MONEY MARKET INSTRUMENTS

WHAT WILL YOU LEARN?

- What is the money market?
- What are the different types of money market instruments?
  - Federal funds market, LIBOR market
  - Treasury bills
  - Repurchase (Repo) agreements
  - Commercial paper
  - Certificates of deposit
- We look at longer-term U.S. Treasury and corporate debt instruments in the next lecture.

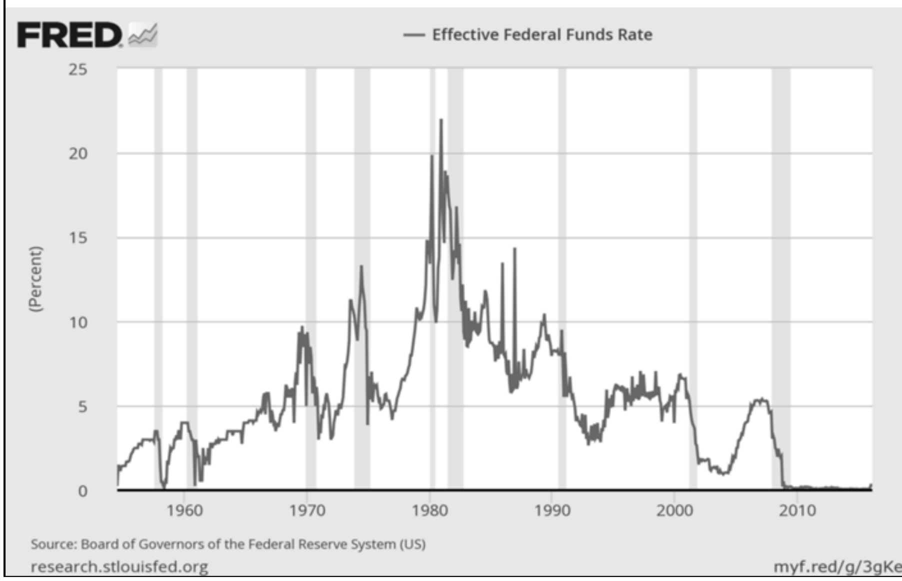
THE MONEY MARKET

- Money market consists of very short-term debt instruments.
- Meets the needs of investors who want to invest in liquid assets
- Provides entities in need of liquidity a market where they can borrow
- An important channel for U.S. central bank to conduct its monetary policy by influencing the availability and cost of liquidity

FEDERAL FUNDS MARKET

- Federal funds are the funds that banks are required to maintain as reserves at their local Federal Reserve Bank.
- Institutions with excess reserves can lend to other institutions in need of federal funds.
- These unsecured interbank loans – typically overnight transactions – are arranged at the federal funds rate.
- Key barometer of monetary policy

EFFECTIVE FEDERAL FUNDS RATE



LONDON INTERBANK OFFERED RATE (LIBOR)

- The interbank funding rate at which banks can borrow on an unsecured basis in the London money market is called the London Interbank Offer Rate, or LIBOR.
- LIBOR is calculated based on responses to a daily survey of large banks.
- Key interest rate as it is used as a reference interest rate in many derivative contracts, commercial, consumer, and mortgage loans.

LIBOR RIGGING-SCANDAL

- Does this survey-based borrowing cost truly reflect interbank funding cost?
- It emerged that participating banks were colluding to improve profits on their derivative trades.
- Several banks have settled with large fines following lawsuits.

U.S. TREASURY BILLS

- Debt securities that are issued by the U.S. Treasury are backed by the full faith and credit of the U.S. government.
- Typically viewed as having no default risk.
- Treasury securities are used to develop benchmark rates.

U.S. TREASURY BILLS

- **Treasury bills** are zero-coupon securities with maturities of one year or less.
- Issued at initial maturities of 4, 13, 26, and 52 weeks.
- Highly liquid, easily converted to cash, traded at low transaction cost.

CERTIFICATE OF DEPOSIT

- A certificate of deposit is a time deposit with a bank.
- The bank pays interest and principal to the depositor at the end of the fixed term of the CD.

COMMERCIAL PAPER

- Short-term unsecured debt notes issued by corporations typically for working capital or short-term financing needs
- CP has maturities ranging from 1 day to 270 days
- An alternative to bank borrowing available to issuers with high credit ratings.

COMMERCIAL PAPER

From the *Wall Street Journal* on June 17, 2015:

- "Mail and document services and software company Pitney Bowles Inc. used the commercial paper market to help finance its acquisition last month of Borderfree Inc. More companies have been turning to the commercial paper market to complete deals."
- "Verizon Communications, Inc., for example, announced in May it is financing its $4.4 billion acquisition of AOL Inc. by selling commercial paper."

REPO MARKET

- Increasingly important role in the fixed income market as it is used by traders to borrow and lend cash on a collateralized basis.
- A **repurchase (REPO) agreement** is the sale of a security with a commitment by the seller to buy the security back from the purchaser at a specified price at a designated date.
- A **reverse repo** is the opposite transaction: it is the purchase of a security for cash with the agreement to sell it back to the original owner at predetermined price.
- Collateralized loan whose collateral is a security or a pool of assets

SUMMARY

- Overview of the money market instruments
- Examples of money market instruments are overnight interbank loans, Treasury bills, CD's, commercial paper, and repurchase agreements.
- In optional videos, you can review bond valuation learn about T-bill quoting conventions, and see a detailed example of repo transactions.
- Next we look at longer-term debt instruments.

CALCULATING TREASURY BILL PRICES

WHAT WILL YOU LEARN?

- How to calculate Treasury bill prices?

TREASURY BILLS

GO TO: Notes and Bonds

Friday, April 01, 2016

Treasury bill bid and ask data are representative over-the-counter quotations as of 3pm Eastern time quoted as a discount to face value. Treasury bill yields are to maturity and based on the asked quote.

Maturity	Bid	Asked	Chg	Asked yield
4/7/2016	0.215	0.205	0.113	0.208
4/14/2016	0.210	0.200	0.118	0.203
4/21/2016	0.208	0.198	0.098	0.201
4/28/2016	0.213	0.203	0.053	0.206
5/5/2016	0.188	0.178	0.093	0.181
5/12/2016	0.203	0.193	0.110	0.196
5/19/2016	0.210	0.200	0.083	0.203
5/26/2016	0.200	0.190	0.075	0.193
6/2/2016	0.205	0.195	0.043	0.198
6/9/2016	0.198	0.188	0.025	0.191
6/16/2016	0.200	0.190	0.005	0.193
6/23/2016	0.220	0.210	0.018	0.214
6/30/2016	0.225	0.215	0.013	0.219
7/7/2016	0.243	0.233	0.020	0.237
7/14/2016	0.230	0.220	0.028	0.224
7/21/2016	0.283	0.273	0.013	0.277
7/28/2016	0.300	0.290	0.013	0.295
8/4/2016	0.310	0.300	0.013	0.305
8/11/2016	0.333	0.323	0.018	0.328
8/18/2016	0.355	0.345	0.015	0.351
8/25/2016	0.345	0.335	0.002	0.341
9/1/2016	0.358	0.348	0.013	0.354
9/8/2016	0.360	0.350	0.015	0.355
9/15/2016	0.355	0.345	0.023	0.351
9/22/2016	0.385	0.375	0.003	0.381
9/29/2016	0.388	0.378	0.008	0.384
10/13/2016	0.305	0.295	0.018	0.300

8/4/2016	0.310	0.300	0.013	0.305
8/11/2016	0.333	0.323	0.018	0.328
8/18/2016	0.355	0.345	0.015	0.351
8/25/2016	0.345	0.335	0.002	0.341
9/1/2016	0.358	0.348	0.013	0.354
9/8/2016	0.360	0.350	0.015	0.355
9/15/2016	0.355	0.345	0.023	0.351

TREASURY BILL QUOTES

- The financial press reports Treasury bill prices as discounts from $100 face value for 360-day.

CALCULATING TREASURY BILL PRICES

- For example, for the September 1 bill, we see a discount of 0.358 for a Treasury bill with 86 days to maturity. What's the implied price for a $100,000 T-bill?

CALCULATING TREASURY BILL PRICES

- Now let's find the ask price for the same bill. We see a discount of 0.348. What's the implied ask price for a $100,000 T-bill?

YIELD TO MATURITY

- We can also find the yield to maturity over the 86 days.

YIELD TO MATURITY

- What is the APR, or the bond equivalent yield?

SUMMARY

- You learned how to calculate Treasury bill prices from the discounts they are conventionally reported.