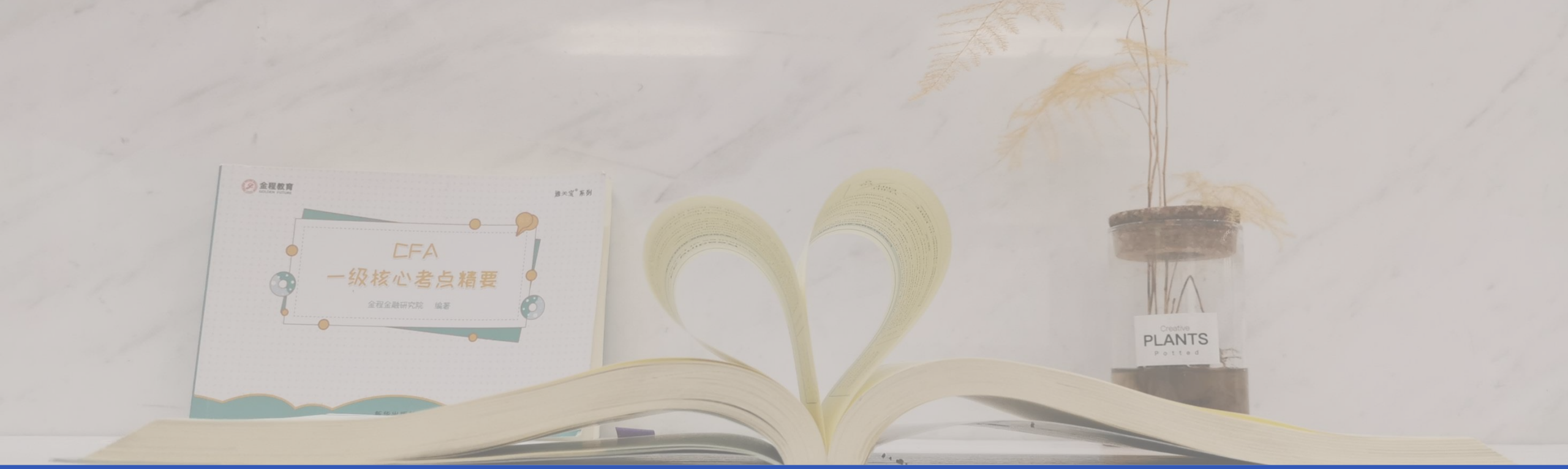


Corporate Issuers

CFA一级强化班

讲师：王慧琳

师资介绍

1. 基本介绍

金程教育资深培训师、上海财经大学经济学学士、美国约翰霍普金斯大学金融学硕士、CFA、FRM、ESG investing持证人

2. 工作背景

多家知名机构内训项目授课，参与出版CFA相关系列丛书教材。本科毕业于上海财经大学，研究生毕业于约翰霍普金斯大学，一次性通过CFA一二三级考试，对于考试重点和应试技巧有自己的心得。

3. 服务客户

中国工商银行、中国银行、建设银行、农业银行、杭州银行、兴业证券、南京证券、湘财证券、兴业银行、中国人寿、人保资产管理、中国平安、民生银行、华夏基金、中邮基金、富国基金、中国再保险、中国进出口银行等。

Topic Weightings in CFA Level I

Topics	Weights (%)
Quantitative Methods	8-12
Economics	8-12
Financial Statement Analysis	13-17
Corporate Issuers	**8-12**
Equity	10-12
Fixed Income	10-12
Derivatives	5-8
Alternative Investments	5-8
Portfolio Management	5-8
Ethical and Professional Standards	15-20

课件使用说明

- **强化班知识点说明和使用指南**

序号	课件元名称（知识点）	必考	高频	低频
11	Project Evaluation Methods and NPV profile	1	0	0
12	Real Options	1	0	0
13	Corporate Financing Sources	0	0	1
14	Working Capital Approach	0	0	1
15	Liquidity Measures and Management	1	0	0
16	WACC	1	0	0

- 必考知识点指的是近10年考试中考试频率大于等于75%的考点，在强化班中强化班强化班保留讲解，必须掌握；
- 高频知识点指的是近10年考试中考试频率介于25%到75%的考点，在强化班中强化班强化班保留讲解，必须掌握；
- 低频知识点指的是近10年考试中考试频率小于25%的考点，在基础班中强化班强化班保留讲解，学员可以根据自己的掌握情况在基础班中巩固学习；
- 本学科知识点合计24个，其中必考知识点5个，高频知识点6个，低频知识点13个，掌握必考和高频考点覆盖了近10年89.73%的题目。

