

Summary for Project-2023-06-EquityIndex-ML-V1

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1 a brief introduction

instruments universe

- IH.CFE
- IF.CFE
- IH.CFE
- IM.CFE

for every 30 minutes in a trading day, a model is constructed

- T01, 10:00
- T02, 10:30
- T03, 11:00
- T04, 13:00
- T05, 13:30
- T06, 14:00
- T07, 14:30

trailing windows = [12, 24, 36] months
models

- rrcv: ridge regression cross-validation
- mlpc: multiple level perception classifier

to summary,

- a total of $(4+1)*7*3*2=210$ models are constructed at the end of each month
- before IM is introduced, $(3+1)*7*3*2=168$ models are constructed at the end of each month
- tested time window 201801-202305
- cost rate = $5e-4$

2 ic-tests

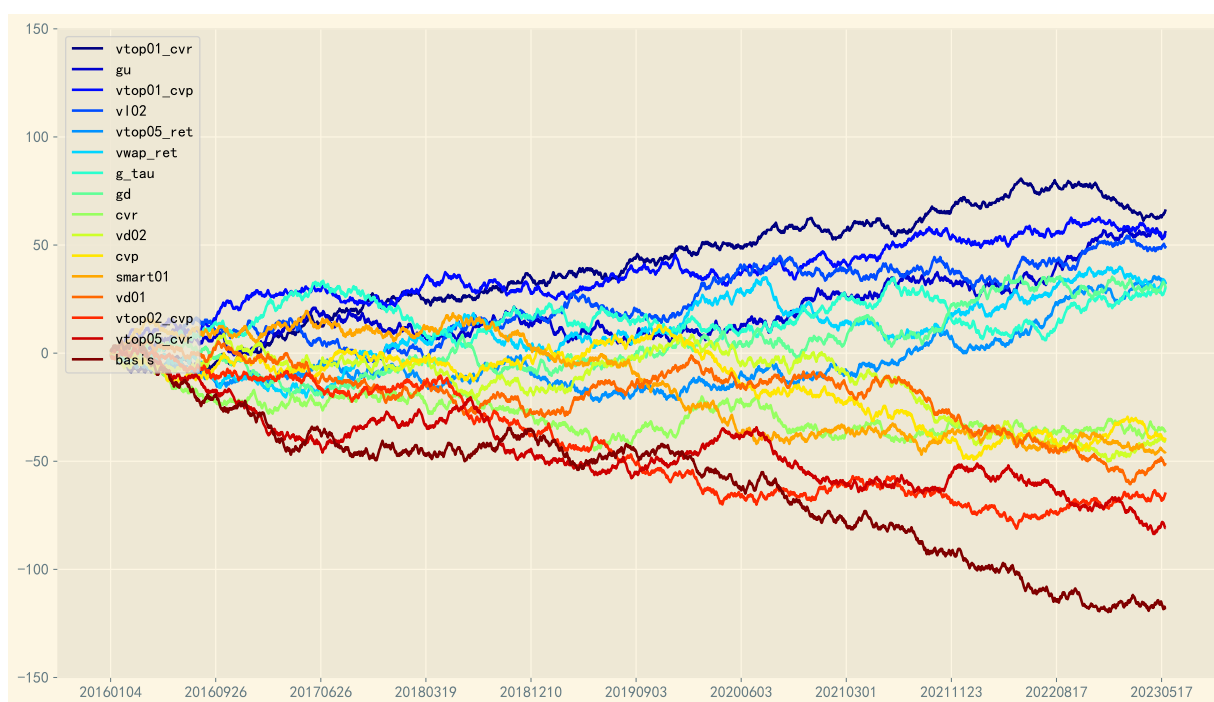


图 2.1: 累积 ic 曲线-T01

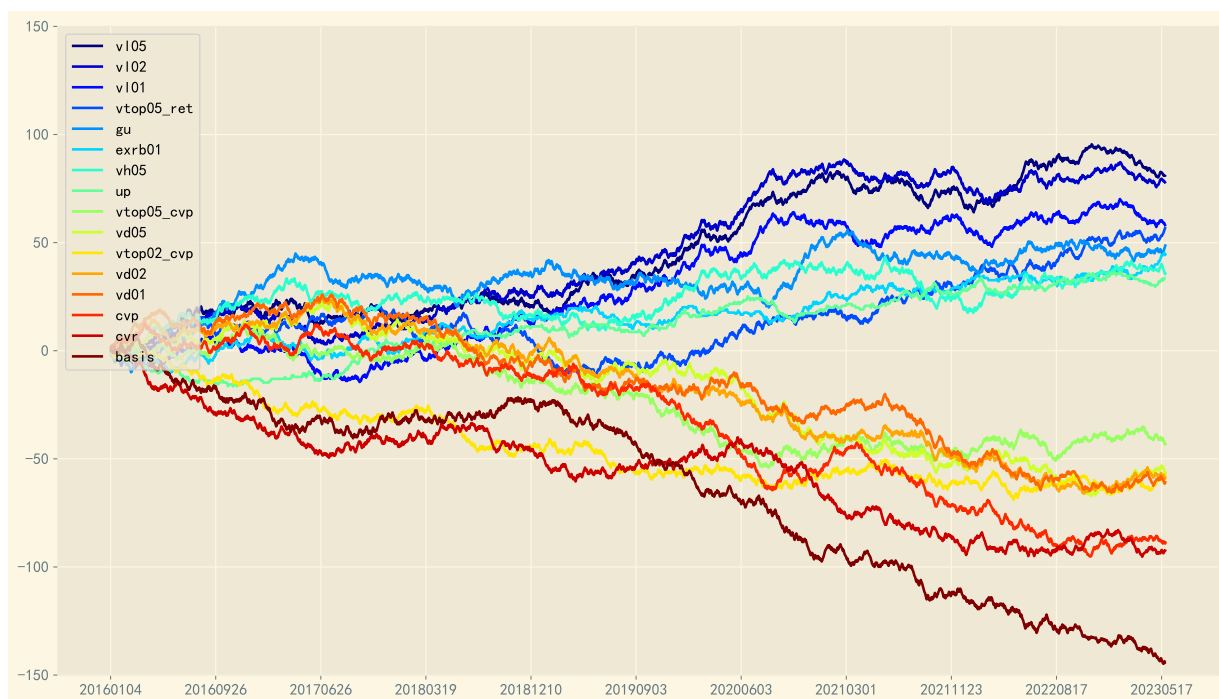


图 2.2: 累积 ic 曲线-T02

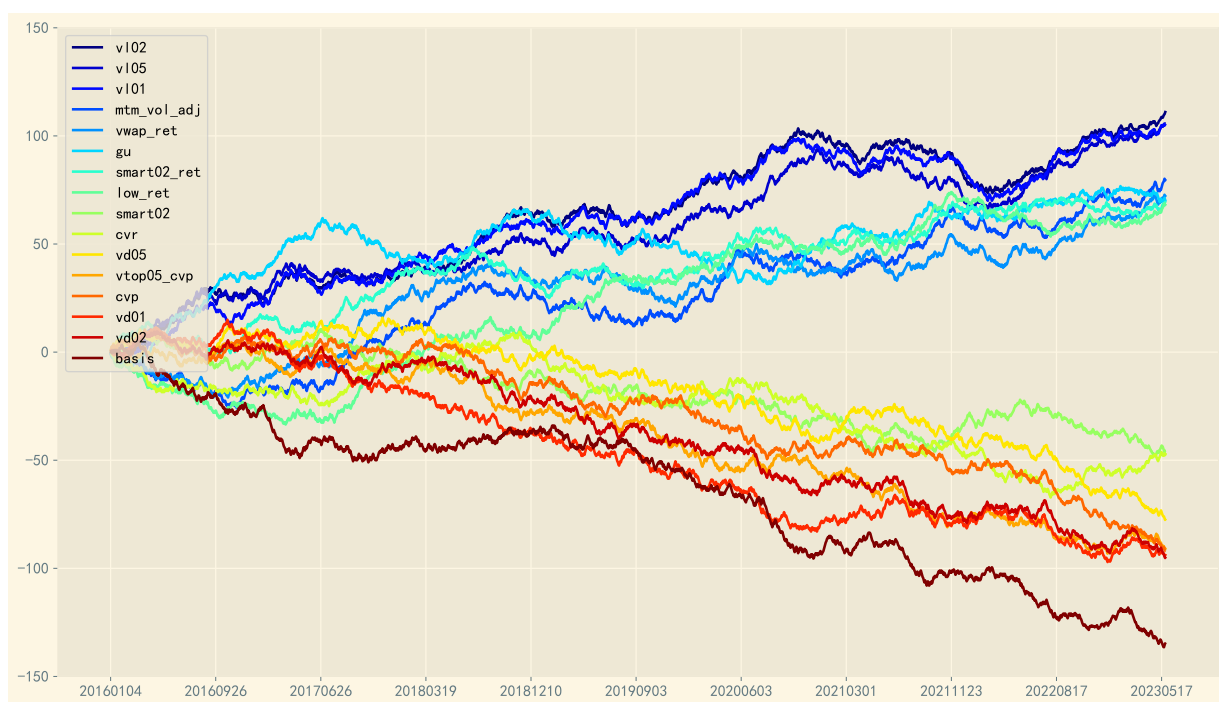


图 2.3: 累积 ic 曲线-T03

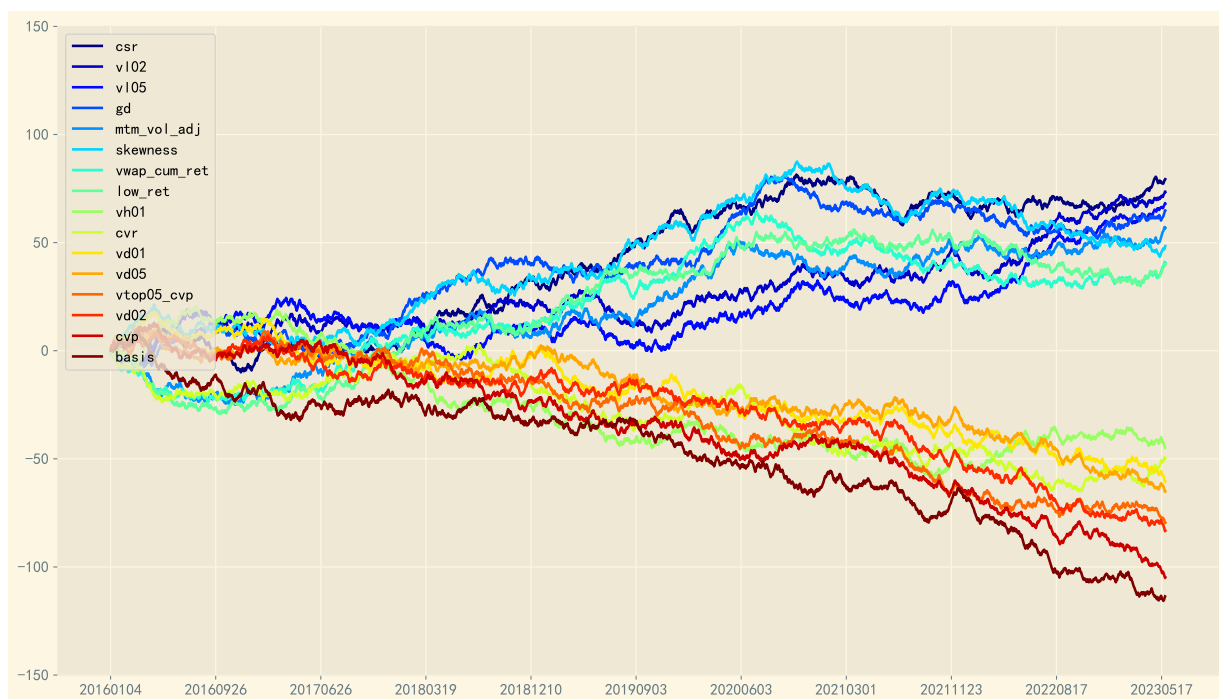


图 2.4: 累积 ic 曲线-T04

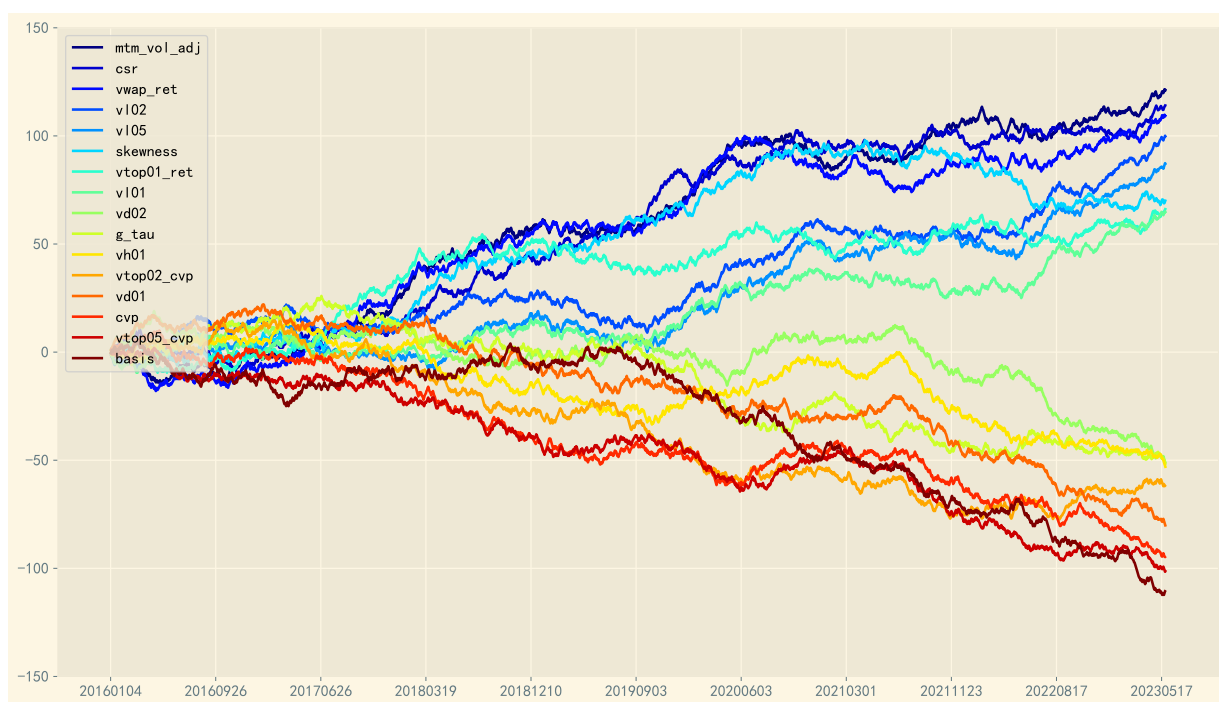


