

# Lecture 5

现代企业  
股份制  
公司

# Stock Valuation

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# How to make money in the stock market?



# Stock Certificate

1990年12月1日，深圳证券交易所集中交易。

On December 1, 1990, SZSE started centralized trading.

**深圳特区报**  
Shenzhen Special Zone Daily 第2634期 深圳特区报社出版 本报代号：45—20号

1990年12月 2 星期日  
农历：庚午年十月十六 大雪，农历十月廿一  
深圳市今日天气预报  
白天 晴天  
夜间 晴天  
温度 最高17℃ 最低6—7℃  
风向 东北  
风力 8—4级

**黄金宝地 文华花园**  
位于深南东路与北斗路...  
设有停车场、网球场、购物中心。  
文华楼、文富楼与设计中心...  
您成功的象征！  
1992年初入伙，每套...  
发展商：深圳市深华...  
地址：深圳市深南东路

**黄木岗新市场开业**  
位于华富路北侧、华富新村住宅区内的黄木岗农贸市场于11月26日开业。该市场是由市...  
本版责任编辑 邢平安 陈寅

**深圳股票市场行情 (1990年12月1日)**  
(中国人民银行深圳经济特区分行提供)

	发 展		万 科		金 田		安 达		原 野	
	收市价	成交股数	收市价	成交股数	收市价	成交股数	收市价	成交股数	收市价	成交股数
证券公司	76.82	7500	20.20	3300	232.21	2292	—	—	—	—
中行证券部	77.20	10990	—	—	—	—	—	—	—	—
国投证券部	—	—	—	—	—	—	—	—	—	—
交行证券部	77.20	7913	20.40	7400	—	—	—	—	177.61	970
人民北营业部	77.20	16400	20.00	4000	241.40	700	—	—	172.56	1450
有色证券部	77.20	22410	21.29	11000	—	—	—	—	177.62	1340
广信证券部	77.20	47820	20.86	9400	—	—	—	—	—	—
农行证券部	77.20	12340	21.29	26200	247.50	1512	—	—	175.88	15598
工行证券部	77.20	36410	21.28	51451	286.68	1588	—	—	177.62	6060
蛇口营业部	77.20	7800	21.28	18000	—	—	—	—	—	—
特发证券部	77.20	1380	20.70	2700	—	—	—	—	177.62	2300
国际基金部	77.20	34520	21.28	1450	—	—	—	—	—	960
合 计	—	205483	—	184601	—	6092	25.66	8000	—	30278

注：安达股票为集中交易。  
更正：11月30日发展银行股票行情数字有错，依次应为：23020、12124、13532、18030、22400、22010、15800、16600、39000、147416

**政府忠告市民：股票投资风险自担，入市抉择务必慎重。**

五、关于...  
明年企业改革，主要...  
制是符合绝大多数企业情...  
加以完善。重要的是，要...  
累和消费的关系，要把更...  
条件的地方，要继续进行...  
这里需要特别强调，...  
一味要求国家放权让利，...  
的质量、品种和效益。提...  
六、关...  
明年零售物价总指数...  
格改革上要坚持三条原则...  
出台，要掌握好时机。三...  
骤是否成功，要以能否促...  
解决财政收支不平衡...  
济，提高效率，增产增收...  
合理一些。关于提高商业...  
明年要看情况选择适当...  
个体经济、私营经济...  
加就业，方便人民生活...  
济的政策，要保持稳定不...

标准-正



# Stock Basics (股票)

- The firm sells a proportion of the ownership to investors in exchange for the investment funds. Investors become the new shareholders of the firm and enjoy the voting rights, dividends and capital gains.
- When a firm issues (sell) new shares, accounting items change:
  - Asset: Cash +
  - Equity: Common stock +; Capital Surplus +.
- Very risky financial assets. Investors require high returns.

