ABU 量化系统 简介（版本 0.1）

- **author = 'BBFamily'**
- **email = 'bbfamily@126.com'**
- **weixin = 'aaaabbbuu'**

第十部分 解决方案D

‘非均衡胜负收益’带来的必然’非均衡胜负比例‘，目标由’因子‘的能力解决一部分，’模式识别‘提升关键的一部分

`python import ZEnv import ZLog import ZCommonUtil import pandas as pd pd.options.display.max_columns = 100 %matplotlib inline`

使用11年后止今学习的数据作用在10年的回测，由于担心回测数据集中在周期内的学习虽然

对周期的训练集测试集生效，但是完全在周期之外的效果验证

```
run_factor_by_year生成10年的回测结果集
    run_func：回测不开启识别优化
    run_func_with_filter：回测开启识别优化
    run_func_with_ml：回测开启识别但止做数据记录不做优化
```

```python import FactorUnitTest import BuyGoldenFactor import SymbolPd from BuyGoldenFactor import BuyGoldenFactorClass

def run_factor_by_year(enable_fiter, enable_filter_pipe_ml, symbols=None): SymbolPd.g_force_folds = 7 SymbolPd.g_force_n_year = 1

```
BuyGoldenFactor.g_enable_filter_ml = False
BuyGoldenFactor.g_enable_fiter = enable_fiter
BuyGoldenFactor.g_enable_filter_pipe_ml = enable_filter_pipe_ml

buy_factors = [{'XD': 42, 'class': BuyGoldenFactorClass, 'draw': True}]
sell_factors = []
parameters = {
    'stop_win_base_n': 4.5,
    'stop_loss_base_n': 2.0,
    'mv_close_atr': 3.5,
    'mv_pre_atr': 2.0,
}
if symbols is None:
    cap, results, orders_pd, action_pd, all_fit_symbols = FactorUnitTest.random_unit_test(ret_cnt_need=0,
            buy_factors=buy_factors, sell_factors=sell_factors, parameters=parameters, show=False)
else:
    cap, results, orders_pd, action_pd, all_fit_symbols = FactorUnitTest.random_unit_test(ret_cnt_need=0,
            symbols=symbols,
            buy_factors=buy_factors, sell_factors=sell_factors, parameters=parameters, show=False)
return cap, results, orders_pd, action_pd, all_fit_symbols
```

from functools import partial

run_func = partial(run_factor_by_year, False, False) run_func_with_filter = partial(run_factor_by_year, True, False) run_func_with_ml = partial(run_factor_by_year, True, True)

# ipcluster nbextension enable

# ipcluster start

# import ipyparallel as ipp

# rc = ipp.Client()

# rsc_filter = rc[0].apply(run_factor_by_year, True)
```

rsc = rc[1].apply(run_factor_by_year, False)

rsc_ret = rsc.get()

rsc_filter_ret = rsc_filter.get()

```
    makedirs data/DayKLine/2016-09-18


```python
rsc_ret = run_func()
```

```
backSymbols = None
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
```

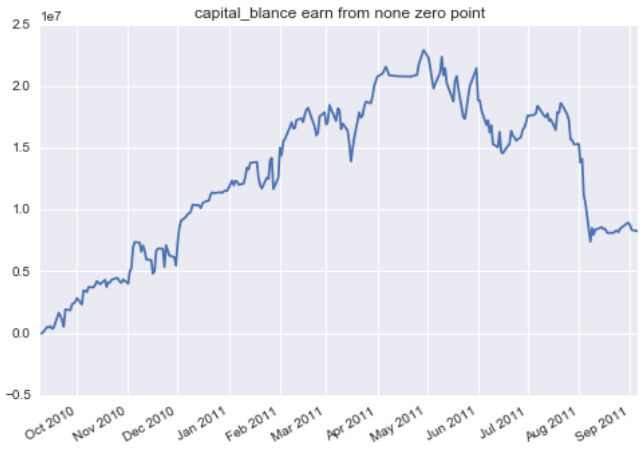
`python import MetricsManger from MetricsManger import metrics_rsc from FactorMetrics import METRICSTYPE from UmpMain import UmpMainClass from MlFiterGoldenPd import MlFiterGoldenPdClass`

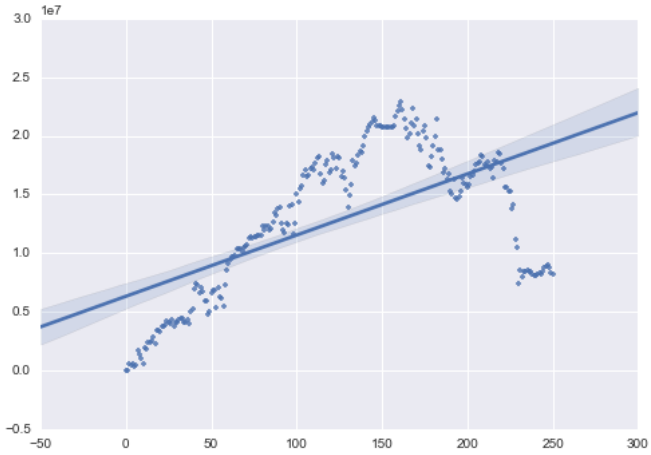
```python fn = './data/cache/rsc_abu'

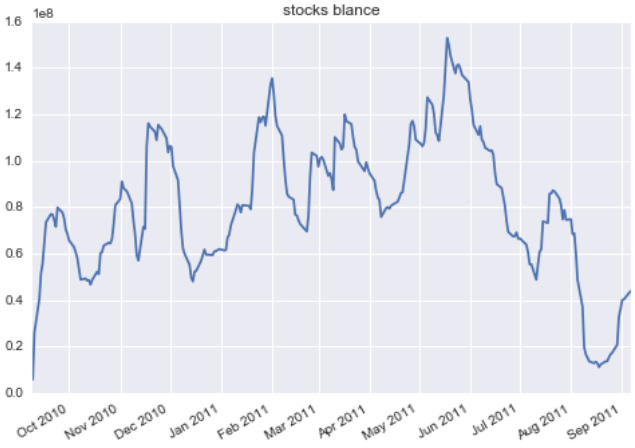
# ZCommonUtil.dump_pickle(rsc, fn)

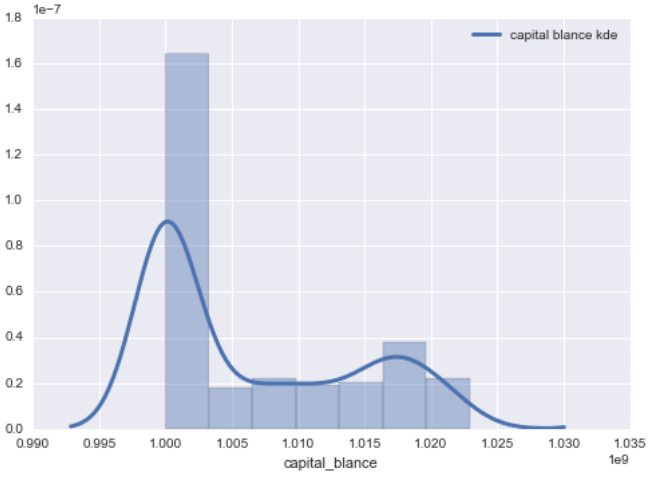
rsc = ZCommonUtil.load_pickle(fn) ```

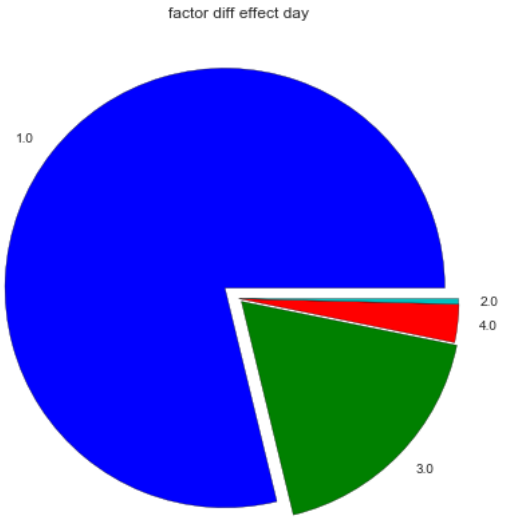
`python rsc = metrics_rsc(*rsc_ret) MetricsManger.make_metrics_from_rsc(rsc, METRICSTYPE.SYSMBOL_R_SCORES_GOLDEN.value) UmpMainClass(rsc.ordersPd, MlFiterGoldenPdClass).show_general()`



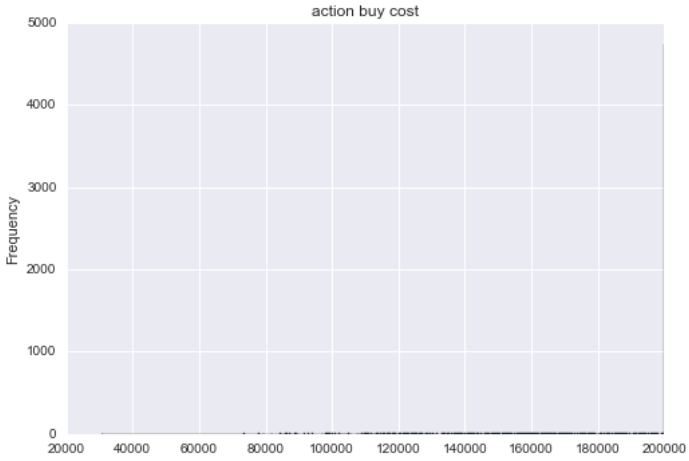

1e7
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−50
0
50
100
150
200
250
300


stocks blance
1e8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Oct 2010
Nov 2010
Dec 2010
Jan 2011
Feb 2011
Mar 2011
Apr 2011
May 2011
Jun 2011
Jul 2011
Aug 2011
Sep 2011

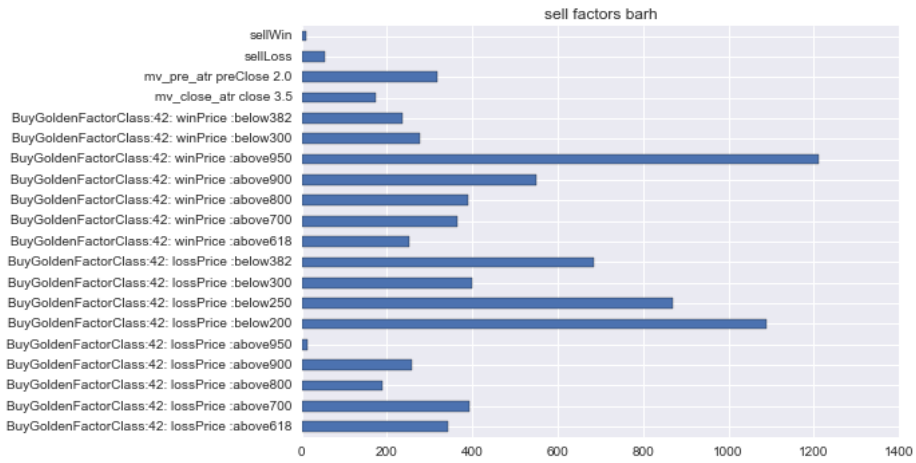

1e−7
capital blance kde
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.990
0.995
1.000
1.005
1.010
1.015
1.020
1.025
1.030
1.035
1e9
capital_blance



