CH. 12 INVESTING IN STOCKS AND BONDS

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INVESTING IN STOCK

- Advantages:
  - ✓ Potential returns can be substantial.
  - ✓ Actively traded and therefore, may be sold quickly.
  - ✓ No direct management is needed, and company info is widely published.
- Disadvantages:
  - ✓ Risk
  - ✓ Hard to time trades
  - ✓ Uncertainty of dividends

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INVESTING IN BONDS

- Advantages:
  - ✓ Provide current income in form of interest [taxed at ordinary rates]
  - ✓ Potential gain if interest rate goes down
  - ✓ Provide preservation of capital for most of the time
  - ✓ Helps to diversify portfolio
- Disadvantages:
  - ✓ But relative to stocks, bonds offer lower return.
  - ✓ Potential loss if interest rate goes up

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STOCKS

- Common stock: Residual claims (ownership claim) of corporations
  - ✓ Limited liability
  - ✓ Separation of ownership from management
  - ✓ Tradability
  - ✓ No maturity
  - ✓ Risk-bearing efficiency through diversification
- Preferred Stock: Stock that takes priority over common stock in regard to dividends.

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STOCKS & STOCK MARKET

- Primary Market: Place where the sale of new stock first occurs.
- Initial Public Offering (IPO): First offering of stock to the general public.
- Secondary Market: Market in which already issued securities are traded by investors (e.g. NYSE, NASDAQ).
- Dividend: Periodic cash distribution from the firm to the shareholders.

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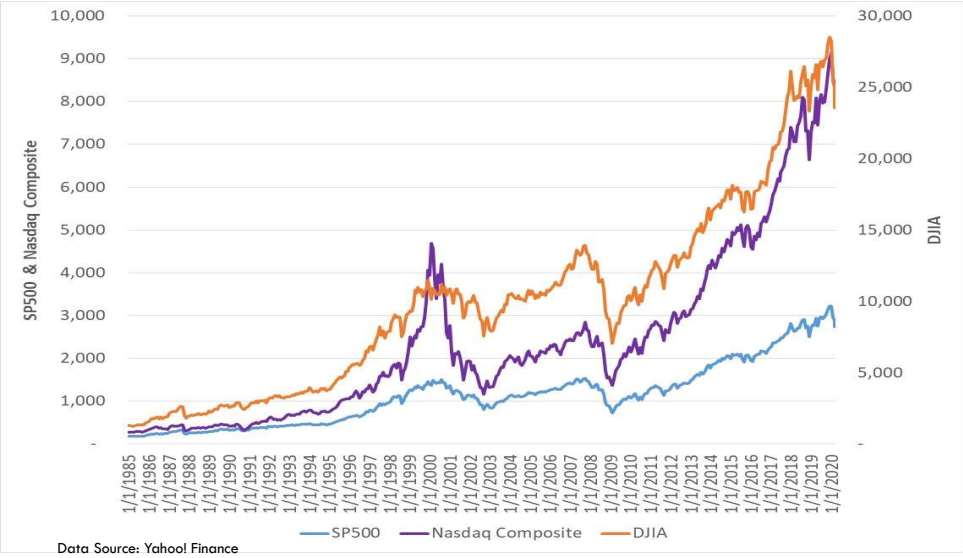
MAJOR STOCK MARKET INDICES,1985-2020



Data Source: Yahoo! Finance

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TRADING - STOCK

- Customer: Places orders
  - ✓ Market order
  - ✓ Limit order
    - Limit order to sell - Value improvement
    - Stop loss order - Value decrease
  - ✓ Good 'til cancelled order
  - ✓ Day order
  - ✓ Round lot
  - ✓ Odd lot

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TRADING - STOCK

- Brokerage firm: Initiates Transaction
  - ✓ Full service
  - ✓ Discount
  - ✓ Deep discount
- Stock Exchange: Completes transaction

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TRADING - STOCK

- Margin trading: borrow some of the money to buy stocks
  - ✓ Margin calls: meeting the call
- Short selling: try to make money in the stock market by borrowing rather than buying stocks
  - ✓ Covering the short position: Buying borrowed shares back.

