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Introduction to Long Term Financing: Chapter 15

Goal of the Chapter: Understand the basic sources of long term financing: common stock, preferred shares and long term debt. We expand on these topics in much more detail later on.

Common Stock: Introduction

- The term "common share" is applied to a stock that has no special preference in either dividends or in bankruptcy
- Each shareholder receives a stock certificate when they purchase a share
    - May contain a par/stated value on the share which represents the value the share was issued at
    - In Canada, par values are not used very often

Authorized vs. Issued Common Stock

- Authorized Shares = the maximum number of shares the company is allowed to issue. This must be stated in the company's articles of incorporation
    - The BOD can amend the articles of incorporation (after a shareholder vote) to increase the number of shares authorized
    - There is no legal limit on the number of shares that can be authorized
- Issued Shares = the actual number of shares that have been sold

Book Value of Equity

- BV of E = Accumulated Retained Earnings + Contributed Surplus + Share Capital + Equity Adjustments
- Retained Earnings For A Given Year = Net Income – Dividends
- BV of E represents an accountant's measure of the amount contributed directly and indirectly to the corporation by equity investors

Book, Market, & Replacement Values

- Book Value of Shares = BV of E / Number of Shares Outstanding
- Book values in general refer to the accounting value of the asset as per the time of asset and doesn't account for today's price of the asset in question
- Market Value – This is rather obvious…
- Replacement Value: the current cost of replacing the assets of the firm. The amount that an entity would have to pay to replace an asset at the present time, according to its current worth.
- At the time of purchase, the book, market, and replacement value of an asset would be equal

Shareholder Rights

- Shareholders have "theoretical control" over corporate operations, but these operations and generally handled by company directors on a day to day basis
- Shareholders hire directors at the annual meeting, who hire management to carry out directions
- Shareholders have several rights including: sharing dividends proportionally, sharing the remaining assets (after liabilities are paid) in liquidation, right to vote on matters of great important (ex. Mergers), pre-emptive right to share proportionally any new stock issued
- Common shareholders are protected by limited liability since debtors cannot seek payment of company debt from them (in the event of bankruptcy)
- Despite the upside of this protection, common shareholders are "residual claimants". If the firm goes bankrupt they are paid out from the company assets last and almost always lose 100% of their investment

Mechanisms for Electing Directors

Cumulative Voting: The goal is to permit minority participation. The total number of votes that a shareholder may cast is determined first.

- # of Votes = Number of Shares Owned * # of Directors To Be Elected. These votes must be distributed however you see fit (you could allocate all the shares to one director, or spread them out)
- If there are X Directors up for election, then owning 1/(X+1) percent of the stock will guarantee you a seat.
- Clearly, if more seats are up for election, then it becomes easier to win a seat (common sense)
- While it allows for minority participation, it leaves a company susceptible to takeover. Minority owners have more influence through cumulative voting, and can elect more directors. This can slowly lead to takeover by another company who owns a minority of the shares
- This can be mitigated through "Staggering"

Staggering allows only a fraction of total director positions to come into vote at a particular time.

- Staggering makes it tougher for a minority shareholder to elect a director under cumulative voting, because it leaves the majority shareholders with more votes to allocate to few directors
- Staggering mitigates the risk of hostile takeover, since electing new directors becomes more difficult

Straight Voting: If you own X shares, you can cast X votes for each candidate. Thus, the person with the most shares will elect all the candidates.

- This freezes out minority shareholders, which is the upside of using cumulative voting instead. Majority shareholders have the ability to elect every director position up for election

Proxy voting: a proxy legally grants authority by a shareholder to someone else to vote for his/her share. Various groups fight to get as many proxies as possible to replace/elect management in a way that suits them (management and other shareholder groups try to get as many proxies as possible)

Dividends

Represents a return on direct and indirect capital contributed by shareholders: Key characteristics include:

- Not a corporate liability until the company officially declares a dividend. You can't go bankrupt because you don't pay your dividends
- Not an expense and not tax deductible
- Sheltered by a tax credit: receivers of a dividend can exclude 100% of their dividends from taxable income. This ensures that dividends do not see double taxation.

This is expanded in great detail in the dividend chapter.

Classes of Shares

- Based on how tightly controlled the company wishes to be, there can be many different classes of shares
- For example: sometimes there are different voting rights for insiders vs outsiders or domestic vs foreign investors
- Dual classes of shares separate the cash flow rights from the voting rights
    - Having voting and non-voting shares allows you to raise capital without giving up control

    - Market prices for voting shares are about 5% higher than non-voting shares, but this can be much higher in situations where control is very critical
    - However, this means that in a takeover situation, nonvoting shareholders get fucked, since a takeover only requires 51% of voting shares
    - Thus a 'coattail' provision can be made, which gives them a right to vote or convert to voting shares that can be tendered to the takeover bid
- Remember: if insiders hold shares with better voting rights, they have incentive to make decisions that maximize their own welfare, and not necessarily the firm

The Basics of Corporate Long Term Debt

I hope you know what debt it, because otherwise you're fucked. It is something that must be repaid to a creditor, because you, the debtor, borrowed from them. Note: LT Debt is sometimes known as funded debt.

- You can legally default on your liabilities (by not paying for them) at any time, by handing over assets to the creditor. This is valuable, particularly at times when your liabilities have greater market value than your assets
- Debt is not ownership, and creditors don't have voting rights. They protect themselves by using a loan contract (the indenture) which is legally binding
- Interest is fully tax deductible and is an expense, and is paid out before your corporate tax liability is determined. Clearly, the government is providing companies with a direct tax subsidy for using debt
- Unpaid debt allows creditors to legally claim the assets of the firm. This may result in liquidation. Thus, the cost of debt must include the possibility of financial failure. This doesn't arise when you issue equity

Debt versus Equity

Income Tax Status:

- Dividends are taxed as personal income (not a business expense). Companies do not get a tax advantage by paying our dividends, since dividends are not taxed
- Interest is a business expense and is fully tax deductible

Control

- Equity issues (common and preferred shares) often allow for control through voting rights
- Creditors gain control through a loan agreement
- Control features are different, but neither have any specific advantage.

Default

- Firms can't be forced into bankruptcy for not paying dividends
- Firms can be forced into bankruptcy if debt can't be paid. Firms can default at any time and give up their assets in exchange for the unpaid debt

Bottom Line: Tax status favours debt, but default favours equity.

Repayment of Debt

- The repayment schedule is usually specified in the contract
- Early repayment is more typical than waiting until maturity.
- Bonds can be repaid at maturity or earlier, through a "sinking fund" or a "call privision"
- Detailed notes on these two concepts can be found in chapter 21 notes

Various Debt Features

- Seniority: refers to preference in position over other lenders
    - Some debt is subordinated: subordinated debt gives preference to other specified creditors. Subordinated lenders are only paid after specified creditors have been compensated
- Security: a form of attachment to property, providing that property can be sold in the event of default to satisfy the debt for which the security is given. Essentially property serves as a collateral in a debt agreement
    - Ex. Collateral trust bonds involve a pledge of common stock held by a corporation and mortgage securities that are secured by real estate.
    - Debentures are unsecured bonds and holders can claim assets that are not already pledged as collateral in other debt transactions

The Indenture

Indenture: the written agreement between the corporate debt issuer and the lender, stating the terms of the debt contract.

