Big Data in Finance

Part II - CRSP and Compustat

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February 13, 2019

Schedule

- Lecture 4: CRSP and Compustat basics
- Lecture 5: Factor Investing

Prerequisites [1]

1. Working knowledge with Python.
    - I recommend using PyCharm as Python IDE for Python 3. It can be downloaded for free at download PyCharm.
    - Student and faculty members license is for free, you only need to apply at PyCharm license.
2. WRDS direct connection with Python.
    - WRDS has built a Python module that allows direct download of data sets from WRDS services in Python. This is very convenient and we are going to use this tool in class.
    - In order to use the direct download you need to setup your connection beforehand by following the instructions here.
    - The first time you try to setup your connection it might not work, unfortunately. The WRDS support is very responsive, so make sure to email them if you need help to set up your connection.
3. Working knowledge with GIT.
    - All course material will be available in Bitbucket repository. Access here.
    - It is mandatory that you create your own git repository for this class. Part of your homework will be to send us your git log - we will go over it during class.
    - Make sure to set up a Bitbucket account here and study the GIT basics here.
    - Using GIT will change the way you collaborate in research projects, making it much easier to organize and keep track of changes made by you or your colleagues.

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[1] Luckily enough, I know Kriste covered most of the material here. Make sure to have everything up to speed by Lecture 4.

4. Optional: power up your Jupyter Notebook.
    - Notebooks are great to produce documents you intend to present.
    - We are going to use notebooks during class.
    - Here you can find a description of very useful plugins for Jupyter Notebooks. I highly recommend that you install the suggested plugins.

Lecture 4: CRSP and Compustat

1. Homework I due.
2. Overview of data sets:
    - Compustat:
        - Fundamentals Annual
        - Fundamentals Quarterly
        - Pension Annual
        - Names Table
    - CRSP
        - Securities File Monthly
        - Securities File Daily
        - Events Table
        - Stock Header Info
3. How to download data into Python
4. CRSP and Compustat merge
5. Characteristics Construction: Fama and French (2015) + Momentum
    - Size (CRSP)
    - Book to Market (Compustat)
    - Profitability (Compustat)
    - Investment (Compustat)
    - Momentum (CRSP)

Lecture 5: Factor Investing

1. Homework II Due.
2. Replicate Fama and French (2015) five factors and momentum factor.
3. Alpha evaluation.
4. Signal evaluation: Fama-MacBeth.