Multifactor Model

REVIEW

CODE REVIEW

HISTORY

Meets Specifications

Hi😊 There,
`Congratulations`, you completed all the tasks and successfully completed the project.
Hope you love the contents, lessons and learned a lot from difficulties faced during the project submission.
Try to implement the same concept in real world scenario's.
Congrats again and All the best for Term 2 and future projects.
Regards,
Reviewer.
`Your feedback is helpful to update myself.`

Statistical Risk Model

✓

The function `fit_pca` fits the PCA model with returns.

With required parameters, you successfully implemented the PCA model

✓

The function `factor_betas` gets the factor betas from the PCA model.

Using PCA model, the factor betas returns is a nice work.

✓

The function `factor_returns` gets the factor returns from the PCA model.

same using PCA model, generate factor returns is an awesome work.

✓

The function `factor_cov_matrix` gets the factor covariance matrix.

Good job on finding the factor_covariance _matrix

✓

The function `idiosyncratic_var_matrix` gets the idiosyncratic variance matrix.

Brilliant work on finding the correct idiosyncratic variance matrix.

✓

The function `idiosyncratic_var_vector` gets the idiosyncratic variance vector.

Fantastic job on finding the idiosyncratic variance vector

✓

The function `predict_portfolio_risk` gets the predicted portfolio risk.

predicted portfolio risk is calculated successfully.

Create Alpha Factors

✓

The function `mean_reversion_5day_sector_neutral` generates the mean reversion 5 day sector neutral factor.

Generation of mean_reversion_5day_sector_neutral is an good work.

✓

The function `mean_reversion_5day_sector_neutral_smoothed` generates the mean reversion 5 day sector neutral smoothed factor.

Good calculation in calculation of smoothed factor.

Evaluate Alpha Factors

The function `sharpe_ratio` gets the sharpe ratio for each factor for the entire period.

Implementation of sharp ratio is again awesome work.

The student correctly mentions what would happened if you smooth the momentum factor and why.

Your explanation is good, yes the FRA is very close to 1.0 meaning the factor ranks are very stable, so there would no change in momentum factor.

Optimal Portfolio Constrained by Risk Model

The function `OptimalHoldings._get_obj` returns the correct objective function.

Clear job on finding the Correct objective function

The function `OptimalHoldings._get_constraints` returns the correct list of constraints.

The list of constraints you generated is an Excellent job.

The function `OptimalHoldingsRegualization._get_obj` returns the correct objective function.

For Regualization your objective function is good.

The function `OptimalHoldingsStrictFactor._get_obj` returns the correct objective function.

Finally its awesome, you generate the correct objective function for optimizing the returns with the strict factor constraint

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