時間序列

學生:李泓慶

建構指數之領先模型

- 目標:利用個股建立預測指數之領先模型

- 方法:對該國家所有股票進行時間序列分析,找出具有領先大盤的個股,將這些股票加總組合成一個領先指數來預測大盤

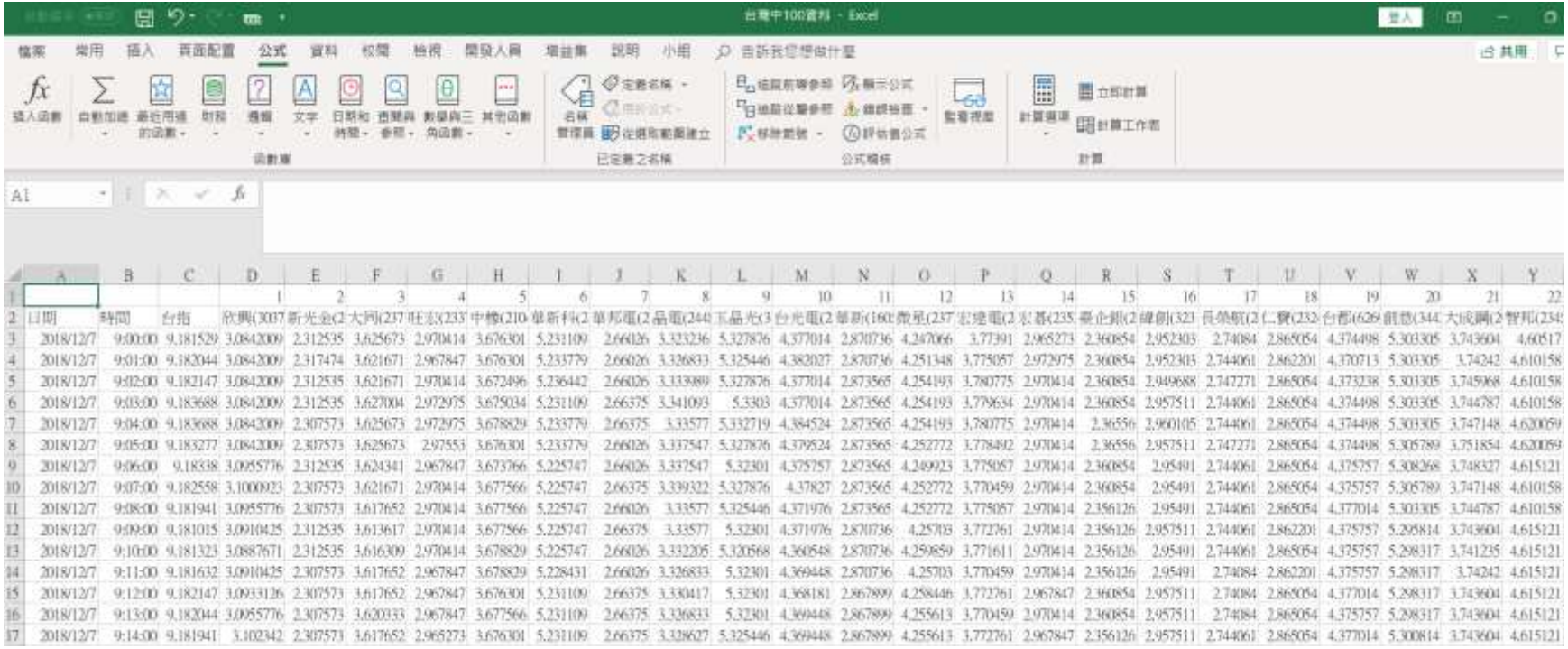
範例-以台指為例

- 原本1月21要報告的內容
- 資料&資料來源
  - 軟體:嘉實
  - 台灣中型100成分股(理由:權重過大會與大盤同步,過小則是成交量不足)
  - 依照成交量取前70檔(理由:後30檔一天成交量不到500張)
  - 資料日期:12/7~1/17(看盤軟體提供的資料只到12/7)
  - 資料週期:1分K
  - 資料筆數:約7800筆/每一檔

