国泰君安191因子回测-11-20

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1 Alpha11

$$Alpha11 = SUM(((CLOSE - LOW) - (HIGH - CLOSE))/(HIGH - LOW) * VOLUME, 6)$$

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	2.95	15.23	18.05	2.59(0.164)	13.66	0.64	33.72	2.38	1150 X 479	17.93	14.01	12.5	0.0132
20110101-20111231	10.0	-10.0	0.65	3.32	16.4	0.84(0.053)	9.5	0.57	8.09	0.38	1402 X 526	-31.21	-39.34	37.84	0.0037
20120101-20121231	10.0	-10.0	1.51	7.75	15.9	2.31(0.146)	4.7	0.62	19.51	1.61	1603 X 593	9.41	3.25	6.09	0.0096
20130101-20131231	10.0	-10.0	3.75	19.74	14.59	4.64(0.294)	5.15	0.69	54.04	5.4	1687 X 631	33.59	19.03	5.84	0.0155
20140101-20141231	10.0	-10.0	-1.3	-6.64	16.79	-1.23(-0.078)	27.65	0.61	-15.81	-0.77	1579 X 684	49.08	35.54	-62.36	0.0005
20150101-20151231	10.0	-10.0	3.99	20.34	14.46	2.45(0.155)	15.35	0.66	56.53	2.91	1506 X 681	62.49	46.78	-21.62	0.0129
20160101-20161231	10.0	-10.0	1.54	7.87	15.99	2.4(0.152)	6.8	0.6	19.68	1.68	1770 X 786	-6.49	-15.42	22.23	0.0078
20170101-20171231	10.0	-10.0	0.2	1.05	16.37	0.28(0.017)	5.79	0.51	2.54	0.07	2113 X 860	-12.11	0.88	14.19	0.0017
20180101-20181228	10.01	-10.0	1.89	9.71	15.4	2.82(0.178)	7.87	0.6	25.23	2.24	2367 X 932	-30.41	-38.75	49.85	0.0075
20100104-20181228	10.0	-10.0	15.17	8.66	16.0	1.76(0.112)	29.06	0.61	21.68	1.3	1686 X 686	10.22	2.87	7.12	0.008

Figure 1: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.792	5.4	4.91	3.72	8.78	127	213518_h388
0.6738	3.57	7.48	4.38	1.97	92	214801_pv_model_1_gen4_191114_217
0.6339	3.76	4.38	4.67	1.78	166	211919_my_176

Figure 2: 相关性结果

2 Alpha12

$$Alpha12 = (RANK((OPEN - (SUM(VWAP, 10)/10)))) * (-1 * (RANK(ABS((CLOSE - VWAP)))))$$

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	3.62	18.68	81.24	4.78(0.303)	3.2	0.64	9.19	2.29	1123 X 679	27.36	14.01	9.99	0.0286
20110101-20111231	10.0	-10.0	2.78	14.26	84.06	4.89(0.31)	2.63	0.65	6.78	2.02	1342 X 794	-25.99	-39.34	54.49	0.0242
20120101-20121231	10.0	-10.0	2.73	14.06	82.25	5.2(0.329)	2.87	0.64	6.84	2.15	1485 X 883	14.51	3.25	13.62	0.0268
20130101-20131231	10.0	-10.0	3.0	15.75	76.12	4.23(0.268)	2.46	0.6	8.28	1.93	1551 X 896	37.07	19.03	-5.57	0.0227
20140101-20141231	10.0	-10.0	3.74	19.09	72.21	5.66(0.358)	3.11	0.65	10.58	2.91	1571 X 938	51.69	35.54	-13.5	0.0278
20150101-20151231	9.98	-10.0	7.88	40.39	66.04	3.44(0.218)	11.22	0.57	24.48	2.69	1656 X 1046	103.21	46.78	-22.28	0.0279
20160101-20161231	9.97	-10.0	3.7	18.99	73.3	4.06(0.257)	4.39	0.65	10.37	2.07	1794 X 1070	-1.25	-15.42	39.19	0.0238
20170101-20171231	9.98	-10.0	1.05	5.39	74.47	1.79(0.113)	3.27	0.58	2.89	0.48	2060 X 1185	-15.53	0.88	26.26	0.0103
20180101-20181228	9.99	-10.0	2.58	13.27	80.38	4.28(0.271)	2.4	0.62	6.6	1.74	2207 X 1304	-35.44	-38.75	61.93	0.0201
20100104-20181228	9.99	-10.0	31.09	17.77	76.67	3.46(0.219)	11.22	0.62	9.27	1.67	1644 X 978	17.28	2.87	18.28	0.0236

Figure 3: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.7126	11.75	17.79	7.76	6.67	124	213652_h17138
0.7084	2.33	7.39	5.25	1.08	91	214855_pv_model_6_gen4_191114_205
0.7017	3.94	4.68	3.47	1.67	120	213823_v2_191006_25