States the nature of the indebtedness. All my notes on indentures and covenants can be found in chapter 21 notes.

Preferred Shares:

Key Features

- Have preference over common shares in payment of dividends and liquidation of assets
- Stated Value: Preferred shares have a stated liquidating value and a stated dividend value
- Unpaid dividends are not debts, even if the shares are non-cumulative. Directors can defer the payments of dividends indefinitely, however:
    - This means common shareholders must also forgo dividends
    - Holders of preferred shares are often granted voting rights or other rights when they have been paid for a very long time
    - Since no interest is built on these lack of payments, it is argued that firms have incentive to delay their payments
- Do not dilute control (when they're non-voting) and don't increase likelihood of bankruptcy (since there are no interest payments)

Debt-Like Characteristics of Preferred Shares

- Preferred shares only receive a stated dividend, and if the corporation is liquidated, they only receive this stated value (similar to creditors) and they are not residual claimants
- Preferred shares often carry credit ratings, just like bonds
- Sometimes convertible into common shares
- Often callable by the issuer
- Owners of preferred shares often have the right to sell the shares back to the issuer at a set price
- Many recent issues of preferred shares have obligatory sinking funds to slowly retire preferred shares
    - A sinking fund is a fund held by a trust company: it repurchases bonds/preferred shares on the open market before maturity (or in the case of preferred shares, its just a repurchase)
    - This reduces the risk for the borrowing company, since it has less to repay/repurchase/refinance at one shot at maturity, and improves the liquidity of the bonds/preferred shares

Taxation of Preferred Shares

- Despite their low yields, many corporate investors hold preferred shares, rather than debt, since 100% of the dividends they receive are tax exempt, but individual investors don't receive this same tax break
    - Thus we often see corporate investors holding preferred shares, and they pay a premium for preferred shares due to tax exclusion, despite the fact that yields are low
- For companies that are lightly taxed, or not taxed due to losses, they can't take advantage of the fact that interest expenses are tax deductible. This gives them incentive to issue preferred shares because:
    - This causes lowers financing costs, since dividend payments are lower than interest payments
    - Dividends payments are discretionary and don't need to be made in a given year
    - They can't take advantage of tax shields anyway
    - To close this loophole, the government now makes these lesser tax companies pay 40% tax on dividends they pay out from preferred shares (this tax is not applicable to companies that DO pay regular taxes)
- For a fully taxed firm, they can't get a tax break from preferred shares they issue (which sucks for them, and makes it tough for them to issue such shares).

Why Would Fully Taxed Firms Issue Preferred Shares?

The main reasons why companies would issue preferred shares are:

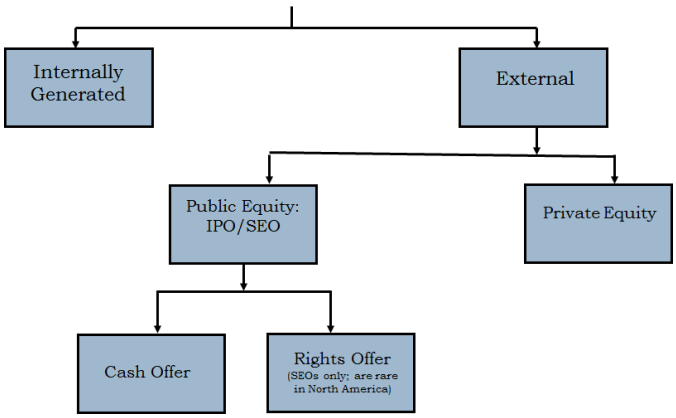
- Regulated public utilities can passed tax disadvantage of issuing preferred shares on to their customers because of pricing formulas in regulatory environments
- Avoid the threat of bankruptcy
- A great way to raise equity without surrendering control

The main reasons why companies would buy preferred shares are:

- Tax benefits as mentioned before
- Adjustable-rate preferred shares serve as a good short term investments to utilize your idle cash

Methods of Securing Finance

- First form of financing used to fund positive-NPV projects is internally generated cash flow
- When a firm has insufficient cash flow from internal sources, it sells off part of its investment in marketable securities
- Externally generated cash flows are a last resort. First debt is used. Common stock is issued last.



Issuing Equity Securities to the Public: Chapter 20

This chapter talks about how corporations issue securities to the investing public

The Public Issue

- Regulations in the securities market in Canada is carried out by provincial commissions and through the provincial securities act

Procedure for a New Issue

- Obtain approval from the board of directors and engage and underwriter
- Prepare and distribute a prospectus to the Ontario Securities Commission and potential investors
    - A preliminary "red herring" prospectus contains some financial information that will be contained in the final prospectus, but not the price at which the security is offered
    - OSC takes about two weeks to read, suggest changes and approve the prospectus
- Final prospectus is approved by OSC, and price is determined. Then a full selling effort goes underway
- Tombstone advertisements are used by underwriters during and after the waiting period. A tombstone ad is simply an announcement (not an offer) of a new security for sale.

The POP System

- A registration system that is designed to reduce repetitive filing requirements for large companies
- Large firms that make regular disclosures to the OSC are exempt from prospectus requirement and use short-form prospectus (POP)
- Takes 5 days to be reviewed instead of 3-5 weeks
- Essentially speeds up the time to file for companies that need to make regular filings.

The Cash Offer

A cash offer requires the usually requires underwriters. The perform the following services:

- Formulating the method used to issue the securities
- Valuation & pricing securities (road show + book building = process of determining offer price)
- Selling the new securities (distribution of the shares to the market)
- Regulatory filings
- Post-IPO liquidity provision

Typically, underwriters buy the offerings for less than offer price, and take the risk of being unable to sell all of the shares in the market.

- A syndicate/banking group is a group of underwriters who share risk to help sell the issue
- A spread/discount is the difference between underwriter buying price and the offer price

There are 2 possible underwriting arrangements

- Negotiated Bids: issuing firm negotiates terms with an investment banker
- Competitive Bid: issuer structures the offering themselves and secures bidding for the offering from different banks

Underwriting Syndicates

- I-Banks usually join forces and form underwriting syndicates
- Lead banks in the syndicate are called a "financing group"
- Syndicate agreement: members authorize the Financing Group to negotiate on their behalf and agree in advance as to individual participation
- Risk is spread across all members. Financing Group usually takes the biggest share
- "Selling group" agreement: A group of companies who are only in charge of selling stock, will buy issue from the syndicate at a specified discount with no liability beyond order, and will sell at a premium

Types of Underwriting

- Regular Underwriting: An underwriter buys securities from the issuing firm, and resells them to the public at their purchase price + the spread. It includes an "out clause" which gives the banking group an option to back out if the price drops dramatically
- Firm Commitment Underwriting: same thing, but no out clause
- Best Efforts Underwriting: Requires the best effort of the underwriter to sell, but they don't guarantee any particular amount of money to the issuer. Usually has an "all or none" clause
- Bought Deal: the issuer sells the entire issue to one dealer, who assumes all the price risk. The dealer has usually "pre-marketed" the prospective issue to large investors. This is a specific type of firm commitment
    - The difference between firm commitment and bought deal is that in a bought deal, the underwriting syndicate is agreeing to purchase the entire issue, but firm commitment doesn't have this necessity.
    - Generally the only companies that you see using a bought deal are large companies that are pretty established; otherwise no one would buy the entire issue.
- Auctioned Underwriting: This is essentially a competitive bidding process for the issue or parts of the issue by the various underwriting firms

Selling Period

- Underwriters agree not to sell the securities for less than the offering price until the syndicate dissolves
- Underwriters can buy shares if the market prices fall below the offer price. This supports the market and stabilizes the prices from temporary downward pressures

Overallotment Option

- Underwriting contracts have overallotment options/ Green Shoe provisions that give members of the underwriting group the option to purchase additional shares from the issuer at the offering price (less fees and commissions)
- The option has short maturity and is limited to roughly 10% of original # of issued shares
- This is an advantage for underwriting syndicates if the market price goes up, since they have a right to purchase additional shares immediately and then sell them at a higher market price

Investment Banks & Pricing of Issue

- They provide advice, market the securities, and underwrite the proceeds. They accept the risk that market price may fall between the date the offering price is set and the time the issue is sold
- They are responsible for fair pricing. Despite the short term incentive to price high (and gain additional proceeds) in the long run, this kills the banks "reputation capital" and they won't be in business long

The Decision to Go Public through IPO

- Main advantages of IPO: access to new capital once shares are valued on secondary markets, IPOs require OSC and disclosure requirements which limit reduce the company's information risk, and IPO allows owners to sell some shares to diversify their portfolios and retain some company control
- Disadvantages include stricter and costlier disclosure and regulatory requirements

Pricing IPOs

- Both underpricing and overpricing has the potential to affect the issuing firm
    - An exception occurs in a bought deal, where overpricing only hurts the investment bank
    - Underpricing is very common and clearly helps new shareholders earn a higher rate of return on their shares, but it reduces the company's proceeds and increases their opportunity loss
    - Overpricing may cause the shares to be withdrawn if no one wants them
- Most underpricing occurs in smaller issues since they are young with uncertain futures
- Underpricing also creates oversubscription. Due to demand, not all investors can get the shares they want.
    - When this occurs, I-banks will allocate the shares amongst investors
- On average IPOs have positive initial returns – Winner's Curse prevents people from taking too much advantage of this trend

Mathematics of Issue Pricing

Pricing of new issues

- **First step is to calculate firm value**
    - **Use dividend growth model, estimating k_e, dividends to be paid, and the expected dividend growth rate**

$$\text{Value of an all-equity firm } (S) = \frac{\text{Total } D_1}{k_e - g}$$

    - **Alternatively, use P/E ratio of comparable firms or of other new issues. Let S be the market value of equity**

$$S = NI \times P/E$$

- **Then price per share is S/# shares issued**

Announcement of New Equity

It is assumed that new financing is required to finance positive NPV projects, which means an announcement of a new issue should increase the firm's market value. However, statistics show us that the actual opposite happens. This could occur for the following reasons:

- Managerial Information: managers tend to issue new equity when they feel the market is overvalued (because they feel they can receive more money for more the company's equity than what it is actually worth)
- Debt Capacity: Most companies aim for a DE ratio that balances the tax shield from debt, with the cost of financial distress. You are more likely to raise capital through stock than debt when your company is in financial distress.
- Falling Earnings: Investors view companies with the following chain of events

- Investors have a reasonable idea of the firm's upcoming investments, capex, and dividend payouts (through filings and forecasting)
- These expenditures need to be financed (either internally through earnings, or externally)
- Thus, if they can't finance these expenditures with internal earnings, the equity issuance is viewed as a shortfall in earnings!

Cost of Issuing Securities/ Flotation Costs

- Spread: The spread consists of direct fees paid by the issuer to the underwriting syndicate - the difference between the price the issuer receives and the offer price
- Other direct expenses: Filing fees, legal fees, and taxes - all reported in the prospectus. These are not part of compensation to underwriters, they are all incurred by the issuer
- Indirect expenses: Not reported on the prospectus and include the costs of management time spent working on the new issue
- Underpricing: For IPOs, losses arise from selling the stock below the 'true' value
- Overallotment (Green Shoe) Option: This option gives the underwriters a right to buy additional shares at the offer price if the issue is oversubscribed.
- Abnormal Returns: For SEOs, the price drops on average by 3% upon the announcement of the issue

Noticeable Trends In Underwriting

- Substantial economies of size are evident. Large firms raise money more easily
- Cost of underpricing can be substantial, and actually exceed direct issuing costs
- Issue costs for an IPO are higher than an SEO

Rights Offerings

When a company offers an issue of common stock directly to existing shareholders (rather than open it to public), it is called a rights offering. If a company has pre-emptive rights in its articles of incorporation, then rights offerings MUST occur before a public offering.

The mechanics of a rights offering include:

- What price should the existing shareholders be allowed to pay for a share of new stock
- How many rights will be required to purchase one share of stock
- What effect will the rights offering have on the existing price of stock

Subscription Price

- The price that existing shareholders are allowed to pay for a share of stock
- Common sense tells us that a shareholder will only subscribe to the rights offering if this subscription price is below the market price of the stock at the time of rights expiration

Number of Rights Needed to Purchase a Share + Value of Right

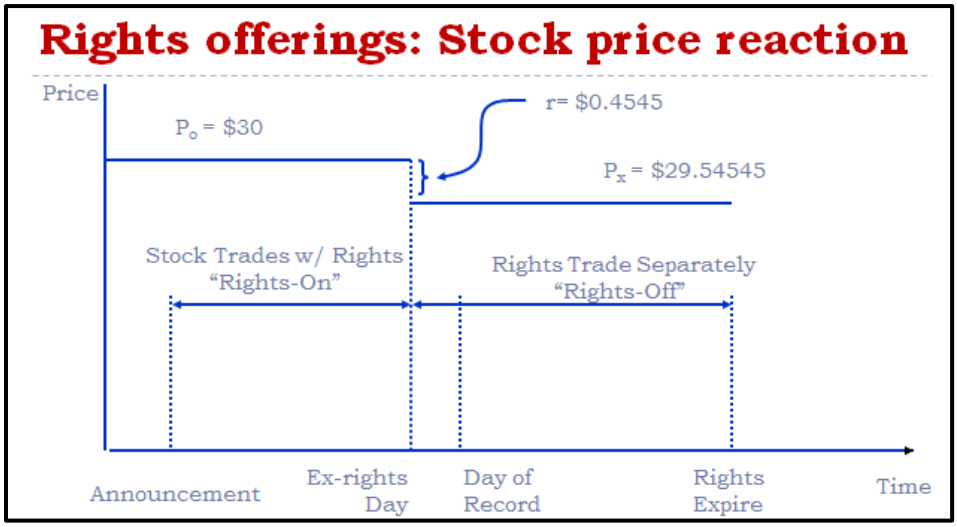
- Number of New Shares Needed = Funds to be Raised / Subscription Price
- Number of Rights Needed To Buy a stock = Old Shares / New Shares
- Value of the Right = Price Before Offering – Price After Offering = (M – S)/(N+1)
    - M = Common share price during the rights on period
    - S = Subscription Price
    - N = Number of rights required to buy one share

