9	9	105.818516	-375.637032	-112.939036	-129.637032	-75.016647	0.001925
10	10	117.003962	-361.902661	-126.668513	-144.007924	-85.695265	0.001491

Model for Log Net Income with  $p = 1$ 

## VARMAX 程序

觀測值數目	37
成對遺漏數目	0

簡單摘要統計值							
變數	類型	N	平均值	標準差	最小值	最大值	標籤
net_LogChina	相依	37	15.38931	0.43926	13.84938	16.14278	華航毛利 (China)
net_LogEva	相依	37	15.53108	0.29676	14.80080	16.10428	長榮毛利 (EVA)

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
net_LogChina	Zero Mean	-0.03	0.6710	-0.17	0.6177
	Single Mean	-21.43	0.0027	-3.17	0.0302
	Trend	-24.27	0.0083	-3.42	0.0648
net_LogEva	Zero Mean	0.02	0.6803	0.17	0.7299
	Single Mean	-22.66	0.0017	-3.17	0.0301
	Trend	-32.11	0.0004	-3.76	0.0311

使用追蹤的共整合秩檢定						
H0: Rank=r	H1: Rank>r	特徵值	追蹤	Pr > 追蹤	ECM 中的漂移	程序中的漂移
0	0	0.3525	15.6625	0.0131	NOINT	Constant
1	1	0.0005	0.0175	0.9138		

長期參數 Beta 估計值		
變數	1	2
net_LogChina	4.10121	-0.31314
net_LogEva	-4.05975	0.37456

調整係數 Alpha 估計值		
變數	1	2
net_LogChina	-0.14977	0.00774
net_LogEva	0.01057	0.00673

Model for Log Net Income with  $p = 1$ 

## VARMAX 程序

模型類型	VAR(1)
估計法	Least Squares Estimation

AR 係數估計值			
滯後	變數	net_LogChina	net_LogEva
1	net_LogChina	0.38334	0.61092
	net_LogEva	0.04125	0.95960

參數估計值的圖示	
變數/滯後	AR1
net_LogChina	.+
net_LogEva	.+
+ is > 2*std error, - is < -2*std error, . is between, * is N/A	

模型參數估計值						
方程式	參數	估計值	標準 誤差	t 值	Pr >  t	變數
net_LogChina	AR1_1_1	0.38334	0.28608	1.34	0.1891	net_LogChina(t-1)
	AR1_1_2	0.61092	0.28357	2.15	0.0384	net_LogEva(t-1)
net_LogEva	AR1_2_1	0.04125	0.21571	0.19	0.8495	net_LogChina(t-1)
	AR1_2_2	0.95960	0.21381	4.49	0.0001	net_LogEva(t-1)

創新的共變異數		
變數	net_LogChina	net_LogEva
net_LogChina	0.17415	0.11047
net_LogEva	0.11047	0.09901

對數概度	61.28949
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訊息準則	
AICC	-104.579
HQC	-104.71
AIC	-108.579
SBC	-97.4943
FPEC	0.005614

Model for Log Net Income with  $p = 1$ 

## VARMAX 程序

殘差的交叉共變異數			
滯後	變數	net_LogChina	net_LogEva
0	net_LogChina	0.16448	0.10434
	net_LogEva	0.10434	0.09351
1	net_LogChina	-0.00790	-0.01829
	net_LogEva	-0.00763	-0.02016
2	net_LogChina	-0.04427	-0.03750
	net_LogEva	-0.03035	-0.02847
3	net_LogChina	-0.02802	-0.02347
	net_LogEva	-0.02088	-0.01829

殘差的交叉相關			
滯後	變數	net_LogChina	net_LogEva
0	net_LogChina	1.00000	0.84130
	net_LogEva	0.84130	1.00000
1	net_LogChina	-0.04801	-0.14747
	net_LogEva	-0.06156	-0.21561
2	net_LogChina	-0.26914	-0.30240
	net_LogEva	-0.24472	-0.30450
3	net_LogChina	-0.17036	-0.18925
	net_LogEva	-0.16836	-0.19559

殘差的交叉相關示意圖				
變數/滯後	0	1	2	3
net_LogChina	++	..	..	..
net_LogEva	++	..	..	..
+ is > 2*std error, - is < -2*std error, . is between				

殘差交叉相關的 Portmanteau 檢定			
滯後上限	自由度	卡方	Pr > ChiSq
2	4	8.05	0.0898
3	8	9.66	0.2895

Model for Log Net Income with  $p = 1$ 

## VARMAX 程序

單變量模型 ANOVA 診斷				
變數	R 平方	標準差	F 值	Pr > F
net_LogChina	0.1467	0.41732	5.84	0.0211
net_LogEva		0.31466		

單變量模型白噪音診斷					
變數	Durbin Watson	常態性		ARCH	
		卡方	Pr > ChiSq	F 值	Pr > F
net_LogChina	2.04012	35.31	<.0001	0.04	0.8502
net_LogEva	2.39995	2.07	0.3555	0.50	0.4834

單變量模型 AR 診斷								
變數	AR1		AR2		AR3		AR4	
	F 值	Pr > F	F 值	Pr > F	F 值	Pr > F	F 值	Pr > F
net_LogChina	0.08	0.7814	1.56	0.2256	2.37	0.0907	2.20	0.0959
net_LogEva	1.67	0.2058	3.81	0.0332	7.76	0.0006	6.40	0.0009



## VARMAX 程序

Granger-Causality Wald 檢定			
檢定	自由度	卡方	Pr > ChiSq
1	2	6.99	0.0303
2	1	5.69	0.0170
3	1	8.11	0.0044
4	1	0.14	0.7041

檢定 1: 群組 1 變數:	net_LogChina net_LogEva
群組 2 變數:	LogOil

檢定 2: 群組 1 變數:	net_LogChina
群組 2 變數:	LogOil

檢定 3: 群組 1 變數:	net_LogEva
群組 2 變數:	LogOil

檢定 4: 群組 1 變數:	net_LogChina
群組 2 變數:	net_LogEva

## VARMAX 程序

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
net_LogChina	Zero Mean	-0.03	0.6710	-0.17	0.6177
	Single Mean	-21.43	0.0027	-3.17	0.0302
	Trend	-24.27	0.0083	-3.42	0.0648
net_LogEva	Zero Mean	0.02	0.6803	0.17	0.7299
	Single Mean	-22.66	0.0017	-3.17	0.0301
	Trend	-32.11	0.0004	-3.76	0.0311

## VARMAX 程序

觀測值數目	37
成對遺漏數目	0

簡單摘要統計值							
變數	類型	N	平均值	標準差	最小值	最大值	標籤
net_LogChina	相依	37	15.38931	0.43926	13.84938	16.14278	華航毛利 (China)
net_LogEva	相依	37	15.53108	0.29676	14.80080	16.10428	長榮毛利 (EVA)
LogOil	獨立	37	4.33459	0.35625	3.53683	4.77526	

Dickey-Fuller 單根檢定					
變數	類型	Rho	Pr < Rho	Tau	Pr < Tau
net_LogChina	Zero Mean	-0.03	0.6710	-0.17	0.6177
	Single Mean	-21.43	0.0027	-3.17	0.0302
	Trend	-24.27	0.0083	-3.42	0.0648
net_LogEva	Zero Mean	0.02	0.6803	0.17	0.7299
	Single Mean	-22.66	0.0017	-3.17	0.0301
	Trend	-32.11	0.0004	-3.76	0.0311