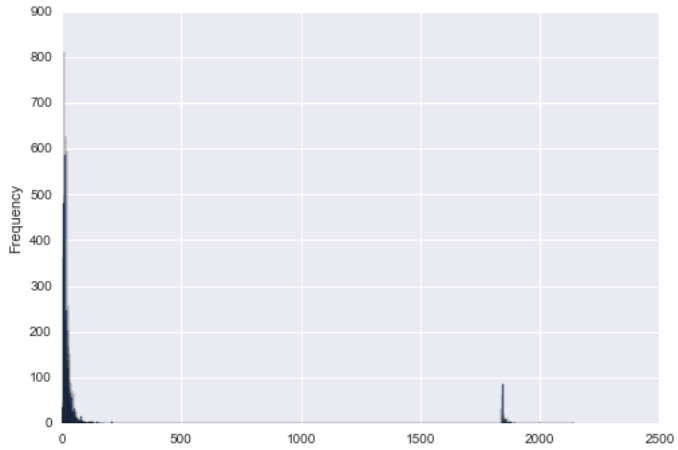

```
effect mean day: 1.448
```




```
cost info:
moments_tuple(mean=174773.97699474267, std=37823.181170398115, skewness=-1.4195782390197598, kurtosis=4.004374570313741)
```



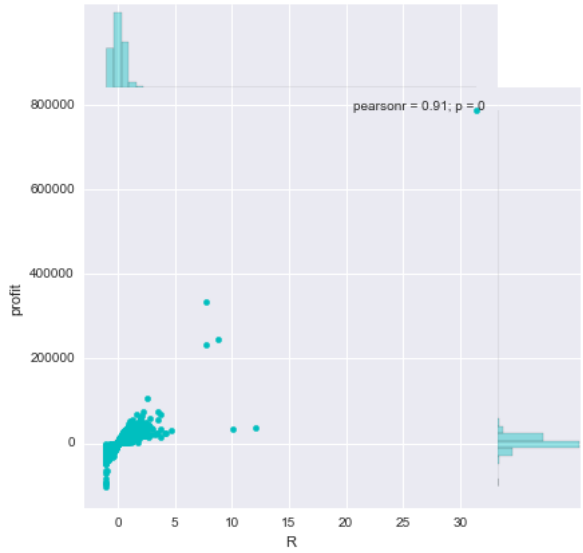
```
BuyGoldenFactorClass:42: lossPrice :above618     344.0
BuyGoldenFactorClass:42: lossPrice :above700     394.0
BuyGoldenFactorClass:42: lossPrice :above800     189.0
BuyGoldenFactorClass:42: lossPrice :above900     259.0
BuyGoldenFactorClass:42: lossPrice :above950      12.0
BuyGoldenFactorClass:42: lossPrice :below200    1090.0
BuyGoldenFactorClass:42: lossPrice :below250     869.0
BuyGoldenFactorClass:42: lossPrice :below300     399.0
BuyGoldenFactorClass:42: lossPrice :below382     684.0
BuyGoldenFactorClass:42: winPrice :above618      252.0
BuyGoldenFactorClass:42: winPrice :above700      365.0
BuyGoldenFactorClass:42: winPrice :above800      390.0
BuyGoldenFactorClass:42: winPrice :above900      551.0
BuyGoldenFactorClass:42: winPrice :above950     1211.0
BuyGoldenFactorClass:42: winPrice :below300      276.0
BuyGoldenFactorClass:42: winPrice :below382      237.0
mv_close_atr close 3.5                           172.0
mv_pre_atr preClose 2.0                          319.0
sellLoss                                          53.0
sellWin                                           11.0
dtype: float64
```




```
keep days mean: 20.6230035904
keep days median: buy Date           2.011030e+07
buy Price            2.102000e+01
buy Cnt              8.458000e+03
Sell Price           2.115500e+01
MaxLoss              1.812000e+01
key                  3.730000e+02
profit               2.394700e+02
result               1.000000e+00
R                    1.458333e-02
profit_cg            1.205083e-03
profit_cg_hunder     1.205083e-01
keep_days            1.600000e+01
dtype: float64

factor win effect = 0.0293425776897%
factor loss effect = 0.0846849077628%
```


```
max down rate: 0.0151533454858
{(Timestamp('2011-04-29 00:00:00'), Timestamp('2011-08-08 00:00:00')): 15500536.470498919}
```



```
factor effect symbol rate: 1.0
factor gen order rate: 2.23976451699

R win rate: 0.512443136206
result win rate: 0.489605734767
R return: 0.125768478197
P return: 0.00781818323751
C return: 0.0082517410685
C PB:      52191.1770793

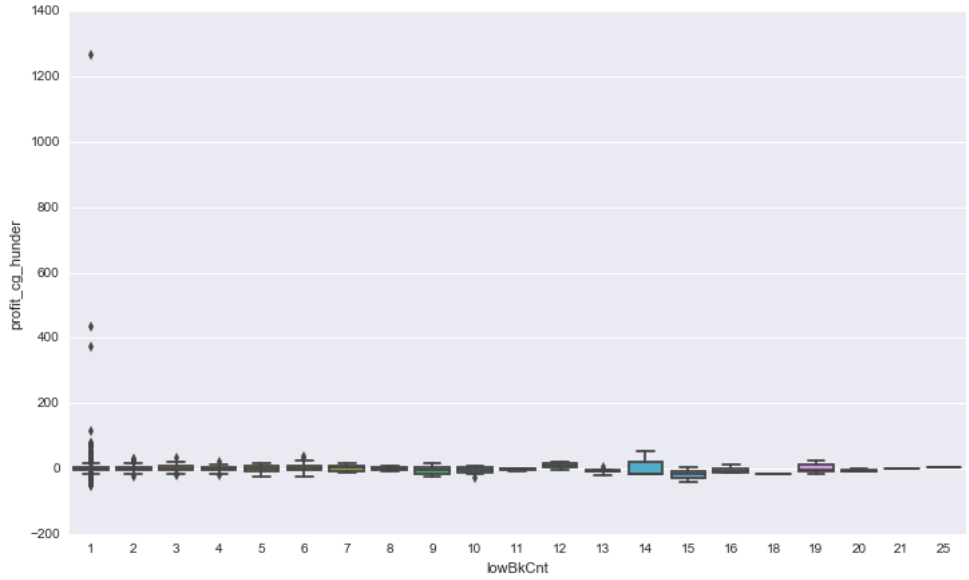
order win mean: 10800.2696193 cg: 7.10351737508
order win max: 788814.72 cg: 1266.29834254

Win Top 5
2011-01-20    1266.298343
2011-04-25     435.074627
2011-05-13     373.801558
2011-05-16     116.088634
2011-03-28      79.166667
Name: profit_cg_hunder, dtype: float64

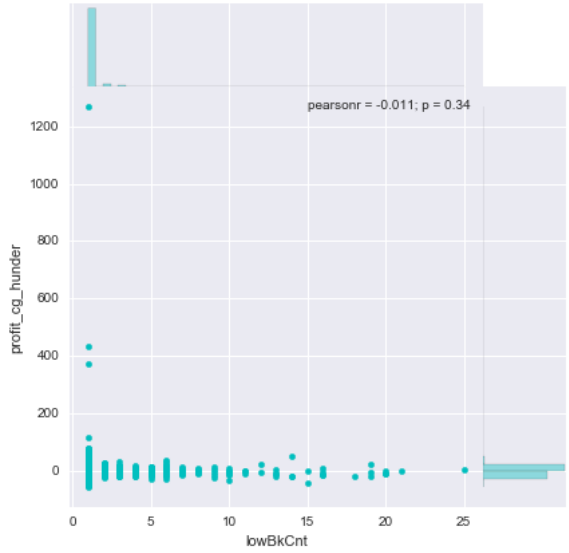
order loss mean: -8946.80854235 cg: -5.72894385578
order loss max: -101690.05 cg: -53.8799757276

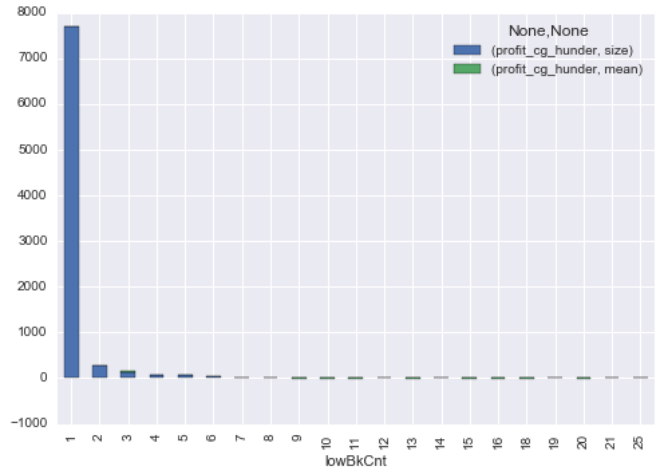
2011-07-25   -53.879976
2011-05-18   -50.856450
2011-01-21   -48.958950
2011-06-13   -48.476218
2011-01-21   -47.499217
Name: profit_cg_hunder, dtype: float64
```


```
top 10 win profit_cg mean: 262.074517544
top 10 loss profit_cg  mean: -44.8430390679
```