The Ex-Rights Period

- The firm has a holder-of-record date
- The stock goes "ex-rights" 4 trading days before the holder-of-record date
- If stock the sold before the ex-rights day (rights-on), the new owner receives the rights
- After the ex-rights date, any sale of shares does not include the rights

When a stock goes ex-rights, the market price of the share drops by the value of one right

- This doesn't mean the unused rights have expired
- Until they expire you can still buy a share at subscription price by exercising N rights
- Price During Ex-Rights = Market Price – Value of Right
- Value of Right During Ex-Rights = (Price During Ex-Rights – Subscription) / N



Underwriting Arrangements in Rights Offerings

- Rights offerings usually use stand-by underwriting: the underwriter makes a firm commitment to take up the unsubscribed portion of the issue and gets a stand by fee + additional fees based on the securities they take up
- Stand-by underwriting protects the firm if investors throw away rights or if bad news causes the stock market price to fall below the subscription price
- Very few shareholders fail to use a valuable right, and are often given an oversubscription privilege, to purchase unsubscribed shares at the subscription price fi they miss/ignore it
- Shareholders are not negatively affected by rights. Selling or exercising rights results no profits or loss for the shareholders
- Despite lower flotation costs than a cash-issue, rights offering have a track record of resulting is large price drops in comparison to cash-issues. Certification

The Private Equity Market

For start-up firms and troubled companies, the public market is often not available. This creates a trend towards private buyouts and the private equity process.

Private Placement

- Securities are sold via private offering to smaller investments (rather than public markets) and usually relates to non-public offerings of shares in a public company
- The biggest drawback is that such securities are not easily resold
- Most private placements involve debt securities but could include equity as well

The Private Equity Firm

- Usually divided into venture equity (start-ups) and non-venture equity (established companies that are in financial distress)
- Professional PE managers represent large institutional investors such as mutual funds and pension funds

Suppliers of Venture Capital

- usually organized as limited partnerships, with institutional investors as limited partners
- general partners – professional venture capitalists – usually charge 2/20-type fees
- usually control at least 1/3 of all board seats and represent the largest voting block
- There are many types of suppliers of venture capital
    - Wealthy families
    - Private partnerships + corporations formed to provide investment funds
    - Large industrial and financial corporations have venture capital subsidiaries (ex. chartered banks)
    - Crown-related/ government funded venture capital
    - Angel Investors
    - Institutional investors (outside of venture capital firms)
    - Sovereign wealth funds
    - Corporate investors (they look for both ROI + synergies + strategic acquisitions)

Stages of Financing

- Seed-Money Stage: small amount of money to prove concept or develop a product. Marketing is not included at this stage
- Start-up / First Round: for firms that started within the past year. Funding is needed for marketing and product development and potentially some more money to start sales and manufacturing
- Second Round: funds earmarked for working capital for a firm that is currently selling its product but is losing money
- Third Round/ Mezzanine: companies that are at break even and are contemplating expansion
- Fourth Round/ Bridge Financing: money for firms that are likely to go public in half a year

The penultimate stage in VC financing is the IPO. VCs will rarely sell all the shares they own at the time of IPO, they usually sell during later offerings. VCs try to IPO a company at the best possible time to maximize their return.

Long Term Debt: Chapter 21

The end of chapter 15 gave a basic introduction to features of debt. Look at those notes for a review. Here we move into more details

Public Issue of Bonds

Similar to a prospectus, an indenture is needed for the public issue of bonds to occur

Indentures

A written agreement between the corporation and the trust company (aka. The Deed of Trust). The trust company is appointed by the corporation to represent the bondholders in a public issue. The indenture:

- Lists the basic terms of the bonds
- Description of the property used as a security/ collateral
- Seniority of the bonds
- Lists all restrictions placed on firm by the lenders, which are known as restrictive covenants
- Sinking fund arrangements and call provisions

Security of a Bond

Security: a form of attachment to property, providing that property can be sold in the event of default to satisfy the debt for which the security is given. Essentially a security is classified according to a specific collateral protecting the bondholders

- Ex. Collateral trust bonds involve a pledge of common stock held by a corporation and mortgage securities that are secured by real estate.
- Debentures are unsecured bonds and holders can claim assets that are not already pledged as collateral in other debt transactions

Seniority of Bonds

Seniority: refers to preference in position over other lenders. Some debt is subordinated: subordinated debt gives preference to other specified creditors. Subordinated lenders are only paid after specified creditors have been compensated

Protective Covenants

- Limits the actions of the borrowing company
- Negative covenants limit or prohibit actions that the company may take. Examples:
    - Limiting the dividends that can be paid so that managers don't leave creditors penniless by liquidating the firm through dividends
    - Firm can't pledge any assets to other lenders
    - Firm cannot merge with another firm
    - Can't sell or lease its major assets without lender approval
    - Firm cannot issue additional long term debt, or further debt must be junior to existing debt
- Positive covenants specify actions that companies agree to take or a condition that the company must abide by:
    - Min level of working capital allowed. Financial ratio covenants require the firm to maintain certain operation ratios
    - Company must furnish periodic financial statements to the lender

The Sinking Fund

Sinking funds allow for early repayment of bonds before maturity.

- Accounts managed on behalf of the issuer by a bond trustee (generally a trust company)
- Typically the company makes yearly payments to the trustee, and a trustee will retire the debt overtime by buying back bonds in the market, or calling some of the debt (see below) over time
- Sinking funds protect bondholders: A firm that is struggling will have trouble paying their sinking fund payments, and this provides early warnings for bondholders about the nature of the company
- Sinking funds give firms an attractive option:
    - If bond prices fall below face value they firm satisfies the sinking fund by buying bonds at the lower market prices.
    - If bond prices rise above face value, the firm will buy bonds back at the face value via the fund.
- Sinking funds can also be used to set aside money for purposes of replacing capital equipment as it becomes obsolete.

