国泰君安191因子回测-41-50

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1 Alpha41

$$Alpha = (RANK(MAX(DELTA((VWAP), 3), 5)) * -1)$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-9.97	4.63	23.91	79.6	4.32(0.273)	5.12	0.65	12.03	2.37	1526 X 285	14.99	14.01	32.9	0.0147
20110101-20111231	10.0	-9.98	2.59	13.25	85.53	2.42(0.153)	9.02	0.59	6.21	0.95	1780 X 353	-32.82	-39.34	59.46	0.0104
20120101-20121231	10.0	-9.94	2.05	10.63	86.81	1.94(0.123)	6.59	0.58	4.88	0.68	1932 X 437	5.69	3.25	15.51	0.0076
20130101-20131231	10.0	-9.92	2.67	14.04	73.92	2.73(0.172)	3.99	0.56	7.63	1.19	2110 X 336	28.96	19.03	-0.88	0.0084
20140101-20141231	10.0	-9.81	4.64	23.92	73.84	5.75(0.364)	3.09	0.65	12.94	3.27	2116 X 365	42.72	35.54	4.67	0.0179
20150101-20151231	10.02	-9.66	6.94	35.51	68.75	4.0(0.253)	10.68	0.62	21.02	2.87	2189 X 503	91.84	46.78	-21.66	0.0232
20160101-20161231	9.98	-9.41	4.86	25.45	75.12	4.43(0.28)	5.24	0.64	13.68	2.58	2496 X 350	-6.02	-15.42	59.32	0.0209
20170101-20171231	9.95	-9.49	1.16	6.01	69.56	1.33(0.084)	5.86	0.55	3.53	0.39	2887 X 341	-14.66	0.88	27.92	0.0074
20180101-20181231	10.0	-9.8	5.33	27.59	80.85	4.88(0.309)	5.57	0.65	13.69	2.85	2945 X 531	-33.92	-38.75	90.5	0.0186
20190101-20191231	10.0	-9.81	4.68	24.3	73.45	4.89(0.309)	3.15	0.62	13.19	2.81	3055 X 518	30.37	26.71	17.95	0.0173
20200101-20200331	10.0	-9.83	0.41	8.79	67.36	1.0(0.063)	15.31	0.59	5.28	0.36	3138 X 505	17.09	-12.47	0.53	0.0081
20100104-20200331	10.0	-9.78	39.96	20.2	76.56	3.48(0.22)	15.32	0.61	10.6	1.79	2324 X 405	12.85	4.85	27.91	0.0145

Figure 1: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.686	3.65	7.59	3.1	1.59	131	213518_h7453
0.6629	3.69	7.37	5.08	3.0	170	211919_my_280
0.6288	5.23	6.67	0.85	3.19	96	214808_pv_model_1_mod_gen2_191114_151

Figure 2: 相关性结果

2 Alpha42

$$Alpha = ((-1 * RANK(STD(HIGH, 10))) * CORR(HIGH, VOLUME, 10)) \quad (1)$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	1.83	9.45	39.74	3.35(0.212)	3.57	0.62	9.51	1.63	827 X 705	23.41	14.01	-4.5	0.0148
20110101-20111231	10.0	-10.0	2.79	14.31	39.0	5.67(0.359)	1.6	0.65	14.68	3.43	989 X 830	-20.03	-39.34	48.65	0.0227
20120101-20121231	10.0	-10.0	2.21	11.39	37.21	4.53(0.286)	3.71	0.66	12.24	2.51	1152 X 971	15.95	3.25	6.83	0.021
20130101-20131231	10.0	-10.0	2.06	10.84	36.13	4.04(0.255)	2.16	0.61	12.0	2.21	1238 X 1066	35.11	19.03	-13.43	0.0157
20140101-20141231	10.0	-10.0	2.63	13.45	37.38	5.62(0.355)	3.18	0.66	14.39	3.37	1200 X 1039	48.53	35.54	-21.66	0.0217
20150101-20151231	9.99	-9.96	4.85	24.9	41.99	5.56(0.352)	9.26	0.68	23.72	4.28	1153 X 1029	93.79	46.78	-44.19	0.0258
20160101-20161231	10.0	-9.93	3.15	16.2	37.65	6.09(0.385)	2.47	0.68	17.19	3.99	1380 X 1157	2.28	-15.42	30.17	0.0271
20170101-20171231	10.0	-9.96	3.17	16.28	36.72	5.95(0.376)	2.05	0.66	17.73	3.96	1623 X 1342	-2.72	0.88	35.33	0.0267
20180101-20181231	10.0	-9.99	3.46	17.8	36.96	7.09(0.448)	1.72	0.66	19.26	4.92	1775 X 1530	-21.17	-38.75	56.8	0.0262
20190101-20191231	9.99	-10.0	3.32	17.04	33.93	7.49(0.474)	1.37	0.68	20.08	5.31	1940 X 1640	37.4	26.71	-3.31	0.0241
20200101-20200331	9.98	-10.01	0.46	10.0	35.14	2.94(0.186)	2.63	0.55	11.39	1.57	1939 X 1728	0.13	-12.47	19.85	0.0122
20100104-20200331	10.0	-9.98	29.94	15.06	37.61	5.28(0.334)	9.25	0.65	16.01	3.34	1342 X 1145	20.75	4.85	9.35	0.0224