Step.1-下載股價資料

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2	日期	時間	台指	欣興(303	新光金(2	大同(237	旺宏(233	中鋼(210	華新科(2	華邦電(2	晶電(244	玉晶光(3	台光電(2	華新(160	微星(237	宏達電(2	宏碁(235	華非網(2	緯創(323	長榮航(2	仁寶(232	台郡(626	創意(344	大成鋼(2	智邦(234
3	2018/12/7	9:00:00	9716	21.85	10.1	37.55	19.5	39.5	187	14.3	27.75	206	79.6	17.65	69.9	43.55	19.4	10.6	19.15	15.5	17.55	79.4	201	42.25	100
4	2018/12/7	9:01:00	9721	21.85	10.15	37.4	19.45	39.5	187.5	14.3	27.85	205.5	80	17.65	70.2	43.6	19.55	10.6	19.15	15.55	17.5	79.1	201	42.2	100.5
5	2018/12/7	9:02:00	9722	21.85	10.1	37.4	19.5	39.35	188	14.3	28.05	206	79.6	17.7	70.4	43.85	19.5	10.6	19.1	15.6	17.55	79.3	201	42.35	100.5
6	2018/12/7	9:03:00	9737	21.85	10.1	37.6	19.55	39.45	187	14.35	28.25	206.5	79.6	17.7	70.4	43.8	19.5	10.6	19.25	15.55	17.55	79.4	201	42.3	100.5
7	2018/12/7	9:04:00	9737	21.85	10.05	37.55	19.55	39.6	187.5	14.35	28.1	207	80.2	17.7	70.4	43.85	19.5	10.65	19.3	15.55	17.55	79.4	201	42.4	101.5
8	2018/12/7	9:05:00	9733	21.85	10.05	37.55	19.6	39.5	187.5	14.3	28.15	206	79.8	17.7	70.3	43.75	19.5	10.65	19.25	15.6	17.55	79.4	201.5	42.6	101.5
9	2018/12/7	9:06:00	9734	22.1	10.1	37.5	19.45	39.4	186	14.3	28.15	205	79.5	17.7	70.1	43.6	19.5	10.6	19.2	15.55	17.55	79.5	202	42.45	101
10	2018/12/7	9:07:00	9726	22.2	10.05	37.4	19.5	39.55	186	14.35	28.2	206	79.7	17.7	70.3	43.4	19.5	10.6	19.2	15.55	17.55	79.5	201.5	42.4	100.5
11	2018/12/7	9:08:00	9720	22.1	10.05	37.25	19.5	39.55	186	14.3	28.1	205.5	79.2	17.7	70.3	43.6	19.5	10.55	19.2	15.55	17.55	79.6	201	42.3	100.5
12	2018/12/7	9:09:00	9711	22	10.1	37.1	19.5	39.55	186	14.35	28.1	205	79.2	17.65	70.6	43.5	19.5	10.55	19.25	15.55	17.5	79.5	199.5	42.25	101
13	2018/12/7	9:10:00	9714	21.95	10.1	37.2	19.5	39.6	186	14.3	28	204.5	78.3	17.65	70.8	43.45	19.5	10.55	19.2	15.55	17.55	79.5	200	42.15	101
14	2018/12/7	9:11:00	9717	22	10.05	37.25	19.45	39.6	186.5	14.3	27.85	205	79	17.65	70.6	43.4	19.5	10.55	19.2	15.5	17.5	79.5	200	42.2	101
15	2018/12/7	9:12:00	9722	22.05	10.05	37.25	19.45	39.5	187	14.35	27.95	205	78.9	17.6	70.7	43.5	19.45	10.6	19.25	15.5	17.55	79.6	200	42.25	101
16	2018/12/7	9:13:00	9721	22.1	10.05	37.35	19.45	39.55	187	14.35	27.85	205	79	17.6	70.5	43.4	19.5	10.6	19.25	15.5	17.55	79.5	200	42.25	101
17	2018/12/7	9:14:00	9720	22.25	10.05	37.25	19.4	39.5	187	14.35	27.9	205.5	79	17.6	70.5	43.5	19.45	10.55	19.25	15.55	17.55	79.6	200.5	42.25	101

Step.2-取對數



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2	日期	時間	台指	欣興(3037	新光金(2	大同(237	旺宏(233	中鋼(210	華新科(2	華邦電(2	品電(244	玉晶光(3	台光電(2	華新(160	微星(237	宏達電(2	宏碁(235	華企銀(2	健創(323	長榮航(2	仁寶(232	台都(626	創意(344	大成鋼(2	智邦(234
3	2018/12/7	9:00:00	9.181529	3.0842009	2.312535	3.625673	2.970414	3.676301	5.231109	2.66026	3.323236	5.327876	4.377014	2.870736	4.247066	3.77391	2.965273	2.360854	2.952303	2.74084	2.865054	4.374498	5.303305	3.743604	4.60517
4	2018/12/7	9:01:00	9.182044	3.0842009	2.317474	3.621671	2.967847	3.676301	5.233779	2.66026	3.326833	5.325446	4.382027	2.870736	4.251348	3.775057	2.972975	2.360854	2.952303	2.744061	2.862201	4.370713	5.303305	3.74242	4.610158
5	2018/12/7	9:02:00	9.182147	3.0842009	2.312535	3.621671	2.970414	3.672496	5.236442	2.66026	3.333989	5.327876	4.377014	2.873565	4.254193	3.780775	2.970414	2.360854	2.949688	2.747271	2.865054	4.373238	5.303305	3.745968	4.610158
6	2018/12/7	9:03:00	9.183688	3.0842009	2.312535	3.627004	2.972975	3.679034	5.231109	2.66375	3.341093	5.3303	4.377014	2.873565	4.254193	3.779634	2.970414	2.360854	2.957511	2.744061	2.865054	4.374498	5.303305	3.744787	4.610158
7	2018/12/7	9:04:00	9.183688	3.0842009	2.307573	3.625673	2.972975	3.678829	5.233779	2.66375	3.33577	5.332719	4.384524	2.873565	4.254193	3.780775	2.970414	2.36556	2.960105	2.744061	2.865054	4.374498	5.303305	3.747148	4.620059
8	2018/12/7	9:05:00	9.183277	3.0842009	2.307573	3.625673	2.97553	3.676301	5.233779	2.66026	3.337547	5.327876	4.379524	2.873565	4.252772	3.778492	2.970414	2.36556	2.957511	2.747271	2.865054	4.374498	5.305789	3.751854	4.620059
9	2018/12/7	9:06:00	9.18338	3.0955776	2.312535	3.624341	2.967847	3.673766	5.225747	2.66026	3.337547	5.32301	4.375757	2.873565	4.249923	3.775057	2.970414	2.360854	2.95491	2.744061	2.865054	4.375757	5.308268	3.748327	4.615121
10	2018/12/7	9:07:00	9.182558	3.1000923	2.307573	3.621671	2.970414	3.677566	5.225747	2.66375	3.339322	5.327876	4.37827	2.873565	4.252772	3.770459	2.970414	2.360854	2.95491	2.744061	2.865054	4.375757	5.305789	3.747148	4.610158
11	2018/12/7	9:08:00	9.181941	3.0955776	2.307573	3.617652	2.970414	3.677566	5.225747	2.66026	3.33577	5.325446	4.371976	2.873565	4.252772	3.775057	2.970414	2.356126	2.95491	2.744061	2.865054	4.377014	5.303305	3.744787	4.610158
12	2018/12/7	9:09:00	9.181015	3.0910425	2.312535	3.613617	2.970414	3.677566	5.225747	2.66375	3.33577	5.32301	4.371976	2.870736	4.25703	3.772761	2.970414	2.356126	2.957511	2.744061	2.862201	4.375757	5.295814	3.743604	4.615121
13	2018/12/7	9:10:00	9.181323	3.0887671	2.312535	3.616309	2.970414	3.678829	5.225747	2.66026	3.332205	5.320568	4.360548	2.870736	4.259859	3.771611	2.970414	2.356126	2.95491	2.744061	2.865054	4.375757	5.298317	3.741235	4.615121
14	2018/12/7	9:11:00	9.181632	3.0910425	2.307573	3.617652	2.967847	3.678829	5.228431	2.66026	3.326833	5.32301	4.369448	2.870736	4.25703	3.770459	2.970414	2.356126	2.95491	2.74084	2.862201	4.375757	5.298317	3.74242	4.615121
15	2018/12/7	9:12:00	9.182147	3.0933126	2.307573	3.617652	2.967847	3.676301	5.231109	2.66375	3.330417	5.32301	4.368181	2.867899	4.258446	3.772761	2.967847	2.360854	2.957511	2.74084	2.865054	4.377014	5.298317	3.743604	4.615121
16	2018/12/7	9:13:00	9.182044	3.0955776	2.307573	3.620333	2.967847	3.677566	5.231109	2.66375	3.326833	5.32301	4.369448	2.867899	4.255613	3.770459	2.970414	2.360854	2.957511	2.74084	2.865054	4.375757	5.298317	3.743604	4.615121
17	2018/12/7	9:14:00	9.181941	3.102342	2.307573	3.617652	2.965273	3.676301	5.231109	2.66375	3.328627	5.325446	4.369448	2.867899	4.255613	3.772761	2.967847	2.356126	2.957511	2.744061	2.865054	4.377014	5.300814	3.743604	4.615121

