Lecture Notes Set III:
Chapter 17: Payout Policy

Chapter 17: Introduction

Payout Policy: How much should a company pay out to stockholders and how much should it retain? *A firm's earnings are either paid out in the form of dividends or retained. What is presumably done with retained earnings?*

- Firms with +NPV opportunities can pay dividends and issue new shares or the firm can retain earnings.
- Firms with no +NPV opportunities *should* disburse their earnings to shareholders. Alternative is holding cash, wasting cash, or investing in the securities of other firms or governments.

How do firms disburse cash to stockholders?

a) dividends (can be relatively fixed or relatively variable over time)
b) buy back stock

2005: 41% of firms pay a dividend. Stock repurchases becoming more common; ExxonMobile repurchased $18.2B; Citi repurchased $12.8B, Intel repurchased $10.6B and Cisco repurchased $10.2B

How much earnings are retained vs. disbursed?

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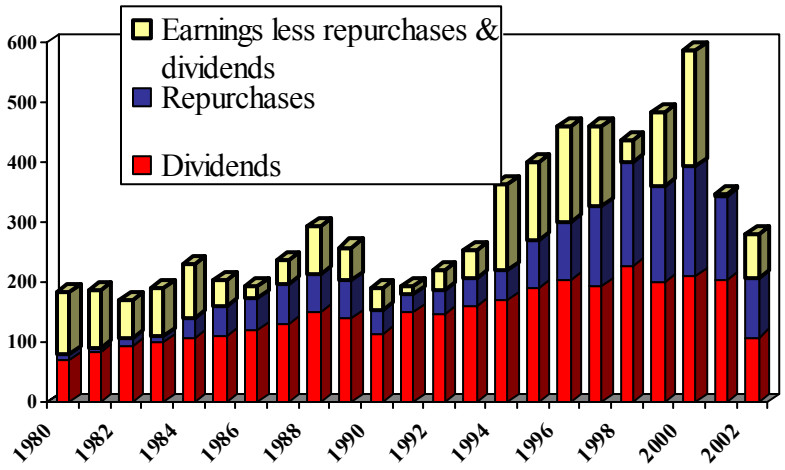


A. How dividends are paid:

1) Dividend set and declared by board of directors
2) Stock goes ex-dividend
3) Payment is made to stockholders on date of record
4) Dividend checks are mailed to stockholders

Timing example:
Jan 31: ExxonMobil declares regular quarterly dividends of $.32 per share (Declaration date)
Feb 7: Share trade ex-dividend (Ex-dividend date)
Feb 9: Dividends paid to shareholder registered on this date (Record date)
Mar 9: Dividend checks are mailed

Type of dividends:

A. Regular cash dividend: quarterly, typically remains relatively constant or gradually increases over time.
B. Special dividend: One-time dividend; no expectation of continuation. However, some firms have a history of paying a relatively constant "special dividend" along with a quarterly dividend once-per-year, For these firms, stockholders may develop an expectation of continuity.
C. In-kind dividend: (could be a liquidating dividend): Product dividend. I.e., *Dundee Crematorium* offered discounts to large shareholders.
D. Stock dividend: New shares issued by the firm, disbursed as a dividend. Similar conceptually to a *small* stock split. Exg: a 5% stock dividend will result in the "payment" of 5 additional shares for each 100 shares you already own.

Are stock dividends as valuable as other types of dividends?

Which type of dividend is most similar to a stock repurchase?

B. Stock Repurchases:

Methods:

1) Buy stock in open market, like any other investor
2) Buy back stated number of shares at a fixed price (typically 20% above current market price).
3) Dutch auction: firm states a series of prices at which it will buy back stock. Shareholders submit offers declaring how many shares they are willing to sell at each price, and firm calculates the lowest price it can buy back the stated number of shares.
4) Direct negotiation with a given stockholder
    a. Greenmail (define):

What if managers believe their stock is overvalued in the market. Is this a good time to repurchase shares of stock? (buy ____, sell _____)
Example:

C. Concept: Dividend Irrelevance

In "*perfect capital markets*" (no information asymmetry, no taxes, no transaction costs) dividend policy is irrelevant.

Balance sheet example:

Assets			Liab + EQ	
Cash	1000	|	Debt	0
PP&E	9000	|	EQ	$_____
Totals		|	

Assume 1000 shares outstanding. Price = $_____

What is the value of *one share of stock* before any dividends have been paid?
_____

What is the value of *one share of stock* assuming all of the cash is used to pay dividends?_____

If the $1000 cash is used to buy back shares, how many shares will be repurchased?_____ How many shares are left outstanding?_____
What is the total market value of equity after the repurchase?_____
What is the stock price after the repurchase?_____

What if the firm has a *positive NPV* project? Should the firm fund the project with the firm's earnings, or issue new stock?

