The US Treasury (UST) market is unique:
▶ The most credit-worthy, essentially free of default risk.
▶ Large amount outstanding, highly liquid.
▶ Supported by well developed repo and derivatives markets.

UST provides the most important benchmark curve:
▶ The reference curve for cost of funds at different borrowing horizons.
▶ Price discovery about inflation and macroeconomic fundamentals happens here.
▶ Information on US monetary policy also happens here.

UST has also become politically charged:
▶ Three rounds of quantitative easing after 2008 and the current infinite QE.
▶ Large foreign holdings because of the reserve currency status of US dollar.
▶ Financing the large and ever growing deficits of the US government.
Ratios of UST to GDP

- US Public Debt $23.41T USD.
- US Treasuries $16.89T USD:
  - Bills: $2.56T.
  - Notes: $9.99T.
  - Bonds: $2.41T.
  - TIPS: $1.51T.
- US Muni’s: $3.85T USD.
- US GSE’s: $1.83T USD.
- 中国利率债 55.51 万亿 CNY:
  - 国债 16.79 万亿.
  - 政策银行债 16.09 万亿.
  - 地方政府债 22.63 万亿.
Sectorial Distribution of UST

Holdings in USD Trillion

- MMMF+MF+ETF
- Private Pension
- Insurance Companies
- Depository Institutions
- Monetary Authority
- Rest of the World

Holdings as Fraction of Total Marketable Treasuries (%)

Financial Markets, Spring 2020, SAIF
Class 11: The U.S. Treasury Market
Jun Pan 5 / 18
Foreign Holdings of UST (USD Trillion)

Holdings of US Treasury Securities (USD Trillion)

Jan 2020 (USD Billion)

<table>
<thead>
<tr>
<th>Country</th>
<th>Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1211.7</td>
</tr>
<tr>
<td>China, Mainland</td>
<td>1078.6</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>372.7</td>
</tr>
<tr>
<td>Brazil</td>
<td>283.3</td>
</tr>
<tr>
<td>Ireland</td>
<td>271.4</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>255.2</td>
</tr>
<tr>
<td>Switzerland</td>
<td>238.1</td>
</tr>
<tr>
<td>China, Hong Kong</td>
<td>229.6</td>
</tr>
<tr>
<td>Cayman Islands</td>
<td>216.1</td>
</tr>
</tbody>
</table>
Monthly Net Purchases of US Treasury Securities by China (USD Billion)

Financial Markets, Spring 2020, SAIF

Class 11: The U.S. Treasury Market

Jun Pan 7 / 18
Amidst global dollar shortage, foreign institutions sold UST to raise USD cash.

- FIMA Repo Facility: FIMA account holders can use UST held at Fed as collateral to borrow USD cash.
- Announced: March 31.
- Effective: April 6.
Monetary Policy and the Yield Curve

- The Fed controls the short-end of the yield curve:
  - FOMC meets every six weeks to set the Fed funds target rate.
  - The Fed funds market: depository institutions lend reserve balances to one another overnight.
  - The Fed uses open market operations to adjust the supply of reserve balances so as to keep the fed funds rate around the target established by the FOMC.

- Fed traditionally does not control the long-end of the yield curve, but
  - Since late 2008, the Fed did three rounds of QE.
  - Since March 2020, the Fed commits to infinite QE.

- Absent of the Fed, the fundamental drivers of the long-term interest rates:
  - Inflation expectations.
  - Long-term economic growth.
Fed Funds Target Rate, Yield Curve, and Business Cycle

Financial Markets, Spring 2020, SAIF

Class 11: The U.S. Treasury Market

Jun Pan

10 / 18
Monetary policy decision is informed by macroeconomic fundamentals and markets. The Taylor (1993) rule is an example:

\[ r = 2\% + \pi + 0.5y + 0.5(\pi - 2) \]

- \( \pi \): rate of inflation.
- \( y \): deviation of real GDP from a target.

Markets anticipate future Fed actions:
- The shape of the yield curve (e.g., slope).
- Federal funds futures and options.

Uncertainties in the target rate affect the markets. Fed: more transparency and better communications.

Fed’s dual mandate:
- Price stability.
- Maximum employment.
Macroeconomic Indicators: GDP, Inflation, and Employment

![Graph showing GDP, Inflation, and Unemployment (1958-2019)]

- **GDP**: (avg = 3.12%)
- **Core Inflation**: (avg = 3.67%)
- **Unemployment**: (avg = 6%)
When the short-term interest rates reach to zero, how to bring down longer-term interest rates?

- QE1: buy Treasury securities, agency debt, and MBS.
- QE2: buy Treasury securities.
- QE3: buy Treasury securities and MBS.

In buying Treasury securities, the ultimate goal was to precipitate a broad reduction in the cost of credit (e.g., rates on mortgage and corporate bonds).

Our purchases of hundreds of billions of dollars of securities were probably the most important and definitely the most controversial tool we would employ.

— Ben Bernanke in *The Courage to Act.*
Three Rounds of QE, 2008-2014

Total Reserve Bank Credit: $4.45T:
- Securities Held Outright: $4.22T.
  - UST: $2.46T.
  - Agency: $39.7B.
  - MBS: $1.72T.
- Repo: 0.
- Loans: $206M.
- Maiden Lane: $1.7B.
- Central Bank Swaps: 0.

Fed announcements:
- March 15: $700B QE.
- March 23: Infinite QE.

Total Fed Credit: $5.77T:
- Securities Held Outright: $4.80T.
  - UST: $3.34T.
  - MBS: $1.46T.
- Repo: $263B.
- Loans: $129B.
  - PDCF: $33B.
  - MMMFLF: $53B.
- Central Bank Swaps: $348.5B.

As of Apr 1, 2020.
QE and Treasury Yield Curve

U.S. Treasury Securities on Fed Balance Sheet ($B)

Term Spread: 10Y minus 2Y (%)

(1990 to 2016):
- avg = 124 bps
- min = -52 bps
- max = 291 bps
Main Takeaways