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INVESTING IN STOCKS

- Buy low and sell high!
- Timing Investment: Do not invest if
  - ✓ you strongly believe the market is headed down, and/or
  - ✓ you feel uncomfortable with the general direction of the company.
- You should make steady investments; try not to time the market.
- Dividend reinvestment plan keeps your investment growing.

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INVESTING IN STOCKS

- Evaluate the viability of investment: One that generates a sufficiently attractive rate of return to compensate for risk.
- Purchase decision for stock: Depends on expected future cash flows, which are used to compute expected rate of return that you compare to your required rate of return to make purchase decision.
- Data to gather: At least 3 to 5 years of performance information including stock price change and financial statement data.

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FINANCIAL STATEMENTS

- Balance Sheet
- Income Statement
- Cashflow Statement

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BALANCE SHEET

- Balance Sheet: Financial statements that show the value of the firm's assets and liabilities at a particular point in time (from an accounting perspective).

- Balance Sheet Identity:

  Assets = Liability + Equity (Net Worth)

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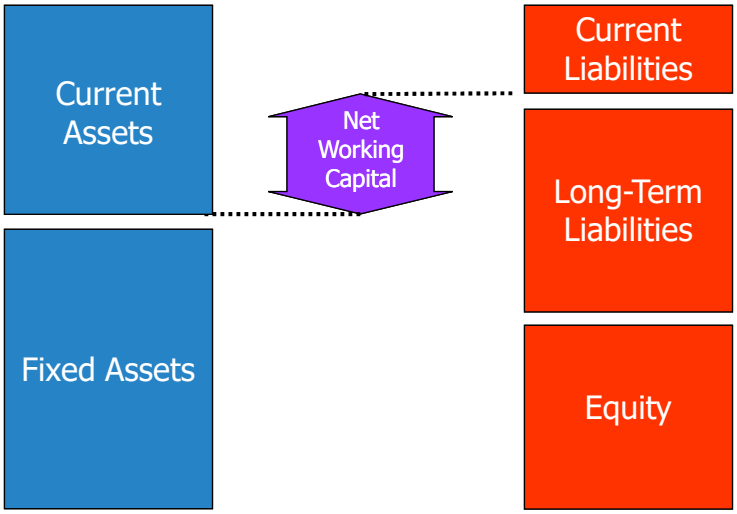
BALANCE SHEET MODEL OF THE FIRM



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BALANCE SHEET

- Current Assets: Cash and other assets that are expected to be converted to cash with the year.
  - ✓ Cash and marketable securities, accounts receivable, inventory, etc.
- Current Liabilities: Obligations that are expected to require cash payment within the year.
  - ✓ Accounts payable, wages payable, interest payable, etc.
- Net Working Capital (NWC) = CA – CL

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BALANCE SHEET

- Fixed Assets: Assets that are expected to last longer than a year. (e.g. Plants, equipment, buildings, land, etc.)
- Long-term Liabilities: Debt obligations that are expected to be paid in 12 month or longer. (e.g. Corporate Bonds, employment benefits/pension obligations, etc.)
- Equity (Net Worth): Shareholders' equity represents the value that would be returned to a company's shareholders if all of the assets were liquidated and all of the company's debts were paid off.

Equity = Total assets – Total liabilities

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INCOME STATEMENT

- The income statement summarizes a company's revenues and expenses over a period, either quarterly or annually.
- Accounting Definition of Income:

  Revenue – Costs = Income

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INCOME STATEMENT ITEMS

Sales - Net
– COGS (Cost of goods sold)
– SG&A (Selling, general and administrative) Expenses
– Depreciation
– Other Expenses
= Earnings Before Interest & Taxes (EBIT)
– Interests
= Earnings Before Taxes (EBT or Taxable Income)
– Taxes
= Net Income (Profits)

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CASH FLOW STATEMENT

- Cash flow statement shows the firm's cash receipts and cash payments over a period of time.
- Main Cash Flow Statement Items:

+/– Cash Flow from Operations

+/– Cash Flow from Investments

+/– Cash Flow from Financing Activities

= Change in Cash Balance

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COMMONSIZE ANALYSIS

- Commonsize analysis, also referred as vertical analysis, coverts each item on balance sheet as a percent of total assets. For income statement, each item is shown as a percent of sales.
  - ✓ Commonsize analysis helps managers and investors to see how each item, relative to assets or sales, has changed over time.
  - ✓ It is also helpful when comparing firms with different sizes.