# The Role of Shareholders

## Managers (职业经理人)

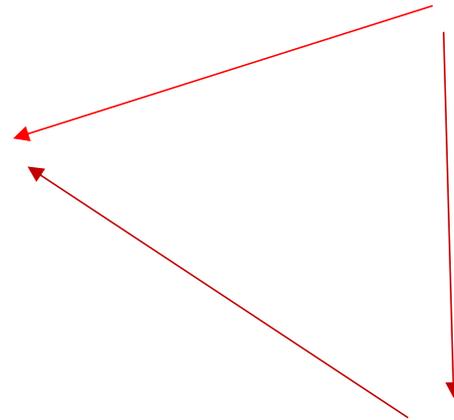
- 高管,
- 总经理, 总裁
- 财务总监, 人力资源总监等

## Shareholders (股东)

- 大股东, 小股东
- 国资委
- 公募、私募、对冲、养老基金
- 个人投资者

## Directors (董事)

- 董事长、董事会主席
- 独立董事
- 执行董事

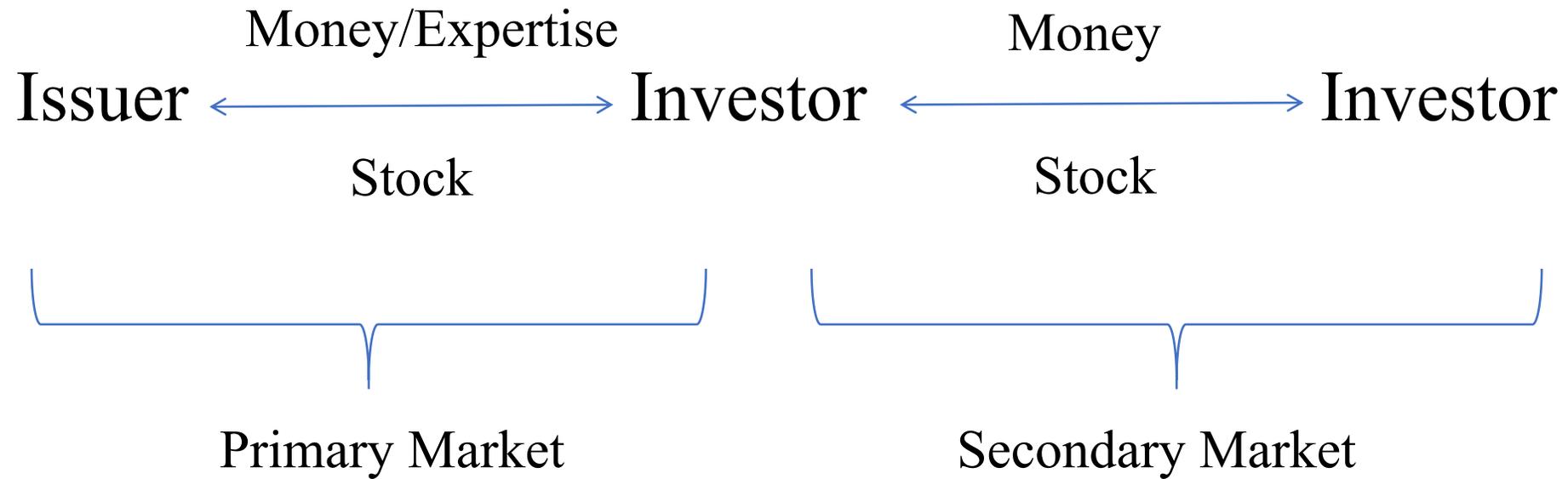


# Market Classification

术语解释.

- **Primary market**（一级市场）：new-issue market, stocks are first brought to the market and sold to investors. The money will flow to the issuing company.
  - IPO: initial public offering, a firm sells its shares to the public for the first time.
  - SEO: seasoned equity offering, a public firm issues new shares again.
  - Private placement: raise money privately from certain investors.
- **Secondary market**（二级市场）：existing shares are traded among investors. Money flows among investors, not to the firm.

# Market Classification



# Stock Market

- **烽火通信:拟向特定对象发行股票 募资金额不超过15亿元(Primary)**

烽火通信科技股份有限公司（600498）于2024年10月12日披露向特定对象发行股票预案。该公司计划向特定投资者募集资金不超过15亿元人民币，扣除发行费用后，这些资金将全部用于增强公司的流动资金，以支持日常运营和发展。

- **A股成交额连续4个交易日超2万亿元(Secondary)**

10月10日，A股市场缩量运行，成交额为2.16万亿元，为连续4个交易日成交额超2万亿元。上证指数上涨1.32%，深证成指下跌0.82%，创业板指下跌2.95%。整个A股市场2998只股票上涨，82只股票涨停，下跌股票数量为2229只。

# Shareholder Rights



- **Shareholder rights**

- Voting rights: Elect directors; corporate decisions.
- Cash flow rights: Share dividends; liquidation

- **Controlling vs minority shareholders**

- Large shareholders control the board. In US, larger than 20%. In China, larger than 50%.
- A firm may have no controlling shareholder if ownership is well diversified.
- Controlling shareholder may divert firm resources for its private benefit and jeopardize the wealth of minority shareholders, creating agency conflicts.

