lesson 06

Extracting Financial Insights from Charts and Graphs

Python for Financial Analysis

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elvtr

Syllabus Review

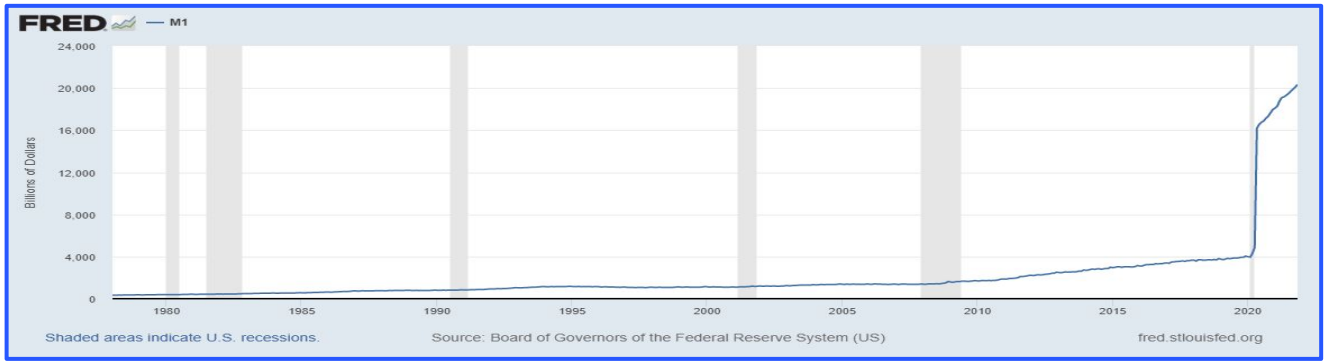
1. Introduction to Python: Python in Finance
2. Python Basic Syntax: Importing Libraries
3. Working with Pandas
4. Pandas Underneath the Hood: Working with NumPy
5. Data Wrangling and Visualization
6. **Extracting Financial Insights from Charts and Graphs**
7. Financial Calculations with Python: Part 1
8. Financial Calculations with Python: Part 2
9. CAPM and Portfolio Management
10. Linear Regression
11. Time Series Analysis
12. Algorithmic Trading

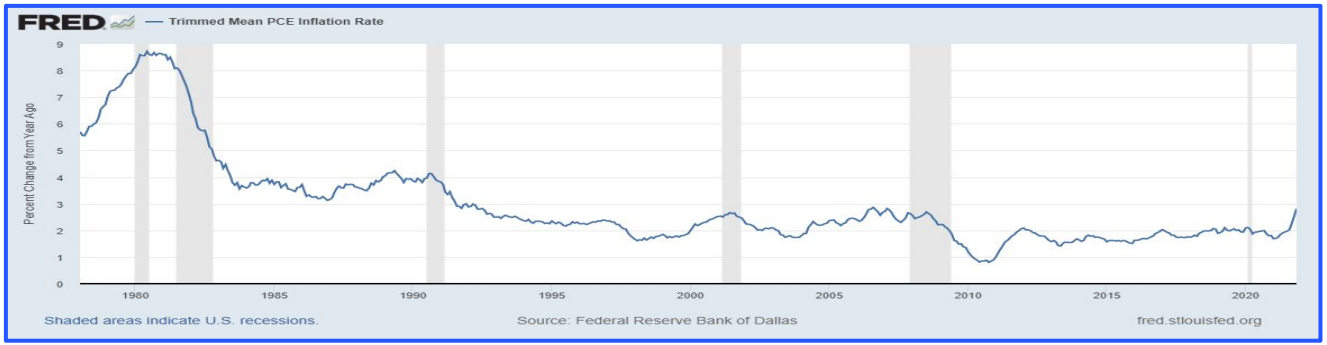
Bonus Class: Cryptocurrency Beyond the Basics with a Fintech Guest Speaker

Class agenda

- A picture is worth 10 ** 3 words
- Turning charts into insights + persuading decision makers
- Pythonic: List / dict comprehension and nested loops
- Case studies: Interpreting inflation and political polls
- Breakout rooms: Interpreting charts

