Long-Term Financing

Debt and Bonds

Long-Term Debt

Bond holders:

- lend the firm money – creditors not owners
- receive a prior claim on income and assets
- have no control over the firm
- receive an annuity of coupon payments plus a lump sum return of the principal ($1000) at maturity

Typical corporate bond

"Printed" on the bond – fixed – doesn't change

- Coupon rate: 12%/yr comp semi-annually
- Maturity date: 20 years from issuance
- Face value or par value or principal = $1000
- Coupon = (.12x1000)/2 = $60/period
- Matures in 20x2 = 40 periods

Not "printed" on the bond – varies every day

- Interest rate or yield to maturity: i%/period

Value of the bond: $60(PVIF_{a}\text{-}i\%\text{-}40)+1000/(1+i)^{40}$

Types of Bonds

- Mortgage bonds
- Debentures
- Subordinated debentures
- Income bonds

Retirement of Bonds

- At maturity
- Conversion to common stock
- Callable bonds
- Periodic repayment

Mortgage Bonds

- Safest (and, therefore) lowest yielding
- Secured by a lien on specific fixed assets (backed by collateral pledged by the firm)
- General creditor if liquidation proceeds are insufficient
- Open-ended or closed-ended mortgage
- Most interested in firm's earning power

Debentures

- Unsecured bonds – no specific collateral
- Secured only by firm's earning power
- General creditor in the event of liquidation
- Used primarily by well-established, credit-worthy firms

Subordinated Debentures

- Rank below all other unsecured debt
- Serve as a cushion to senior securities but still ahead of stockholders
- Popular since interest payments are tax-deductible but still risky since legal obligation to pay the interest
- Highest yielding of a firm's bonds

Income Bonds

- Legal obligation to pay interest only if is earned
- Senior to any subordinated debt
- Could have cumulative feature (3 yrs max)
- Used to finance a turnpike or a stadium
  - Interest comes from the tolls or gate receipts
- Used in corporate reorganizations – ailing firms can recover – "get back on their feet"

Retirement of bonds

1. At maturity
2. Convertible bonds
3. Callable bonds
4. Periodic repayment
   - Sinking fund bonds
   - Serial bonds

Retired at maturity

Specific maturity date set in the indenture at the time of issuance

Bonds that were issued 20 years ago mature in about a month – where does the firm get the $40 million to retire them?

Usual procedure: float a new issue and use the proceeds to pay off the old bonds

Prevents huge cash drain at maturity

Conversion to common stock

Some bonds are convertibles – i.e., they have a conversion feature

At the **option of the investor**, bond can be exchanged for a **specified number** of shares of firm's common stock

Terms: conversion ratio or conversion price

Say, $1000 bond can be swapped for 20 shares

conversion ratio = 20:1

conversion price =1000/20=$50

Convertible Bonds

- Conversion feature can be attractive to both investors and the issuing firm
  - If firm prospers and P_{stock} rises, holder can convert. Say P_{stock} =$60 and conv ratio = 20:1, then bond is worth 20 x $60=$1200
  - Attractive if P_{stock} is likely to rise in future
- Because investors like conversion feature, convertibles can be issued at lower yields than similar straight bonds

Best of both worlds?

- What prevents an investor from keeping the convertible bond as a bond (knowing it's worth $1,200 as stock) and continuing to enjoy the safety of being a bond holder and continuing to receive a coupon payment probably significantly larger than the dividends from the common stock?
- Firms don't like these "overhanging shares"

Forcing the conversion

- Minor way: Conversion ratio may decrease over time (this would be detailed in the indenture). 20:1 for first 8 years, then 16:1 for second 8 years and then 15:1 til maturity
- Major way: Firm can "call" the bonds to force conversion

Callable Bonds

- Roughly 50% of corporate bonds are callable
- At the **option of the firm**, firm can redeem the bonds prior to maturity at a **stated price**
- Say P_{call}=1060 and conversion value =1200
- P_{call} is above par and declines over time
- Usually unable to call for first 5 yrs

Who ya gonna call?

- What's so great about a call feature?
- If interest rates have dropped since bond was issued, firm is paying too much
- Firm could issue new bonds at the lower yields and go into open market and start buying back its bonds, but …

Incredibly important relationship

$$i \Downarrow \Leftrightarrow P_{bonds} \Uparrow$$

Inverse relationship between yield and price

- Any benefit that firm would receive by issuing bonds at the new lower rate would be negated by having to pay higher prices to redeem the old bonds
- So, the heck with that. Firm hopefully added a call feature to the original bonds, thereby locking in the maximum price that it would have to pay, i.e.; the P_{call}

Call Feature

- Call feature gives the issuer flexibility in that it can redeem the outstanding bonds prior to maturity at a stated price
- This is especially important if interest rates have dropped since issuance
- If level of interest rates is high at issuance, call feature is unattractive to investors, and so issuer must pay for it by offering higher yields on its callable bonds compared to its straight bonds

Yield Differential

- When a security has a feature that is unattractive to investors, they must be offered an incentive in the form of a higher yield to buy the security
- If the probability that the firm will someday want to call is high, then callable bonds have to carry higher yields

Periodic Repayment

- Sinking fund bonds
  - Firm makes periodic payments to trustee who repurchases a portion of the issue each year either in open market or by calling with a lottery
- Serial bonds
  - Staggered maturity schedule with lots of small issues inside one big one
  - Firm can appeal to wider range of investors

Debt as a source of financing

Debt financing:

- Is cheaper than equity
  - Interest is tax-deductible
  - Investors require lower returns on debt
- Adds to financial risk of the firm
  - Higher probability of bankruptcy
  - Greater volatility of net profits (leverage)

Long-Term Financing

Equity and Common Stock

Equity Financing

Common stockholders:

- have a residual claim on income and assets
- have a limited liability
- assume the ultimate risk
- have no maturity date – sell shares in secondary market

Common Stock

- Number of shares:
  - Authorized – company charter
  - Issued – sold at one time
  - Outstanding – currently owned by the public
  - Treasury Stock – repurchased and held by the firm
- Stock values:
  - Par – no economic significance
  - Book – sum of the equity accounts on BS
  - Market – look it up in the WSJ or compute with a valuation model

Rights of a stockholder

- Right to income – share in dividends and price appreciation
- Right to vote – select the board of directors
- Preemptive right – can maintain proportional ownership if there is a new stock offering – existing shareholders may be given first shot at any new shares

Investment Banker

- Acts as an advisor
- Acts as an underwriter
- Acts as a distributor of the new shares
- "Pegs" the price for 30 days

Managing Investment Banker

- Competitive bid basis
- Negotiated basis
- Advises the firm
  - Size of the issue
  - Timing of the issue
  - Debt: callable? convertible? maturity?
- Rounds up other firms for buying syndicate

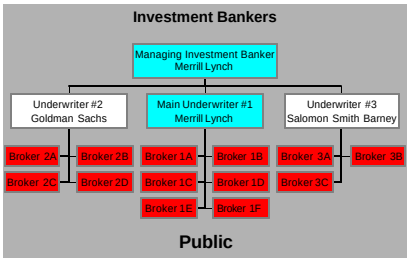
Buying Syndicate (Underwriters)

- Small group of investment banking firms buy the shares from the issuing firm
- Issuing firm receives I_0 (the net amount, $I_0 < P_0$) and is essentially finished
- Underwriting syndicate now needs to resell the shares to the public for a $P_{sell} > I_0$
- Underwriters bear risk of not being able to sell
- Other brokerage firms form selling syndicate

Selling Syndicate

- Sell the shares to public for a commission
- Public pays a (hopefully) higher price for the shares than the underwriters paid
- Investment bankers "peg" the price for 30 days by standing ready to repurchase any shares at the offering price
- Investment bankers lose if price has to decline to unload the unwanted shares

Primary Distribution



Important result

Net proceeds (I_0) < Current Price (P_0)

- Underpricing of the new shares
  - Public won't pay the current price for new shares so price must decline to attract sufficient new buyers
- Flotation costs
  - Investment bankers and brokerage firms need to be compensated for underwriting and selling the new shares

Equity as a source of financing

Financing with equity:

- is more expensive than equity
  - dividends are not tax-deductible
  - investors require higher returns on equity to compensate for the higher risk
- increases the credit worthiness of the firm and enables the firm to borrow at lower rates
- does not dilute control, earnings or dividends