4. Corporate Issuers

4.1. Forms of Business

4.1.1. 重要知识点

4.1.1.1. sole proprietorships, partnerships, and public limited companies

Features	Sole Proprietor	General Partnership	Limited Partnership	Corporation
Legal Identity	No separate legal identity; extension of owner	No separate legal identity; extension of partner(s)	No separate legal partner(s)	Separate legal entity
Owner–Operator Relationship	Owner operated	Partners operated	GP operated	Board and management operated
Owner Liability	Sole unlimited liability	Shared unlimited liability	GP has unlimited liability	Limited liability
Taxation	Pass-through: Profits taxed as personal income	Pass-through: Profits taxed as personal income	Pass-through: Profits taxed as personal income	Corporation income taxed; distributions (dividends) taxed as personal income
Access to Financing	Limited by owner access to capital	Limited by partner access to capital	Limited by GP/LP access to capital	Unbounded access to capital, unlimited business potential

4.1.2. 基础题

Q-1. Which of the following are not shared similarities among the four major business structure types?

A. Sole proprietorships and general partnerships lack legal identity.

B. Corporate shareholders and general partners have limited liability.

C. The taxation of sole proprietorships and limited partnerships is comparable.

Q-2. Which of the following is most likely a characteristic of sole proprietorships?

A. Existence of a legal identity

B. Operational simplicity and flexibility

C. Taxation of business profits as corporate income

Q-3. Double taxation of profits is most likely a concern for owners in:

A. corporations.

B. limited partnerships.

C. general partnerships.

4.2. Public and Private corporation

4.2.1.1. Public vs. Private companies

- **Primary differences between public and private companies**
  - Exchange listing and share ownership transfer
  - Share issuance
  - Registration and disclosure requirements

4.2.1.2. Means of Going Private to Public

- **Initial public offering (IPO).**
- **Direct listing (DL):** shares are sold by existing shareholders.
- Acquisition.

4.2.1.3. Means of Going Public to Private

- **Reasons**
  - Higher valuation than that reflected in the current share price.
  - Puts these investors in control and takes the company out of public view.
- **Means**
  - Involves investors acquiring all of the company's publicly traded shares and delisting the company from the exchange.
  - The investors must typically pay a premium above the current share price and often use debt to finance the acquisition.

4.2.1. 重要知识点

4.2.1. 基础题

Q-4. A public company can become a private company through a:

A. direct listing.

B. leveraged buyout.

C. special purpose acquisition company.

Q-5. Compared to public companies, share issuances of private companies are most likely:

A. raise larger amounts of capital.

B. include a larger number of investors.

C. include investors with longer holding periods.

4.3. Lenders and Shareholders

4.3.1. 重要知识点

4.3.1.1. Debt Versus Equity

- Debtholders, or lenders, provide capital with a **finite** maturity.
  - Issuers agree to make **promised interest payments** and to repay principal
  - Lenders have **no** decision-making power
  - interest payments are usually treated as a **tax-deductible expense**, reducing taxable income
- Equity investors make **permanent** capital available to issuers
  - Issuers generally **do not commit to future dividends** or repayments to shareholders
  - Equity is a **residual claim** against company cash flows

4.3.1.2. Debt Versus Equity

- From an **issuer's perspective**, debt financing is **less costly** but involves **greater risks** than equity financing.
- From an **investor's perspective**, stocks are **riskier** than bonds .

4.3.1.3. Conflicts of Interest

- Shareholders seek to **maximize profits**.
  - Since these investors lose their entire investment in the case of insolvency but have **unlimited upside return potential**
  - Shareholders can demand higher cash dividends, which can **increase leverage**, thereby increasing risk for debt investors.
- Bondholders seek to **maximize the likelihood that they will receive timely interest** and principal payments .
  - Bondholders generally prefer that management invest in **less risky project**s that increase cash flow certainty
  - bondholders seek to impose **contractual restrictions**

4.3.2. 基础题

Q-6. Which stakeholder group is most likely to tolerate higher risks in exchange for superior corporate performance?

A. creditors

B. shareholders

C. lower-level employees

Q-7. Which of the following statements regarding a mature company's stakeholders is the most accurate?

A. Equity represents a cheaper financing source for companies

B. Shareholders are residual claimants to the company after all other stakeholders have been paid

C. Dividend payments to company shareholders are generally treated as a tax-deductible expense for the company

4.4. Corporate Stakeholders and ESG Considerations

4.4.1. 重要知识点

4.4.1.1. Corporate governance

- **Shareholder theory**
  - Shareholders elect the board of directors, which hires managers to serve the interests of shareholders
  - The interests of other parties—such as creditors, employees, customers, and even society—are considered only to the extent that they affect shareholder value.
- **Stakeholder theory**
  - Corporate governance should consider all stakeholder interests

4.4.1.2. Various stakeholder groups

- Investors
  - **Private debtholders**
    - Such as banks, have direct access to company management and non-public information
  - **Public debtholders(Bondholders)**
    - Such as institutional investors and asset managers, rely on public information
  - Shareholders
- Managers and employees
- Board of directors
  - **Inside directors** : including founders and current and former managers
  - **Independent directors** : no material relationship with the company

- **Two-Tier Board Structure**
  - Under the two-tier model, a separate supervisory board is elected to oversee the activities of the board of directors
- **Staggered Boards**
  - Some companies have staggered boards, with directors divided into groups elected separately in consecutive years.
  - It takes several years to replace a full staggered board, which limits the ability of shareholders to effect a major change of control at the company.

- Creditors
- Suppliers
- Customers
- Governments/regulators

4.4.1.3. ESG considerations for investors

- Environmental Factors
  - **Physical risks** include damage to or destruction of assets by severe weather, which is expected to significantly increase in frequency as the climate changes. Physical risks can often be insured against or diversified.
  - **Transition risks** are losses related to the transition to a lower-carbon economy, which may result from regulations or shifting consumer demand.
- Social Factors
  - Social factors typically pertain to a firm's practices concerning, and their impacts on, its employees and human capital, customers, and communities in which it operates.
- Governance Factors
  - Company ownership and voting structure;
  - Relevance of board skills and experience to current and future company needs;
  - Alignment of management compensation with company results;
  - Strength of company shareholder rights versus peers; and
  - Company effectiveness in managing long-term risks and sustainability.

4.4.2. 基础题

Q-8. Regarding the implementation of ESG, which of the following is a social factor?

A. Board composition

B. Pollution prevention

C. Management of human capital

Q-9. Which of the following corporate stakeholder information is most likely to be true?

A. Risk appetites are similar among private lenders

B. Staggered boards provide continuous implementation of strategy and oversight

C. A company's CEO is responsible for implementing the company’s strategy under the oversight of the company's shareholders

Q-10. In a corporation, which stakeholder group is the principal in a principal-agent relationship?

A. Shareholders

B. Board of directors

C. Senior management

4.5. Stakeholder Conflicts

4.5.1. 重要知识点

4.5.1.1. Shareholder, Board Director, and Manager Relationships

- **Information Asymmetry** lowers shareholders’ ability to assess the performance of directors and managers, weakening their capacity to identify and dismiss poor performers.
- **Manager and shareholder interests may diverge in the following common ways:**
  - **Insufficient effort**. Managers may be unable or unwilling to make investments, manage costs appropriately, or make hard decisions like shutting down unprofitable business lines.
  - **Inappropriate risk appetite**. Compensation dominated by stock grants and options can motivate excessive management risk-taking, as option holders participate only in upside share price moves..
  - **Empire building.** Management compensation and status are typically tied to business size which can incentivize managers to seek “growth for growth’s sake,”
  - **Entrenchment.** Directors and managers want to retain their jobs.
  - **Self-dealing.** Managers may exploit firm resources to maximize personal benefits

4.5.1.2. Controlling and Minority Shareholder

- **Concentrated Ownership**
  - Concentrated ownership reflects an individual shareholder or a group (known as **controlling shareholders**), who can exercise control over the corporation.
- **Dispersed Ownership**
  - Dispersed ownership involves many shareholders, none of whom can exercise control over the corporation(known as **minority shareholders**)
- **Dual-class Structure**
  - In contrast to a simple structure of one vote per shareholder, a **dual-class** structure involves one share class (e.g., Class A) that carries one vote per share and is publicly held and traded and another share class (e.g., Class B) that carries several votes per share

4.5.1.3. Shareholder versus Creditor

- **Shareholders:**
  - Tend to prefer greater leverage and shareholder distributions rather than dilutive equity issuance.
- **Debtholders:**
  - Prefer that a company raise more equity and limit shareholder distributions.

4.5.2. 基础题

Q-11. A construction company has the opportunity to invest in a high-risk but high-reward capital infrastructure project. Which of the following could be a reason why the company decides not to pursue the project?

A. The compensation of managers is closely tied to the size of the company's business.

B. The directors receive excessive all-cash compensation.

C. The managers have recently been awarded a generous amount of options to purchase shares in the company.

Q-12. A controlling shareholder of XYZ Company owns 55% of XYZ's shares, and the remaining shares are spread among a large group of shareholders. In this situation, conflicts of interest are most likely to arise between:

A. shareholders and bondholders.

B. the controlling shareholder and managers.

C. the controlling shareholder and minority shareholders.

Q-13. The company stakeholder who is most likely to be exposed to the greatest information asymmetry in comparison with the management of the company is?

A. A bank lender

B. A public debtholder

C. A member of the board

Q-14. Voting power is most likely to be separated from economic ownership when a company has:

A. proxy voting

B. dual-class shares

C. a staggered board

4.6. Corporate Governance Mechanisms

4.6.1. 重要知识点

4.6.1.1. Shareholder Mechanisms

- **Shareholder Meeting**
  - General meetings—an annual general meeting (AGM)
  - Extraordinary general meetings (EGMs)
  - Proxy voting
- **Shareholder activists** often pressure management to act using tactics such as initiating proxy fights, proposing shareholder resolutions, and publicizing issues of contention.
- **Shareholder Litigation**
- **Corporate Takeovers**
  - Proxy contest
    - In a proxy contest, a group seeking a controlling position on a company's board of directors attempts to persuade shareholders to vote for the group.
  - Tender offers
    - A tender offer involves an invitation to shareholders to sell their interests directly to a group seeking to gain control.
  - Hostile takeovers
    - A hostile takeover is an attempt to acquire a company without the consent of the company's management.

4.6.1.2. Creditor Mechanisms

- **Bond Indenture**

- **Creditor Committees**

4.6.1.3. Board and Management Mechanisms

- **Audit Committee**
  - The audit committee should be composed solely of independent board members and include at least one director with accounting or financial management expertise.
  - The audit committee monitors the issuer's financial reporting process, including the proper selection and implementation of accounting policies according to accounting standards and regulations in order to ensure the integrity of the financial statements.
  - It supervises the internal audit function and ensures its independence and competence.
  - The audit committee is also responsible for recommending the appointment of an independent external auditor and proposing its remuneration.
  - It interacts and holds meetings with the external auditor.
  - It receives reports from the internal and external auditors, proposes remedial actions for highlighted issues or matters, and follows up on them.
- **Nominating/Governance Committee**
  - The nominating, or governance, committee is composed of independent members.
  - This committee appraises director and manager candidates and oversees the board election process.
  - It sets nomination procedures and policies, including board directorship criteria, the search for and identification of qualified candidates for board directorships, and the election process by shareholders.
  - The committee also oversees the establishment and enforcement of corporate policies,
  - It reviews these policies periodically to incorporate any necessary changes or developments.
- **Compensation/Remuneration Committee (independent)**
  - The compensation, or remuneration, committee develops and proposes remuneration policies for the directors and key executives.
  - Compensation plans often include a variable component--typically profit sharing, stock, or stock options--contingent on corporate or stock price performance.
  - By allowing shareholders to express their views on remuneration-related

matters, companies can limit the discretion of directors in granting excessive or inadequate remuneration.

- **Risk committees**
  - determine the risk profile and appetite of the company and ensure that the company has an enterprise risk management system in place whereby risks are identified, assessed, mitigated, and managed appropriately.
  - Accordingly, risk committees oversee the setting of the risk policy and risk management annual plans and monitor their implementation.
  - Insurance companies often have investment committees that ensure the company has adopted and adheres to rational and prudent investment and capital management policies.

4.6.1.4. Corporate Governance Risks and Benefits

- **Operational Risks and Benefits**
  - In the absence of adequate controls, one stakeholder group may benefit at the expense of others.
  - Internal auditors and other internal control mechanisms like compliance and legal departments are an equally important pillar of organizational and governance structures.
  - Strong governance practices involve proper scrutiny and control at all corporate levels.
  - Effective governance also clarifies the delegation of authority and the reporting lines across a company, ensuring that employees have a clear understanding of their respective responsibilities.
- **Legal, Regulatory, and Reputational Risks and Benefits**
  - The company may be investigated by government or regulatory authorities for violation of applicable laws.
  - A company may also be vulnerable to lawsuits filed by shareholders, employees, creditors, or other parties for breach of contractual agreements or company bylaws or for violation of stakeholders' legal rights.
  - Improperly managed conflicts of interest or governance failures can cause reputational harm to a company, and its associated costs can be significant.
- **Financial Risks and Benefits**

4.6.2. 基础题

Q-15. Based on best practices in corporate governance procedures, it is most appropriate for a company's compensation committee to:

A. link compensation with long-term objectives.

B. include a retired executive from the firm.

C. include a representative from the firm's external auditor.

Q-16. Benefits of effective corporate governance most likely include:

A. better mitigation of regulatory risks and lower cost of debt

B. faster decision making and less need for compliance monitoring

C. clear delegation of responsibility and short-term performance focus

Q-17. The main incentive for activist shareholders is to advocate for.:

A. improved shareholder value.

B. environmentally sustainable business practices.

C. consideration of human rights in employee relations.

Q-18. An enhancement in corporate governance structure is most likely to yield:

A. lower cost of debt borrowing.

B. less control by management.

C. reduced operational efficiency.

Q-19. Which of the following board committees ensures that the company has a complete conflict of interest policy?

A. Risk committee

B. Governance committee

C. Remuneration committee

Q-20. The CEO of Company A has been aggressively pursuing mergers and acquisitions in recent years, but these actions have not contributed positively to the company's performance. It seems to be growth for the sake of growth. What is this behavior referred to as by the CEO?

A. Entrenchment

B. Empire building

C. Self-dealing

4.7. Working Capital Approach

4.7.1. 重要知识点

- **Cash Conversion Cycle**
  - **Conservative:**

Inventory	A/R	A/P
Inventory turnover = COGS / average inventory	Receivables turnover = Net revenue / average A/R	Payables turnover = Purchase / average A/P
DOH= 365 / inventory turnover	DSO= 365 / receivables turnover	DPO= 365 / payables turnover
Cash conversion cycle = DOH+DSO-DPO		

- **Prompt-payment discount offered by its supplier**

$$\text{EAR of Supplier Financing} = \left(\left(1+\frac{\text{Discount \%}}{100\% - \text{Discount \%}}\right)^{\frac{\text{Days in Year}}{\text{Payment Period}-\text{Discount Period}}}\right) - 1$$

- **Companies take different approaches to working capital management**
  - **Conservative:**
    - The firm holds a larger position in cash, receivables, and inventories, relative to sales.
    - Finances its current assets with long-term debt or equity financing.
  - **Aggressive:**
    - In an aggressive approach the firm has substantially less committed to current assets.
    - Finances the majority of its current assets with short-term debt or payables.
  - **Moderate:**
    - The firm holds a position somewhere between the two approaches.
    - Using short and long-term financing methods, focusing on a liability-matching approach.

4.7.2. 基础题

Q-21. Which of the following most likely represents conservative working capital management?

A. Decreasing inventory on hand to reduce insurance costs.

B. Financing an increase in receivables by increasing long-term borrowing.

C. Selling marketable securities and using the proceeds to acquire real estate.

Q-22. The following information is available for a company and the industry in which it competes:

	Company	Industry
Accounts receivable turnover	5.6 times	6.5 times
Inventory turnover	4.2 times	4.0 times
Number of days of payables	28 days	36 days
Operating cycle	?	147 days
Cash conversion cycle	124 days	?

Relative to the industry, the company's operating cycle:

A. is shorter, but its cash conversion cycle is longer.

B. and cash conversion cycle are both longer.

C. is longer, but its cash conversion cycle is shorter.

Q-23. Keown Corp. is considering increasing the line of credit it offers to new customers because its sales manager believes this will lead to increased sales. What would be the expected impact on Keown's working capital if this change were made?

A. The company would reduce its inventory levels.

B. The company would likely collect faster, reducing its receivables.

C. The company would have an increased need for working capital.

4.8. Liquidity Measures and Management

4.8.1. 重要知识点

4.8.1.1. 了解流动性的两大来源

- **<u>Primary sources of liquidity</u>** represent the most readily accessible resources available.
  - Ready cash balances: cash available at bank accounts resulting from payment

collections, investment income, liquidation of near-cash securities;

- Short-term funds;
- Cash flow management.

