

Financial Instruments

Chapter 2

Major Types of Securities

- debt
 - money market instruments
 - bonds
- common stock
- preferred stock
- derivative securities

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Markets and Instruments

- Money Market
 - debt instruments
 - derivatives
- Capital Market
 - bonds
 - equity
 - derivatives

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Money Market

- a subsector of fixed-income market
- very short-term, marketable, liquid, low-risk debt securities (*cash equivalents*)
- usually large denominations, so out of reach for individual investors
- money market mutual funds make them accessible to individuals by pooling resources from many investors
- yields vary according to riskiness of securities (*risk premium*)

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Money Market Instruments

- Treasury Bills
 - discount bonds
 - maturities of 28, 91 or 182 days
 - minimum denominations of \$10,000
 - income is exempt from all state and local taxes
 - highly liquid
- Certificates of Deposit
 - time deposits with a bank
 - treated as deposits by FDIC (partially insured)
 - negotiable if denomination > \$100,000
 - highly marketable if maturity < 3 months

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Money Market Instruments (cont.)

- Commercial Paper
 - unsecured debt by large, well-known companies (usually backed by a line of credit)
 - maturities \leq 270 days, usually 1-2 months
 - denomination is usually multiple of \$100,000
- Bankers Acceptances
 - like post-dated checks, selling at discount
 - foreign trade (unknown creditworthiness)
- Eurodollars
 - USD-denominated deposits overseas

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Money Market Instruments (cont.)

- Repurchase Agreements (repos, RPs) and Reverse RPs
 - used by dealers in government securities
 - dealer sells government securities, usually overnight, and agrees to buy them back at a slightly higher price (1-day loan with collateral)
 - term repos – repurchase after \geq 30 days
 - reverse repo – exactly the opposite of a repo
 - safe, since backed by government securities

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Money Market Instruments (cont.)

- Federal Funds
 - *federal funds* = reserves at the Fed
 - some banks have shortage of funds (required reserves > fed funds) \rightarrow overnight loans
 - interest rate = *federal funds rate*
- Brokers' Calls
 - brokers borrow from banks (on call) to fulfill orders on margin
- LIBOR Market
 - LIBOR = London Interbank Offer Rate

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Bond Markets

- longer-term debt instruments
- usually called the *fixed-income capital market*
- instruments:
 - US Treasury Bonds and Notes
 - Agency Issues (Fed Gov)
 - International Bonds
 - Municipal Bonds
 - Corporate Bonds
 - Mortgage-Backed Securities

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Bond Market Instruments

- US Treasury Bonds and Notes
 - T-notes: maturity ≤ 10 years
 - T-bonds: maturity between 10 and 30 years, may be callable (usually during last 5 years)
 - since 2001, no maturity > 10 years
 - denominations $\geq \$1,000$
 - prices are quoted as percentage of par value
 - semi-annual interest payments – *coupon payments*

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Bond Market Instruments (cont.)

- Agency Issues (Federal Government)
 - usually to channel credit to particular sector of the economy that might not get enough credit through normal private sources
 - usually mortgage-related agencies (FHLB, FNMA, GNMA, FHLMC) – lend the money to S&Ls that can further lend it as mortgages
 - low risk (government owned or federally sponsored)
- International Bonds (London)
 - *Eurobond* = not issued in domestic currency

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Bond Market Instruments (cont.)

- Municipal Bonds
 - issued by state and local governments
 - interest income is not subject to tax
 - 2 types: *general obligation* and *revenue bonds*
 - to compare the yields on munis (r_m) to other bonds use *equivalent taxable yield*:

$$r = \frac{r_m}{1 - t}$$

- or solve for the tax rate that equates the two yields:

$$t = 1 - \frac{r_m}{r}$$

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Bond Market Instruments (cont.)

- Corporate Bonds
 - similar to Treasury issues, but with default risk
 - *risk classification*: secured, unsecured (debentures), and subordinated debentures
 - *feature classification*: callable, convertible
 - *current yield* = annual coupon / price
- Mortgage-Backed Securities
 - from securitization of mortgage loans
 - currently, bigger market than corporate bonds
 - guarantee interest and principal payments, but not *returns*

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Capital Market - Equity

- Common Stock (Equity Securities, Equity)
 - gives owner (1) one vote at corporation's annual meeting (also *proxy*) and (2) a share in financial benefits
 - *residual claim* = shareholders have a claim to what is left of a firm's income or assets when liquidated, after other claimants have been paid
 - *limited liability* = the most shareholders can lose in case of failure is their initial investment
 - *price/earnings ratio* = price/earnings per share

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Capital Market – Equity (cont.)

- Preferred Stock
 - similar to bonds:
 - fixed dividends (like a perpetual bond)
 - paid before common stocks
 - no voting rights
 - can be redeemable (like callable bonds)
 - similar to stocks:
 - payment of dividends to the discretion of the firm (usually cumulative)
 - dividends are not tax exempt for the firm

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Stock Market Indexes

- Uses
 - track average returns
 - compare performance of managers
 - base of derivatives
- Factors in constructing or using an Index
 - is it representative?
 - how broad should it be?
 - how is it constructed?

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Price-Weighted Indexes

$$I = \frac{\sum p_i}{d}$$

- where p_i is the price of security i and d is initially equal to the number of securities in the index
- stock splits (n -for-1, stock j) change the divisor:

$$d_1 = \frac{(p_j^0/n) + \sum p_i^0}{I_0}$$

- like a portfolio with one share of each stock
- examples: Dow Jones Industrial Average
- cautions: low number of stocks (frequent changes in composition), high prices have higher weight

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Value-Weighted Indexes

$$I = \frac{\sum p_i^1 N_i^1}{\sum p_i^0 N_i^0} \times I_0$$

- where p_i is the price of stock i , N_i is the number of shares of stock i on the market, and I_0 is the initial level of the index
- like a portfolio with stock held in proportion with their market value
- examples: Standard & Poor's Composite 500, NASDAQ Composite, NYSE Composite

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Other Indexes

- Equally-Weighted Indexes
 - equal dollar investments in each stock
 - would need readjustments every period
- Foreign Indexes
 - Nikkei, FTSE (or Footsie), DAX, TSX etc.
- International Indexes
 - MSCI computes indexes for over 50 countries and regions
- Bond Market Indexes
 - Merrill Lynch, Lehman Brothers, Salomon Smith Barney

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Derivative markets – Call Options

- contracts that give the buyer the right to choose whether or not to buy a certain asset, on or before a certain date (*expiration date*), at a predetermined price (*exercise or strike price*)
- exercised when asset price *rises*
- seller of option contract charges a *premium*, which is the per-share price of the contract
- each contract is for 100 shares
- call option prices increase with maturity and decrease with the strike price

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Derivative markets – Put Options

- contracts that give the buyer the right to choose whether or not to sell a certain asset, on or before a certain date (*expiration date*), at a predetermined price (*exercise or strike price*)
- exercised when asset price *falls*
- seller of option contract charges a *premium*, which is the per-share price of the contract
- each contract is for 100 shares
- put options prices increase with maturity and with the strike price

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Derivative markets – Futures

- contracts for the delivery of a certain asset (or its cash value) on a certain date (*delivery date*), at a predetermined price (*futures price*)
- trader who commits to purchasing the asset takes the *long position* and profits when price ↑
- trader who commits to selling the asset takes the *short position* and profits when price ↓
- both parties are *obliged* to close their positions
- one party's loss is the other party's profit
- futures contracts are *free*

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