

# 2024 年 CFA 一级

## ——Corporate Issuers 学习笔记

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### 科目框架:

Module 1: Corporate Structures and Ownership (☆)	定性了解公司基本情况
Module 2: Investors and Other Stakeholders (☆)	
Module 3: Corporate Governance (☆☆)	
Module 7: Business Models (☆)	
Module 4: Working Capital and Liquidity (☆☆☆)	定量: 营运资本(短期);
Module 5: Capital Investments and Capital Allocation (☆☆☆)	长期投资; 长期融资
Module 6: Capital Structure (☆☆☆)	

## Module 1: Corporate Structures and Ownership (☆)

### 1. 企业的组织结构

- 企业 businesses 不等同于公司 Corporations, 企业 > 公司

	Sole Proprietors 独资企业 (个体经营者)	合伙制企业 (至少有一个 GP)		Corporations 公司
		General Partnership 普通合伙	Limited Partnership 有限合伙 (例如: 对冲基金)	
Legal Relationship	No			Yes
Owner-Operator Relationship	Owned and operated by the owner	Owned and operated by all partners	Owned by general partners(GP) and limited partners(LP); operated by GP	Owned by shareholders, operated by managers
Business Liability	Unlimited 无限责任		Unlimited for GP 无限责任; Limited for LP 有限责任	Limited for Shareholders
Taxation	Pass-through: Personal tax 个人所得税			✓ Corporation tax ✓ Personal tax
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

### 2. Key features of corporate issuers

- Legal Identity
- Owner-manager Separation
  - ✓ A key feature of most corporations is the separation between those who **own the business (the shareholders)** and those who operate it, as represented by the **board of directors and management**
  - ✓ 现代公司一个显著特征: 所有权和管理权的分离【正因为此, 才会有委托代理问题】
- Owner / Shareholder Liability
  - ✓ Risk is shared among all shareholders, who face limited liability. 【股东承担风险, 但是是以出资额为限, 即股东最大损失是其出资额】
- External Financing

- ✓ 可以通过发行债券、股票融资
- Taxation
  - ✓ 双重征税 double taxation: 企业所得税和个人所得税 (分红)

### 3. private company & public company

非上市公司 <b>private company</b>	上市公司 <b>public company</b>
<ul style="list-style-type: none"> <li>● 不能在交易所交易, 股份很难转让</li> <li>● 都需要符合监管要求</li> <li>● 通过非公开发行(private placement)</li> <li>● 对象为受认可的投资者(credited investors )</li> </ul>	<ul style="list-style-type: none"> <li>● 交易所交易, 易于转让股份</li> <li>● 不仅要符合监管要求, 还要满足交易所的一些要求</li> <li>● 发行股份: IPO 和后续的增发</li> </ul>

非上市公司转为上市公司	上市公司转为非上市公司
Initial Public Offering (IPO) 首次公开发行	"take-private" or "go-private" 私有化
Direct Listing (DL): 直接上市 DL 不同于 IPO <ul style="list-style-type: none"> <li>• No investment bank involved</li> <li>• No new capital is raised</li> <li>• 好处: more quickly and at a lower cost</li> </ul>	
Acquisition 兼并收购, 例如借壳上市	

## Module 2: Investors and Other Stakeholders (☆)

### 1. Debt Versus Equity: Risk and Return

#### ✓ Investor perspective 投资者角度

	Equity	Debt
Tenor 期限	Indefinite 没有到期时间	Term (e.g., 3 months)
Return Potential 潜在回报	Unlimited 收益上不封顶	Capped 收益封顶
Maximum Loss 最大损失	Initial Investment 初始投资额	
Investment Risk 投资风险	Higher 风险更高	Lower 风险更低
Desired outcome	Maximize firm value	Timely repayment

#### ✓ Issuer perspective 企业角度

	Equity	Debt
Capital Cost 融资成本	Higher 更高	Lower 更低
Attractiveness	If future performance is not predictable	If future performance is predictable
Investment Risk	Lower,不能强制清算	Higher, adds leverage risk 杠杆风险大
Investment interest	Max (Net assets – Liabilities)	Debt repayment

### 2. Stakeholder Groups 企业利益相关者

#### ● 包括

- ✓ Shareholders 股东; Board of directors 董事会; Managers and employees 管理层和员工; Creditors 债权人; Suppliers 供应商; Customers 客户; Government 政府等

#### ● Corporate governance theories 公司治理理论

- ✓ **Shareholder theory 股东理论**: the most important responsibility of a company's managers to maximize shareholder value. 公司管理者最重要责任是实现股东价值最大化
- ✓ **Stakeholder theory 利益相关者理论**: consider the interests of not only its shareholders, but also its customers, suppliers, employees, and others who have an interest in the company. 不仅要考虑其股东的利益, 还要考虑其客户、供应商、员工以及与公司有利益关系的其他人的利益

### 3. ESG Considerations

#### ● ESG integration/ESG investing

- ✓ The practice of considering **e**nvironmental, **s**ocial, and **g**overnance factors in the investment process,
- ESG considerations are of increasing importance for three reasons:
  - ✓ 1. The material financial impact of ESG factors on corporate issuers has risen. ESG 因素对公司发行人的重大财务影响有所上升。由于环境灾难、社会争议和治理缺陷, 股东和债券持有人都遭受了巨大损失。
  - ✓ 2. Interest in the environmental and social impacts of investments has grown。
  - ✓ 3. As government stakeholders continue to prioritize climate change and social policies, revised regulations are forcing corporate issuers to adapt their business practices to meet more stringent ESG criteria. 【政府要求】
- key ESG factors
  - ✓ **Environmental** 环境
    - Climate change considerations are often framed as either **physical risks or transition risks**.
    - Physical risks 物理风险 include damage to or destruction of assets by severe weather
    - Transition risks 转型风险 are losses related to the transition to a lower-carbon economy, which may result from regulations or shifting consumer demand.
    - ◆ stranded assets 搁浅资产, 与转型风险有关

<b>Environmental</b> 环境 Conservation of the natural world 保护自然世界	<b>Social</b> 社会 Consideration of people and relationships 对人和关系的考虑	<b>Governance</b> 治理 Standards for running a company 经营公司的标准
■ Climate change	■ Customer satisfaction	■ Board composition
■ Air and water pollution	■ Data protection and privacy	■ Audit committee structure
■ Biodiversity	■ Gender and diversity	■ Bribery and corruption
■ Deforestation	■ Employee engagement	■ Executive compensation
■ Energy efficiency	■ Community relations	■ Lobbying
■ Waste management	■ Human rights	■ Political contributions
■ Water scarcity	■ Labor standards	■ Whistleblower schemes

## Module 3: Corporate Governance (☆☆)

### 1. 基本概念

- 公司治理(Corporate Governance)是一种制衡和激励机制,旨在最大限度地减少和管理公司利益相关者 **stakeholders** 之间的利益冲突。

