

Corporate Finance 1

COMP0164 Lecture 2 (Week 7)

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Agenda

Readings

- Brealey Myers Allen chapters 1, 4, 14
- Bodie Kane Marcus chapter 17

Topics

- Corporations
- Investment and financing decisions
- Corporate governance
- Stock trading and valuation
- Discounted cash flows
- Relationship between stock price and earnings
- Cost of capital
- Equity financing
- Financial markets
- Financial intermediaries

Corporations versus partnerships

Corporations

a **legal entity** owned by its
shareholders

owners elect directors;
directors have control

limited

personal liability for shareholders

articles of incorporation **required**

corporate & personal taxation

Partnerships

the **default** arrangement for a
business undertaken by more than
one person

owners have direct control

generally unlimited

personal liability for members

agreement **recommended**

personal taxation only

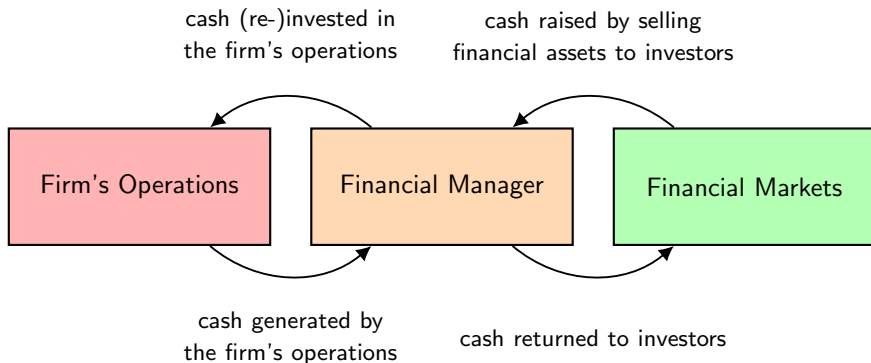
Capital budget or **capital expenditure (CAPEX)** decisions include:

- the purchase and sale of tangible or intangible assets
- the decision to initiate or terminate major projects
- marketing and advertising

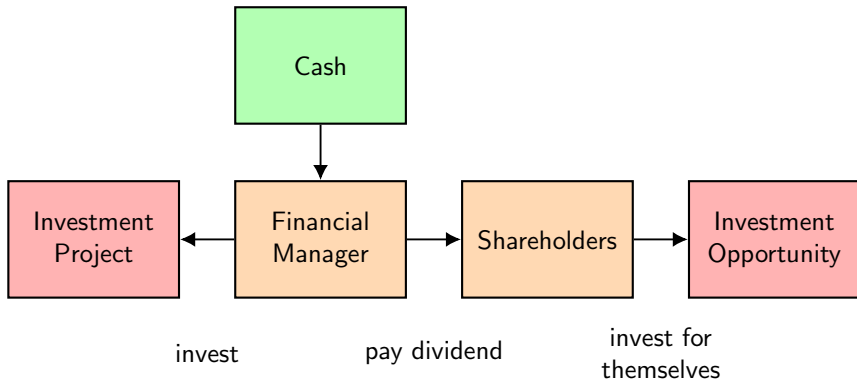
Capital structure decisions refer to debt and equity financing:

- With **debt financing**, a firm promises to pay the investor a fixed rate of interest on the invested capital.
- With **equity financing**, a firm promises to pay the investor a fraction of future profits and cash flow.

The role of financial managers



Corporate investment decisions



Degree of operating leverage

The **degree of operating leverage (DOL)** is defined as:

$$DOL = \frac{\% \text{change in profits}}{\% \text{change in sales}} \quad (1)$$

$$= \frac{\Delta Q(P - V)}{Q(P - V) - F} \times \frac{QP}{(\Delta Q)P} \quad (2)$$

$$= \frac{Q(P - V)}{Q(P - V) - F} \quad (3)$$

$$= 1 + \frac{F}{Q(P - V) - F} \quad (4)$$

$$= 1 + \frac{\text{fixed costs}}{\text{profits}} \quad (5)$$

■ Q = quantity of goods

■ V = variable cost of one unit

■ P = price of one unit

■ F = total fixed costs

Macroeconomic context (1)

Economic shocks:

- **Demand shocks** affect the demand for goods and services (e.g. reduction in tax rates, increases in money supply, increase in fiscal spending, increase in foreign export demand).
- **Supply shocks** affect production capacity and costs (e.g. changes to energy prices, weather events that impact agriculture, changes in education, changes in wage rates).

Government policy:

- **Fiscal policy** refers to government taxation and spending activities.
- **Monetary policy** refers to manipulation of the money supply by monetary authorities.

Macroeconomic context (2)

Business cycle transition points:

- A **peak** is the transition between the end of an expansion and the start of a contraction.
- A **trough** is the transition between the end of a contraction and the start of an expansion.

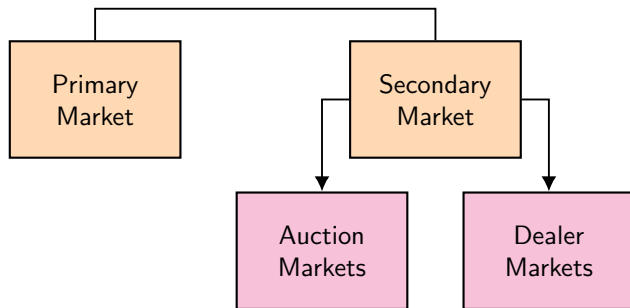
Industry sectors:

- **Cyclical** industries have high sensitivity to the business cycle.
- **Defensive** (or **counter-cyclical**) industries have low sensitivity to the business cycle.

Industry life cycles

(1)	Start-up stage	Rapid and increasing growth
(2)	Consolidation stage	Steady growth
(3)	Maturity stage	Slowing growth
(4)	Relative decline	Minimal or negative growth

Financial markets



Orders in **auction markets** comprise:

- **market orders**, which execute immediately at the best bid or offer price (“cross the spread”)
- **limit orders**, which specify a price and either execute immediately or become part of the order book

Securities exchanges



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<https://www.datacenterknowledge.com/closer-look-nyse-euronexts-nj-data-center/> (others)

Markets for trading equity securities

Auction markets

- Most **stock exchanges**, e.g. London, New York, Hong Kong stock exchanges.
- **Electronic communication networks (ECNs)** e.g. BATS, Liffe, EdgX, Instinet

Dealer markets

- Some public exchanges, e.g. Nasdaq
- Private exchanges (dark pools)
- **Over-the-counter (OTC)** markets

Valuing common stock

price to earnings (P/E) ratio: the ratio of market price to earnings per share (EPS).

(**Note:** The forward P/E ratio, which is based upon predictions of future earnings, is generally more useful than trailing P/E ratio, which is based upon past earnings.)

dividend yield: the ratio of dividend to share price.

book value: value of assets minus liabilities.

price to book (P/B) ratio: the ratio of market price to book value.

liquidation value: what investors expect to receive when a company shuts down and sells its assets.

valuation by comparables: approach to valuation that evaluates the hypothetical value of a business if it were to trade at the P/E or P/B ratios of comparable businesses.

$$PV(\text{share}) = PV(\text{expected future dividends per share}) \quad (6)$$

$$r = \frac{D_1 + P_1 - P_0}{P_0} \quad (7)$$

$$P_0 = \frac{D_1 + P_1}{1 + r} \quad (8)$$

- P_0 = current price per share
- P_1 = expected price per share at end of time period
- D_1 = expected dividend payout per share at end of time period
- r = **cost of equity capital** (**market capitalisation rate**)

Free cash flow (FCF) is the amount of cash that a firm can pay out to investors after paying for all investments necessary for growth.

$$P_0 = \sum_{t=1}^H \frac{FCF_t}{(1+r)^t} + \frac{P_H}{(1+r)^H} \quad (9)$$

- P_i = price after i time periods (P_0 is current price)
- FCF_t = free cash flow at time t
- H = horizon (number of time periods)
- r = market capitalisation rate

Dividend discount model

The **dividend discount model** (or **DDM**, or **DCF**) characterises the price of common stock as follows:

$$P_0 = \sum_{t=1}^H \frac{D_t}{(1+r)^t} + \frac{P_H}{(1+r)^H} \quad (10)$$

$$= \sum_{t=1}^{\infty} \frac{D_t}{(1+r)^t} \quad (11)$$

- P_i = price after i time periods (P_0 is current price)
- H = horizon (number of time periods)
- D_t = dividend at end of time period t
- r = cost of equity capital

Estimating the cost of equity capital (1)

We can model the value of a business as the value of a growing perpetuity:

$$P_0 = \frac{D_1}{r - g} = \frac{D_0(1 + g)}{r - g} \quad (12)$$

$$r = \frac{D_1}{P_0} + g = \frac{D_0(1 + g)}{P_0} + g \quad (13)$$

- P_0 = current price
- D_0 = current dividend
- D_1 = dividend at end of the first time period
- g = **sustainable growth rate**
- r = market capitalisation rate (cost of equity capital)

Estimating the cost of equity capital (2)

Earnings are either reinvested into the firm or returned to shareholders. Thus, we can define:

- **payout ratio**: the ratio of dividends to **earnings per share (EPS)**
- **plowback ratio (earnings retention ratio)**: one minus the payout ratio