Dividend Irrelevance: *It doesn't matter whether a project is funded using cash or whether new shares are issued to fund the project, and the cash is paid in dividends.*

Rational Demiconductor market value balance sheet, prior to dividend and project funding:

Assets			Liab + EQ	
Cash	1000	|	Debt	0
PP&E	9000	|	EQ	_____
New Project NPV	2000	|		

Price per share: $_____

Assume Rational Demicounductor will first, pay out $1000 in dividends, and then issue new shares to fund the project, which requires an initial outlay of $1000 to purchase a new machine.

What will the stock price be after the dividend disbursement: $_____
How many *new shares* must they issue to fund the project (note the *new* stock price above)?_____

Rational Demiconductor's balance sheet, post-dividend payment and new stock issue:

Assets			Liab + EQ	
Cash	0	|	Debt	0
PP&E	9000	|	EQ	_____
New machine	1000	|		
New Project NPV	2000	|		

shares outstanding:_____
Price per share:_____

D. How Firms SET Dividend Policies: The information content in dividends.

Facts to consider in the dividend decision:

Transaction costs are associated with new stock issues. Using proceeds from a new stock issue to fund projects is more expensive than using retained earnings. This provides an incentive for firms to use earnings to fund projects instead of paying dividends and funding projects with new stock issues.

Taxes: In some periods, dividends have been subject to higher *personal tax rates* than capital gains. Currently, the tax rate on dividends and capital gains are the same, with a top tax of 15%.* Dividends are taxed in the year they are paid. Capital gains are taxed in the year the stock is sold (at a sale price > purchase price.) Thus, capital gains tax can conceivably be deferred *indefinitely* if the stock is never sold. Also, the sale of stock and associated cap gain taxes can be timed to coincide with a low-tax year or netted against cap losses in the same year. Even though the tax rates on capital gains and dividends it is unlikely that they will remain the same in the future. Institutional taxes: Pension funds are untaxed. Corporations have a reason to prefer dividends to capital gains because dividend income is 70% tax excluded.

Asymmetric Information: Stockholders can't always trust information in accounting statements. Multi-layered corporate organizations can create earnings figures that are, at best, difficult to interpret. Dividends can provide proof of cash flows.

* Note that capital gains realized with a year of purchase and dividends on stock held for less than 61 days are taxed as ordinary income. The current tax rates are due to expire in 2010.

Dividends provide *proof* of cash flows. A less-than-profitable firm could "cheat" in the short-term by paying large dividends, but could not do so in the long-term without selling off parts of the firm to obtain the needed cash.

Do dividends provide proof of current cash flows…or provide clues as to future cash flows…or both?

- Healy & Palepu (1988) find first-time dividend-paying firms showed an increased in earnings of 43% in first year – and earnings continue to increase in subsequent years. Firms that stopped paying a dividend had a stock price decline of 9.5% around the announcement, and a *decrease* in earnings for the next four quarters.
- Some studies find dividend changes have *little* predictive power for *future* earnings. However, analysts tend to "up" their forecast of future earnings when a dividend increase is announced.
- Unexpected dividend increases are met with positive stock price reaction of 1-2%. However, investors care more about change in dividends than the level of dividends.
- Firms in countries like Japan, with closer relationships with stockholders, experience less stock price reactions around dividend changes. *Why?*

E. How do managers decide on the level of dividend payments for their firm?

1) Long run target payout ratios that will allow firm to maintain or increase dividends
2) Focus on dividend changes vs. absolute levels.
3) Managers "smooth" dividends in long-run
4) Reluctant to make dividend changes that would have to be reversed.
5) Would rather issue new stock or bonds than cut dividends to fund a project

What if a company announces a "dividend cut" for a supposed "good reason"?
(Florida Power and Light: FPL)

1994: FPL announces a dividend cut, from 62 cents to 42 cents per quarter. Authorizes a 10 million share repurchase over next three years.

Reasons:

Increased competition in industry
Dividend decisions moved to Feb (from May) to correspond with annual earnings.
Use extra cash to retire debt

Market reaction: stock price falls 14% on day of announcement. When earnings are no different than forecast, stock price recovers, as market determines dividend change was *not* a sign of financial distress.

Are dividend earnings "less risky" than capital gain earnings? Capital gains occur when earnings are retained for the firm to invest, whereas dividends accrue to the stockholder. When it comes to stock earnings, is a bird in the hand (dividends) worth two in the bush (cap gains)?

F. Dividend Clienteles

Issue: Is there a clientele for dividends? What types of investors might prefer stocks that pay high proportions of their earnings in dividends?

How have dividend policies changed as a result of the 2003 dividend tax reform?

1) The fraction of publicly traded firms paying dividends increased in 2003, after having *declined continuously* for more than two decades. Nearly 150 firms initiated dividend payments *after* the tax cut, adding more than $1.5 billion to aggregate quarterly dividends.