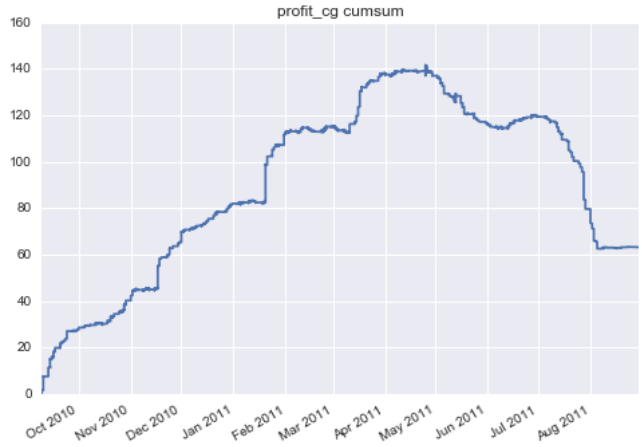



```
TOP 3 = [(1, 7694), (2, 289), (3, 145)]
```





```
all fit order = (8077, 30)
win rate = 0.507366596509
profit_cg.sum() = 63.1474660094
win mean = 0.0710351737508 loss_mean = -0.0575207358116
```



`python rsc_filter_ret = run_func_with_filter()`

```
backSymbols = None
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
```

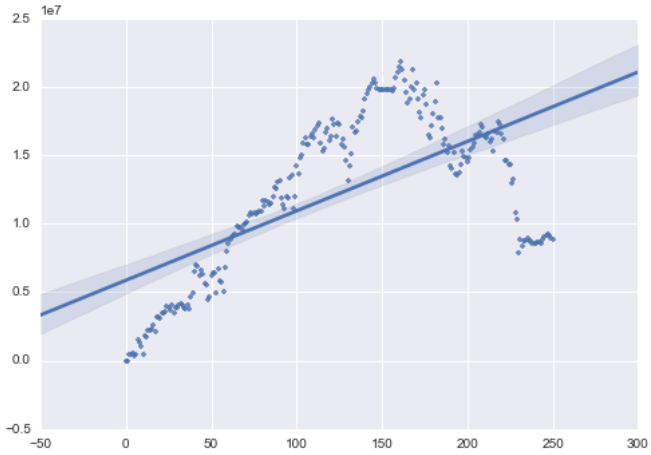
```python fn = './data/cache/rsc_filter_abu'

# ZCommonUtil.dump_pickle(rsc_filter, fn)

rsc_filter = ZCommonUtil.load_pickle(fn) ```

`python rsc_filter = metrics_rsc(*rsc_filter_ret) MetricsManger.make_metrics_from_rsc(rsc_filter, METRICSTYPE.SYSMBOL_R_SCORES_GOLDEN.value) UmpMainClass(rsc_filter.ordersPd, MlFiterGoldenPdClass).show_general()`