The Call Provision

Call Provisions allow for debt to be extinguished before maturity

- It gives the firm the right to pay a call price to retire debt before the stated maturity debt (usually at a premium to the par value of the debt), by calling the debt
    - Not usually operative in the first few years
    - A company that is prohibited from calling bonds early on have a "deferred call" provision in place
- Canada plus calls: a new call feature that limits an issuers desire to retire debt early. The premium is not set at the time of issuance, and is designed to compensate investors for the difference in interest b between the original bond and the new debt that will replace it

Bond Refunding/ Refinancing

Replacing an issue of outstanding bonds is called bond refunding, which usually requires a company to call the entire issue of bonds at the call price. This brings two questions:

- Callable bonds have zero-sum benefit for issuer and bondholder
- If interests rates are low, bond prices go up, and the issuer can buy back the bond at the call price which is lower than the bond price and re-issue
- However, bondholders factor this advantage into their valuation, and thus, require higher interest rates on callable bonds than non-callable bonds

Deciding When to Refinance

- From the firm's standpoint, refinancing is a project. The present value of costs and benefits from refinancing may be combined into an NPV
- Refinance, if the NPV is positive
- The correct discount rate is the after-tax cost of the new debt issue

Costs of Refinancing

- Call premiums: the amount you have to pay to call the bond you currently have in the market
    - Not a tax deductible expense
- Floatation costs are a onetime cost
- Interest on old debt during the overlap period

- This can be offset by using the money you get from issuing and investing it at short term interest rates

Benefits of Refinancing

- Floatation costs of new debt will generate a tax shield over 5 years or the duration of the bond (whichever is less). These costs
  - Amortize your flotation costs over the duration and create a tax shield on the amortized amount based on the tax rate
  - Ie. Flotation Costs/5 = Amortization Amount → Amortization Amount * Tax Rate = Tax Shield
  - This creates an annuity on the savings on floatation costs discounted at the after-tax cost of debt
- PV of interest savings over time
  - Calculate the difference of yearly interest now vs. yearly interest previously
  - This can also be discounted as an annuity for savings each year

$$PVATIS = FV(C_{old} - C_{new})(1-T)\left(\frac{1-(1+k_i)^{-n}}{k_i}\right)$$ After tax interest savings

$$PVFCTS = \frac{FC}{\min\{n;5\}} \times T \times \left(\frac{1-(1+k_i)^{-\min\{n;5\}}}{k_i}\right)$$ Floating Costs

$$OPC = (1-T) \times n_{overlap} \times \left[FV \times C_{old} - (FV - FC) \times k_{RF}\right]$$ Interest on old debt during overlap period

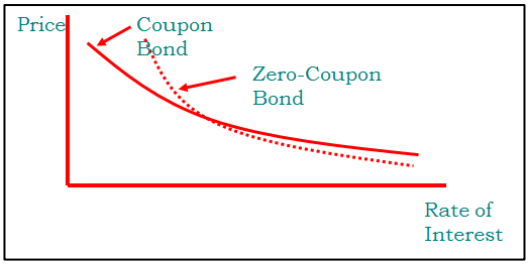
$$NPV = PVATIS + PVFCTS - CP - FC - OPC$$

Types of Bonds

Zero-coupon bonds

These bonds do not make coupon payments and are sold at a discount

- No reinvestment rate risk. Coupon bonds are valued assuming that the coupons can be reinvested, but there is no guarantee that the interest rate stays favorable
- Bond is unlikely to be called
- Price is solely determined using interest rate (since coupons don't play a role)
- Taxes are still paid on theoretical interest amounts (even if the interest isn't actually paid or received by either party)



Floating Rate Bonds

- The coupon rate is tied to a benchmark rate
- Usually these floaters have the following features
  - A put provision: the right to redeem his or her note at par on the coupon payment date. Usually this is prohibited during the first few years of the bond
  - Floor & Ceiling: coupon rate is subject to a minimum and maximum to create a capped range for the coupon

- Floating rate bonds are greatly connected to inflation risk. During high inflation, issuers of fixed rate bonds tend to make gains at the expense of lenders and vice versa.

Leasing

- Valid reasons for leasing:
  - Tax benefits
  - Reduced resale costs
  - Efficiency gains from lessor specialization
  - Reduced distress costs
  - Improved manufacturer incentives
- Dubious reasons for leasing:
  - Avoiding capital expenditure controls
  - Reducing leverage through non-balance-sheet financing

The Perspective of the Leasee (The User of the Asset)

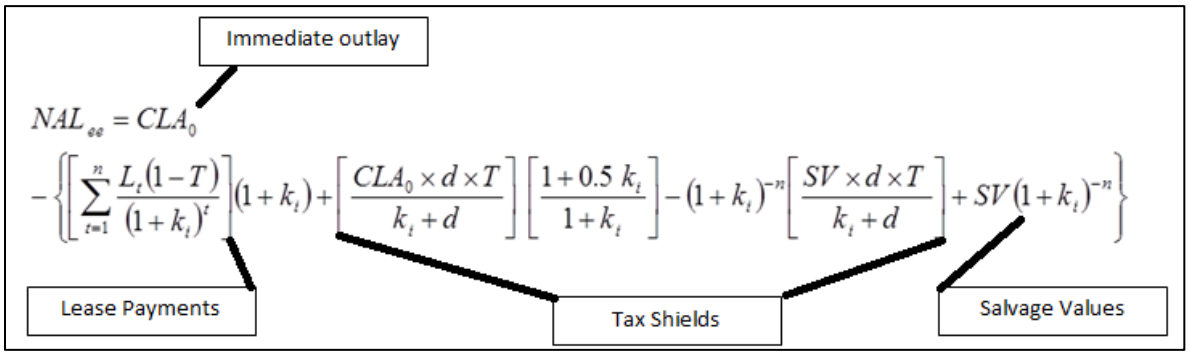
The concept is to consider the NPV of a lease versus buy decision (called NALee). If NALee is positive, the leasing is preferred over buying.

The benefits are:

- No immediate capital outlay. You save the cost of buying

The costs are:

- PV of after tax lease payments
- PV of the lost tax shields you would have gained if you had bought the asset
- PV of the lost salvage value had you bought



The Perspective of the Lessor (Renter)

NALor: the NPV from the lessor perspective

- What is the present value of cash flows that are received by the lessor?
  - Lessor pays for cost of the asset CLA_0
  - Lessor earns the present value of after-tax lease payments, L(1-T)
  - Lessor receives present value of the CCA tax shields and the SV of the leased asset

- NALor = NALee when:
    - if the lessor and the lessee face the same before-tax cost of debt (k_b), tax rate (T), cost of the leased asset (CLA_0), and salvage value (SV)
    - Under these conditions, leasing is a zero sum game and The only feasible lease payment is that which makes both NAL's equal to zero
- Leasing can be mutually beneficial (positive NALs for both the lessor and the lessee) if the lessor:
    - Has a higher tax rate than the lessee
    - Can borrow at a lower rate than the lessee
    - Can buy the asset at a lower price
    - Can sell the asset at a higher salvage value

Capital Structure: Chapter 16

Introduction of Capital Structure

Operating & Financial Leverage

Operating Leverage:

- Arises from the fixed costs associated with production
- A business that has a higher proportion of fixed costs and a lower proportion of variable costs is said to have used more operating leverage
- A business that makes few sales, with each sale providing a very high gross margin, is said to be highly leveraged from an operation perspective (ie. it can afford higher fixed costs and thus be more leveraged)

Financial Leverage

- Arises from the debt/equity mix
- With a high degree of financial leverage come high interest payments
- Thus, highly levered firms are ones that have to make a lot of interest payments (usually as a result of having a high proportion of debt)

The Pie Theory

A company's value:

V = B + S B – Market value of Debt S = Market value of Equity

Your value is based on these two factors and you must try to find a D/E ratio that maximized value.

