[5]:
```python
pd.to_datetime('2021-01-02') + pd.tseries.offsets.MonthBegin(-1)
```

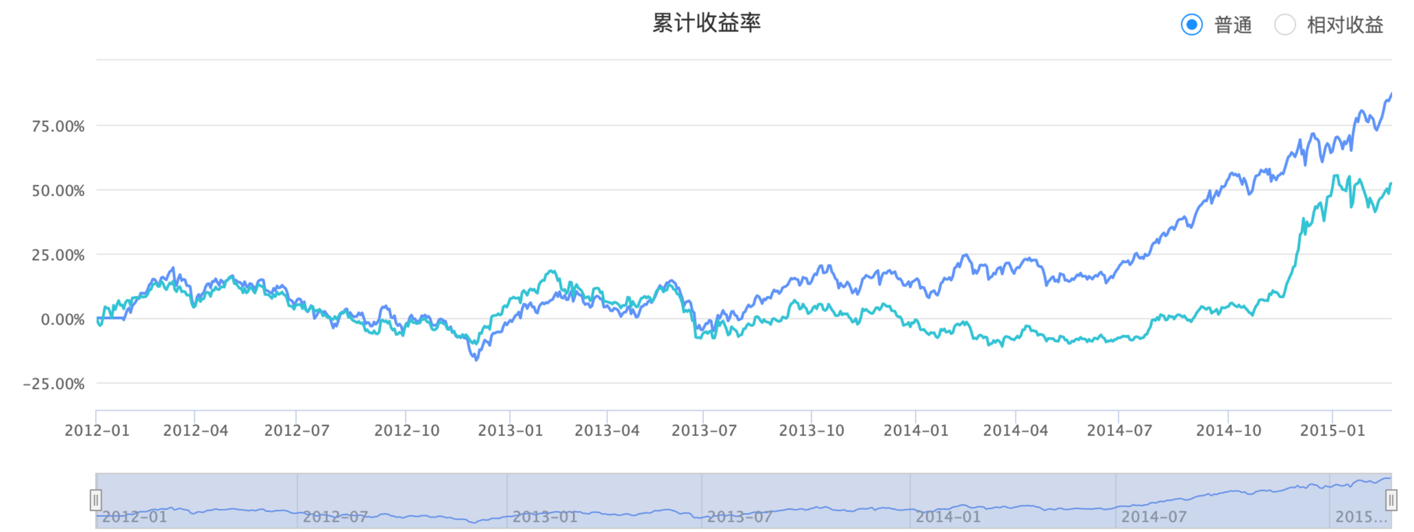
[5]: Timestamp('2021-01-01 00:00:00')

[16]:
```python
%%backtest
# from datetime import datetime

start = '2012-01-01'
end = '2015-02-28'
universe = StockUniverse('ZZ800')
# 沪深300：由上海和深圳证券市场中市值大、流动性好的300只股票组成，综合反映中国A股市场上市股票价格的整体表现。
# 中证500：由全部A股中剔除沪深300指数成份股及总市值排名前300名的股票后，总市值排名靠前的500只股票组成，综合反映中国A股市场中一批中小市值公司的股票价格表现。
# 中证800：中证800指数由中证500和沪深300指数成份股组成，综合反映中国A股市场大中小市值公司的股票价格表现。
benchmark = 'HS300'
freq = 'd'
refresh_rate = Monthly(-1)

accounts = {
    'stock_account': AccountConfig(account_type='security', capital_base=1e6)
}


def initialize(context):
    pass


def handle_data(context):
    current_universe = context.get_universe(asset_type='stock',exclude_halt=True)
    today = context.current_date
#     print(today)
    if today.strftime('%d') == '01':
        prev_month_begin = today + pd.tseries.offsets.MonthBegin(-1)
    else:
        prev_month_begin = today + pd.tseries.offsets.MonthBegin(-2)
#     print('prev_month_begin:', prev_month_begin)
    try:
        factor_exposure = get_data_cube(symbol=current_universe,
                                        field=['d6dk9218qq.size2024', 'd6dk9218qq.rev2024','d6dk9218qq.bm2024',
                                               'd6dk9218qq.illiq2024', 'd6dk9218qq.ivol2024'],
                                        start=prev_month_begin, end=today,
                                        style='ast').to_frame().reset_index()
    except AttributeError:
        factor_exposure = pd.DataFrame()
#     print(factor_exposure)
    if factor_exposure.shape[0] == 0:
        pass
    else:
        factor_exposure.rename(columns={'major':'date','minor':'sec_id',
                                        'd6dk9218qq.size2024':'size',
                                        'd6dk9218qq.bm2024':'bm',
                                        'd6dk9218qq.rev2024':'rev',
                                        'd6dk9218qq.illiq2024':'illiq',
                                        'd6dk9218qq.ivol2024':'ivol'},inplace=True)
#         print(factor_exposure)
#         print(factor_exposure['date'].unique()[-1])
        factor_exposure = factor_exposure[factor_exposure['date'] == factor_exposure['date'].unique()[-1]]
        ##### Intersection #####
        stocks_set = {}
#         stocks_set['rev'] = set(factor_exposure.sort_values('rev', ascending=True)['sec_id'].iloc[0:200].tolist())
        stocks_set['size'] = set(factor_exposure.sort_values('size', ascending=True)['sec_id'].iloc[0:200].tolist())
#         stocks_set['illiq'] = set(factor_exposure.sort_values('illiq', ascending=False)['sec_id'].iloc[0:200].tolist())
#         stocks_set['ivol'] = set(factor_exposure.sort_values('ivol', ascending=True)['sec_id'].iloc[0:200].tolist())
#         stocks_set['bm'] = set(factor_exposure.sort_values('bm', ascending=False)['sec_id'].iloc[0:200].tolist())
        buy_list = set.intersection(
#                                     stocks_set['rev'],
                                    stocks_set['size'],
#                                     stocks_set['illiq'],
#                                     stocks_set['ivol'],
#                                     stocks_set['bm']
        )
        buy_list = list(buy_list)
        ##### Scoring #####
#         factor_exposure['rev_rank'] = factor_exposure['rev'].rank()
#         factor_exposure['size_rank'] = factor_exposure['size'].rank()
#         factor_exposure['illiq_rank'] = factor_exposure['illiq'].rank(ascending=False)
#         factor_exposure['ivol_rank'] = factor_exposure['ivol'].rank()
#         factor_exposure['bm_rank'] = factor_exposure['bm'].rank(ascending=False)
#         factor_exposure['rank_sum'] = factor_exposure['illiq_rank']
#                                       factor_exposure['rev_rank'] + \
#                                         factor_exposure['ivol_rank']
#                                       factor_exposure['size_rank'] + \
#                                      factor_exposure['bm_rank']
#         factor_exposure.sort_values('rank_sum', inplace=True)
#         factor_exposure.reset_index(drop=True,inplace=True)
#         print(factor_exposure)
#         nstocks = factor_exposure.shape[0]
#         buy_list = list(factor_exposure['sec_id'].iloc[0:20])

        stock_account = context.get_account('stock_account')
        current_positions = stock_account.get_positions(exclude_halt=True)

        for stock in current_positions:
            if stock not in buy_list:
                stock_account.order_to(stock, 0)
```

```
        if len(buy_list) == 0:
            pass
        else:
            for stock in buy_list:
                stock_account.order_pct_to(stock, 1/len(buy_list))
```

