# Lecture 4 Chapter 6
# Money, Bond and Stock Markets

# Money Market Instruments

1. Treasury Bills:

When the U.S. government needs to borrow funds, the U.S. Treasury frequently issues short-term securities known as Treasury bills.

Depository institutions commonly invest in T-bills so that they can retain a portion of their funds in assets that can easily be liquidated if they suddenly need to accommodate deposit withdrawals.

# Money Market Instruments

## Treasury Bills (Continued):

Treasury bills are attractive to investors because they are **backed by the federal governmen**t and are therefore virtually free of credit (default) risk

Another attractive feature of T-bills is their **liquidity**, which is due to their short maturity and strong secondary market.

# Money Market Securities

## Treasury Bills (continued)

- **Pricing Treasury Bills**
  - Priced at a discount from their par value
  - Price depends on the investor's required rate of return
  - Value of a T-bill is the present value of the par value

**Example: If investors require a 4% annualized return on a one-year T-bill with a $10,000 par value, the price that they are willing to pay is:**

$$P = \frac{\$10{,}000}{(1.04)}$$

$$P = \$9{,}615.38$$



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# Money Market Securities

## Treasury Bills (continued)

- ***Yield from Investing in Treasury Bills***

$$Y_T = \frac{SP - PP}{PP} \times \frac{365}{n}$$

Where

*SP* = selling price

*PP* = purchase price

*n* = number of days of the investment (holding period)

- **Treasury Bill Discount**

$$Y_T = \frac{PAR - PP}{PAR} \times \frac{360}{N}$$


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An investor purchases a T-bill with a 6-month (182-day) maturity and a $10,000 par value for $9,800. If this T-bill is held until maturity, its yield is

- $Y_T = \frac{\$10{,}000 - \$9{,}800}{\$9{,}800} \times \frac{365}{182} = 4.09\%$

If a newly issued 6-month (182-day) T-bill with a par value of $10,000 is purchased for $9,800, the T-bill discount is

- $Y_T = \frac{\$10{,}000 - \$9{,}800}{\$10{,}000} \times \frac{360}{182} = 3.95\%$



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# Money Market Instruments

## Commercial Papers:

Commercial paper is a short-term debt instrument issued only by well-known, creditworthy firms that is typically unsecured.

Some large firms prefer to issue commercial paper rather than borrow from a bank because it is usually a cheaper source of funds. - Typically upto 9 months, short term financing

# Commercial Papers:

If an investor purchases 30-day commercial paper with a par value of $1,000,000 for a price of $996,000, and holds the commercial paper until maturity, the annualized yield ( ) $Y_{cp}$ is

$$Y_{cp} = \frac{\$1{,}000{,}000 - \$996{,}000}{\$996{,}000} \text{ X } \frac{360}{30} = 4.82\%$$

# Money Market Instruments

## Negotiable certificates of deposit (NCDs) :

Negotiable certificates of deposit (NCDs) are certificates issued by large commercial banks and other depository institutions as a short-term source of funds. The minimum denomination is $100,000, although a $1 million denomination is more common.

Nonfinancial corporations often purchase NCDs. Although NCD denominations are typically too large for individual investors, they are sometimes purchased by money market funds that have pooled individual investors' funds.

# Negotiable certificate of deposits

- **Yield from Investing in NCDs**
  - Provide a return in the form of interest along with the difference between the price at which the NCD is redeemed (or sold in the secondary market) and the purchase price.

$$Y_{NCD} = \frac{SP - PP + \text{interest}}{PP}$$

  - Offer a premium above the T-bill yield in order to compensate for less liquidity and safety.


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# Negotiable certificate of deposits

- An investor purchased an NCD a year ago in the secondary market for $990,000. He redeems it today upon maturity and receives $1,000,000. He also receives interest of $40,000. His annualized yield ( ) YNCD on this investment is

$$Y_{NCD} = \frac{\$1{,}000{,}000 - \$990{,}000 + \$40{,}000}{\$990{,}000}$$

=5.05%



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# Money Market Instruments

## Repurchase Agreement (Repo):

With a repurchase agreement (or repo), one party sells securities to another with an agreement to repurchase the securities at a specified date and price, representing the interest

In essence, the repo transaction represents a loan backed by the securities.