## VARMAX 程序

模型類型	VARX(1,0)
估計法	Least Squares Estimation

模型參數估計值						
方程式	參數	估計值	標準 誤差	t 值	Pr >  t	變數
net_LogChina	CONST1	14.59389	4.13125	3.53	0.0013	1
	XL0_1_1	-0.48757	0.19182	-2.54	0.0161	LogOil(t)
	AR1_1_1	0.55277	0.26522	2.08	0.0452	net_LogChina(t-1)
	AR1_1_2	-0.36060	0.40025	-0.90	0.3744	net_LogEva(t-1)
net_LogEva	CONST2	13.25608	2.83168	4.68	0.0001	1
	XL0_2_1	-0.28957	0.13148	-2.20	0.0350	LogOil(t)
	AR1_2_1	0.26233	0.18179	1.44	0.1587	net_LogChina(t-1)
	AR1_2_2	-0.03219	0.27435	-0.12	0.9073	net_LogEva(t-1)

創新的共變異數		
變數	net_LogChina	net_LogEva
net_LogChina	0.13199	0.07169
net_LogEva	0.07169	0.06201

對數概度	72.53065
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訊息準則	
AICC	-112.061
HQC	-116.982
AIC	-123.061
SBC	-105.643
FPEC	0.003761

## Fit Model for Log Income of China

## ARIMA 程序

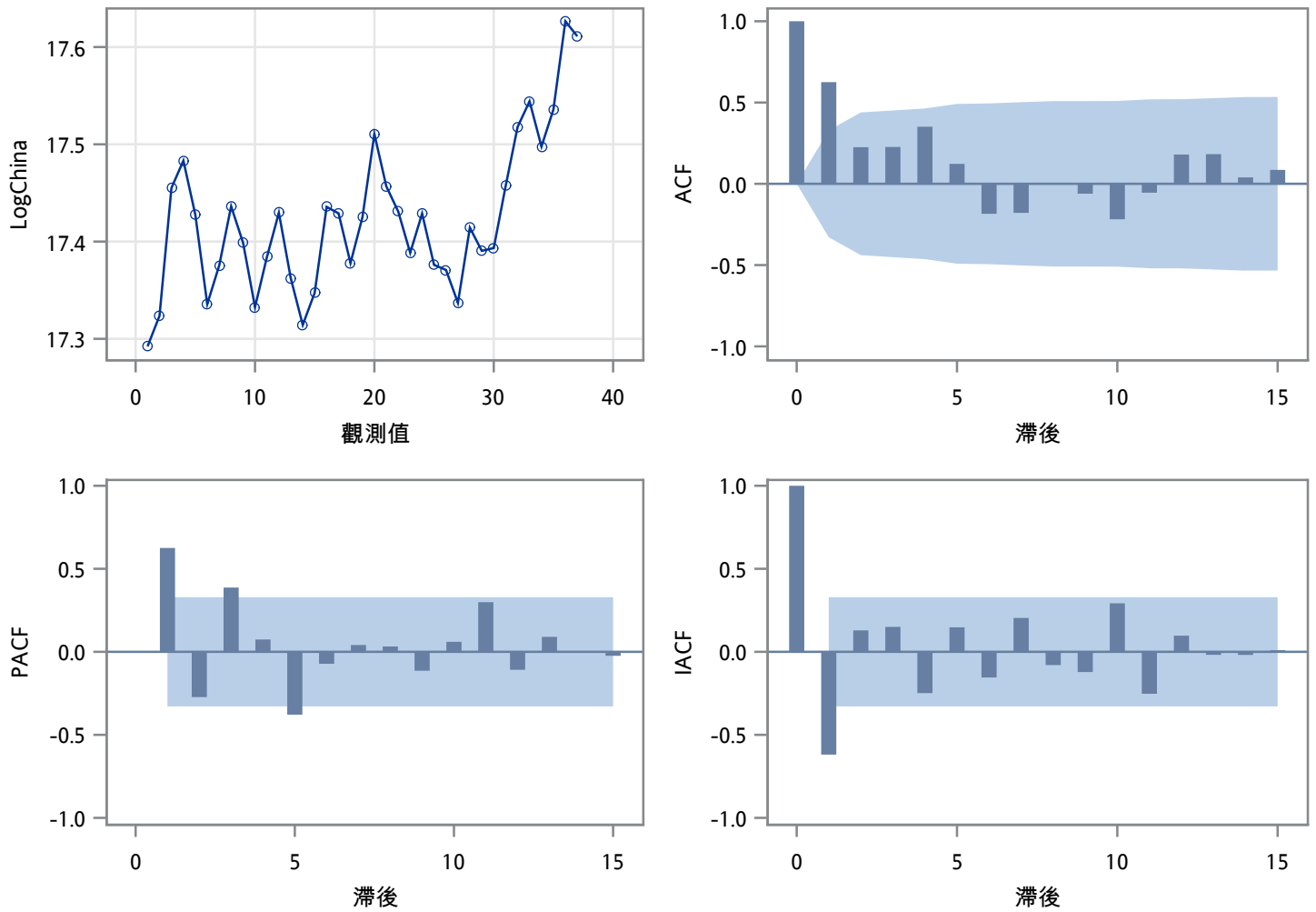
白噪音的自相關檢查									
至滯後	卡方	DF	Pr > ChiSq	自相關					
6	27.60	6	0.0001	0.625	0.225	0.227	0.351	0.123	-0.185
12	33.90	12	0.0007	-0.179	0.002	-0.061	-0.218	-0.055	0.180

擴張的 Dickey-Fuller 單根檢定							
類型	滯後	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
零平均值	0	0.0182	0.6808	0.94	0.9045		
	1	0.0162	0.6802	0.79	0.8788		
	2	0.0105	0.6788	1.03	0.9164		
	3	0.0094	0.6783	1.16	0.9336		
	4	0.0069	0.6775	0.52	0.8221		
單一平均值	0	-8.8976	0.1476	-1.97	0.2986	2.43	0.4687
	1	-17.3512	0.0112	-2.38	0.1541	3.20	0.2815
	2	-0.4801	0.9231	-0.13	0.9379	0.52	0.9442
	3	1.9167	0.9960	0.68	0.9899	0.89	0.8427
	4	-11.1591	0.0748	-0.89	0.7796	0.53	0.9415
趨勢	0	-13.5344	0.1786	-2.60	0.2843	3.42	0.5127
	1	-30.1482	0.0009	-3.24	0.0938	5.35	0.1495
	2	-5.4206	0.7667	-1.11	0.9120	1.63	0.8511
	3	-1.5076	0.9767	-0.42	0.9822	2.22	0.7401
	4	-54.3176	<.0001	-2.26	0.4411	4.98	0.2188

