Lecture 2: Money and Bond Markets

ECON435: Financial Markets and the Macroeconomy

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Fixed-Income Securities

- guarantee repayment of principal = = face value = par value
- pay a specified "coupon rate" (interest rate) or are sold at a discount
- maturity date: when the payment is due

Even though promised repayment is "fixed," there is still bankruptcy risk

Money Markets

- Treasury bills
- Certificates of Deposits
- Commercial Paper
- Repurchase Agreements (repos)
- Federal Funds
- Eurodollars
- Bankers' Acceptances

Money Markets

- very short-term: 1 day up to 1 year
- often called "cash-equivalent" or "cash"
- provides funding for day-to-day operations
- highly *liquid*: can be traded
- relatively low risk for lender (depending on issuer)
- rollover risk for issuer

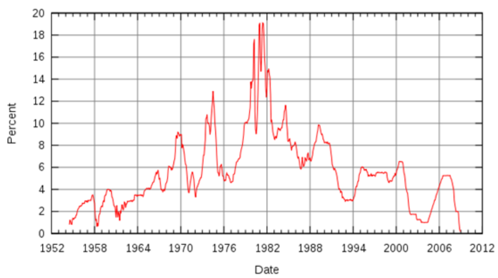
Treasury Bills (T-bills)

- day-to-day financing for US federal government
- considered the safest way to invest
- issued at maturities of 28, 91, 182 days
- face value between $100 and $100,000
- trades at a discount using the *bank-discount method*
- exempt from local and state taxes
- bid-ask spread: difference between
  - asked price: price at which you can buy from a dealer
  - bid price: price at which you can sell to a dealer
  - → dealer earns the difference

Federal Funds

- "Fed(eral) funds" = deposits of banks with the Federal Reserve Bank
- Banks can borrow/lend fed funds from each other
- Federal funds rate: interest rate on fed funds
  = important benchmark rate

Federal Funds Rate



Certificates of Deposit (CDs)

- time deposit with a bank
- pays fixed interest at maturity
- insured by the Federal Deposit Insurance Corporation (FDIC)

Commercial Paper

- day-to-day financing for large firms
- maturity up to 270 days
- denomination usually $100,000

NOTE: asset-backed commercial paper (ABCP) was a favorite method of banks to finance dubious mortgage investments

Repurchase Agreements

(also called "repos" or "RPs")

- usually 1-day maturity (except for "term repo")
- borrower sells safe government securities to the lender
- promises to buy them back at slightly higher price

→ earn interest from the difference

→ very safe form of lending

Bankers' Acceptances

- order from a firm to a bank to pay a specified amount at a future date
- if "accepted" by the bank, the bank guarantees the payment

→ bank guarantee makes it safe (important e.g. in international trade)

→ can be traded in money markets (at a discount from face value)

LIBOR

London Inter-Bank Offered Rate

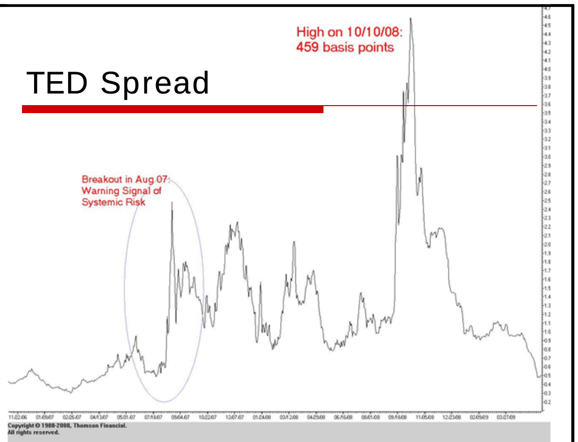
("Eurodollar" market)

= interest rate at which global banks lend money to each other

= benchmark for many other money markets

TED spread = Difference between T-bill rate and LIBOR (i.e. **T**-Bill minus **E**uro**D**ollar)

TED Spread



Bond Markets

fixed income securities with maturities greater than 1 year:

- Treasury notes and bonds
- Federal agency debt
- Municipal bonds
- Corporate bonds
- Mortgage securities
- ...

Treasury notes and bonds

Treasury notes: maturity up to 10 years

Treasury bonds: more than 10 years

safest form of bonds → benchmark role

Variant: TIPS = Treasury Inflation-Protected Securities: principal is adjusted by inflation

Federal Agency Debt

- debt issued by federal agencies that were created by Congress to provide more credit to a particular sector in the economy, e.g.:
  - Federal National Mortgage Association (FNMA)
  - Federal Home Loan Mortgage Corporation (FHLMC)

Municipal Bonds

- Issued by state and local government
- Two types:
  - general obligation bonds: backed by "full faith and credit"
  - revenue bonds: backed by revenue from particular project (e.g. airport, turnpike…)
- interest exempt from federal taxes (and state/local taxes in issuing state)
- "equivalent taxable yield:" interest rate r_m that a municipal bond must offer to match the after-tax yield $r*(1-t)$ of taxable bonds:

$$r_m = r*(1-t) \quad \text{or} \quad r = r_m/(1-t)$$

Equivalent Taxable Yields

TABLE 2.2

Equivalent taxable yields corresponding to various tax-exempt yields

	Tax-Exempt Yield				
Marginal Tax Rate	1%	2%	3%	4%	5%
20%	1.25%	2.50%	3.75%	5.00%	6.25%
30	1.43	2.86	4.29	5.71	7.14
40	1.67	3.33	5.00	6.67	8.33
50	2.00	4.00	6.00	8.00	10.00

Corporate Bonds

- bonds issued by firms
- higher risk of bankruptcy than government → higher interest rates
- different risk categories:
  - secured bonds: secured by collateral
  - unsecured bonds (debentures): no collateral
  - subordinated debentures: lowest priority in case of bankruptcy

Securitization

= turning non-traded assets into traded financial instruments (securities)

Examples:

- Mortgages (started in 1970)
- Credit card debt
- Car loans

Simple Recipe for Securitization

- "Originator" grants loans
- Combine into a large pool
- Dice the pool into little piece (securities) than can be traded
- Bribe rating agencies to give you high ratings
- Sell these pieces to investors
- "Servicer" collects payments, administers loans for a fee

Benefits of Securitization

- Risk can be shared with other investors
- Securities can be traded at any time when bank needs liquidity
- Investors have "attractive" new investment opportunities

Pitfalls of Securitization

- Agency problems:
  - banks: if they no longer hold the risk, why should they care about the credit quality of borrowers?
  - servicer
  - rating agencies
- Opaqueness: contracts too complicated to really understand

Mortgage-Backed Securities (MBS)

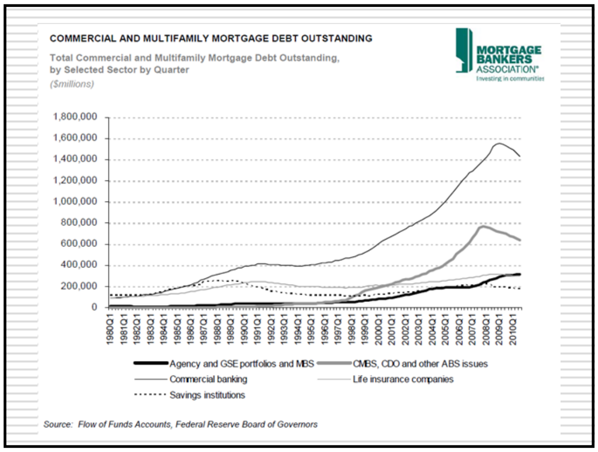
= claim to the income stream from a pool of mortgages

Originator: grants mortgages, then pools them together and sells MBSs

Servicer: collects principal and interest payments and passes them to holders of securities → "pass throughs"

Conforming mortgages: meet risk guidelines of Fannie Mae and Freddie Mac

Subprime mortgages: riskier, do not meet guidelines


COMMERCIAL AND MULTIFAMILY MORTGAGE DEBT OUTSTANDING
Total Commercial and Multifamily Mortgage Debt Outstanding, by Selected Sector by Quarter
($millions)
MORTGAGE BANKERS ASSOCIATION
Investing in communities
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1980Q1
1981Q1
1982Q1
1983Q1
1984Q1
1985Q1
1986Q1
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2005Q1
2006Q1
2007Q1
2008Q1
2009Q1
2010Q1
Agency and GSE portfolios and MBS
CMBS, CDO and other ABS issues
Commercial banking
Life insurance companies
Savings institutions
Source: Flow of Funds Accounts, Federal Reserve Board of Governors