2) Many firms that were already paying dividends prior to the reform raised regular dividend payments significantly after the tax cut.

3. Special dividends also rose, but the magnitude of this effect is likely to be small relative to the increases in regular distributions in the long run.
Source: Do Dividend Payments Respond to Taxes? Preliminary Evidence from the 2003 Dividend Tax Cut, (Chetty & Saez, 2004.)

G. Who benefits most from dividend increases?

(Evidence from studies that document the firm's stock price reaction to *unanticipated* dividend increases)

- S/H's of firms with independent boards benefit less. *Why?*
-
- Firms with corporate blockholders benefit more. *Why?*
-
- Regulated firms (like banks): Regulated firms benefit less. *Why?*

Discussion/Homework Questions:

1) How would you expect each of the following changes to affect aggregate payout ratios, all else equal?

a) A increase in the personal income tax rate
b) An increase in the number of positive NPV projects
c) Permission for corporations to deduct dividends for tax purposes (like they do now for interest)
d) A change in the tax code so that unrealized capital gains are taxed at the same rate as dividends

2) Discuss the pros and cons of having directors formally announce what a firm's dividend policy will be in the future.

3) Executive salaries are tied more to firm-size than to firm profitability. If a firm's board of directors is controlled by management instead of outside directors, how might his result in more earnings being retained than can be justified from the shareholders point of view?

4) Why might the market *react positively* to a firm's announcement of a stock dividend?

5) Which of the following firms should benefit from a high dividend payout ratio?
a) A firm with positive NPV investment opportunities and an independent board of directors.
b) A firm with 80% of its stockholders consisting of pension funds
c) A firm with large blockholders who are non-financial US firms
d) A regulated utility company
e) A cash-cow firm with few positive investment opportunities

Introduction : Chapters 18&19
Choice of Debt vs. Equity

If financial markets are efficient, why does capital structure matter? Won't stocks and bonds will be efficiently priced by the market…whatever the firm chooses to issue?

Empirical Evidence: Capital Structure (debt ratios) seems to be similar for firms in similar industries.

Managers have the option of managing a mostly equity firm, or a mostly debt firm. Which would they choose?

I) In the absence of taxes and bankruptcy costs, capital structure is irrelevant.

Consider a $10,000 t-shirt transfer business, funded with either *all equity* or *all debt*. The firm is expected to generate $1000 in EBIT each year, forever. The required rate of return is 10%.
Assume $r_A = r_D = r_E$

Value if all debt (10,000 bond, with a 10% coupon payment): 1000/.1 = 10,000
Value if all equity ($1000 dividends, forever, at 10% required rate, value = 10,000)

II) In the absence of bankruptcy costs, but with *positive* corporate taxes, shareholders would prefer a 100% debt firm. (Assume no personal taxes, for now)

Let V = $ value of the firm (assets)
Let D = $ value of debt
Let E = $ value of equity

We return to our t-shirt example

Value of the firm if all debt

1000 EBIT
- 1000 Interest (to pockets of investors)
0 EBT
0 Taxes
0 Net Income

Value of Firm if all equity

1000 EBIT
- 0 Interest
- 1000 EBT
300 Taxes
700 Net Income (to pockets of investors)

Which capital structure is the better choice – all equity or all debt?

10% = $r_A = r_D = r_E$

Value of the firm if all debt = $ interest/r = 10,000
Value of the firm if all equity = $ dividends / r = 7000 = value of the unlevered firm

$V_{(L)} = V_{(U)} + T_c D$

Value of the levered firm = value of the unlevered firm + (corporate tax rate x value of debt)

New assumption: cost of debt ≠ the cost of equity:

As leverage increases, the cost of equity should (increase/decrease/ stay the same)

$r_{E,(levered)} = r_{(E,\ unlev)} + (r_{(E,\ unlev)} - r_D)\ (1-T_c)(D/E)$

Example ABC Co.

$r_{(E,\ unlev)} = 15\%$
$r_D = 10\%$
$T_c = 30\%$
Debt/Equity ratio = 1.0

What is ABC's *cost of equity*

Answer → .15 + (.15-.10) (1-.3) (1) = .185

Value of the firm (Assumptions, NO TAXES, NO BANKRUPCY COSTS)

$V

$D

Rate
Of
Return

D/E

With $T_c = 0$, and no bankruptcy costs, capital structure is irrelevant

Value of the firm (Assumptions, Corporate TAXES only, NO BANKRUPCY COSTS)

$V

$D

Rate
Of
Return

D/E

With $T_c > 0$, and no bankruptcy costs, optimal capital structure is 100% debt

Bankruptcy Costs: What are they?