➢ **<u>Secondary sources of liquidity</u>** may result in a change in the company's financial and operating positions.

- Negotiating debt contracts;
- Liquidating long-term/ short-term assets with no substantial loss in value;
- Filing for bankruptcy protection and reorganization.

➢ Primary sources 是企业主要的流动性来源；而 secondary sources 是次要的流动性来源，也是不健康的流动性来源，如果使用这些来源，则意味着企业的财务状况退化，也意味着企业获得流动性的代价会升高。

4.8.1.2. Liquidity measures

➢ Working capital management is a concern regarding firm liquidity

- **Drags on liquidity:** when receipts lag, creating pressure from the decreased available funds;
- **Pulls on liquidity:** disbursements are paid too quickly or trade credit availability is limited, requiring companies to expand fund before the sales fund comes to cover the liability.

➢ **Liquidity ratios:**

- $\text{current ratio}=\frac{\text{current assets}}{\text{current liabilities}}$
- $\text{quick ratio}=\frac{\text{cash+short-term marketable securities+receivables}}{\text{current liabilities}}$
- $\text{cash ratio}=\frac{\text{cash+short-term marketable securities}}{\text{current liabilities}}$
- The higher the liquidity ratio, the more likely it is the company will be able to pay its short-time bills.

4.8.2. 基础题

Q-24. Which is most likely considered a "pull" on liquidity?

A. Increased difficulty in collecting receivables.

B. Obsolete inventory.

C. Reduction in a line of credit.

Q-25. Which of the following options is most likely an example of secondary source of liquidity?

A. Bank line of credit

B. Inventory liquidation

C. Trade credit

Q-26. Assuming all other factors remain constant, the debt capacity of a company is likely to decrease when its:

A. current ratio increases.

B. leverage ratio decreases.

C. interest coverage ratio decreases.

4.9. Classification of Capital Project

4.9.1. 重要知识点

4.9.1.1. 掌握以下几种 capital projects

- **Replacement projects**
  - To maintain the current business: equipment breaks down or wears out;
  - For cost reduction purpose: purchase more efficient equipment instead of the old one.
- **Extension projects**
  - Expansion projects for existing product: increase the size of business;
  - Expansion projects for new product or new services;
  - The order of uncertainty: replacement project< expansion project < new products.
- **Mandatory investment:** regulatory, safety, and environmental project（通常 NPV<0).
- **Other projects:** such as CEO buying a new aircraft.

4.9.2. 基础题

Q-27. How expansion projects are likely to perform compared to going concern projects in terms of risk and capital:

A. greater uncertainty only.

B. greater amounts of capital only.

C. both greater uncertainty and greater amounts of capital.

Q-28. The government set new safety standards. A car company invested in a new technology to make its products meet new safety standards This project is best classified as a(n):

A. expansion project.

B. compliance project.

C. going concern project.

4.10. Key Principals of Capital Budgeting

4.10.1. 重要知识点

4.10.1.1. The capital budgeting process involves five key principles

- Decisions are based on the **incremental cash flows.**
  - Incremental cash flow 概念及理解
    - **概念：** cash flow 应该是差额，该差额是由于不同 decision 造成的。
    - **理解：** 在计算增量现金流时，需要考虑 opportunity costs 和 externality (比如：negative externality: cannibalization); 不需要考虑的是 sunk cost 和 finance cost (interest costs).
  - Decisions are based on cash flows, instead of accounting net income;
- Timing of cash flows are crucial time value of money
- Cash flows are analyzed on an after-tax basis
- Cash flows that **<u>should be ignored</u>** in capital budgeting
  - **不包含 suck cost:** the costs have already been incurred, which would not be affected by the decision of adopting the project
  - **不包含 financing costs/interest cost:** the costs have already been reflected in the required rate of return
- Cash flows that **<u>should be included</u>** in capital budgeting
  - **包含 Externality:** the effect of an investment on other things besides the investment itself
    - **Negative externality (cannibalization):** the new project may take sales away from current projects;

- ◆ **Positive externality:** the new project may benefit current projects.
- ■ **包含 opportunity cost:** The cash flow that a firm will lose by the next best use of the resources.

4.10.2. 基础题

Q-29. Which of the following statements describes the most appropriate treatment of cash flows in capital budgeting?

A. Interest costs are included in the project’s cash flows to reflect financing costs.

B. A project is evaluated using its incremental cash flows on an after-tax basis.

C. Sunk costs and externalities should not be included in the cash flow estimates.

Q-30. The acceptance of which of the following capital budgeting projects is most likely to expose a company to the highest level of uncertainty?

A. Replacement of worn out equipment

B. Expansion projects

C. Newly launched product or services

4.11. Project Evaluation Methods：NPV, IRR, ROIC

4.11.1. 重要知识点

4.11.1.1. The calculation of NPV, IRR,ROIC

- **NPV**
  - 计算：$\mathrm{NPV}=\sum_{t=0}^{n}\frac{CF_t}{(1+r)^t}$
  - 通常用金融计算器进行对应计算
  - Decision rule：独立项目选择 NPV 大于 0 的项目，互斥项目选择 NPV 最大的项目
- **IRR**
  - NPV 等于 0 时的项目折现率
  - 通常用金融计算器进行计算
  - Decision rule：独立项目选择 IRR 大于要求回报率的项目，互斥项目选择 IRR

最大的项目

- 在 NPV 和 IRR 的决策冲突时，以 NPV 为主

➢ **Return on invested capital (ROIC)**

- **Return on invested capital**=(after tax net profit)/(book value of invested capital)
  - Invested capital includes: Common shares ; Preferred shares ; Debt
- **Decision rule**
  - If ROIC ＞ COC, company generates a higher return for investors, increasing the firm's value for shareholders.
  - If ROIC ＜ COC, the company generates a lower return for investors, decreasing the firm's value for shareholders.

4.11.2. 基础题

Q-31. If the discount rate of 10%, the net present value (NPV) of the given investment is closest to:

Time	0	1	2	3	4	5	6
Cash flow	−1,500	300	600	1,000	200	500	300

A. 605.

B. 578.

C. 636.

Q-32. A project has the following annual cash flows:

Year 0	Year 1	Year 2	Year 3	Year 4
−$4,662,005	$22,610,723	−$41,072,261	$33,116,550	−$10,000,000

Which of the following discount rates is most likely to yield the highest net present value ?

A. 8%

B. 15%

C. 10%

Q-33. The Bearing Corp. invests only in positive-NPV projects. Which of the following statements is true?

A. Bearing's return on invested capital (ROIC) is greater than its cost of capital (COC).

B. Bearing's COC is greater than its ROIC.

C. We can't reach any conclusions about the relationship between the company's ROIC and COC.

Q-34. If investors believe a company has a large number of positive net present value investment opportunities, the company's book value will most likely be: (ZT)

A. less than the market value

B. equal to the market value

C. greater than the market value

Q-35. The following table is balance sheet of Company XYZ. Values in each column are as of the end of the period.

Assets:	**20X1**	**20X2**
Cash	490	700
Short-term assets	10,520	11,790
Long-term assets	22,400	23,740
Total assets	33,410	36,230
Liabilities and equity:		
Accounts payable	5,970	6,620
Short-term debt	2,470	2,840
Long-term debt	9,880	10,550
Share capital	15,090	16,220
Total liabilities and equity	33,410	36,230

Assume operating profit of 3,890 and a tax rate of 17% in Year 20X2. The ROIC for year 20X2 is:

A. 12.48%.

B. 12.06%

C. 9%

4.12. NPV& IRR

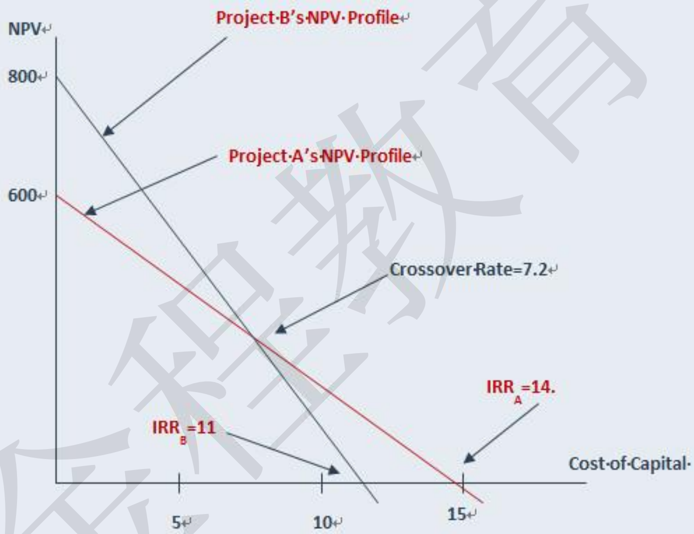
4.12.1. 重要知识点

4.12.1.1. NPV, IRR comparison

- **Advantages of NPV & IRR（和其他项目评估方法对比）**
  - Based on cash flows;
  - Considering time value of money——opportunity cost;
  - Take into account the cash flows generated over the whole project life.