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PERCENTAGE CHANGE ANALYSIS

- Percentage change analysis, also referred as horizontal analysis, computes the growth rate for each item over a period of time.
  - ✓ Percentage change analysis helps managers and investors to compare different growth rates for different items.
  - ✓ It also makes spotting long-term trends easier.

Two Period Example:

$$\text{Percentage change for sales}_t = \frac{\text{sales}_t - \text{sales}_{t-1}}{\text{sales}_{t-1}}$$

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FINANCIAL RATIOS

- Financial Ratio Analysis: Technique used to examine a company's financial statements.
- Five areas
  - ✓ Profitability
  - ✓ Asset Management/Efficiency
  - ✓ Debt Management/Leverage
  - ✓ Liquidity
  - ✓ Market Value

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PROFITABILITY RATIOS

Measures profit relative to revenue or an amount invested.

- Net profit margin = Net income/Sales
- Return on assets = Net income/Total assets
- Return on equity = Net income/Total equity

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ASSET MANAGEMENT/EFFICIENCY RATIOS

Measures how effectively the business is using its assets.

- Total asset turnover = Sales / Total assets
- Inventory turnover
  = Cost of goods sold / Inventory
- Average collection period (Days sales outstanding)
  = Account receivables / (Annual sales/365)

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DEBT MANAGEMENT/LEVERAGE RATIOS

Measures the use of fixed cost financing.

- Total debt ratio
  = Total liabilities / Total assets
- Debt to equity ratio
  = Total liabilities / Total equity
- Coverage ratio (Times interest earned)
  = Earnings before interest and taxes (EBIT) / Interest payments

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LIQUIDITY RATIOS

Measure a firm's ability to pay its obligations.

- Current ratio
  = Current assets / Current liabilities
- Quick ratio (Acid test)
  = (Cash and equivalents + Account receivables) / Current liabilities
- Cash ratio
  = Cash and equivalents / Current liabilities

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MARKET VALUE RATIOS

- P/E ratio
  = Stock price / Earnings per share
  = Stock price / (Net income/Shares outstanding)
- Dividend yield
  = (Cash dividends/Shares outstanding) / Stock price
- Market-to-book ratio
  = Stock price / (Total equity/Shares outstanding)

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BONDS

- Bond: A debt security that obligates the borrower or issuer to make specified payments (periodic interest payments and return of principal) to the lender or investor.
- The bond promises to pay periodic interest or **coupon** to the bondholder at the contract rate of interest, called the **coupon rate**, plus return the **face value** principal amount borrowed at **maturity**.

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CORPORATE BONDS

- Bond issues are the dominant source of new financing for U.S. Corporations. Corporate bond issues represent half of the total bond market.
  - ✓ Par value: Face amount of the bond, which is paid at maturity (generally, assume $1,000).
  - ✓ Coupon interest rate: Stated interest rate paid by the issuer. Multiply by par value to get dollar payment of interest.
  - ✓ Maturity date: Years until the bond must be repaid.
  - ✓ Yield to maturity: Rate of return earned on a bond held until maturity (also called the "promised yield").
  - ✓ Sinking fund: Provision to pay off a loan over its life.

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BOND PRICING

- The price of a bond is the sum of the present values of the interest payment annuity (coupon) plus the present value of the single cash flow (par value), usually $1000, at maturity.

$$PV = \frac{cpn}{(1+r)^1} + \frac{cpn}{(1+r)^2} + \ldots + \frac{(cpn+par)}{(1+r)^t}$$

- "The coupon rate is NOT the discount rate used in the bond price calculations."

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BOND PRICING

Example

What is the price of a 6.125% annual coupon bond, with a $1,000 face value, which matures in 4 years? Assume a required return of 6.6%.

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BOND PRICING

Example (continued)

What is the price of the bond if the required rate of return is 15%?

Discount rate and Bond price:

Discount rate ⇧ ➔ Bond price ⇩

Discount rate ⇩ ➔ Bond price ⇧

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BOND PRICING

Example (continued)

What is the price of the bond if the required rate of return is 6.6% AND the coupons are paid semi-annually?