I) Legal fees:

II) Costs of Financial Distress: loss in firm value as likelihood of bankruptcy increases.

a) *Cost of lost business*

b) *Cost of lost employees*

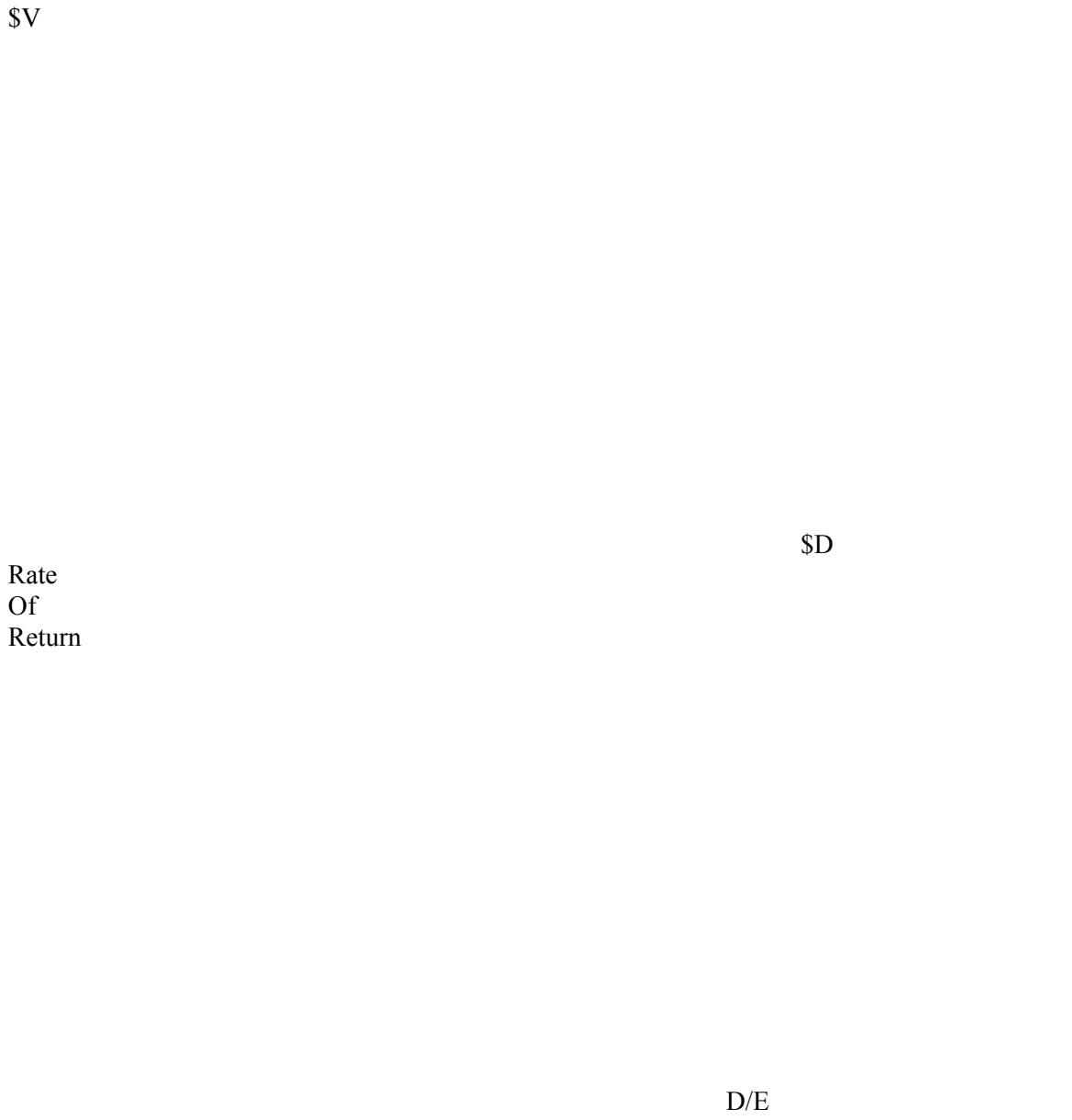
c) *Under-investment Problem*

(Forego positive NPV projects due to inability to raise capital – especially if using equity to fund the project)

d) *Variability of the market value of their assets*:

Example: Marriott vs. Encore Software

Value of the Firm: $T_c > 0$, no personal tax rate, Bankruptcy costs.



With $T_c > 0$, and positive bankruptcy costs (which increase as $D increases), firms will have an optimal capital structure with 0 < % debt < 100%

New assumption: personal taxes ≠ 0!

T_{pD} = personal tax rate on debt
T_{pE} = personal tax rate of equity (stock)
T_c = corporate tax rate

What if:

$\$1 \text{ EBIT } (1-T_c)(1-T_{pE}) > \$1 \text{ EBIT } (1-T_{pD})$

Optimal capital structure assuming no bankruptcy costs?
Assuming bankruptcy costs?