Figure 4: 相关性结果

3 Alpha14

$$Alpha14 = CLOSE - DELAY(CLOSE, 5)$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	-3.13	-16.16	67.43	-2.46(-0.156)	32.92	0.46	-9.58	-1.21	862 X 947	-13.46	14.01	-18.83	-0.0043
20110101-20111231	10.0	-10.0	-2.83	-14.51	61.21	-2.64(-0.167)	34.28	0.45	-9.49	-1.29	1098 X 1042	-57.77	-39.34	28.74	-0.0042
20120101-20121231	10.0	-10.0	-1.88	-9.69	63.64	-1.85(-0.117)	23.31	0.41	-6.1	-0.72	1167 X 1203	-5.31	3.25	-14.08	-0.003
20130101-20131231	9.97	-10.0	-2.68	-14.04	64.71	-2.52(-0.16)	28.88	0.42	-8.7	-1.17	1144 X 1302	4.15	19.03	-32.23	-0.0045
20140101-20141231	9.79	-10.01	-5.92	-30.48	64.37	-4.41(-0.279)	62.02	0.37	-18.95	-3.03	1124 X 1387	-12.97	35.54	-47.67	-0.0062
20150101-20151231	9.94	-9.96	0.7	3.19	55.39	0.22(0.014)	41.48	0.48	2.59	0.05	1216 X 1488	75.63	46.78	-68.3	0.0004
20160101-20161231	9.85	-10.0	-3.2	-16.53	68.23	-2.42(-0.153)	37.85	0.42	-9.68	-1.19	1346 X 1519	-56.42	-15.42	22.82	-0.0035
20170101-20171231	9.89	-10.0	1.42	7.32	61.3	1.03(0.065)	11.81	0.51	4.78	0.36	1543 X 1705	-23.29	0.88	37.59	0.0008
20180101-20181228	9.96	-9.94	-2.62	-13.41	62.23	-2.27(-0.144)	29.21	0.42	-8.7	-1.05	1824 X 1688	-67.68	-38.75	40.71	-0.0043
20100104-20181228	9.93	-9.99	-20.14	-11.59	63.16	-1.52(-0.096)	203.93	0.44	-7.32	-0.65	1259 X 1365	-17.49	2.87	-5.65	-0.0032

Figure 5: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.2509	12.32	10.0	2.87	11.34	124	213654_h7288
0.2414	2.4	1.92	0.29	1.19	81	215415_fac85
0.2278	2.35	6.97	0.51	1.14	91	214820_pv_model_3_gen6_191114_166

Figure 6: 相关性结果

4 Alpha14_2

$$Alpha14\_2 = -alpha_{14}$$

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	3.13	16.16	67.43	2.46(0.156)	5.22	0.54	9.58	1.21	947 X 862	18.83	14.01	13.46	0.0043
20110101-20111231	10.0	-10.0	2.83	14.51	61.21	2.64(0.167)	5.14	0.55	9.49	1.29	1042 X 1098	-28.74	-39.34	57.77	0.0042
20120101-20121231	10.0	-10.0	1.88	9.69	63.64	1.85(0.117)	10.24	0.59	6.1	0.72	1203 X 1167	14.08	3.25	5.31	0.003
20130101-20131231	10.0	-9.97	2.68	14.04	64.71	2.52(0.16)	9.13	0.58	8.7	1.17	1302 X 1144	32.23	19.03	-4.15	0.0045
20140101-20141231	10.01	-9.79	5.92	30.48	64.37	4.41(0.279)	7.43	0.63	18.95	3.03	1387 X 1124	47.67	35.54	12.97	0.0062
20150101-20151231	9.96	-9.94	-0.7	-3.19	55.39	-0.22(-0.014)	49.94	0.52	-2.59	-0.05	1488 X 1216	68.3	46.78	-75.63	-0.0004
20160101-20161231	10.0	-9.85	3.2	16.53	68.23	2.42(0.153)	10.6	0.58	9.68	1.19	1519 X 1346	-22.82	-15.42	56.42	0.0035
20170101-20171231	10.0	-9.89	-1.42	-7.32	61.3	-1.03(-0.065)	23.11	0.49	-4.78	-0.36	1705 X 1543	-37.59	0.88	23.29	-0.0008
20180101-20181228	9.94	-9.96	2.62	13.41	62.23	2.27(0.144)	8.43	0.58	8.7	1.05	1688 X 1824	-40.71	-38.75	67.68	0.0043
20100104-20181228	9.99	-9.93	20.14	11.59	63.16	1.52(0.096)	49.79	0.56	7.32	0.65	1365 X 1259	5.65	2.87	17.49	0.0032

Figure 7: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.5837	4.2	5.16	3.79	3.12	87	215126_qh5
0.4149	3.91	8.6	5.96	1.72	101	214447_pv_model_1_2_mod_191101_18
0.38	2.85	9.6	1.99	1.54	92	214805_pv_model_1_mod_gen4_191114_132