Figure 3: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.9351	5.43	7.58	3.83	3.51	170	211930_h_ori63
0.7244	5.11	6.02	3.08	3.99	98	214728_fac117
0.7141	5.37	5.08	2.98	4.05	92	215063_qh141

Figure 4: 相关性结果

3 Alpha43

$$Alpha = SUM((CLOSE > DELAY(CLOSE,1)?VOLUME : (CLOSE < DELAY(CLOSE,1)? - VOLUME : 0)),6) \tag{2}$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	-4.08	-21.09	11.77	-3.7(-0.234)	42.28	0.32	-71.66	-4.95	535 X 1272	-19.36	14.01	-22.82	-0.0176
20110101-20111231	10.0	-10.0	-1.53	-7.85	10.88	-2.02(-0.128)	25.74	0.43	-28.86	-1.72	581 X 1558	-43.77	-39.34	28.07	-0.0078
20120101-20121231	10.0	-10.0	-2.48	-12.76	11.44	-3.89(-0.246)	29.8	0.33	-44.59	-4.11	643 X 1726	-13.14	3.25	-12.37	-0.0142
20130101-20131231	10.0	-10.0	-4.78	-25.11	11.3	-5.84(-0.37)	48.49	0.29	-88.84	-8.71	677 X 1768	-12.19	19.03	-38.02	-0.0192
20140101-20141231	10.0	-10.0	0.36	1.85	12.43	0.32(0.02)	22.24	0.42	5.92	0.12	771 X 1736	57.91	35.54	-54.23	-0.0039
20150101-20151231	10.0	-9.98	-4.81	-24.67	9.1	-2.97(-0.188)	49.37	0.36	-108.41	-4.9	859 X 1836	16.21	46.78	-65.62	-0.0106
20160101-20161231	10.0	-9.96	-2.77	-14.2	11.71	-3.52(-0.223)	28.07	0.38	-48.51	-3.88	898 X 1963	-30.88	-15.42	2.54	-0.0108
20170101-20171231	10.0	-9.97	-1.23	-6.32	11.46	-1.48(-0.094)	16.28	0.46	-22.09	-1.1	944 X 2301	-24.46	0.88	11.86	-0.005
20180101-20181231	10.0	-10.0	-3.13	-16.1	10.72	-4.06(-0.257)	36.55	0.38	-60.07	-4.98	994 X 2515	-64.57	-38.75	32.38	-0.011
20190101-20191231	10.0	-9.99	-4.2	-21.55	11.44	-6.04(-0.382)	42.92	0.33	-75.33	-8.29	1033 X 2583	-11.53	26.71	-31.56	-0.0156
20200101-20200331	10.0	-9.99	-1.11	-24.05	10.84	-5.93(-0.375)	12.88	0.31	-88.73	-8.84	1064 X 2624	-63.06	-12.47	15.03	-0.0163
20100104-20200331	10.0	-9.99	-29.77	-14.96	11.22	-3.03(-0.192)	297.69	0.37	-53.34	-3.5	800 X 1943	-15.66	4.85	-14.25	-0.0117