# Voting procedure

In general, one share, one vote. Two types of voting procedures:

- **Cumulative voting** (累积投票) : Directors are elected all at once.
  - ❑ favor minority shareholders.
  - ❑ If  $N$  directors are up for election,  $1/(1+N)$  shares will guarantee a seat.
- **Straight voting** (直接投票) : Each time, vote one director.
  - ❑ The controlling shareholder will dominate.

# Voting Procedure: Example

Smith has 20 shares and Jones has 80 shares. The company need to elect four directors. Can Smith have a seat in the board?

- **Cumulative voting:** Smith will cast  $20 \times 4 = 80$  votes while Jones will cast  $80 \times 4 = 320$  votes. If smith gives all his votes to himself, he is assured of a directorship.
- **Straight voting:** Jones, the controlling shareholder, will elect all the directors.

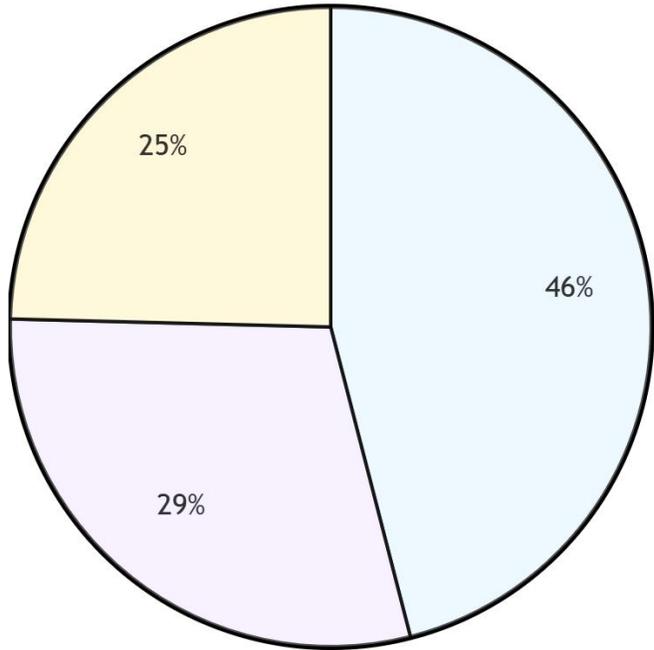
# Proxy vote



- **Proxy voting** (代理投票) : shareholders can transfer their voting right to another party. For example, the mutual fund will cast vote in representation for fund investors.
- **Proxy fight** (代理权争夺) : Management wants to accumulate as many proxies as possible. However, an outside group of shareholder can obtain proxies in an attempt to replace management by electing enough directors.

# Proxy vote

娃哈哈股权结构



- 杭州上城区文商旅投资控股集团有限公司
- 宗馥莉
- 杭州娃哈哈集团有限公司基层工会联合委员会

娃哈哈是国企还是民企？

# Staggered Board (分级董事会)



- Directors are placed into different classes with terms expiring at different times.
- At one time, only part of directors are replaced.
- It can compromise cumulative voting of minority shareholders (why?).

# Dual-class Stock (双重股权结构)

- Dual-class stock: Shares with unequal voting rights.
- Shares with more voting rights are traded at higher prices since it incorporate the price of voting rights.
- It creates agency conflicts due to the divergence between cash flow right and control right. CSRC (中国证监会) does not allow this structure for Chinese public companies.
- For example, Jack Ma's A-class shares in Alibaba has as 10 times voting rights as B-class shares.

# Preferred Stock (优先股)

- Preferred stock vs Common stock
  - Has a preference over common stock in receiving dividends
  - Has a priority in the distribution of assets in liquidation
  - Preferred stock typically has no voting right and maturity date
  - Preferred stock has a stated liquidating value
- Preferred stock vs. debt
  - They are very similar in terms of the cash flows
  - Liquidation priority: debt > preferred stock > common stock
  - Their accounting recording is different

# Intrinsic Value of Stock

内在价值

- Intrinsic value:
  - The price of a stock should be, as reflected by the operating strength of the firm.
  - Stock valuation is to estimate the intrinsic value of a stock.
- Price vs. value:
  - Price fluctuates around its intrinsic value and is affected by the short-run supply and demand.
  - We want to buy under-valued stocks and sell over-valued stocks.
- Good company does not mean good investment. Why?