```


1e7
2.5
2.0
1.5
1.0
0.5
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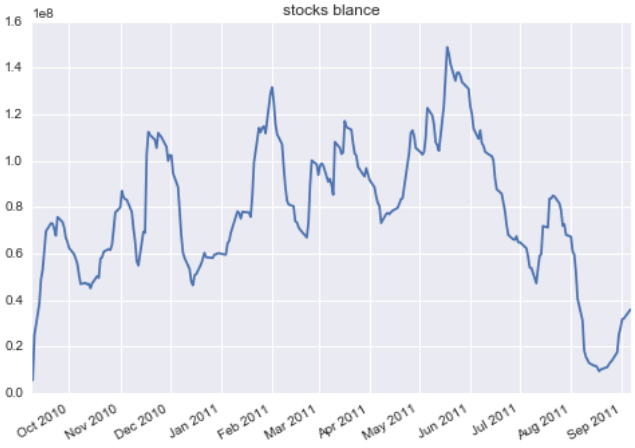
−0.5
−50
0
50
100
150
200
250
300


stocks blance
1e8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
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Oct 2010
Nov 2010
Dec 2010
Jan 2011
Feb 2011
Mar 2011
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May 2011
Jun 2011
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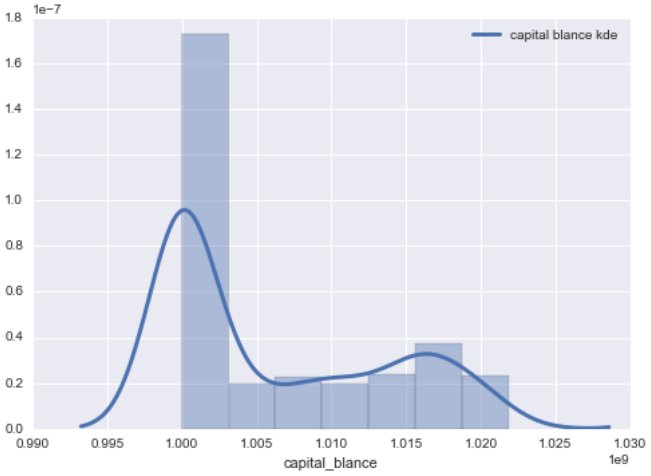
Aug 2011
Sep 2011


1e−7
capital blance kde
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.990
0.995
1.000
1.005
1.010
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1.020
1.025
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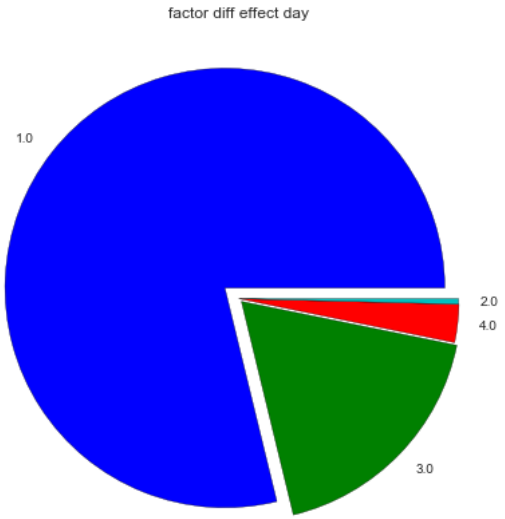
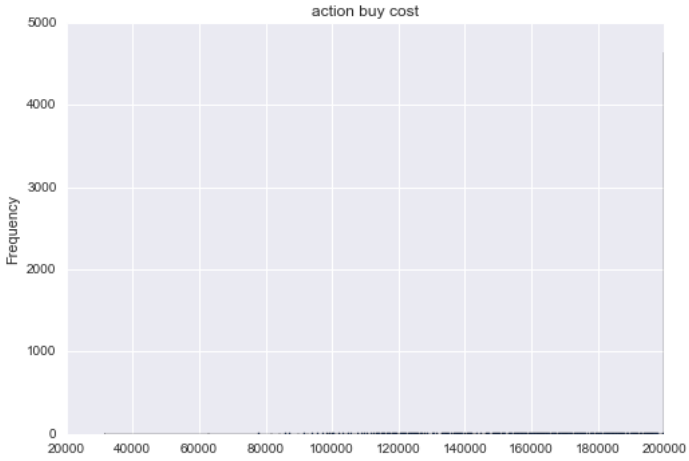
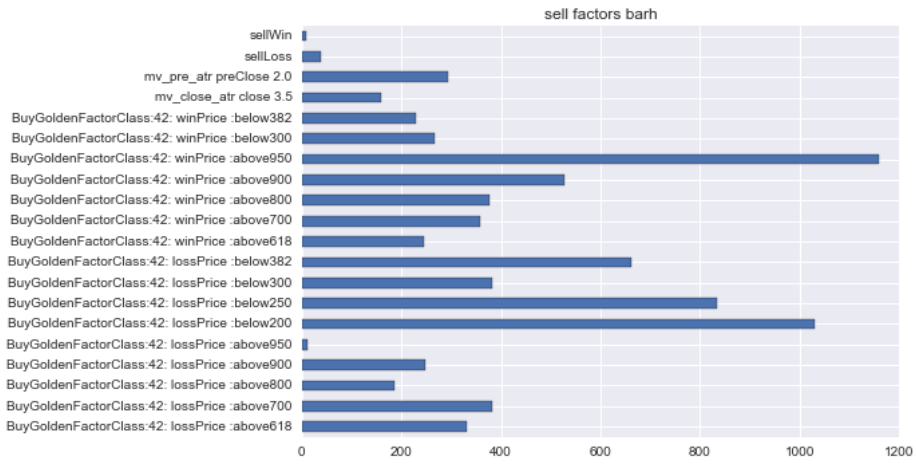
capital_blance



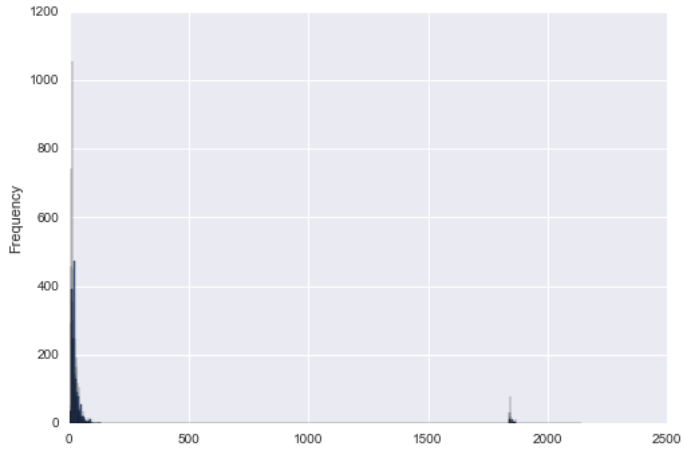

```
effect mean day: 1.448
```




```
cost info:
moments_tuple(mean=176283.51773019947, std=36734.398287652264, skewness=-1.495698519948341, kurtosis=4.257294980994378)
```

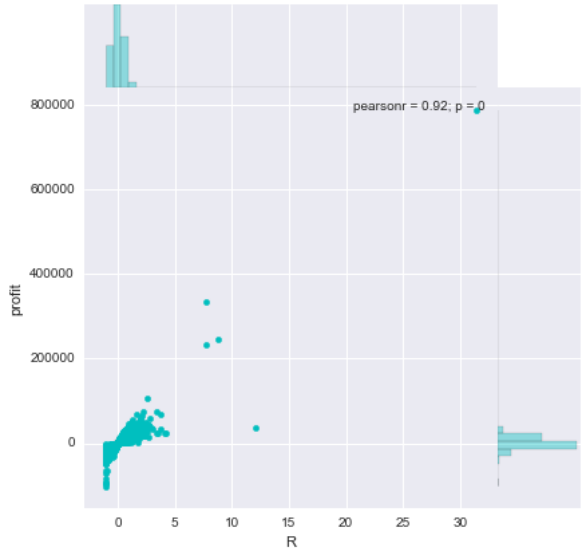


```
BuyGoldenFactorClass:42: lossPrice :above618     332.0
BuyGoldenFactorClass:42: lossPrice :above700     382.0
BuyGoldenFactorClass:42: lossPrice :above800     186.0
BuyGoldenFactorClass:42: lossPrice :above900     249.0
BuyGoldenFactorClass:42: lossPrice :above950      11.0
BuyGoldenFactorClass:42: lossPrice :below200    1030.0
BuyGoldenFactorClass:42: lossPrice :below250     835.0
BuyGoldenFactorClass:42: lossPrice :below300     383.0
BuyGoldenFactorClass:42: lossPrice :below382     662.0
BuyGoldenFactorClass:42: winPrice :above618      245.0
BuyGoldenFactorClass:42: winPrice :above700      357.0
BuyGoldenFactorClass:42: winPrice :above800      376.0
BuyGoldenFactorClass:42: winPrice :above900      527.0
BuyGoldenFactorClass:42: winPrice :above950     1159.0
BuyGoldenFactorClass:42: winPrice :below300      268.0
BuyGoldenFactorClass:42: winPrice :below382      230.0
mv_close_atr close 3.5                           159.0
mv_pre_atr preClose 2.0                          294.0
sellLoss                                          38.0
sellWin                                            9.0
dtype: float64
```

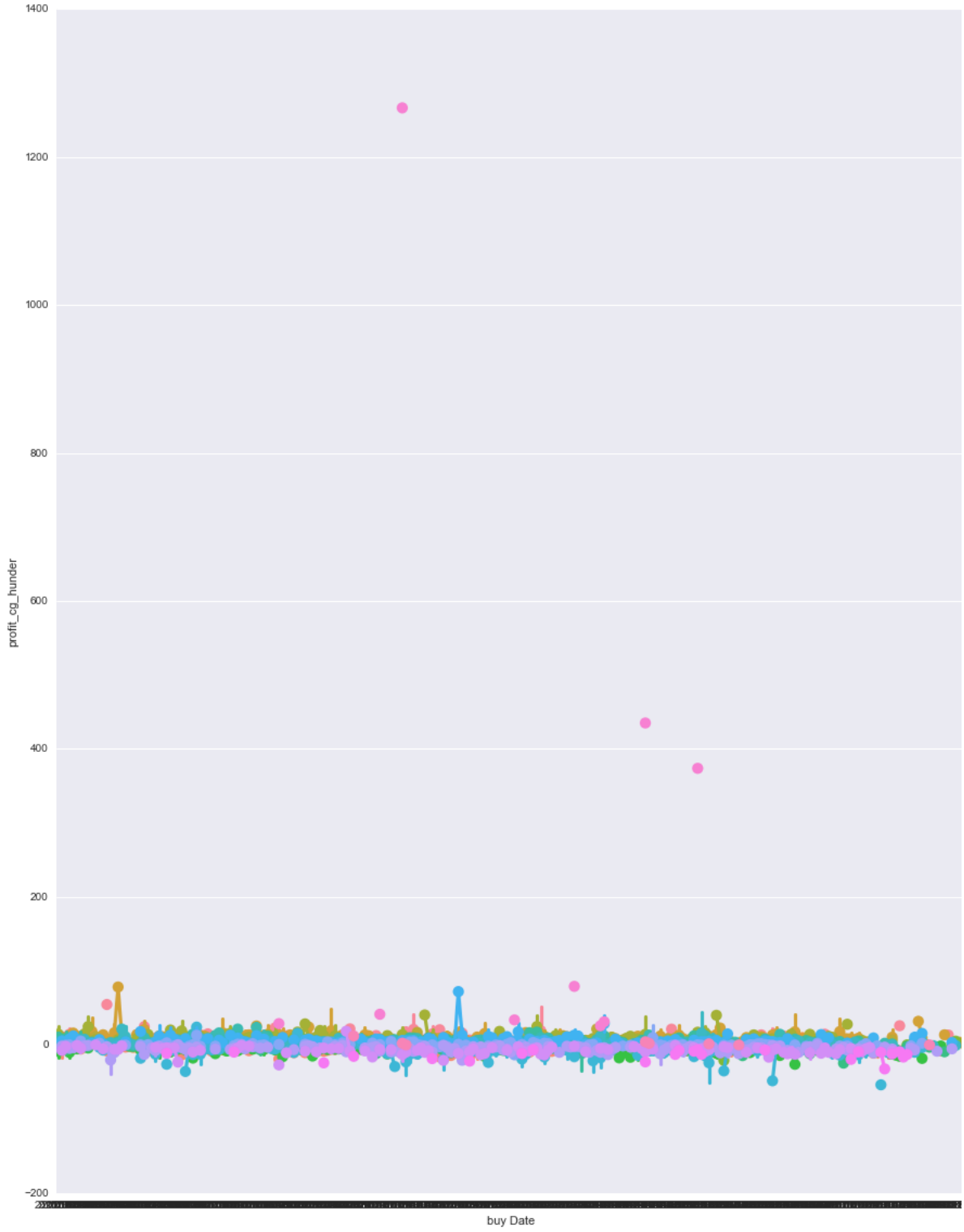



```
keep days mean: 20.6162700466
keep days median: buy Date           2.011030e+07
buy Price            2.138375e+01
buy Cnt              8.401500e+03
Sell Price           2.147475e+01
MaxLoss              1.844000e+01
key                  3.730000e+02
profit               3.470000e+02
result               1.000000e+00
R                    1.904935e-02
profit_cg            1.824889e-03
profit_cg_hunder     1.824889e-01
keep_days            1.600000e+01
dtype: float64

factor win effect = 0.0297465080186%
factor loss effect = 0.0856182100362%
```

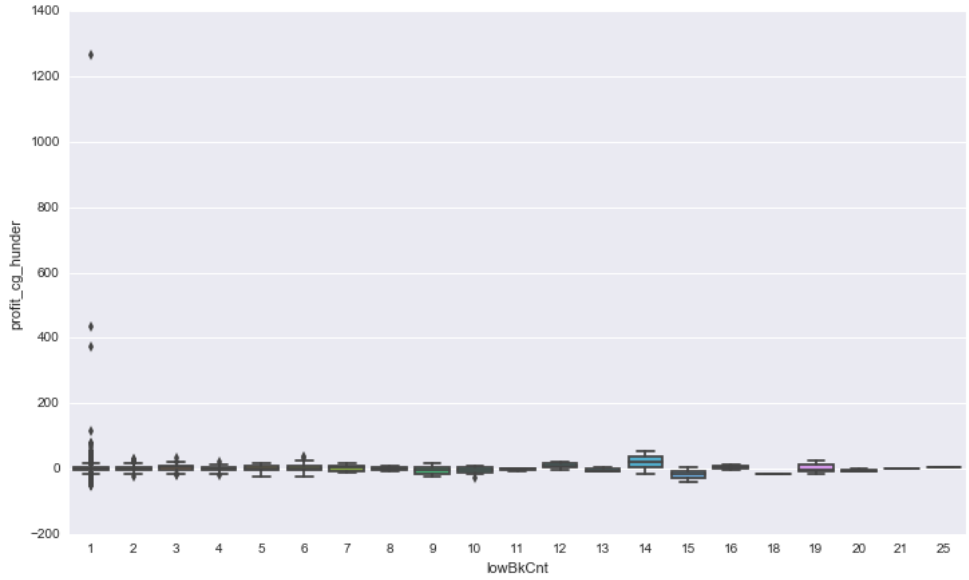

```
max down rate: 0.013615453933
{(Timestamp('2011-04-29 00:00:00'), Timestamp('2011-08-08 00:00:00')): 13912832.875998974}
```



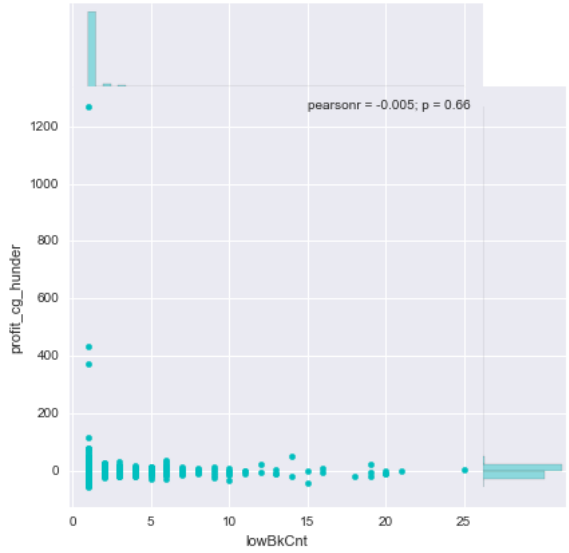
```
factor effect symbol rate: 1.0
factor gen order rate: 2.16259500543

R win rate: 0.518458197611
result win rate: 0.495669637254
R return: 0.124761621145
P return: 0.00851828820408
C return: 0.0088576081095
C PB:      50743.7860091

order win mean: 10671.6661611 cg: 6.95253920443
order win max: 788814.72 cg: 1266.29834254

Win Top 5
2011-01-20    1266.298343
2011-04-25     435.074627
2011-05-13     373.801558
2011-05-16     116.088634
2011-03-28      79.166667
Name: profit_cg_hunder, dtype: float64

order loss mean: -8761.14996828 cg: -5.51658389609
order loss max: -101690.05 cg: -53.8799757276

2011-07-25   -53.879976
2011-05-18   -50.856450
2011-01-21   -48.958950
2011-06-13   -48.476218
2011-01-21   -47.499217
Name: profit_cg_hunder, dtype: float64
```