If the borrower defaults on the loan, the lender has claim to the securities. Most repo transactions use government securities, although some involve other securities such as commercial paper or NCDs.

# Money Market Instruments

## Reverse Repo:

A reverse repo refers to the purchase of securities by one party from another with an agreement to sell them.

A repo and a reverse repo refer to the same transaction
but from different perspectives.

*Repo = seller = borrower* *Reverse repo = buyer = lender*

Financial institutions such as banks, savings and loan associations, and money market funds often participate in repurchase agreements. Many nonfinancial institutions are also active participants.

## Reverse Repo:

An investor initially purchased securities at a price PP of $9,920,000 while agreeing to sell them back at a price SP of $10,000,000 at the end of a 90-day period. The yield (or repo rate) on this repurchase agreement is.

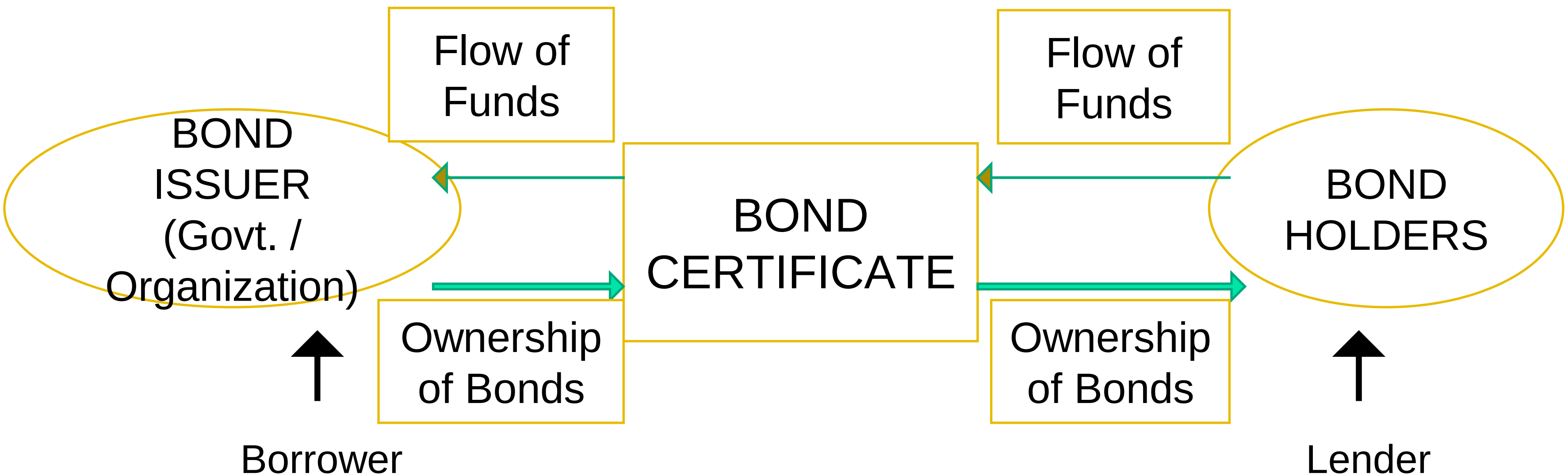
$$\text{Repo rate} = \frac{\$10{,}000{,}000 - \$9{,}920{,}000}{\$9{,}920{,}000} \times \frac{360}{90}$$

$$= 3.23\%$$

# What is a bond?

- A long-term debt instrument in which a borrower agrees to make payments of principal and interest, on specific dates, to the holders of the bond.
- Seller=Issuer=Borrower
- Buyer=Holder=Lender

# Concepts of Bonds



# Different Types of Bonds

- Treasury Bonds: Bonds issued by the federal Government.
- Corporate Bonds: Bonds issued by Corporations.
- Zero Coupon Bond: A bond that pays no annual interest but is sold at a discount below par.
- Convertible Bonds: A bond that is exchangeable, at the option of the holder, for common stock of the issuing firm.

# Key Features of a Bond

- Par value – face amount of the bond, which is paid at maturity (assume $1,000).
- Coupon interest rate – stated interest rate (generally fixed) paid by the issuer. Multiply by par to get dollar payment of interest.
- Maturity date – A specified date on which the par value of a bond must be repaid.
- Issue date – when the bond was issued.
- Yield to maturity - rate of return earned on a bond held until maturity (also called the "promised yield").

Zero coupon bond = Par/(1+Yield)^n
T-bills, Government Securities, Very short term. So, lenders are fine even if there is no coupon payment.

Coupon Bond = $\sum Coupon\ payment/(1+Yield)$^$n +$ Par/(1+Yield)^n
These are usually longer term bonds, riskier, so lenders demand coupon payments.

# *COMMON STOCK*

# Common Stock

Common stockholders are the owners of the firm. They elect the firm's board of directors who in turn appoint the firm's top management team. The firm's management team then carries out the day-to-day management of the firm.

It provides equity to the firms.

# Characteristics of Common Stock

Common stock does not have a maturity date but exists as long as the firm does. Nor does common stock have an upper or lower limit on its dividend payments. In the event of bankruptcy, the common stockholders – as owners of corporation – have the most junior claim.

# PREFERRED STOCK

# Features of Preferred Stock

- **Dividend**: In general, size of preferred stock dividend is *fixed*, and it is either stated as a dollar amount or as a percentage of the preferred stock’s par value.

- **Multiple Classes**: A company can issue more than one class of preferred stock, and each class can have different characteristics.

# Preferred stock

**Preferred Stock as a Hybrid Security:**

- Like common stocks, preferred stocks has no fixed maturity date. Also, like common stocks, nonpayment of dividends does not bring on bankruptcy, and dividends are not deductible for tax purposes.

- Like debt, preferred stocks have a fixed dividend amount. Also, most preferred stocks are periodically retired even though there is no stated maturity date.

# Differences between common and preferred stocks

- No voting rights for preferred stock compared to common stock
- No benefit from profit upside for preferred stock
- Preferred stock shareholders have priority over a company's income
- Preferred stock less risk than Common
- Common stock tends to outperform bonds and preferred shares

# Stock Markets

A stock market is a public market in which the stock of companies is traded.

# Primary versus Secondary Market

- **Primary market** – a market in which securities are bought and sold for the first time. The firm selling securities receives the money raised that they can then use to finance their businesses.
- **Secondary market** – a market for subsequent trading of previously issued securities. The issuing firm does not receive any new money, as the securities are simply being transferred from one investor to another.

# Stock Market Transactions

- Apple decides to issue additional stock with the assistance of its investment banker.  An investor purchases some of the newly issued shares. Is this a primary market transaction or a secondary market transaction?
  - Since new shares of stock are being issued, this is a primary market transaction.
- What if instead an investor buys existing shares of Apple stock in the open market. Is this a primary or secondary market transaction?
  - Since no new shares are created, this is a secondary market transaction

# What is an IPO?

- An initial public offering (IPO) occurs when a company issues stock in the public market for the first time.
- “Going public” enables a company’s owners to raise capital from a wide variety of outside investors. Once issued, the stock trades in the secondary market.
- Public companies are subject to additional regulations and reporting requirements.

## Types of Securities: Debt Securities

**Debt Securities**: Firms borrow money by selling debt securities in the debt market.

Debt is classified based on maturity period: Less than one year (issued in money market), more than one year (called bond, issued in capital market)

# Types of Securities: Equity Securities

**Equity securities** represent ownership of the corporation. There are two major types of equity securities: common stock and preferred stock. When you buy equity securities, you are making an investment that you expect will generate a return.

# Types of Stock Market Transactions

### 1. Private Placement

The firm sells new stocks directly to an investor or group of investors

### 2. Initial Public Offerings

The firm sells new stocks publicly to a large group of people for the first time

(Alibaba $25 Billion in 2014)

### 3. Rights Offering

The firm sells new shares to existing stockholders

# Types of Stock Market Transactions



4. Seasoned Equity Offering

Additional shares sold by established publicly owned companies

5. Secondary Market Transaction

Outstanding shares of established publicly owned companies that are traded in secondary market