Factor Investing with Python

Mr. Q Follow
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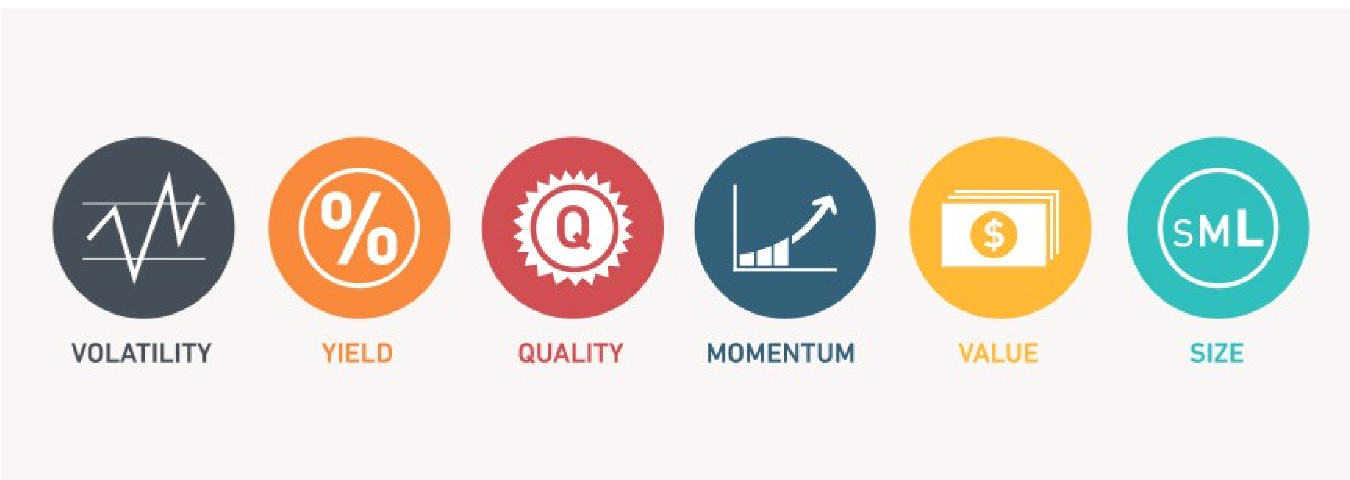
A new series of Python in Finance with a practical example. Let's learn something about how professional money managers are handling the portfolios and where Python can be used.



Motivation

With the limited amount of good quality data available for less cost, the most common articles on Medium are talking about using ML/AI to predict the returns with only the pricing data, which are less likely to generate long term stable returns, because we are missing the other important information.

In real life, professional money managers won't do so. They have a very comprehensive method to make decisions on what asset to hold by how much and one of the common approaches is Factor Investing.

Factor Investing

I have been reading on Medium for years and one of the rare topics is Factor Investing. The factor Investing, though, is not an unfamiliar topic in the **professional money management industry**. No matter you are a quant or a traditional portfolio manager, you will at least hear the word “Factor”.

A good explanation from Investopedia:

> Factor investing is a strategy that chooses securities on attributes that are associated with higher returns. There are two main types of factors that have driven returns of stocks, bonds, and other factors: macroeconomic factors and style factors. The former captures broad risks across asset classes while the latter aims to explain returns and risks within asset classes.

In more plain words, we use the metrics like GDP, PMI and Market Performances, etc to choose how much money we put in bond, commodity and equity. And we use measures such as Earning, News Sentiment, Momentum, etc to choose which bond and stock to buy within the asset class. This is a **systematic and professional** way to generate stable **returns over the long term** rather than short term market speculation.

Why Factor Investing with Python?

Factor Investing involves a massive amount of works and Python helps to automate. Traditionally, within the money management firms, you will have economists to provide the macro view, you will have analysts to provide micro view such as stock recommendation and you will have portfolio managers to manage the real funds with all of the information. Imagine if you are going to do it only by yourself and don’t forget it’s likely you will have to backtest different strategies with different possible inputs many times. You definitely need a tool for automation and Python is such a great tool, easy enough to be used by ordinary people, to automate each part of the investment machine.

Topics to Cover

Obviously, it won't be a textbook or a University course and I am for sure won't have enough expertise in every single part of the asset management to share the knowledge and we are probably not going to be a professional money manager. The goal of this series is to focus on the key part of the Factor Investing and those parts are usually the places where Python can help. Also, we will limit the asset class to be equity only due to data availability.

1. **Factor Research**: We explore the factors and use a scientific approach to decide if a factor works.

2. **Strategy Study**: We put the factors together with the portfolio construction and see if the strategy works.

3. **In Production**: Once the strategy is decided, Python can help us to automate the process.

There are other related topics, especially related to data and coding. I will try to follow the topics and break them down to the bite-size sessions, so people can follow it easily.

Next

Data and tools. First thing before we even do anything is data and tools. We will need good data with good tools to access the data to be ready to start.

Factor Investing with Python #1 Data

Data comes first when we are talking about Finance and Python. However, I am not only talking about capturing the raw…

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