1、port_info是每日的各只股票持仓量

2、report analysis

- Axis X: Trading day
- - Axis Y:

    cum bench 基准累积收益（default：沪深300）

    Cumulative returns series of benchmark

    cum return wo cost 投资组合累积收益（不存在手续费）

    Cumulative returns series of portfolio without cost

    cum return w cost 投资组合累积收益（存在手续费）

    Cumulative returns series of portfolio with cost

    return wo mdd 最大回撤（不存在手续费）

    Maximum drawdown series of cumulative return without cost

    return w cost mdd 最大回撤（存在手续费）

    Maximum drawdown series of cumulative return with cost

    cum ex return wo cost 累积超额收益率（不存在手续费）

    The CAR (cumulative abnormal return) series of the portfolio compared to the benchmark without cost.

    cum ex return w cost 累积超额收益率（存在手续费）

    The CAR (cumulative abnormal return) series of the portfolio compared to the benchmark with cost.

    turnover 换手率

    Turnover rate series

    cum ex return wo cost mdd 超额收益率下最大回撤（不存在手续费）

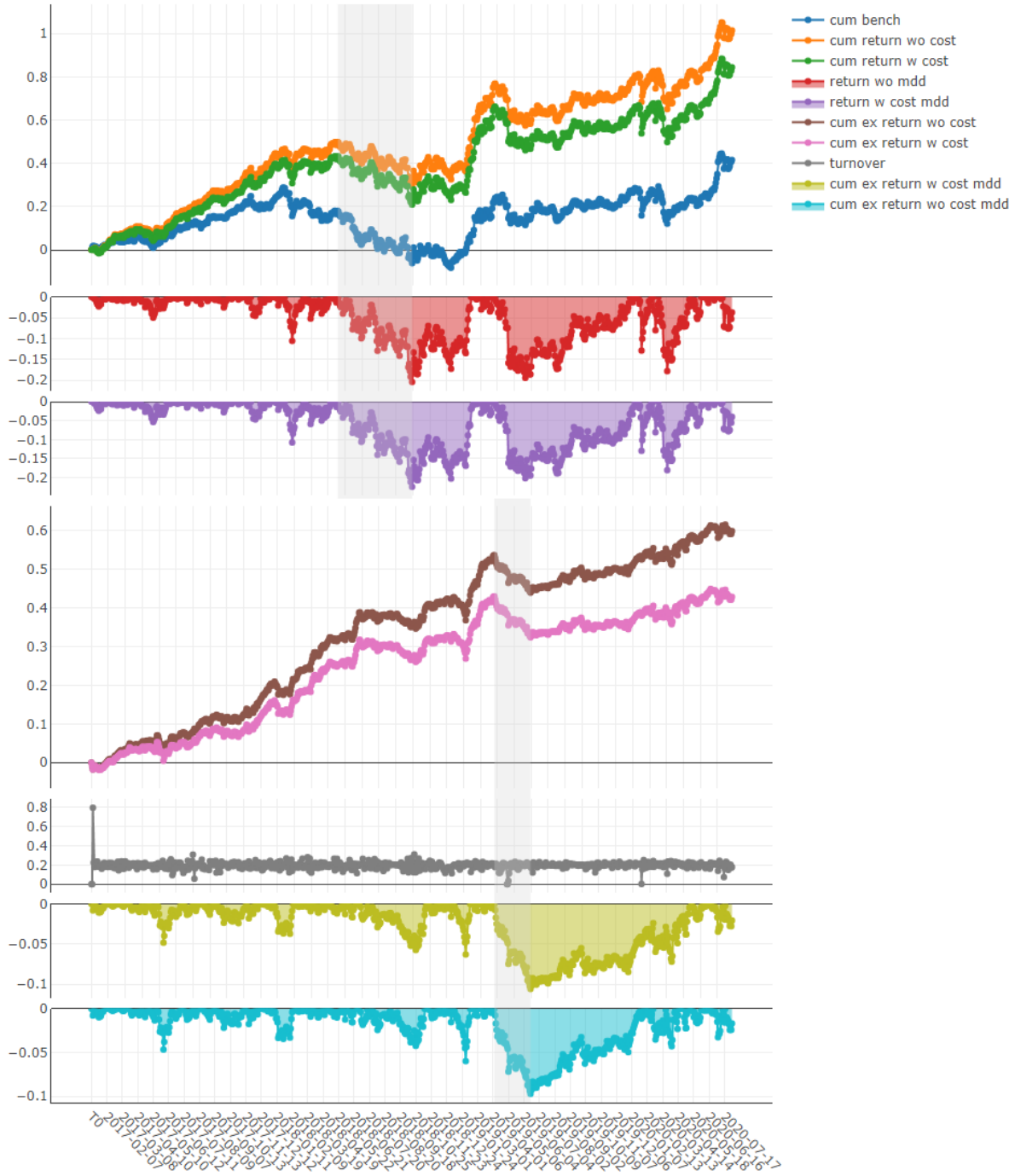
    Drawdown series of CAR (cumulative abnormal return) without cost