Figure 5: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.4452	2.95	4.79	1.66	1.19	92	215073_fac158
0.4169	3.2	2.6	4.1	1.25	159	212322_ld3_25
0.4096	3.32	1.93	1.96	1.91	159	212322_ld3_22

Figure 6: 相关性结果

4 Alpha44

$$\begin{aligned} Alpha = &(TSRANK(DECAYLINEAR(CORR(((LOW)), MEAN(VOLUME,10),7),6),4)+ \\ &TSRANK(DECAYLINEAR(DELTA((VWAP),3),10),15)) \end{aligned} \tag{3}$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	-1.68	-8.68	24.68	-2.34(-0.148)	19.64	0.45	-14.07	-1.39	882 X 908	6.15	14.01	-23.51	-0.0148
20110101-20111231	10.0	-10.0	-1.39	-7.11	23.15	-2.61(-0.165)	16.22	0.43	-12.28	-1.45	1060 X 1066	-41.31	-39.34	27.09	-0.0138
20120101-20121231	10.0	-10.0	-1.64	-8.45	23.4	-2.88(-0.182)	19.3	0.41	-14.43	-1.73	1183 X 1179	-3.9	3.25	-12.99	-0.0179
20130101-20131231	10.0	-10.0	-2.9	-15.25	24.0	-4.86(-0.307)	29.31	0.41	-25.4	-3.87	1216 X 1230	10.28	19.03	-40.75	-0.0239
20140101-20141231	9.99	-10.01	-1.17	-5.97	22.55	-1.85(-0.117)	20.02	0.38	-10.59	-0.95	1232 X 1273	31.71	35.54	-43.59	-0.0119
20150101-20151231	9.98	-10.03	-6.41	-32.79	22.86	-4.65(-0.294)	64.94	0.37	-57.43	-5.57	1332 X 1367	38.48	46.78	-103.8	-0.0336
20160101-20161231	9.98	-10.0	-3.25	-16.68	23.29	-4.34(-0.275)	34.36	0.36	-28.66	-3.67	1394 X 1468	-28.77	-15.42	-4.62	-0.0274
20170101-20171231	10.0	-10.0	-0.92	-4.72	21.96	-1.61(-0.102)	10.49	0.45	-8.59	-0.74	1583 X 1651	-22.73	0.88	13.29	-0.0124
20180101-20181231	10.0	-9.99	-2.07	-10.65	22.83	-3.66(-0.232)	20.99	0.4	-18.67	-2.5	1748 X 1760	-52.19	-38.75	30.91	-0.0187
20190101-20191231	10.0	-10.0	-2.65	-13.56	23.99	-6.02(-0.381)	26.74	0.38	-22.61	-4.52	1786 X 1826	8.58	26.71	-35.69	-0.0201
20200101-20200331	9.99	-10.0	-0.42	-9.09	24.23	-2.25(-0.142)	8.7	0.47	-14.99	-1.38	1844 X 1840	-23.19	-12.47	5.01	-0.0128
20100104-20200331	9.99	-10.0	-24.51	-12.3	23.29	-3.29(-0.208)	247.18	0.4	-21.14	-2.39	1354 X 1384	-5.81	4.85	-18.8	-0.0193

Figure 7: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.4986	2.51	2.15	-0.71	1.1	92	215072_fac156
0.4904	3.65	1.18	0.49	1.4	157	212376_t20_h35
0.4792	4.99	2.68	-0.72	2.01	170	211935_my_H403

Figure 8: 相关性结果

5 Alpha45

$$Alpha = (RANK(DELTA((((CLOSE * 0.6) + (OPEN * 0.4))), 1)) * RANK(CORR(VWAP, MEAN(VOLUME, 150), 15))) \tag{4}$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	6.69	-6.69	-3.02	-15.59	88.09	-2.17(-0.137)	49.21	0.24	-10.58	-0.91	38 X 53	-66.66	-18.22	20.07	-0.0285
20110101-20111231	6.52	-6.52	-0.65	-3.32	85.67	-0.69(-0.044)	17.28	0.29	-2.38	-0.14	47 X 67	-53.12	-29.85	42.95	-0.0125
20120101-20121231	10.0	-10.0	-3.97	-20.44	83.32	-4.38(-0.277)	41.68	0.4	-9.8	-2.17	82 X 115	-19.59	3.25	-21.25	-0.0398
20130101-20131231	10.0	-10.0	-4.14	-21.77	75.53	-7.49(-0.474)	41.46	0.32	-11.53	-4.02	647 X 965	-5.74	19.03	-37.79	-0.0368
20140101-20141231	10.0	-10.0	-3.03	-15.44	75.98	-4.52(-0.286)	32.14	0.29	-8.13	-2.04	584 X 854	17.16	35.54	-48.03	-0.0305
20150101-20151231	10.0	-10.0	-7.24	-37.16	77.56	-7.18(-0.454)	72.6	0.33	-19.13	-4.97	380 X 547	15.48	46.78	-89.68	-0.0456
20160101-20161231	10.0	-10.0	-2.19	-11.21	81.32	-4.23(-0.268)	30.15	0.3	-5.51	-1.57	553 X 792	-27.78	-15.42	5.37	-0.0244
20170101-20171231	10.0	-10.0	-2.02	-10.33	77.31	-5.5(-0.348)	20.52	0.38	-5.34	-2.01	783 X 1133	-28.32	0.88	7.67	-0.0217
20180101-20181231	10.0	-10.0	-2.41	-12.4	78.65	-5.82(-0.368)	25.22	0.35	-6.31	-2.31	1009 X 1451	-50.69	-38.75	25.88	-0.0212
20190101-20191231	9.99	-10.0	-2.48	-12.71	77.8	-6.03(-0.381)	25.58	0.37	-6.53	-2.44	1270 X 1870	6.97	26.71	-32.36	-0.0196
20200101-20200331	9.97	-10.0	-0.06	-1.26	77.19	-0.3(-0.019)	6.92	0.47	-0.67	-0.04	1338 X 2019	-14.31	-12.47	11.68	-0.0046
20100104-20200331	9.33	-9.34	-31.2	-15.68	79.57	-3.85(-0.243)	335.77	0.33	-8.44	-1.71	558 X 814	-18.3	2.64	-15.26	-0.0275

Figure 9: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.4578	2.95	3.81	0.53	1.11	92	215073_fac156
0.3783	7.5	7.53	2.74	3.54	128	213653_h18694
0.3769	4.62	7.91	5.79	1.41	91	215125_h229

Figure 10: 相关性结果

6 Alpha46

$$Alpha = (MEAN(CLOSE, 3) + MEAN(CLOSE, 6) + MEAN(CLOSE, 12) + MEAN(CLOSE, 24))/(4 * CLOSE) \tag{5}$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-9.98	7.3	37.77	61.51	6.43(0.407)	5.04	0.68	24.56	5.04	997 X 786	46.11	14.01	29.39	0.0608
20110101-20111231	9.99	-9.99	4.22	21.65	57.79	4.31(0.272)	6.6	0.62	14.99	2.64	1150 X 967	-17.92	-39.34	61.24	0.0414
20120101-20121231	10.0	-9.97	5.31	27.37	59.0	5.91(0.374)	4.75	0.69	18.54	4.02	1277 X 1080	25.26	3.25	29.44	0.0503
20130101-20131231	10.01	-9.94	6.36	33.48	60.49	6.8(0.43)	3.64	0.68	22.16	5.06	1392 X 1053	54.23	19.03	12.64	0.049
20140101-20141231	10.01	-9.87	5.78	29.65	59.74	6.38(0.404)	5.27	0.7	19.85	4.5	1413 X 1090	62.12	35.54	-3.31	0.0447
20150101-20151231	10.02	-9.79	11.26	58.4	56.78	4.04(0.255)	30.69	0.63	41.03	4.09	1492 X 1201	122.8	46.78	-7.87	0.0558
20160101-20161231	10.0	-9.93	5.88	30.22	58.5	4.8(0.304)	7.89	0.69	20.68	3.45	1608 X 1248	10.28	-15.42	50.33	0.0482
20170101-20171231	9.98	-9.97	2.11	10.78	56.84	1.99(0.126)	6.8	0.6	7.63	0.87	1701 X 1521	-20.33	0.88	42.07	0.0253
20180101-20181231	9.88	-9.96	5.51	28.58	58.34	5.69(0.36)	4.86	0.61	19.6	3.98	1782 X 1723	-34.69	-38.75	91.35	0.042
20190101-20191231	9.98	-9.92	5.99	30.8	60.3	6.4(0.405)	4.49	0.68	20.45	4.57	1998 X 1609	24.99	26.71	36.69	0.0398
20200101-20200331	10.0	-9.92	0.64	13.79	56.86	1.75(0.111)	9.46	0.59	9.7	0.86	2136 X 1544	-11.42	-12.47	39.19	0.0213
20100104-20200331	9.99	-9.93	60.37	30.46	58.88	4.47(0.283)	30.79	0.66	20.68	3.22	1497 X 1236	26.45	4.85	34.45	0.0451