Figure 8: 相关性结果

5 Alpha13

$$Alpha13 = (((HIGH * LOW)^{0.5}) - VWAP)$$

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	3.05	15.75	137.36	2.14(0.135)	11.41	0.58	4.59	0.72	958 X 858	29.38	14.01	2.12	0.0041
20110101-20111231	10.0	-10.0	1.24	6.38	135.13	1.27(0.08)	7.3	0.55	1.89	0.28	1106 X 1041	-35.51	-39.34	48.26	0.0021
20120101-20121231	10.0	-9.99	0.5	2.56	138.35	0.5(0.032)	7.95	0.51	0.74	0.07	1241 X 1133	4.53	3.25	0.59	0.0004
20130101-20131231	10.0	-10.0	0.73	3.84	137.75	0.65(0.041)	7.3	0.52	1.11	0.11	1326 X 1120	26.81	19.03	-19.17	0.0009
20140101-20141231	9.99	-9.99	3.52	18.0	142.2	2.8(0.177)	11.17	0.58	5.06	1.0	1345 X 1166	42.38	35.54	-6.44	0.0036
20150101-20151231	9.97	-10.0	0.07	0.62	131.44	0.05(0.003)	23.52	0.49	0.12	0.0	1511 X 1193	72.73	46.78	-71.75	-0.0019
20160101-20161231	9.97	-9.97	-1.09	-5.62	139.09	-0.85(-0.054)	19.66	0.52	-1.61	-0.17	1544 X 1321	-37.22	-15.42	26.0	-0.0006
20170101-20171231	9.96	-9.96	1.08	5.58	142.93	1.17(0.074)	6.83	0.54	1.56	0.23	1714 X 1535	-16.09	0.88	27.24	0.0015
20180101-20181228	9.99	-9.96	2.23	11.57	141.49	1.97(0.125)	8.15	0.53	3.25	0.56	1825 X 1688	-41.16	-38.75	64.33	0.0023
20100104-20181228	9.99	-9.99	11.33	6.52	138.42	0.91(0.057)	37.97	0.54	1.87	0.2	1397 X 1229	5.05	2.87	7.92	0.0014

Figure 9: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.3281	4.2	5.16	3.79	3.12	87	215126_qh5
0.2722	3.61	2.49	-0.94	1.18	97	214635_fac90
0.2716	2.85	8.64	3.22	1.08	91	214896_pv_model_7_mod_gen6_191114_103

Figure 10: 相关性结果

6 Alpha15

$$Alpha15 = OPEN/DELAY(CLOSE, 1) - 1$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	9.92	-10.0	1.76	9.1	142.1	3.16(0.2)	4.36	0.59	2.56	0.8	901 X 914	13.17	14.01	5.06	0.0093
20110101-20111231	9.97	-9.98	2.09	10.72	140.95	4.27(0.27)	2.05	0.62	3.04	1.18	1109 X 1036	-30.25	-39.34	51.64	0.012
20120101-20121231	9.89	-9.99	1.74	8.99	139.72	3.21(0.203)	2.87	0.56	2.57	0.81	1219 X 1154	3.75	3.25	14.16	0.0102
20130101-20131231	9.79	-10.0	2.04	10.86	141.7	3.11(0.196)	2.51	0.6	3.05	0.86	1205 X 1242	24.36	19.03	-2.46	0.0107
20140101-20141231	9.42	-9.99	0.98	5.24	140.43	1.6(0.101)	3.12	0.52	1.46	0.31	1217 X 1294	36.8	35.54	-24.73	0.006
20150101-20151231	8.9	-9.91	2.6	12.4	133.11	0.94(0.06)	32.34	0.55	4.25	0.29	1181 X 1523	78.7	46.78	-43.9	0.012
20160101-20161231	8.91	-9.96	3.33	18.09	139.86	3.58(0.226)	5.72	0.59	5.17	1.29	1370 X 1495	-5.25	-15.42	38.97	0.0163
20170101-20171231	8.9	-9.94	3.04	16.72	137.88	4.17(0.264)	3.37	0.6	4.79	1.45	1652 X 1597	-26.06	0.88	54.65	0.0158
20180101-20181228	9.7	-9.79	-0.55	-2.91	138.9	-0.82(-0.052)	9.23	0.5	-0.84	-0.12	1823 X 1690	-74.97	-38.75	68.45	-0.0041
20100104-20181228	9.49	-9.95	17.0	9.91	139.44	1.8(0.114)	30.35	0.57	2.87	0.48	1298 X 1328	1.69	2.87	17.92	0.0098

Figure 11: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.6108	4.27	9.22	3.71	1.85	90	214950_pv_model_8_mod_gen6_191114_227
0.6063	3.18	5.88	4.62	1.34	91	214875_pv_model_7_gen4_191114_218
0.598	3.52	2.93	0.63	1.05	99	214550_fac45

Figure 12: 相关性结果

7 Alpha16

$$Alpha16 = (-1 * TSMAX(RANK(CORR(RANK(VOLUME), RANK(VWAP), 5)), 5))$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	2.3	11.86	39.52	5.73(0.362)	1.5	0.66	12.01	3.14	648 X 908	29.13	14.01	-5.39	0.0201
20110101-20111231	10.0	-10.0	2.25	11.51	38.64	6.22(0.394)	1.03	0.66	11.91	3.4	772 X 1073	-20.31	-39.34	43.33	0.0202
20120101-20121231	10.0	-10.0	2.39	12.32	37.55	7.17(0.453)	1.66	0.68	13.12	4.11	895 X 1244	19.4	3.25	5.23	0.0225
20130101-20131231	10.0	-10.0	2.26	11.85	35.72	7.01(0.443)	0.65	0.68	13.27	4.04	953 X 1345	39.26	19.03	-15.57	0.0196
20140101-20141231	10.0	-10.0	1.35	6.91	36.75	4.21(0.266)	1.89	0.61	7.52	1.82	934 X 1304	45.77	35.54	-31.97	0.012
20150101-20151231	9.99	-9.97	3.23	16.55	39.21	5.29(0.334)	2.73	0.66	16.92	3.44	906 X 1288	94.84	46.78	-61.87	0.0196
20160101-20161231	10.0	-9.97	2.31	11.87	37.11	7.42(0.469)	1.05	0.68	12.79	4.19	1056 X 1488	3.38	-15.42	20.39	0.0204
20170101-20171231	10.0	-9.98	2.56	13.11	36.59	7.75(0.49)	0.88	0.7	14.34	4.64	1242 X 1728	-2.07	0.88	28.34	0.0227
20180101-20181228	10.0	-9.99	1.68	8.62	35.47	4.6(0.291)	1.57	0.58	9.72	2.27	1388 X 1920	-25.73	-38.75	43.02	0.013
20100104-20181228	10.0	-9.99	20.32	11.62	37.4	5.87(0.372)	2.73	0.66	12.43	3.27	977 X 1367	20.37	2.87	2.86	0.0189

