Investing in Stocks and Bonds

Chapter 12

Learning Goals

LG1 Describe the various types of risks to which investors are exposed, as well as the sources of return.

LG2 Know how to search for an acceptable investment on the basis of risk, total return, and yield.

LG3 Discuss the merits of investing in common stock and be able to distinguish among the different types of stocks.

LG4 Become familiar with the various measures of performance and how to use them in placing a value on stocks.

LG5 Describe the basic issue characteristics of bonds, as well as how these securities are used as investment vehicles.

LG6 Distinguish between the different types of bonds, gain an understanding of how bond prices behave, and know how to compute different measures of yield.

How Will This Affect Me?

- Once you've figured out how much you need to invest to meet important financial goals, it's time to decide which specific investments to buy. This chapter describes the basic characteristics of stocks and bonds, explains their potential returns and risks, and provides a framework for choosing among stocks and bonds to meet your financial objectives. Care is taken to explore how stock and bond prices behave and how to evaluate their performance over time. After reading this chapter you should be able to choose the most appropriate stocks and bonds for your portfolio in light of your goals and constraints.

Financial Facts or Fantasies?

- You would have to save $2,500 a year in order to end up with a $25,000 nest egg in ten years.
- A good investment is one that offers a positive rate of return.
- Income stocks have relatively high dividend yields and, as such, appeal to individuals who seek a high level of current income.
- Putting your money into stocks that offer dividend reinvestment plans is a great way of building up your investment capital.
- When interest rates go down, bond prices also go down because such securities become less valuable.
- Convertible bonds are so named because they can be exchanged for a set number of shares of common stock.

Risk of Investing

- Business Risk: the variability surrounding the firm's cash flows and subsequent ability to meet operating expenses on time.
- Financial Risk: Concerns the amount of debt used to finance a firm and the ability of the firm to meet their obligations on time.
- Market Risk: Behavior of investors in the market. Market risk is reflected in the price volatility of a security.
- Purchasing Power Risk: Changes in the general level of prices can impact ability of firm to operate