Figure 11: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.9457	3.41	6.33	4.46	2.66	170	211919_my_94
0.7554	4.21	8.46	4.16	2.96	105	214451_pv_model_4_2_mod_191101_2
0.7536	6.21	9.22	4.85	3.43	102	214602_pv_model_7_2_mod_191101_13

Figure 12: 相关性结果

7 Alpha47

$$Alpha = SMA((TSMAX(HIGH,6) - CLOSE)/(TSMAX(HIGH,6) - TSMIN(LOW,6)) * 100, 9, 1) \tag{6}$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	3.79	19.56	21.21	4.2(0.266)	3.97	0.62	36.89	4.04	767 X 1040	29.89	14.01	9.23	0.0198
20110101-20111231	10.0	-10.0	0.94	4.82	17.02	1.13(0.071)	13.84	0.54	11.33	0.6	1005 X 1135	-36.45	-39.34	46.09	0.0175
20120101-20121231	10.0	-10.0	3.99	20.51	18.91	5.95(0.376)	4.01	0.67	43.39	6.19	1037 X 1333	24.56	3.25	16.48	0.0318
20130101-20131231	10.0	-10.0	2.49	13.07	20.87	3.56(0.225)	3.95	0.61	25.05	2.82	1093 X 1353	36.45	19.03	-10.31	0.018
20140101-20141231	10.0	-10.0	2.09	10.69	20.09	2.57(0.163)	6.87	0.64	21.29	1.88	1083 X 1426	50.91	35.54	-29.53	0.0147
20150101-20151231	9.98	-9.99	2.37	12.21	15.59	0.79(0.05)	35.3	0.55	31.22	0.7	1304 X 1399	81.27	46.78	-56.88	0.0086
20160101-20161231	10.0	-10.0	2.64	13.52	19.69	2.37(0.15)	14.88	0.61	27.45	1.97	1263 X 1601	-5.65	-15.42	32.68	0.0198
20170101-20171231	10.0	-10.0	0.86	4.42	18.56	1.13(0.071)	6.32	0.56	9.53	0.55	1409 X 1837	-17.69	0.88	26.53	0.0124
20180101-20181231	9.98	-10.0	1.9	9.78	18.74	2.81(0.178)	3.47	0.6	20.89	2.03	1510 X 2002	-36.0	-38.75	55.47	0.0165
20190101-20191231	9.99	-10.0	1.54	7.88	19.53	2.42(0.153)	6.63	0.55	16.16	1.54	1588 X 2028	23.52	26.71	-7.73	0.011
20200101-20200331	10.0	-10.0	-0.02	-0.35	18.86	-0.07(-0.005)	7.79	0.5	-0.74	-0.01	1675 X 2013	-24.16	-12.47	23.47	0.0108
20100104-20200331	10.0	-10.0	22.6	11.36	19.01	1.82(0.115)	35.27	0.59	23.88	1.41	1217 X 1528	14.13	4.85	8.57	0.0169

Figure 13: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.7352	3.48	4.27	2.16	4.56	170	211919_my_11
0.659	8.53	9.11	5.79	7.3	159	212322_ld3_19
0.655	3.61	2.97	3.11	2.97	96	214793_pv_model_1mod_191114_160