## Fit Model for Log Income of China

ARIMA 程序

LogChina 的趨勢與相關分析

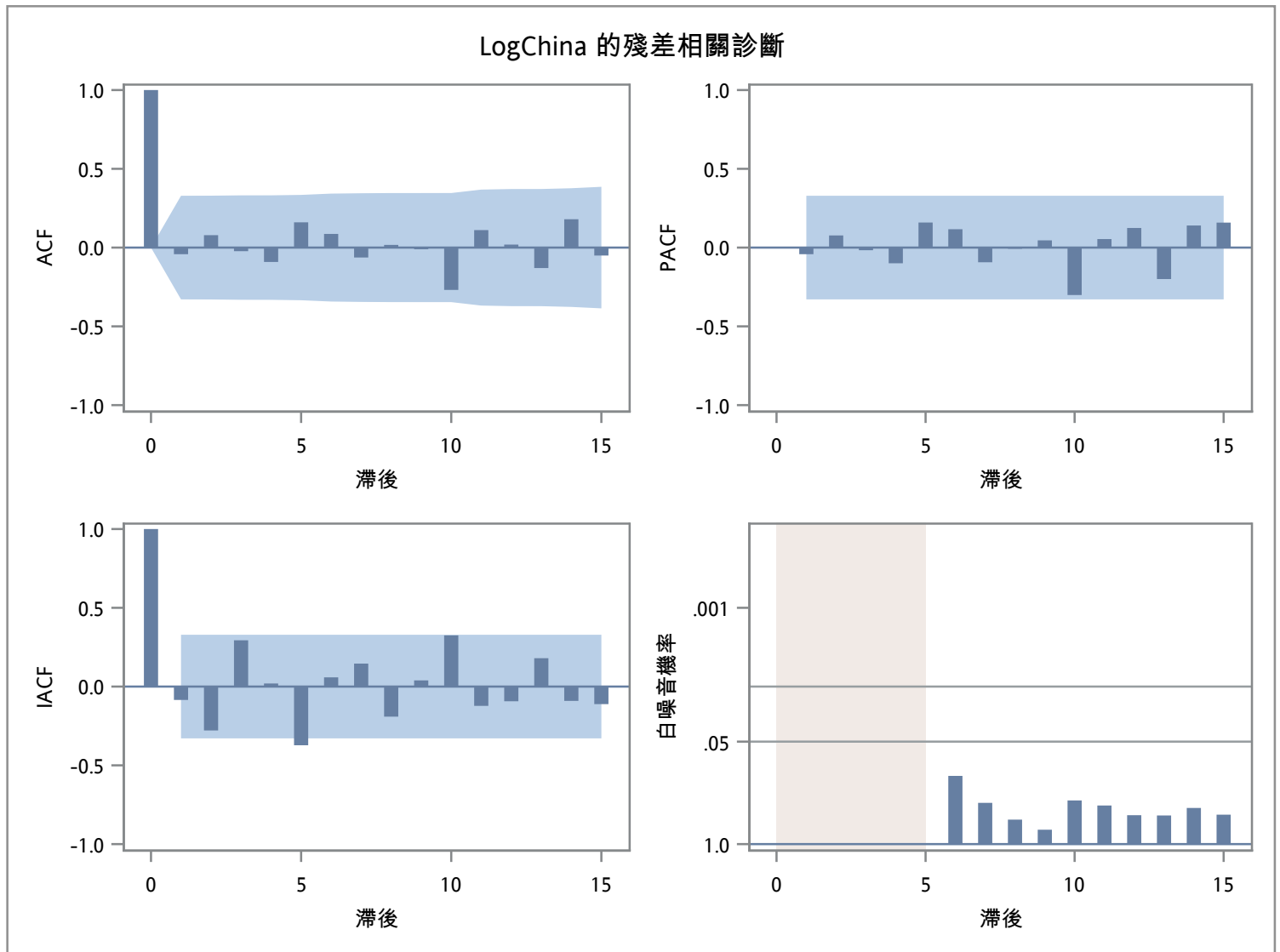


殘差的自相關檢查

至滯後	卡方	DF	Pr > ChiSq	自相關					
6	2.17	1	0.1409	-0.038	0.081	-0.024	-0.092	0.156	0.086
12	6.97	7	0.4319	-0.065	0.014	-0.012	-0.271	0.108	0.016
18	15.16	13	0.2974	-0.129	0.180	-0.047	0.036	0.201	-0.162
24	17.39	19	0.5633	0.053	-0.042	-0.087	-0.041	-0.015	-0.094

## Fit Model for Log Income of China

ARIMA 程序



變數 LogChina 的模型

估計的平均值 17.41795

自迴歸因子

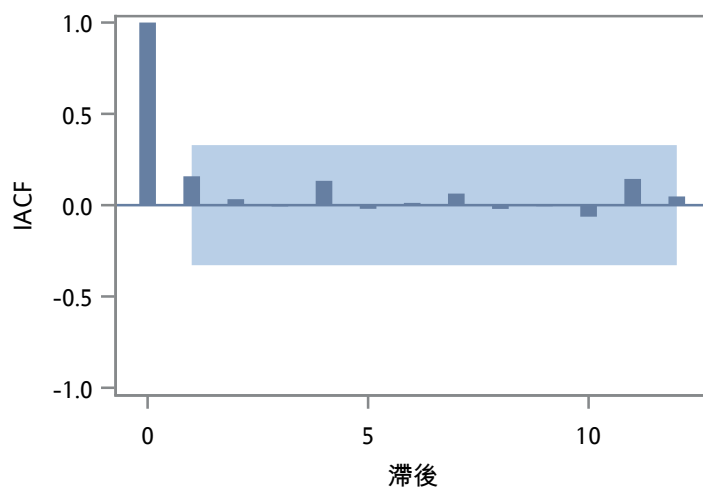
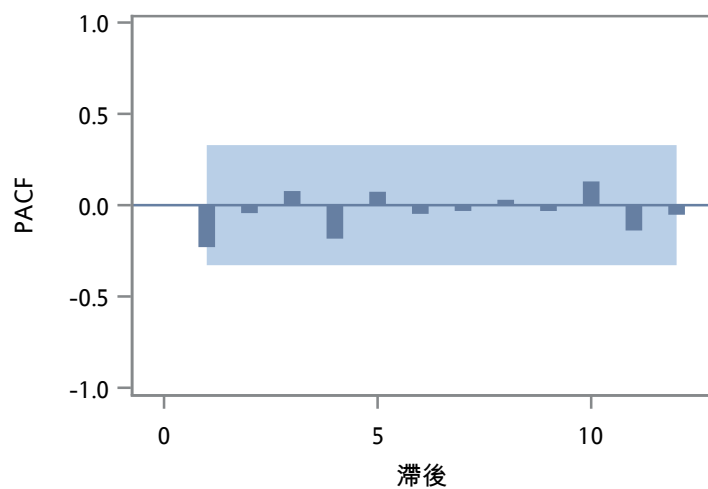
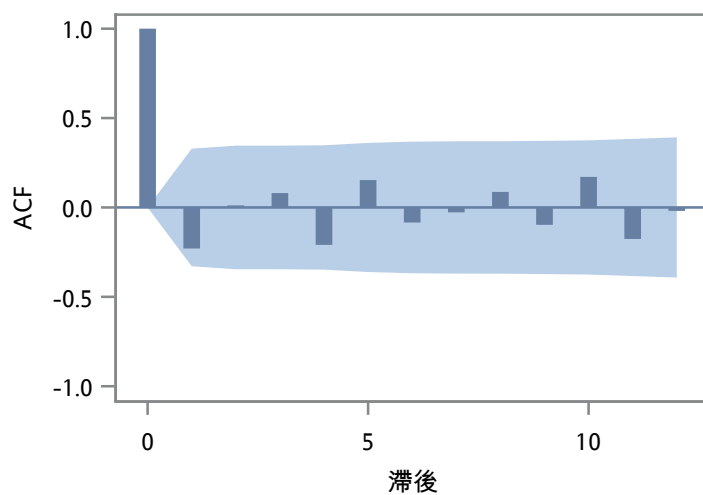
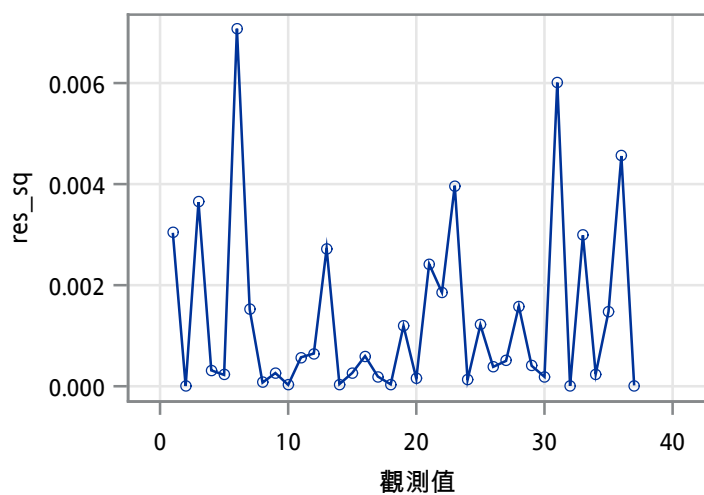
因子 1:  $1 - 1.05666 B^{**}(1) + 0.4203 B^{**}(2) - 0.07388 B^{**}(3) - 0.65119 B^{**}(4) + 0.61869 B^{**}(5)$