### 2. Stakeholder conflicts

- **Principal-agent relationship** (agency relationship) 委托代理关系: is created when a **principal** hires an **agent** to perform a particular task or service.
  - ✓ **Principal** 委托人: 股东; **agent** 代理人: 董事会/管理层
  - ✓ 委托代理问题:代理人为了自身利益做出有损于委托人利益的行为,原因在于委托人和代理人利益不完全一致,且委托人处于信息劣势,不能对代理人进行全面监督。
  - ✓ 代理成本 (agency costs) 指为了解决委托代理问题所发生的成本。
- 利益冲突:
  - 1) Shareholder, Board Director, and Manager
    - ✓ Manager and shareholder interests may diverge in the following common ways:
      - Insufficient effort 努力不足.
      - Inappropriate risk appetite.
        - ✧ Compensation **dominated by stock grants and options** can motivate excessive management **risk-taking**
        - ✧ **little or no use of stock grants and options** in compensation plans can lead to unduly **risk-averse** corporate decision-making
      - Empire building 帝国大厦.【管理层只追求企业规模】
      - Entrenchment.【管理层为了保留住工作,复制同行业务,避免承担风险】
      - Self-dealing.【追求自我享乐,比如豪华办公条件】
  - 2) Controlling and Minority Shareholder 控股和少数股东
    - ✓ Corporate ownership is generally classified as dispersed 分散所有权 or concentrated 集中所有权.
    - ✓ 控股和少数股东利益有时不一致
    - ✓ **dual-class structure** 双层股权结构: 把股票分为两类 Class A 和 Class B, 其投票权是不一样的。
      - A dual-class structure allows certain stakeholders to effectively control the company even if they do not hold most of the shares outstanding.
  - 3) Shareholder versus Creditor Interests
    - ✓ The difference in debt versus equity claims gives rise to potential conflicts of interest.【在一定情况下,股东愿意承担风险,而债权人不愿意承担风险】

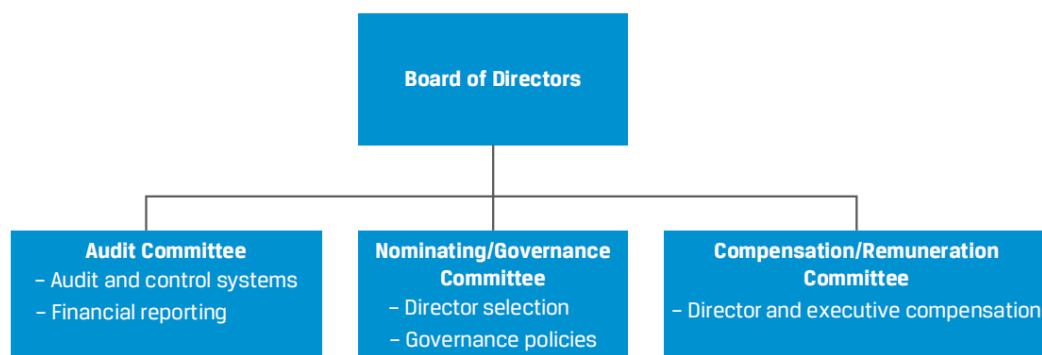
### 3. 公司治理和利益相关者风险管理机制

不同利益相关者群体的利益存在差异, 公司治理和利益相关者管理实践, 试图最大限度地减少潜在的利益相关者冲突和组织风险。

#### ● Shareholder mechanisms 股东机制

- ✓ Corporate Reporting and Transparency 公司报告和透明度
- ✓ Shareholder meetings 股东大会
  - ✧ Annual general meeting (AGM, 年度股东大会)
  - ✧ Extraordinary general meeting (EGM, 临时股东大会)
  - ✧ Proxy voting 代理投票: authorize another to vote 授权他人投票
  - ✧ Voting process 投票过程
    - ◆ Straight voting 直接投票 vs. Cumulative voting 累积投票
  - ✧ Unequal voting rights 不平等投票权: Dual-share classes 双重股份类别
- ✓ Shareholder activism 股东积极主义 (e.g., hedge funds): 股东积极影响公司的经营
- ✓ Shareholder Litigation (Shareholder derivative lawsuits) 股东诉讼: 通过法律手段替换掉管理层
- ✓ Corporate takeovers 公司收购
  - Proxy fight 代理权竞争/代理权争夺: 在公司董事会中占据控制地位的团体试图说服股东投票给该团体。
  - Tender offers 要约收购: 邀请股东将其权益直接出售给寻求控制权的集团
  - Hostile takeover 敌意收购: 指未经公司管理层同意而试图收购公司的行为

#### ● Board of director and management mechanisms



#### ● Employee mechanisms

#### ● Creditor mechanisms

- ✓ Bond indenture 债券契约(e.g., covenants, collaterals)
- ✓ Creditor committees

■ ad hoc committee 特设委员会

- Customer and supplier mechanisms
- Government mechanisms
  - ✓ Laws & regulations
    - Common law (better protection for equity & debtholders)
    - Civil law
  - ✓ Corporate governance codes as guiding principles

#### 4. Corporate Governance Risks and Benefits

Risks of poor governance	Effective governance benefits
● Weak control systems	● Improved control systems
● Legal, regulatory, and reputational risks	● Better operating and financial performance
● Default and bankruptcy risks	● Lower default risk and cost of debt
● Poor decision making, improperly avoiding investments that create shareholder value	● Enhanced valuation & stock performance



## Module 4: Working Capital and Liquidity (☆☆☆)

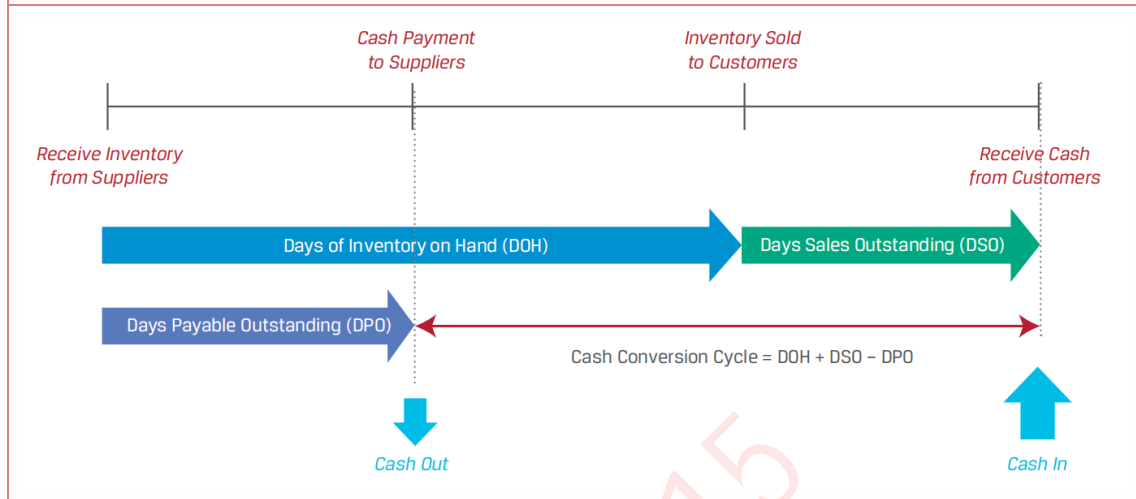
【这个 Module 主要集中在短期资产和短期负债的分析, 即一年内导致现金流入或流出的资产和负债。短期资产和负债是发行人产生现金流能力的关键决定因素, 资产和负债的时间和流动性之间的不匹配可能会对公司产生灾难性影响。因此应密切关注发行人的现金转换能力和流动性。】

### 1. Cash conversion cycle 现金转换周期

- 【关于各个周转率和周转天数的相关知识, 在 2024 年的考纲中, 主要出现在财务 (Financia Statement Analysis) 这个科目中 (公司发行人这个科目没咋出现)。我这里把这块知识补充在这里。】