We can define the **return on equity (ROE)** as follows:

$$\text{ROE} = \frac{\text{total earnings}}{\text{book value}} \quad (14)$$

Then:

$$g = \frac{\text{reinvested earnings}}{\text{book value}} = \frac{\text{reinvested earnings}}{\text{total earnings}} \times \frac{\text{total earnings}}{\text{book value}} = b \times \text{ROE} \quad (15)$$

- g = dividend growth rate
- b = plowback ratio

Relationship between stock price and earnings

We can also model the value of a business as the sum of its earnings under a zero-growth scenario, plus the **present value of growth opportunities (PVGO)**:

$$P_0 = \frac{E_1}{r} + PVGO \quad (16)$$

$$\frac{E}{P_0} = r \left[1 - \frac{PVGO}{P_0} \right] \quad (17)$$

- P_0 = current price
- E_1 = earnings per share (EPS) during time period 1
- E = earnings per share (EPS) per time period
- $PVGO$ = present value of growth opportunities
- r = market capitalisation rate

Estimating horizon value

Approach 1: Valuation by comparables, perhaps using P/E ratio or market-to-book ratio.

- In the case of **P/E ratio**, earnings might be biased by inflation or accounting choices.
- In the case of **market-to-book ratio**, book value ignores intangibles and inflation.
- In any case, the valuation is sensitive to the choice of comparables.

Approach 2: Valuation by discounted cash flow (DCF).

- Must consider appropriate level of investment to match estimated growth.
- Must consider post-horizon *PVGO*.
- In any case, a complex calculation!

Income stocks versus growth stocks

Should a business return its income to shareholders or reinvest it?

Income stocks

generate more dividends

value derives primarily from E_1/r

investors seek cash payout

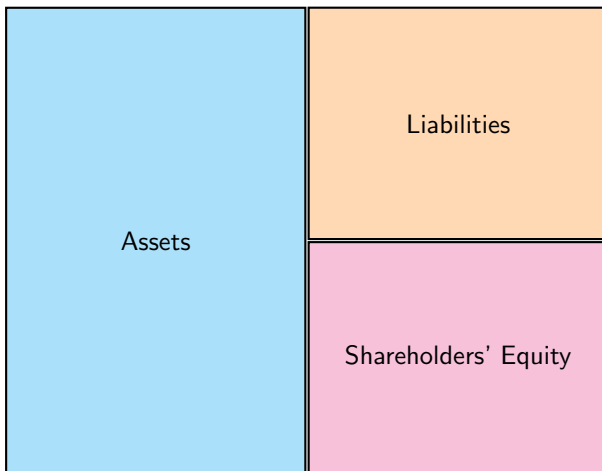
Growth stocks

retain more earnings (plowback)

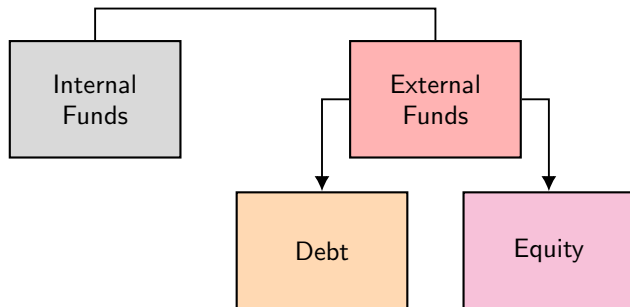
value depends largely on $PVGO$

investors seek capital gains

The balance sheet of a corporation



Sources of funds



Why would a financial manager prefer to use **internal** funds?

- Internal funding is more convenient
- External funding is expensive
- Issuing securities might signal risk (and invite questions)

What about **debt** versus **equity**?

Common stock: Cash-flow and control rights

Cash-flow rights:

- Common stock is a **residual claim** on a firm's assets and cash flow.
- Creditors have a privileged right to cash flows.

Control rights:

- Holders of common stock have the ultimate right of control.
- In practice, holders of common stock usually have a **vote** on appointments to the **board of directors** and other critical decisions.
- Limitation: Creditors often impose restrictions on certain key decisions, such as future borrowing, asset sales, or dividend payouts.
- Failing to make payments to creditors could result in **bankruptcy**.
- In the absence of protective regulations, minority shareholders could be subject to exploitation (**tunnelling**).

Common stock: Voting rights

Periodic election of the **board of directors**

- **staggered board**: arrangement in some firms wherein only some of the board seats are elected at a time.
 - Pro: can promote strategic decision-making by insulating a firm from short-term pressure.
 - Con: can entrench a management team and undermine the power of shareholders.

Supermajority vote: sometimes required for certain key decisions, such as changes to a firm's charter.

Proxy contest: situation wherein a firm's existing directors and management compete with outsiders for control.

Multiple classes of common stock

Some firms issue more than one class of common stock, with the same **cash-flow rights** but different **control rights**.

- Example: Facebook, which issued “Class A” shares with one vote each and “Class B” shares with ten votes each.