- Managers should choose the capital structure that maximized firm value, because this is most beneficial to the shareholders.
- Shareholders do not get value out of strategies that only look at their benefits, because they need the whole firm value to increase for them to gain any benefit.

The metric used for comparing various proposals for capital structure is the Return on Equity (Earnings/Equity) of each scenario

- The textbook also uses EPS and ROA to compare projects

Modigliani and Miller: CS Theory Assuming No Taxes

Perfect Capital Markets Assumption

- There are no taxes $T = 0$
- Financial distress costs are zero
- The are no trading costs
- The firm is financed with long-term debt and common equity only
- All investors borrow and lend at the same riskless rate, $k_D = K_{RF}$ *-> Really a bullshit assumption!*
- The firm is not expected to grow in the future – all earnings are paid out as cash dividends. (Investment decisions are held fixed)
- Business risk is homogeneous across firms
- Investors have homogeneous expectations about firms' *E(EBIT)* and S_{EBIT}

Proposition 1

The value of the levered firm is the same as the value of the unlevered firm

- Value is determined by operations, not capital structure
- Investors receive the same payoff whether he/she:
    - Buys shares in a levered corporation (which would have higher EPS/ROE than unlevered) OR
    - Borrow money from the bank to "go on margin" and purchase more shares in the unlevered structure and receive the same payoff anyway. This is known as home-made leverage
    - The investors initial investment is the same in either case, and the end payoff is the same
- Essentially, an investor is not receiving anything from corporate leverage that they couldn't receive on their own
- Thus, if levered firms are priced too high, investors will buy shares in unlevered firms by using homemade leverage. If they can borrow at the same rate as corporations, they can duplicate the effect of corporation leverage on their own

Proposition 2

Risk to Equity Holders Rises With Leverage

$$k_E = k_U + \frac{D}{E}(k_U - k_D)$$

- Thus, equity holders require a higher required rate of return
- The cost of equity of the levered firm Ke, will be based on the increase in leverage
- Thus, even if debt is cheaper than equity, firms cannot reduce their WACC by issuing more debt

Criticisms of This Model

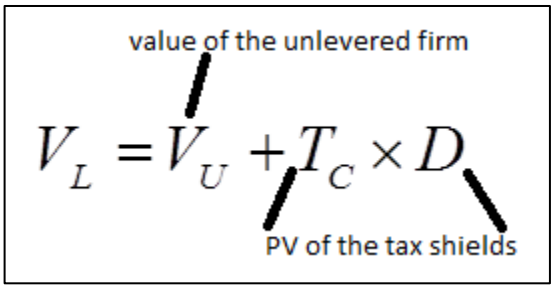
- Taxes exist
- Personal and corporate leverage are not perfect substitutes
    - Borrowing and lending rates for investors and institutions differ
- Trading costs prevent perfect arbitrage between levered and unlevered firms
- Debt increases a risk of bankruptcy. Bankruptcy is costly
- In reality, k_D and *D/E* have a positive relation
- Agency problems and benefits due to debt exist
- Managerial incentives are related to debt levels

Modigliani and Miller: CS Theory With Taxes

The idea here is that once taxes come into play, shit changes. Since interest is tax deductible, the levered firm needs to pay less taxes and thus allows for value to be greater than that of an unlevered firm

- The PV of the tax shields gained from a levered company adds significant value
- Think of the CRA as an entity that is taking away from your firms value
- By minimizing the taxes you pay (ie. maximizing the tax shields you get) you can minimize the amount of value the CRA takes from your company
- Levered firms gain more tax benefit than unlevered firms

Proposition 1



Proposition 2

- **Since firm value rises with debt, *k* must fall with debt**

$$k_L = k_U\left[1 - T_C \times \frac{D}{E+D}\right]$$

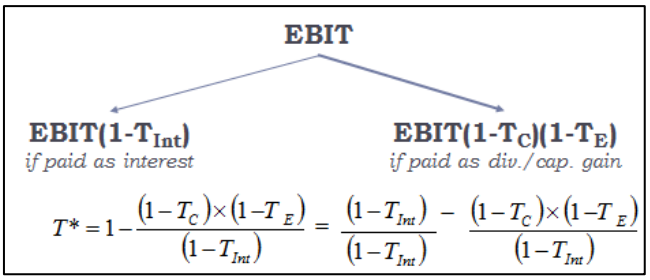
- **k_E, however, sill rises with debt**

$$k_E = k_U + \frac{D}{E}(1 - T_C)(k_U - k_D)$$

Limits in the Usage of Debt: Chapter 17

The Effective Tax Advantage of Debt: Personal Taxes

- As the model shows, when using an equity structure, the taxation under an equity structure results in a higher tax payment
- T* represents the tax advantage that you get from using a debt structure
- Every $1 received after taxes by debt holders from interest payments costs equity holders $(1 − *T**) on an after-tax basis



Limited Tax Benefits of Debt

Since interests is taxed more heavily than earnings from equity, if interest payments regularly exceed EBIT, the tax advantage of excess debt in negative

$$T_{ex}^{*} = \frac{T_E - T_{Int}}{1 - T_{Int}} < 0$$

- The optimal level of leverage from a tax saving perspective is where interest equals EBIT.
- At the optimal level of leverage, the firm shields all of its taxable income.

Costs of Financial Distress

The following are costs arising from bankruptcy or distorted business decisions before bankruptcy. The potential loss from financial distress is estimated to be 10% - 20% of firm value

Legal & Administrative Costs (Direct)

- Legal costs and fees in bankruptcies are huge
- Costly outside experts are often hired by the firm to assist with the bankruptcy process.

Indirect Costs of Financial Distress

- There is a loss of sales, customers, employees and receivables
- Loss of management time
- Fire Sale of Assets
- Delayed Liquidation
- Costs to creditors

Agency Costs

- Costs that arise when there are conflicts of interest between the firm's stakeholders
- Management will generally make decisions that increase the value of the firm's equity.
- However, when a firm has leverage, managers may make decisions that benefit shareholders but harm the firm's creditors and lower the total value of the firm. This generally only happens if a company is facing financial distress

Incentive to Take Large Risk - Overinvestment

- When you are nearing bankruptcy there is a natural tendency to take risks because shareholders try to expropriate value from the bondholders by selecting high-risk projects and taking advantage of the current levered state
- This tendency sometimes results in selecting risky projects that don't have a positive NPV at all, but have the possible potential for large gains depending on various probability-weighted scenarios

Incentive to Underinvestment – Debt Overhang

- When you're in a troubled state, if the current shareholders invest heavily in a high NPV project, the gains are shared by the shareholders AND the creditors
- The shareholders would have to make all the investment into the project themselves, and sometimes, would like to avoid sharing the gains with creditors
- In contrast, an unlevered company will always pick a positive NPV project

Milking the Property

- Paying our excessive dividends to liquidate the firm leaving less for the bondholders
- This is often restricted by the right covenants