Corporate Issuers

1. Organizational Forms, Corporate Issuer Features, and Ownership
2. Investors and Other Stakeholders
3. Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits
4. Working Capital and Liquidity
5. Capital Investments and Capital Allocation
6. Capital Structure
7. Business Models

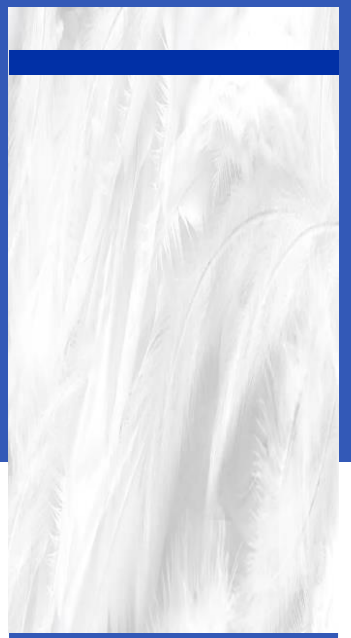
Module

Organizational Forms, Corporate Issuer Features, and Ownership

1. Organizational Forms of Businesses
2. Key Features of Corporate Issuers
3. Publicly vs. Privately Owned Corporate Issuers

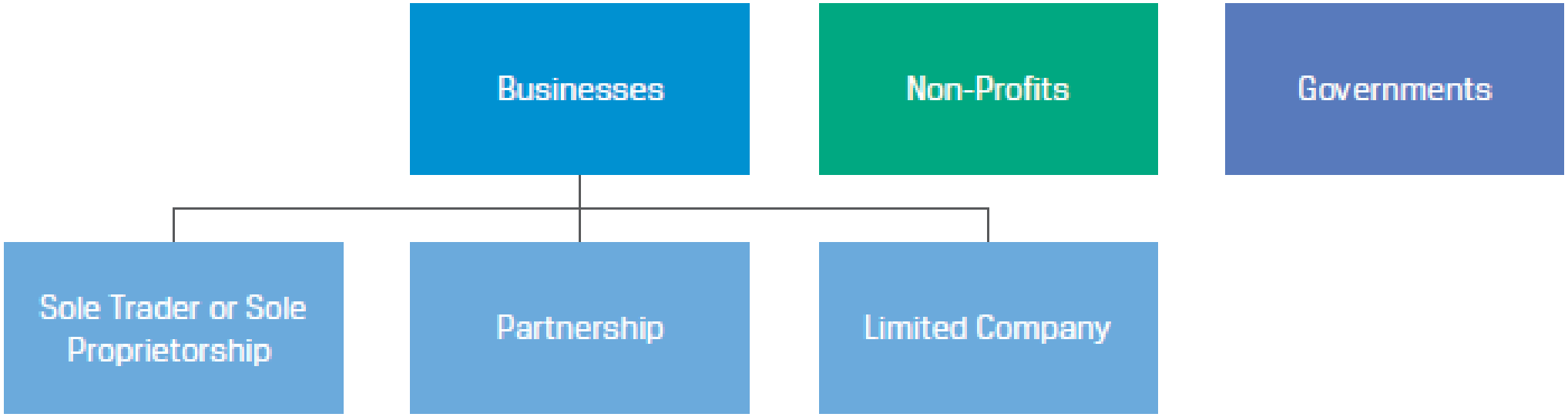
Organizational Forms of Businesses

- Organizational Forms of Businesses



Organizational Forms of Businesses

- Business owners choose a legal organizational form that defines how returns, risks, and ownership and operational responsibilities are distributed.



Organizational Forms of Businesses

- The organizational forms of businesses differ by several attributes:
  - **Legal identity:** Whether the business is legally considered a separate entity or person apart from its owners;
  - **Owner–manager relationship:** The relationship between the owner(s) of the business and those who manage the business;
  - **Owner liability:** The extent to which owners are personally legally liable for actions or debts undertaken by the business;
  - **Taxation:** The treatment of business profits or losses for tax purposes;
  - **Access to financing:** The ability to raise capital to fund expansion and distribute risks.