图 2.5: 累积 ic 曲线-T05

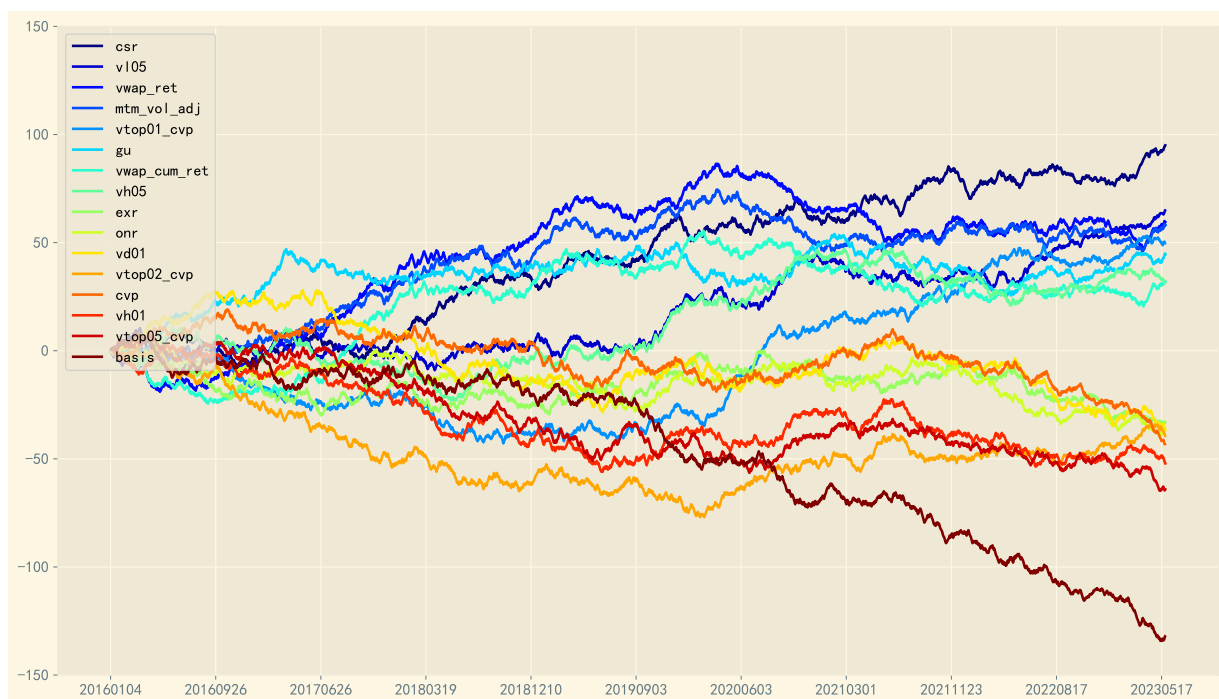


图 2.6: 累积 ic 曲线-T06

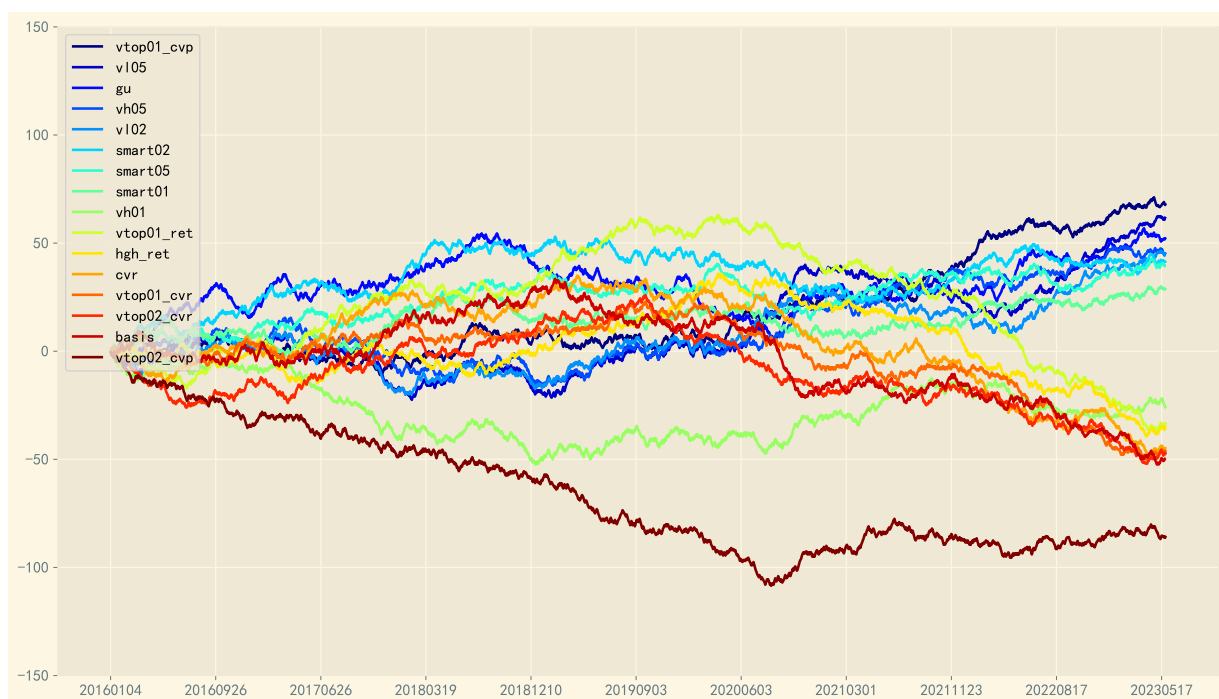


图 2.7: 累积 ic 曲线-T07

3 group-tests

多空对冲，不含手续费，单利累加

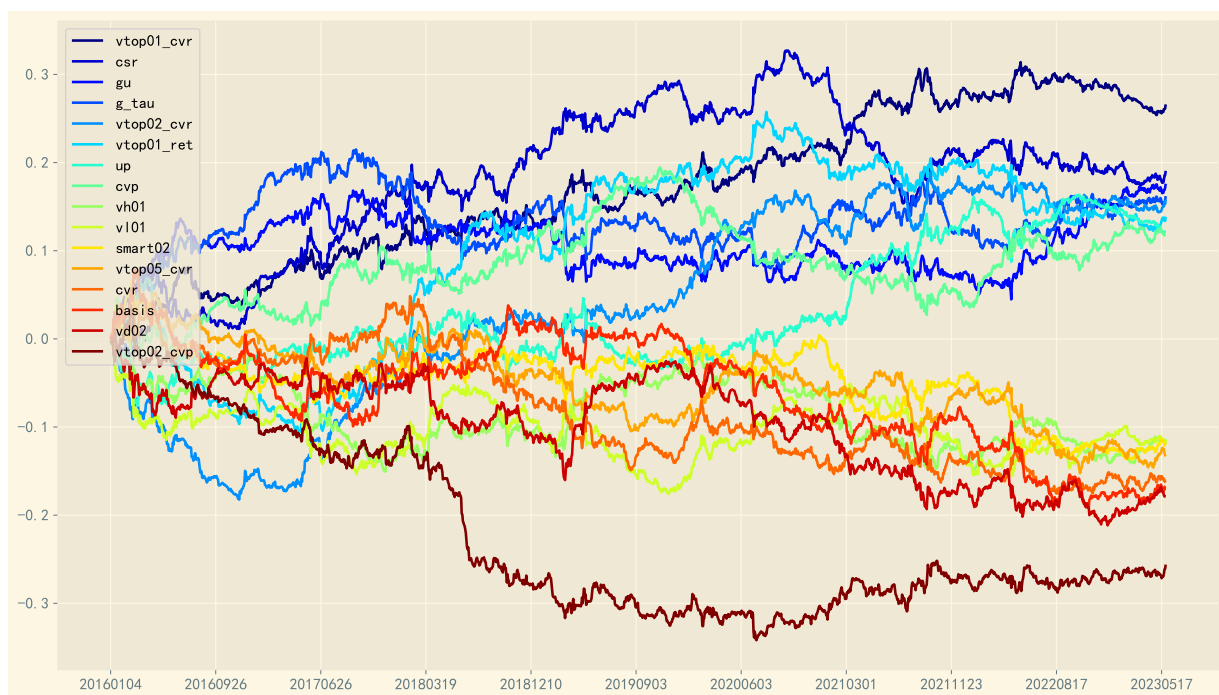


图 3.1: 多空对冲收益-T01

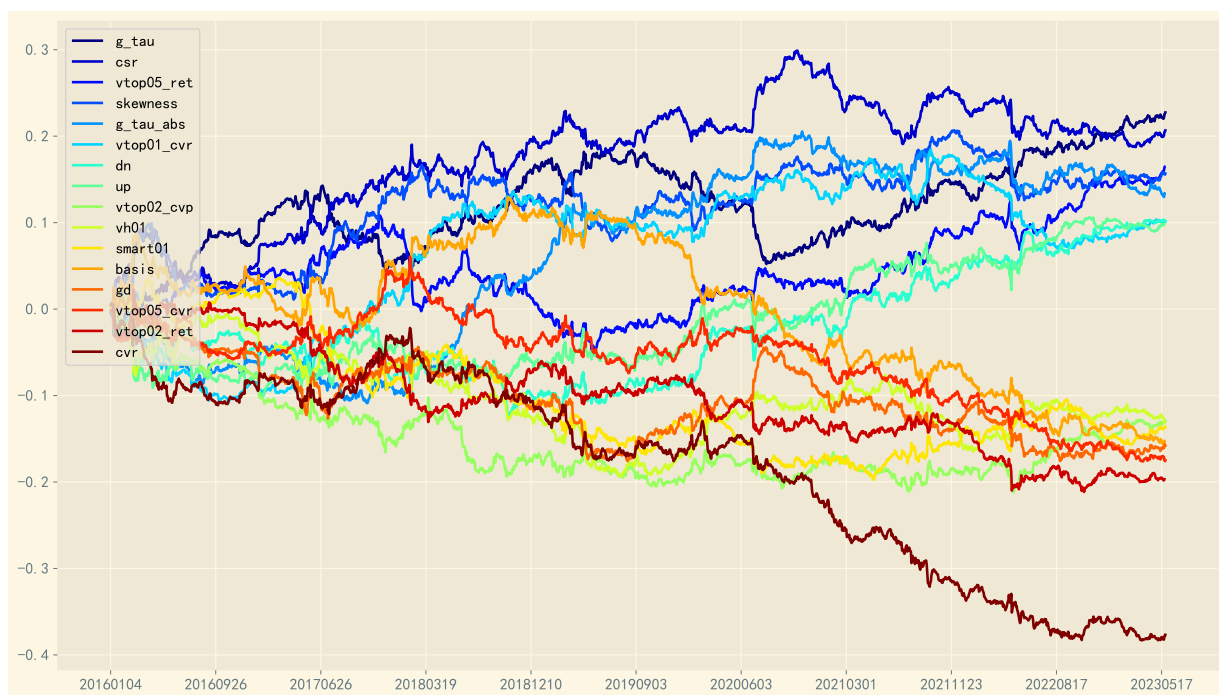


图 3.2: 多空对冲收益-T02

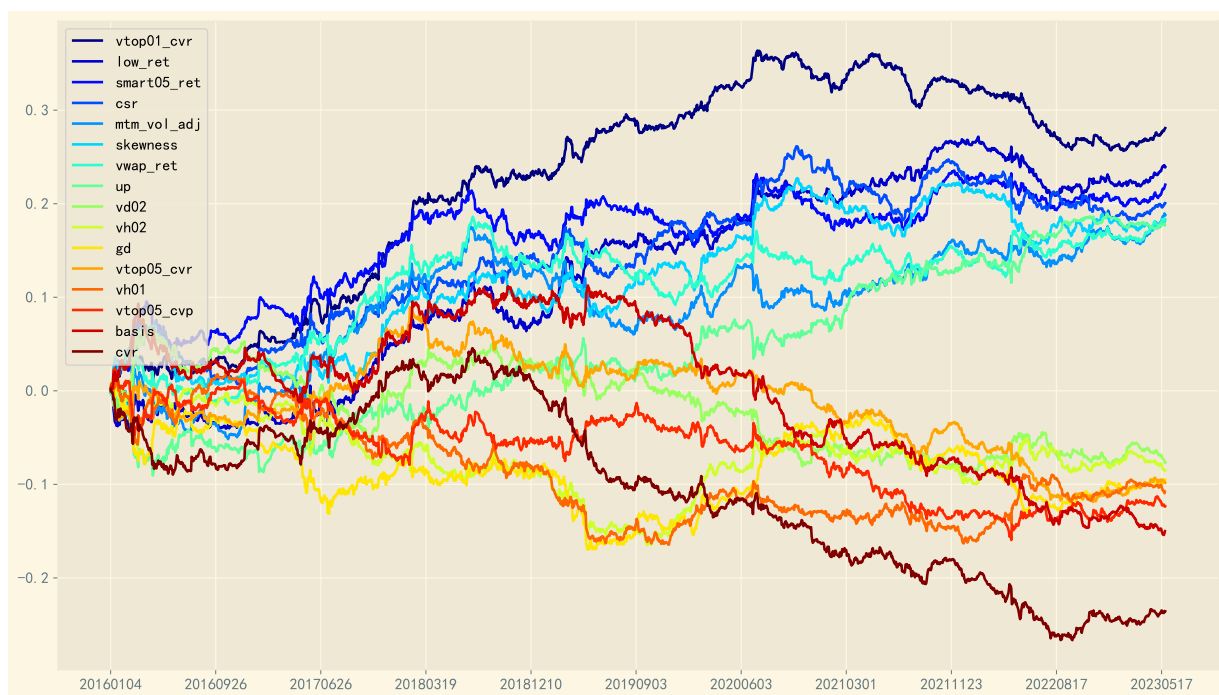


图 3.3: 多空对冲收益-T03

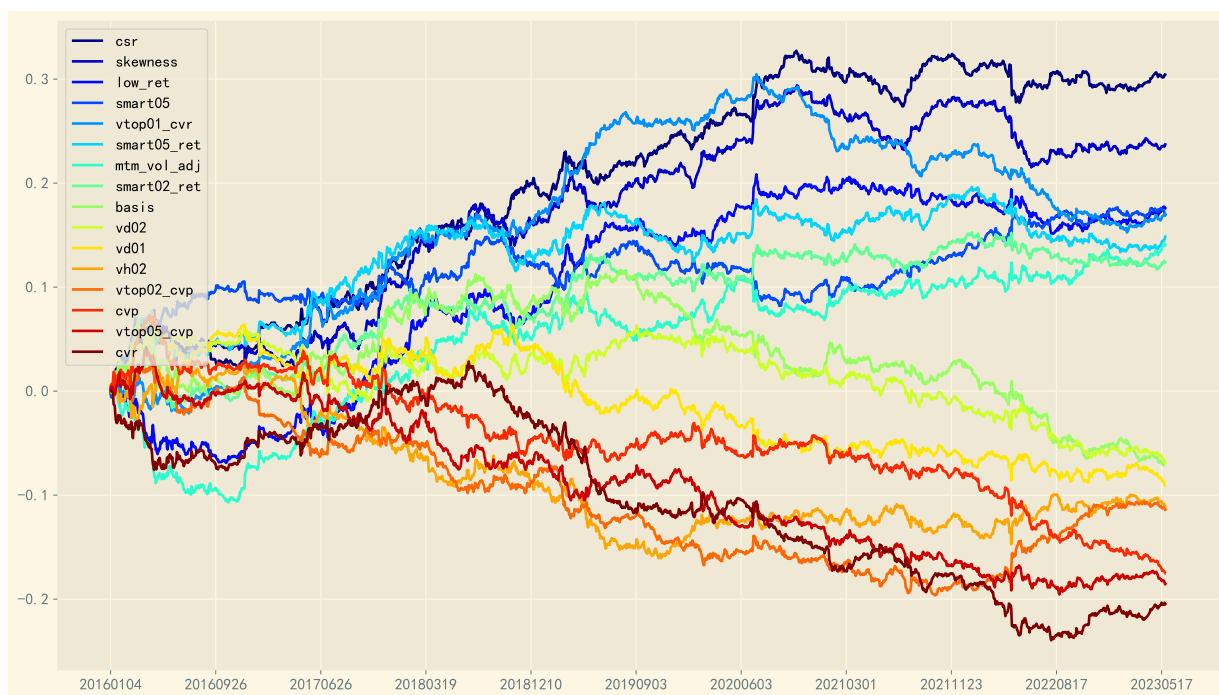


图 3.4: 多空对冲收益-T04

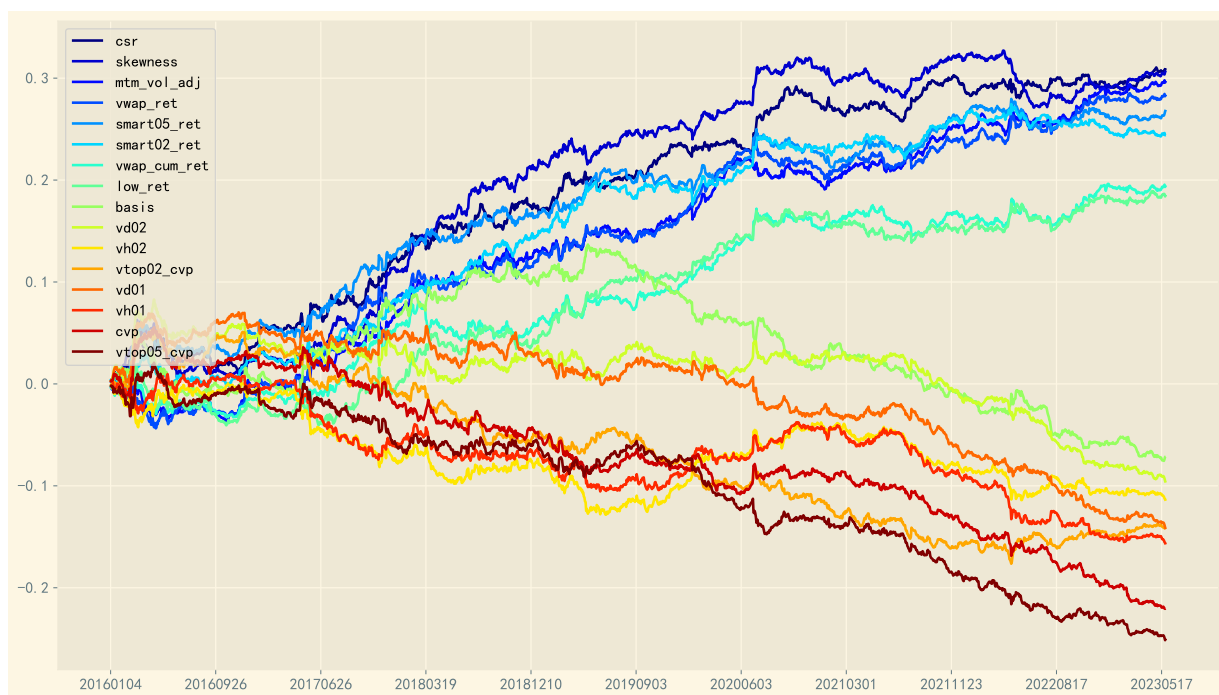


图 3.5: 多空对冲收益-T05

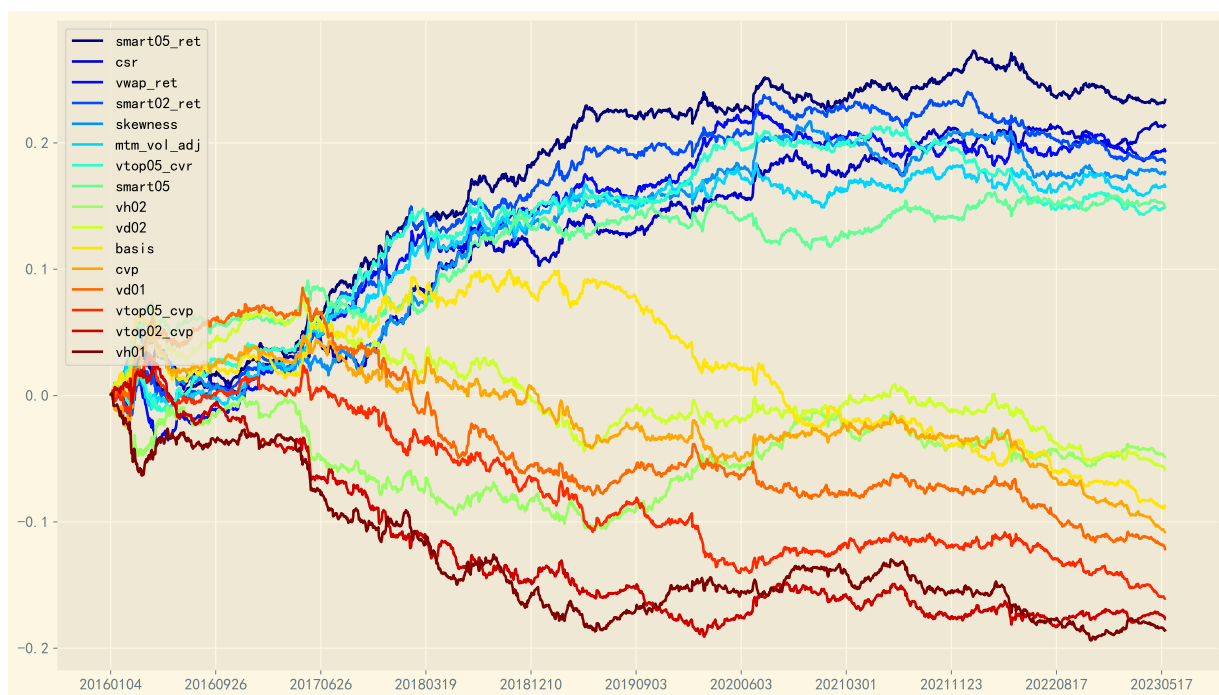