Turnover 周转率	Number of Days 周转天数
<p>存货周转率</p> <p><b>Inventory turnover=COGS /Average inventory</b></p> <p>商品还没有卖出去是在 B/S 的 inventory, 卖出去后结转到 I/S 的 COGS。</p> <p>衡量企业存货的变现速度; <b>越大越好</b>。</p>	<p>存货周转天数 Days of inventory on hand</p> <p><b>DOH=365/Inventory turnover</b></p> <p>指的是从产生存货到卖出存货平均需要的天数。</p> <p>DOH 过长, 表公司存货可能是过时的或不合时宜的。DOH 过短, 可能意味存货不足。</p>
<p>应收账款周转率</p> <p><b>Receivable turnover=Revenue /Average receivable</b></p> <p>Revenue 严格上指的是赊销的</p> <p>指的是一年内应收账款转为现金的平均次数, 即应收账款的变现速度。</p> <p>越大越好</p>	<p>应付账款周转天数 Days of sales outstanding</p> <p><b>DSO=365 /Receivable turnover</b></p> <p>DSO 又称<b>收账期</b> collection period, 指从应收帐款的产生到收到现金的平均天数。</p> <p>DSO 高, 说明平均收账期越短, 企业的应收账款回收的快; DSO 低, 会严重影响企业资金的正常周转。</p>
<p>应付账款周转率</p> <p><b>Payable turnover= purchase /average payable</b></p> <p>Purchase 指的是赊购</p> <p>【期初存货 inventory+Purchase-COGS=期末存货】</p> <p>指应付账款在一定期间内的周转次数。</p> <p><b>越小越好</b></p>	<p>应付账款周转天数</p> <p><b>Number of days payables=365 /payable turnover</b></p> <p>也叫 <b>days payable outstanding (DPO)</b></p> <p>也叫付款周期(average payment period), 指应付账款从发生到因被支付平均经历的天数。</p> <p>若公司应付账款周转率<b>低于</b>行业平均水平, 说明公司可更多占用供应商的货款, 但同时也要承担较大还款压力, 反之亦然。</p>
<p>✓ <b>Operating cycle 经营周期</b></p> <p>✧ For a company that makes and sells physical goods, its operations include acquiring materials, producing inventory, selling products to customers, and collecting cash.</p> <p>【从购买存货——完成加工、出售——取得货款的周期。】</p> <p>■ <b>Operating cycle = DOH + DSO</b></p>	
<p>✓ <b>Cash conversion cycle 现金转化周期 (CCC)</b></p>	

- ✧ the amount of time between an issuer's paying its suppliers and receiving cash from customers (i.e., the time between derecognition of accounts payable and derecognition of accounts receivable) 【从支付存货资金（花钱）——取得货款（收钱）的周期。
- ✧ 也叫 net operating cycle
- ✧ **Cash conversion cycle= DOH + DSO-DPO**



- **CCC 性质**
  - ✓ **A lower CCC is generally better** as it indicates that a company can generate cash quickly and efficiently, meaning that less of the company capital is devoted to working capital. 【通常 CCC 越低越好，表明公司可以快速有效地产生现金，意味着公司用于营运资本的资本越少。】
  - ✓ A high CCC may indicate that a company is taking longer to convert its investments into cash, which could lead to cash flow problems and potentially limit the company's ability to invest in growth opportunities 【CCC 较高，可能表明公司转化为现金的时间较长，这可能会导致现金流问题，并可能限制公司未来的增长机会】
- **减少 CCC 的方法：**
  - ✓ 减少库存天数。比如
  - ✓ 减少应收账款周转天数。比如 offering prompt-payment discounts to customers 向客户提供即时付款折扣
  - ✓ 增加应付账款周转天数。比如延长与供应商合同期限
- **discounts for prompt payment 及时付款折扣**
  - ✓ 是一种为了促使对方及时付款的贸易折扣方式。
  - ✓ **2/10, net 30**：表示正常情况下 30 天内付款，如果在前 10 天付款可以享受 2% 的折扣。
  - ✓ 如果选用这种贸易折扣方式，带来的好处用 EAR（有效年利率）表示

$$EAR = \left[ \left( 1 + \frac{\text{discount}\%}{100\% - \text{discount}\%} \right)^{\frac{\text{days in Year}}{\text{Payment period} - \text{discount period}}} \right] - 1$$

- ✓ 原版书例子: An issuer is comparing a bank loan at a rate of 15% with taking advantage of a supplier's terms of 1/14, net 30, paying on day 14. The best decision in terms of the lower cost of financing is to:
- A. forgo the discount and use the supplier's financing to pay on day 30.
  - B. borrow from the bank to take advantage of the trade credit terms.
  - C. use either option because the cost of the bank loan and the cost of the trade credit are identical.

**Solution:**

B is correct.

The cost of the supplier's trade credit, expressed as an effective annual rate, is 25.769%, which is higher than the 15% interest rate on the bank loan.

$$EAR = \left[ \left( 1 + \frac{1\%}{100\% - 1\%} \right)^{\frac{365}{30-14}} \right] - 1 = 25.769\%$$

A and C are incorrect, because the bank loan rate of 15% is lower than the effective annual rate, 25.769%, on the supplier's trade credit.

## 2. Liquidity

- Liquidity for an individual asset or liability is its nearness to cash or settlement. 【流动性指的是变现能力】
- 企业的流动性, 指的是短期偿还债务的能力。
- Liquidity management(流动性管理) refers to the company's ability to generate cash when needed, at the lowest possible cost. 指公司在需要时以尽可能低的成本获得现金的能力。

### 1) Sources of liquidity 流动性的来源

- Primary source of liquidity (主要流动性来源): cash from day-to-day operations. 日常运营产生的现金。 【常规操作】
  - ✓ Cash and marketable securities on hand 现金和有价证券
  - ✓ Borrowings, from banks, bondholders, or suppliers' trade credit.
  - ✓ Cash flow from the business 业务产生的现金流
- Secondary sources of liquidity (次要流动性来源): using a secondary source may change the company's financial and operating positions 使用次要流动资金可能会改变公司的财务和经营状况 【非常规操作-伤筋动骨】
  - ✓ ■ Delaying or reducing capital expenditures. 【延迟或减少资本支出。资本支出指的是长期投资, 比如购买机器设备等】
  - ✓ ■ Issuing equity. While equity issuance provides cash, it comes at the cost of dilution for existing shareholders. 【虽然股权发行提供了现金, 但它是以稀释现有股东为代价的。】

- ✓ ■ Renegotiating contract terms. 【重新协商合同条款, 例如在利息、租金和/或租赁付款方面寻求优惠】
- ✓ ■ Selling assets
- ✓ ■ Filing for bankruptcy protection and reorganization. 【申请破产保护和重组】

【考试中通常是辨析是哪种流动性来源】

## 2) Drags and pulls on liquidity

影响流动性的两大因素——都会降低企业现金头寸

【考虑个人, 没钱的原因通常是入不敷出, 即收得少, 花得多。】

- Drags on liquidity (“拖动”影响): delay, reduce cash inflows, or increase borrowing cost

特征: “收得少”

- ✧ Uncollected receivables 应收账款收不回来;
- ✧ obsolete inventory 存货滞销;
- ✧ Borrowing constraints. 借款限制。如果信贷条件因不利的经济条件而收紧, 短期债务就会变得更加昂贵或无法获得。

- Pulls on liquidity (“拉动”影响): accelerate cash outflows

特征: “花得多”

- ✧ Making payment early 早还钱;
- ✧ reduced credit limits 信用额度下降 (主要是供应商角度, 比如原来供应商愿意赊给你 30 天, 现在只愿意赊给你 10 天)
- ✧ Limits on short-term lines of credit 信贷额度限制。如果银行限制向公司放贷, 该公司可能会面临流动性限制。信贷额度限制可以是政府规定的、与市场相关的, 也可以是公司特有的。
- ✧ Low liquidity positions. 流动性头寸低。许多公司面临长期的流动性短缺, 通常是由于行业状况或财务状况不佳。

## 3) Liquidity ratios 流动比率

- 衡量的是流动性, 也就是短期偿还债务的能力
- ✓ 短期债务——流动负债 current liabilities
- ✓ 流动资产 current assets: 包括现金 cash 和短期证券 short-term securities、应收账款 receivable、预付费用 prepaid expense、存货 inventory

$$\text{Current ratio 流动比率} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Quick ratio 速动比率} = \frac{\text{Cash} + \text{Short-term securities} + \text{Receivables}}{\text{Current liabilities}}$$

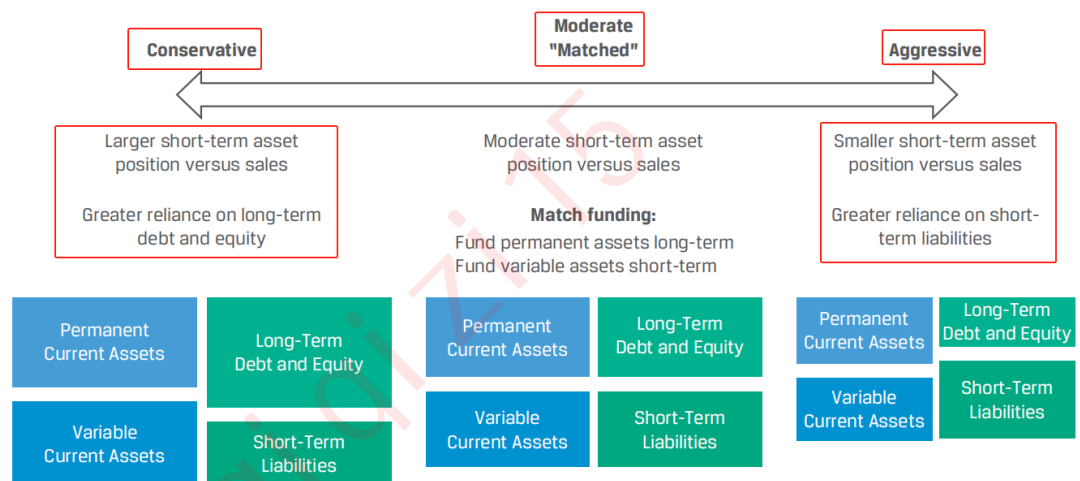
$$\text{Cash ratio 现金比率} = \frac{\text{Cash} + \text{Short-term securities}}{\text{Current liabilities}}$$

- Generally, the greater the liquidity ratios, the higher a company's

liquidity。比率越大公司的流动性越好。

### 3. Managing working capital and liquidity

- Total Working Capital = Current assets - Current liabilities
- Net Working Capital = Current assets, excluding cash and marketable securities - (Current liabilities, excluding short-term and current debt)
- 不同的营运资本管理方法：
  - ✓ 保守 Conservative: 公司在现金、应收账款和存货方面持有更大的头寸。为公司提供了财务灵活性，以应对可能发生的意外事件，例如全球危机。
  - ✓ 激进 Aggressive: 公司持有的流动资产大幅减少，从而降低了公司的短期财务灵活性。
  - ✓ 适度 Moderate: 介于上述两个方法之间。



- Major objectives of short-term borrowing 短期借款的主要目标
  - ✓ Securing adequate funding capacity to handle the firm's changing cash needs. 确保有足够的处理能力处理高峰现金需求【钱要多】
  - ✓ Maintaining sufficient and diversified sources of credit to fund ongoing cash needs. 保持足够的信贷来源，满足持续的现金需求【钱要多】
  - ✓ Confirming that financing rates offered, as well as associated terms and conditions, are competitive 确保支付的融资利率具有竞争力。【成本要低】
  - ✓ Ensure both implicit and explicit funding costs are considered in the company's effective cost of borrowing. 确保在公司的借款成本中考虑了隐性和显性融资成本。【成本要低】
- Factors influence a company's short-term borrowing strategies 影响公司短期借款策略的因素

- ✓ Size 规模
- ✓ creditworthiness 信誉
- ✓ Legal and regulatory considerations 法律和监管
- ✓ Asset nature 资产性质

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## Module 5: Capital Investments and Capital Allocation (☆☆☆)

### 1. Capital investments/ Capital projects 资本投资

- With a life of one year or more made by corporate issuers 公司发行人进行的一年或更长期限的投资

- **Types of Capital Projects**

#### 1) Business Maintenance

- Going concern (Maintenance) 持续经营
  - ✓ Continue current operations
  - ✓ Improve efficiency
  - ✓ Risk management
- Regulatory/Compliance 监管/合规
  - ✓ 第三方（如政府监管机构）通常要求的项目
  - ✓ Example: factory pollution control installation 工厂污染控制安装

#### 2) Business Growth

- Expansion of existing business 扩展项目
  - ✓ 与持续经营项目相比，扩大业务规模，并通常会涉及更大程度的风险和不确定性的项目
  - ✓ Expand business size or scope
  - ✓ R&D and acquisitions within core business
  - ✓ Low to moderate risk
- New lines of business and other
  - ✓ 公司常规业务线之外的高风险投资和新的增长计划
  - ✓ R&D and acquisitions outside current business
  - ✓ High risk

### 2. Basics of Capital Allocation 资本分配的基本概念

- **Capital allocation** is the process used by an issuer's management to make capital investment decisions.
- 资本分配的过程，就是一个公司怎么投资的过程

#### 1) Steps in the Capital Allocation Process

一般流程（4 个步骤）

**Step 1 :Generating ideas**（产生 Idea）

**Step 2: Investment Analysis**（针对每一个单独的项目）（对单一项目的分析）

**Step 3: Capital Allocation Planning**（在公司整体规划）

Step 4: Monitoring and Post-Audit（监管和事后审计-实际情况和预期的差异）

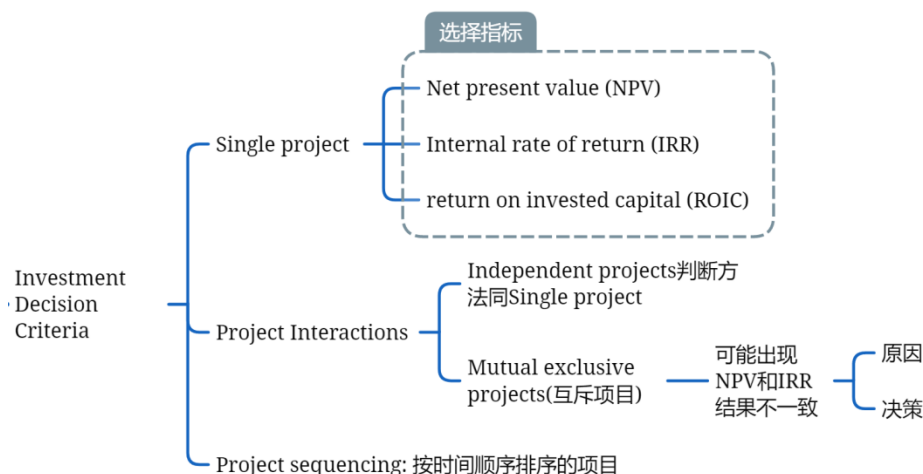
#### 2) Principles of Capital allocation