Organizational Forms of Businesses

- The key distinctions between **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

Summary

Module : Organizational Forms, Corporate Issuer Features, and Ownership

Organizational Forms of Businesses

Module

Investors and Other Stakeholders

1. Financial Claims of Lenders and Shareholders
2. Corporate Stakeholders and Governance
3. Corporate ESG Consideration

Financial Claims of Lenders and Shareholders

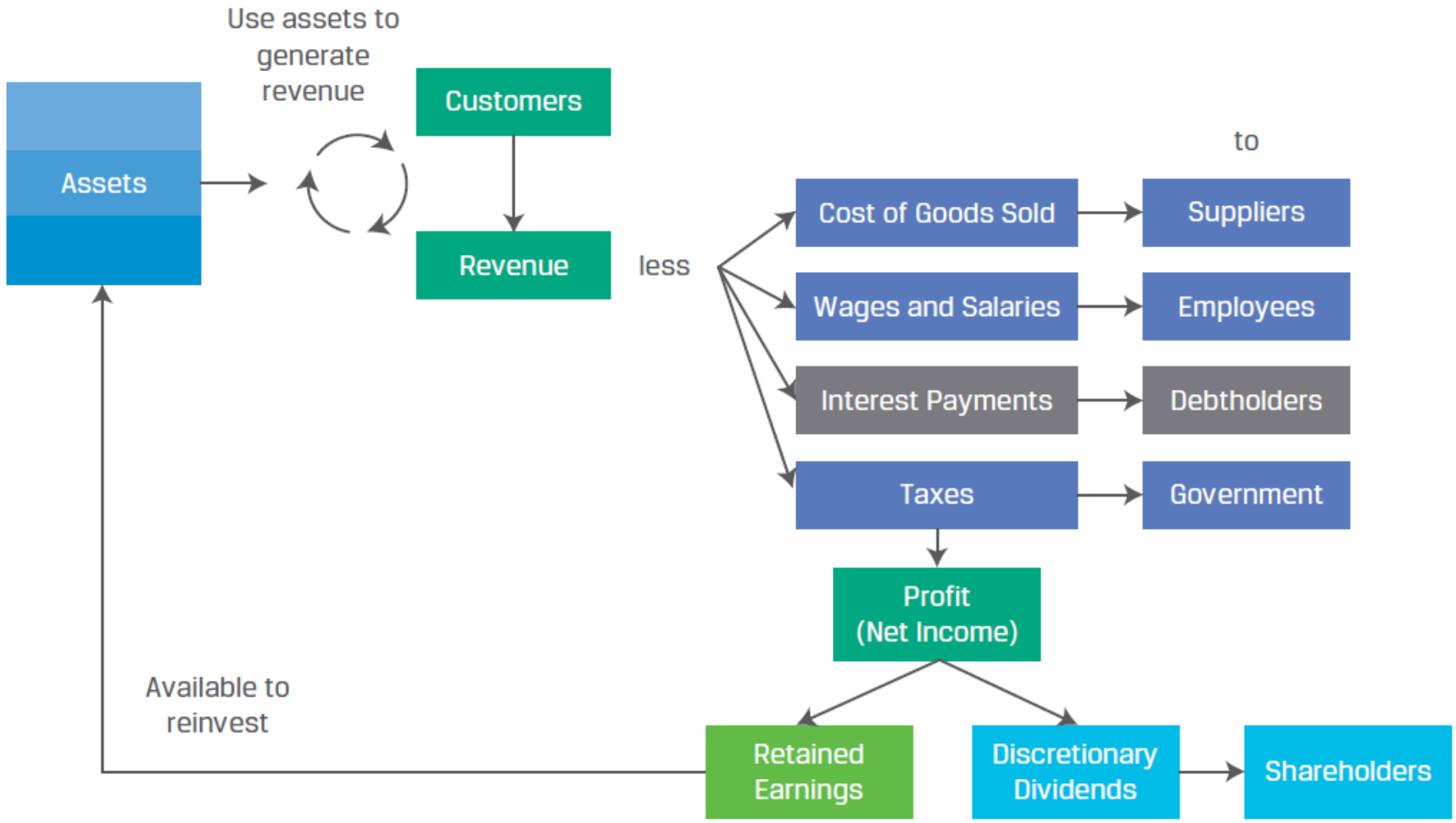
- Debt Versus Equity
- Debt Versus Equity: Risk and Return
- Conflicts of Interest among Lenders and Shareholders

Debt Versus Equity

- **Debtholders, or lenders, provide capital with a finite maturity**
  - Issuers agree to make promised interest payments and to repay principal on pre-specified dates.
  - Lenders have no decision-making power within the corporation, but debt contracts can be structured to protect lenders by imposing financial requirements and/or legal claims on certain assets of the corporation if the debt is not repaid as agreed.
  - Debtholder 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—whatever is left after expenses, investments, and debt payments.
  - Cash distributions to equity investors are at the discretion of the board of directors.
  - In contrast to lenders, equity investors have voting rights on important company matters such as choosing the board of directors, which appoints and oversees management.