Figure 13: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.7313	2.38	4.3	3.12	1.1	91	214870_pv_model_6_mod_gen4_191114_219
0.7278	2.87	5.99	3.58	1.09	91	214929_pv_model_8_gen2_191114_90
0.693	11.27	8.32	3.44	9.54	124	213652_h15700

Figure 14: 相关性结果

8 Alpha16_2

$$Alpha16\_2 = (-1 * TSMAX(CORR(RANK(VOLUME), RANK(VWAP), 5), 5))$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-10.0	2.35	12.13	43.88	5.67(0.358)	1.47	0.64	11.06	2.98	554 X 1000	30.44	14.01	-6.17	0.0188
20110101-20111231	10.0	-10.0	2.25	11.53	42.33	6.16(0.39)	0.97	0.64	10.9	3.21	680 X 1164	-19.32	-39.34	42.37	0.0184
20120101-20121231	10.0	-10.0	2.38	12.26	41.56	7.02(0.444)	1.78	0.67	11.81	3.81	775 X 1359	20.61	3.25	3.92	0.0204
20130101-20131231	10.0	-10.0	2.27	11.91	40.32	6.7(0.424)	0.83	0.67	11.81	3.64	803 X 1484	41.3	19.03	-17.48	0.0181
20140101-20141231	10.0	-10.0	1.4	7.15	40.9	4.1(0.259)	1.95	0.61	6.99	1.71	801 X 1428	46.32	35.54	-32.03	0.0112
20150101-20151231	9.99	-9.97	3.43	17.56	43.93	5.18(0.328)	3.39	0.65	16.01	3.28	772 X 1417	97.21	46.78	-62.24	0.0189
20160101-20161231	10.0	-9.97	2.31	11.86	41.69	7.22(0.456)	1.17	0.69	11.38	3.85	898 X 1644	4.32	-15.42	19.42	0.0183
20170101-20171231	10.0	-9.98	2.55	13.08	40.4	7.54(0.477)	0.91	0.7	12.95	4.29	1082 X 1889	-0.88	0.88	27.07	0.0209
20180101-20181228	10.0	-9.99	1.6	8.22	39.45	4.24(0.268)	1.7	0.55	8.33	1.94	1191 X 2114	-25.84	-38.75	42.3	0.0115
20100104-20181228	10.0	-9.99	20.54	11.74	41.61	5.67(0.359)	3.39	0.65	11.29	3.01	840 X 1500	21.54	2.87	1.94	0.0174

Figure 15: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.738	2.87	5.99	3.58	1.09	91	214929_pv_model_8_gen2_191114_90
0.7175	2.38	4.3	3.12	1.1	91	214870_pv_model_6_mod_gen4_191114_219
0.689	11.27	8.32	3.44	9.54	124	213652_h15700

Figure 16: 相关性结果

9 Alpha17

$$Alpha17 = RANK((VWAP - MAX(VWAP, 15))) * *DELTA(CLOSE, 5)$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	5.7	-5.7	-1.66	3.184211615923607e+16	141.09	1.02(0.064)	38.16	0.31	-4.26	15300707.1	675 X 355	21.5	11.94	-51.54	0.0011
20110101-20111231	5.0	-5.0	1.0	-3.83563575804092e+216	123.33	-0.0(-0.0)	35.36	0.32	3.34	-0.0	759 X 300	15.07	-24.76	5.51	0.0216
20120101-20121231	7.61	-7.61	0.06	-10063.26	111.61	-0.73(-0.046)	11.61	0.43	0.14	-6.91	1194 X 612	-13.36	-5.95	14.12	0.0018
20130101-20131231	7.81	-7.82	-0.46	1.6498019409908115e+85	107.41	1.03(0.065)	31.94	0.42	-1.16	4.025146969887344e+41	1327 X 584	9.16	13.8	-15.39	-0.004
20140101-20141231	6.25	-6.28	1.22	2.285633682648999e+258	130.14	0.0(0.0)	24.91	0.42	3.06	0.0	1035 X 536	39.43	30.46	-19.37	0.0149
20150101-20151231	4.36	-4.58	-2.61	-2.1812148480952962e+89	143.86	-1.01(-0.064)	63.2	0.36	-8.31	-3.9495542675514383e+43	857 X 368	56.23	44.59	-111.95	0.0163
20160101-20161231	4.14	-4.17	-2.05	9.287661203137014e+133	127.04	1.01(0.064)	71.39	0.34	-7.95	8.672676091576947e+65	862 X 331	-95.86	-9.73	44.96	-0.0025
20170101-20171231	3.61	-3.6	-0.16	-6.222592359712091e+41	146.69	-1.01(-0.064)	38.48	0.2	-0.63	-6.6061968142203945e+19	835 X 325	-32.17	-6.16	27.62	-0.0046
20180101-20181228	6.11	-6.22	-3.19	-18537.89	121.0	-2.3(-0.145)	70.73	0.41	-8.79	-28.44	1573 X 609	-99.42	-48.25	45.0	0.0238
20100104-20181228	5.62	-5.66	-7.84	2.5604949805624365e+257	125.51	0.0(0.0)	171.74	0.36	-2.53	0.0	1012 X 446	-9.13	0.65	-6.78	0.0076