Step.3-取一階差分

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2	日期	時間	台指	欣興(301	新光金(2	大同(237	旺宏(233	中橡(210	華新科(2	華邦電(2	晶電(244	玉晶光(3	台光電(2	華新(160	微星(237	宏達電(2	宏碁(235	華企銀(2	緯創(323	長榮航(2	仁寶(232	台郡(626	創意(344	大成鋼(2	智邦(234
3	2018/12/7	9:00:00																							
4	2018/12/7	9:01:00	0.000514	0	0.004938	-0.004	-0.00257	0	0.00267	0	0.003597	-0.00243	0.005013	0	0.004283	0.001147	0.007702	0	0	0.003221	-0.00285	-0.00379	0	-0.00118	0.004988
5	2018/12/7	9:02:00	0.000103	0	-0.00494	0	0.002567	-0.0038	0.002663	0	0.007156	0.00243	-0.00501	0.002829	0.002845	0.005718	-0.00256	0	-0.00261	0.00321	0.002853	0.002525	0	0.003548	0
6	2018/12/7	9:03:00	0.001542	0	0	0.005333	0.002561	0.002538	-0.00533	0.00349	0.007105	0.002424	0	0	0	-0.00114	0	0	0.007823	-0.00321	0	0.00126	0	-0.00118	0
7	2018/12/7	9:04:00	0	0	-0.00496	-0.00133	0	0.003795	0.00267	0	-0.00532	0.002418	0.007509	0	0	0.001141	0	0.004706	0.002594	0	0	0	0	0.002361	0.009901
8	2018/12/7	9:05:00	-0.00041	0	0	0	0.002554	-0.00253	0	-0.00349	0.001778	-0.00484	-0.005	0	-0.00142	-0.00228	0	0	-0.00259	0.00321	0	0	0.002484	0.004706	0
9	2018/12/7	9:06:00	0.000103	0.011377	0.004963	-0.00133	-0.00768	-0.00253	-0.00803	0	0	-0.00487	-0.00377	0	-0.00285	-0.00343	0	-0.00471	-0.0026	-0.00321	0	0.001259	0.002478	-0.00353	-0.00494
10	2018/12/7	9:07:00	-0.00082	0.004515	-0.00496	-0.00267	0.002567	0.0038	0	0.00349	0.001775	0.004866	0.002513	0	0.002849	-0.0046	0	0	0	0	0	0	-0.00248	-0.00118	-0.00496
11	2018/12/7	9:08:00	-0.00062	-0.00451	0	-0.00402	0	0	0	-0.00349	-0.00355	-0.00243	-0.00629	0	0	0.004598	0	-0.00473	0	0	0	0.001257	-0.00248	-0.00236	0
12	2018/12/7	9:09:00	-0.00093	-0.00454	0.004963	-0.00403	0	0	0	0.00349	0	-0.00244	0	-0.00283	0.004258	-0.0023	0	0	0.002601	0	-0.00285	-0.00126	-0.00749	-0.00118	0.004963
13	2018/12/7	9:10:00	0.000309	-0.00228	0	0.002692	0	0.001263	0	-0.00349	-0.00357	-0.00244	-0.01143	0	0.002829	-0.00115	0	0	-0.0026	0	0.002853	0	0.002503	-0.00237	0
14	2018/12/7	9:11:00	0.000309	0.002275	-0.00496	0.001343	-0.00257	0	0.002685	0	-0.00537	0.002442	0.0089	0	-0.00283	-0.00115	0	0	0	-0.00322	-0.00285	0	0	0.001186	0
15	2018/12/7	9:12:00	0.000514	0.00227	0	0	0	-0.00253	0.002677	0.00349	0.003584	0	-0.00127	-0.00284	0.001415	0.002301	-0.00257	0.004728	0.002601	0	0.002853	0.001257	0	0.001184	0
16	2018/12/7	9:13:00	-0.0001	0.002265	0	0.002681	0	0.001265	0	0	-0.00358	0	0.001267	0	-0.00283	-0.0023	0.002567	0	0	0	0	-0.00126	0	0	0
17	2018/12/7	9:14:00	-0.0001	0.006764	0	-0.00268	-0.00257	-0.00127	0	0	0.001794	0.002436	0	0	0	0.002301	-0.00257	-0.00473	0	0.003221	0	0.001257	0.002497	0	0

Step.3.5-統計補充

- Q:為什麼要取一階差分?
- A:金融數列為非定態,會有固定趨勢以及隨機趨勢
  - 固定趨勢:比如時間趨勢,長期而言股價呈現往上趨勢,我的體重也是,若把我的體重與道瓊指數跑回歸,就會出現虛假相關(偽回歸)
  - 隨機趨勢:單根,會有random walk的問題,差分主要在去除單根
  - PS:我沒修過計量,更詳細的就不清楚了

- Q:為什麼要取對數?
- A:取對數加上差分就會近似漲跌幅(%)
- $\ln(y_t)\text{-}\ln(y_{t-1}) = \ln\left(\frac{y_t}{y_{t-1}}\right)=\ln\left(1+\frac{y_t-y_{t-1}}{y_{t-1}}\right) \approx \frac{y_t-y_{t-1}}{y_{t-1}}$

Step4.使用統計軟體

- 落後期數選擇
- 隨便抓幾組
  - AIC:4期
  - SBIC:2期
- 但差距皆都非常小所以照常識選落後一期

Selection-order criteria
Sample: 6 - 7830 Number of obs = 7825

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	312831				2.6e-45	-79.9548	-79.9524	-79.9477
1	314524	3385.1	64	0.000	1.7e-45	-80.371	-80.3491	-80.307
2	314950	851.83	64	0.000	1.6e-45	-80.4635	-80.4221	-80.3425*
3	315121	342.85	64	0.000	1.5e-45	-80.491	-80.43*	-80.313
4	315238	234.52*	64	0.000	1.5e-45*	-80.5046*	-80.4241	-80.2696

Endogenous: x Y3037 x2000 jP2371 H I x2492 q1344
Exogenous: _cons

Selection-order criteria
Sample: 6 - 7830 Number of obs = 7825

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	241039				7.1e-35	-61.606	-61.6042	-61.6007
1	242204	2328.6	36	0.000	5.3e-35	-61.8944	-61.8816	-61.857
2	242632	857.11	36	0.000	4.8e-35	-61.9947	-61.9709	-61.9253
3	242801	337.08	36	0.000	4.6e-35	-62.0206	-61.9938	-61.9271*
4	242908	213.83*	36	0.000	4.6e-35*	-62.0467*	-62.001*	-61.9132

Endogenous: x AH AH pj2947 wMY1590 F2846
Exogenous: _cons

Selection-order criteria
Sample: 6 - 7830 Number of obs = 7825

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	271229				1.8e-39	-69.3219	-69.3198	-69.3157
1	273488	4518.4	49	0.000	1.1e-39	-69.8869	-69.8698	-69.837
2	274143	1308.4	49	0.000	9.0e-40	-70.0415	-70.0095	-69.9481*
3	274344	403.45	49	0.000	8.7e-40	-70.0806	-70.0336	-69.9435
4	274509	329.7*	49	0.000	8.4e-40*	-70.1102*	-70.0483*	-69.9295

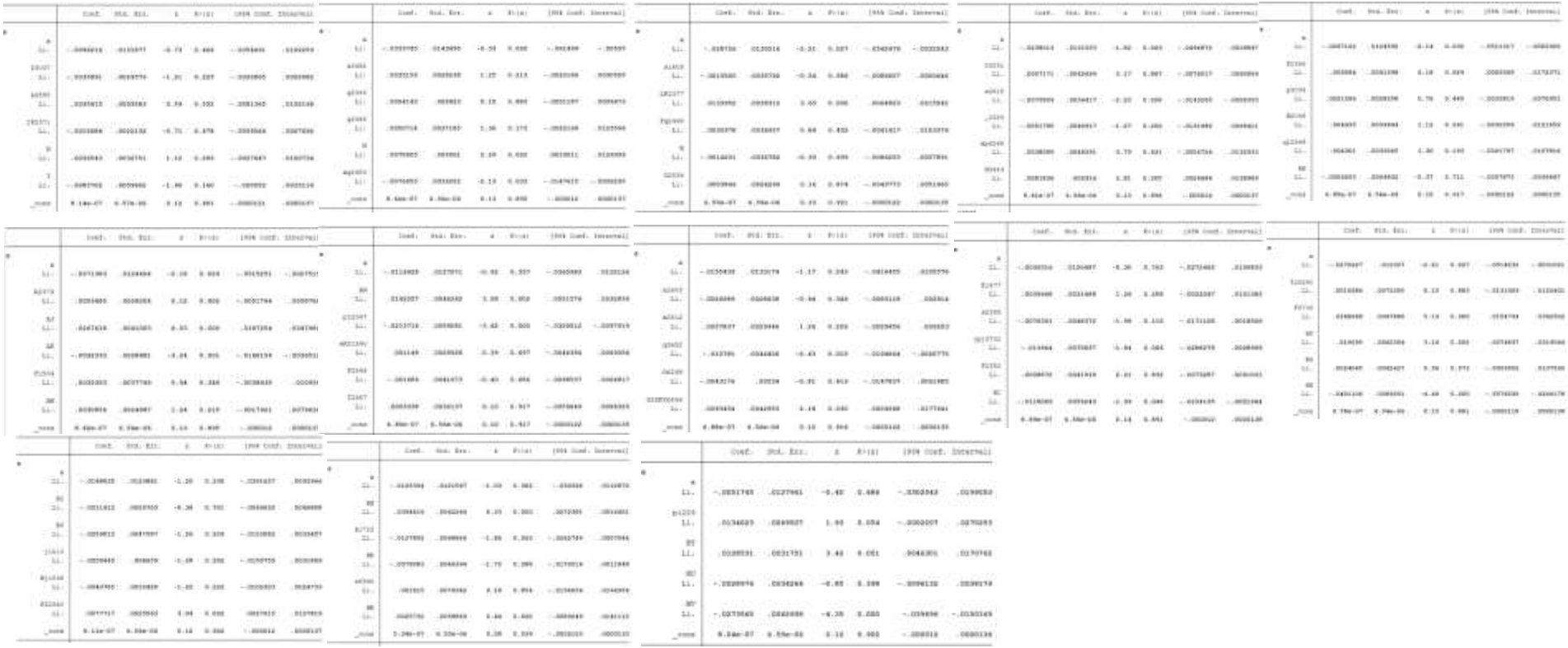
Endogenous: x F2356 p0034 N2049 q12448 AH N2379
Exogenous: _cons

Selection-order criteria
Sample: 6 - 7830 Number of obs = 7825

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	126092				2.0e-18	-32.2273	-32.2266	-32.2246
1	126373	560.76	9	0.000	1.9e-18	-32.2967	-32.293	-32.286
2	126423	99.655	9	0.000	1.9e-18	-32.3071	-32.3007	-32.2884*
3	126446	46.543*	9	0.000	1.9e-18*	-32.3108*	-32.3016*	-32.2841
4	126450	8.9454	9	0.442	1.9e-18	-32.3096	-32.2977	-32.2749

Endogenous: x Y3037 x2000
Exogenous: _cons

Step4.統計結果



Step4.統計結果

- **70檔裡面有14檔呈現領先正相關**
- 6檔呈現領先負相關
- 在每檔樣本數7800筆的情況下,隨機的成分應該不大
- 有趣的是為何會有領先負相關的個股出現,會不會是套利或是控制市場的行為?
- 不論是正相關,負相關,其背後的可能原因為何?

顯著領先正相關(14檔)	顯著領先負相關(6檔)
玉晶光(3406)	台光電(2383)
微星(2377)	長榮航(2618)
創意(3443)	美律(2439)
大成鋼(2027)	聯強(2347)
智邦(2345)	亞太電(3682)
英業達(2356)	國票金(2889)
技嘉(2376)	
啟碁(6285)	
GIS(6456)	
福懋(1434)	
神達(3706)	
京城銀(2809)	
致茂(2360)	
遠雄(5522)	

領先股票的其他性質

- 領先大盤的是否是強勢股?
  - 我們常聽到名嘴說:中型股領先大漲,因此我的疑問是,領先大盤的股票是否是強勢股(擊敗大盤),畢竟領先與強勢是不同的概念
  - 利用這14檔領先的個股組成一個指數讓他跟台指PK
  - 這14檔組成的指數叫他領先14指

- 方法
  - 給予每檔相同的權重,齊頭式的平等,讓他起始點跟台指期一樣
  - 12/7號9點整,台指9716點,除以14等於694
  - 把每一檔都調整到694點
  - 之後全部相加

領先大盤的是否是強勢股?

- 把每檔股票調整到12/7號9點整694點,之後加總,EX玉晶光在12/7號9點整206元,則玉晶光全部乘以3.37倍,而微星69.9元則乘以9.93倍

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	日期	時間	台指	玉晶光(3	微星(237	創意(344	大成鋼(2	智邦(234	英業達(2	技嘉(237	啟碁(628	GIS-KY(6	福懋(143	神達(370	京城銀(2	致茂(236	遠雄(5522)		
2	2018/12/7	上午 09:00:00	9716	206	69.9	201	42.25	100	22.15	39.7	75.6	98.4	33.35	27.3	31.2	121.5	33.65		
3	2018/12/7	上午 09:01:00	9721	205.5	70.2	201	42.2	100.5	22.2	39.8	75.4	99	33.35	27.3	31.2	122	33.65		
4	2018/12/7	上午 09:02:00	9722	206	70.4	201	42.35	100.5	22.3	39.85	75.5	98.6	33.35	27.3	31.2	123.5	33.65		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	日期	時間	台指	玉晶光(3	微星(237	創意(344	大成鋼(2	智邦(234	英業達(2	技嘉(237	啟碁(628	GIS-KY(6	福懋(143	神達(370	京城銀(2	致茂(236	遠雄(552	領先14指	
2	43441	0.375	9716	694.22	694.107	694.053	694.0408	694	694.181	693.956	693.9324	693.9168	694.0135	693.966	693.9816	694.008	694.199	9716	
3	43441	0.375694	9721	692.535	697.086	694.053	693.2194	697.47	695.748	695.704	692.0966	698.148	694.0135	693.966	693.9816	696.864	694.1995	9728.509	
4	43441	0.376389	9722	694.22	699.072	694.053	695.6835	697.47	698.882	696.578	693.0145	695.3272	694.0135	693.966	693.9816	705.432	694.1995	9745.316	

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領先大盤的是否是強勢股?

- 先檢定一下剛剛創造的這個指數有沒有領先領先台指,檢定落後1~4期
- 有,領先1~2期,第2期在顯著邊緣,隨期數愈大而愈不顯著

		Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
dlx							
	dlx						
	L1.	-.1013774	.0149261	-6.79	0.000	-.1306321	-.0721227
	L2.	-.0685579	.0152987	-4.48	0.000	-.0985428	-.0385731
	L3.	-.0172228	.0153101	-1.12	0.261	-.04723	.0127844
	L4.	-.0189843	.0150023	-1.27	0.206	-.0483882	.0104196
	dlS						
	L1.	.0970039	.0109046	8.90	0.000	.0756312	.1183765
	L2.	.0212965	.0110567	1.93	0.054	-.0003743	.0429672
	L3.	.0074828	.0109889	0.68	0.496	-.0140551	.0290207
	L4.	.0021409	.0107461	0.20	0.842	-.018921	.0232027
	_cons	4.99e-07	6.53e-06	0.08	0.939	-.0000123	.0000133

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領先大盤的是否是強勢股?

