

Report_20170904

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0.1 Project update

Derek Qi
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```
In [1]: from IPython.display import Image
```

We use Russell 3000 data and do the following filters: - No penny stock - No low volume stock
- No stocks that has an M&A event announced

Factor model with 4 factors: momentum(6 weeks–26 weeks), volatility(60days), market cap and beta.

Rolling period regression with lookback window of 30 period is done.

Mean and covariance prediction is made by using the average of past 30 coefficients.

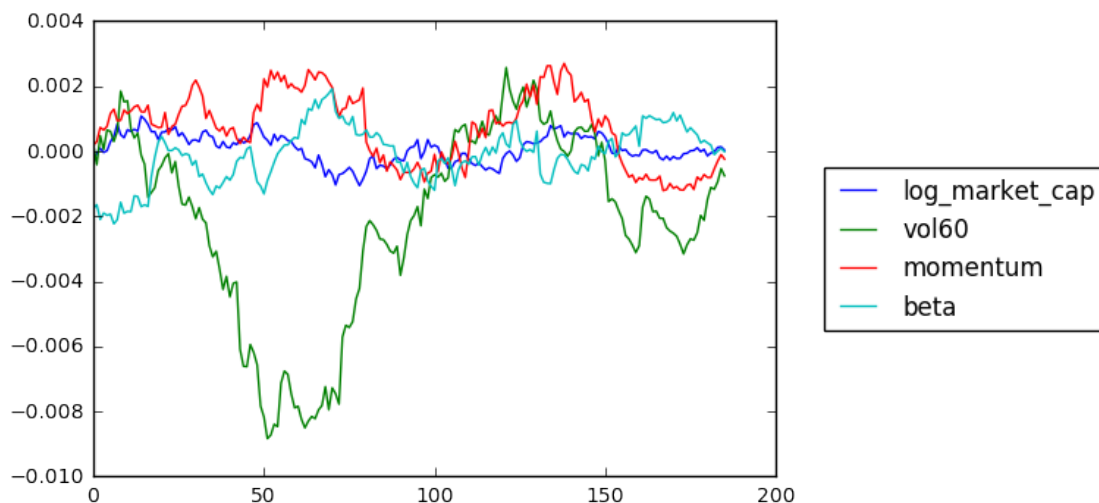
So it is generated from multiple simple linear regressions but not alike.

0.1.1 Factor behaviors

First lets look at factor returns

```
In [9]: Image(filename='output/all_fr.png')
```

Out [9]:



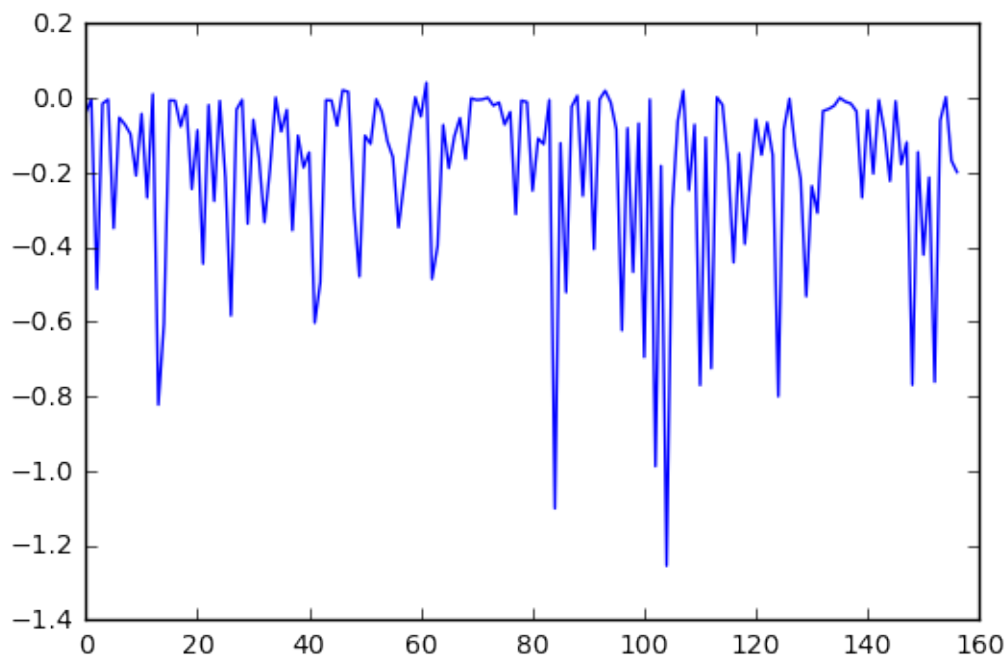
Factor returns are volatile even though we have taken the moving average/
Define the model R^2 as

$$1 - \frac{\sum (y_{true} - y_{pred})^2}{(\sum y_{true})^2}$$

The model is not an OLS so the R^2 could be negative, we fit period by period model.

```
In [10]: Image(filename='output/model_r^2.png')
```

Out[10]:

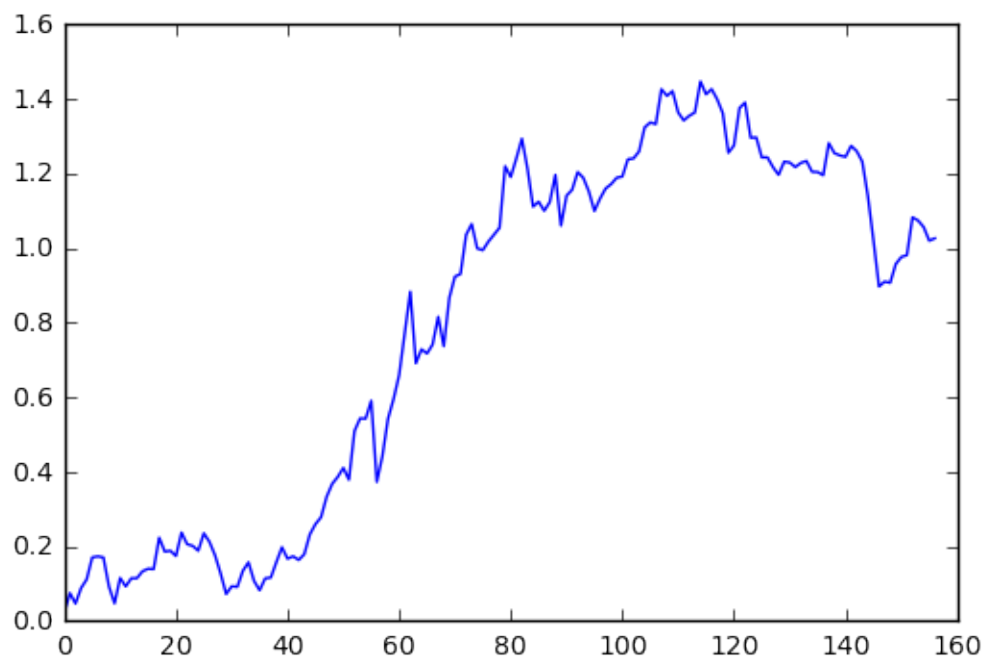


In terms of R^2 we cannot say that the model has predicting power.
And the model performance:

Metric	Performance
CAGR	41.29%
Volatility	40.49%
Sharpe	85.36%
Max_Drawdown	55.01%

```
In [2]: Image(filename='output/pnl_curve.png')
```

Out[2]:



In []: