

# TEXPO Conference 2021:

## ***Essential Learning for CTP Candidates***

*Session #14 (Wed., 4/14, 2:15 – 3:15 pm)*



The Treasury  
Academy

New Frontiers in Treasury Education

- ❖ ***ETM6-Chapter 19:***  
*LT Investment Management*
- ❖ ***ETM6-Chapter 20:***  
*Capital Structure and Decisions*

***Essentials of Treasury Management, 6th Ed.*** (ETM6) is published by the AFP which holds the copyright and all rights to the related materials.

As a prep course for the CTP exam, significant portions of these lectures are based on materials from the ***Essentials*** text.

# ETM6: Chapter 19



The Treasury  
Academy

New Frontiers in Treasury Education



## ❖ *Long-Term Investments – Master*

***Essentials of Treasury Management, 6th Ed.*** (ETM6) is published by the AFP, which holds the copyright and all rights to the related materials.

As a prep course for the CTP exam, significant portions of these lectures are based on materials from the ***Essentials*** text.

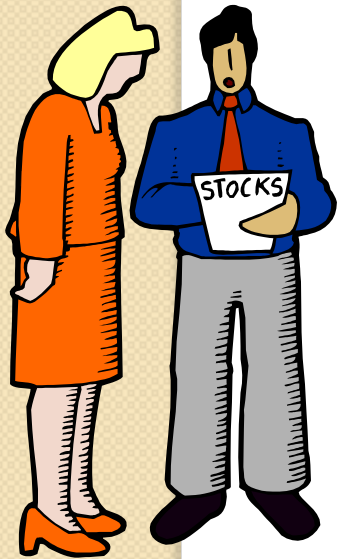
# Overview of Chapter 19 Topics

- Introduction
- Valuation of Capital Market Securities
- Managing Capital Market Investments



# Objectives of Capital Market Investments

- Goals should be expressed in terms of risk and return and should conform to the organization's investment policies
- Capital preservation is not necessarily the primary goal for capital investments
- Issues to consider:
  - Risk tolerance for the portfolio
  - Return objectives
  - Liquidity needs
  - Time horizons or future needs for funds
  - Tax issues
  - Asset/liability matching
  - Legal or regulatory factors (especially for pension funds)
- Some mix between current income and capital appreciation



# Valuation of Long-Term Securities

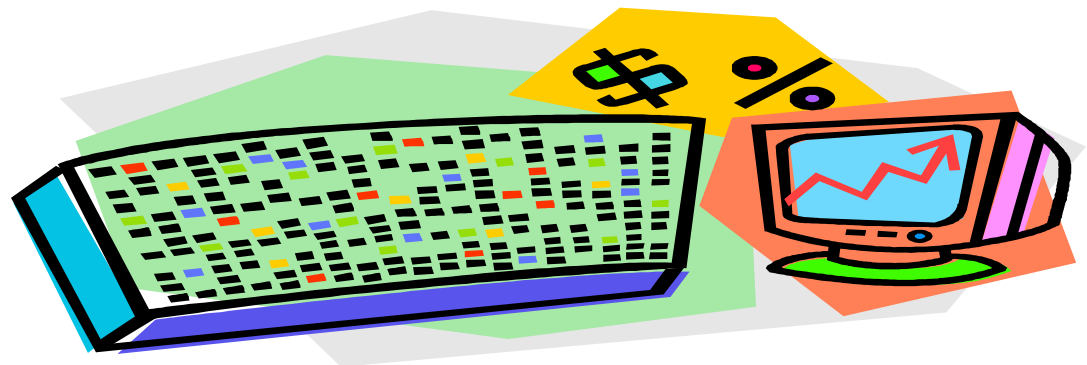
- Publicly traded corporate securities are valued by financial markets
- The value is based on the cash flow stream expected by the investor as well as the relevant discount rate:

$$PV_0 = \sum_{t=1}^n \frac{CF_t}{(1+k)^t} = \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \dots + \frac{CF_n}{(1+k)^n}$$

- Where:  $PV_0$  = Current value of the asset  
 $CF_t$  = Cash flow in period t  
 $k$  = Opportunity cost for the security

# Bond or Fixed Income Valuation

- Valuation of bonds or any fixed income security is generally fairly easy
- Concept of Yield to Maturity (YTM)
- Some bonds have call provisions (YTC)
- Concept of Yield to Worst (YTW)
  - Can also be used with other types of bonds to determine the impact of all potentially negative provisions (pre-payments, sinking funds, etc.)