## Fit Model for Log Income of China -- GARCH

## ARIMA 程序

白噪音的自相關檢查									
至滯後	卡方	DF	Pr > ChiSq	自相關					
6	5.70	6	0.4581	-0.230	0.012	0.080	-0.209	0.153	-0.084
12	9.90	12	0.6246	-0.027	0.087	-0.097	0.171	-0.176	-0.019

res\_sq 的趨勢與相關分析





## ARIMA 程序

Warning: The value of NLAG is larger than 25% of the series length. The asymptotic approximations used for correlation based statistics and confidence intervals may be poor.

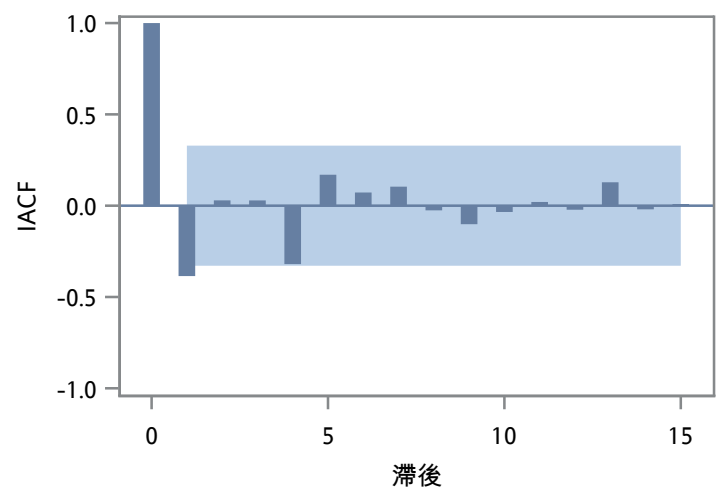
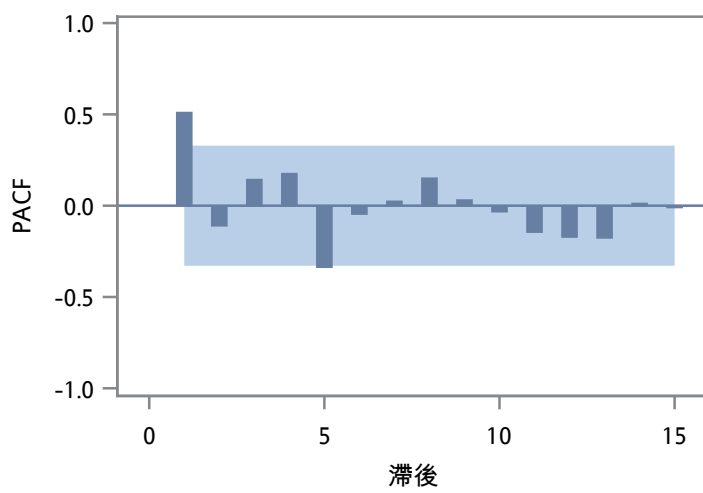
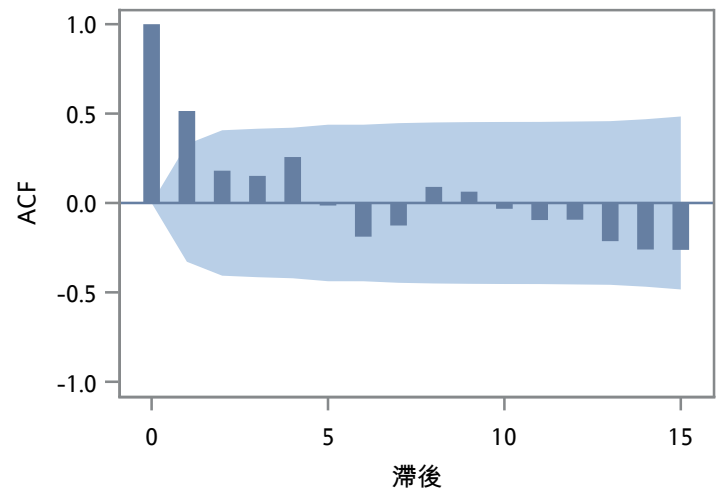
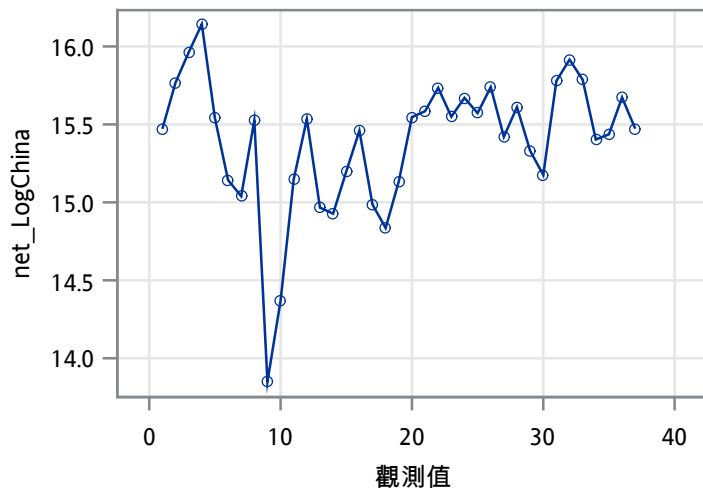
變數名稱 = net_LogChina	
工作序列的平均值	15.38931
標準差	0.43328
觀測值數目	37