Figure 17: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.1066	3.21	6.8	4.1	1.11	80	215487_pv_model_12_mod_gen6_191122_0
0.0997	3.66	8.35	5.32	1.16	90	214950_pv_model_8_mod_gen6_191114_109
0.0987	3.98	2.91	-1.49	1.72	99	214523_fac179

Figure 18: 相关性结果

10 Alpha17_2

$$Alpha17\_2 = RANK((VWAP - MAX(VWAP, 15)) * *DELTA(CLOSE, 5))$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.07	-10.0	7.88	40.48	83.39	3.54(0.224)	7.78	0.57	19.47	2.47	113 X 763	56.65	14.01	24.41	0.0151
20110101-20111231	10.04	-10.0	5.32	27.26	79.82	3.19(0.202)	8.27	0.59	13.63	1.86	93 X 788	-10.23	-39.34	64.77	0.015
20120101-20121231	10.03	-9.99	4.33	22.17	88.67	3.14(0.198)	9.26	0.58	10.03	1.57	96 X 852	21.43	3.25	23.05	0.015
20130101-20131231	10.09	-9.99	4.23	22.08	72.89	2.74(0.173)	6.87	0.57	12.14	1.51	116 X 937	45.31	19.03	-1.31	0.0124
20140101-20141231	10.14	-9.97	4.93	25.02	52.63	3.42(0.217)	5.32	0.57	19.01	2.36	198 X 1089	62.19	35.54	-12.8	0.0206
20150101-20151231	10.31	-9.92	4.97	25.03	40.86	1.14(0.072)	35.42	0.47	24.65	0.89	343 X 1309	94.72	46.78	-47.14	-0.0073
20160101-20161231	10.07	-9.88	4.84	25.31	53.28	1.93(0.122)	18.03	0.52	18.65	1.33	249 X 1237	14.81	-15.42	35.06	0.0131
20170101-20171231	10.03	-9.94	1.73	8.88	54.68	1.37(0.087)	11.28	0.48	6.49	0.55	237 X 1318	-7.6	0.88	25.49	0.0027
20180101-20181228	10.13	-9.99	0.48	2.41	74.81	0.29(0.018)	14.53	0.49	1.3	0.05	202 X 1289	-54.56	-38.75	60.22	-0.0049
20100104-20181228	10.1	-9.96	38.7	22.06	66.71	1.96(0.124)	36.17	0.54	13.22	1.13	183 X 1065	24.91	2.87	19.14	0.0091

Figure 19: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.8092	3.69	5.37	2.14	1.78	101	214403_pv_model_1_2_191101_24
0.7773	7.5	7.26	4.06	5.13	124	213653_h25925
0.7135	6.63	3.67	6.29	4.12	166	211936_my_H852

Figure 20: 相关性结果

11 Alpha18

$$Alpha18 = CLOSE/DELAY(CLOSE, 5)$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	9.98	-10.0	-8.32	-43.04	65.63	-8.02(-0.507)	84.54	0.26	-26.22	-6.49	795 X 1013	-35.69	14.01	-50.34	-0.0648
20110101-20111231	9.99	-10.0	-5.09	-26.11	63.21	-5.96(-0.377)	56.46	0.34	-16.53	-3.83	972 X 1168	-68.29	-39.34	16.03	-0.045
20120101-20121231	9.97	-10.0	-5.3	-27.28	63.83	-6.41(-0.405)	56.22	0.29	-17.09	-4.19	1074 X 1296	-30.56	3.25	-24.02	-0.0482
20130101-20131231	9.93	-10.01	-7.33	-38.62	64.52	-8.76(-0.554)	73.85	0.27	-23.95	-6.78	1052 X 1394	-20.1	19.03	-57.03	-0.0542
20140101-20141231	9.75	-10.01	-6.15	-31.78	63.93	-7.19(-0.454)	66.05	0.29	-19.87	-5.07	1070 X 1440	0.93	35.54	-63.56	-0.044
20150101-20151231	9.44	-10.02	-9.66	-51.5	60.02	-3.56(-0.225)	102.31	0.35	-33.9	-3.3	1127 X 1577	16.91	46.78	-114.72	-0.0461
20160101-20161231	9.11	-10.0	-5.5	-29.13	63.15	-4.77(-0.302)	71.89	0.3	-18.68	-3.24	1175 X 1689	-55.7	-15.42	-5.58	-0.0454
20170101-20171231	9.18	-9.99	-2.6	-13.85	62.31	-2.6(-0.165)	30.43	0.39	-8.91	-1.23	1411 X 1838	-50.35	0.88	19.61	-0.025
20180101-20181228	9.84	-9.92	-6.15	-31.99	64.56	-6.55(-0.414)	62.74	0.35	-19.85	-4.61	1633 X 1879	-96.09	-38.75	31.47	-0.0458
20100104-20181228	9.68	-9.99	-56.1	-32.56	63.47	-4.83(-0.306)	580.4	0.32	-20.54	-3.46	1146 X 1478	-37.74	2.87	-27.6	-0.0465