- **NPV advantage**
  - Shows the amount of gains as currency amount;
  - The NPV of project increases the value of shareholders instead of creditors;
  - Realistic discount rate – opportunity cost of funds.
- **NPV disadvantage**
  - Size effect ignored.
- **IRR advantage**
  - Reflect the profitability of the project.
- **IRR disadvantage**
  - Assume the reinvestment rate is IRR;
  - No IRR & multiple IRR (unconventional CFs);
  - Conflicting ranking results of mutually exclusive projects with NPV.

4.2.1.1. NPV profile:



请大家熟记这张图里的横纵坐标轴、IRR 和 crossover rate，考试中有可能出现基于这张图的题目。

- NPV profile 和横坐标交点：NPV=0 时的项目的折现率，即该项目 IRR
- NPV profile 和纵坐标交点：折现率为 0 时项目的 NPV，即不考虑货币时间价值，将该项目所有现金流加总的总和
- Crossover rate：两个项目的 NPV profile 的交点，即在这个点上，用相同的折现率折现，两个项目的 NPV 相同

4.2.1.2. NPV 和 IRR 的矛盾：出发点是 IRR 自身存在的缺点

- **原因：**
  - Different project's size;
  - Different timing of CF;
  - Reinvestment rate assumption different.
- **决策：**当 IRR 与 NPV 发生矛盾时，选用 NPV.

4.2.1.3. Criteria preference

- European countries prefer PB over NPV and IRR
- Larger public companies prefer NPV&IRR
- Managers with higher education level prefer NPV&IRR.

4.12.2. 基础题

Q-36. A manager is considering two mutually exclusive independent projects with the following return expectations:

	IRR	NPV
Project 1	22%	$54 million
Project 2	19%	$146 million

Based only on this information, if the company's required rate of return is 10%, the most appropriate decision is to invest in:

A. Project 1 only

B. Project 2 only

C. Both Project 1 and Project 2

4.13. Impact of NPV Rule and Stock Price

4.13.1. 重要知识点

4.13.1.1. Impact of NPV rule and stock price

- **The relationship for NPV of the project and firm's value**
  - **NPV is positive**
    - **Firm** value is increased;
    - **Shareholder** wealth is increased.
  - **NPV is zero**
    - **Shareholder** wealth remain constant.
  - **NPV is negative**
    - **Shareholder** wealth is decreased.

- **The relationship between NPV rule and the stock price**
  - In theory
    - When the NPV is positive, P_{stock} is increased, vice versa;
    - Δprice per share=NPV/ outstanding common shares.
  - In reality
    - 股价的变动取决于投资者对于未来项目的预期

4.13.2. 基础题

Q-37. A company has 100 million shares outstanding. The share price of a company's stock is £15 just prior to announcing a £100 million expansionary investment in a new plant, and the company estimates that the present value of future after-tax cash flows will be £150 million. Analysts, however, estimate that the new plant's profitability will be lower than the company's expectations. The company's stock price will most likely:

A. drop below £15 per share due to the cannibalization of revenue from the new plant.

B. increase by less than £0.50 per share.

C. increase by the new plant's net present value per share.

4.14. Real Options

4.14.1. 重要知识点

4.14.1.1. Real Options

- **Timing Options**
- **Sizing options**
  - Abandonment option
  - Growth (expansion) option
- **Flexibility options:** once an investment is made, other operational flexibilities may be available besides abandonment or expansion.
  - Price-setting options
  - Production flexibility options
- **Fundamental options**
- **Four common sense approaches to real options analysis**
  - Project NPV(with option) = NPV(without option) - Cost of options + Value of options
  - Use DCF analysis without considering options
  - Use decision trees
  - Use option pricing models

4.14.1.2. Common capital budgeting pitfalls

- Not incorporating economic responses into the investment analysis
- Misusing capital allocation template
- Pushing pet projects
- Basing investment decisions on EPS, net income, or ROE
- Using IRR to make investment decisions
- Incorrectly accounting for cash flows
- Over- or underestimating overhead costs
- Not using the appropriate risk-adjusted discount rate
- Overspending and underspending the capital allocation
- Failing to consider investment alternatives or alternative states
- Incorrectly handling sunk costs and opportunity costs

4.14.2. 基础题

Q-38. Albert Duffy, a project manager at Crane Plastics, is considering taking on a new capital project. When presenting the project, Duffy shows members of Crane's executive management team that because the company has the ability to have employees work overtime, the project makes sense. The project Duffy is taking on would be best described as having:

A. a fundamental option.

B. an expansion option.

C. a flexibility option.

Q-39. After making a capital investment, a company abandoned the project due to poor financial results. This action alone best exemplifies the practice of:

A. sizing option.

B. timing option.

C. flexibility option.

4.15. WACC

4.15.1. 重要知识点

4.15.1.1. WACC 计算

$$WACC=(w_d)\left[r_d(1-t)\right]+(w_{ps})(r_{ps})+(w_{ce})(r_s)$$

- **Where:**
  - **t** is the firm's marginal tax rate;
  - **w** is the proportion of each type of capital, all the components are using market value when computing weightings;
  - **r** is the current cost of each type of capital.
- **The priority sequencing of choosing capital structure（优先级从上至下）**
  - The company's target capital structure;
  - The company's current capital structure;
  - The trends in capital structure;
  - The average of comparable company's capital structure.

4.15.2. 基础题

Q-40. Which of the following is the least appropriate method for an external analyst to estimate a company's target capital structure for determining WACC? Using the:

A. averages of comparable companies' capital structure.

B. company's current capital structure, at book value weights.

C. statements made by the company's management regarding capital structure policy.

Q-41. A company currently has no debt or preferred shares outstanding. An analyst gathers the following information about the company and its upcoming issuance of preferred shares:

Expected price per preferred share	$100
Expected dividend per preferred share	$5
Marginal tax rate	30%
Current cost of common equity	12.5%

If the preferred shares will constitute 10% of the company's new capital structure after they are issued, the company's new WACC will be closest to:

A. 11.6%

B. 11.8%

C. 12.0%

4.16. Capital Structure

4.16.1. 重要知识点

4.16.1.1. Internal Factors Affecting Capital Structure

- Business model characteristics
  - **Revenue, earnings, and cash flow sensitivity**
  - **Asset type**
  - **Asset ownership**
- Existing leverage
- Corporate tax rate
- Capital structure policies/guidelines
- Third-Party Debt Ratings

4.16.1.2. External Factors Affecting Capital Structure

- Market conditions/business cycle
- Regulatory constraints
- Industry/peer firm leverage

4.16.1.3. Capital Structure and Company Life Cycle

Stage in life cycle	Start-up	Growth	Mature
Financial management			
Revenue growth	Beginning	Rising	Slowing

Cash flow	Negative	improving	Positive/ predictable
Business risk	High	Medium	Low
Debt capital/leverage			
Availability	Very limited	Limited/ improving	High
Cost	High	Medium	Low
Typical cases	N/A	Secured (by receivables, fixed assets)	Unsecured (bank and public debt)
Typical % of capital structure*	Close to 0%	0%~20%	20%+
*: These ratios are calculated based on the market values of equity and debt			

4.16.2. 基础题

Q-42. A company is most likely to be financed only by equity during its:

A. start-up stage.

B. growth stage.

C. mature stage.

Q-43. A company's optimal capital structure:

A. maximizes firm value and minimizes the weighted average cost of capital.

B. minimizes the interest rate on debt and maximizes expected earnings per share.

C. maximizes expected earnings per share and maximizes the price per share of common stock.

Q-44. Which combination of factors is most likely to enhance a company's capacity to sustain debt in its capital structure?

A. High revenue, low cash flow volatility, and a low level of fungible assets

B. High revenue, low operating leverage, and a high level of fungible assets

C. Low cash flow volatility, low operating leverage, and a low level of fungible assets

Q-45. Which mature company is most likely to utilize the highest amount of leverage in its capital structure?