M1 and Inflation rate

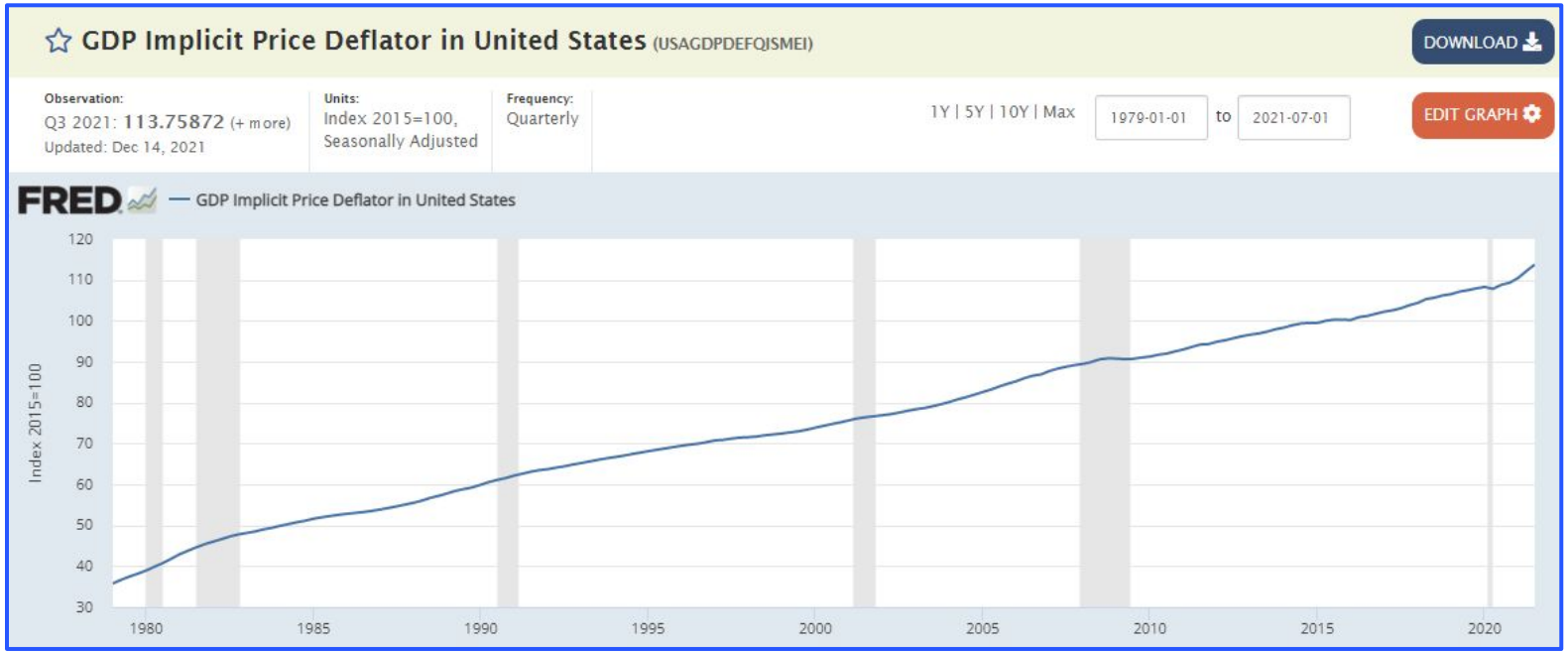




Gold


Gold Fixing Price 10:30 A.M. (London time) in London Bullion Market, based in U.S. Dollars
(GOLDAMGBD228NLBM)
DOWNLOAD
Observation:
2022-01-06: 1,804.950 (+ more)
Updated: Jan 6, 2022
Units:
U.S. Dollars per Troy Ounce, Not Seasonally Adjusted
Frequency:
Daily
1Y | 5Y | 10Y | Max
1978-01-01
to
2022-01-06
EDIT GRAPH
FRED
Gold Fixing Price 10:30 A.M. (London time) in London Bullion Market, based in U.S. Dollars
U.S. Dollars per Troy Ounce
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
1980
1985
1990
1995
2000
2005
2010
2015
2020

GDP Deflator



Turning charts into insights

- Insights
  A. Do you think there were any correlations in those charts?
  B. Let's use a little Python, Pandas, and Seaborn to bring these together
  C. Be willing to be surprised by your conclusions

Persuading decision makers

- Persuading
  A. Do good
  B. Tell a story: Myers-Briggs Type Inventory
  C. Be your own best critic and raise doubts
  D. Statements invite contradiction. But good questions persuade

Pythonic:

List/dict comprehension & nested loops

- Comprehensions can be daunting, but are used a lot in Python
  A. List comprehension
  B. Dictionary comprehension
- Nested loops

Case studies: Interpreting inflation

- Gray bars = recessions / is inflation higher than ever?
- Case study: Inflation (How much is too much): https://www.cfr.org/in-brief/how-much-too-much-us-inflation-debate-heats

Case studies: Political polls

- Like https://fivethirtyeight.com/politics/
- Or https://projects.fivethirtyeight.com/biden-approval-rating/
- Like it or not, Covid-19 has become quite political.
- Look at https://coronavirus.jhu.edu/map.html and Data Visualizations.

Breakout rooms:

Interpreting charts

- This is a meet and greet for your next assignment
- Exchange contact info and set up your first meeting or two.
- Try to gain consensus on a topic of interest.

Assignment #6

You'll be broken into teams of 3 or 4 people with mixed backgrounds in finance and computer science. Decide on a financial area of interest or a current hot topic and find good data. Create charts in Matplotlib or Seaborn based on the data. Create a one- or two-slide presentation, which tells a convincing story about your data and conclusions in a chart..

Take-home (optional): Look up https://en.wikipedia.org/wiki/Sieve_of_Eratosthenes
Write the prime number sieve in Python using list comprehension and nested loops.

Resources
(part 1)

- Matplotlib, two different y-axes

  https://matplotlib.org/stable/gallery/subplots_axes_and_figures/two_scales.html

- Myers-Briggs Type Inventory
  (free, 64 questions)

  http://www.humanmetrics.com/cgi-win/jtypes2.asp

- Iterating over rows (use sparingly)
- Refactoring

  Class init:
  https://www.geeksforgeeks.org/__init__-in-python/

  Namedtuples:
  https://realpython.com/python-namedtuple/

Resources
(part 2)

- Arranging many graphs in one figure

  https://matplotlib.org/stable/tutorials/intermediate/arranging_axes.html#

- List comprehension

  https://realpython.com/list-comprehension-python/

- Dictionary comprehension

  https://towardsdatascience.com/10-examples-to-master-python-dictionary-comprehensions-7aaa536f5960

Q&A