回测完成，耗时124.507 秒

年化收益率	基准年化收益率	阿尔法	贝塔	夏普比率
22.9%	14.8%	10.7%	0.77	0.95
收益波动率	信息比率	最大回撤	回撤恢复时间	年化换手率
21.0%	0.58	30.1%	202	283.55%



[17]:

```
# #查看调仓记录
show_order(start,end)
```

stock_account 查询日期: 2012-01-31 至 2015-02-27 导出EXCEL

资产代码	资产名称	业务类型	订单类型	委托价格	成交均价	委托数量	成交数量	成交金额	委托时间	成交时间	交易
601515	东峰集团	卖出	市价单	市价	12.33	700	700	8,631.00	2015-02-27	2015-02-27	
601231	环旭电子	卖出	市价单	市价	38.49	200	200	7,698.00	2015-02-27	2015-02-27	
600510	黑牡丹	卖出	市价单	市价	10.40	1,100	1,100	11,440.00	2015-02-27	2015-02-27	
600831	广电网络	卖出	市价单	市价	15.16	800	800	12,128.00	2015-02-27	2015-02-27	
600398	海澜之	卖出	市价单	市价	12.65	800	800	10,120.00	2015-02-27	2015-02-27	

每页20条，共 2993 条 < 1 2 3 4 5 ••• 150 > 20 条/页 跳至 页

[18]:

```
# #查看持仓记录
show_position(start,end)
```

stock_account 查询日期: 2015-02-27 导出EXCEL

资产代码	资产名称	公允价格	持仓数量	可用数量	持仓市值	累计盈亏	持仓权重	摊薄成本
002181	粤传媒	17.98	500	500	8,990.00	5377.46	0.48%	7.23

002225	濮耐股份	7.59	1,200	1,200	9,108.00	150.35	0.49%	7.46
002315	焦点科技	71.49	100	100	7,149.00	3604.22	0.38%	35.45
000919	金陵药业	13.86	600	600	8,316.00	4349.85	0.44%	6.61
002194	武汉凡谷	13.01	700	700	9,107.00	4238.76	0.49%	6.95
000852	石化机械	22.94	400	400	9,176.00	4826.27	0.49%	10.87
601208	东材科技	9.06	900	900	8,154.00	1367.26	0.44%	7.54
600270	外运发展	18.97	500	500	9,485.00	7888.11	0.51%	3.19
000931	中关村	9.61	900	900	8,649.00	5020.12	0.46%	4.03
601011	宝泰隆	11.06	800	800	8,848.00	-468.82	0.47%	11.65
000418	小天鹅A	16.97	600	600	10,182.00	6137.25	0.54%	6.74
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

每页20条，共 215 条 < 2 3 4 5 ••• 11 > 20 条/页 跳至 页

[ ]: 1