图 3.6: 多空对冲收益-T06

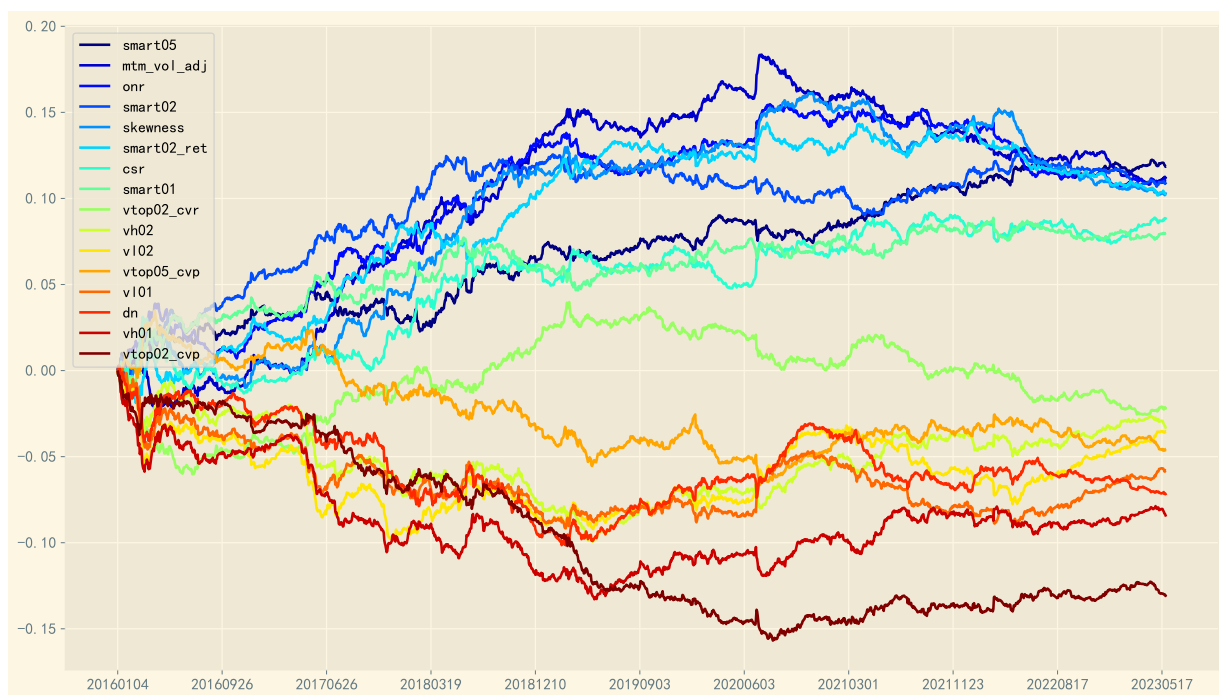


图 3.7: 多空对冲收益-T07

4 基于多空对冲构建的组合

选择多空对冲后收益最高的 8 个小组和构成最终组合，不含手续费，单利累加

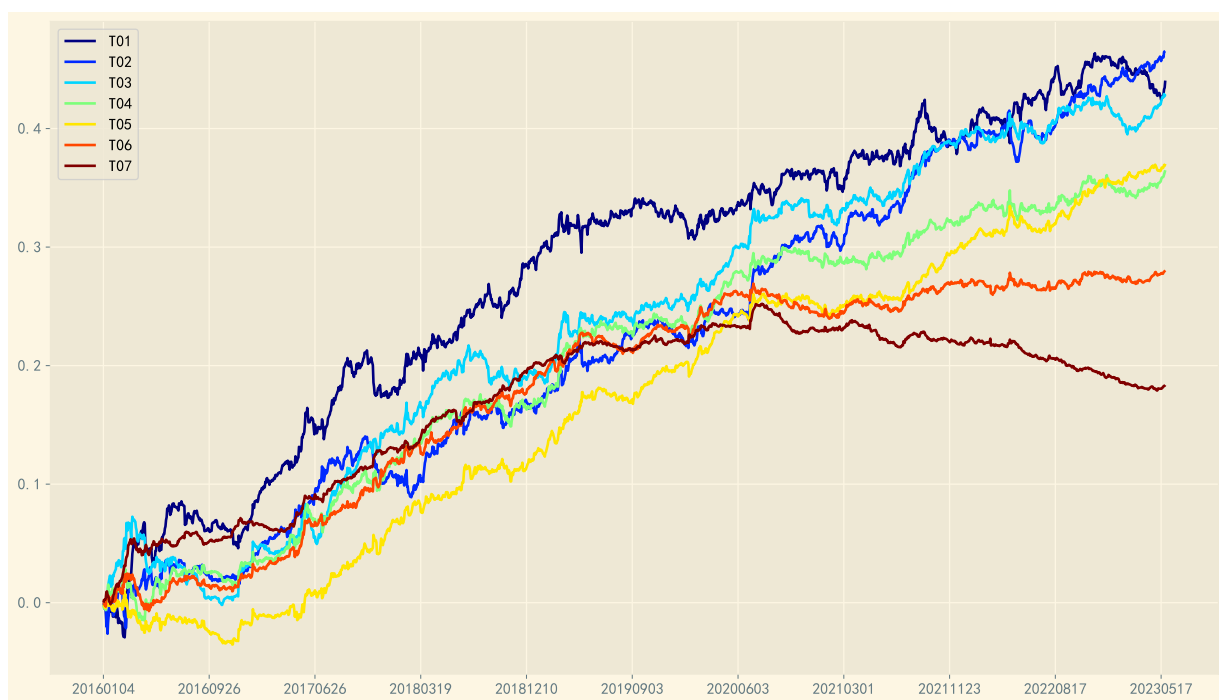


图 4.1: 最终组合

指标	T01	T02	T03	T04	T05	T06	T07
Aver	0.000245	0.000259	0.000239	0.000203	0.000206	0.000156	0.000102
Std	0.003136	0.002707	0.002520	0.002182	0.001981	0.001603	0.001092
Sharpe	1.240018	1.518129	1.502153	1.476372	1.650289	1.544480	1.484974

表 4.1: 各模型最终组合表现

5 machine-learning

instrument	tid	tmw	hpr	ar	av	sharpe	calmar	mdd