白噪音的自相關檢查									
至滯後	卡方	DF	Pr > ChiSq	自相關					
6	17.48	6	0.0077	0.515	0.181	0.151	0.257	-0.014	-0.188
12	19.92	12	0.0687	-0.126	0.090	0.063	-0.033	-0.095	-0.094

擴張的 Dickey-Fuller 單根檢定							
類型	滯後	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
零平均值	0	-0.0142	0.6736	-0.08	0.6487		
	1	-0.0250	0.6710	-0.17	0.6177		
	2	-0.0266	0.6705	-0.26	0.5843		
	3	-0.0317	0.6692	-0.44	0.5136		
	4	-0.0254	0.6703	-0.27	0.5814		
單一平均值	0	-17.4600	0.0110	-3.30	0.0220	5.44	0.0345
	1	-21.4296	0.0027	-3.17	0.0302	5.03	0.0455
	2	-14.8198	0.0250	-2.44	0.1396	2.99	0.3311
	3	-9.8184	0.1117	-2.09	0.2515	2.27	0.5083
	4	-29.9787	0.0002	-2.47	0.1317	3.08	0.3098
趨勢	0	-18.5517	0.0495	-3.40	0.0665	5.80	0.0913
	1	-24.2715	0.0083	-3.42	0.0648	5.94	0.0855
	2	-19.5953	0.0350	-2.90	0.1751	4.46	0.3174
	3	-16.9690	0.0719	-3.08	0.1268	5.58	0.1050
	4	-74.8900	<.0001	-3.79	0.0302	7.53	0.0314

## ARIMA 程序

net\_LogChina 的趨勢與相關分析



## Fit Model for Log Income of EVA

## ARIMA 程序

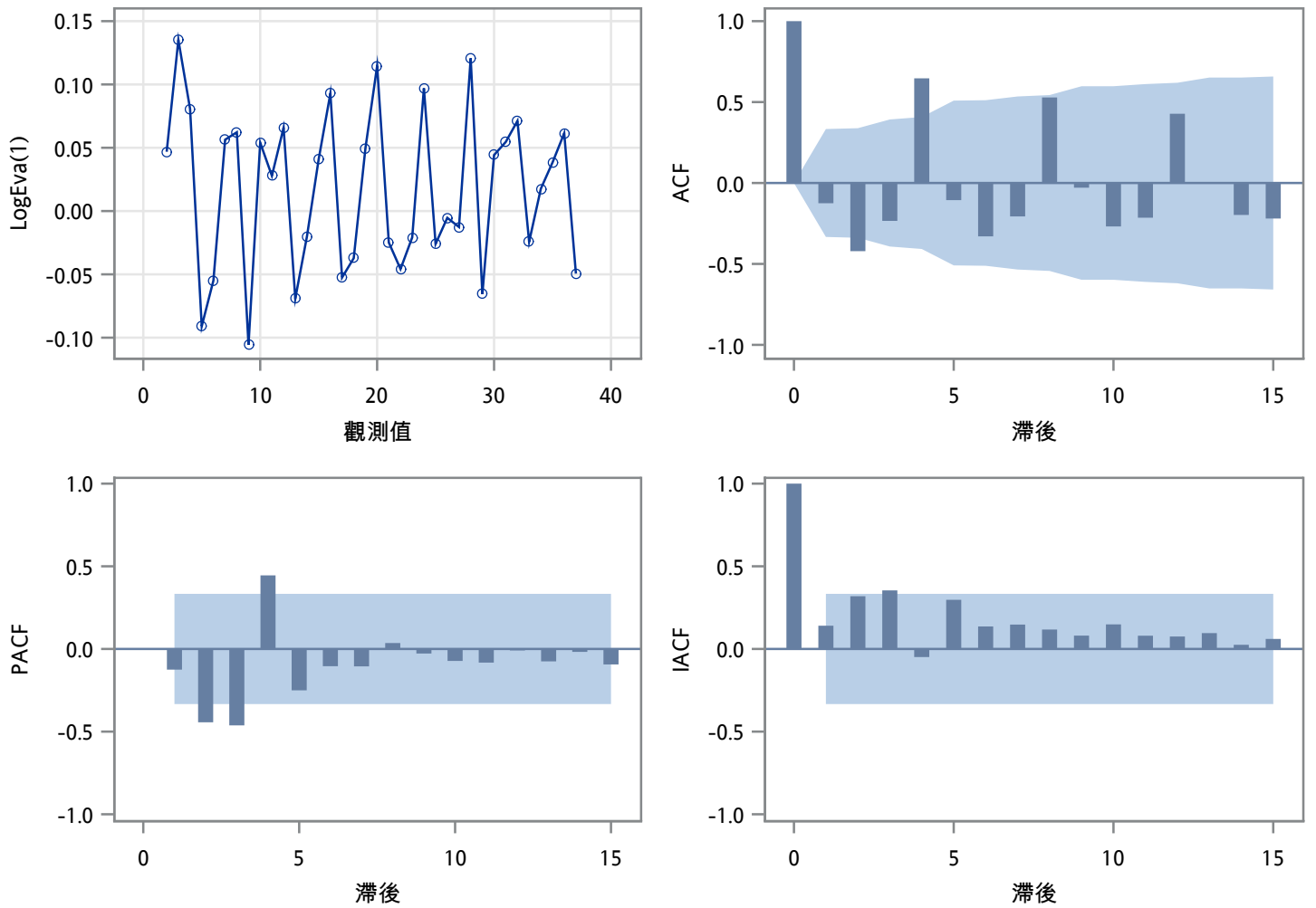
白噪音的自相關檢查									
至滯後	卡方	DF	Pr > ChiSq	自相關					
6	33.35	6	<.0001	-0.125	-0.421	-0.234	0.647	-0.106	-0.330
12	65.77	12	<.0001	-0.206	0.528	-0.029	-0.268	-0.214	0.428

擴張的 Dickey-Fuller 單根檢定							
類型	滯後	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
零平均值	0	-36.4629	<.0001	-6.07	<.0001		
	1	-76.0005	<.0001	-6.54	<.0001		
	2	1476.248	0.9999	-6.76	<.0001		
	3	-10.4945	0.0186	-2.15	0.0321		
	4	-5.1679	0.1092	-1.31	0.1719		
單一平均值	0	-39.5110	0.0002	-6.45	0.0002	20.83	0.0010
	1	-105.597	0.0001	-7.44	0.0002	27.83	0.0010
	2	120.1468	0.9999	-10.25	0.0002	52.82	0.0010
	3	-56.3504	0.0002	-3.23	0.0270	5.28	0.0388
	4	-46.0108	0.0002	-2.47	0.1325	3.05	0.3178
趨勢	0	-39.5151	<.0001	-6.35	0.0001	20.17	0.0010
	1	-106.060	0.0001	-7.40	0.0001	27.51	0.0010
	2	115.2666	0.9999	-11.52	0.0001	66.81	0.0010
	3	-8201.15	0.0001	-4.53	0.0055	10.48	0.0010
	4	107.7448	0.9999	-3.52	0.0542	6.21	0.0731