- 先用軟體將台指與領先14指畫線
- 雖然最後有贏一點點但肯定不顯著
- 下跌時似乎領先14指<台指
- **上漲時領先14指>台指**
- **好像這樣說也沒錯**
- 那中小型股呢?

領先大盤的是否是中小型股?

- 領先的14檔股票的市值平均為428億,其他56檔平均485億,領先的股票市值平均低57億
- 雖然不顯著,但應該是受限樣本太少之緣故
- 原來這句看似廢話事實上卻隱藏了深奧的智慧啊

```
. ttest B, by(O_O14)

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	56	485.3196	29.82278	223.1733	425.5535	545.0858
1	14	428.3071	51.27155	191.8406	317.5417	539.0726
combined	70	473.9171	25.9566	217.1685	422.1351	525.6991
diff		57.0125	65.00023		-72.69345	186.7184

```
    diff = mean(0) - mean(1)                                      t =   0.8771
Ho: diff = 0                                     degrees of freedom =       68

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8082         Pr(|T| > |t|) = 0.3835          Pr(T > t) = 0.1918
```

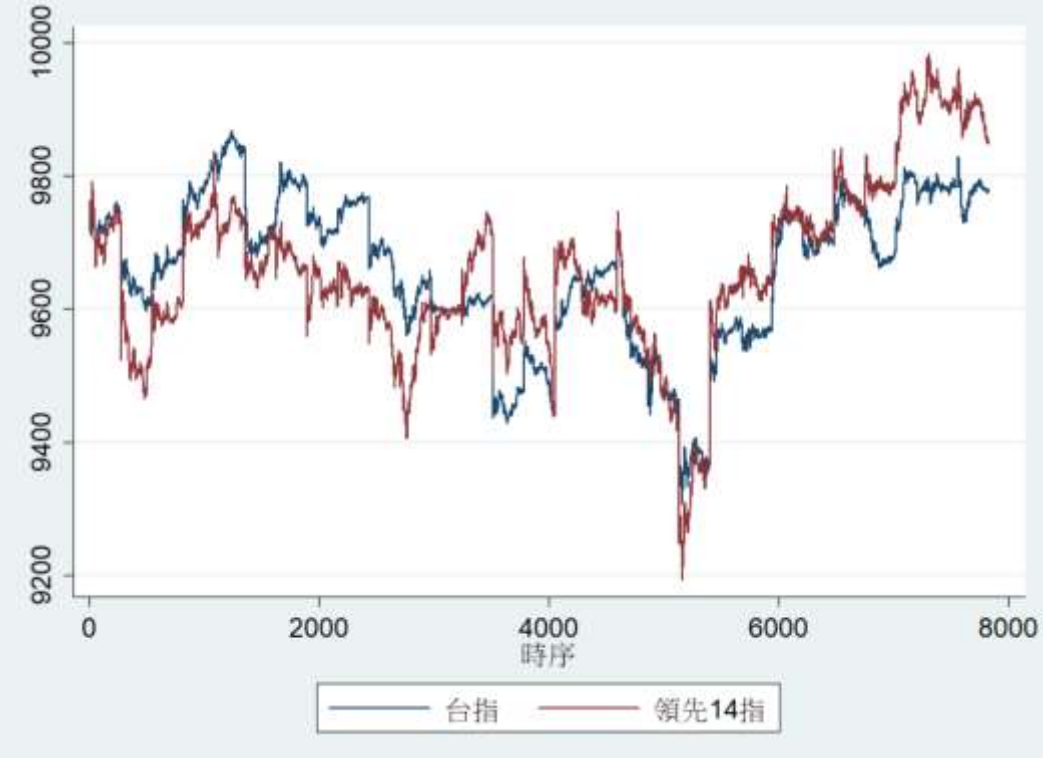
領先股的其他性質-找出領先於領先股的先行指標

- 一檔股票應該無法長時間領先大盤(輪動),但如果能找出領先股具有怎樣的性質,或許可以根據這些性質反過來找領先股
- 本益比-投機性強的股票不會領導大盤
- 周轉率高,活潑的股票可能真的有領先大盤的能力,其背後的原因可能是什麼?
- 尚不能從籌碼部分找出與指數之間的關聯

其他性質	領先股(14檔)	非領先股(56檔)	是否顯著
本益比	12.95	13.04	否
周轉率	1.61%	0.66%	是
董監持股	18.5%	15.4%	否
外資持股	28%	30%	否

績效-樣本內

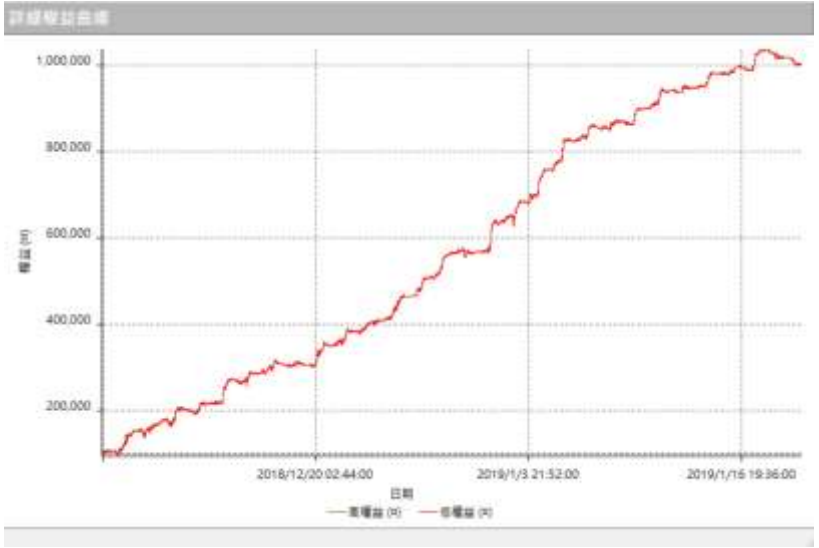
- 績效只是方法的結果,因此這邊暫時不做參數最佳化這樣倒果為因的測試
- 把領先14指當成外部資料匯入MC
- 策略邏輯:因為這個數是由領先一期的股票組成,所以策略就是
  - 看到領先指上漲,就做多台指
  - 反之做空



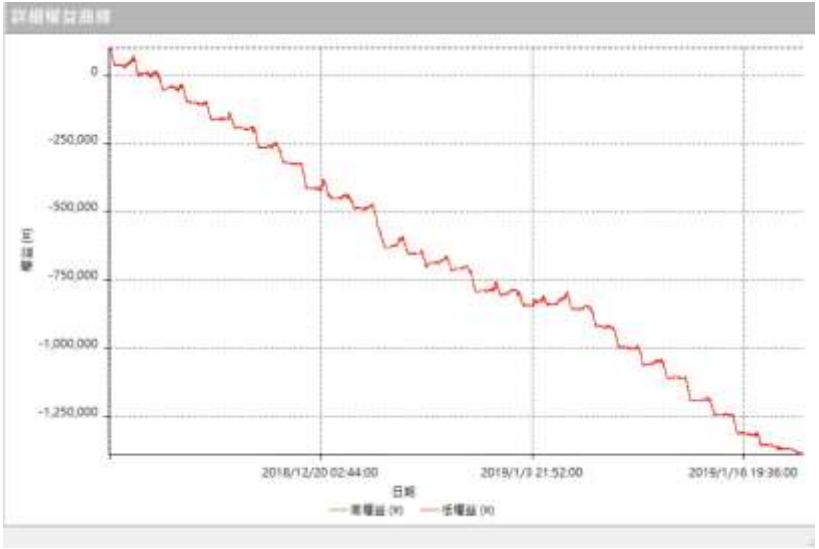
績效-樣本內

```
valuel=c of data2;
if valuel>valuel[1] then buy next bar market;
if valuel<valuel[1] then sellshort next bar market;
```

無手續費



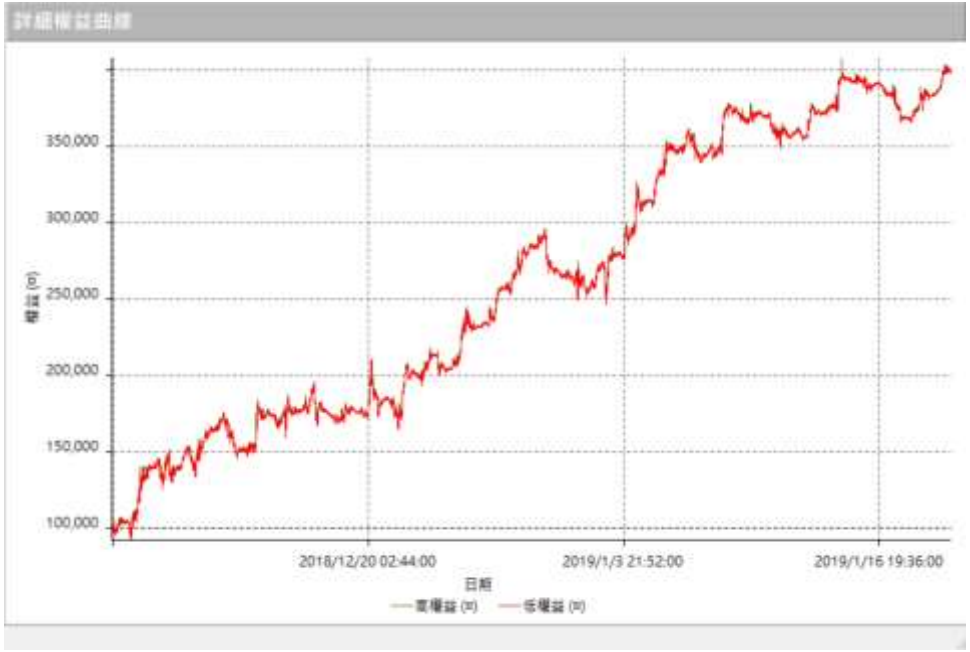
滑價600



績效-樣本內

```
value1=c of data2;
if value1>value1[1]+10then buy next bar market;
if value1<value1[1]-10 then sellshort next bar market;
```

- 滑價600加上10點的濾網



結論&探討

- 古人的智慧還是有那麼一點道理!!
- 周轉率高的股票可能領先大盤,但尚不知其原因
- 此方法優點:可以輕易將此模型方法應用在其他國家的指數上,甚至是OP上

- 此方法缺點:
- 可能有類股輪動問題,領先者未必能保持領先,可能也不一定會有一個明顯的周期,要做一個領先群組,不斷更新成分股的剔除與納入條件會是個問題
- 資料過少:以我現有的資源查不到有紀載一分K或是tick之更長時間的個股歷史資料

- 探討:
- 會出現這樣多的顯著正負相關,直覺應該是人為的,背後可能有怎樣的套利空間或是市場控制?
- 可否利用此方法找出落後於台指的正相關個股與負相關個股做阿法策略(股期)?
- 周轉率是否為領先個股的領先指標?

附錄

附錄-檢定

- 周轉率

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	56	.6676786	.1080482	.8085587	.4511451	.884212
1	14	1.617857	.8348792	3.123832	-.1857897	3.421504
combined	70	.8577143	.1892161	1.583096	.4802385	1.23519
diff		-.9501786	.4623643		-1.872812	-.0275449

diff = mean(0) - mean(1) t = -2.0550

Ho: diff = 0 degrees of freedom = 68

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.0219 Pr(|T| > |t|) = 0.0437 Pr(T > t) = 0.9781

附錄-檢定

- 外資持股

```
. ttest P, by(O_O)