    cum ex return w cost mdd 超额收益率下最大回撤（存在手续费）

    Drawdown series of CAR (cumulative abnormal return) with cost

    - The shaded part above: Maximum drawdown corresponding to cum return wo cost
    - The shaded part below: Maximum drawdown corresponding to cum ex return wo cost

由report_df数据绘制，其中灰色部分的区间由date_info.txt中给出



3、risk analysis

general graphics

- std

  excess_return_without_cost

  The Standard Deviation of CAR (cumulative abnormal return) without cost.

  excess_return_with_cost

  The Standard Deviation of CAR (cumulative abnormal return) with cost.

- annualized_return

  excess_return_without_cost

  The Annualized Rate of CAR (cumulative abnormal return) without cost.

  excess_return_with_cost

The Annualized Rate of CAR (cumulative abnormal return) with cost.

- information_ratio

  excess_return_without_cost

  The Information Ratio without cost.

  excess_return_with_cost

  The Information Ratio with cost.

- max_drawdown

  excess_return_without_cos

  The Maximum Drawdown of CAR (cumulative abnormal return) without cost.

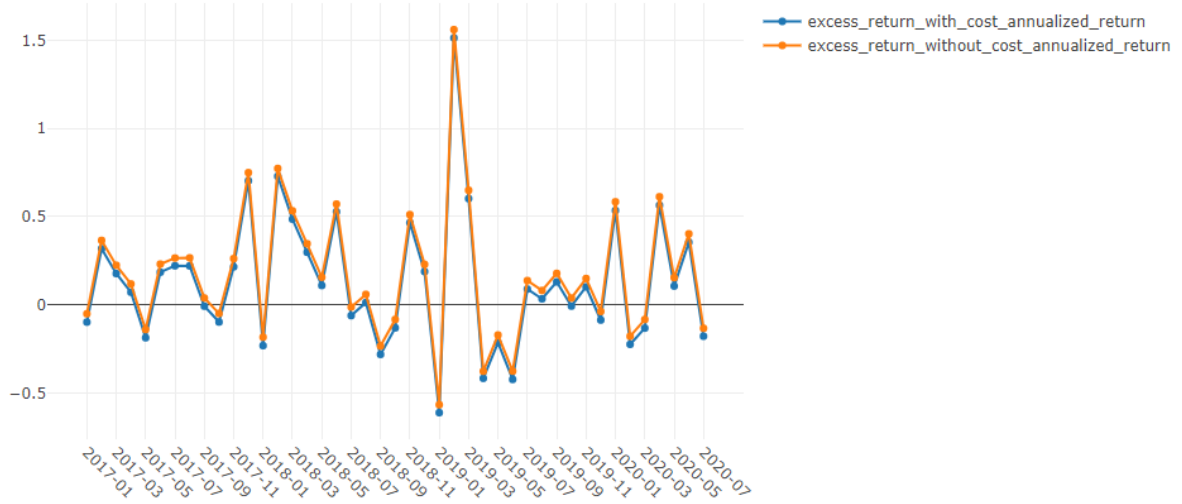
  excess_return_with_cost

  The Maximum Drawdown of CAR (cumulative abnormal return) with cost.

