ABU 量化系统 简介 （版本 0.1）

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第一部分 数据获取

`python import ZEnv import ZLog import ZCommonUtil %matplotlib inline`

`python import SymbolPd`

```
makedirs data/DayKLine/2016-09-19
```

`python kl_pd = SymbolPd.make_kfold_pd('usNOAH')`

`python ZLog.info(kl_pd.shape) ZLog.info(kl_pd.info()) ZLog.info(kl_pd.describe()) kl_pd.head()`

```
(504, 12)
None
            atr14       atr21       close          date   date_week  \
count  504.000000  504.000000  504.000000  5.040000e+02  504.000000
mean     1.459066    1.458645   24.391329  2.015252e+07    2.017857
std      0.468504    0.433271    5.141005  6.667360e+03    1.396416
min      0.622084    0.665682   12.950000  2.014091e+07    0.000000
25%      1.138517    1.167521   21.402500  2.015031e+07    1.000000
50%      1.505344    1.518778   24.380000  2.015091e+07    2.000000
75%      1.760947    1.740111   26.955000  2.016031e+07    3.000000
max      3.044239    2.715260   37.320000  2.016091e+07    4.000000

             high         key         low  netChangeRatio        open  \
count  504.000000  504.000000  504.000000      504.000000  504.000000
mean    24.936770  251.500000   23.820790        0.163690   24.376387
std      5.265632  145.636534    5.024205        3.598193    5.140118
min     13.420000    0.000000   12.890000      -10.860000   13.060000
25%     21.807500  125.750000   20.597500       -2.040000   21.200000
50%     25.115000  251.500000   23.960000        0.045000   24.525000
75%     27.455000  377.250000   26.490000        1.997500   26.962500
max     37.960000  503.000000   36.030000       18.450000   37.370000

         preClose        volume
count  504.000000  5.040000e+02
mean    24.371151  4.591360e+05
std      5.155777  3.924157e+05
min     12.950000  1.661000e+03
25%     21.312500  2.285695e+05
50%     24.380000  3.652830e+05
75%     26.955000  5.510848e+05
max     37.320000  4.043378e+06


<class 'pandas.core.frame.DataFrame'>
DatetimeIndex: 504 entries, 2014-09-09 to 2016-09-09
Data columns (total 12 columns):
atr14             504 non-null float64
atr21             504 non-null float64
close             504 non-null float64
date              504 non-null int64
date_week         504 non-null int64
high              504 non-null float64
key               504 non-null int64
low               504 non-null float64
netChangeRatio    504 non-null float64
open              504 non-null float64
preClose          504 non-null float64
volume            504 non-null int64
dtypes: float64(8), int64(4)
memory usage: 51.2 KB
```

	atr14	atr21	close	date	date_week	high	key	low	netChangeRatio	open	preClose	volum
2014-09-09	0.883184	0.890822	15.11	20140909	1	15.645	0	15.07	-2.89	15.51	15.56	14584
2014-09-10	0.874386	0.884592	15.16	20140910	2	15.180	1	14.80	0.33	15.15	15.11	24001
2014-09-11	0.845501	0.864850	15.26	20140911	3	15.370	2	14.90	0.66	15.13	15.16	23494
2014-09-12	0.823679	0.849381	14.89	20140912	4	15.250	3	14.71	-2.42	15.25	15.26	43942
2014-09-15	0.825559	0.849410	14.63	20140915	0	14.870	4	14.41	-1.75	14.87	14.89	28842

默认获取最近两年数据，与大盘ixic做数据对齐操作， 多年数据修改参数，n_folds

```
python klpd_5y = SymbolPd.make_kfold_pd('usNOAH', n_folds=5) klpd_5y.shape
```

```
(1260, 12)
```

多个股票

```
python p_data = SymbolPd.make_kfold_mulpd(['usNOAH', 'usSFUN'])
```

得到三维面板数据，可灵活使用

```
python ZLog.info(p_data) p_data_it = p_data.swapaxes('items', 'minor') data = p_data_it['close'] data.head()
```

```
<class 'pandas.core.panel.Panel'>
Dimensions: 2 (items) x 504 (major_axis) x 12 (minor_axis)
Items axis: usNOAH to usSFUN
Major_axis axis: 2014-07-25 00:00:00 to 2016-07-26 00:00:00
Minor_axis axis: atr14 to volume
```

	usNOAH	usSFUN
2014-07-25	15.32	12.11
2014-07-28	16.13	12.45
2014-07-29	16.75	12.22
2014-07-30	16.83	11.78
2014-07-31	16.06	11.47

切割数据

```
python help(SymbolPd.get_n_year)
```

```
Help on function get_n_year in module SymbolPd:

get_n_year(kl_pd, from_year, get_year=1, direction='bf')
    获取pd中第n年切片数据
    :param kl_pd:
    :param from_year: form 1开始纠错0 to 1
    :param get_year: 要几年的数据1就是1年，0.5半年 默认1 year支持0.1 to inf
    :param direction:='bf' 从后向前切 ='ff' 从前向后切
    :return:
```

```
python kl_pd = SymbolPd.get_n_year(klpd_5y, 3, 0.3) ZLog.info(kl_pd.shape)
```

```
(75, 12)
```

分时数据

```
python """ make_kminute_foldpd :param target_symbol: :param n_folds: 获取几天的数据 :param period: 获取时间间隔,单位分钟
:return: """ kl_pd_min = SymbolPd.make_kminute_foldpd('usNOAH', n_folds=5, period=1)
```

```
python kl_pd_min.shape
```

```
(1955, 4)
```

`python kl_pd_min.tail()`

	netChangeRatio	preClose	price	volume
2016-09-02 15:56:00	0.458361	26.18	26.299999	100
2016-09-02 15:57:00	0.458361	26.18	26.299999	0
2016-09-02 15:58:00	0.458361	26.18	26.299999	0
2016-09-02 15:59:00	0.458361	26.18	26.299999	0
2016-09-02 16:00:00	0.458361	26.18	26.299999	0

基本面数据

`python SymbolPd.make_pd_info('usNOAH')`

```
NOAH info form local




Avg_Daily_Volume            349135
EPS_Current_Year              1.74
EPS_Next_Year                 1.96
EPS_Next_Quarter                 0
Dividend_Yield                   0
Earnings_Share               1.478
Dividend_Share                   0
Dividend_Pay_Date        4/9/2013
52_weekLow                   18.66
52_weekHigh                  37.96
50_mv                       25.3009
200_mv                      26.6089
PE_Ratio                    17.5914
PEG_Ratio                      0.69
PERatio_Real                    NaN
Price_EPS_Current_Year      14.9426
Price_EPS_Next_Year         13.2654
1yr_Target_Price                28
Name: NOAH, dtype: object
```

当天实时数据

`python bets = SymbolPd.make_pd_bets('usNOAH').snapShot ZLog.info(filter(lambda x: not x.startswith('_'), dir(bets))) ZLog.info(bets.amount) ZLog.info(bets.ask) ZLog.info(bets.bid)`

```
['LYRPeratio', 'TTMPeratio', 'amount', 'amplitudeRatio', 'ask', 'bid', 'bvRatio', 'capitalization', 'ccl',
'circulatingCapital', 'close', 'count', 'currencyValue', 'date', 'dealCount', 'fairNum', 'fallNum', 'high', 'index',
'industryList', 'inside', 'limitDown', 'limitUp', 'low', 'netAssetsPerShare', 'netChange', 'netChangeRatio', 'netFundsFlow',
'nowVol', 'open', 'outside', 'perShareEarn', 'peratio', 'preClose', 'psRatio', 'riseNum', 'stockBasic', 'time',
'totalShareCapital', 'turnoverRatio', 'usestedt', 'volume', 'volumeRatio', 'weekHigh', 'weekLow', 'weibiRatio']
0
[StockBets(volume=2, price=26.329999923706)]
[StockBets(volume=1, price=26.219999313354)]
```

绘制数据

`python import MarketDrawer`

静态不可交互

`python MarketDrawer.plot_candle_form_klpd(kl_pd)`

动态可交互

`python MarketDrawer.plot_candle_form_klpd(klpd_5y, html_bk=True)`

MarketDrawer 支持从order中绘制，并可加入更多的标记点之后会有操作介绍，支持多个同时显示操作，save参数支持 保存在本地

`python filter(lambda x: x.startswith('plot'), dir(MarketDrawer))`

```
['plot_candle_form_klpd',
 'plot_candle_from_order',
 'plot_candle_from_symbol',
 'plot_candle_stick',
 'plot_html_symbol',
 'plot_minute_candle_from_klpd',
 'plot_minute_candle_from_symbol',
 'plot_simple_mul_stock',
 'plot_symbol']
```

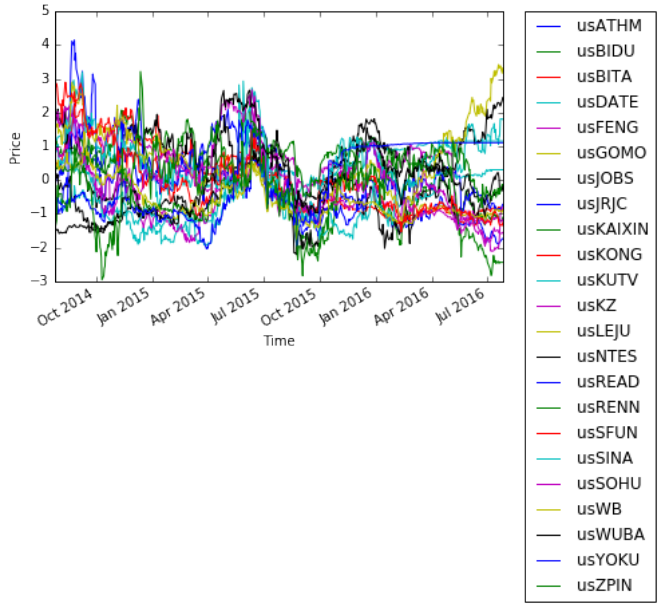
分时图型

原始数据没有high，low， open， close等数据，所有绘制柱状图 使用5m resample 高开低收

`python pd_minute = MarketDrawer.plot_minute_candle_from_symbol('usQIWI')`

获取相同分类的股票列表

```
python import IndustriesHelper r_symbol = 'usSFUN' pDate, pdata_it =
IndustriesHelper.get_industries_panel_from_target(r_symbol, show=True)
```




```
python change_m = pdata_it['netChangeRatio'].dropna(axis=1, how='all') change_m = change_m.resample('M').mean().T
```

change_m

	2014-07-31 00:00:00	2014-08-31 00:00:00	2014-09-30 00:00:00	2014-10-31 00:00:00	2014-11-30 00:00:00	2014-12-31 00:00:00	2015-01-31 00:00:00	2015-02-28 00:00:00	2015-03-31 00:00:00	2015-04-30 00:00:00	..
usATHM	1.802	1.428095	-0.523333	1.049565	-0.979474	-0.734545	-0.0340	0.397368	0.720455	0.753810	..
usBIDU	1.238	-0.028571	0.107143	0.420435	0.154211	-0.315000	-0.2105	-0.338421	0.115455	-0.158095	..
usBITA	-0.704	2.402381	-0.498571	0.398696	0.618947	-1.159545	-0.6525	0.344211	-0.853182	0.803333	..
usDATE	1.298	0.090476	0.660476	-0.759130	-0.566316	-0.020000	-0.2730	0.408947	0.305000	0.759048	..
usFENG	-0.082	0.160000	-0.456667	0.447391	-0.738421	-0.270455	-0.3425	-0.222105	-1.112273	1.190952	..
usJOBS	0.638	-2.751429	-0.678571	0.118261	0.961053	-0.094545	-0.0745	0.070000	-0.410455	0.540476	..
usJRJC	-0.934	4.904762	-1.108095	-0.689565	1.502105	-1.156818	-0.3010	0.755789	-0.993636	1.079524	..
usKUTV	-0.166	1.202381	-0.802857	-0.044783	-0.264211	-0.543182	0.9065	-0.356316	0.050909	-0.058571	..
usKZ	-0.086	-0.080476	-0.934762	-0.368696	0.558947	-0.790000	-0.0435	-0.288421	0.439091	1.087619	..
usLEJU	-0.608	1.221429	-1.082857	0.463478	-0.153158	-0.828636	-0.1965	-0.328947	-0.699091	1.435714	..
usNTES	-0.124	0.229524	-0.121905	0.450435	0.586316	-0.270909	0.4915	-0.408421	0.254091	0.960000	..
usRENN	0.068	0.079048	0.165238	0.057391	-0.938947	-0.570000	0.1575	-0.011053	-0.266818	1.035238	..
usSFUN	-1.218	0.123810	-0.660952	-0.059130	-0.432632	-0.690455	-0.8450	0.646316	-0.537273	1.622381	..
usSINA	-0.412	-0.210476	-0.530000	0.000870	-0.387368	-0.052727	-0.1530	0.134737	-0.640909	1.554762	..
usSOHU	0.212	0.199524	-0.748571	-0.108261	0.230526	0.250455	0.3055	-0.309474	0.093636	1.075714	..
usWB	-0.028	0.115714	-0.193333	-0.015652	-0.139474	-1.010909	-0.6565	0.394737	-0.130909	1.323810	..
usWUBA	-0.972	-0.735714	-0.474286	0.292609	1.151579	-0.666364	-0.3590	0.462632	1.127727	2.020476	..
usYOKU	-0.758	0.247143	-0.460952	0.423043	-0.253684	-0.153636	-0.2825	-0.107368	-1.178182	2.054762	..
usZPIN	1.338	0.334762	-0.789524	0.315652	0.563684	0.078182	-0.0230	0.648947	-0.312273	-0.111429	..

19 rows × 25 columns

获取股票代码表

```python import MarketSymbols symbols = MarketSymbols.get_market_symbols() ZLog.info(len(symbols))

# 随机获取n个默认是不放回的

ZLog.info(MarketSymbols.choice_symbols(5))

# 随机获取n个放回的

ZLog.info(MarketSymbols.choice_symbols_with_replace(5))

# 把市场分成训练集合与测试集合的操作

help(MarketSymbols.market_train_test_split) ```

```
7995
['usSNE' 'usIDU' 'usUCC' 'usAAOI' 'usHXL']
['usPFSI' 'usTXN' 'usPWB' 'usVMBS' 'usFAN']

Help on function market_train_test_split in module MarketSymbols:

market_train_test_split(n_folds=10, shuffle=True)
    分割市场训练机与测试机
    :param n_folds:
    :param shuffle:
    :return:
```

### 其它

1. 数据底层源由百度，腾讯自选股，雪球财经，yhoo数据接口，先比较完善的是baidu接入的也是baidu接口，需要更换源可自行切换底层接口
2. 底层数据接口存在源格式不统一问题，需要添加一个层级标准化数据接口与定义
```

3. 类似代码表等接口同样存在不统一的问题，需要标准化
4. 在多层数据统一的情况下可加入，多源数据校验机制，避免由于一个源的数据出现问题，发出错误的信号导致问题
5. volume数据不可信的问题，验证了volume数据很不可靠，且很难校验准确性，导致策略中不敢使用volume，很严重

关于数据缓存

所有数据支持优先使用缓存，强制使用缓存，强制使用网络等模式设置，

```
ZEnv.set_symbolpd_force(net, local)
ZENV.g_use_test_cache_data
```

如果每天定时任务可以使用预加载所有数据，针对因子全市场回测很重要：

```
NetStockHelper.net_day_mul_thread_history
NetStockHelper.net_info_mul_thread
```

```python
```