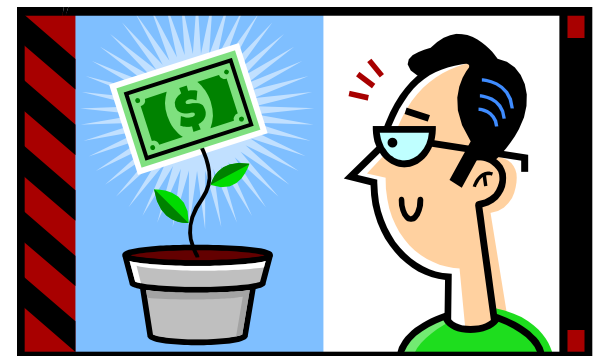


# Bond or Fixed Income Valuation

- The YTM for a three-year \$1,000 bond with a 10% coupon rate selling at a market price of \$1,136.16 would be calculated as:

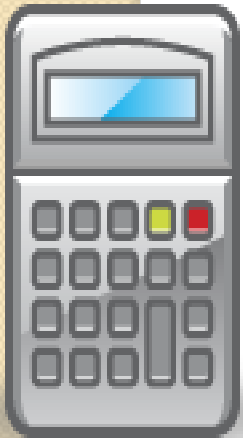
$$\$1,136.16 = \frac{\$100}{(1 + \text{YTM})^1} + \frac{\$100}{(1 + \text{YTM})^2} + \frac{\$1,100}{(1 + \text{YTM})^3}$$

$$\text{YTM} = 0.05 = 5.0\%$$



# Preferred Stock Valuation

- Preferred stock is equity, but has features of debt financing in its payments
- Assume a \$50 par value, with a 6.6% annual dividend and an 8.0% required return



$$\begin{aligned}\text{Pref. Stock Div.} &= \text{Pref. Stock Div. Rate} \times \text{Par Value} \\ &= 6.6\% \times \$50 = \$3.30\end{aligned}$$

$$\begin{aligned}\text{Price of Pref. Stock} &= \frac{\text{Pref. Stock Annual Div.}}{\text{Required Rate of Return}} \\ &= \frac{\$3.30}{.08} = \$41.25\end{aligned}$$

- Now, assume required return increases to 10%

$$\text{Price of Preferred Stock} = \frac{\$3.30}{.10} = \$33.00$$



# Common Stock Valuation

- Neither the timing or the amount of the cash flows are known with certainty
- To value common stock, it is necessary to estimate the dividend stream and liquidation price, as well as a required rate of return on the stock

$$P_0 = \frac{D_1}{(1+k_s)^1} + \frac{D_2}{(1+k_s)^2} + \frac{D_3}{(1+k_s)^3} + \dots + \frac{D_\infty}{(1+k_s)^\infty}$$
$$= \sum_{t=1}^{\infty} \frac{D_t}{(1+k_s)^t}$$

- Where:  $P_0$  = Current value of the stock  
 $D_t$  = Dividend in period  $t$   
 $k_s$  = Required rate of return for the stock

# Common Stock Valuation

- Common assumption is to assume that dividends will grow at some constant rate in the future
- Dividend in period  $t = D_t = D_0(1+g)^t$
- Substituting this into the general equation, we get:

$$P_0 = \sum_{t=1}^{\infty} \frac{D_0(1+g)^t}{(1+k_s)^t}$$

- Assuming that  $D_1 = D_0(1+g)$ , we get:

$$P_0 = \frac{D_1}{(k_s - g)} \quad \text{or} \quad P_t = \frac{D_{t+1}}{(k_s - g)}$$

- This formulation works well for companies paying a steadily growing dividend, which includes a significant portion of large cap firms in the U.S.



# Common Stock Valuation - Example

- Assume the following:
  - Last dividend ( $D_0$ ) = \$2.00
  - Estimate growth rate ( $g$ ) = 6%
  - Return on stock ( $k_s$ ) = 13%



$$P_0 = \frac{D_1}{(k_s - g)} = \frac{D_0(1 + g)}{(k_s - g)}$$
$$= \frac{\$2.00 (1 + .06)}{(0.13 - 0.06)} = \frac{\$2.12}{0.07} = \$30.29$$

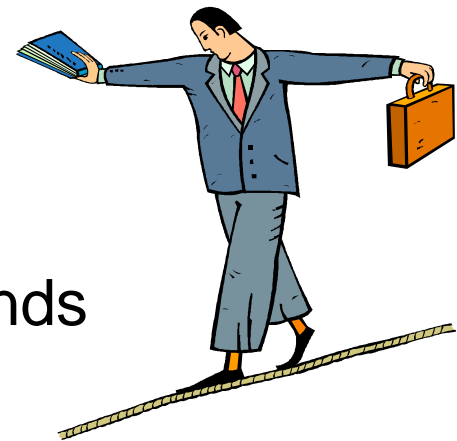
# Asset Allocation Decision

- The mix between fixed-income (debt) and equity (stock) is a key decision in the management of long-term portfolio