What if :

$\$1 \text{ EBIT } (1-T_c)(1-T_{pE}) = \$1 \text{ EBIT } (1-T_{pD})$

Optimal capital structure assuming no bankruptcy costs?
Assuming bankruptcy costs?

What if :

$\$1 \text{ EBIT } (1-T_c)(1-T_{pE}) < \$1 \text{ EBIT } (1-T_{pD})$

Optimal capital structure assuming no bankruptcy costs?
Assuming bankruptcy costs?

$$V_L = V_U + \left[1 - \frac{(1-T_c)(1-T_{pE})}{(1-T_{pD})}\right] D$$

Optimal capital structure assuming no bankruptcy costs?
Assuming bankruptcy costs?

Diagrams:

Discussion Questions for Chapter 19: How much should a Firm Borrow?

From text: (TBA)

Additional questions:

1) A firm produces EBIT of $30,000 in perpetuity. Assume that corporate taxes are 30%, and there are *no personal taxes.*

a) What is the value of this firm, if the required rate of return on equity is 10%, and the firm is unlevered?

b) What is the value of this same firm if, instead of being an unlevered firm, the firm has $100,000 face-value debt, requiring a 10% coupon rate?

c) What is the value of the firm's equity?

2) Multiple choice:

a) Capital Structure would be irrelevant (You'd observe random debt ratios)
b) All equity would be optimal
c) All debt would be optimal
d) Some debt, more than 0% debt, but less than 100% debt would be optimal.

Which capital structure would be optimal under the following assumptions? (Consider each set of assumptions separately for each question. You may use the solution choices more than once.)

_____i) Corporate tax rate = 20%; the personal tax rates on debt and equity earnings are both zero, and there are *no* bankruptcy costs.

_____ii) No corporate taxes; No bankruptcy costs; The personal tax rate on debt and equity earnings are both 28%.

_____iii) The corporate tax rate is 40%; The personal tax rate on interest income is 58%, and the personal tax rate on equity earnings is 30%. Assume bankruptcy costs are positive when debt > 0%.

_____iv) Assume the corporate tax rate is 20%. The personal tax rate on equity is 10%, and the personal tax rate of debt is 40%. Assume bankruptcy costs are positive when debt > 0%.

3) a) What is the value of an unlevered firm, assuming EBIT = 2,000,000, Tc = 40% and personal taxes on equity (T_E) = 20%? Assume the cost of equity is 10%.

b) Consider the same firm as above (with 2,000,000 in EBIT, and the same corporate and personal taxes), EXCEPT now the firm has $10,000,000 in 5% perpetual debt. Also assume that the personal tax rate on debt (T_{pD}) is 28%. Compute the value of the levered firm. (Hint: Use the income statement method to value the PV of after-tax cash flows to equity holders and debt-holders in perpetuity.)

Chapters 16 & 25

How corporations raise capital / types of debt and equity

A. Venture Capital Funds:

Most new firms first rely heavily on *family funds* and bank loans. After these sources are depleted, they may seek funds from venture capital firms or individuals. (*Angel investors*: wealthy individuals willing to fund new ventures.)

- Put together a "business plan" outlining the proposed product, underlying technology and resources needed for success. Few projects are funded. (Good signal: Management's personal investment in firm).
- Usually, VC's put together a plan that rewards management for their success (ie: modest initial salaries, compensation contingent upon firm value increasing / stock appreciation.)
- VC's distribute funds gradually
- Text example: Meriam Venture Partners bought preferred stock in Marvin Enterprises, convertible into common if an IPO succeeds. Managers hold common stock (Why?)
- Venture capitalists have say in how the business if run. They provide advice and help recruit managers. (Cash flow and control rights negotiated separately. Usually, VC's have large board representation.)
- If venture is successful, may relinquish some control to managers.

For every 10 new VC investment, only 2-3 succeed in long-run. *Why, then, do VC's provide funds for such firms?*

Mezzanine financing: Subsequent third-stage financing (1st from owners, 2nd from VC's).

Venture capital markets are highly cyclical. (See figure 15.1, pg 586 – note significant drop in VC funds after the dot.com bubble burst.)

B. Initial Public Offerings

A. What are IPOs?

- Co goes public. (Some firms never go public: Levi Strauss, Cargill. There are very few public firms in some countries, like Italy. Recent IPOs: Mastercard and Visa)
- Can occur when large shareholders seek to divest or when VC firms need additional capital for investment. The VC's may decide to sell their initial investment. Note: many foreign governments have large holdings in telecom / utility firms.

B. How are IPO's accomplished?

- Road Show to talk to potential investors and gauge reactions to the issue.
- Registration statement provided to SEC details info about proposed financing, firm's history, existing business & future plans. Prospectus excerpts important sections of the registration statement for potential investors.