Figure 14: 相关性结果

8 Alpha48

$$\begin{aligned} Alpha = & (-1 * ((RANK(((SIGN((CLOSE - DELAY(CLOSE,1))) + \\ & SIGN((DELAY(CLOSE,1) - DELAY(CLOSE,2)))) + \\ & SIGN((DELAY(CLOSE,2) - DELAY(CLOSE,3)))))) * SUM(VOLUME,5))/SUM(VOLUME,20)) \end{aligned} \tag{7}$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	4.54	23.47	75.72	5.57(0.352)	4.54	0.67	12.4	3.1	735 X 566	30.04	14.01	16.89	0.0404
20110101-20111231	10.0	-10.0	2.95	15.12	72.57	4.54(0.287)	4.53	0.64	8.34	2.07	894 X 665	-23.33	-39.34	53.6	0.0281
20120101-20121231	10.0	-10.0	2.92	15.0	73.01	5.14(0.325)	2.68	0.61	8.22	2.33	1108 X 816	13.05	3.25	16.95	0.0288
20130101-20131231	10.0	-10.0	2.85	14.99	73.07	4.44(0.281)	2.56	0.6	8.2	2.01	1286 X 962	33.52	19.03	-3.56	0.0248
20140101-20141231	10.0	-10.0	2.64	13.49	74.38	4.01(0.253)	3.09	0.63	7.25	1.71	1209 X 952	49.23	35.54	-22.26	0.0242
20150101-20151231	9.99	-10.0	5.78	29.81	73.93	4.57(0.289)	9.08	0.66	16.03	2.9	1126 X 910	96.43	46.78	-37.14	0.0352
20160101-20161231	10.0	-9.99	1.94	9.95	73.46	3.16(0.2)	3.78	0.62	5.42	1.16	1373 X 1077	-6.95	-15.42	26.89	0.019
20170101-20171231	10.0	-10.0	0.75	3.83	73.2	1.19(0.075)	4.85	0.57	2.09	0.27	1624 X 1261	-16.28	0.88	23.94	0.0105
20180101-20181231	10.0	-9.99	2.78	14.3	72.4	4.83(0.306)	2.45	0.65	7.9	2.15	1834 X 1414	-31.6	-38.75	60.22	0.0234
20190101-20191231	10.0	-9.99	4.2	21.52	72.61	7.54(0.477)	2.08	0.71	11.85	4.1	2004 X 1549	33.16	26.71	9.84	0.0308
20200101-20200331	10.0	-9.99	0.4	8.69	69.01	1.51(0.095)	7.86	0.5	5.02	0.53	2081 X 1568	-7.81	-12.47	25.15	0.0149
20100104-20200331	10.0	-10.0	31.76	15.97	73.33	4.18(0.264)	9.07	0.63	8.7	1.95	1337 X 1030	17.11	4.85	14.79	0.0262

Figure 15: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.7669	3.41	6.33	4.46	2.66	170	211919_my_94
0.7586	6.31	9.12	2.09	4.01	105	214386_pv_model_3_2_191101_26
0.7564	3.3	5.35	1.04	1.6	96	214795_pv_model_1_gen6_191114_229