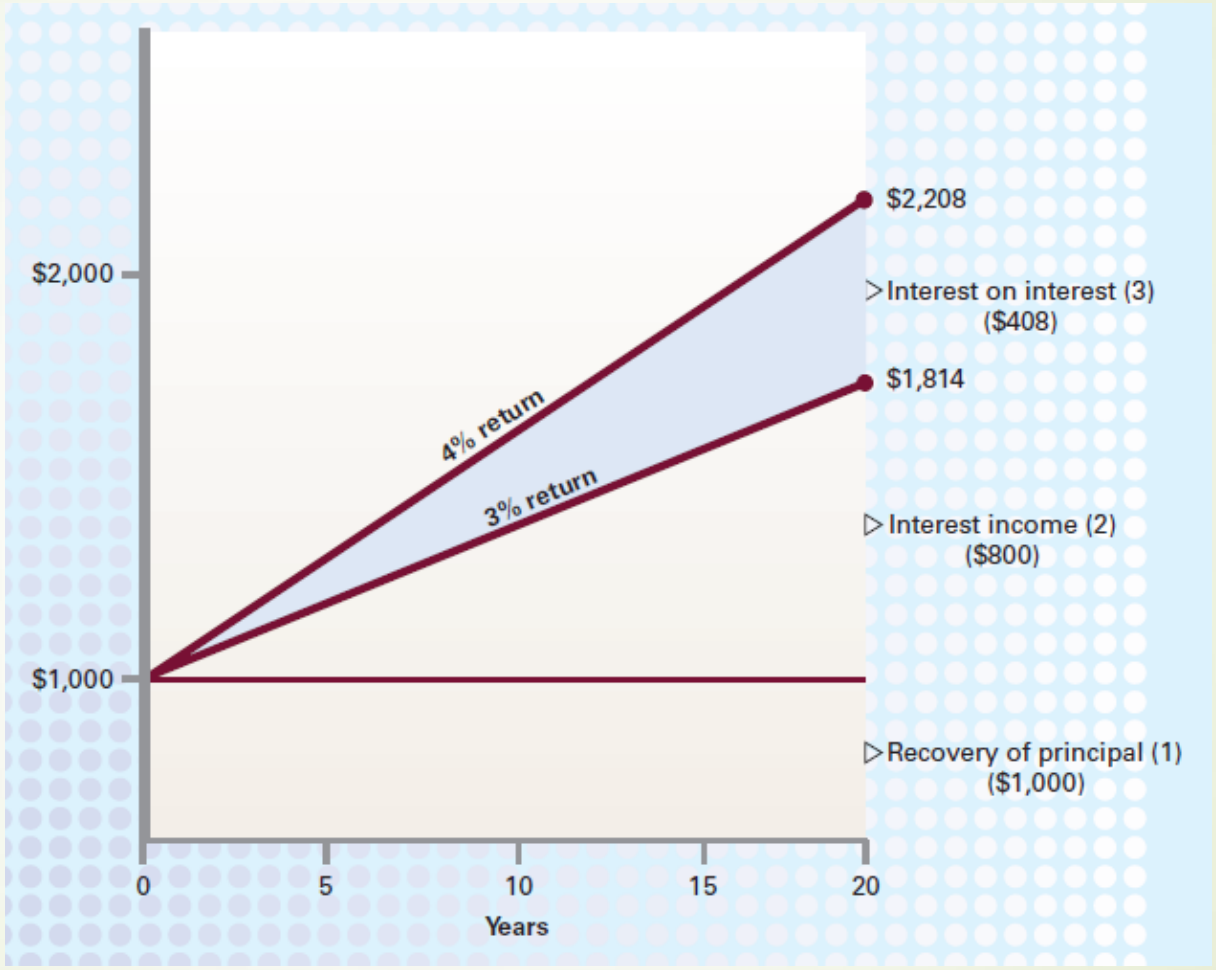
Risk of Investing

- Interest Rate Risk: Change in rate will impact fixed-income securities such as bonds: rate increases, value will decrease; rate decrease, value will increase.
- Liquidity Risk: Risk of not being able to liquidate an investment conveniently and at a reasonable price.
- Event Risk: The risk that some major, unexpected event will occur that leads to a sudden and substantial change in the value of an investment. Risks tend to be confined to specific company or industry.

Returns from Investing

- Current income: Dividends from stock, interest from bonds, or rents from real estate. Recall dividends are taxed at capital gain rates and interest on state and local bonds is exempt from federal income tax.
- Capital Gains: Realization of change in market value by selling security. Taxed at reduced alternative tax rates. Investors willing to forgo dividends to receive capital gains.
- Interest-on-interest: To earn a fully compounded rate of return, the interest earned must be invested at same rate.