## Fit Model for Log Income of EVA

ARIMA 程序

LogEva(1) 的趨勢與相關分析



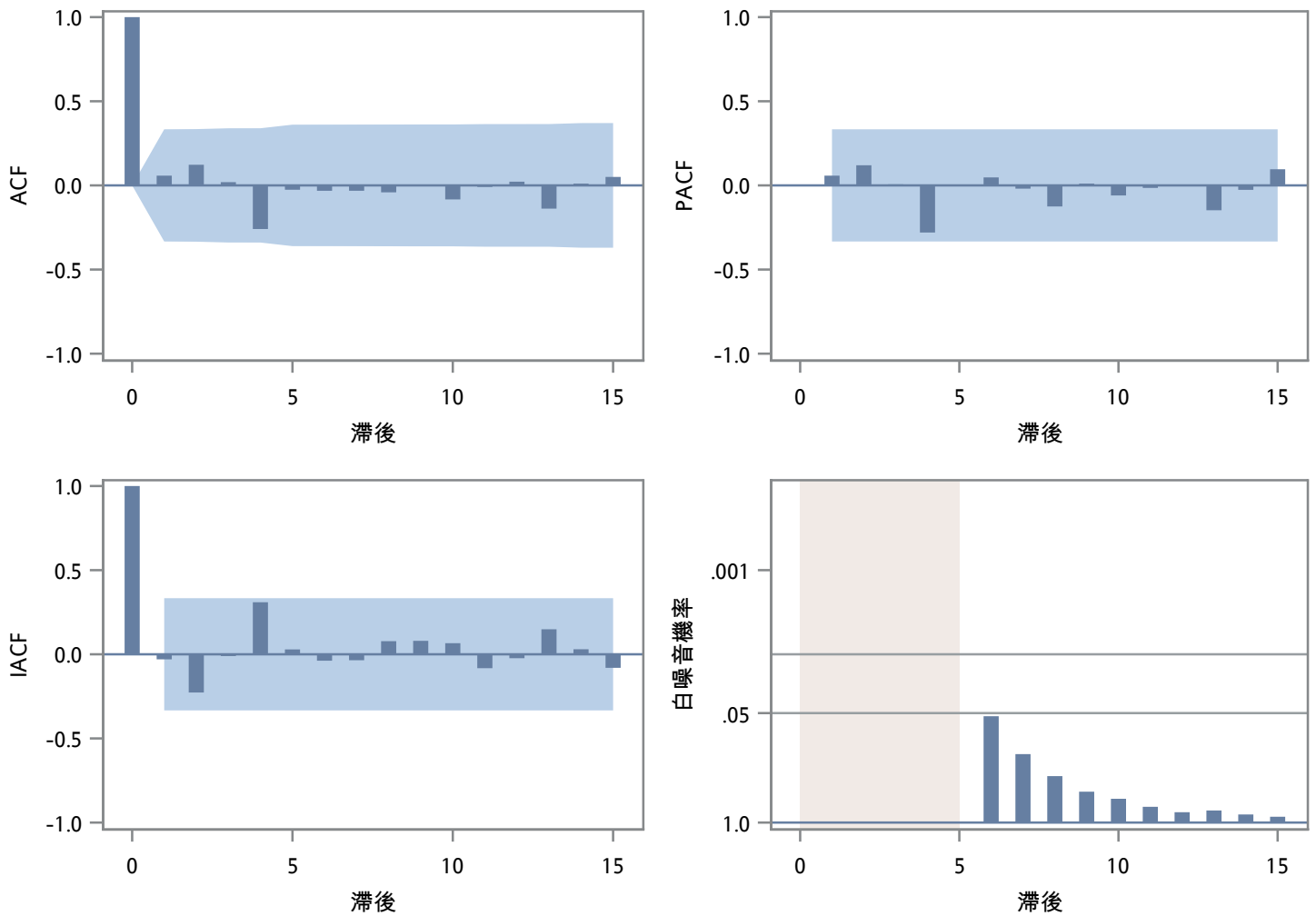
殘差的自相關檢查

至滯後	卡方	DF	Pr > ChiSq	自相關					
6	3.82	1	0.0508	0.060	0.122	0.016	-0.264	-0.031	-0.035
12	4.40	7	0.7331	-0.036	-0.045	-0.002	-0.087	-0.013	0.018
18	7.69	13	0.8633	-0.138	0.011	0.051	0.099	-0.015	0.130
24	20.36	19	0.3733	-0.243	-0.019	-0.059	-0.228	0.063	-0.135