Classes with greater **control rights** often trade at a premium.

- To protect management from potential challenges.
- To exercise bargaining power in acquisition negotiations.
- To secure business advantages when held by third-party businesses.

Other forms of equity

Master limited partnership: partnership whose units are like shares in an ordinary corporation; owners have limited liability and avoid corporate tax. Generally restricted to finite-life projects.

Real-estate investment trust (REIT): trust whose units are like shares in an ordinary corporation; owners have limited liability and avoid corporate tax. Generally restricted to investment in real estate.

Preferred stock

Preferred stock is a claim on a series of **preferred dividends**, a series of fixed-size payments.

In contrast to debt, the firm can decide to not pay a preferred dividend without facing bankruptcy, but **if it fails to pay** a preferred dividend:

- It **cannot pay** a common dividend.
- Most issues of preferred stock are **cumulative preferred stock**, which require that all missed preferred dividends are paid in full before common dividends can be paid.
- Usually, preferred stockholders gain **additional voting rights**.
- Failure to pay is often considered a sign of distress.

Debt is a promise to pay a specified amount of money at a particular time.

Corporate **liability** for debt is **limited**: shareholders can choose to not pay.

- But if they do, control rights and cash-flow rights are generally assigned to the creditors.
- Therefore, failure to pay usually implies that the value of the liabilities exceeds the value of the assets.

For purposes of taxation, debt service is considered a cost and is therefore deducted from taxable income. Thus:

- **Interest** is paid from **before-tax** income, whereas
- **Dividends** (common and preferred) are paid from **after-tax** income.

Forms of debt

Short-term versus long-term

- e.g. to finance seasonal inventories versus long-term plant expansion.

Fixed versus floating

- **Bonds** are usually fixed; **bank loans** are usually floating.

Senior versus subordinated (junior)

- Senior debt must be paid before subordinated debt.

Secured versus unsecured (debenture)

- Assets set aside as **collateral** in a secured debt issue can be seized by creditors in the event of default.

Straight versus convertible

- A **convertible bond** gives the holder the right to convert the bond to a predetermined number of shares of (common or preferred) stock.

A **financial intermediary** is an organisation that raises money from investors and provides financing for individuals, companies, or other organisations.

- Banks
- Insurance companies
- Investment funds

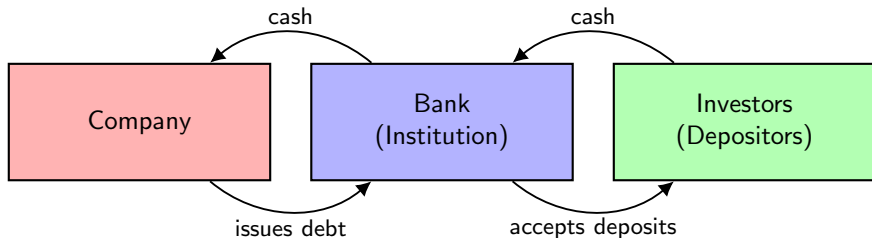
Financial intermediaries invest in **financial assets**, such as securities and loans, whereas non-financial businesses invest in non-financial assets.

- For example, a manufacturing business invests in **real** assets.

Financial institutions: Banks

Commercial banks:

- raise money from depositors (and other investors)
- lend to businesses and individuals (and sometimes invest in securities)

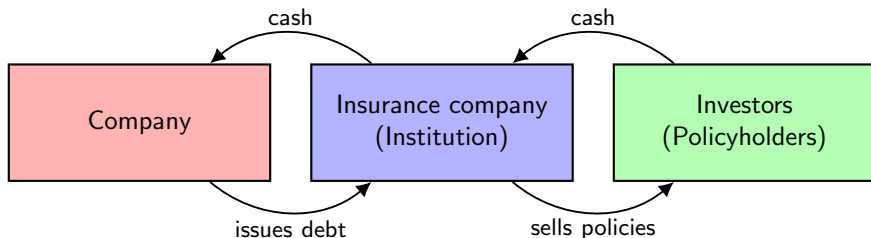


Investment banks

- advise and assist companies in raising financing
- advise on takeovers, mergers, and acquisitions
- furnish investment advice
- manage investment portfolios
- run trading desks for financial assets and derivatives

Insurance companies

- sell insurance policies
- provide funding to corporations via securities investments and loans



- **open-end funds**: investment funds that stand ready to issue and repurchase their shares.
- **closed-end funds**: investment funds with a fixed number of shares.
- **exchange-traded funds**: portfolio of securities that can be bought or sold with a single trade; generally tracked to indexes.
- **hedge funds**: private funds with potentially complex investment strategies; often have significant discretion; often limited to sophisticated or wealthy investors.
- **pension funds**: vehicle for pooling investment by the employees of an organisation; generally tax-advantaged.

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