# Stock Valuation Methods

- Investors' perspective: Discounted dividend method (股利折现法)
- Firm perspective: Discounted cash flow method (现金流折现法)
- Industry perspective: Comparable method (比较法)

# Dividend Discount Model (股利折现法)



- Remember: The value of any asset is the present value of expected future cash flows generated from it.
- Stock ownership produces cash flows in the form of:
  - Dividends
  - Capital Gains
- Valuation of Different Types of Stocks
  - Zero Growth
  - Constant Growth
  - Differential Growth (learn by yourself)

# Case 1: Zero Growth

- Assume that dividends will remain at the same level forever

$$\text{Div}_1 = \text{Div}_2 = \text{Div}_3 = \dots$$

- Since future cash flows are constant, the value of a zero-growth stock is the present value of a perpetuity:

$$P_0 = \frac{\text{Div}_1}{(1+R)^1} + \frac{\text{Div}_2}{(1+R)^2} + \frac{\text{Div}_3}{(1+R)^3} + \dots$$

$$P_0 = \frac{\text{Div}}{R}$$

# Case 2: Constant Growth

Assume that dividends will grow at a constant rate,  $g$ , forever, *i.e.*,

$$\text{Div}_1 = \text{Div}_0(1 + g)$$

$$\text{Div}_2 = \text{Div}_1(1 + g) = \text{Div}_0(1 + g)^2$$

$$\text{Div}_3 = \text{Div}_2(1 + g) = \text{Div}_0(1 + g)^3$$

Since future cash flows grow at a constant rate forever, the value of a constant growth stock is the present value of a growing perpetuity:

$$P_0 = \frac{\text{Div}_1}{R - g}$$



Note: Not  $\text{Div}_0$ !

# Constant Growth: Example

Suppose company A just paid a dividend of \$0.50. It is expected to increase its dividend by 2% per year. If the market requires a return of 15% on assets of this risk level, how much should the stock be selling for?

$$P_0 = .50(1+.02) / (.15 - .02) = \$3.92$$

# Discounted Cash Flow Method (现金流折现法)

大船专用



- Big-picture idea of DCF: A firm can be viewed as the sum of many projects. Its value can be calculated by discounted the total expected free cash flows.
- “Free” means cash flows left for the firm to use freely. Under on-going concern, a firm must invest in working capital and fixed assets to maintain its normal business.
- FCF gives us firm total value, we can get  $\text{equity value} = \text{firm value} - \text{debt value}$ . They are all market value, not book value. The market value of debt is very close to its book value.   
账面价值、

# Calculate Free Cash Flow



- From EBIT:  $FCF = EBIT \times (1 - \text{Tax rate}) + \text{Non-cash expenses} - \text{Investment in NWC} - \text{CAPEX}$
- From NI:  $FCF = NI + \text{Interest Expense} \times (1 - \text{Tax rate}) + \text{Non-cash Expenses} - \text{Investment in NWC} - \text{CAPEX}$

Quick question: why we add back the interest expense?

# FCF: Example

Cane Distribution, Inc., incorporated on 31 December 2007 with initial capital infusions of \$224,000 of debt and \$336,000 of common stock, acts as a distributor of industrial goods. The company managers immediately invested the initial capital in fixed capital of \$500,000 and working capital of \$60,000. Working capital initially consisted solely of inventory. The fixed capital consisted of nondepreciable property of \$50,000 and depreciable property of \$450,000. The depreciable property has a 10-year useful life with no salvage value. Exhibits 4-1, 4-2, and 4-3 provide Cane's financial statements for the three years following incorporation. Starting with net income, calculate Cane's FCFF for each year.

# FCF: Example

EXHIBIT 4-1 Cane Distribution, Inc. Income Statement (in thousands)

	Years Ending 31 December		
	2008	2009	2010
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	\$200.00	\$220.00	\$242.00
Depreciation expense	<u>45.00</u>	<u>49.50</u>	<u>54.45</u>
Operating income	155.00	170.50	187.55
Interest expense (at 7 percent)	<u>15.68</u>	<u>17.25</u>	<u>8.97</u>
Income before taxes	139.32	153.25	168.58
Income taxes (at 30 percent)	<u>41.80</u>	<u>45.97</u>	<u>50.58</u>
Net income	\$97.52	\$107.28	\$118.00

# FCF: Example

EXHIBIT 4-2 Cane Distribution, Inc. Balance Sheet (in thousands)

	Years Ending 31 December			
	2007	2008	2009	2010
Cash	\$ 0.00	\$108.92	\$228.74	\$360.54
Accounts receivable	0.00	100.00	110.00	121.00
Inventory	<u>60.00</u>	<u>66.00</u>	<u>72.60</u>	<u>79.86</u>
Current assets	60.00	274.92	411.34	561.40
Fixed assets	500.00	500.00	550.00	605.00
Less: Accumulated depreciation	<u>0.00</u>	<u>45.00</u>	<u>94.50</u>	<u>148.95</u>
Total assets	<u>\$560.00</u>	<u>\$729.92</u>	<u>\$866.84</u>	<u>\$1,017.45</u>