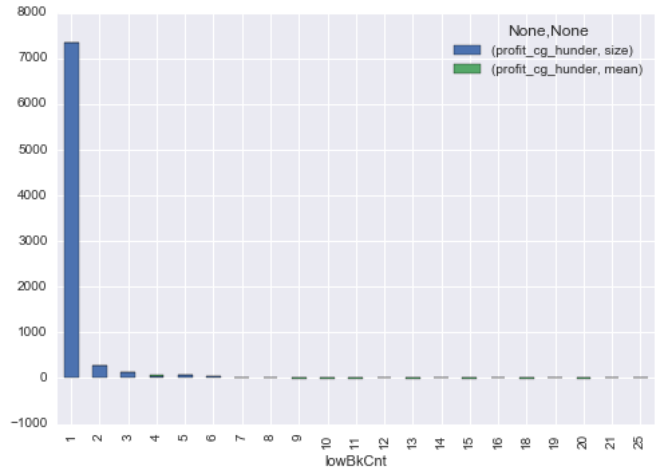



```
top 10 win profit_cg mean: 259.499429754
top 10 loss profit_cg  mean: -44.8430390679
```

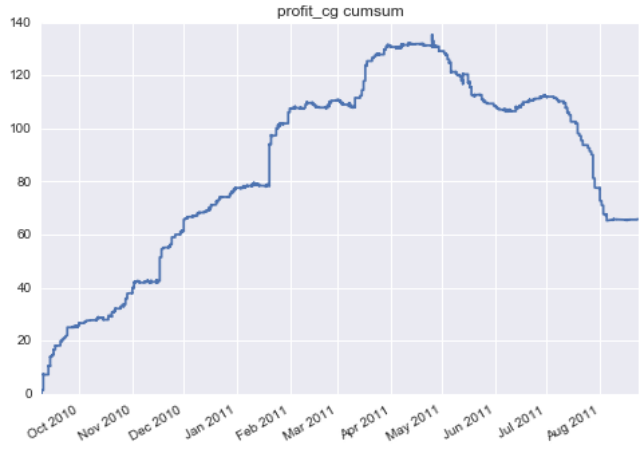



```
TOP 3 = [(1, 7337), (2, 270), (3, 135)]
```





```
all fit order = (7732, 30)
win rate = 0.518734609415
profit_cg.sum() = 66.8634043939
win mean = 0.0695253920443 loss_mean = -0.0553854481924
```



`python rsc.ordersPd.shape[0] - rsc_filter.ordersPd.shape[0]`

```
403
```

结果总共提高了1%的胜率，block了403个单子，看看orders diff

看看pipe line的学习数据分类结果run_func_with_ml

`python rsc_ml_ret = run_func_with_ml()`

```
backSymbols = None
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
BuyGoldenFactorClass:42open down 0.07
```

```python rsc_ml = metrics_rsc(*rsc_ml_ret) MetricsManger.make_metrics_from_rsc(rsc_ml, METRICSTYPE.SYSMBOL_R_SCORES_GOLDEN.value, show=False)

import ast def map_str_dict(extra_info, key): try: map_ast = ast.literal_eval(extra_info)[key] except Exception, e: import pdb pdb.set_trace() raise e return map_ast def extra_info_to_pd(orders_pd): orders_pd['can_win'] = orders_pd['ExtraInfo'].apply(map_str_dict, args=('can_win',)) orders_pd['edge'] = orders_pd['ExtraInfo'].apply(map_str_dict, args=('edge',)) orders_pd['edge_type'] = orders_pd['ExtraInfo'].apply(map_str_dict, args=('edge_type',))

order_pd_ml = rsc_ml.ordersPd extra_info_to_pd(order_pd_ml) ```

```python

# fn = './data/cache/order_pd_ml_abu'

# key = 'order_pd_ml_abu'

# ZCommonUtil.dump_hdf5(order_pd_ml, key, fn)

# order_pd_ml = ZCommonUtil.load_hdf5(fn, key)

```python
can_win_pd = order_pd_ml.filter(['result', 'can_win', 'edge', 'edge_type'])
can_win_pd.head()
```

	result	can_win	edge	edge_type
2010-11-09	0	1	1	8
2011-03-30	0	1	0	8
2011-07-12	0	0	-1	0
2011-07-15	0	1	0	8
2011-07-28	0	1	0	8

对照UmpPipeLineClass中learn_pipe_line_predict的返回结果，从crosstab上看整个结果是 理想的，**问题应该出在edge_type = 0的有35个还持有的单子**

`python pd.crosstab([can_win_pd['result'], can_win_pd['can_win']], can_win_pd['edge_type'])`

	edge_type	0	1	4	6	7	8
result	**can_win**						
-1	**0**	21	6	1	2	183	0
	1	0	0	0	0	0	3783
0	**0**	35	1	0	3	19	0
	1	0	0	0	0	0	235
1	**0**	11	3	0	0	118	0
	1	0	0	0	0	0	3949

以周期内最后一天为限制日，查看这35个单子的盈亏情况，结果喜人阿！

```python from Capital import CapitalClass orders_pd_n_ret = order_pd_ml[(order_pd_ml.result == 0) & (order_pd_ml.edge_type == 0)] cap = CapitalClass(1000000000) def calc_last_loss(order): kl_pd = SymbolPd.make_kfold_pd(order.Symbol, cap=cap) return kl_pd.iloc[-1].close - order['buy Price']

last_loss_result = orders_pd_n_ret.apply(calc_last_loss, axis=1) last_loss_result.sum() import numpy as np dummies_result = pd.Series(np.where(last_loss_result > 0, 1, 0)) float(dummies_result.value_counts()[0])/dummies_result.value_counts().sum() ```

```
0.6571428571428571
```

`python dummies_result.value_counts()[0], dummies_result.value_counts()[1]`

```
(23, 12)
```

0，0对应的单子最多 从趋势图上看最后一段的下跌趋势中裁判优化祈祷了作用，且判断的正确，综合结果比较接近目标

`python dummies_result`
```

```
0     1
1     0
2     0
3     1
4     1
5     0
6     1
7     1
8     0
9     0
10    0
11    1
12    0
13    0
14    0
15    0
16    0
17    0
18    0
19    0
20    1
21    0
22    0
23    0
24    1
25    1
26    1
27    1
28    0
29    1
30    0
31    0
32    0
33    0
34    0
dtype: int64
```

‘非均衡胜负收益’带来的必然’非均衡胜负比例‘，目标由’因子‘的能力解决一部分，’模式识别‘提升关键的一部分

```python
```