Underwriters: Types of IPO issues

1. Best Efforts: Underwriter will sell as much of the issue as possible. All or nothing arrangement: either the entire issue is sold at offering price or the deal is called-off and the issuing co. receives nothing.

2. Firm Commitment: Underwriter buys all of issue from firm and then offers it to the public for sale. (Green shoe option: option to buy additional shares from the company.)

   Costs of an IPO issue:
   1) *Under*-pricing [on average ~ 19.1% in US (1960-2003)]
   Much more in some other countries (see figure 15.2).

2) Administrative costs [preparation of registration statement , prospectus, legal counsel, accountants, underwriters and advisers.] Typical underwriters spread: 7%]

Issue: Why are IPO shares under-priced, on average? (Different theories)

1) Raises opportunity to raise more capital
2) Winner's curse (winning bidder often over-pays)

Winner's curse example: Assume two types of bidders in IPO markets: the informed and uninformed.

The informed bidders **know** which companies are issuing underpriced IPOs/

The uninformed bidders bid for all IPOs equally since they can't distinguish the overpriced IPOs from the underpriced IPOs.

ASSUME for the sake of illustration, that IPOs are **fairly priced**, on average. 100,000 IPO shares are to be sold in two separate offerings of 50,000 shares each. One offering is overpriced and the other underpriced by equal amounts. (Note: This creates a market in which IPOs are fairly priced, ON AVERAGE).

There are 100,000 informed bids for ONLY the underpriced IPOs. There are 100,000 uninformed bids bidding for all issues equally.

Recognizing which shares are over- and which are under-priced, the informed bidders bid for the underpriced issue only. They request to buy all 100,000 shares

Not knowing which is over or under-priced, the uninformed bidders bid equally for each issue, requesting 50,000 underpriced shares and 50,000 overpriced shares.

The informed bidders received 2/3rds of the underpriced offering . (100/150). They receive 2/3 x 50,000shares = 33,333.

The uninformed bidders receive 1/3 of this offering (50/150) = 16,667 shares. Some shareholders (both informed and uninformed) receive no shares, since the issue is "oversubscribed)

Query: How many shares of "overpriced" IPO stock will the uninformed bidders receive?

So the informed bidders end up with 33,333 shares of "underpriced stock"

The uninformed bidders end up with 16,667 shares of "underpriced" stock, and 50,000 shares of overpriced stock.

Would you participate in such a market if you were an uninformed investor?

So the issue must be underpriced, on average, if the uninformed traders are to at least break-even. If the uninformed traders did not have the opportunity to break even, they would not participate in the IPO market.

Thus, we would require underpricing, on average, if the informed traders earn positive "abnormal" profits, and the uninformed traders break-even.

Studies find firms with greater *information asymmetry* have more underpricing of their IPO shares.

C. Seasoned Equity Offerings: Offerings of new shares of stock subsequent to the IPO.

Large firms are allowed to file a single registration for issues up to two years into the future (for debt or equity). These issues can be done with little paperwork, subsequently, and can be accomplished more quickly.

Many large firms sell stock and bonds internationally (still must provide a prospectus or offering circular).

Stock price reaction to SEOs:
-3% (on average).

What information do you think is conveyed by an SEO announcement?

Good News:

Bad News:

Example (on board): Why managers issue stock when they believe the stock is overvalued

- (Common) stock price reaction to debt and preferred issue announcements ~ 0%
- Underwriter spreads on SEO's average about 5-6%. Typical underwriter spreads on bonds range between 0.5-2%. Spreads decrease with the size of the offering (which can provide an incentive to issue large amounts of stock/debt at a time.)

Cornett and Tehranian (1994) examine stock price reactions to *regulatory mandated* bank equity issues, vs. those that were not forced. They find a *much smaller* stock price reaction to *forced* issues. How could we explain their finding?

Rights Offerings (SEOs):

Firm sells stock to existing stockholders: Offers one right per share. (Option to buy stock from the firm…shareholder can sell this option.) More common in Europe than the US.

Firm wishes to raise $10 mil in new equity capital through a rights offering.
Earnings per share = $8
P-E = 12.5
Price = $100
# shares outstanding (old stock) = 1,000,000
Firm will sell the new stock to shareholders for $80 per share.

How many rights will be required to purchase a share of the newly issued stock?
What is the effect of the rights offering on the (old) share price?
What is the value of a right? (detachable: can be sold separately).

a) Number of new shares = funds to be raised/subscription price =

b) Number of rights to buy a share of stock

Old shares/ # new shares =

New market value = (Old equity value + new equity value)/(# old shrs + # new shares) =

The rights offering gives old shareholders the option (for every 8 rights they own) to buy one share of stock for $80. The value of this share after the offering will be 97.79.

D. Stock Splits

What is a stock split? Do stock splits raise capital?