# L-T, Fixed Income Portfolio Mgmt.

- Many of the issues are similar to those covered in Chap 13 (Short-Term Investing)
- Concept of Duration
  - Primary measure of risk for a bond portfolio
  - Weighted average maturity of investment
  - Measure of sensitivity of the investment to changes in underlying interest rates
  - Bond prices move inversely to interest rates
- Interest Rate Risk
  - Longer term bonds will fluctuate more in price for a given change in interest rates than shorter term bonds



# More on Duration



- Generally, the longer the duration, the more sensitive a bond or portfolio is to changes in interest rates
- Measures the number of years required to recover the true cost of a bond, considering the present value of all coupon and principal payments received in the future
- For zero-coupon bonds, the duration equals the actual maturity of the bond
- Bonds that pay coupons will have a duration shorter than the maturity

# Duration Calculation

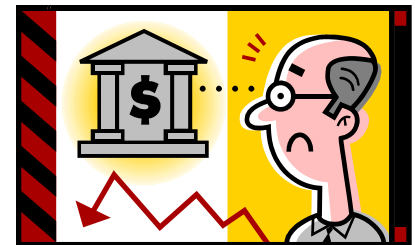
- Assume a 3-year, \$1,000 bond paying a 10% annual coupon, with current YTM = 6%
- Duration = 2.75, which means it will take 2.75 years to recover the actual cost of the bond
- Very similar to the payback period concept

$$\begin{aligned}\text{Price} &= \frac{\$100}{(1.06)^1} + \frac{\$100}{(1.06)^2} + \frac{\$1,100}{(1.06)^3} \\ &= \$94.34 + \$89.00 + \$923.58 = \$1,106.92\end{aligned}$$

$$\begin{aligned}\text{Duration} &= 1 \times \frac{\$94.34}{\$1,106.92} + 2 \times \frac{\$89.00}{\$1,106.92} + 3 \times \frac{\$923.58}{\$1,106.92} \\ &= 0.0852 + 0.1608 + 2.503 = 2.75\end{aligned}$$

# Duration Considerations

- Time to Maturity (all else equal)
  - Short maturity bonds: low duration/less price risk
  - Long maturity bonds: high duration/more price risk
- Coupon Rate (all else equal)
  - Higher coupon yields = shorter duration
  - Lower coupon yields = longer duration
- Sensitivity to Interest Rate Changes
  - Ex: A bond with duration of 4.0, will change price inversely by 4% for a 1% change in interest rates
  - e.g., a 1% increase in interest rates will cause the price of this bond to decrease by 4%



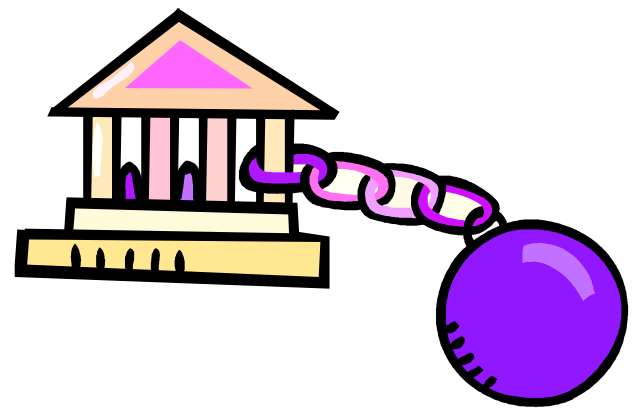


# Interest Rate Risk

- Duration is directly correlated to interest rate risk
- Compare the price action for a 1-year versus a 10-year bond, both with 3% coupon rate, \$1M par value
- You buy the bond at par, then rates go to 4%
- What is the impact on the prices?

Par Value	Maturity	Mkt Price @4%	Change	% Change	Duration
\$1,000,000	1 year	\$990,292	\$(9,708)	-0.9708%	0.9926
\$1,000,000	10 years	\$918,295	\$(81,705)	-8.1705%	8.6354

# Other Issues in Debt Portfolio Mgmt.



- Diversification
- Fixed/Floating Ratio
  - Usually expressed in terms of a target ratio
  - May be too narrow to be used on its own
- Foreign Currency Denominated Investments
  - FX derivatives may be used to manage risk
- Using Derivatives in a Long-Term Debt Portfolio
  - Use of credit default swaps, in addition to futures forwards and options
- Asset-Liability Management
  - Especially a problem when S-T funds are borrowed to fund L-T investments
- Securities Lending
  - Allows the borrower to hedge or short-sell securities