Debt Versus Equity

- **Other claims**
  - Payments to suppliers, employees, and governments in the form of taxes.



Debt Versus Equity: Risk and Return

- **From an issuer's perspective, debt financing is less costly but involves greater risks than equity financing**
  - It commits the issuer not only to **interest and principal payments** but also to any restrictions that lenders impose in the debt contract.
  - The greater use of debt for a given amount of equity financing, known as **financial leverage,** increases the likelihood that the firm may be unable to meet its promised obligations to lenders, resulting in bankruptcy and potential liquidation.
  - While debt financing adds risk, equity holders often prefer it to an issuer raising additional equity to fund growth,
    - ✓ Additional share issuance reduces the fractional firm ownership of existing shareholders, known as **dilution.**
    - ✓ The **downside of dilution** may be **offset** by an expectation that the firm will generate enough incremental profit to compensate.

Debt Versus Equity: Risk and Return

- **From an investor's perspective, stocks are riskier than bonds**
  - Shareholders hold **residual** rather than fixed claims against the firm.
  - The profits available for distribution to shareholders can vary greatly, depending on the performance of the firm as well as financial leverage.
    - ✓ If a corporation is successful, there is theoretically no limit to how much equity owners could earn on their investment.
    - ✓ But if the firm performs poorly, owners can lose their entire investment if the firm is liquidated and debtholders take control of the assets.
      - Due to their limited liability, shareholders cannot lose more than their initial investment.

Conflicts of Interest among Lenders and Shareholders

- Shareholders seek to maximize profits
  - 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 while maximizing the use of debt financing.
  - 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 projects that increase cash flow certainty.
  - Since they have no voting rights over management decisions, bondholders seek to impose **contractual restrictions** such as requiring cash flow coverage for debt payments and/or limiting a firm's financial leverage.
    - ✓ These restrictions prevent a firm from taking actions that may benefit shareholders but reduce the firm's likelihood of debt repayment in the future.

Summary

Module : Investors and Other Stakeholders

Debt Versus Equity

Debt Versus Equity: Risk and Return

Conflicts of Interest among Lenders and Shareholders

Module

Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits

1. Stakeholder Conflicts and Management
2. Corporate Governance Mechanisms
3. Corporate Governance Risks and Benefits

Stakeholder Conflicts and Management

- Shareholder, Board Director, and Manager Relationships
- Controlling and Minority Shareholder Relationships
- Shareholder versus Creditor Interests

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 (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.

Shareholder, Board Director, and Manager Relationships

- Manager and shareholder interests may diverge in the following common ways:
  - **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.

Controlling and Minority Shareholder Relationships

- **Concentrated Ownership**
  - Concentrated ownership reflects an individual shareholder or a group (known as **controlling shareholders**), who can exercise control over the corporation.
    - ✓ The group may involve a family, another company (or companies), or government.
  - a controlling shareholder may also be **a long-term shareholder** with a multi-year or multi-decade perspective,
- **Dispersed Ownership**
  - Dispersed ownership involves many shareholders, none of whom can exercise control over the corporation(known as **minority shareholders**) who hold diversified portfolios and would prefer that management focus on maximizing shareholder value, as they can diversify cheaply on their own.

Controlling and Minority Shareholder Relationships

- **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 and is held exclusively by company insiders or founders.
    - ✓ A dual-class structure allows certain stakeholders to effectively control the company even if they do not hold most of the shares outstanding.

Shareholder versus Creditor Interests

- **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.
    - ✓ This potential conflict is greater for long-term debt, as the passage of time exposes debtholders to changes in business conditions, strategy, and management behavior.
    - ✓ Long-term creditors are more likely to impose contractual limits on leverage and shareholder distributions.