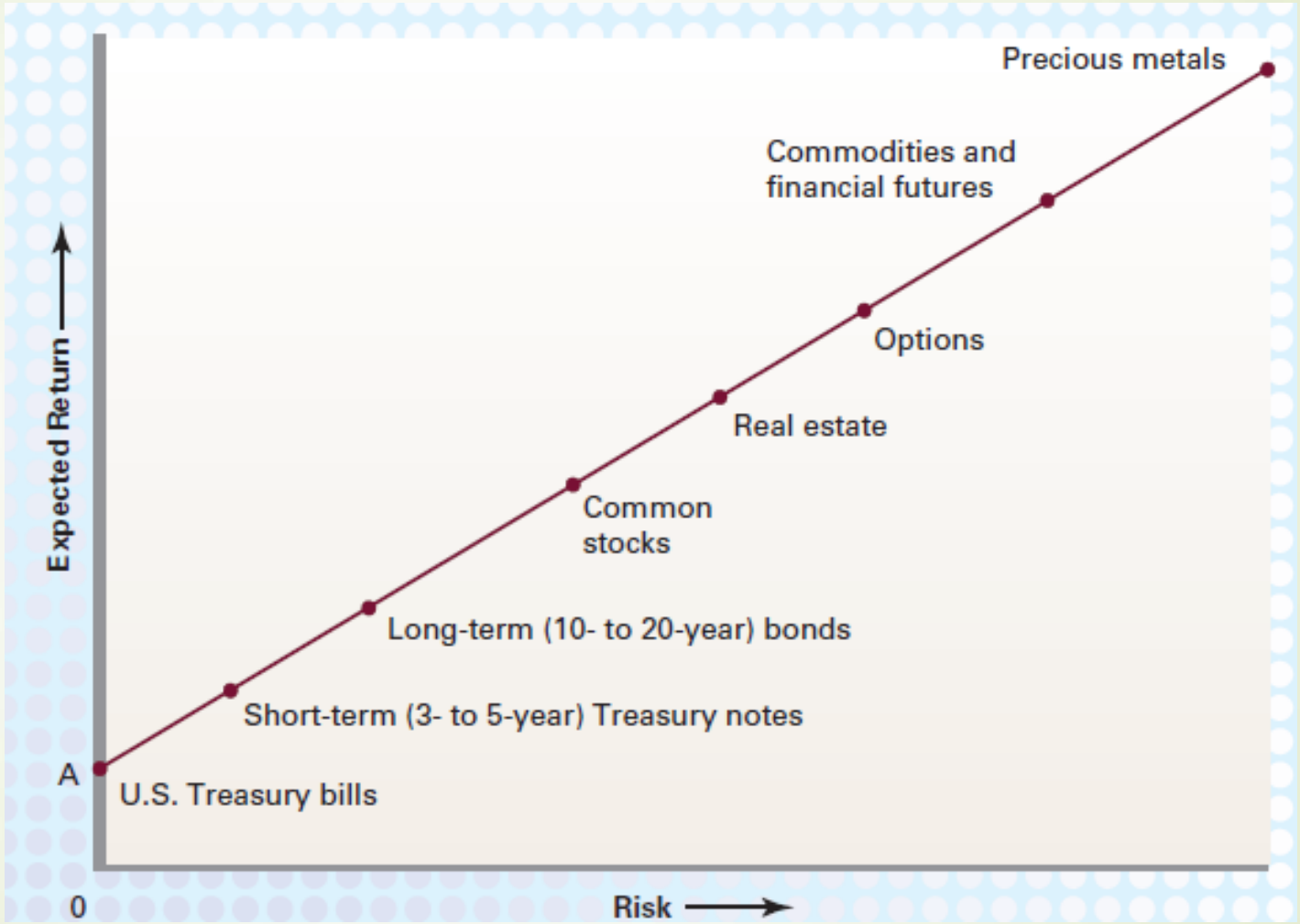
Interest on Interest, 4% 20 year bond



Risk-Return Trade-off

- Universal rule of investing means that if you want a higher level of return, you will have to accept greater exposure to risk.
- Most people are risk averse – they dislike taking risks.
- Risk-free rate of return: The rate of return on short-term government securities, such as Treasury Bills, that is free from any type of risk.

Risk-Return Relationship



What Makes a Good Investment?

- In investments it is the expected future returns that matter, not past returns.
- Thus need to determine:
  - Expected average annual dividends
  - Expected market price in the future, that is future appreciation
- With these expectations, can compute Approximate Expected Yield

Approximate Expected Yield

$$= \frac{\text{Average Annual Current Income} + \left[\frac{\text{Future Price of Investment} - \text{Current Price of Investment}}{\text{Number of Years in Investment Period}}\right]}{\left[\frac{\text{Current Price of Investment} + \text{Future Price of Investment}}{2}\right]}$$

Required Rate of Return

- The minimum rate of return an investor feels should be earned in compensation for the amount of risk assumed.
- One possibility is to accept only a risk-free rate of return such as U.S. Treasury bonds as a required rate of return.
- An investment is acceptable only if it is expected to generate a rate of return that meets or exceeds the required rate of return.

Investing in common Stock

- Each share represents equity or part ownership in the company
- Investor participates in firm's profits
- Stock ownership is residual, that is shareholders have a residual interest in corporate profits
- Firm's obligations must be paid first

Value of 2006, $10,000 investment in 2015

Basic Tax Considerations

- Gains on stock not taxed until realized by a sale of the stock
- Qualified Dividends [basically from domestic corporations] and long-term [held more than 12 months] capital gains are taxed at a maximum rate that varies with regular tax rate.
- If Regular tax rate is 39.6%, capital gain rate is 20%
- If Regular tax rate is 25 - 35%, capital gain rate is 15%
- If Regular tax rate is 10 or 15%, capital gain rate is 0%

Dividends

- Determined by firm's Board of Directors
- Tends to be the same amount each year, but could change
- Paid quarterly, but could be annual
- Annual dividends varies from 0 to 6% of stock price
- If stock price is low, dividend rate could be high until Board adjusts the dividends paid.

$$\text{Dividend Yield} = \frac{\text{Annual Dividend Received per Share}}{\text{Market Price per Share of Stock}}$$

Key Performance Measures

- Book Value: Firms Assets less Liabilities less preferred stock, amount available to common shareholders
- Net Profit Margin: Net profit divided by sales, higher net profit margin, the more money the company earns. Should be stable or better increasing.
- Return on Equity: net income divided by shareholders' equity, a measure of the firm's overall profitability. Should be stable or better increasing.

Key Performance Measures

- Earnings per Share [EPS]: Measure of earnings available to common stock shareholders on a per share basis. Can be compared to other corporations.

$$\text{EPS} = \frac{\text{Net Profit After Taxes} - \text{Preferred Dividends Paid}}{\text{Number of Shares of Common Stock Outstanding}}$$

Key Performance Measures

- Price Earnings Ratio [P/E]: Market price of common stock divided by the earnings per share; Measure of investor confidence and expectations. Higher the better; average P/E ratio for the S&P 500 index is about 15.
- Beta: an indication of a stock's price volatility, it shows how responsive the stock is to changes in the overall stock market. The S&P 500 index is used as benchmark and has a Beta of 1.0. Beta less than 1.0 have low price volatility, thus stable prices. Beta greater than 1.0, have high price volatility, thus more risky as an investment.

Types of Common Stock

- Blue Chips – large, well established companies that usually pay dividends which leads to price stability. Returns are considered more stable, thus the stock is less risky.
- Growth: Above average growth rates in operations and earnings, usually low or no dividends, and more price volatility. P/E ratios high and Beta in excess of 1.0
- Tech: Companies in technology sector, mostly growth or speculative stocks. Some tech stock have been around long enough to be considered blue-chips stock.

Types of Common Stock

- Income: Stable earnings and pay regular, high dividends attracting investors looking for current income. Tend to have Beta less than 1.0
- Speculative: High risk companies, tend to be new or unproven, stock prices may be highly volatile, and product or industry may be new. Risky stock; Beta greater than 1.0

Types of Common Stock

- Cyclical: Stock prices move in same direction as business cycle. Often these stocks are in basic industries and have a positive Beta
- Defensive: Stock expected to remain stable during times of contraction in business activity: called countercyclical. Betas are normally less than 1.0.

Types of Common Stock

- Large Caps: Stocks with a market value of more than $10 billion
- Mid-Caps: Stock with a market value of from $2 – $10 billion
- Small-Caps: Stock with a market value of less than $2 billion
- Mid-caps provide stable return
- Small-Caps: have the potential for high returns, greater risk than others, have growth potential

Market Globalization and Foreign Stocks

- Foreign stock – issued by company located in country outside of US
- Provide portfolio diversity
- International mutual funds and American Depositary Receipts (ADRs) are convenient ways to invest in foreign securities
- Currency exchange rates can impact returns

Investing in Common Stock

- Three basic reasons for investing in common stodk:
- To use the stock as a warehouse of value
- To accumulate capital
- To provide a source of income

Investing in Common Stock

- Advantages:
- Potential returns can be substantial
- Actively traded thus may be sold quickly
- No direct management needed and company info widely published
- Disadvantages:
- Risk
- Hard to time purchases
- Uncertainty of dividends

Making the Investment Decision

- Viable 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: 3 to 5 years of performance info, including stock price change, Return on Equity, Profit margin [net profit / sales], dividend yield, and Earnings per share

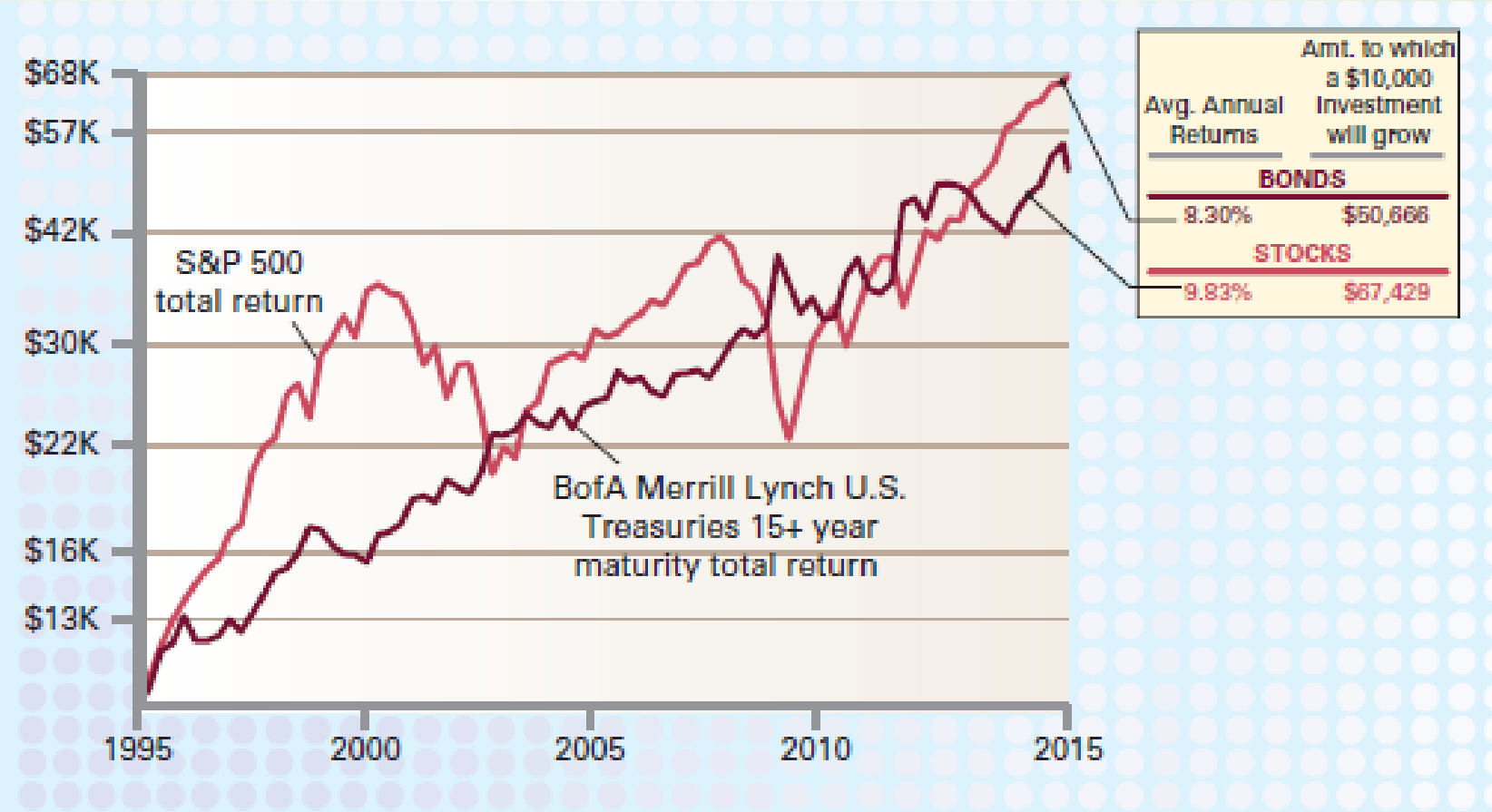
Making the Investment Decision

- Forecast future dividend and stock price: *Value Line* reports three years of future forecasts
- Timing Investment: Do not invest if
  - You strongly believe the market is headed down
  - You feel uncomfortable with the general tone of the market
- Most feel you should make steady investments, not time the market
- Dividend reinvestment plan keeps your investment growing

Investing in Bonds

- Provide current income in form of interest [taxed at ordinary rates]
- Provide potential gains if interest rate goes down
- Provide preservation of capital
- Helps to diversify portfolio
- BUT relative to stocks, lower return

Bonds Compared to Stocks



Bond Issue Characteristics

- Bonds are liabilities to issuer; receivables to bondholder
- Interest is paid every six months
- May have coupons attached which are negotiable
- Maturity date is the date the principal will be repaid

Bond Issue Characteristics

- Bonds have a par value – the principal amount to be repaid at maturity, usually $1,000 per bond
- Bonds may be issued at a Discount [when market interest rate is greater than stated interest rate on bond] OR at a Premium [when market interest rate is less than stated interest rate on bond]
- May be “Senior” secured bonds; or “Junior” unsecured bonds