Figure 16: 相关性结果

9 Alpha49

$$
\begin{aligned}
Alpha = & SUM(((HIGH + LOW) >= (DELAY(HIGH, 1) + DELAY(LOW, 1))? \\
& 0 : MAX(ABS(HIGH - DELAY(HIGH, 1)), ABS(LOW - DELAY(LOW, 1)))), 12)/ \\
& (SUM(((HIGH + LOW) >= (DELAY(HIGH, 1) + DELAY(LOW, 1))? \\
& 0 : MAX(ABS(HIGH - DELAY(HIGH, 1)), ABS(LOW - DELAY(LOW, 1)))), 12)+ \\
& SUM(((HIGH + LOW) <= (DELAY(HIGH, 1) + DELAY(LOW, 1))? \\
& 0 : MAX(ABS(HIGH - DELAY(HIGH, 1)), ABS(LOW - DELAY(LOW, 1)))), 12))
\end{aligned} \tag{8}
$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	3.02	15.59	38.93	3.1(0.196)	5.0	0.58	16.01	1.96	919 X 859	24.87	14.01	6.3	0.0272
20110101-20111231	10.0	-10.0	1.95	9.98	36.61	2.59(0.164)	4.38	0.55	10.9	1.35	1104 X 997	-28.52	-39.34	48.47	0.0196
20120101-20121231	10.0	-10.0	2.44	12.54	37.76	3.46(0.219)	5.46	0.61	13.28	1.99	1201 X 1134	13.61	3.25	11.47	0.0271
20130101-20131231	10.0	-10.0	2.55	13.4	38.38	3.6(0.228)	4.21	0.6	13.97	2.13	1219 X 1170	34.6	19.03	-7.8	0.0227
20140101-20141231	10.0	-10.0	1.42	7.23	38.79	1.98(0.125)	5.97	0.58	7.46	0.85	1193 X 1178	39.68	35.54	-25.22	0.0146
20150101-20151231	7.72	-7.73	5.78	79.32	40.48	3.05(0.193)	10.41	0.49	37.86	4.27	928 X 966	123.59	52.93	-46.87	0.0312
20160101-20161231	1.56	-1.55	1.51	85780.74	42.31	1.01(0.064)	6.42	0.13	47.0	45.7	231 X 197	-151.79	-31.34	251.89	0.01
20170101-20171231	6.97	-6.96	-0.2	-5939.46	36.6	-1.06(-0.067)	7.11	0.38	-1.6	-13.46	1075 X 1079	-31.19	-4.62	28.28	-0.0019
20180101-20181231	4.03	-4.03	0.56	99.32	39.09	2.13(0.135)	14.77	0.25	7.34	3.39	714 X 684	-61.1	-26.21	75.44	0.011
20190101-20191231	9.92	-9.9	3.8	39.19	39.01	0.78(0.049)	2.6	0.66	20.14	0.78	1839 X 1741	41.73	26.71	-2.49	0.0301
20200101-20200331	10.0	-9.97	0.59	12.7	38.41	2.26(0.143)	7.3	0.55	13.27	1.3	1909 X 1773	-6.09	-12.47	31.62	0.0187
20100104-20200331	8.06	-8.06	23.42	7854.27	38.44	0.3(0.019)	12.76	0.48	15.18	4.23	1062 X 1018	18.09	4.57	11.08	0.0191

Figure 17: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.6626	2.61	4.41	4.03	1.11	94	214982_pv_model_9_mod_gen6_191114_217
0.6592	2.19	5.58	2.3	1.17	170	211930_h_ori251
0.6582	3.23	6.06	2.57	1.54	95	214818_pv_model_2_gen2_191114_46