Summary

Module : Corporate Governance Conflicts, Mechanisms, Risks, and Benefits

Shareholder, Board Director, and Manager Relationships

Controlling and Minority Shareholder Relationships

Shareholder versus Creditor Interests

Module

Working Capital and Liquidity

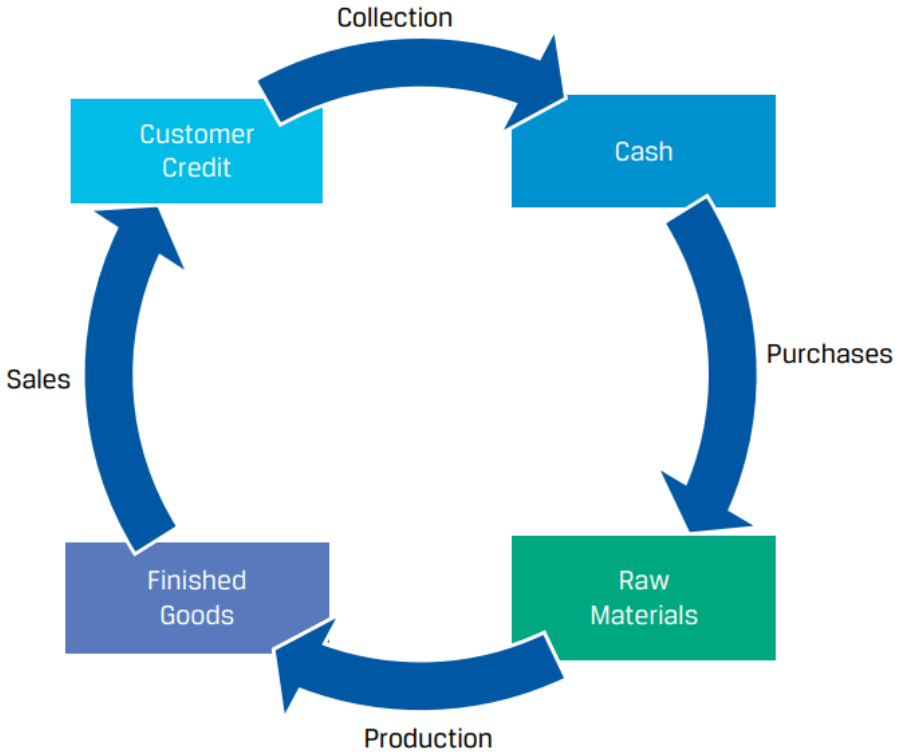
1. Cash Conversion Cycle
2. Liquidity
3. Managing Working Capital and Liquidity

Cash Conversion Cycle

- Cash Conversion Cycle
- Working Capital

Cash Conversion Cycle

- **Operating cycle**
  - For a company that makes and sells physical goods, its operations include acquiring materials, producing inventory, selling products to customers, and collecting cash. These activities are known as the issuer's operating cycle and occur once or many times over a year.



Cash Conversion Cycle

- **Selected Short-Term Assets and Liabilities**
  - These activities result in cash outflows and inflows that usually do not occur at the same time as the activity.

Short-Term Asset	Meaning	Recognized When . . .	Derecognized When . . .
Accounts receivable	Amounts to be collected from customers for products or services sold	Product or service is sold to customer on credit	Cash is received from customer
Inventory	Cost of products produced or purchased for sale	Issuer takes ownership of materials, goods, supplies, etc.	Product is sold to customer
Short-Term Liability	Meaning	Recognized When . . .	Derecognized When . . .
Accounts payable	Amounts owed to suppliers for products or services received	Product or service is received, and issuer defers payment to supplier	Cash is paid to supplier