IC.CFE	T02	12	-6.18	0.17	15.38	0.01	0.01	27.65
IC.CFE	T01	12	-16.66	-1.52	17.23	-0.09	-0.04	35.77
	T01	36	-15.99	-2.20	11.76	-0.19	-0.08	28.29
IM.CFE	T01	36	0.84	-2.45	9.94	-0.25	-0.70	3.51
IM.CFE	T01	24	0.84	-2.45	9.94	-0.25	-0.70	3.51
IM.CFE	T01	12	0.84	-2.45	9.94	-0.25	-0.70	3.51
IF.CFE	T01	12	-32.10	-5.17	15.16	-0.34	-0.11	47.14
IF.CFE	T01	24	-33.82	-5.59	15.16	-0.37	-0.15	38.42
IC.CFE	T05	12	-25.15	-4.18	10.63	-0.39	-0.14	29.37
	T03	12	-26.20	-4.39	10.71	-0.41	-0.15	28.33
	T01	12	-30.33	-5.19	12.38	-0.42	-0.11	46.97
IC.CFE	T01	24	-40.94	-7.16	17.24	-0.42	-0.14	51.92
IF.CFE	T01	36	-39.69	-7.11	15.16	-0.47	-0.14	51.58
	T01	24	-33.47	-5.99	12.06	-0.50	-0.18	33.93
IH.CFE	T01	36	-43.03	-8.06	15.01	-0.54	-0.16	48.85
IC.CFE	T01	36	-49.22	-9.64	17.24	-0.56	-0.16	58.82
IC.CFE	T02	36	-45.20	-8.64	15.40	-0.56	-0.16	55.12
	T02	12	-35.62	-6.58	11.31	-0.58	-0.18	37.37
IC.CFE	T05	24	-34.08	-6.27	10.63	-0.59	-0.16	39.32
IH.CFE	T02	36	-42.43	-8.10	13.35	-0.61	-0.19	43.36

表 5.1: 模型 rrcv 最终组合表现

instrument	tid	tmw	hpr	ar	av	sharpe	calmar	mdd