## Fit Model for Log Income of EVA

## ARIMA 程序

LogEva(1) 的殘差相關診斷



變數 LogEva 的模型

估計的平均值	0.015896
差分的週期	1

自迴歸因子

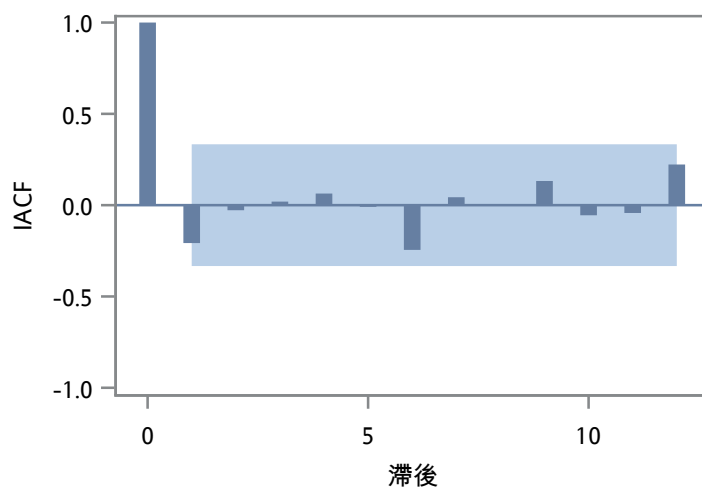
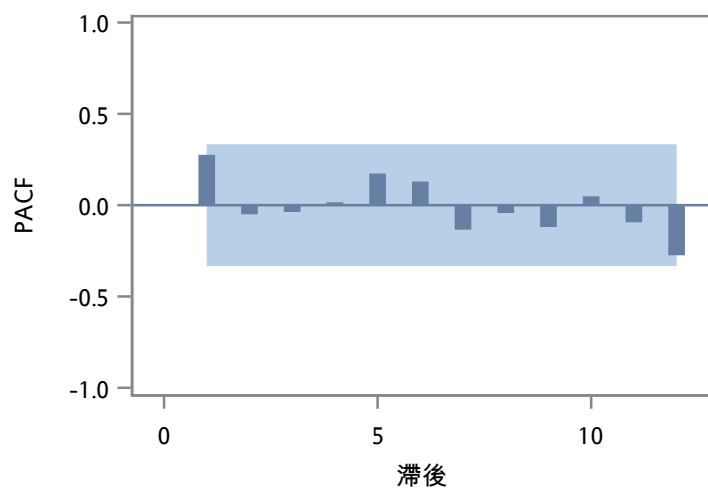
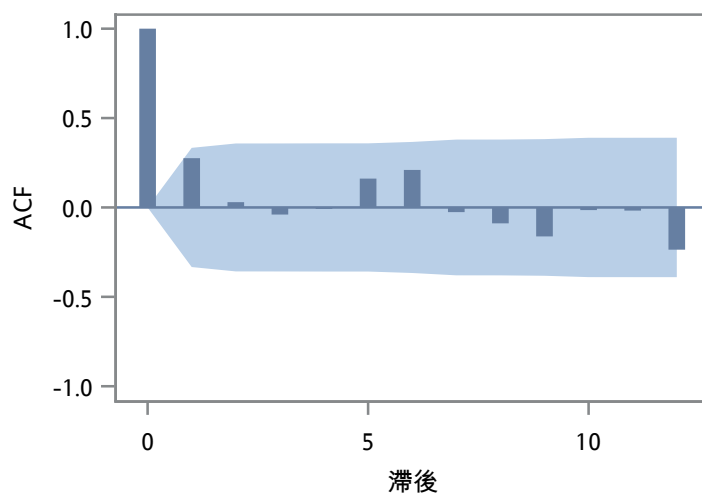
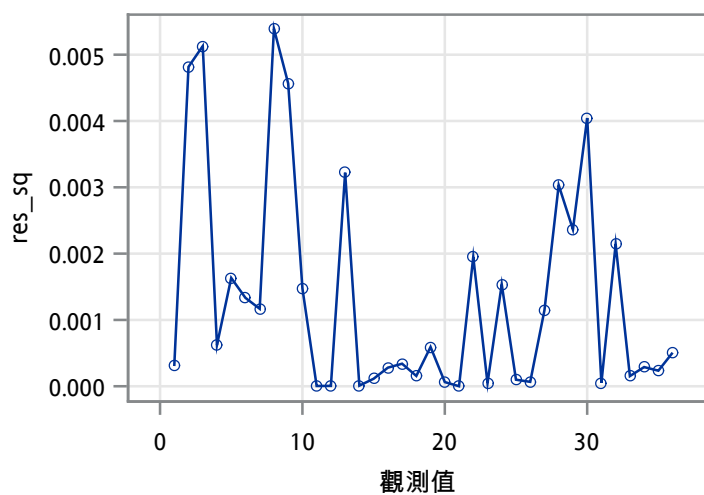
因子 1:	$1 + 0.19447 B^{**}(1) + 0.42914 B^{**}(2) + 0.43218 B^{**}(3) - 0.41328 B^{**}(4) + 0.1258 B^{**}(5)$
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## Fit Model for Log Income of EVA

## ARIMA 程序

白噪音的自相關檢查									
至滯後	卡方	DF	Pr > ChiSq	自相關					
6	6.23	6	0.3981	0.276	0.030	-0.040	-0.008	0.161	0.210
12	11.18	12	0.5133	-0.026	-0.089	-0.162	-0.015	-0.018	-0.236

res\_sq 的趨勢與相關分析



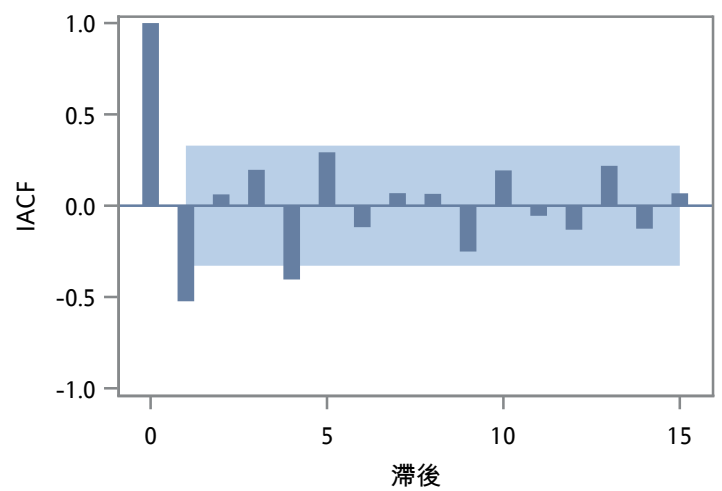
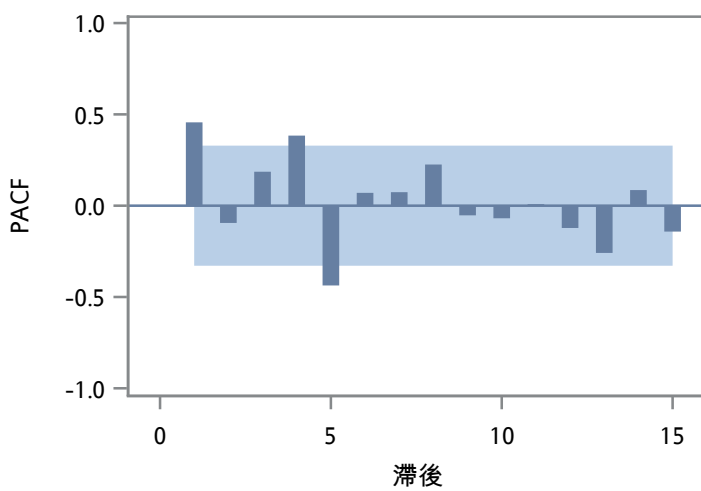
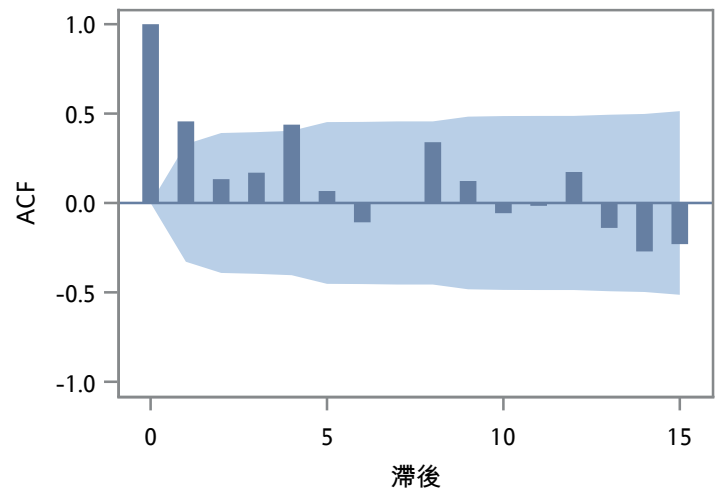
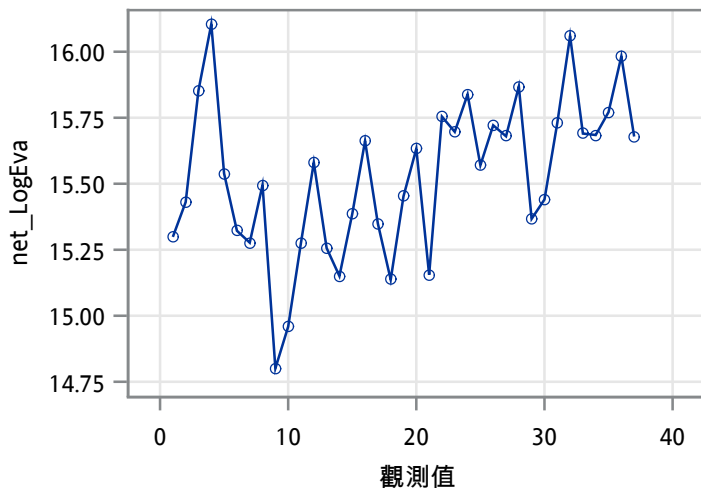
## ARIMA 程序

白噪音的自相關檢查									
至滯後	卡方	DF	Pr > ChiSq	自相關					
6	19.43	6	0.0035	0.456	0.133	0.169	0.438	0.067	-0.108
12	27.88	12	0.0058	-0.000	0.340	0.123	-0.057	-0.016	0.173

擴張的 Dickey-Fuller 單根檢定							
類型	滯後	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
零平均值	0	0.0174	0.6807	0.15	0.7224		
	1	0.0167	0.6803	0.17	0.7299		
	2	0.0049	0.6775	0.08	0.7005		
	3	0.0001	0.6762	0.00	0.6771		
	4	-0.0011	0.6757	-0.02	0.6688		
單一平均值	0	-19.4472	0.0056	-3.57	0.0112	6.40	0.0135
	1	-22.6604	0.0017	-3.17	0.0301	5.06	0.0448
	2	-12.6372	0.0492	-2.10	0.2445	2.22	0.5197
	3	-3.5330	0.5730	-1.15	0.6847	0.66	0.9003
	4	-15.5271	0.0192	-1.89	0.3351	1.78	0.6275
趨勢	0	-23.5619	0.0110	-4.00	0.0176	8.01	0.0217
	1	-32.1063	0.0004	-3.76	0.0311	7.08	0.0419
	2	-25.0214	0.0061	-3.02	0.1430	4.78	0.2567
	3	-12.2165	0.2346	-2.92	0.1699	5.95	0.0846
	4	-73.8289	<.0001	-4.47	0.0063	11.04	0.0010

## ARIMA 程序

net\_LogEva 的趨勢與相關分析



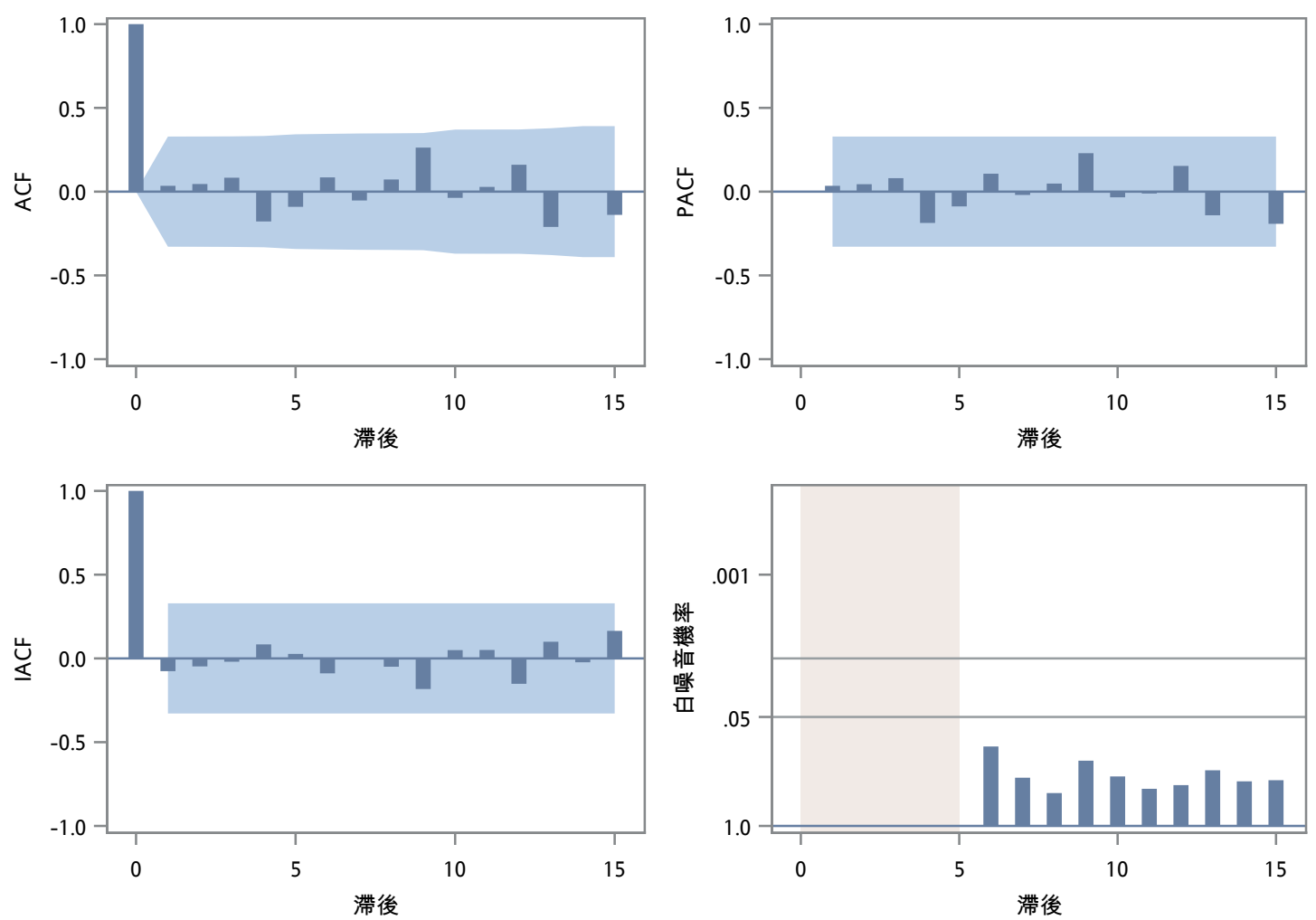
殘差的自相關檢查

至滯後	卡方	DF	Pr > ChiSq	自相關					
6	2.53	1	0.1120	0.035	0.046	0.083	-0.179	-0.091	0.084
12	8.09	7	0.3247	-0.053	0.072	0.263	-0.037	0.028	0.160
18	14.10	13	0.3670	-0.211	0.000	-0.139	-0.114	-0.127	-0.014
24	16.10	19	0.6505	0.007	0.088	-0.008	-0.035	-0.088	-0.061



ARIMA 程序

net\_LogEva 的殘差相關診斷



變數 net\_LogEva 的模型

估計的平均值	15.53381
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自迴歸因子

因子 1:	$1 - 0.60552 B^{**}(1) + 0.11896 B^{**}(2) + 0.03796 B^{**}(3) - 0.60975 B^{**}(4) + 0.45953 B^{**}(5)$
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## ARIMA 程序

白噪音的自相關檢查									
至滯後	卡方	DF	Pr > ChiSq	自相關					
6	1.25	6	0.9746	0.023	-0.056	-0.057	-0.104	-0.032	-0.097
12	2.84	12	0.9966	-0.072	-0.079	-0.032	-0.014	-0.104	-0.080

res\_sq 的趨勢與相關分析