# Equity (Stock) Portfolio Mgmt.

- Defining and Measuring Investment Risk
  - Expected return and standard deviation
  - Use of covariance in portfolio management
- Benefits of Diversification
  - Reduces the overall riskiness of a portfolio
- Capital Asset Pricing Model (CAPM)
  - Beta is a measure of relative market risk
  - In a diversified portfolio, Beta is the only relevant measure to an investor
- CAPM – Model Relationship



$$r_E = r_{RF} + (r_M - r_{RF})\beta_i$$

Where:  $r_E$  = Required rate of return on stockholder's equity

$r_{RF}$  = Expected rate of return on the risk-free asset

$r_M$  = Expected rate of return on the market portfolio

$\beta_i$  = Beta value for stock  $i$

# CAPM Calculation Example



- Assume a risk-free rate (T-bill) of 2.0%, a market rate of return of 8.0%, and historic Beta for Apple Computer of 1.5:

$$r_E = r_{RF} + (r_M - r_{RF})\beta_i$$

$$r_E = 0.02 + (0.08 - 0.02)(1.5) = 0.110 = 11.0\%$$

- Assume the same information as above, but for H.J. Heinz with a Beta of 0.60:

$$r_E = r_{RF} + (r_M - r_{RF})\beta_i$$

$$r_E = 0.02 + (0.08 - 0.02)(0.6) = 0.056 = 5.6\%$$



# Determining Portfolio Risk & Return

- One of the biggest benefits of using CAPM and Beta is the ability to determine a portfolio's average return and overall riskiness as a function of simple weighted averages
- Using the stocks from the previous slide with weights of Apple(A) = 70% and Heinz(H) = 30%

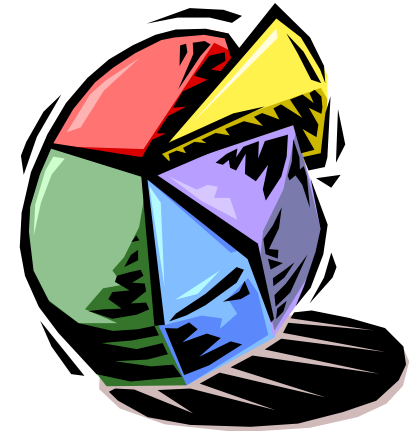
$$\begin{aligned}\text{Portfolio } \beta &= (\% \text{ of A-Stock} \times \beta_A) + (\% \text{ of H-Stock} \times \beta_H) \\ &= (.70 \times 1.5) + (.30 \times 0.60) = 1.23\end{aligned}$$

$$\begin{aligned}\text{Port. Return} &= (\% \text{ of A-Stock} \times r_A) + (\% \text{ of H-Stock} \times r_H) \\ &= (.70 \times 11.0\%) + (.30 \times 5.6\%) = 9.4\%\end{aligned}$$

$$\begin{aligned}r_E &= r_{RF} + (r_M - r_{RF})\beta_{\text{Portfolio}} \\ &= .02 + (.08 - .02)(1.23) = 0.0938 \text{ or } 9.4\%\end{aligned}$$

# Other Asset Pricing Models

- CAPM was created in the 1960s
- Fama-French three-factor model
  - Builds on CAPM with two other factors
    - Small-Market Cap Adjustment
    - High Book-to-Market Value Adjustment
- Arbitrage Pricing Theory (APT)
  - Incorporates wider macroeconomic factors in the risk/return assessment
- CBOE Volatility Index (VIX)
  - “Fear Index” used by investors and analysts to quantify market risk
  - A measurement of the US markets expectation of the volatility of the S&P 500 index over the next 30 days via a measure of current index option prices



# ETM6: Chapter 20



The Treasury  
Academy

New Frontiers in Treasury Education



## ❖ *The Capital Structure Decision and Management*

*Essentials of Treasury Management, 6th Ed.* (ETM6) is published by the AFP, which holds the copyright and all rights to the related materials.

As a prep course for the CTP exam, significant portions of these lectures are based on materials from the *Essentials* text.

