

Meeting Minutes

PWC ILab Teams Meeting on 12.01.2024, 10:30am

Agenda: Presentation of Project Improvements and further Questions
Participants: PWC: Christian Koellich, Florian Moemken,
WU: Florian Pauer, Lukas Handler,
Students: Arina Suhodolova, Sophie Grill, Alexei Volodin,
Dinara Zainullina, Sebastian Herzog
Last Meeting: 22.12.2024 at 9am
Next Meeting: Online Teams Meeting on 26.01.2024 at 11:30am

Presentation of our Improvements and Rolling PCA Results

- Team*
- Treated multicollinearity by dropping some variables from our PCA dataset with a higher correlation than the chosen threshold of 0.85 (36 variables are left);
 - Plotted time series of averages of each asset class and defined important economic periods on the graph, as was suggested during previous meeting
 - Used KMO test to determine rolling window size (with threshold of 0.9, window size is 423 days)
 - Dropped some highly correlated variables from macro data as well, using the same methodology as above, but with a lower threshold since it's for a regression and not a PCA (28 variables are left)
 - Plotted time series of averages of macro indicators as well;
 - Presented an expected timeline to finish the project;
 - Remaining question: how to proceed with regression (managing 4000 PCAs)

Suggestions and Adjustments to be made

- Koellich*
- Use 0.85 as a KMO threshold to get a smaller window size (should be around 150 days), otherwise it is too big;
 - Add a random matrix model to the KMO test for an extra check-up
- Pauer*
- Add a legend to the principal component plot for better understanding;
 - Print the dates to the plot as well;
 - As many oil/gas commodities were dropped while treating multicollinearity, switch out heating oil with crude oil, as it is more economically important for analysis
- Koellich*
- Add credit time series (for US: AAA, BBB from St.Louis.Fed; for Europe: should be an index in Bloomberg)
 - Extract data on variance explained by each principle component for regression analysis with macro data;
 - Extract factor loadings for each PC to understand which variables impact the principle components the most;

Additional suggestions regarding timeline

- Koellich*
- During the meeting on first economic interpretation of the results (08.03.2024) we should also already discuss visualization