Example 1:
Stock Price = 100
2 for 1 split: If no information is conveyed by the split, the split should decrease stock price to $_____

Example 2:
Stock price = 210.
A 3 for 2 split decreases stock price to ($210 x 2) / 3 = $140

Why do managers split their stock?

Does the split increase shareholder wealth? [Answer by not considering the mechanics of the split itself – not information conveyed by the decision to split the stock.]

Why do firm experience "stock price increases" around split announcements?

A) Optimal Trading Range

B) "Sticky Dividends"

- IN the event of a 2 for 1 split, is it likely that the firm will produce greater earnings because of the mechanics of the split?

- What has happened to the number of shares outstanding?
- What would you EXPECT would happen to the $dividend per share?
- In the event of a stock split, is "EPS" diluted? I.e., does the number of shares increase by *more than* earnings (NI)?

Compare/Contrast changes in EPS around stock splits to changes in EPS around SEOs and stock repurchases.

E. Types of Debt:

A) BONDS

Maturity Objectives: Objective of most firms- match maturity of debt to maturity of project. Sinking funds may help match MV of assets to MV of debt outstanding over time, and prevent default at maturity when FV must be paid. [For a sinking fund, the firm either uses cash to redeem (i.e., call) bonds chosen by lottery at FV, or buys bonds in the market for placement in their sinking fund if the price is low.]

Senior vs. Subordinated: (Order of payout from sale of assets in time of default)

Would 'old' bondholders prefer that the firm issue subordinated debt – or debt of equity priority to theirs? Why?

Callable debt: Debt that can be retired prior to maturity at a given premium price. Firms have incentives to call debt when the price of the debt would exceed the call price + transaction costs.

Since it appears to give the firm an advantage, why wouldn't all firms choose to issue callable debt*?*

1) Does callable debt increase or reduce a firm's interest rate risk?

2) In what instances might a firm prefer callable debt (to non-callable debt)?

Diagram of interest rates vs. time:

Puttable bonds: Bonds that provide the investor with an option to demand early repayment.

Advantage to investor: Bondholder can demand repayment if firm takes actions that hurt the bondholder.

Advantage to firm: Cheaper

Disadvantage to firm: May not have funds to repay

Convertible debt: Debt that is convertible into a given number of shares of stock. (# of shares bond can be converted into is called the conversion ratio). The bondholders required coupon rate would be less than that for non-convertible debt. (Note: there are other types of convertible securities.)

When is Convertible debt converted?

How is it valued by the market?

What is the advantage to the firm in issuing convertible debt?

Why might a bondholder prefer convertible debt (over non-convertible debt)?

Since it's cheaper, why wouldn't all firms choose to issue convertible debt?

Reverse Convertibles: Give company option to force conversion (i.e., if stock price slumps). These are popular in Germany and Switzerland.

Note: Bonds can have more than one special feature (i.e., callable convertibles).

B. BANK BORROWINGS

What are some advantages of using bank debt vs. a bond issue? What are some disadvantages?

What types of firms rely most on bank debt? (Safe, Large, Highly credit worthy / Medium sized, average risk / New, high-risk firms)

F. Hybrid financing: (Instruments with characteristics of both a stock and a bond) Note that we already discussed on such instrument: Convertible bonds.

1. Preferred stock:

How is preferred stock like a bond?

How is preferred stock like equity?

Cumulative dividends: If a dividend is NOT PAID, unpaid preferred dividends in arrears must be paid before common stock dividends can be paid. (Most common type of preferred.)

Adjustable rate preferred: Dividends tied to treasury securities rate. (Corporations prefer these to investments in treasury securities b/c the dividends are only 30% taxable.) Also, floating rate feature keeps price close to par.

Advantages (vs. bonds / common):

Disadvantages: (vs. bonds / common):

2. Warrants

a) Like 'call options' issued by the firm and usually attached to bonds or preferred stock. They give holder the right to buy stock from the firm at a designated price – usually 20-30% above current market price.

Benefits:

* Lower the cost of the bonds or preferred stock.
* Like convertible debt, bonds with attached warrants reduce risk of shareholder expropriation (transfer) of wealth from bondholders.

* Especially attractive for ***high risk*** firms…bondholders can share in the potential upside gains if risks pay-off. (With bonds alone, B/Hs face down-side potential if the firm's cash flows are insufficient to pay the firm's debt obligations – but up-side benefits accrue primarily to S/Hs. (Only upside for B/H is that their bond may be of lower default risk.)

* Like rights, most warrants are detachable…can be sold by holder *prior* to exercise.

Chapter 32
Mergers and Acquisitions

Reasons for M&A:

A) Because the target is worth more to the bidder than they are without the bidder's ownership.

- Eliminate some negative NPV project
- Take advantage of cost savings that the firm can't or is unwilling to realize on their own.
    i. Take advantage of tax savings from depreciation
    ii. Synergies in the distribution network provides a cost savings
    iii. Economies of scope or scale

- The target firm managers are not making efficient decisions, and the board is unwilling to replace them.
- Change capital structure (more or less debt) to increase firm value.