# Overview of Chapter 20 Topics

- Introduction
- Capital Structure of A Company
- Raising and Managing Long-Term Capital
- Cost of Capital and Firm Value
- Lease Financing and Management
- Equity Financing and Management
- Other Topics in Financial Decisions



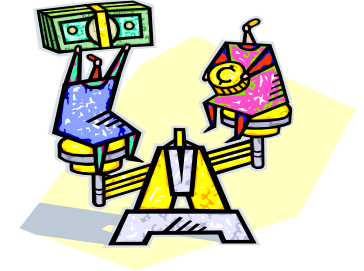


# Capital Structure of A Company

- Optimal and Target Capital Structures
- Trade-Offs Between Financing with Long-Term Debt and Common Stock
- Capital Structure Theory
- Business and Financial Risk
- Target Capital Structure
- Other Consideration in Capital Structure Decision
- Capital Structure in Not-For-Profit Organizations



# Different Capital Structures



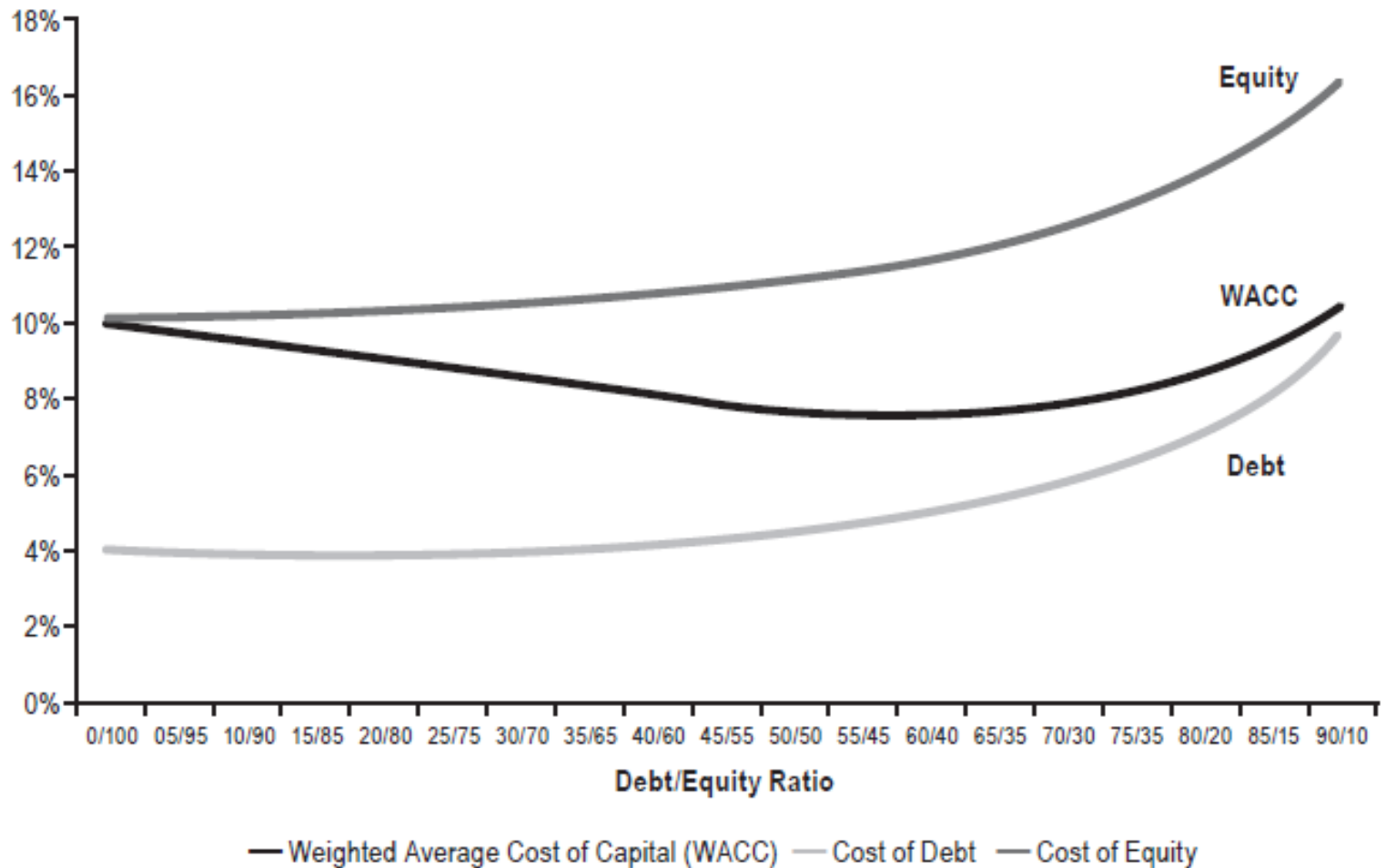
- Optimal Capital Structure
  - Mix of LT debt and equity that produces the lowest overall WACC
- Important factors in determining optimal capital structure:
  - The company's operating risks
  - Its immediate and expected LT financing needs
  - Relative costs of debt and equity at the time funds must be raised
  - Attitude of the board and senior management towards risk-taking
  - Impact on the firm's credit rating
- Target Capital Structure
  - The estimated "best" and/or most practical mix of capital that will be used for future financing.

# Capital Structure Theory

- Trade-Off Theory
  - Companies trade-off the use of debt and equity to find the lowest WACC
  - Assumes that at some point the increasing costs of financial distress outweigh the benefits of using debt
  - This point represents the lowest WACC
  - Does not take into account industry or firm- specific factors

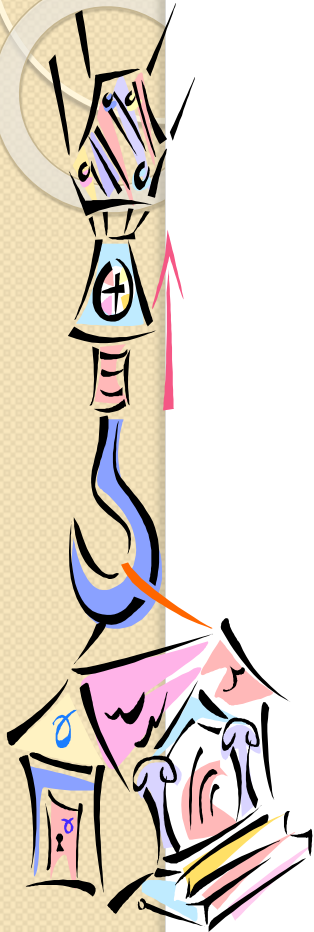


# Cost of Capital



# Advantages of Using Debt Financing

- Debt usually costs less due to lower risk and tax-deductibility of interest
- Payments on LT debt are usually fixed, or limited – providing more return to equity
- Capital markets for debt are usually very efficient across a broad range of options
- If funds are raised through debt, the earnings to equity holders will not be diluted
- Debt holders do not get to vote in elections, providing a control advantage to the equity holders



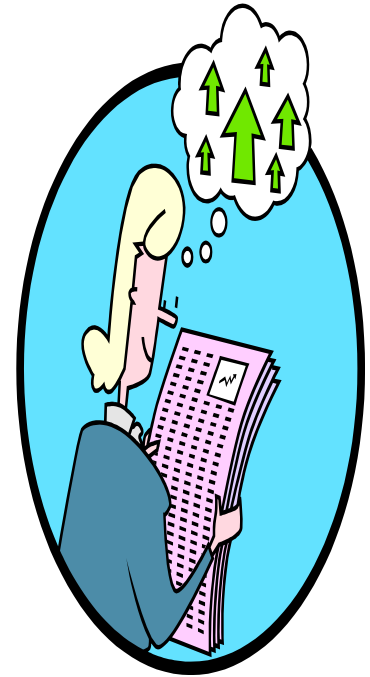
# Disadvantages of Debt Financing

- Debt has a priority of claim over equity and is paid from pre-tax earnings
- Debt service must be made in a timely manner or the company runs the risk of financial distress
- Debt increases the financial risk of a company
- Debt can be accompanied by liens on assets
- Debt financing may involve covenants or other restrictions on senior management decisions and actions to protect the lender



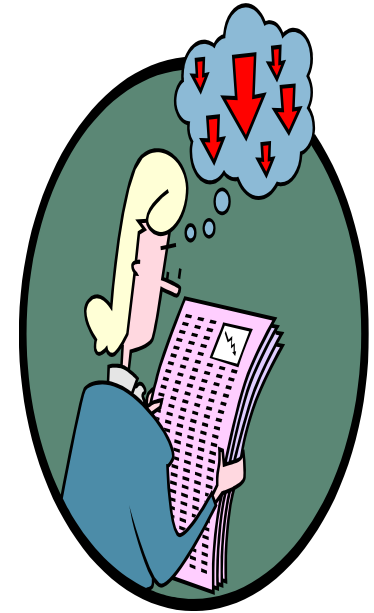
# Advantages of Stock Financing

- Common stock does not obligate a company to make fixed payments to investors
- Common stock does not mature
- For creditors, stock offers a cushion against losses – also if a company is profitable, additional stock can be sold at attractive terms to the issuer



# Disadvantages of Stock Financing

- May extend voting rights and control to more shareholders and shareholder value may be diluted
- Underwriting costs of new common stock are often significant
- No tax shield provided with common equity financing – and after-tax cost of equity is usually higher than debt
- Issuing shares to more shareholders can erode the stock price, especially if net income is not sufficient to maintain or increase EPS



