

CFA Level I 公司金融知识点整理

Corporate Governance and ESG: An Introduction

a. describe corporate governance;

Corporate governance is the system of internal controls and procedures by which individual companies are managed.
通过一系列的机制最小化利益相关者之间的利益冲突。

b. describe a company's stakeholder groups and compare interests of stakeholder groups;

1. 公司的利益相关者与股东的区别。利益相关者包括股东但不仅限于股东，它主要包括股东、债权人、管理层与普通员工、董事会、客户、供货商、政府类的监管机构等
2. 这些利益相关之间会产生利益冲突。

c. describe principal-agent and other relationships in corporate governance and the conflicts that may arise in these relationships;

1. 委托人与代理人关系问题。代理人（管理层）出于自身利益的考虑，有可能不完全站在委托人（股东）的利益角度来管理公司。
2. 利益冲突
 - a) Shareholder vs. Manager/Director
 - b) Controlling shareholder vs. Minority Shareholder
 - c) Manager vs. Board
 - d) Shareholder vs. Creditor
 - e) Customer vs. Shareholder
 - f) Customer vs. Supplier



g) Shareholders vs. Government/Regulator

d. describe stakeholder management;

1. 明确和了解利益相关者它们各自的利益与角色，维持好它们之间的关系。

e. Describe mechanisms to manage stakeholder relationships and mitigate associated risks;

1. General Meetings
2. Board of Director Mechanism
3. The Audit Function
4. Reporting and Transparency
5. Policies on Related-Party Transactions
6. Remuneration Policies
7. Say on Pay
8. Contractual Agreements with Creditors
9. Employee Laws and Contracts
10. Contractual Agreements with Customers and Suppliers
11. Laws and Regulations

f. describe functions and responsibilities of a company's board of directors and its committees;

1. 董事会两个主要的职能：duty of care 和 duty of loyalty
2. 董事会下属的委员会包括：audit committee、governance committee、remuneration or compensation committee、nominations committee、risk committee、investment committee。



g. describe market and non-market factors that can affect stakeholder relationships and corporate governance;

1. market factors: Shareholder engagement、Shareholder activism、Competition and takeover
2. non-market factor: Legal environment、Media、Corporate governance industry

h. identify potential risks of poor corporate governance and stakeholder management and identify benefits from effective corporate governance and stakeholder management;

1. Risks of poor governance and stakeholder management
 - a) Weak control systems
 - b) Ineffective decision making
 - c) Legal, regulatory, and reputational risk
 - d) Default and bankruptcy risks
2. Benefits of effective governance and stakeholder management
 - a) Operational efficiency
 - b) Improved control
 - c) Better operating and financial performance
 - d) Lower default risk and cost of debt

i. describe factors relevant to the analysis of corporate governance and stakeholder management;

1. Economic ownership and voting control
2. Board of directors representation
3. Remuneration and company performance
4. Investors in the company
5. Strength of shareholder's rights
6. Managing long-term risks

- j. describe environmental and social considerations in investment analysis;

做投资分析的时候，还应该考查环境性与社会性的因素。

- k. describe how environmental, social, and governance factors may be used in investment analysis.

1. Negative screening: 剔除某些公司
2. Positive screening: 找出考虑了 ESG factor 的公司
3. Best-in-class approach: 找出最好的
4. Thematic investing: 考虑能源与环境因素
5. Impact investing: 考虑社会性与环境性的影响因素

Capital Budgeting

- a. describe the capital budgeting process and distinguish among the various categories of capital projects;

1. The capital budgeting process is used to determine and select (the most) profitable long-term (greater than one year) projects.
2. Replacement projects 、 Expansion projects、 New products and services、 Regulatory, safety and environmental projects (mandatory projects)、 Other projects: pet projects, R&D

- b. describe the basic principles of capital budgeting;

1. Decisions are based on cash flows, not accounting net income.
2. Timing of cash flow is crucial.

3. Cash flows are based on opportunity costs.
4. Cash flows are analyzed on an after-tax basis.
5. Financing costs are ignored.