资本配置的一般原则-主要考虑现金流

- 常规现金流-“3 要：税”
  - ✓ **after-tax basis**. 现金流一定是税后现金流。
  - ✓ **incremental cash flows** 基于增量现金流，并非会计意义上的净利润。
- 包括
  - ✓ **externality** 外部性-新项目与公司既有项目之间的关系
    - 分为
      - **positive externality** 正外部性，例如：synergy（协同效应） $\rightarrow 1+1 > 2$
      - **negative externality** 负外部性，例如：**Cannibalization**（侵蚀效应） $\rightarrow 1+1 < 2$
    - ✓ opportunity cost 机会成本。An **opportunity cost** is what a resource is worth in its next-best use. 机会成本是公司放弃的次优项目的收益。
- 不包括：
  - ✓ sunk cost 沉没成本
    - A **sunk cost** is one that has already been incurred. 成本已经发生，无法收回。【例如：市场调研费用，咨询顾问费用，多年前购置的厂房或土地】
  - ✓ **Financing cost** 融资成本
    - 例如：利息费用
    - **Financing costs are reflected in the required rate of return and thus ignored in cash flows to avoid double-counting.** 融资成本反映在所需的回报率中，因此在现金流中忽略不计。
- **Timing value of cash flows is crucial.** 时间很重要

### 3. Investment decision criteria 投资决策标准

框架：





1) Valuation methods for single project 单一项目的评价方法

- **Net present value (NPV)**
- **Internal rate of return (IRR)**
- **Return on invested capital (ROIC)**

a) NPV (net present value) 净现值

- NPV 净现值: 项目的税后现金流的现值之和。The sum of the present value of all the after-tax cash flows of the project.

$$\begin{aligned} \text{NPV} &= -\text{Outlay} + \frac{\text{CF}_1}{(1+r)^1} + \frac{\text{CF}_2}{(1+r)^2} + \dots + \frac{\text{CF}_n}{(1+r)^n} \\ &= -\text{Outlay} + \sum_{i=1}^n \frac{\text{CF}_i}{(1+r)^i} \end{aligned}$$

$r$  = required rate of return for capital suppliers 要求回报率

= cost of capital for capital receivers 融资成本

Outlay: 初始投资

- ✓ NPV indicates the expected wealth changing for the firm
- 判断规则:
  - ✓ Invest if  $\text{NPV} > 0$ .
  - ✓ Do not invest if  $\text{NPV} < 0$

b) Internal Rate of Return (IRR) 内部收益率

- IRR is the discount rate that makes the present value of the future after-tax cash flows equal to the investment outlay.
- 内部收益率是使得  $\text{NPV}=0$  的折现率。意味着: 以 IRR 作为折现率, 可以使得未来现金流的现值之和正好等于期初投资。
  - ◆ 针对的是 Conventional cash flows (传统型现金流): cash flows change signs once. 现金流符号变换一次。
    - ◇ 【Nonconventional cash flows (非传统型现金流): cash flows change signs more than once. 符号变换多次。
    - ◇ For projects with **nonconventional cash flows**, there **may be multiple IRRs or no IRR.**】

$$\text{NPV} = 0 = -\text{Outlay} + \frac{\text{CF}_1}{(1+\text{IRR})^1} + \frac{\text{CF}_2}{(1+\text{IRR})^2} + \dots + \frac{\text{CF}_n}{(1+\text{IRR})^n}$$

- ✓ IRR: annualized expected return on the project
- ✓ required rate of return=hurdle rate
- 判断规则:
  - ✓ Invest if  $\text{IRR} > \text{required rate of return (hurdle rate, } r\text{)}$ .
  - ✓ Do not invest if  $\text{IRR} < \text{required rate of return (hurdle rate, } r\text{)}$ .

## 小结: NPV&IRR 对比

	计算公式	判断标准	优缺点
NPV	$NPV = CF_0 + \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n}$ $= CF_0 + \sum_{i=1}^n \frac{CF_i}{(1+r)^i}$	单一项目: $NPV > 0 \checkmark$ $NPV < 0 \times$ 互斥项目: higher NPV	Pros: Directly reflect expected value of project. Shows gains as currency amount. Cons: Ignore size of project.
IRR	$NPV = 0 = CF_0 + \sum_{i=1}^n \frac{CF_i}{(1+IRR)^i}$	单一项目: 与 cost of capital (hurdle rate) 比较 $IRR > Re \checkmark$ $IRR < Re \times$ 互斥项目: higher IRR	Pros: Reflect profitability. 体现盈利能力。 Cons: “再投资”的假设不切实际。 Multiple or no IRR. 无解或多解的情况。见 “Project cash flow types”
■ 对于互斥项目, 若 NPV 和 IRR 得出的选择结果不同, 选择 NPV 较高的项目。			

### c) Return on invested capital (ROIC) 投资资本回报率

- **Return on invested capital (ROIC)**: a measure of the profitability of a company or business segment relative to the amount of capital invested by the equity and debtholders.
- a useful **aggregate**, rather than project, return measure.
- 衡量公司投资的盈利能力, 是一个事后概念。

$$ROIC = \frac{\text{After tax operating profit}}{\text{Average book value of invested capital}} = \frac{EBIT * (1 - t)}{\text{Average book value of invested capital}}$$

- ✓  $ROIC > \text{cost of capital}$ , 股东价值 increases
- ✓  $ROIC < \text{cost of capital}$ , 股东价值 decreases

### 2) Project interaction

有时不一定只有一个 **project**, 可能会有多个

**a) Independent projects:** 当有 Unlimited funds 时, 认为项目之间是独立的 (投资决策: 单一项目是一样的)

Accept all projects with  $NPV > 0$  ( $IRR > \text{cost of capital}$ ,  $PI > 1$ ).

**b) Mutual exclusive projects (互斥项目):** 当有 Capital rationing 资本限额 (资

金有限) 时, 项目之间具有互斥。

【投资决策: 优中选优, 选择最优】

- ✓ NPV method: choose the one with highest NPV.
- ✓ IRR method: choose the one with highest IRR.
- 出现结果打架
  - ✓ 原则: 以 NPV 为准, Choose the projects with higher NPV
  - ✓ 原因: NPV and IRR project rankings may conflict due to
    - a. Different sizes of CFS
    - b. Different timing of CFS
    - c. Different reinvestment rate assumptions
  - ✓ NPV assumes CFs can **reinvest at the cost of capital ( more conservative / realistic)**
  - ✓ IRR assumes CFs can **reinvest at projects IRR**

c) **Project sequencing:** 按时间顺序排序的项目

4. Common capital allocation pitfalls 常见的资本配置陷阱

- Cognitive Errors 认知错误
  - ✓ Internal forecasting errors
    - ◆ 比如: 错误的使用 sunk costs, opportunity costs 等
  - ✓ Ignoring costs of internal financing
    - 内部经营现金流, 认为是 free, 使用频率较高; 外部股权融资或债务融资, 认为成本较高, 使用频率较低。
  - ✓ Inconsistent treatment of, or ignoring, inflation
- Behavioral Biases 行为偏差
  - ✓ Inertia. 投资惯性
  - ✓ Basing investment decisions on EPS, net income, or ROE.
    - 基于每股收益、净收益或 ROE 的投资决策。
    - 追逐短期指标, 忽略项目的长期发展
  - ✓ Pet project bias
    - Pet projects 宠物项目 (比如 boss 偏爱的项目)
  - ✓ Failure to consider investment alternatives or alternative scenarios

5. Real Option 实物期权

给公司一定权利, 可以选择项目在什么时候什么条件下行权。实物期权和金融期权一样, 只是它们处理的是实物资产而不是金融资产。

1) Types of real options

- ✓ Timing options 择时权 (例如: delay investment)
- ✓ Sizing options 规模选择权 (例如: abandonment & expansion option)
- ✓ Flexibility options 灵活选择权 (例如: price setting &

production-flexibility )

✓ Fundamental options 基础期权 (例如: gold mine 金矿 & oil well 油井)

2) 含有期权项目的 NPV

$$\text{NPV (with option)} = \text{NPV (no option)} + \text{Value of options} - \text{cost of option}$$

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## Module 6: Capital Structure (☆☆☆)

### 1. 资本成本 Cost of Capital

- the **required rate of return** by the funds suppliers 出资方的要求回报率
- 出资方的机会成本 **opportunity cost** of funds suppliers。

### ● 加权平均资本成本 **weighted average cost of capital (WACC)**

- ✓ 公司融资渠道有三种:

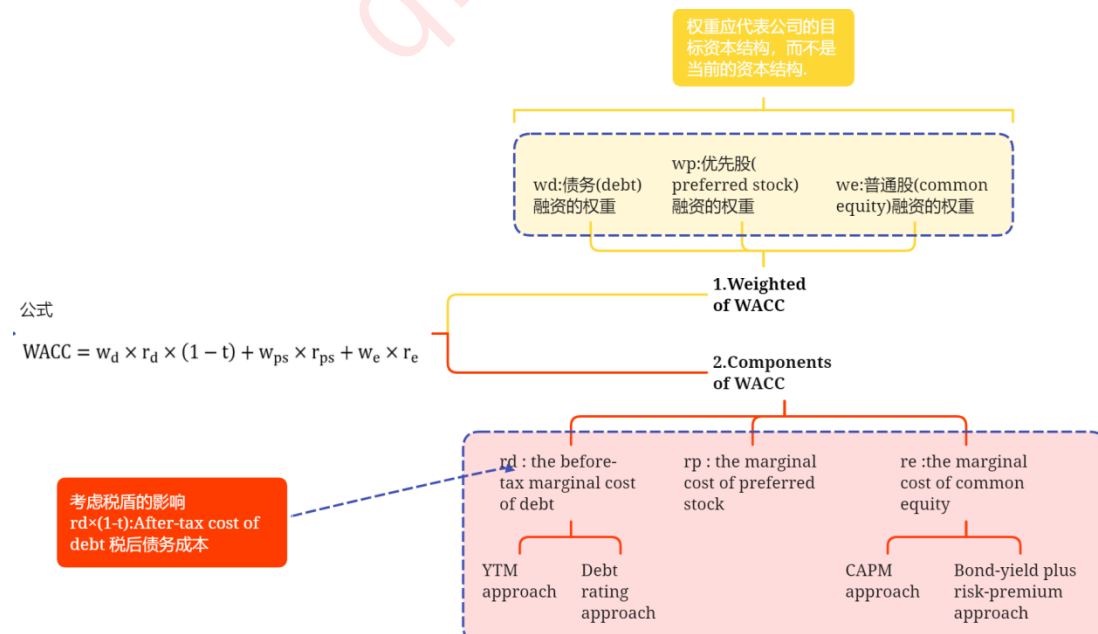
- ✧ Debt
- ✧ Common equity
- ✧ Preferred stock

每一种融资渠道都有相应的融资成本。

- ✓ WACC: 公司的边际资本成本 **marginal cost of capital (MCC)**

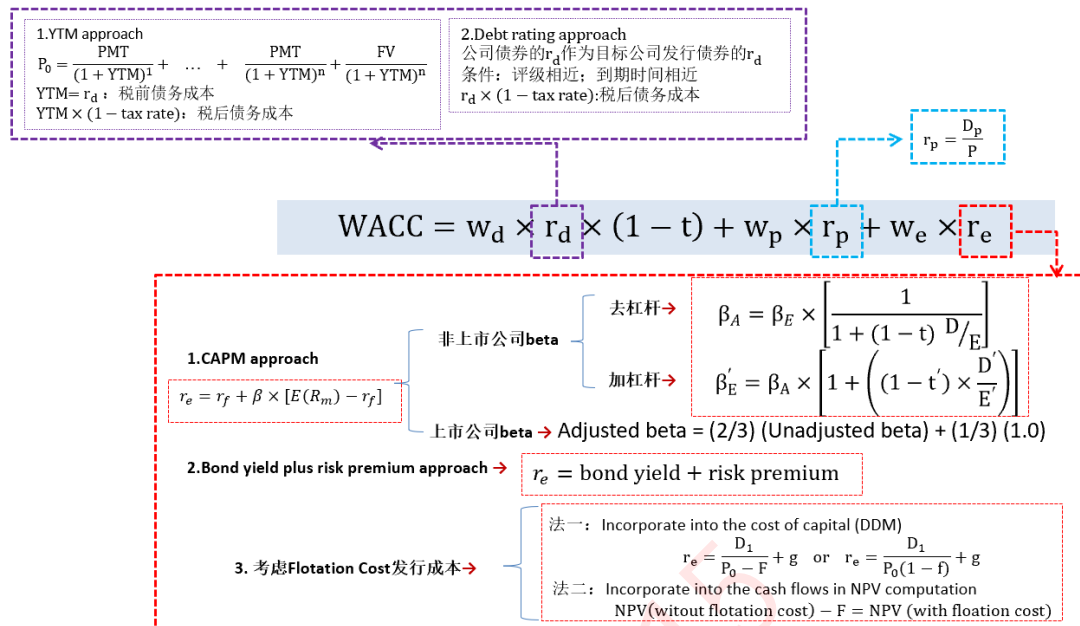
$$WACC = w_d \times r_d \times (1 - t) + w_p \times r_p + w_e \times r_e$$

- ✓  $w$  = the proportion of each resource for the company to raises new funds, and should be based on the market value
- ✓  $r_d$ : before - tax cost 税前融资成本
- ✓  $r_d \times (1 - t)$ : after - tax cost 税后融资成本
- ✓  $r_p$  = the marginal cost of preferred stock
- ✓  $r_e$  = the marginal cost of common equity
- ✓  $t$  = the company's marginal tax rate



## 拓展: Components of WACC 总结

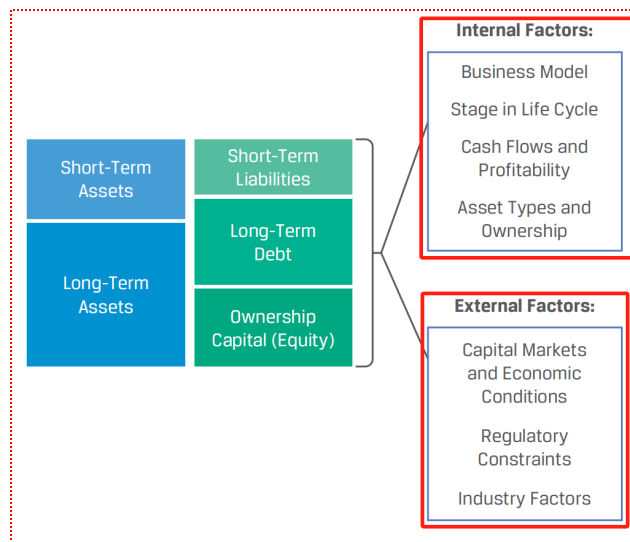
关于  $r_d$ 、 $r_p$  和  $r_e$  的定量计算, 在 24 年考纲中已经删除, 这里作为一个拓展知识保留下这个总结图。24 年考纲只要求定性的掌握其影响因素。



## 2. 影响因素

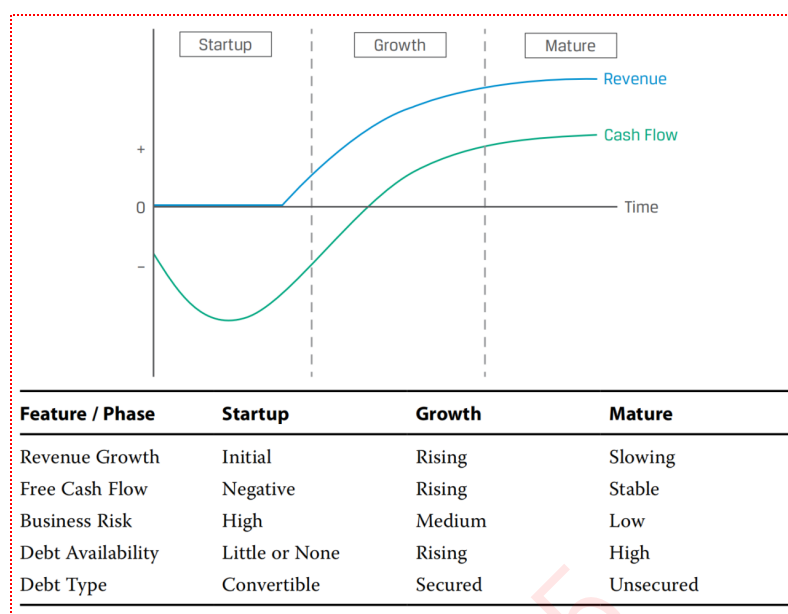
### 1) Factors Affecting Capital Structure

- 资本结构(capital structure), The relative proportions of debt, equity, and other securities that a firm has outstanding.
  - ✓ 从公司的角度来看, 股权是一种更昂贵、更持久的资本来源, 具有更大的财务灵活性。另一方面, 债务是一种更便宜、到期时间有限的资本来源。
- 分为内部因素和外部因素



● **Company Life Cycle 公司生命周期**

- ✓ 一家公司的生命周期一般包括初创期、成长期和成熟期。不同的生命周期，对于资金的需求不同。



2) **Determinants of the Costs of Debt and Equity**

● **Top-Down Factors**

- Financial market conditions
- Industry conditions

● **Issuer-Specific Factors**

- 1. Sales risks
- 2. Profitability risks (operating leverage)
- 3. Financial leverage and interest coverage
- 4. Collateral/type of assets owned by the firm.

3. **MM 理论**

- **MM 理论 (Modigliani-Miller Propositions)** 是关于资本结构与公司价值关系的重要理论

● **Modigliani and Miller assumption**

- ✓ Homogeneous expected cash flows
- ✓ Perfect capital markets
  - no transactions costs, no taxes, no bankruptcy costs, and symmetric information
- ✓ Investors can borrow and lend at the risk-free rate
- ✓ No agency costs
- ✓ Independent financing decision & investment decision

## ● Modigliani and Miller Theory

1) 无税 without taxes		
MM Proposition I	<ul style="list-style-type: none"><li>公司的价值不受资本结构的影响</li></ul> $V_{\text{Levered}} = V_{\text{Unlevered}}$ $r_{\text{WACC}} = r_0$ <p>【如果公司预期的现金流和现金流的不确定性（风险）不变，那么公司整体现金流的现值也应该不变，即公司整体价值不变。】</p>	<p>Cost of capital</p> <p><math>r_e = r_0 + (r_0 - r_d) D/E</math></p> <p>WACC</p> <p>Cost of debt</p> <p>D/E</p>
MM Proposition II	<ul style="list-style-type: none"><li><math>r_e = r_0 + (r_0 - r_d) D/E</math></li></ul>	
2)有税 with taxes: 放松 MM 理论无税的假设前提 MM 理论将发生改变。		
MM Proposition I	<ul style="list-style-type: none"><li><math>V_{\text{Levered}} = V_{\text{Unlevered}} + t \times \text{Debt}</math></li></ul> <p>税盾 debt tax shield: <math>t \times \text{Debt}</math></p> <p>→A firm's optimal capital structure is all debt.</p>	<p>Cost of capital</p> <p><math>r_e = r_0 + (r_0 - r_d) D/E</math></p> <p><math>r_e = r_0 + (r_0 - r_d)(1 - t) D/E</math></p> <p>WACC</p> <p>After tax cost of debt</p> <p>D/E</p>
MM Proposition II	<ul style="list-style-type: none"><li><math>r_e = r_0 + (r_0 - r_d)(1 - t)(D/E)</math></li></ul> $r_{\text{WACC}} < r_0$	

- 影响资本结构除了税收，还有其他因素：Costs of financial distress 财务困境成本，代理成本等。

### 4. 其他资本结构理论

- Costs of financial distress — Static trade-off theory
- Information asymmetry — Pecking order theory
- Agency costs — Michael Jensen's free cash flow hypothesis

#### 1) Costs of financial distress 财务困境成本

##### ● ——静态平衡理论(static trade-off theory)

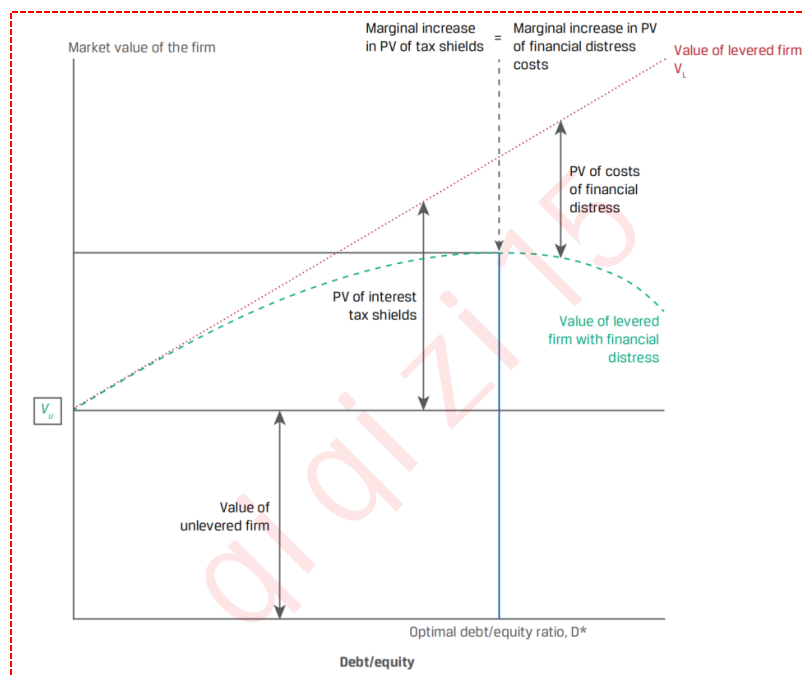
- **Optimal Capital Structure:** The theoretical point at which the value of the company is maximized is known as the **optimal capital structure**. 公司价值最大化的理论点称为最佳资本结构。

- 【MM 理论：负债 ↑，税盾作用 ↑，公司价值 ↑，因此 100% 的 debt 是最优



资本结构。但是, 负债↑也会带来一些负面效应, 比如会使财务困境成本↑】

- 财务困境成本包括:
  - ✓ **Direct costs** 直接成本: 与破产程序相关的现金支出 actual cash expenses associated with the bankruptcy process
    - ◆ 例如: 法律和行政费用 legal and administrative fees
  - ✓ **Indirect costs** 间接成本
- Static trade-off theory of capital structure: 考虑财务困境成本后的公司价值:
- $V_L = V_U + t \times \text{Debt} - \text{PV}(\text{costs of financial distress})$
- Optimal Capital Structure



- When a company recognizes its optimal capital structure, it may adopt it as its target capital structure.
- **Weights in WACC**
  - ✓ Use this **target capital structure** if it is available
  - ✓ 公司以外的人, 如分析师, 通常不知道目标资本结构, estimate weights using one of the several approaches:
    - 1 Assume the company's current capital structure, at market value weights for the components, represents the company's target capital structure.
    - 2 Examine trends in the company's capital structure or statements by management regarding capital structure policy to infer the target capital structure.
    - 3 Use averages of comparable companies' capital structures as the

target capital structure.

## 2) Information asymmetry 信息不对称

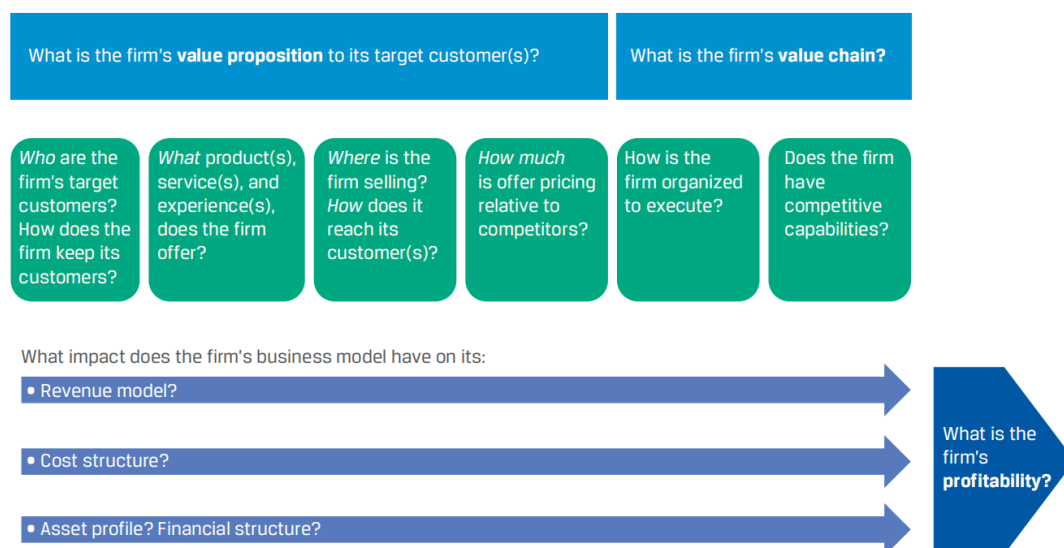
- ——Pecking order theory 啄食顺序理论
- 信息不对称, 指管理者比股东和债权人更了解公司的业绩和前景 (包括未来的投资机会)
  - ✓ 信息不对称程度越高, 债权人和股东要求的回报越高 The higher information asymmetric, the higher returns demanded by both debt and equity capital suppliers
- Pecking order theory (signaling model) 啄食顺序理论:  
Internal capital > Debt > External equity

## 3) Agency costs 代理成本

- 代理问题是指在所有权和经营权分离的背景下, 管理层(代理人)不为投资者(委托人)利益最大化服务的情况。Agency costs arise from conflicts of interest between managers, shareholders, and bondholders.
- Agency theory:
  - ✓ 债务的增加会导致代理成本的降低 an increase in use of debt results in a reduction in agency costs
- Michael Jensen's free cash flow hypothesis
  - ✓ Higher debt levels discipline managers by reducing the company's free cash flow and thus management's opportunities to misuse cash 较高的债务会减少公司的自由现金流, 从而减少管理层滥用现金的机会。

## Module 7: Business Models (☆)

### 1. 商业模式特征 Business Model Features



#### 1) Value proposition 价值主张(Who + What + Where + How Much)

- 确定企业的商业定位
- Customers (who) 目标客户: Geography, Segment(s), Business (B2B) ,Retail (B2C)
- Firm offering (what) 提供的产品和服务: Product(s) ,Service(s); Differentiation; Customer Needs
- Channels (where) 销售渠道: Direct (Physical); Intermediary; Digital
- Pricing (how much) 定价: Premium, parity, discount; Differentiation; Pricing power
  - ✓ 定价策略
    - a) Pricing and revenue models 定价模型
      - ✧ Value-based pricing: 基于客户获得的价值进行定价
      - ✧ Cost-based pricing: 基于发生的成本进行定价
    - b) Price discrimination 价格歧视
      - ✧ Auction/reverse auction models 拍卖/逆向拍卖
      - ✧ Tiered pricing 分层定价
      - ✧ Dynamic pricing 动态定价
    - c) Pricing for multiple products 多产品定价
      - ✧ Bundling 捆绑销售
      - ✧ Razors-and-blades pricing 剃刀-刀片定价
      - ✧ Optional product pricing 可选产品定价
    - d) Pricing for rapid growth 追求高速增长的定价

- ✧ Penetration pricing 渗透定价
- ✧ Freemium pricing 免费模式
- ✧ Hidden revenue business models 隐形收入模式
- e) Alternatives to ownership 购买的替代
  - ✧ Recurring revenue/subscription pricing 反复订阅
  - ✧ Fractionalization 分解
  - ✧ Leasing 租赁
  - ✧ Licensing 授权
  - ✧ Franchising 特许经营
- 2) Value chain 价值链条
  - 评估一家公司的商业模式不仅需要考虑价值主张（目标是谁、公司在哪里、销售什么以及价格多少），还需要考虑公司如何实现该价值：
    - ✓ 公司需要什么资产和能力（例如，熟练的人员、技术）来执行其商业模式？
    - ✓ 这些是自有/内包还是租赁/外包？
  - Value chain: the systems and processes within a firm that create value for its customers. 单个企业如何给客户创造价值
  - Supply chain: refers to the sequence of processes involved in the creation of a product, both within and external to a firm. 是指在公司内部和外部生产产品所涉及的一系列过程。可能涉及多个企业。
- 3) Profitability 盈利能力
  - 商业模式还应揭示公司期望如何产生利润。主要关注以下几个方面：
    - ✓ Margins
    - ✓ break-even points
    - ✓ unit economics: expressing revenues and costs on a per-unit basis.
- 2. Business Model Types 商业模式类型
  - Business model variations 商业模式变化
    - ✓ Private label or “contract” manufacturers 自有品牌
    - ✓ Licensing arrangements 贴牌加工
    - ✓ Franchise models 特许经营模式
    - ✓ Value added resellers 增值销售
  - E-Commerce business models 电子商务商业模式
    - ✓ Affiliate marketing 联盟营销: performance marketing
    - ✓ Marketplace businesses 交易平台模式: without ownership of products
    - ✓ Aggregators 聚合模式: re-markets products and services
  - Platform business models 平台商业模式

- ✓ Network effects 网络效应
- Crowdsourcing business models 众包商业模式
- Hybrid business models 混合商业模式

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