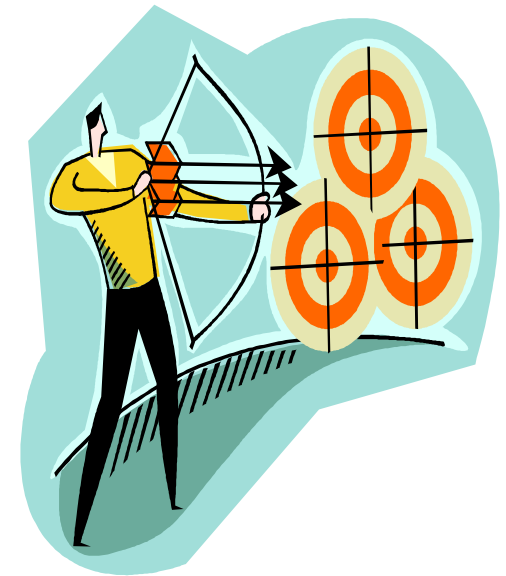


# Business and Financial Risk

- In determining a company's capital structure policy, the total risk of the company's operations and financing must be considered.
- Total risk includes:
  - Business risk – related to the stability and predictability of a company's revenue stream, the greater the volatility, the greater the risk
  - Financial risk – related to the variability of the company's after-tax profits, usually due to costs of financing

# Factors Influencing the Target Capital Structure

- Business and financial risk
- Asset structure
- Shareholder control and dilution
- Profitability
- Market conditions
- Lender and rating agency considerations
- Regulatory restrictions (Thin Capitalization)
- Minimum capital requirements



# Raising Long-Term Capital (Private)

- The ability to raise capital at a reasonable price is one of the primary determinants of L-T success
- Advantages of Private Placement:
  - Less-restrictive covenants
  - Relatively small issue size
  - Reduced time to issuance
  - Minimal reporting, ratings or disclosure
  - Lower costs
  - Control over who holds debt
  - Greater flexibility of terms and maturities
- Disadvantages of Private Placement
  - Cost to locate appropriate investors
  - Limited information about the company
  - Investor's desire to more equity in exchange for assuming greater risk and lower liquidity



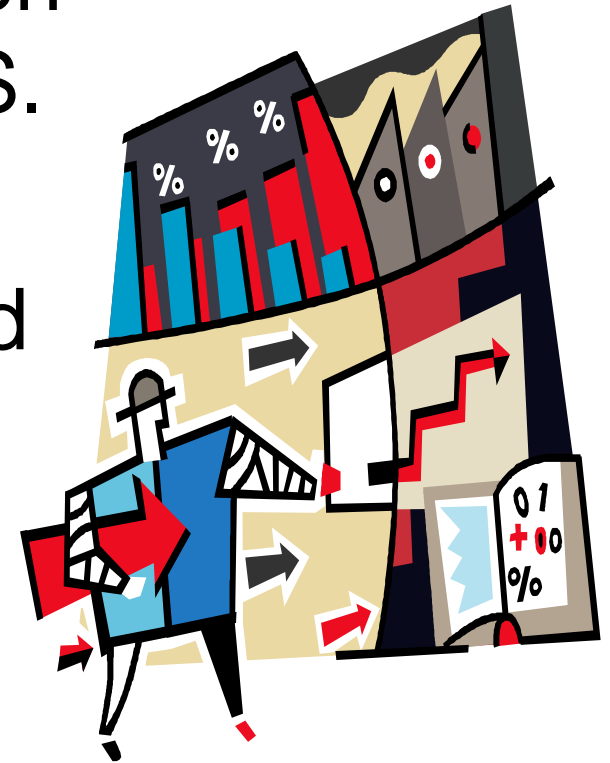
# Raising Long-Term Capital (Public)

- The ability to raise capital at a reasonable price is one of the primary determinants of L-T success
- Advantages of public offerings
  - Access to capital markets offers the potential to raise large amounts of capital at prevailing rates
- Disadvantages of public offerings
  - Increased disclosure and filings
  - Capital costs can fluctuate widely
  - Need to deal with a wide variety of different parties
- IPOs (Initial Public Offerings)
  - Require significant disclosure of a firm's ownership, business activities and financial statements
- Raising capital generally requires dealing with a large number of external parties, each of whom will demand different types and degrees of information.



# Equity Financing and Management

- Initial Public Offerings (IPOs) and the Decision to List Stock in the U.S.
- Shareholder Rights
- Financing Mergers and Acquisitions
- At the Market (ATM) Programs



# IPOs & Listing Stocks in U.S.

- What is an IPO?
- Advantages of Going Public
  - May allow owners to diversify
  - Going public can help to resolve liquidity problems
  - The market can help determine value for company
  - Can be used to spin off division or subsidiary
- Disadvantages of Going Public
  - SEC disclosures
  - Managerial flexibility
  - Control
  - Exposure to market conditions



# Decision to List Stock

- Advantages of Listing Stock
  - Marketability increases
  - Stock can be traded more widely
  - Can result in higher sales from increased exposure
  - Increased level of disclosure may lower WACC
- Disadvantages of Listing Stock
  - Additional reporting requirements
  - Restrictions on types of stocks that can be traded
  - Higher costs charged by exchanges



# IPO Valuation



- The final stage of the IPO process
- Valuing the initial shares is an important task
- It is often difficult with new new companies that have no track record
- Absolute Valuation
  - Discounting future cash flows (DCF) and calculating the economic (intrinsic) value for the business
- Relative Valuation
  - Identifying similar listed companies and computing value using those companies' P/E ratio or other market valuations



# Managing Long-Term Capital

- Investor Management
  - Once debt or equity securities have been issued, the long-term capital needs to be managed
- Shareholder Rights
  - All associated payments (interest or dividends) need to be administered efficiently
- Dividend Policy
  - Companies have to decide how to reward shareholders
- Repatriation of Capital for MNCs
  - Multinational Companies have many issues that must be addressed



# Dividend Policy

- Decisions relating to dividend policy have a significant impact on capital structure
- Steadily increasing dividends make a company's stock more attractive to certain institutional investors
- But – dividends represent money flowing out of the company, reducing the amount of internally generated funds available for future growth
- This may make the company's stock less attractive to investors looking for growth and capital gains
- Concept of “*Dividend Catering*”



# Other Factors for Dividends

- Dividend policy and the cost of capital
  - Depends on each company's situation
- Information content of dividends
  - Signaling effects from dividends
- Clientele effect
  - The dividend policy can affect who owns a company's stock
- Stability of dividends
  - Related to the info content of dividends – the more stable the dividends the clearer the signal being sent to investors

# Setting Dividend Policy



- Optimal Dividend Policy
  - Maximizes shareholder value
  - Retains sufficient profits for future expansion
  - Distributes appropriate amounts to investors
  - Provides information to investors about future
- Five Steps to Setting Dividends
  - Estimate profits over next 3-5 years
  - Determine level of capital investments
  - Estimate amount of new equity capital needed
  - Compute retained earnings vs. new stock
  - Translate \$ amount of dividends available into annual div/share and projected growth rate

# Stock Repurchases

- Advantages
  - Reduces the number of shares outstanding
  - Increases earnings per share
  - Increases the market price per share
- Disadvantages
  - Investors may view it as just a ploy by management to “pump up” the stock price
  - May indicate the company does not have any good investment alternatives
- Managing a Repurchase Operation
- Repurchased stock becomes “treasury stock”



# Repatriation of Capital for MNCs

- Multinational Company Dividends
- Management Fees
- Transfer Pricing
- Intra-company Loans
- Deemed Dividends
- Restrictions on Dividends



# Financing Mergers and Acquisitions



- These are major decisions that will significantly impact an organization's future
- Merger is when two companies combine to form a new entity
- Acquisition results when one company buys a majority of the voting shares of another company – may be friendly or hostile
- Acquisitions may be accomplished through a direct tender offer, proxy fight, or creeping tender offer
- Acquisition may be for cash, stock or both
- Leveraged buyout (LBO)

# More on LBOs

- Acquisition is financed primarily by using the acquired firm's assets as collateral
- LBOs can also be used by management to take a firm private
- LBOs are generally considered to be risky due to high levels of debt used to finance the deal
- LBOs differ in two major ways:
  - A large fraction of the purchase price is debt-financed (typically with junk bonds)
  - The LBO goes private and the stock is usually held by a partnership of investors





# Lease Financing and Management

- “Alternative Financing”
- Why Companies Lease
- Types of Leases
- Estimated Residual Value
- Tax Considerations for U.S. Corporations
- Lease Versus Borrow-and-Buy Decision



# Why Alternative Financing?

- Risk Management
  - Manage the risks associated with a particular project or activity
  - Joint Ventures (JV) or Special Purpose Vehicles (SPV)
- Cash Flow Management
  - ST financing techniques, including supplier credit – see Chap 10
- Balance Sheet Management
  - To help align the financing with the asset being financed
  - This can be short-term or long-term
  - Sometimes referred to as “off-balance-sheet” financing



# Session Wrap-up

## ETM6: Chapter 19 & 20

- ***What did we learn in this session?***
- ***What topics do we need to learn more about?***





TEXPO Conference 2021  
***Essential Learning for CTP Candidates***

**End of This Session**

**We will reconvene at 3:45 pm Today.**

**The topic will be:**

***Time to Calculate!!***

**Advanced CTP Math**