IF.CFE	T01	24	-6.84	-0.06	15.15	-0.00	-0.00	22.18
IF.CFE	T01	12	-15.14	-1.59	15.15	-0.10	-0.03	47.81
IF.CFE	T02	24	-17.38	-2.15	13.45	-0.16	-0.09	23.14
IF.CFE	T06	12	-13.85	-2.17	7.32	-0.30	-0.08	27.46
IF.CFE	T01	36	-30.88	-4.95	15.16	-0.33	-0.13	38.89
IF.CFE	T02	12	-32.80	-5.54	13.46	-0.41	-0.16	33.72
	T02	36	-26.42	-4.50	10.25	-0.44	-0.17	26.45
	T01	24	-29.59	-5.19	10.97	-0.47	-0.14	36.94
IM.CFE	T04	24	-0.94	-3.93	8.43	-0.47	-0.83	4.71
IM.CFE	T04	12	-0.94	-3.93	8.43	-0.47	-0.83	4.71
IM.CFE	T04	36	-0.94	-3.93	8.43	-0.47	-0.83	4.71
IC.CFE	T02	12	-40.07	-7.26	15.40	-0.47	-0.14	52.33
IC.CFE	T03	24	-40.88	-7.58	14.29	-0.53	-0.18	42.61
IC.CFE	T02	36	-44.52	-8.53	15.40	-0.55	-0.17	51.15
IH.CFE	T04	12	-33.79	-6.21	10.64	-0.58	-0.18	35.13
IF.CFE	T02	36	-42.87	-8.20	13.46	-0.61	-0.16	50.21
IC.CFE	T05	36	-36.10	-6.79	10.64	-0.64	-0.16	41.28
IH.CFE	T02	24	-44.24	-8.62	13.35	-0.65	-0.16	52.24
	T01	36	-37.54	-7.15	10.95	-0.65	-0.16	43.68
IC.CFE	T03	12	-47.29	-9.45	14.30	-0.66	-0.18	51.77

表 5.2: 模型 mlpc 最终组合表现