Figure 21: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.5936	2.35	6.97	0.51	1.14	91	214820_pv_model_3_gen6_191114_166
0.5319	12.32	10.0	2.87	11.34	124	213654_h7288
0.5261	2.4	1.92	0.29	1.19	81	215415_fac85

Figure 22: 相关性结果

12 Alpha18_2

$$Alpha18\_2 = -alpha_{18}$$

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	8.32	43.04	65.63	8.02(0.507)	5.32	0.74	26.22	6.49	1013 X 795	50.34	14.01	35.69	0.0648
20110101-20111231	10.0	-9.99	5.09	26.11	63.21	5.96(0.377)	5.97	0.66	16.53	3.83	1168 X 972	-16.03	-39.34	68.29	0.045
20120101-20121231	10.0	-9.97	5.3	27.28	63.83	6.41(0.405)	4.14	0.71	17.09	4.19	1296 X 1074	24.02	3.25	30.56	0.0482
20130101-20131231	10.01	-9.93	7.33	38.62	64.52	8.76(0.554)	2.26	0.73	23.95	6.78	1394 X 1052	57.03	19.03	20.1	0.0542
20140101-20141231	10.01	-9.75	6.15	31.78	63.93	7.19(0.454)	2.54	0.71	19.87	5.07	1440 X 1070	63.56	35.54	-0.93	0.044
20150101-20151231	10.02	-9.44	9.66	51.5	60.02	3.56(0.225)	31.95	0.65	33.9	3.3	1577 X 1127	114.72	46.78	-16.91	0.0461
20160101-20161231	10.0	-9.11	5.5	29.13	63.15	4.77(0.302)	10.41	0.7	18.68	3.24	1689 X 1175	5.58	-15.42	55.7	0.0454
20170101-20171231	9.99	-9.18	2.6	13.85	62.31	2.6(0.165)	5.26	0.61	8.91	1.23	1838 X 1411	-19.61	0.88	50.35	0.025
20180101-20181228	9.92	-9.84	6.15	31.99	64.56	6.55(0.414)	3.51	0.65	19.85	4.61	1879 X 1633	-31.47	-38.75	96.09	0.0458
20100104-20181228	9.99	-9.68	56.1	32.56	63.47	4.83(0.306)	32.02	0.68	20.54	3.46	1478 X 1146	27.6	2.87	37.74	0.0465

Figure 23: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.946	4.78	7.85	6.48	3.7	91	214870_pv_model_6_mod_gen4_191114_138
0.7587	2.26	5.34	3.91	1.51	92	214809_pv_model_2_gen6_191114_51
0.7418	2.01	7.48	1.25	1.44	91	214822_pv_model_3_mod_gen4_191114_98

Figure 24: 相关性结果

13 Alpha19

$$Alpha19 = (CLOSE < DELAY(CLOSE,5)?(CLOSE - DELAY(CLOSE,5))/DELAY(CLOSE,5) : (CLOSE = DELAY(CLOSE,5)?0 : (CLOSE - DELAY(CLOSE,5))/CLOSE)) \quad (1)$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	9.98	-10.0	-8.3	-42.91	65.71	-8.14(-0.515)	84.19	0.26	-26.12	-6.58	819 X 990	-34.69	14.01	-51.1	-0.0674
20110101-20111231	9.99	-10.0	-5.07	-25.96	63.11	-6.02(-0.381)	56.19	0.33	-16.46	-3.86	994 X 1146	-67.7	-39.34	15.75	-0.0467
20120101-20121231	9.97	-10.0	-5.2	-26.8	63.76	-6.43(-0.407)	55.44	0.3	-16.81	-4.17	1103 X 1267	-29.41	3.25	-24.19	-0.0489
20130101-20131231	9.94	-10.01	-7.17	-37.76	64.52	-8.96(-0.567)	72.14	0.27	-23.42	-6.85	1090 X 1357	-17.93	19.03	-57.48	-0.0552
20140101-20141231	9.81	-10.01	-6.07	-31.28	63.99	-7.42(-0.47)	64.86	0.28	-19.53	-5.19	1115 X 1395	1.69	35.54	-63.53	-0.0461
20150101-20151231	9.58	-10.01	-9.44	-49.84	60.11	-3.44(-0.217)	98.49	0.34	-32.83	-3.13	1192 X 1512	19.7	46.78	-115.41	-0.0482
20160101-20161231	9.38	-10.0	-5.36	-28.08	63.46	-4.8(-0.304)	67.52	0.31	-17.85	-3.19	1237 X 1628	-52.65	-15.42	-5.48	-0.0455
20170101-20171231	9.43	-9.99	-2.34	-12.32	62.36	-2.41(-0.153)	27.11	0.36	-7.92	-1.07	1477 X 1771	-46.9	0.88	20.31	-0.0245
20180101-20181228	9.89	-9.92	-5.48	-28.44	64.29	-6.02(-0.381)	55.57	0.36	-17.72	-4.0	1686 X 1827	-89.35	-38.75	32.22	-0.0426
20100104-20181228	9.78	-9.99	-54.42	-31.46	63.48	-4.74(-0.3)	557.82	0.31	-19.83	-3.34	1191 X 1433	-35.34	2.87	-27.68	-0.0472