Agency Benefits of Leverage

- Concentration of ownership: One advantage of using leverage is that it allows the original owners of the firm to maintain their equity stake. As major shareholders, they will have a strong interest in doing what is best for the firm
- Reduction of free cash flow agency issues: More free cash flow leaves more cash flow available for discretionary spending by the mangers. Debt serves as a control feature to formalize the usage of free cash flow
- Managerial commitment: managers are forced to commit to a payout policy in a way that cannot be accomplished under a dividend policy

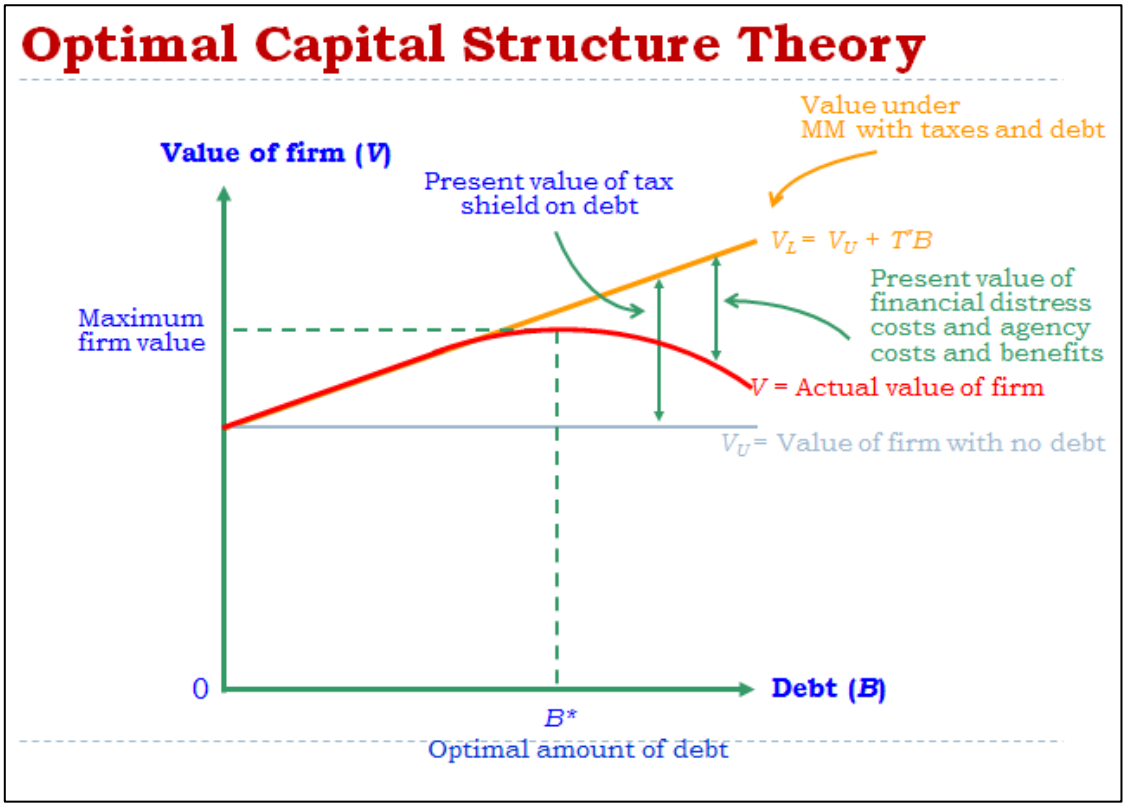
$$V_L = V_U + T^* \times D - PV(\text{Financial Distress Costs}) - PV(\text{Agency Cost of Debt}) + PV(\text{Agency Benefit of Debt})$$

Reducing Costs of Debt

Protective covenants are desired by both the bondholders and the shareholders

- Limits bondholder risk
- Shareholders will favour reasonable covenants, since they reduce risk for bondholders, and thus, ensure that the cost of debt doesn't go up too high
- Without these covenants, the market price of debt will be much lower, and lead to a higher cost of debt

Modigliani and Miller: With Taxes and Financial Distress Costs



Alternate Financing Theories

The Pecking Order Theory

If internal financing is insufficient, firms prefer to issue debt rather than equity

- The only time to issue equity is when your stock is overvalued; otherwise, bonds are the way to go. However, since the market knows you're only issuing equity because you think the stock is overvalued, you should STILL issue debt!
- random shocks to cash flow may be harmful, equity is safer, although more expensive
- Use internal financing -> Issue the safest securities first
- Implications
    - No target amount of leverage exists: Leverage is determined by the need for additional cash that can't be financed through internal cash flows
    - Profitable firms use less debt: the most profitable firms are the ones generate the cash internally and will create debt capacity. This capacity can then be used for tax shields. Empirical evidence suggests that more profitable firms are less levered
    - Companies like financial slack: Because the company knows they'll have to fund profitable projects in the future, they accumulate cash, so that internal funds can be used rather than external financing
    - However, too much free cash may tempt managers into actions not for the best of the firm

Signalling Theory

Suggests that companies use debt to signal increased stability of future cash flows

- Low anticipated profits will likely take on a low level of debt
- High profits will be the opposite, so that tax shields can be taken advantage of
- If they are financially secure, they are not scared to take on more debt
- This may create incentives to try and “fool the public”, but their ability to do so is limited by the risks and costs of taking on this extra debt