A. Mining company

B. Software company

C. Shipping company

4.17. MM Propositions

4.17.1. 重要知识点

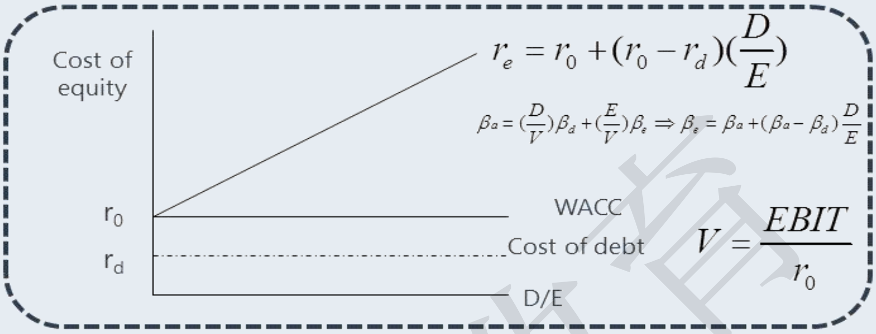
4.17.1.1. MM proposition 1 without taxes

- The net present value (NPV) is the present value of all after-tax cash flows.
- With the increase in leverage, the increase in equity returns is offset by increases in the risk and the associated increase in the required rate of return on equity.
- Assumptions
  - Investors agree on the expected cash flow from a given investment;
  - Bonds and shares of stock are traded in a perfect capital market;
  - Investors can borrow/lend at the risk-free rate;
  - No agency costs;

- Financing decision and investment decision are <u>independent.</u>

4.17.1.2. MM proposition 2 without taxes

- With the increase in leverage, the increase in equity returns is offset by increases in the risk and the associated increase in the required rate of return on equity.
- The cost of equity is a linear function of D/E
- 假设：
  - Financial distress has no cost
  - Debt holders have prior claim to assets and income



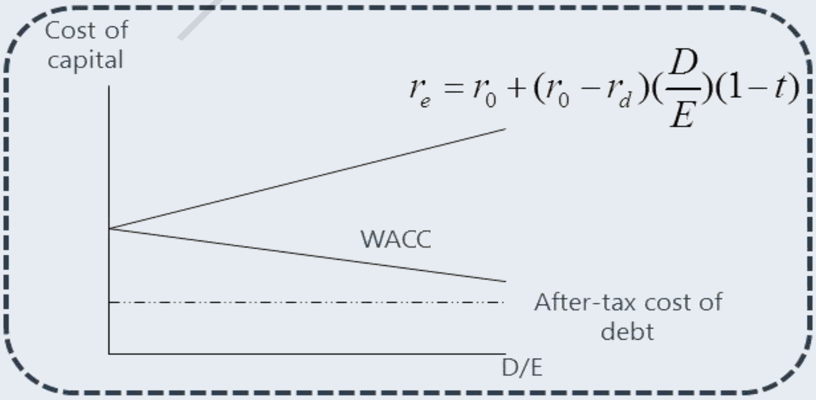
4.17.1.3. MM proposition 1 (with taxes)

- Optimal capital structure is 100% debt

$$V_L = V_U + t \times d$$

4.17.1.4. MM proposition 2 (with taxes)

- WACC is minimized at 100% debt.
- We do not consider the costs here:
  - Cost of financial distress;
  - Cost of bankruptcy.



$$V_L = \frac{EBIT(1-t)}{WACC}$$

4.17.1.5. Summary for MM theory

When t ≠ 0, (1 - t) lowers cost of leveraged equity compared to no-tax case

- r_e becomes greater as the company increases the debt financing, but r_e does not rise as fast as it does in the no-tax case. Because the slope coefficient (r_0-r_d) (1-t) < (r_0-r_d) in the case of no taxes.
- WACC for the leveraged company falls as debt increases, and overall company value increases.
- If taxes are considered but financial distress and bankruptcy costs are not, debt financing is highly advantageous. In extreme, optimal capital structure is 100% debt.

	Without taxes	With taxes
Proposition 1	$V_L=V_U$	$V_L=V_U+t*D$
Proposition 2	$r_e= r_0+(r_0-r_d)*D/E$	$r_e= r_0+(r_0-r_d)(1-t)*D/E$

4.17.2. 基础题

Q-46. Which of the following statements regarding Modigliani and Miller's Proposition I is most accurate?

A. A firm's cost of equity financing increases as the proportion equity in a firm's capital structure is increased.

B. A firm's cost of debt financing increases a firm's financial leverage Increases.

C. A firm's weighted average cost of capital is not affected by its choice of capital structure.

Q-47. Suppose the weighted average cost of capital of the Gadget Company is 10 percent. If Gadget has a capital structure of 50 percent debt and 50 percent equity, a before-tax cost of debt of 5 percent, and a marginal tax rate of 20 percent, then its cost of equity capital is closest to:

A. 12 percent.

B. 14 percent.

C. 16 percent.

Q-48. The current weighted average cost of capital (WACC) for Van der Welde is 10 percent. The company announced a debt offering that raises the WACC to 13 percent. The most likely conclusion is that for Van der Welde:

A. the company's prospects are improving.

B. equity financing is cheaper than debt financing.

C. the company's debt/equity ratio has moved beyond the optimal range.

Q-49. According to the Modigliani-Miller (M&M) proposition with tax, how does the value of a company change when the tax rate increases?

A. Increases

B. Decreases

C. Remains the same

4.18. Optimal and Target Capital Structure

4.18.1. 重要知识点

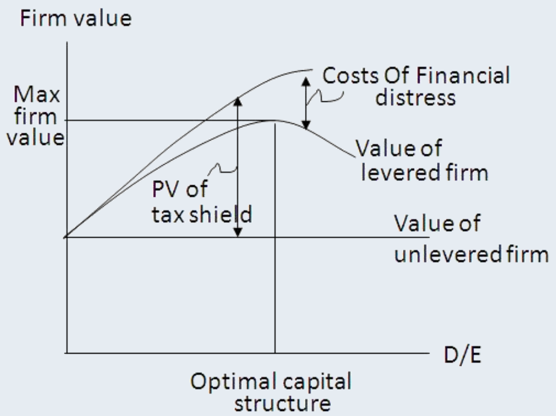
4.18.1.1. Costs of financial distress

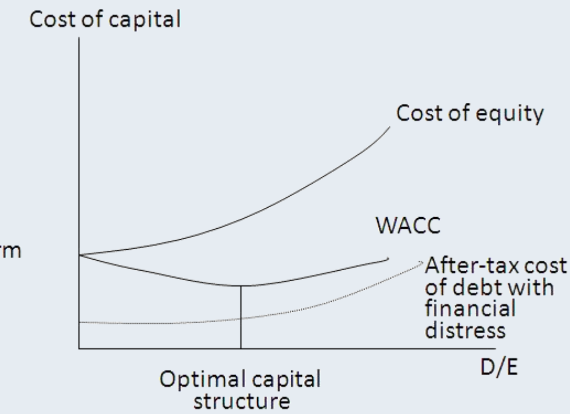
- During the downward economy, earnings are magnified downward during economic slowdowns.
- Lower or negative earnings put companies under stress, and this financial distress adds to companies.
- Companies whose assets have a ready second market have lower cost associated with financial distress
  - Companies with relatively marketable tangible assets incur lower costs from financial distress;
  - Companies with few tangible assets have less to liquidate and therefore have a higher cost associated with financial distress.

4.18.1.2. Static Trade-Off Theory

- The static trade-off theory is a theory pertaining to a company's optimal capital structure;
- The optimal level of debt is found at the point where additional debt would cause the costs of financial distress to increase by a greater amount than the benefit of the additional tax shield.

$$V_L = V_U + (t \times d) - PV(Costs\ of\ Financial\ Distress)$$





- With increase in financial leverage
  - The tax shield add value to the firm;
  - The impact of cost of financial distress, agency cost and cost of asymmetric reduce the firm value
- Unlike the MM proposition of no optimal capital structure, or a structure with almost all debt, static trade-off theory puts forth an optimal capital structure with an optimal proportion of debt.
  - Once the value adding from tax shield and value reduction from these costs are balanced, the company reaches a max value with lowest cost of capital → optimal capital structure.

4.18.1.3. Capital structure

- The theoretical point at which the value of the company is maximized is known as the optimal capital structure.
- When a company recognizes its optimal capital structure, it may adopt it as its target capital structure. But target capital structure may or may not equal to the optimal capital structure.
- Actual capital structure is set for a particular project, while targe capital structure is measured at the consolidated company level.

4.18.1.4. Agency costs

- **Agency costs are the incremental costs arising from conflicts of interest when an agent makes decisions for a principal.**
  - Agency costs to equity
  - Smaller stake the mangers have, HIGHER cost;
  - Net agency cost of equity consist of three components
  - Monitoring costs are the costs borne by owners to monitor the management of the company;
  - Bonding costs are the costs borne by management to assure owners that they are working in the owners' best interest;
  - Residual losses are the costs incurred even when there is sufficient monitoring and bonding, because monitoring and bonding mechanisms are not perfect.
  - The better the company is governed, the lower agency cost;
  - The increase in use of debt vs. equity, decrease the agency cost.

4.18.1.5. Cost of asymmetric information

- The provider of both debt and equity capital demand higher returns from companies with higher asymmetry in information because there is a great likelihood of agency costs.

4.18.1.6. Pecking order theory

- **Pecking order**
  - Managers prefer internal financing;
  - If internal financing is insufficient, managers next prefer debt;
  - The final choice is equity.
- Based on the manager's choice of financing method, the signal can be read;

4.18.2. 基础题

Q-50. According to the static trade-off theory:

A. debt should be used only as a last resort.

B. companies have an optimal level of debt.

C. the capital structure decision is irrelevant.

Q-51. The pecking order theory of financial structure decisions:

A. is based on information asymmetry.

B. suggests that debt is the first choice for financing an investment of significant size.

C. suggests that debt is the riskiest and least preferred source of financing.

Q-52. To determine their target capital structures in practice, it is least likely that firms will:

A. use the book value of their debt to make financing decisions.

B. match the maturities of their debt issues to specific firm investment

C. determine an optimal capital structure based on the expected costs of financial distress.

4.19. Business Models

4.19.1. 重要知识点

4.19.1.1. Key features of business model

- **Value Proposition**
  - Customers, Market: Who (Target customers).
  - Firm Offering: What (Product/service offering).
  - Channels: Where (Channel strategy).
  - Pricing: How Much(Pricing strategy).
- **Value Chain**
  - Business activities (assets, organization).
  - Value add and costs per activity.
  - Competitive advantage.
- **Profitability**
  - Margins.
  - Break-even points.
  - Unit economics: expressing revenues and costs on a per-unit basis

4.19.1.2. Business Model Innovation

- **Location matters less.**
- **Outsourcing is easier.**
- **Digital marketing** makes it easy and cost-effective to reach very specific groups of customers.
- **Network effects**: increase in value of a network to its users as more users join.

4.19.1.3. Business model variation

- **Private label or "contract" manufacturers** that produce goods to be marketed by others. This is an extremely common arrangement, particularly for offshore production.
- **Licensing arrangements** in which a company will produce a product using someone else's brand name in return for a royalty.
- **Value added resellers** that not only distribute a product but also handle more complex aspects of product installation, customization, service, or support.
- **Franchise models** in which distributers or retailers have a tightly defined and often exclusive relationship with the parent (franchisor) company.
- **E-commerce** Business Models
  - **Affiliate marketing** generates **commission** revenues for sales generated on others' websites.

- **Marketplace businesses** create networks of buyers and sellers without taking ownership of the goods during the process.
- **Aggregators** are similar to marketplaces, but the aggregator re-markets products and services under its own brand.
- **Crowdsourcing（众筹）: to contribute directly** to a product, service, or online content.

- **Hybrid Business Models**: combining platform and traditional "linear" businesses.

4.19.1.4. External Factors

- **Economic conditions** affect almost all businesses.
- **Demographic trends** influence the overall economy, but in certain markets, they are important in their own right.
- **Sector demand** characteristics vary by industry. Some industries, such as consumer staples, have very stable and predictable demand, while others, such as industrial machinery, are more cyclical.
- **Industry cost characteristics,** such as capital intensity and operating leverage, are also important.
- The **political, legal, and regulatory environment** is also a key "external" factor for many businesses.
- **Social and political trends:** Shifts in public opinion and tastes often precede changes in consumer buying behavior or the political/legal environment.

4.19.1.5. Firm-Specific Factors

- **Firm maturity or stage of development of the business:** A startup or early-stage business typically requires more capital, such as that needed to finance new facilities or for "investment spending" on product development, marketing/sales, working capital, and/or startup losses, and presents more business risk than a more mature business.
- **Competitive position:** A company with strong barriers to competition, also referred to as a "wide moat," will have lower business and financial risk than one that does not, other things being equal.
- **Business model**
  - **Asset-light business models** shift the ownership of high-cost assets to other firms.

4.19.2. 基础题

Q-53. A business model is least likely to include details about a company's

A. largest customers.

B. workforce characteristics.

C. revenue and expense estimates.

Q-54. A pricing approach where a company charges different prices to different customers based on purchase volume is best described as.:

A. tiered pricing.

B. bundled pricing.

C. dynamic pricing.

Q-55. A company that produces goods to be marketed by other firms can best be described as a type of business model known as.:

A. value added reseller business model.

B. licensing arrangement business model.

C. contract manufacturer business model.

Q-56. Which pricing model is most commonly used when a company intentionally sacrifices profit margins in order to expand market share?

A. Dynamic pricing

B. Freemium pricing

C. Penetration pricing

Q-57. The sequence of processes related to the creation of a product, both within and external to a company, is best described as a.:

A. value chain.

B. supply chain.

C. business model.

Q-58. What is a Value Chain?

A. The processes in a firm that create value for its customers

B. The entire processes related to producing and delivering a physical product to the end customer.

C. The processes in a firm that create value for the manufacturers

Solutions

4. Corporate Issuers

Q-1. Solution: B

Both sole proprietorships and general partnerships have no legal identity, with the business considered an extension of the owner in a sole proprietorship and the partnership agreement setting ownership in a general partnership. Both sole proprietorships and limited partnerships have similar tax structures, with all profits taxed as personal income. But in relation to liability, while general partners have unlimited liability, shareholders of corporations are granted limited liability.

Q-2. Solution: B

Key features of sole proprietorships include the following: Operational simplicity and flexibility.

Q-3. Solution: A

Tax disadvantage for owners in countries with double taxation is a key feature of corporations. In most countries, corporations are taxed directly on their profits. In many countries, shareholders pay an additional tax on distributions (dividends) that are passed on to them. Economists refer to this as the double taxation of corporate profits.

Profits of limited partnerships or general partnerships are taxed only at the personal level. A key feature of limited partnerships is that all partners share in return, with profits taxed as personal income.

Q-4. Solution：B

Leveraged buyouts can result in a public company going private. Direct listings and special purpose acquisition companies are methods for a private company to go public.

Q-5. Solution: C

To raise more capital after listing, public companies may issue additional shares in the capital markets, typically raising very large amounts from many investors who may then actively trade shares among themselves in the secondary market. In contrast, private companies finance much smaller amounts in the primary market (private debt or equity) with far fewer investors who have much longer holding periods.

Q-6. Solution: B

Shareholders seek to maximize residual cash flows, or firm profits, once other obligations are met. Since these investors lose their entire investment in the case of insolvency but have unlimited upside return potential, they prefer that management pursue projects with greater calculated risks and higher potential returns.

Q-7. Solution: B

Debtholders have a prior legal claim on the company's cash flows and assets over the claims of equity owners. Equity holders [shareholders] are therefore residual claimants to the company after all other stakeholders have been paid, including creditors (interest/principal), suppliers (accounts payable), government (taxes), and employees (wages).

Q-8. Solution: C

Social factors considered in ESG implementation generally pertain to the management of the human capital of a business, including human rights and welfare concerns in the workplace; product development; and, in some cases, community impact.

Q-9. Solution: B

A company's CEO is hired by the board and responsible for implementing the company's strategy under the oversight of the board of directors. Managers, led by the chief executive officer of the company, are responsible for determining and implementing the corporation's strategy under the oversight of the board of directors. In addition, a company's board of directors is elected by shareholders to protect shareholders' interests and provide strategic direction, taking into consideration the company's risk appetite, which it defines for the company. The board is also responsible for hiring the CEO and monitoring the performance of the company and management.

Private debtholders have wide variation in risk appetites. With banks and private lenders, the general perspective of debtholders applies: less financial leverage implies less risk and is therefore preferred. Among private lenders, however, there is wide variation in their risk appetite, approach, behavior, and relationships with companies to whom they have provided capital.

The positive aspect of a staggered board is that it provides continuous implementation of strategy and oversight without constantly being reassessed by new board members, which otherwise risks bringing short-termism into company strategy.

Q-10. Solution: A

The relationship between shareholders and managers/directors is a classic example of a principal–agent relationship, whereby shareholders (the principal in this case) elect directors (an agent) who are expected to protect their interests by appointing senior managers (another agent) to run the company.

Q-11. Solution: B

Where compensation, particularly if it is excessive, does not include an adequate amount of stock grants or options, the risk tolerance of directors and managers may be low because directors and managers may be inclined to give up taking risks that create value for the company so as to not jeopardize the compensation they have been receiving.

Q-12. Solution: C

In this ownership structure, the controlling shareholder's power is likely more influential than that of minority shareholders. Thus, the controlling shareholder may be able to exploit its position to the detriment of the interests of the remaining shareholders.

Choices A and B are incorrect because the ownership structure in and of itself is unlikely to create material conflicts between shareholders and regulators or shareholders and managers.

Q-13. Solution: B

Public debtholders do not have access to non-public information. Public debtholders (or bondholders) rely on public information and credit rating agency determinations to make their investment decisions. Unlike shareholders, debtholders do not hold voting power, and they typically have limited influence over a company's day-to-day operations.

Banks and private lenders generally hold a company's debt to maturity. They typically have direct access to company management and non-public information about the company; in principle, this reduces information asymmetries that exist between the company and these groups.

A member of the board of directors has significant influence and access to non-public information. A company's board of directors is elected by shareholders to protect shareholders' interests and provide strategic direction, taking into consideration the company's risk appetite, which it defines for the company. The board is also responsible for hiring the CEO and monitoring the performance of the company and management.

Q-14. Solution: B

A dual-class structure allows certain stakeholders to effectively control the company even if they do not hold most of the shares outstanding. These stakeholders—who can avoid voting-power dilution if new shares are issued—control board elections, strategic decisions, and all other significant matters.

Q-15. Solution: A.

Under appropriate corporate governance procedures, the compensation committee should link compensation with long-term objectives.

The committee should be composed of independent board members only. Good corporate governance procedures would require that executive (internal) directors not rule on matters underlying conflicts of interest or on matters requiring an unbiased judgment (such as audit, remuneration, or related-party transaction matters). Retired executives and external auditors are not independent and should not be a part of the compensation committee.

Q-16. Solution: A.

Strong governance practices and a proper balance among stakeholders' interests are often reflected in increased competitiveness and operational efficiency, better control processes, and improved performance. The role of corporate governance and related mechanisms in mitigating risk extends beyond operations to include legal, regulatory, reputational, and financial risks. Thus effective corporate governance helps lowering risk and potentially lowering the corporation's cost of debt.

Q-17. Solution: A

The primary motivation of activist shareholders is to increase shareholder value. If they feel management or the board has failed to act in the best interests of shareholders, they may attempt to force changes by gaining control of the board.

Environmentally sustainable business practice is more likely to be a goal of ESG investors with an investment mandate focused on environmental factors.

Consideration of human rights in employee relations is more likely to be a goal of ESG investors with an investing mandate focused on social factors.

Q-18. Solution: A

Default risks are also mitigated by properly functioning audit systems, transparent and better reporting of earnings, and controlling information asymmetries between the company and its capital providers. Lower default risks are associated with better credit ratings for the company and lower costs of debt borrowing, given that creditors typically require a lower return when their funds are better secured and their rights protected. Thus, an effective corporate governance structure will result in lower cost of debt borrowing for the company.

Q-19. Solution: B

The main role of the board's governance committee is to ensure that the company adopts good corporate governance structures and practices. For this purpose, it oversees the development of the governance policies at the company such as

• the corporate governance code

• the charter of the board and its committees

• the code of ethics and

• the conflict of interest policy, among others.

Q-20. Solution: B

Empire building. Management compensation and status are typically tied to business size (e.g., total revenues, number of employees), which can incentivize managers to seek "growth for growth's sake," such as acquisitions that do not increase shareholder value.

Entrenchment. Directors and managers want to retain their jobs. Tactics to do so include copying competitors and peers, avoiding risks, and pursuing complicated transactions and restructurings that they are uniquely suited to manage. Directors may avoid speaking out against management, even if speaking out is in the interest of shareholders or other stakeholders.

Self-dealing. Managers may exploit firm resources to maximize personal benefits, such as excessive perquisites (private airplanes, club memberships, personal security), or defraud investors by misappropriating assets. The smaller a manager's stake in the company, the less they bear these costs themselves, reducing their desire to maximize firm value.

Q-21. Solution: B

Financing an increase in a current asset with long-term borrowing is an example of conservative working capital management. The other choices describe decreases in current assets and therefore more likely represent aggressive working capital management.

Q-22. Solution: B.

Operating cycle = Number of days of inventory + Number of days of receivables.

Cash conversion cycle = Operating cycle − Number of days of payables.

	Company	Industry
Number of days receivables	365/5.6 = 65 days	365/6.5 = 56 days
Number of days inventory	365/4.2 = 87 days	365/4.0 = 91 days
Operating cycle	65 + 87 = 152 days	147 days (given)
Longer		
Cash conversion cycle	124 days (given)	147 − 36 = 111
Longer		

Therefore, both the operating and cash conversion cycles are longer for the company.

Q-23. Solution：C

The company would likely need more working capital to support the expected increase in required inventory and accounts receivable resulting from an increase in sale.

Q-24. Solution: C.

A "pull" on liquidity occurs when disbursements are made too quickly (e.g., current liabilities are paid instead of being held or when credit availability is reduced or limited). A "drag" on liquidity occurs when receipts lag (i.e., non-cash current assets do not convert to cash quickly). Consequently, a reduction in a credit line is a "pull" on liquidity.

Q-25. Solution: B

Trade credit and a bank line of credit are considered primary sources of liquidity. Liquidating inventory is a secondary source of liquidity.

Q-26. Solution: C

Interest coverage ratios are also commonly used to assess companies' debt capacities. Generally, these ratios provide an estimate of how many times a company can cover its interest expense (or interest expense plus lease payments) with current earnings (usually measured as EBIT or EBITDA). In other words, interest coverage ratios provide an indication of a company's financial cushion in meeting its debt service obligations. The larger the interest coverage ratio, the larger the financial cushion and the greater the company's ability to service its debt obligations.

It is a lower, not higher, current ratio that would indicate liquidity problems for a company, and hence a reduced debt capacity (i.e., ability to take additional debt). A starting point for determining a company's debt capacity is its current ratio, equal to current assets divided by current liabilities. The current ratio provides an indication of the ability of the firm to meet its short-term debt obligations. The higher the ratio, the greater the ability of the company to repay its debt.

A higher, not lower, leverage ratio would indicate a reduced debt capacity (i.e., ability for a company to take additional debt). Firms with higher proportions of debt in their capital structures face a higher probability of default and have less ability to service additional debt than underleveraged firms.

Q-27. Solution: C

Expansion projects typically involve greater uncertainty, time, and amounts of capital than going concern projects.

Q-28. Solution: B

Regulatory and compliance projects are required by third parties, such as government regulatory bodies, to meet safety and regulatory compliance standards. The investment in new technology to meet improved safety standards is therefore a compliance project.

Q-29. Solution: B.

All of the incremental cash flows arising from a project should be analyzed on an after-tax basis.
Only sunk costs should be ignored in a project's cash flow estimation, but not any externalities. Sunk costs cannot be recovered once they have been incurred. Externalities (both positive and negative ones) are the effects of an investment decision on other things beside the investment itself; they should therefore be included in the cash flow estimation.
Financing costs like interest costs are excluded from calculations of operating cash flows. The financing costs are reflected in the required rate of return for an investment project. If financing costs are included, we would be double-counting these costs.

Q-30. Solution: C.

Investments related to new products or services expose the company to even more uncertainties than expansion projects. These decisions are more complex and will involve more people in the decision-making process.
Replacement of worn out equipment is simply an improvement to the existing project with recurring revenues.
Investments related to new products or services expose the company to even more uncertainties than expansion projects. These decisions are more complex and will involve more people in the decision-making process.

Q-31. Solution: C

The given cash flows are inserted into a financial calculator along with the 10% discount rate: $CF_0 = -1{,}500$, $CF_1 = 300$, $CF_2 = 600$, $CF_3 = 1{,}000$, $CF_4 = 200$, $CF_5 = 500$, $CF_6 = 300$, $I = 10$. Computing NPV the result is 636.32 ~ **636**. Alternatively, the net present value of the project is found by discounting each cash flow by the time at which it arises, at the appropriate discount rate, as follows:

$$NPV = \frac{1500}{(1.10)^0} + \frac{300}{(1.10)^1} + \frac{600}{(1.10)^2} + \frac{1000}{(1.10)^3} + \frac{200}{(1.10)^4} + \frac{500}{(1.10)^5} + \frac{300}{(1.10)^6}$$
$$= 636.32 \sim 636$$

Q-32. Solution: B

The NPV at 15% is \$99.93. The NPV at 10% is –\$0.01. The NPV at 8% is –\$307.59.