Bond Issue Characteristics

- Sinking Fund: Annual repayment schedule to pay of the issue
- Call feature: allows issuer to retire the bonds prior to maturity. May be:
  - Freely callable – recall at any time
  - Non-callable – bonds can not be recall
  - Deferred call -- not callable until certain date or time passes

Bond Market

- Four segments of bond market – Treasury, Agency, Municipal, Corporate
- Treasury Bonds: Issued by U.S. government, considered risk free, issued with 20 and 30 year maturities, $1,000 par, not callable
  - Treasury Notes shorter term, 2,3,5 or 10 years
  - Treasury Bills, less than 2 years
  - Treasury inflation–indexed bond: interest adjusted with inflation
  - Typically interest on federal bonds are exempt from state tax

Bond Market

- Agency bond: An obligation of a political subdivision of the U. S. Government, not obligations of U.S. Treasury
- Best known example are the mortgage-backed securities issued by Federal Home Loan Mortgage Corporation [Freddie Mac] and Government National Mortgage Association [Ginnie Mac]

Bond Market

- Municipal Bonds: A bond issued by a state or local government, interest is usually exempt from federal income tax and state income tax if resident of issuing state.
- Any capital gains from sale of municipal bonds is subject to tax
- To convert municipal bond interest to fully taxable equivalent rate, divide municipal rate by (1 – tax rate), so if tax rate is 35%, a 5% municipal bond is equivalent to a 7.7% corporate bond
- 5% / (1 - .35) = .05/.65 = 7.7%

Bond Market

- Municipal bonds are not risk free
- Revenue bonds are issued by state but only specified revenue stream may be used to pay the bonds back. Example is a toll road or a college campus residence hall.
- General Obligation bonds are back by the full faith and credit of the state
- Interest from Private Activity Bonds issued by states is subject to the Alternative Minimum Tax

Corporate Bonds

- Bonds are grouped by segments such as industrials, public utilities, rail and transportation, and financial issuers.
- Most are 5 to 10 years maturities
- Interest is taxable as ordinary income
- Tend to have relatively high yields, e.g. 9% bonds issued by Ford
- Zero Coupon Bonds are issued at deep discount but pays no interest [note in some cultures payment of interest is prohibited; solution is zero coupon bonds]

Bond Market

- Convertible bonds: provision that allow the bond to be converted into the issuer's common stock
- Bond specifies *a conversion ratio* [number of shares for each bond]
- Conversion ratio allows you to compute the conversion value, value of the shares received upon conversion

Bonds Ratings

- Bond ratings are like grades: A indicates a high quality bond where most likely its issuer will pay interest and return principal on schedule.
- Junk bonds are bonds that are have received low ratings but pay high interest rates – risky bonds.

Bonds Ratings

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	

Bond Pricing

- Bonds are priced as a percent of par value, thus a bond selling at 95, is sold at a price that is 95% of $1,000 par value, or $950.
- The price of the bond is the present value of the amount of stated interest using the current market interest rate plus the present value of the principal discounted using the current market interest rate.
- Clean price = quoted price
- Dirty price = quoted price + accrued interest

Bond Pricing

- Bond is sold at a Discount when the market rate is higher than the stated rate on the bond
- Bond is sold at a Premium when the market rate is lower than the stated rate on the bond
- When stated rate or coupon rate is 4%, if market rate is 2%, bond sells for a premium; if market rate is 6%, bond sells for a discount.

Bond Pricing

- Current yield

$$\text{Current Yield} = \frac{\text{Annual Interest Income}}{\text{Market Price of Bond}}$$

Bond Pricing – Yield to Maturity

$$= \frac{\text{Annual Coupon Income} + \left[\frac{\$1{,}000 - \text{Current Bond Price}}{\text{Number of Years to Maturity}}\right]}{\left[\frac{\text{Current Price of Bond} + \$1{,}000}{2}\right]}$$

Bond Pricing – Yield to Maturity

If Bond is purchased at face value, Yield to Maturity [YTM] will equal the coupon [or stated] rate

If Bond is purchased at a discount, Yield to Maturity [YTM] will be greater than the coupon [or stated] rate

If Bond is purchased at a premium, Yield to Maturity [YTM] will be less than the coupon [or stated] rate