B) Because the bidding firm manager "doesn't like to lose" the bidding war (Hubris: A sense of inflated self pride).

C) Pac-Man Defense: Take over target BEFORE they take over you. (Variation: Eliminate a competitor.[1]**)

D) Because managers would rather manage a large firm, than a small one

E) Because managers wish to "diversify" their firm

F) Because the target firm is "undervalued" by the market. Evidence?

Merger Waves: Mergers seem to take place in "waves", in "buoyant" stock markets. Some *suggest that perhaps there is a "behavioral" component to M&A waves: human beings are more active when the weather is sunny*.

Common barriers to takeovers:

[1] Note: Acquisitions for the purpose of pursuing "oligopoly" or "monopoly" profits are illegal, under the Sherman act of 1890, The Clayton Act of 1914. The Justice Dept and the FTC have the right to seek injunctions to delaying mergers

A) Anti-takeover provisions – make takeover more difficult or expensive for bidder. Must be ***shareholder approved*** to be adopted by firm. **Some examples**:

- No more than 1/3 of the board can be replaced at any one time (classified or staggered board)
- More than 50% of shareholders need to approve takeover (supermajority)
- Highest price paid to one shareholder who tenders must be price paid to all tendering shareholders. (fair-price)
- Issue stock to "certain shareholders" with preferential voting rights (blank-check preferred).
- Are increasingly more common in a firm's articles of incorporation.
- Common trend: Shareholder-proposals to eliminate ATAs (especially supermajority and classified board ATAs) that were approved in the1980s and 1990s.

These amendments can have two offsetting wealth effects for shareholders of adopting firms: They increase target firm shareholder gains in the event of a takeover bid; however, they decrease the likelihood of receiving a takeover bid.

Stock price reaction to ATA proposals: ~ 0 (but closer examination of the evidence shows some S/H's benefit substantially from ATAs, whereas others are harmed.)

B) Poison Pills: "old shareholders" obtain rights to buy new shares of stock from the firm at "cheap prices". This both dilutes the acquirer's ownership percentage and reduces value of the stock they have already acquired. Shareholders of adopting firms see a negative stock price reaction (~-2%) when firms adopt poison pills. PPs are approved by the board of directions, but not by shareholders. Many firms adopt these AFTER receiving a takeover bid. (More popular as a "defensive" measure than ATAs, which are announced in annual proxy statement and must be S/H approved.)

Determining the price to pay for target firms?

1) Identify any cost savings associated with the combination of the firms. Compute the NPV of the cost savings from the combination of the firms (divide by # shares outstanding) to obtain the maximum premium to pay for their shares.
    i. Added tax benefit of depreciation, carry-forward/backs
    ii. Cost savings from shared distribution network
    iii. Target has some technology that the bidder wants

- Gains from economies of scale (cuts to middle management? Cuts from consolidation of operations/ use of previously unused excess capacity/

- Gains from shared administrations systems such as computer resources etc.)
- Horizontal Mergers: gains from economies of scope, such as in vertical mergers.
- What is a vertical merger?

2) Value entire target firm's assets using an NPV analysis. Compute the NPV of their after-tax tax cash flows. Subtract the market value of debt to obtain the market value of their equity. *Note: B&M suggest that less errors are incurred when the analyst starts with the firm's current market value, and values the gains. Add the PV of the expected gains to the firm's current market value to arrive at the value of the acquisition.*

- Why would this figure be any different from their current stock price?

3) Value a negative NPV project in which the firm is currently investing, and value the firm assuming the elimination of the negative NPV project.
4) V(l) = V(u) + (tc x $B). Compute the value of the interest tax shields, and add this to the value of the firm. [Leveraged takeovers].

5) Estimate EPS. Multiply this by the (adjusted) P-E ratio to get stock price. (The bootstrap game: Acquire a firm with high EPS and a low P-E ratio. Try to deceive your shareholders into thinking that your P-E ratio will stay the same following the acquisition, but EPS will go up.)

- Some words of advice for multiple bidder contests: The bidding firms should ask themselves "which of the bidders stands to win MOST from the acquisition". If the answer is someone other than your firm, your firm should probably not attempt to persist in the bidding war.

Merger Waves:

M&A: What are the losses / gains to bidder S/Hs, Target S/H and *acquired-firm* managers?

1) **Sellers do better than buyers**:
   a. Seller gains: ~28% (less in bank mergers ~10%)
   b. Bidders : Just about break even +/- about 1%
   c. Total gains to bidder + target ~ 4%
   d. Managers frequently lose their jobs

How can total merger gains be only 4% on average, when target-firm stockholders gain 28% and bidder-firm stockholders break even?

Definition: White knight: