Final Project Outline

Students will be expected to work in groups of 3-4 students to use what they've learned in class to develop and evaluate an exchange rate trading strategy. If you are unable to find a group, please speak to Nathan and/or Gladys. We will provide you with data that may be used for this project, however if you feel strongly about forecasting another asset you may use other data.

Students will be graded on computational correctness and meeting the following project requirements:

1. Choose on one or more series of economic fundamentals (options will be included in the data) to use for generating exchange rate forecasts. The forecasts of the asset price may be directional or point forecasts.
2. Students are expected to outline a series of trading rules based on these forecasts, including when you decide to enter long and short positions as well as when you will exit each position (for example, going beyond some holding period).
3. Students will optimize *at least two* strategy hyperparameters such as:
    a. The length of the strategy holding period
    b. Model hyperparameters (alpha for lasso, number of lags to include, rolling window size, etc.)

    Students should visualize the optimization process using a heatmap.
4. Students will produce an equity curve showing the returns strategy over a backtest. If you made directional forecast, perform a binomial test of these forecasts. If you generated point forecast, perform the DMW test of your forecasts. You should also produce table with the HFRI metrics to evaluate their strategy's performance, like the one below:

RISK/RETURN

TYPE	B1	B2	B3	HFRIMI
Geo. Average Monthly	0.73	0.5	0.8	0.75
Std. Deviation	1.95	1.61	4.31	1.99
High Month	7.65	6.85	12.82	7.88
Low Month	-9.08	-7.63	-16.8	-6.4
Annualized Return	9.1	6.13	9.97	9.35
Annualized STD	6.77	5.59	14.92	6.9
Risk Free Rate	2.58	2.58	2.58	2.58
Sharpe Ratio	0.95	0.63	0.54	0.96
% of Winning Mo.	69.37	68.35	65.82	62.03
Max Drawdown	21.42	22.2	50.93	10.7

REGRESSION

TYPE	B1	B2	B3
Alpha	0.31	0.38	0.64
Beta	0.62	0.77	0.14
Mnt. R-Squared	0.37	0.38	0.09
Correlation	0.61	0.62	0.3
Up Alpha	-0.18	-0.02	0.88
Up Beta	0.91	1.1	0.1
Up R-Squared	0.34	0.36	0.02
Down Alpha	-0.32	-0.37	0.17
Down Beta	0.18	0.21	0.06
Down R-Squared	0.04	0.04	0.01

Your final submission will be a 2-3 page report that includes a description of your forecasts and strategy, the optimization heatmap (as well as your final set of parameters), your equity curve, and the performance table. Students should briefly discuss their performance against the HFRI indices as well as any changes they would make given more time.