Figure 25: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.5972	2.35	6.97	0.51	1.14	91	214820_pv_model_3_gen6_191114_166
0.5427	12.32	10.0	2.87	11.34	124	213654_h7288
0.5358	2.4	1.92	0.29	1.19	81	215415_fac85

Figure 26: 相关性结果

14 Alpha19_2

$$Alpha19\_2 = -alpha_{19} \quad (2)$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	10.0	-9.98	8.3	42.91	65.71	8.14(0.515)	4.98	0.74	26.12	6.58	990 X 819	51.1	14.01	34.69	0.0674
20110101-20111231	10.0	-9.99	5.07	25.96	63.11	6.02(0.381)	5.99	0.67	16.46	3.86	1146 X 994	-15.75	-39.34	67.7	0.0467
20120101-20121231	10.0	-9.97	5.2	26.8	63.76	6.43(0.407)	4.3	0.7	16.81	4.17	1267 X 1103	24.19	3.25	29.41	0.0489
20130101-20131231	10.01	-9.94	7.17	37.76	64.52	8.96(0.567)	2.23	0.73	23.42	6.85	1357 X 1090	57.48	19.03	17.93	0.0552
20140101-20141231	10.01	-9.81	6.07	31.28	63.99	7.42(0.47)	2.57	0.72	19.53	5.19	1395 X 1115	63.53	35.54	-1.69	0.0461
20150101-20151231	10.01	-9.58	9.44	49.84	60.11	3.44(0.217)	32.08	0.66	32.83	3.13	1512 X 1192	115.41	46.78	-19.7	0.0482
20160101-20161231	10.0	-9.38	5.36	28.08	63.46	4.8(0.304)	9.65	0.69	17.85	3.19	1628 X 1237	5.48	-15.42	52.65	0.0455
20170101-20171231	9.99	-9.43	2.34	12.32	62.36	2.41(0.153)	5.84	0.64	7.92	1.07	1771 X 1477	-20.31	0.88	46.9	0.0245
20180101-20181228	9.92	-9.89	5.48	28.44	64.29	6.02(0.381)	3.56	0.64	17.72	4.0	1827 X 1686	-32.22	-38.75	89.35	0.0426
20100104-20181228	9.99	-9.78	54.42	31.46	63.48	4.74(0.3)	32.14	0.69	19.83	3.34	1433 X 1191	27.68	2.87	35.34	0.0472

Figure 27: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.9381	4.78	7.85	6.48	3.7	91	214870_pv_model_6_mod_gen4_191114_138
0.781	2.26	5.34	3.91	1.51	92	214809_pv_model_2_gen6_191114_51
0.7481	4.23	4.45	4.68	2.2	170	211930_h_ori51

Figure 28: 相关性结果

15 Alpha20

$$Alpha20 = (CLOSE - DELAY(CLOSE, 6))/DELAY(CLOSE, 6) * 100$$

dates	long(M)	short(M)	pnl(M)	%ret	%tvr	shrp (IR)	%dd	%win	bpmrgn	fitness	Coverage	%posret	%inxret	%negret	IC
20100104-20101231	9.98	-10.0	-7.59	-39.26	59.72	-7.22(-0.456)	77.78	0.3	-26.29	-5.85	793 X 1015	-30.66	14.01	-47.83	-0.059
20110101-20111231	9.99	-10.0	-4.71	-24.15	57.53	-5.37(-0.34)	52.5	0.35	-16.8	-3.48	968 X 1171	-65.21	-39.34	16.86	-0.0419
20120101-20121231	9.97	-10.0	-4.86	-25.04	58.13	-5.66(-0.358)	52.54	0.33	-17.22	-3.71	1073 X 1296	-27.72	3.25	-22.34	-0.0449
20130101-20131231	9.93	-10.01	-6.51	-34.3	58.44	-7.7(-0.487)	65.61	0.32	-23.5	-5.9	1046 X 1400	-15.41	19.03	-53.09	-0.0484
20140101-20141231	9.77	-10.01	-5.2	-26.85	57.49	-6.08(-0.384)	56.61	0.32	-18.68	-4.15	1068 X 1442	7.25	35.54	-60.11	-0.0369
20150101-20151231	9.46	-10.01	-8.82	-46.95	54.62	-3.29(-0.208)	93.15	0.38	-33.96	-3.05	1125 X 1578	22.44	46.78	-111.4	-0.0412
20160101-20161231	9.11	-10.0	-5.44	-28.73	56.77	-4.52(-0.286)	71.11	0.32	-20.55	-3.22	1170 X 1695	-55.51	-15.42	-5.17	-0.0444
20170101-20171231	9.24	-9.99	-2.25	-11.94	56.07	-2.24(-0.141)	26.23	0.39	-8.57	-1.03	1405 X 1844	-47.28	0.88	20.6	-0.0214
20180101-20181228	9.85	-9.93	-5.44	-28.2	58.54	-5.64(-0.357)	56.34	0.35	-19.33	-3.91	1634 X 1878	-92.21	-38.75	35.15	-0.041
20100104-20181228	9.7	-9.99	-50.83	-29.47	57.49	-4.36(-0.276)	526.18	0.34	-20.53	-3.12	1143 X 1480	-33.86	2.87	-25.28	-0.0421

Figure 29: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.6074	2.35	6.97	0.51	1.14	91	214820_pv_model_3_gen6_191114_166
0.4885	12.32	10.0	2.87	11.34	124	213654_h7288
0.4816	2.4	1.92	0.29	1.19	81	215415_fac85

Figure 30: 相关性结果

16 Alpha20_2

$$Alpha20\_2 = -alpha_{20}$$

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	7.59	39.26	59.72	7.22(0.456)	5.46	0.7	26.29	5.85	1015 X 793	47.83	14.01	30.66	0.059
20110101-20111231	10.0	-9.99	4.71	24.15	57.53	5.37(0.34)	5.84	0.65	16.8	3.48	1171 X 968	-16.86	-39.34	65.21	0.0419
20120101-20121231	10.0	-9.97	4.86	25.04	58.13	5.66(0.358)	5.5	0.67	17.22	3.71	1296 X 1073	22.34	3.25	27.72	0.0449
20130101-20131231	10.01	-9.93	6.51	34.3	58.44	7.7(0.487)	2.6	0.68	23.5	5.9	1400 X 1046	53.09	19.03	15.41	0.0484
20140101-20141231	10.01	-9.77	5.2	26.85	57.49	6.08(0.384)	2.71	0.68	18.68	4.15	1442 X 1068	60.11	35.54	-7.25	0.0369
20150101-20151231	10.01	-9.46	8.82	46.95	54.62	3.29(0.208)	30.96	0.62	33.96	3.05	1578 X 1125	111.4	46.78	-22.44	0.0412
20160101-20161231	10.0	-9.11	5.44	28.73	56.77	4.52(0.286)	10.3	0.68	20.55	3.22	1695 X 1170	5.17	-15.42	55.51	0.0444
20170101-20171231	9.99	-9.24	2.25	11.94	56.07	2.24(0.141)	5.17	0.61	8.57	1.03	1844 X 1405	-20.6	0.88	47.28	0.0214
20180101-20181228	9.93	-9.85	5.44	28.2	58.54	5.64(0.357)	4.59	0.65	19.33	3.91	1878 X 1634	-35.15	-38.75	92.21	0.041
20100104-20181228	9.99	-9.7	50.83	29.47	57.49	4.36(0.276)	31.02	0.66	20.53	3.12	1480 X 1143	25.28	2.87	33.86	0.0421

Figure 31: 回测结果

Corr	ISSharpe	SemiOS	OSSharpe	Fitness	OSdays	ID
0.9611	4.78	7.85	6.48	3.7	91	214870_pv_model_6_mod_gen4_191114_138
0.7446	3.74	9.6	1.97	1.8	91	214830_pv_model_3_mod_gen2_191114_168
0.7096	2.26	5.34	3.91	1.51	92	214809_pv_model_2_gen6_191114_51

Figure 32: 相关性结果

17 总结

alpha11表示个股的成交量越高，多方力量越强，则股票表现越好。

alpha12衡量个股A和B的相关性的负数，A=（t-1期开盘价-10日vwap）的排名，B=（t-1期收盘价和vwap的差的绝对值）的排名。A表示t-1期开盘时投资者对个股的看好程度，B表示在t-1期的交易时间末端是否有投资者异常拉低或异常拉高价格。

alpha13为最高价与最低价的几何平均与VWAP的差。

alpha14为t-1期收盘价与5日前的差值。

alpha14_2为alpha14的相反数。

alpha15为隔夜收益率（t-1期收盘时买入，t期开盘时卖出）。

alpha16为（成交量和vwap）5日排名的相关性的排名(与alpha16_2的不同仅为：有无该排名操作)，在5日之内的最高值的相反数，当成交量和vwap越负相关，因子值越大。即看好缩量上涨或放量下跌。

alpha16_2为（成交量和vwap）5日排名的相关性，在5日之内的最高值的相反数，当成交量和vwap越负相关，因子值越大。即看好缩量上涨或放量下跌。

alpha17为t-1期vwap与前15天内最大vwap的差值的排名，再做五日收盘价差值的次方。

alpha17_2为t-1期vwap与前15天内最大vwap的差值，做五日收盘价差值的次方，在取排名。（与alpha17不同在于排名与次方的顺序）

alpha18为五日收益率。

alpha18_2为alpha18的相反数。

alpha19为t-1期收盘价与t-5期收盘价的比较，若t-1期收盘价大，则取5日收盘价收益率（不过分母为t-1期收盘价），若t-1期收盘价小，则取5日收盘价收益率（为负数，且分母为正常的t-5期收盘价）。

alpha19_2为alpha19的相反数。

alpha20为6日收盘价收益率。

alpha20_2为alpha20的相反数。

只要一个因子有预测能力，在不考虑手续费和alpha中性化的情况下，它一般可以认为是一个好的因子。在做alpha14和alpha18和alpha19和alpha20过程中发现，它们的胜率显著不同于50%，且收益率普遍为负，因此将因子取相反数，发现回测结果较好（不过在高换手率的情况下，由于手续费的存在，或许手续费会将利润抵消）。

18 问题

18.1 统计指标

alpha17因子的回测中，发现回测结果中的指标出现了异常值，如ret。