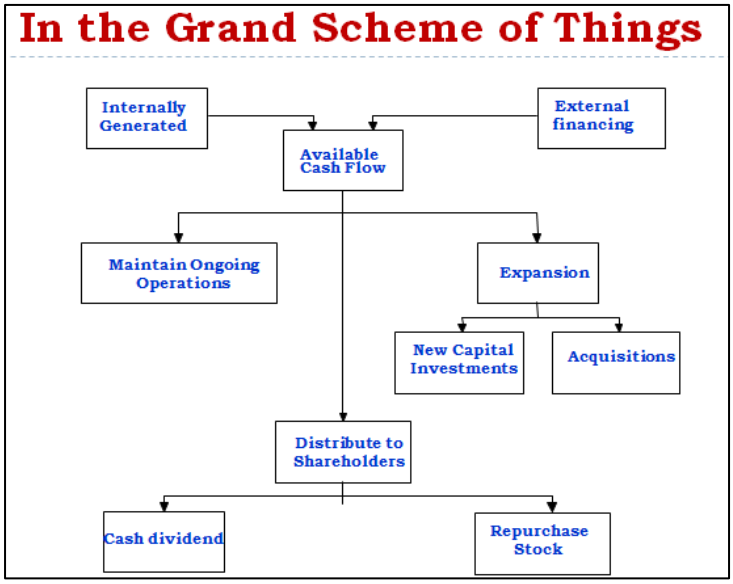
Market Timing Theory

Argues that the firms issue debt when it is overvalued relative to equity

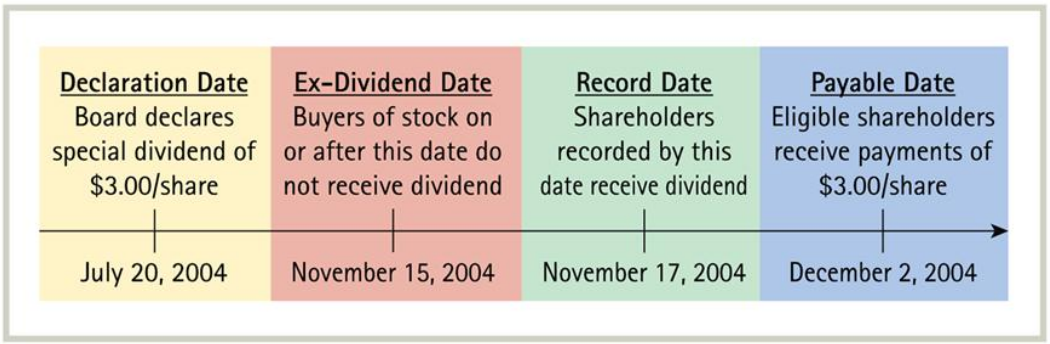
Payout Policy: Chapter 19

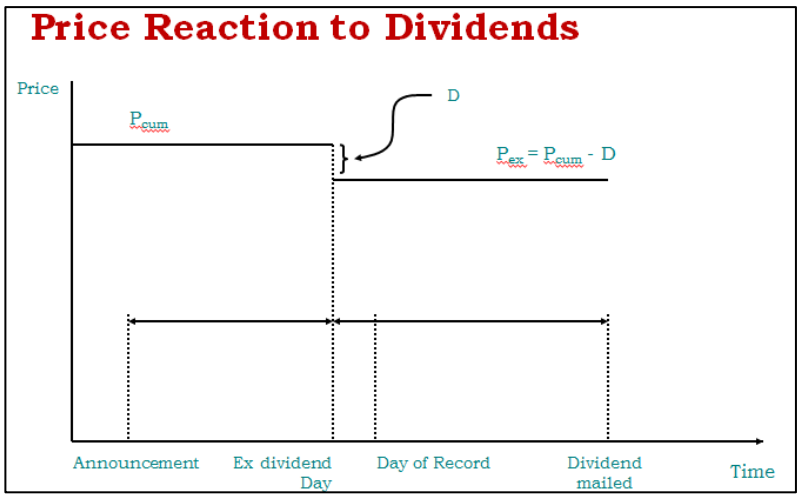
Dividend policy is a decision to give money back to the owners and NOT invest in new projects

- Affects the firm's capital budgeting and capital structure decisions
- Paying dividends means less internal cash available for other uses
- Paying dividends may imply a need to raise money to invest in new projects



Dividend Process





The stock price will fall by the dividend amount on the Ex-dividend date, since buyers of the stock after this day won't receive the dividend.

Arguments Suggesting Dividend Policy Doesn't Matter

In the absence of transaction costs and taxes, dividend policy is irrelevant and does not affect shareholder wealth

- Investors can choose the dividends they want at any time
- Investors can create "homemade dividends" by selling off a portion of their stock holdings
- Investors can undo dividends by reinvesting the cash dividend

Again, for this argument to hold, perfect market assumptions are needed, and this in unrealistic. Also, the policy in real life DOES matter. Companies shouldn't give up a positive NPV project to payout a dividend…but if the policy requires a payment, then the value of the firm isn't being maximized.

Reality: factors favouring low payouts

- Taxes
- Firms usually grow, which means paying out earnings rather than reinvesting them isn't very smart
- New equity is costly
    - Bond covenants restrict dividends
- Short term cash position may be compromised as a result of a large payout

Reality: factors favouring high payouts

- Investors' desire of current income
- Investors' risk aversion
- Tax exemptions
- Signaling
- Free cash flow elimination

These topics were discussed heavily at the end of the last chapter. Refer back for rationale…

Dividend Rules of Thumb

- Avoid passing on positive NPV projects to pay dividends
- Avoid cutting or reducing dividends: dividend smoothing
- Avoid selling new equity to maintain dividend payouts
- Maintain the target D/E ratio
- The payout policy must consider, taxes, cash retention, agency costs, issuance costs and distress costs

Residual Dividend Policy

- Establish the optimal capital budget: Accept all projects with positive NPVs. Never reject a positive NPV project to payout a dividend
- Determine the amount of common equity needed to finance the new investments while maintaining the firm's capital structure
- Use internally generated funds to supply this equity whenever possible
- Pay cash dividends only to the extent that internally generated funds remain after taking all appropriate capital investment opportunities

Share Repurchases

An alternative way to return cash to shareholders. Especially suitable for investment clienteles that prefer capital gains

Types of Share repurchases

- Open market repurchase (~95% of all repurchases)
- Fixed-price offer (10-20% premium to the current mkt. price)
- Dutch auction: auctioneer begins with a high asking price and lowers it until someone is willing to accept the price
- Targeted repurchase (greenmail) – a technique to avoid a hostile takeover. The firm purchases back its shares from a specific person that they do not want to have ownership
    - Repurchase is not made for everyone…just the targeting person who may be planning a takeover
    - Shares are bought back at a large premium to market value
    - This prevents the takeover, but dilutes current shareholders

Advantages

- A one-time action
- Taxed as capital gains
- Reduce future dividend payouts
- Immediate effect on capital structure

Disadvantages

- Repurchases signal that growth may be slowing (this is debatable…it could also signal that the company thinks the shares are undervalued and wants to buy back their equity)
- Possibility of price manipulation. The value at which they buy back shares could dilute a lot of existing shareholders

Effective Dividend Tax Rate

Effective Dividend Tax Rate

$$(P_{cum} - P_{ex})(1 - \tau_g) = Div(1 - \tau_d)$$

$$P_{cum} - P_{ex} = Div \times \left(\frac{1 - \tau_d}{1 - \tau_g}\right) = Div \times \left(1 - \frac{\tau_d - \tau_g}{1 - \tau_g}\right) = Div \times (1 - \tau_d^*)$$

	T_C	T_{Int}	T_E	
			T_{CG}	T_{Div}
Ontario	31.0% (-2.0%)	43.41%	21.70%	22.25%

- The stock price should drop by the amount the end shareholder would receive if they had received the dividend
- This is the dividend per share, net of taxes
- Td* represents the effective amount of tax that the end shareholder pays on dividends they receive, which is a function of both the capital gain taxes, and the dividend tax rate

Stock Dividend, Stock Split, & Reverse Split

Stock dividends and splits are essentially the same thing: distributing shares instead of cash

- 10% stock dividend = 11:10 split
- 2:1 split = 100% stock dividend
- Differences are primarily accounting based and we don't care about them here

Reverse Splits: issuing to each shareholder in that company a smaller number of new shares in proportion to that shareholder's original shares that are subsequently canceled. A reverse stock split is also called a stock merge. The reduction in the number of issued shares is accompanied by a proportional increase in the share price

- When share price gets extremely low firms sometimes execute a Reverse Split or Consolidation because it has a corresponding price increase

- Remember: Simply because the share price is now in a more "respectable" range, doesn't mean that the stock is a better investment