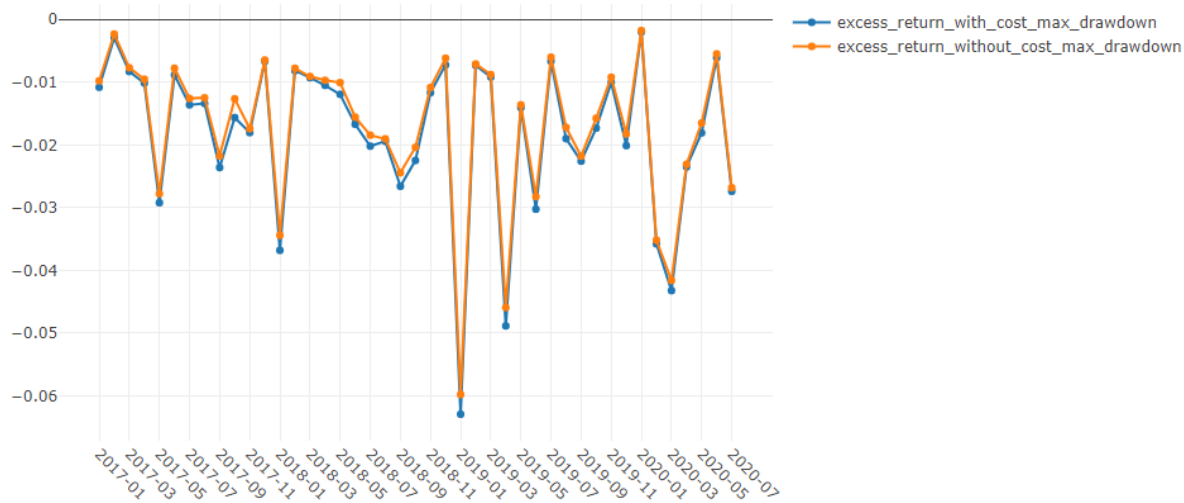
all_risk_analysis的数据作图：

monthly_risk_analysis的数据作图：

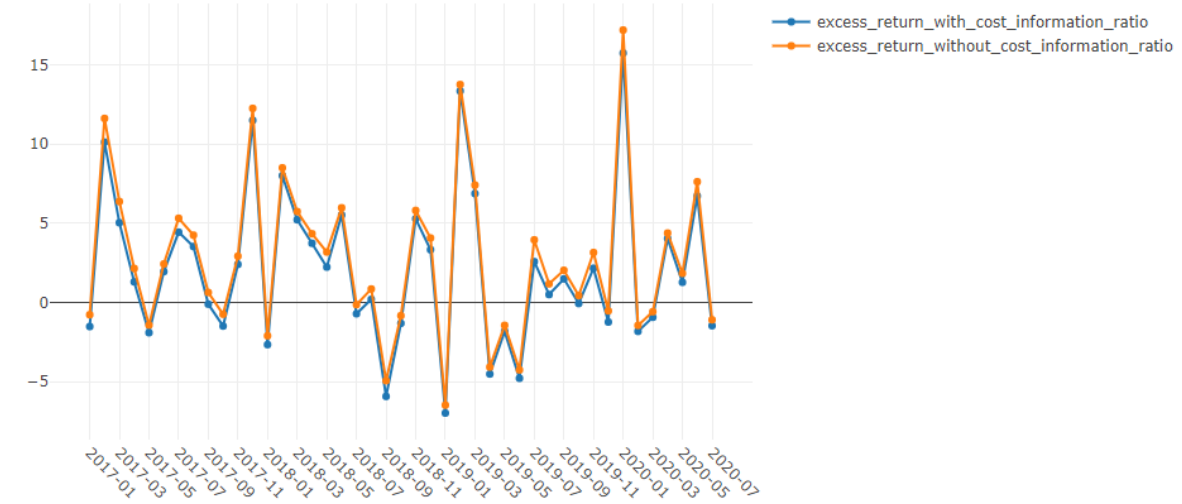
annualized_return



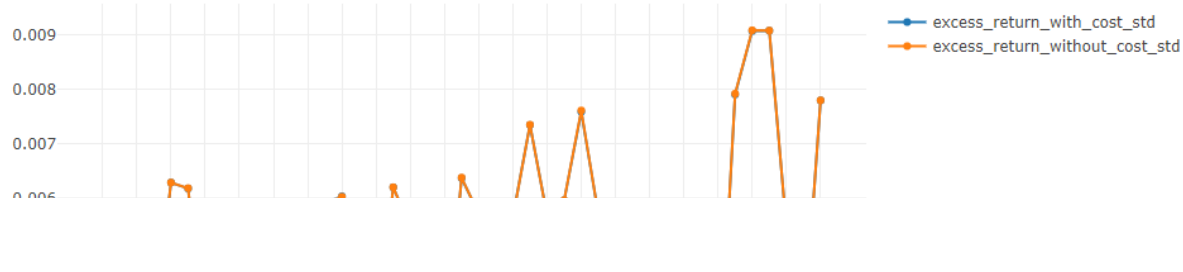
max_drawdown

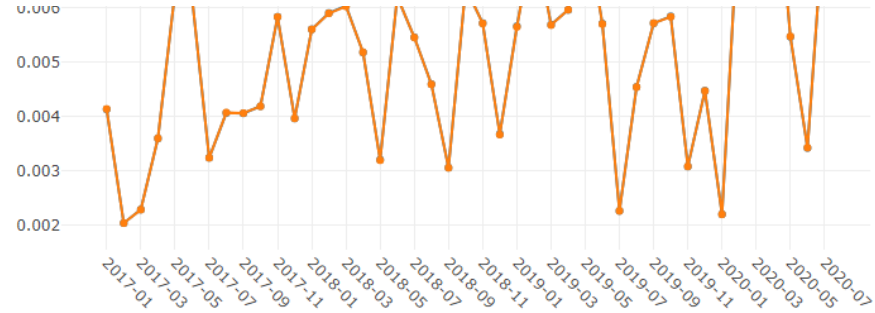


information_ratio



std





4、ScoreIC