# FCF: Example

Accounts payable	\$ 0.00	\$ 50.00	\$ 55.00	\$ 60.50
Current portion of long-term debt	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Current liabilities	0.00	50.00	55.00	60.50
Long-term debt	224.00	246.40	271.04	298.14
Common stock	336.00	336.00	336.00	336.00
Retained earnings	<u>0.00</u>	<u>97.52</u>	<u>204.80</u>	<u>322.80</u>
Total liabilities and equity	\$560.00	\$729.92	\$866.84	\$1,017.45

# FCF: Example

EXHIBIT 4-3 Cane Distribution, Inc. Working Capital (in thousands)

	Years Ending 31 December			
	2007	2008	2009	2010
Current assets excluding cash				
Accounts receivable	\$ 0.00	\$100.00	\$110.00	\$121.00
Inventory	<u>60.00</u>	<u>66.00</u>	<u>72.60</u>	<u>79.86</u>
Total current assets excluding cash	60.00	166.00	182.60	200.86
Current liabilities excluding short-term debt				
Accounts payable	0.00	50.00	55.00	60.50
Working capital	\$60.00	\$116.00	\$127.60	\$140.36
<b>Increase in working capital</b>		\$56.00	\$11.60	\$12.76

# FCF: Example

## Solution

	Years Ending 31 December		
	2008	2009	2010
Net income	\$97.52	\$107.28	\$118.00
Noncash charges – Depreciation	45.00	49.50	54.45
Interest expense $\times$ (1 – Tax rate)	10.98	12.08	13.28
Investment in fixed capital	(0.00)	(50.00)	(55.00)
Investment in working capital	<u>(56.00)</u>	<u>(11.60)</u>	<u>(12.76)</u>
Free cash flow to the firm	\$97.50	\$107.26	\$117.97

# Comparable Method (比较法)

- The big-picture idea: Companies with similar characteristics in the same industry should be valued closely.
  - 格力 vs. 美的
  - Dell vs. Hewlett-Packard
  - DDM and DCF are absolute value methods, comparable method is relative value method.
- Similar firms should have similar multiples. Common multiples includes:
  - Price-to-earning ratio
  - Price-to-book ratio
  - Enterprise value ratios
- Simple and widely used in the real world.

# PE Ratio



- Price-to-earnings (PE) ratio = Stock price/Earnings per share=Market value/Net income
- Earnings per share (EPS) = Current net income/number of shares outstanding.
- If the industry average PE ratio is 15 and company A's net income is \$10 million, one might estimate the company's value to be \$150 million. Note we are estimating the intrinsic value. If company A's current PE is 20, one might say it is overvalued and recommend a sell.

# PE Ratio

市盈率



- The PE in different industries can be very different. We typically do not compare the PE of two firms in different industries.
- High-tech firms tend to have high PEs, means their shares are very expensive.
- Stock types based on PE:
  - Value stock: stock with low PE ratio (because it is cheap).
  - Growth stock: stock with high PE ratio.

# PB Ratio



市价/净资产

- When a firm's earnings are zero or negative, PE ratio is not reliable. Analysts thus look at other ratios, such as PB.
- Price-to-book (PB) ratio = Stock price/book value per share = market value/book value
- Book value per share = (Total Asset – Total liability)/number of shares outstanding.
- Net asset value = equity = Total Asset – Total Liability
- PB ratio measures the price to buy the company in the capital market relative to the price to buy the company in the real market.

# Method Comparison



- **Discounted dividend method**
  - The company has a history of dividend payments
  - Dividend policy is clear and related to the earnings of the firm
  - The perspective is that of a minority shareholder
- **Discounted cash flow method**
  - The firm has no or unclear dividend payment history
  - The firm has positive free cash flow
  - The perspective is that of a controlling shareholder
- **Comparable method**
  - useful for firms with similar investment.

In practice, analyst use more than one method and try to get consistent conclusion.

# Stock Mispricing



- Overvalued: if stock price  $>$  its intrinsic value
- Undervalued: if stock price  $<$  its intrinsic value
- Fairly valued: if stock price  $=$  its intrinsic value

Stock price moves around its value. Good company does not mean good investment. Investors profit from buying undervalued stocks and selling overvalued stocks.