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	56	.3065214	.0231312	.1730981	.2601654	.3528774
1	14	.2839929	.035755	.133783	.2067488	.3612369
combined	70	.3020157	.0197621	.165342	.2625913	.3414401
diff		.0225286	.0496923		-.0766308	.121688

```
    diff = mean(0) - mean(1)                                      t =   0.4534
Ho: diff = 0                                     degrees of freedom =       68

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6741         Pr(|T| > |t|) = 0.6517          Pr(T > t) = 0.3259
```

附錄-檢定

- 本益比

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	52	13.04058	1.100587	7.936447	10.83106	15.2501
1	14	12.95571	1.485895	5.55971	9.745633	16.1658
combined	66	13.02258	.9178699	7.45681	11.18946	14.85569
diff		.0848626	2.26267		-4.435341	4.605066

diff = mean(0) - mean(1) t = 0.0375

Ho: diff = 0 degrees of freedom = 64

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.5149 Pr(|T| > |t|) = 0.9702 Pr(T > t) = 0.4851

這個無關

- 這是全台灣上市櫃公司2000年~2017的匯兌損益與排名,由左至右,第一名廣達,第二大同

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W
1	公司	廣達	大同	TPK-KY	聯明	可成	遠東新	長榮	中鋼	統一	藍天	欣興	群光	萬海	太設	正隆	緯創	麗邦	泰金寶-D	環泥	大成	洋華	瑞智
2	日期/顯著水準	0.3293	0.0939	0.1549	0.0814	0.2259	0.1492	0.2692	0.2036	0.3324	0.1797	0.2731	0.2726	0.2795	0.0340	0.1288	0.4084	0.0684	0.183	0.0577	0.3048	0.06	0.0
3	2017/12/29	-2033149	610757	2949880	54352	-2038159	296335	-441533	146812	403858	45049	111762	-90350	-46579	-11322	162006	-217672	-176	99592	0	209779	162025	5
4	2017/9/30	263521	693901	-1951486	-27990	1139322	77805	-34161	477479	225954	-81989	15975	-18025	9978	-5613	292810	-215369	87	106073	0	315428	1720	-1
5	2017/6/30	1507027	-1394202	97970	-31784	786501	378935	-206884	110195	138676	47257	-354226	475038	-4068	-15542	-8571	-104263	73	89146	0	239654	-334	-2
6	2017/3/31	-9569910	-1026090	-1295374	-161935	-1522864	-945611	-819049	-945698	1110591	-312940	-207539	-991170	-157143	28165	-153279	-1136057	-588	217797	0	-435615	27999	5
7	2016/12/30	5691508	1407338	-997919	17817	1870889	-1272	1632019	73641	-1113815	557723	671576	79329	64242	27253	198847	1424595	10994	-262555	0	50880	-5139	-3
8	2016/9/30	-4616398	-1350517	604400	-103257	-2126255	33262	-312730	-317526	202763	-695741	11860	-484934	174296	32558	60146	-1130633	-9882	103245	0	-314442	22844	1
9	2016/6/30	1143835	-564454	-294501	6473	-601719	137526	-169991	-149531	-237914	1090213	-107242	-77890	-23526	15898	34505	-278522	-186	-901852	0	-111462	-14179	-4
10	2016/3/31	-4583595	-21829	-268937	-29785	-881862	-244897	-103804	-159924	-195989	-723509	-131008	-97236	166027	-38078	24161	-639920	10150	467305	0	-114989	6575	
11	2015/12/31	336931	215062	107363	-36105	-496889	203655	-112571	505363	205194	218952	-9045	-121999	-4534	-21083	2504	67614	-3089	69879	-264	-36532	8022	-5
12	2015/9/30	6889105	400424	2833574	222719	2304283	371400	834188	950686	95915	301111	847664	861100	-414304	62654	267980	2694084	210964	-59523	226	492995	-32387	1
13	2015/6/30	-1815007	8117	-639985	-39495	-366139	-129941	-364305	-771004	-28965	-56852	-232372	-425797	131686	39283	-218394	-531396	-67124	111202	-49	-159711	8453	5
14	2015/3/31	-2462049	-568619	-448027	-101538	-726326	-63473	-506529	-334335	-71969	198335	-229768	-168754	20600	54162	912	-647066	-57160	269347	-40	-118786	4693	-11
15	2014/12/31	6951253	49520	1748868	148823	2453086	49420	601223	641009	28122	-64823	663093	706853	-381456	24825	-10934	1835840	20711	123027	179	43152	94718	25
16	2014/9/30	3641586	198986	534233	37313	331830	619359	293404	230209	-237443	-120731	209462	371025	-162190	495	-152296	906084	112510	-98389	157	268492	-9122	10
17	2014/6/30	-3751748	-165745	-717529	-330047	-178177	-403946	-27952	-368933	728230	-278036	-221922	-305087	183425	672	-231680	-1215610	-36660	881	-172	-134446	8647	-12
18	2014/3/31	3473106	324010	952423	287774	509814	466681	204926	379008	-118538	29049	104447	209592	-178448	-21908	50124	1070403	57780	140447	186	102298	-6617	6
19	2013/12/31	1947683	1371922	390050	425108	1375695	-707061	-560574	1730712	-1832185	28886	70890	532536	-100812	-8361	48314	491239	488350	-78264	-1946	761949	1043	29
20	2013/9/30	-1855108	-432308	-379809	-106178	-2534462	318420	-189355	-1273729	806305	-76026	83741	-347837	181053	53019	87305	-625386	-67643	350830	-123	-672463	78946	-3
21	2013/6/28	843364	-325643	200502	21029	1878248	109391	779808	168643	-488662	-166056	91833	37601	-84651	4977	-68635	450366	10182	-259954	1742	282219	-77641	5
22	2013/3/29	3766231	588846	614028	344176	457757	274841	319568	261237	-385819	-14042	166429	536748	-124937	-2064	92493	1211869	-160464	163756	2439	72293	-5032	13

JihSun Holdings
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日盛期貨