- Axis X: Trading day
- - Axis Y:

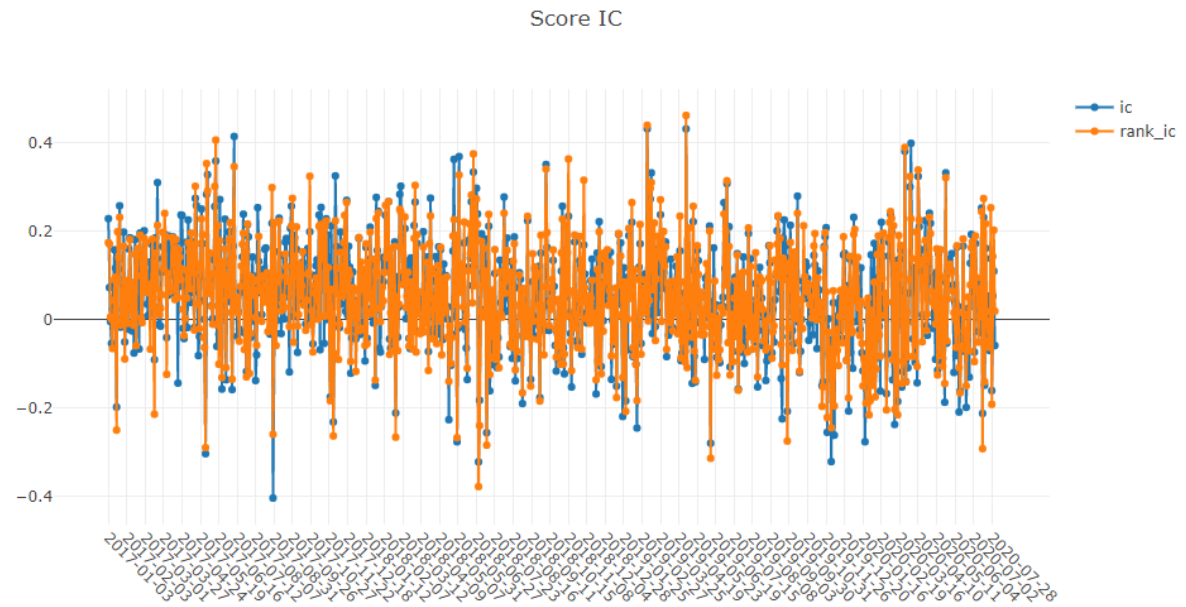
    ic

    The Pearson correlation coefficient series between label and prediction score. In the above example, the label is formulated as Ref($close, -2)/Ref($close, -1)-1.
    （prediction score就是机器学习出来的股票评分） （label就是实际的每日收益率）

    rank_ic

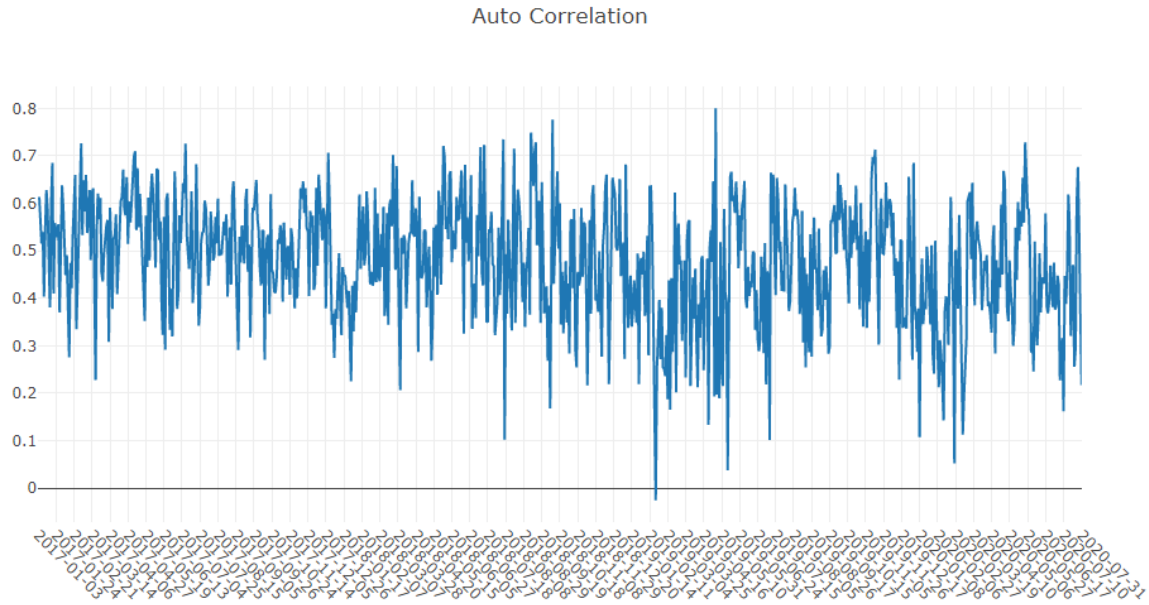
    The Spearman's rank correlation coefficient series between label and prediction score.

由scoreic_info给出



5、Model Performance

pred_autocorr



- cumulative return graphics

  Group1:

  The Cumulative Return series of stocks group with (ranking ratio of label <= 20%)

  Group2:

  The Cumulative Return series of stocks group with (20% < ranking ratio of label <= 40%)

  Group3:

  The Cumulative Return series of stocks group with (40% < ranking ratio of label <= 60%)

  Group4:

  The Cumulative Return series of stocks group with (60% < ranking ratio of label <= 80%)

  Group5:

  The Cumulative Return series of stocks group with (80% < ranking ratio of label)

  long-short:

  The Difference series between Cumulative Return of Group1 and of Group5

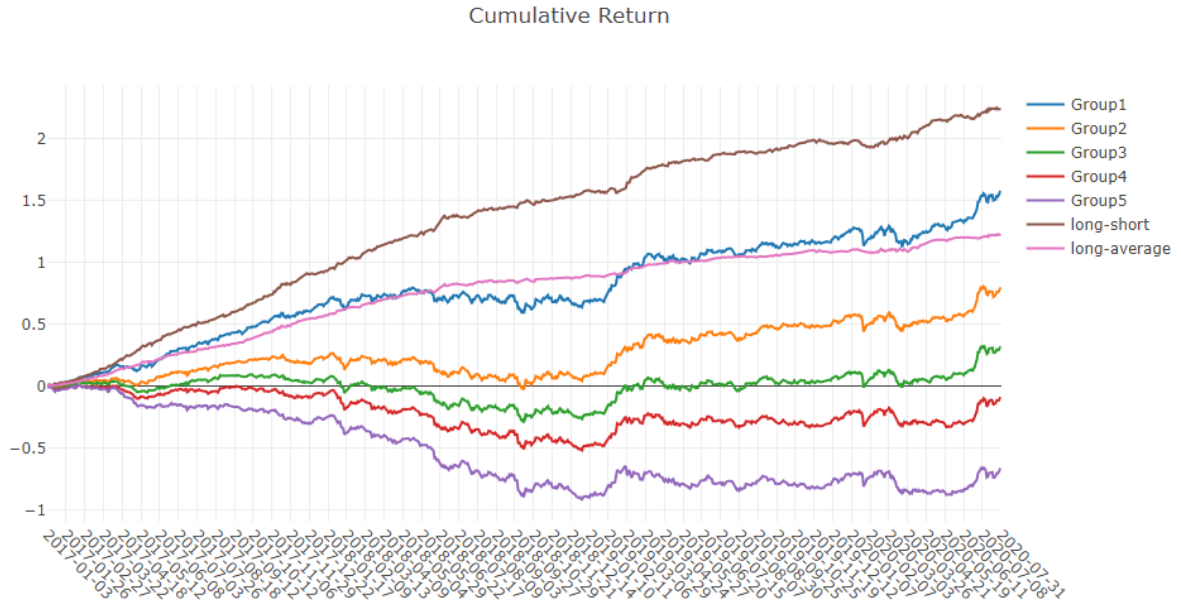
  long-average:

  The Difference series between Cumulative Return of Group1 and average Cumulative Return for all stocks.

  The ranking ratio can be formulated as follows.

$$ranking\ ratio = \frac{Ascending\ Ranking\ of\ label}{Number\ of\ Stocks\ in\ the\ Portfolio}$$

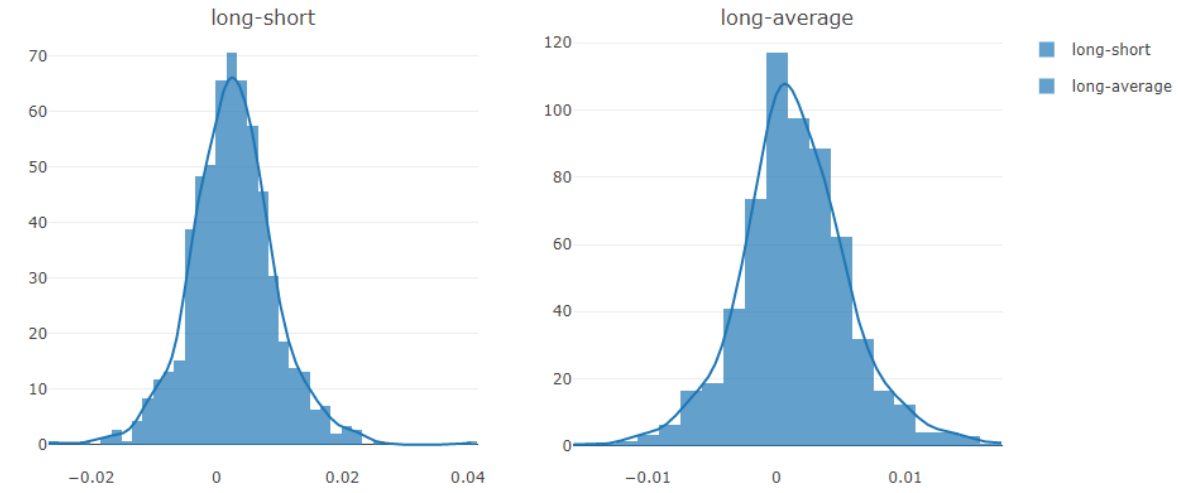
返回值**group_return**绘制下图



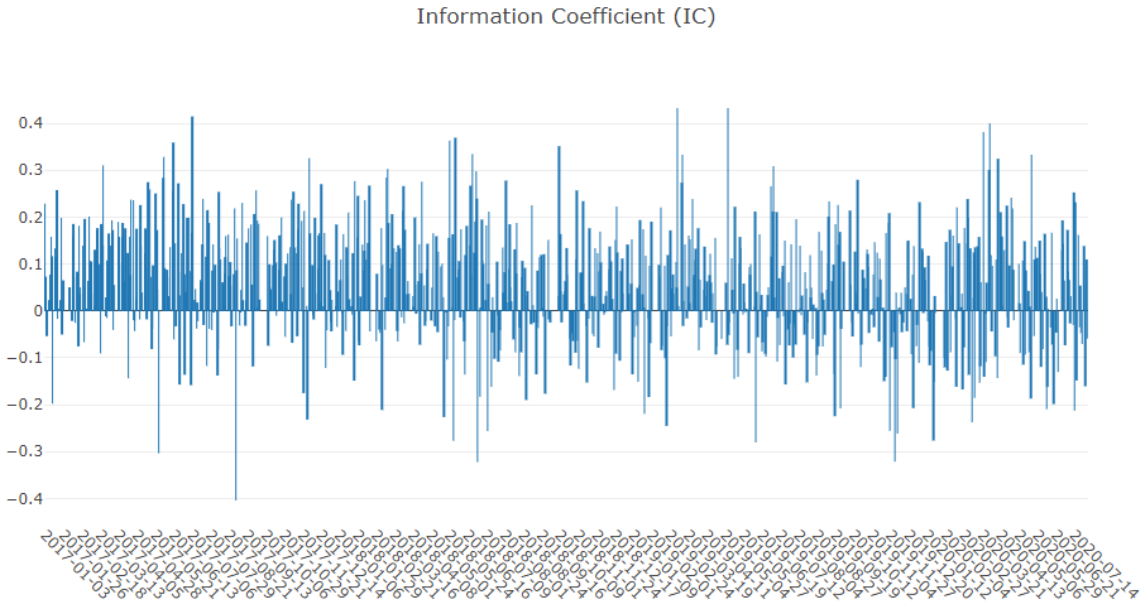
返回值**LS_LA**的绘图（LS_LA是数值）

bin_size是分隔区间个数，可以用下面代码计算：

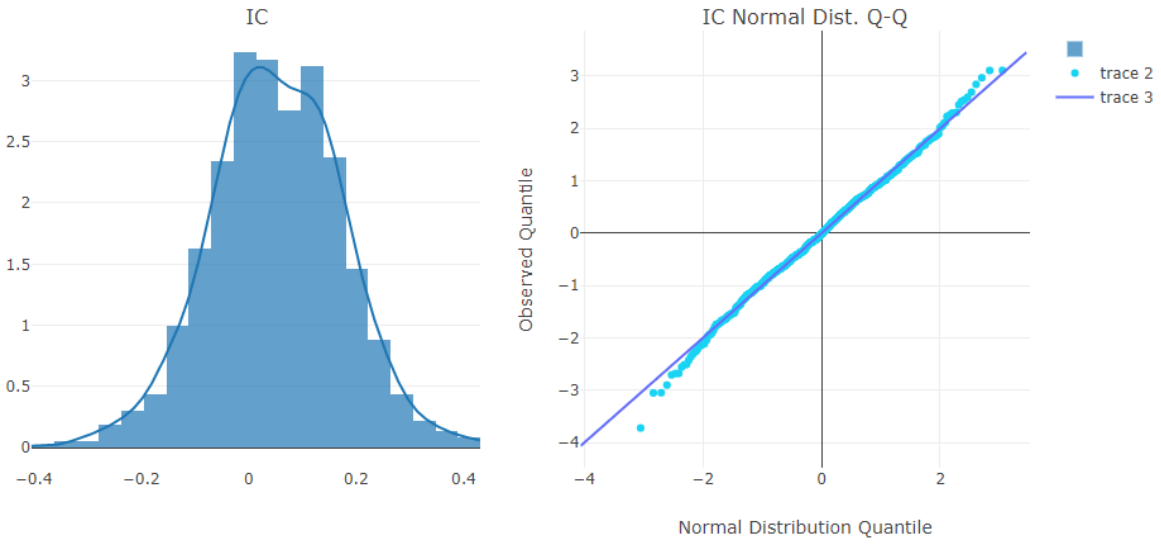
```
_bin_size = float(((t_df.max() - t_df.min()) / 20).min())
```



返回值**ic_df**绘制下图



ic_df绘制分布图与Q-Q图



返回值**monthly_ic**绘制下图