Figure 18: 相关性结果

10 Alpha50

$$
\begin{aligned}
Alpha =& SUM(((HIGH+LOW)<=(DELAY(HIGH,1)+DELAY(LOW,1))?\\
&0:MAX(ABS(HIGH-DELAY(HIGH,1)),ABS(LOW-DELAY(LOW,1)))),12)/\\
&(SUM(((HIGH+LOW)<=(DELAY(HIGH,1)+DELAY(LOW,1))?\\
&0:MAX(ABS(HIGH-DELAY(HIGH,1)),ABS(LOW-DELAY(LOW,1)))),12)+\\
&SUM(((HIGH+LOW)>=(DELAY(HIGH,1)+DELAY(LOW,1))?\\
&0:MAX(ABS(HIGH-DELAY(HIGH,1)),ABS(LOW-DELAY(LOW,1)))),12))-\\
&SUM(((HIGH+LOW)>=(DELAY(HIGH,1)+DELAY(LOW,1))?\\
&0:MAX(ABS(HIGH-DELAY(HIGH,1)),ABS(LOW-DELAY(LOW,1)))),12)/\\
&(SUM(((HIGH+LOW)>=(DELAY(HIGH,1)+DELAY(LOW,1))?\\
&0:MAX(ABS(HIGH-DELAY(HIGH,1)),ABS(LOW-DELAY(LOW,1)))),12)+\\
&SUM(((HIGH+LOW)<=(DELAY(HIGH,1)+DELAY(LOW,1))?\\
&0:MAX(ABS(HIGH-DELAY(HIGH,1)),ABS(LOW-DELAY(LOW,1)))),12))
\end{aligned}
\tag{9}
$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	-3.02	-15.59	38.93	-3.1(-0.196)	32.59	0.41	-16.01	-1.96	859 X 919	-6.3	14.01	-24.87	-0.0272
20110101-20111231	10.0	-10.0	-1.95	-9.98	36.61	-2.59(-0.164)	23.4	0.45	-10.9	-1.35	997 X 1104	-48.47	-39.34	28.52	-0.0196
20120101-20121231	10.0	-10.0	-2.44	-12.54	37.76	-3.46(-0.219)	26.97	0.39	-13.28	-1.99	1134 X 1201	-11.47	3.25	-13.61	-0.0271
20130101-20131231	10.0	-10.0	-2.55	-13.4	38.38	-3.6(-0.228)	25.94	0.4	-13.97	-2.13	1170 X 1219	7.8	19.03	-34.6	-0.0227
20140101-20141231	10.0	-10.0	-1.42	-7.23	38.79	-1.98(-0.125)	22.3	0.42	-7.46	-0.85	1178 X 1193	25.22	35.54	-39.68	-0.0146
20150101-20151231	7.73	-7.72	-5.78	-79.32	40.48	-3.05(-0.193)	76.84	0.3	-37.86	-4.27	966 X 928	46.87	52.93	-123.59	-0.0312
20160101-20161231	1.55	-1.56	-1.51	-85780.74	42.31	-1.01(-0.064)	97.44	0.05	-47.0	-45.7	197 X 231	-251.89	-31.34	151.79	-0.01
20170101-20171231	6.96	-6.97	0.2	5939.46	36.6	1.06(0.067)	7.11	0.34	1.6	13.46	1079 X 1075	-28.28	-4.62	31.19	0.0019
20180101-20181231	4.03	-4.03	-0.56	-99.32	39.09	-2.13(-0.135)	27.64	0.18	-7.34	-3.39	684 X 714	-75.44	-26.21	61.1	-0.011
20190101-20191231	9.9	-9.92	-3.8	-39.19	39.01	-0.78(-0.049)	38.6	0.34	-20.14	-0.78	1741 X 1839	2.49	26.71	-41.73	-0.0301
20200101-20200331	9.97	-10.0	-0.59	-12.7	38.41	-2.26(-0.143)	12.97	0.45	-13.27	-1.3	1773 X 1909	-31.62	-12.47	6.09	-0.0187
20100104-20200331	8.06	-8.06	-23.42	-7854.27	38.44	-0.3(-0.019)	292.81	0.33	-15.18	-4.23	1018 X 1062	-11.08	4.57	-18.09	-0.0191

Figure 19: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.5001	2.51	2.15	-0.71	1.1	92	215072_fac156
0.4216	3.06	2.72	1.74	1.71	84	215478_fac272
0.3826	3.39	3.86	1.27	1.01	170	211934_my_H202

Figure 20: 相关性结果

11 总结

41-50因子：

alpha41是根据vwap的变化来比较股票的。该因子将股价下跌/股价变动较小/股价本身就小的股票的排名提高，因此该因子筛选出下跌/股价较小的股票进行购买。

alpha42比较了量价相关性及价格波动率的排名，该因子认为，波动越大，量价越负相关的股票较好。

alpha43认为6天内股价上涨越多越好，且上涨时的成交量越大越好。

alpha44衡量量价关系及股价3天差值的关系。该因子认为上涨放量/股价上涨的股票好。

alpha45衡量了量价关系，第一个指标在股价上涨时排名较高，第二个指标则是成交量与前期成交量相关性越大，则越高。因此该因子既会选择放量上涨，也会选择缩量上涨。

alpha46为低买高卖策略。

alpha47反应多空力量，alpha值大时，即close越接近high，说明是大阳线，说明多方力量强。

alpha48该因子衡量了股价和成交量，但并不是两者之间的关系。该因子认为，近期成交量越低越好，同时认为，股价越下跌越好，即低买高卖。

alhpa49属于低买高卖策略，看好high+low小于前一天的股票。

alpha50大致为alpha49的相反策略。