Q-33. Solution: A

Since all of Bearing's projects have a positive NPV, they are all providing a return that is greater than the opportunity cost of capital. Therefore, the ROIC must be greater than the COC.

Q-34. Solution: A

Positive-NPV investments increase the wealth of the shareholders, while a negative NPV reduces wealth. Therefore, if a company has a large number of positive net present value investment opportunities, the company's market value will be greater than its book value.

Q-35. Solution: A

ROIC can be calculated using the following formula:

ROIC = (1 − Tax rate) × Operating profit/ Average invested capital

The denominator includes LT liabilities and equity.

ROIC = (1- 17%) × 3,890/[(9,880 +10,550 +15,090 + 16,220)/2] = 12.48%

Q-36. Solution: B.

While NPV and IRR criteria usually indicate the same investment decision, in the case of mutually exclusive investment projects, a company could face a decision between one project with a larger NPV and another with a higher IRR. If the company can invest in only one project, which should it choose? The correct choice is the project with the higher NPV. While NPV shows the firm's wealth increase in currency terms from a capital investment, the IRR solely indicates a project's rate of return (subject to the IRR reinvestment assumption) rather than its size or the period over which the IRR is earned. Therefore, the most appropriate decision is to invest in Project 2, which has a higher NPV.

Q-37. Solution: B.

The value of a company is the value of its existing investments plus the net present values of all of its future investments. The NPV of this new plant is £150 million – £100 million = £50 million. The price per share should increase by NPV per share or £50 million/100 million shares = £0.50 per share. As the new plant's profitability is less than expectations, the NPV per share (and hence the increase in the stock price) should therefore be slightly below £0.50 per share.

It is only new plant's profitability that is below the average not the overall. The company value should not fall below £15 per share, all things being equal.

Q-38. Solution: C.

The project described has a production-flexibility regarding the level of production. Other flexibility options might be to produce a different product or to use different inputs at some future date. Including the value of real options can improve the NPV estimates for individual projects.

Q-39. Solution: A

Sizing options encompass abandonment or expansion of capacity. If after investing the company can abandon the investment if the financial results are disappointing, it has an abandonment option. At some future date, if the cash flow from abandoning an investment exceeds the present value of the cash flows from continuing the investment, the company should exercise the abandonment option. Conversely, if the company can make additional investments when future financial results are strong, the company has a growth option or an expansion option.

Q-40. Solution: B.

An external analyst does not know a company's actual target capital structure. Consequently, the analyst should rely on market value (not book value) weights for the components of the company's current capital structure.

Q-41. Solution: B.

$$\text{WACC} = w_e \times r_e + w_{ps} \times r_{ps} = 90\% \times 12.5\% + 10\% \times \frac{5}{100} = 11.75\%$$

Q-42. Solution: A.

During the start-up stage a firm is un1ikely to have positive earnings and cash flows or significant assets that can be pledged as debt collateral, so firms in this stage are typically financed by equity only.

Q-43. Solution: A.

The optimal capital structure minimizes the firm's WACC and maximizes the firm's value (stock price).

Q-44. Solution: B

Because an increased ability to support debt is indicated by high revenue, low operating leverage, and greater fungible assets.

Q-45. Solution: C

In real estate, utilities, shipping, airlines, and certain other highly capital-intensive businesses, the underlying assets can be bought and sold fairly easily, tend to retain their value regardless of who owns them, and can therefore support substantial debt secured by those assets.

A mining company will be more likely to raise equity funding than debt funding. In cyclical sectors, such as mining and minerals, and many industrials, revenues and cash flows vary widely through the economic cycle, which limits debt capacity. As a result, businesses in cyclical sectors may have less debt in their capital structures than companies in other less cyclical industries.

A software company is, being capital light, less likely to need to raise debt than a shipping company which will likely need to make substantial debt-funded capital investments. Some business models are inherently "capital light," that is, they require little incremental investment in fixed assets or working capital to enable revenue growth. As a result, they have no need to borrow or otherwise raise capital to grow, even though they could easily support debt. Software businesses often fit this description.

Q-46. Solution: C.

MM's Proposition 1 (with no taxes) states that capital structure is irrelevant because the decrease in a firm's WACC from additional debt financing is just offset by the increase in WACC from a decrease in equity financing. The cost of debt is held constant and the cost of equity financing increases as the proportion of debt in the capital structure is increased.

Q-47. Solution: C.

0.10 = (0.50)(0.05)(1 – 0.20) + (0.50)re

re = 0.16 or 16 percent

Q-48. Solution: C.

If the company's WACC increases as a result of taking on additional debt, the company has moved beyond the optimal capital range. The costs of financial distress may outweigh any tax benefits to the use of debt.

Q-49. Solution: A.

Firm value $V_L = V_U + t \times d$

If the market value of a levered company is equal to the value of an unlevered company plus the value of the debt tax shield, then the following is true:

1. In the presence of taxes, a profitable company can increase its value (V) by using debt.
2. The higher the tax rate, the greater the benefit of using debt in the capital structure.

Q-50. Solution: B.

The static trade-off theory indicates that there is a trade-off between the tax shield from interest on debt and the costs of financial distress, leading to an optimal amount of debt in a company's capital structure.

Q-51. Solution: A.

Pecking order theory is based on information asymmetry and the resulting signals that different financing choices send to investors. It suggests that retained earnings are the first choice for financing an investment and issuing new equity is the least preferred choice.

Q-52. Solution: C.

While it is a useful theoretical concept, in practice determining an optimal capital structure based on the cost savings of debt and the expected costs of financial distress is not feasible. Because debt rating companies often use book values of debt, firms use book values of debt when choosing financing sources. It is common for firms to match debt maturities to the economic lives of specific investments.

Q-53. Solution: C

Detailed forecasts of revenue in expenses would be in a financial plan, but typically not in a business model. A firm's largest customers and information about its workforce and its value are likely elements of a business model.

Q-54. Solution: A

Economists use the term '**price discrimination**' when firms charge different prices to different customers. **Tiered pricing** charges different prices to different buyers, most commonly based on volume purchased.

Bundling refers to combining multiple products or services so that customers are incentivized, or required, to buy them together as opposed to offering the same product at different prices depending on the purchased volume. Bundling can be effective, particularly for products that are complementary, with high incremental margins and high marketing costs relative to the cost of the product itself. Examples include hotel rooms with free breakfast; furnished rental apartments; cable TV and internet services; pre-packaged sets of toys, tools, or kitchen utensils; and cloud-based software combining an application, processing power, storage, and support services.

Dynamic pricing charges different prices at different times [i.e., pricing is based on time of purchase as opposed to volume purchased; prices are not simultaneously adjusted based on the purchased volume]. Specific examples include off-peak pricing (e.g., for hotel rooms, advertising, airline tickets, electricity, or matinee movie tickets), 'surge' pricing, and 'congestion' pricing (e.g., for ride sharing and toll roads).

Q-55. Solution: C

Contract manufacturers produce goods to be marketed by others.

Value added resellers not only distribute a product but also handle more complex aspects of product installation, customization or support.

Licensing arrangements are business models in which a company will produce a product using someone else's brand name in return for a royalty.

Q-56. Solution: C

Penetration pricing is an example of discount pricing and is used when a firm willingly sacrifices margins in order to build scale and market share.

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Freemium pricing allows customers a certain level of usage or functionality at no charge—for example, with news content, a software application, or a game. This model is widely used in digital content and services, such as periodicals, video games, software/apps, and cloud storage, where the provider stands to benefit from wide adoption (often via network effects).

Q-57. Solution: B

A **supply chain** refers to the sequence of processes involved in the creation of a product, both within and external to a firm. A supply chain includes all the steps involved in producing and delivering a physical product to the end customer, regardless of whether those steps are performed by a single firm.

A firm's **value chain** is the systems and processes within a firm that create value for its customers. Note that a firm's value chain is different from a **supply chain**, which refers to the sequence of processes involved in the creation of a product, both within and external to a firm.

There is no precise definition, but a business model essentially describes how a business is organized to deliver value to its customers. A business model makes it clear what the business does, how it operates, and how it generates revenue and profits, as well as how it differs in these respects from its competitors. A business model should have a value proposition and a value chain. So, business model is a broader concept, which includes value chain but also other business organization elements.

Q-58. Solution: A

A firm's value chain refers to how a firm structures its systems and processes to create value for its customers.

A supply chain includes all the steps involved in producing and delivering a physical product to the end customer, regardless of whether those steps are performed by a single firm.