c. explain how the evaluation and selection of capital projects is affected by mutually exclusive projects, project sequencing, and capital rationing;

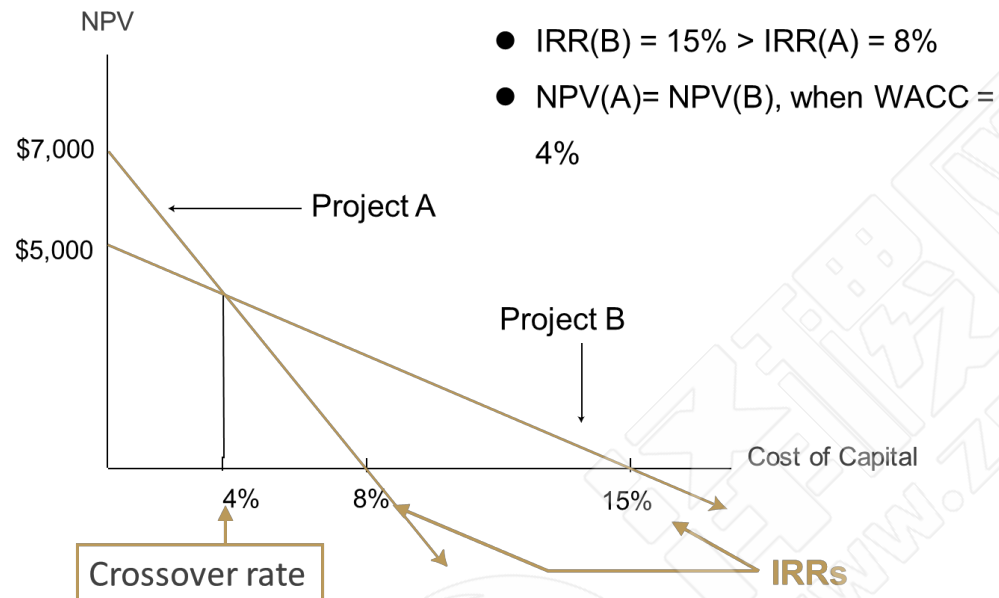
1. mutually exclusive projects, 互斥项目, 两个项目不能同时进行。
2. project sequencing, 如果盈利情况好, 项目一个接着一个做。
3. capital rationing, 当只有有限的资金时, 要使得总的公司价值最大化。



- d. calculate and interpret net present value (NPV), internal rate of return (IRR), payback period, discounted payback period, and profitability index (PI) of a single capital project;

Net Present Value (NPV)	NPV = present value of future after-tax cash inflows minus the investment outlay.	Accept if NPV > 0 Reject if NPV < 0
Internal Rate of Return (IRR)	IRR = the discount rate which gives NPV = 0	Accept if IRR > required rate of return for a project
Payback / Discounted payback period	Number of years to recover the investment cost	Payback period has many flaws; should use NPV or IRR
Average Accounting Rate of Return (AAR)	$\text{AAR} = \frac{\text{Average net income}}{\text{Average book value}}$	AAR based on accounting data, not cash flow; also ignore time value of money
Profitability Index (PI)	$\text{PI} = \frac{\text{PV of future cash flows}}{\text{Initial investment}}$ $= 1 + \frac{\text{NPV}}{\text{Initial investment}}$	Accept if PI > 1 Reject if PI < 1

- e. explain the NPV profile, compare the NPV and IRR methods when evaluating independent and mutually exclusive projects, and describe the problems associated with each of the evaluation methods;



- 1.
 2. 对于独立项目，NPV 与 IRR 的结果是一致的。
 3. 对于互斥项目，NPV 与 IRR 可能会有冲突。
 - a) 项目的规模不同 (CF_0)
 - b) 现金流注入的时间点不同
 4. 当现金流符号改变超过一次，可能产生多个 IRR 和没有 IRR 的问题。
- f. describe expected relations among an investment's NPV, company value, and share price.
1. NPV 为正可以增加股东价值，公司股价增加。

Cost of Capital

- a. calculate and interpret the weighted average cost of capital (WACC) of a company;

$$WACC = w_d r_d (1 - t) + w_p r_p + w_e r_e$$

- b. describe how taxes affect the cost of capital from different capital sources;

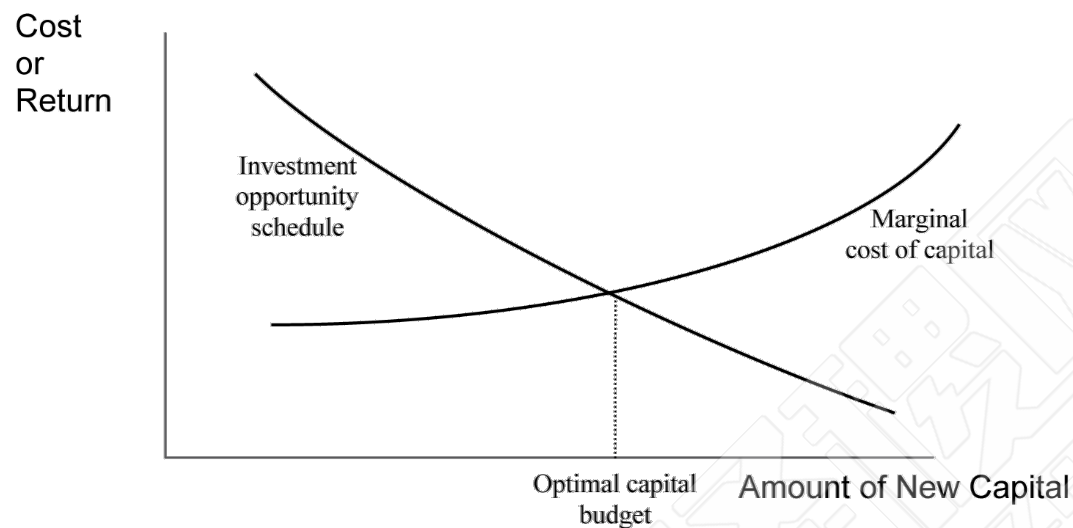
- 1. 由于税盾作用, $r_d (1 - t)$ 后面不要忘记乘以 $(1 - t)$

- c. describe the use of target capital structure in estimating WACC and how target capital structure weights may be determined;

- 1. 在计算 WACC 的时候, 我们优先使用公司的目标资本结构。如果找不到目标资本结构, 可以使用当前的资本结构, 基于市值进行计算。



- d. explain how the marginal cost of capital and the investment opportunity schedule are used to determine the optimal capital budget;



- e. explain the marginal cost of capital's role in determining the net present value of a project;

在计算 NPV 的时候，WACC 作为公司的资本成本。

- f. calculate and interpret the cost of debt capital using the yield-to-maturity approach and the debt-rating approach;

$$\text{YTM approach: } P_0 = \frac{PMT_1}{(1+\frac{r_d}{2})} + \frac{PMT_2}{(1+\frac{r_d}{2})^2} + \dots + \frac{PMT_n}{(1+\frac{r_d}{2})^n} + \frac{FV}{(1+\frac{r_d}{2})^n}$$

Debt-rating approach: 使用相似评级、相似期限的债券收益率作为债务税前成本的参考。

g. calculate and interpret the cost of noncallable, nonconvertible preferred stock;

$$r_p = \frac{D_p}{P}$$

h. calculate and interpret the cost of equity capital using the capital asset pricing model approach, the dividend discount model approach, and the bond-yield-plus risk-premium approach;

CAPM: $r_e = E(R_i) = R_f + \beta [E(R_{mkt}) - R_f]$

DDM: $r_e = \frac{D_1}{P_0} + g$

bond-yield-plus risk-premium: $r_e = \text{bond yield} + \text{Risk premium}$

i. calculate and interpret the beta and cost of capital for a project;

a. Select the comparable.

b. Estimate the comparable's beta. B_{equity}

c. Unlever the comparable's beta.

$$\beta_{\text{asset}} = \beta_{\text{equity}} \left\{ \frac{1}{1 + [(1-t)\frac{D}{E}]} \right\}, \text{ D/E, t = comparable company's debt-to-equity ratio and its marginal tax rate.}$$

d. Lever the beta to reflect the project's financial leverage.

$$\beta_{\text{project}} = \beta_{\text{asset}} \left\{ 1 + [(1-t')\frac{D'}{E'}] \right\}, \text{ D'/E', t' = target's debt-to-equity ratio and its marginal tax rate.}$$

j. describe uses of country risk premiums in estimating the cost of equity;

$$r_e = E(R_i) = R_f + \beta [E(R_{mkt}) - R_f + \text{CRP}]$$

注意 CRP 是加在括号里面的。

- k. describe the marginal cost of capital schedule, explain why it may be upward-sloping with respect to additional capital, and calculate and interpret its break-points;

$$\text{Break point} = \frac{\text{Amount of capital at which the component's cost of capital changes}}{\text{Weight of the component in the capital structure}}$$

- l. explain and demonstrate the correct treatment of flotation costs.

1. 筹资费用应该在期初扣减。
2. $NPV = (CF_0 - \text{flotation costs}) + \text{PV of } CF_1 + \text{PV of } CF_2 + \dots + \text{PV of } CF_n$

Measures of Leverage

- e. define and explain leverage, business risk, sales risk, operating risk, and financial risk and classify a risk;

1. 杠杆会增加公司现金流及盈利的波动性，增加公司的风险。杠杆是由于固定成本的存在而产生的，fixed operating cost 产生了 DOL，而 fixed financing cost 产生了 DTL。
2. 风险主要分为 business risk 与 financial risk，而 business risk 又包括了 sales risk 与 operating risk。
 - a) 销售风险 (Sales risk) 是指公司产品价格与销量的不确定性。
 - b) 经营性风险 (Operating risk) 是指其它因素使得经营收入产生不确定性，主要为固定的经营性费用导致。
 - c) 固定费用相比可变费用所占比重越大，公司的经营性风险也越大。

- f. calculate and interpret the degree of operating leverage, the degree of financial leverage, and the degree of total leverage;

$$\text{DOL} = \frac{\text{Percentage change in operating income}}{\text{Percentage change in units sold}}$$
$$\text{DOL} = \frac{Q(P-V)}{Q(P-V)-F}$$

$$DFL = \frac{\text{Percentage change in net income}}{\text{Percentage change in operating income}}$$

$$DFL = \frac{Q(P-V)-F}{Q(P-V)-F-C}$$

$$DTL = \frac{\text{Percentage change in net income}}{\text{Percentage change in the number of units sold}}$$

$$DTL = DOL \times DFL = \frac{Q(P-V)}{Q(P-V)-F-C}$$

g. analyze the effect of financial leverage on a company's net income and return on equity;

1. 利用债务融资产生的利息费用会降低净利润。
2. 财务杠杆可能会增加公司的违约风险，但却可以增加 ROE。

h. calculate the breakeven quantity of sales and determine the company's net income at various sales levels;

1. 盈亏平衡点, Q_{BE} , 使得公司净利润为零的销售量。(销售收入等于总成本)
2. $Q_{BE} = \frac{\text{the fixed operating costs} + \text{the fixed financing costs}}{\text{the price per unit} - \text{the variable cost per unit}} = \frac{F + C}{P - V}$

i. calculate and interpret the operating breakeven quantity of sales.

$$1. Q_{OBE} = \frac{F}{P - V}$$

Working Capital Management

a. describe primary and secondary sources of liquidity and factors that influence a company's liquidity position;

1. 注意区分流动性的主要来源与次要来源。
2. Primary source 为公司以较低成本获得最易得的资金，例如，银行账户里的现金及短期比较容易变现的资金。
3. Secondary source 可能意味着公司的不良财务状况，获得流动性的成本较高。例如，
 - a) Negotiating debt contracts.
 - b) Liquidating assets.
 - c) Filing for bankruptcy protection and reorganization.

b. compare a company's liquidity measures with those of peer companies;

注意掌握几个衡量流动性比率的财务指标

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$
$$\text{Quick ratio} = \frac{\text{cash} + \text{short-term marketable securities} + \text{receivables}}{\text{current liabilities}}$$

$$\text{Receivables turnover} = \frac{\text{credit sales}}{\text{average receivables}}$$

$$\text{Number of days of receivables} = \frac{365}{\text{receivables turnover}}$$

$$\text{Inventory turnover} = \frac{\text{cost of goods sold}}{\text{average inventory}}$$

$$\text{Number of days of inventory} = \frac{365}{\text{inventory turnover}}$$

$$\text{Payables turnover} = \frac{\text{purchases}}{\text{average trade payables}}$$

$$\text{Number of days of payables} = \frac{365}{\text{payables turnover}}$$

c. evaluate working capital effectiveness of a company based on its operating and cash conversion cycles and compare the company's effectiveness with that of peer companies;

1. Operating cycle = number of days of inventory + number of days of receivables
2. Net operating cycle (cash conversion cycle) = number of days of receivables + number of days of inventory – number of days of payables

d. describe how different types of cash flows affect a company's net daily cash position;

1. 现金管理的目标是 net daily cash position 不为负。
2. 主要的现金注入和支出。

Inflows	Outflows
Receipts form operations, broken down by operating unit, departments, etc.	Payables and payroll disbursements, broken down by operating unit, departments, etc.
Funds transfers form subsidiaries, joint ventures, third parties	Funds transfers to subsidiaries
Maturing investments	Investments made
Debt proceeds (short and long term)	Debt repayments
Other income items (interest, etc.)	Interest and dividend payments
Tax refunds	Tax payments

- e. calculate and interpret comparable yields on various securities, compare portfolio returns against a standard benchmark, and evaluate a company's short-term investment policy guidelines;

$$\text{Percentage discount from face value (\% discount)} = \frac{\text{face value} - \text{price}}{\text{face value}}$$

$$\text{Holding period yield} = \frac{\text{face value} - \text{price}}{\text{price}}$$

$$\text{Money market yield} = \frac{\text{face value} - \text{price}}{\text{price}} \times \frac{360}{\text{days}}$$

$$\text{Bond Equivalent Yield} = \frac{\text{face value} - \text{price}}{\text{price}} \times \frac{365}{\text{days}}$$

$$\text{Discount-basis yield} = \frac{\text{face value} - \text{price}}{\text{face value}} \times \frac{360}{\text{days}} = \% \text{ discount} \times \frac{360}{\text{days}}$$

- f. evaluate a company's management of accounts receivable, inventory, and accounts payable over time and compared to peer companies;

对应收账款、存货及应付账款的管理

1. 应收账款的管理主要参考账龄分析表及应收账款周转天数。
2. 存货的管理主要参考存货周转率与存货周转天数。
3. 应付账款的管理主要参考应付账款周转天数。
 - a) 应付账款的管理需要充分利用 trade discount, 2 / 10 net 60, 如果在 10 天之内付款, 可以享受 2% 的折扣。如果公司没有采用这种付款方式, 则应该在 60 天之内付全款。

- g. evaluate the choices of short-term funding available to a company and recommend a financing method.

公司短期筹资来源有哪些?

1. 对于信用水平较好的大公司主要的方式有
 - a) Uncommitted line of credit
 - b) Committed (regular) line of credit
 - c) Revolving line of credit
2. 小公司及信用状况不良的公司可以使用非银行途径的筹资方式。

3. 信用良好的大公司可以发行商业汇票进行债务性融资。