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BOND YIELDS

- Yield to Maturity: The YTM is the interest rate for which the PV of the bond cash flows (coupons and face value) equals the bond price.
  - ✓ An estimate of the expected return on the bond.
  - ✓ The YTM is the approximate market rate of return and assumes that one will hold the bond until maturity.

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BOND YIELDS

- Calculating Yield to Maturity (YTM=r)

  If you are given the price of a bond (PV) and the coupon rate, the yield to maturity can be found by solving for r.

$$PV = \frac{cpn}{(1+r)^1} + \frac{cpn}{(1+r)^2} + ... + \frac{(cpn+par)}{(1+r)^t}$$

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BOND YIELDS

Example

What is the YTM of a 6.125% annual coupon bond, with a $1,000 face value, which matures in 4 years? The market price of the bond is $983.76.

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EVALUATING DEFAULT RISK: BOND RATINGS

- Bond ratings are designed to reflect the probability of a bond issue going into default. Better ratings are generally associated with better financial leverage, larger firm size, larger and steadier profits, large cash flows, and lack of subordination to other debt series.

	Investment Grade	Junk Bonds
Moody's	Aaa Aa A Baa	Ba B Caa C
S & P	AAA AA A BBB	BB B CCC C

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BOND RATINGS*

Moody's	S&P	Description
Aaa	AAA	*Prime-Quality Investment Bonds*—This is the highest rating assigned, denoting extremely strong capacity to pay.
AaA	AA	*High-Grade Investment Bonds*—These are also considered very safe bonds, though they're not quite as safe as Aaa/AAA issues; double-A-rated bonds (Aa/AA) are safer (have less risk of default) than single-A-rated issues.
A	A	
Baa	BBB	*Medium-Grade Investment Bonds*—These are the lowest of the investment-grade issues; they're felt to lack certain protective elements against adverse economic conditions.
Ba	BB	*Junk Bonds*—With little protection against default, these are viewed as highly speculative securities.
B	B	
Caa	CCC	*Poor-Quality Bonds*—These are either in default or very close to it; they're often referred to as "Zombie Bonds."
Ca	CC	
C	C	
	D	

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INTEREST RATE RISK

- Bond prices (PV) vary inversely with changes in market interest rates.
  - Discount rate ⇧ ➔ Bond price ⇩
  - Discount rate ⇩ ➔ Bond price ⇧
- The longer (shorter) the maturity of the bond, the greater (less) the change in the bond price for every change in bond discount rates.

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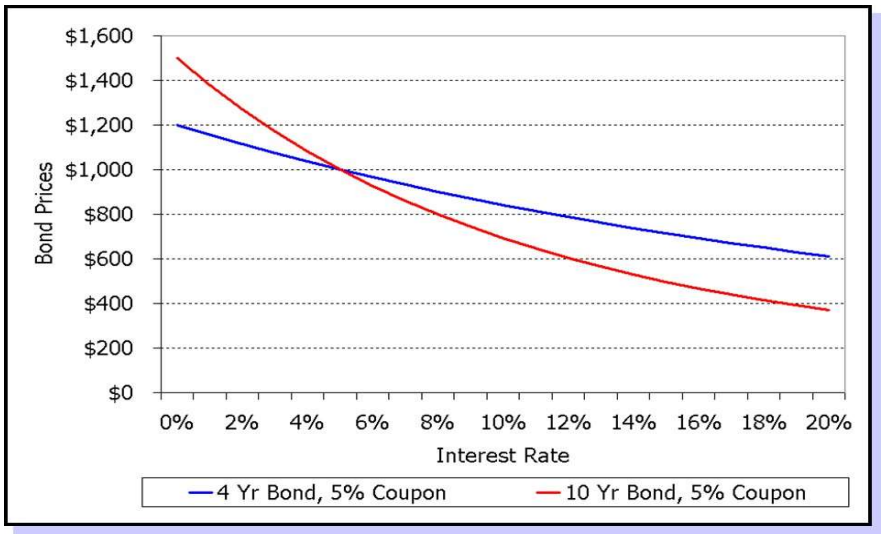
INTEREST RATE RISK



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