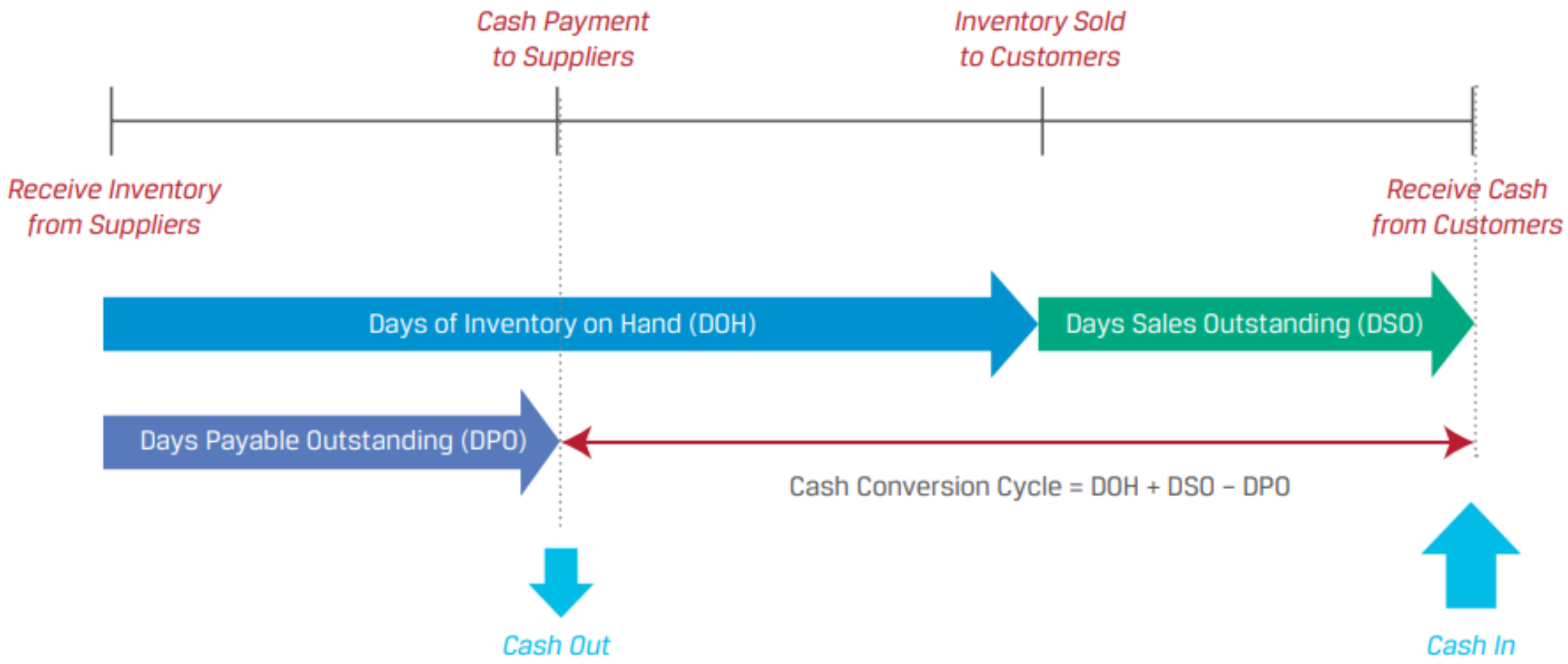
Cash Conversion Cycle

- **Cash Conversion Cycle**
  - The amounts of time that accounts payable, inventory, and accounts receivable are outstanding on the balance sheet are known, respectively, as **days payable outstanding (DPO), days of inventory on hand (DOH),** and **days sales outstanding (DSO).** The calculations of these amounts, known as **activity ratios.**

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		

Cash Conversion Cycle

- **Cash Conversion Cycle**
  - Cash conversion cycle = Days of inventory on hand + Days sales outstanding − Days payable outstanding



Cash Conversion Cycle

- **Cash Conversion Cycle**
  - The cash conversion cycle is the number of days it takes a company to convert an inventory investment into cash receipts from customers. Therefore, the longer the cash conversion cycle, the longer a company needs financing to pay its bills, such as payroll, because it has not yet received cash from customers
    - ✓ A long cash conversion cycle may reflect industry or business model characteristics, but a longer cycle relative to competitors and a lengthening over time are of particular concern for analysts.
    - ✓ A longer cycle may signal worsening customer demand, deteriorating customer financial health or credit quality, or the loss of bargaining power with suppliers.
  - The ideal scenario is a short or even negative cash conversion cycle, which means that cash invested in inventory is quickly returned for subsequent investment.
    - ✓ A negative cash conversion cycle can result from receiving cash from customers before—in some cases, well before—suppliers are paid.

Cash Conversion Cycle

- **Shorten Cash Conversion Cycle**
  - **Reduce days of inventory on hand** by discontinuing products or product lines with low or niche demand, by negotiating with suppliers to do more frequent deliveries in order to establish "just in time" inventory levels, and by using data analytics to improve customer demand forecasts and to rationalize stocking levels.
  - **Reduce days sales outstanding** by offering prompt-payment discounts to customers, imposing late fees, tightening credit standards, imposing upfront deposits or accelerating installment payments, and working with third-party collection agencies.
  - **Increase days payable outstanding** by negotiating supplier contracts for longer terms. This approach may be feasible by establishing preferred suppliers—purchasing more in volume in exchange for better terms. However, it may result in suppliers charging higher prices or asking for deposits.

Cash Conversion Cycle

- **Prompt-payment discount offered by its supplier**
  - While extending days payable outstanding can improve the cash conversion cycle, suppliers typically offer discounts for prompt payment, such as requiring payment in 30 days but offering a 2% discount if payment is received within 10 days. If a company forgoes this discount in favor of paying in 30 days, it is implicitly borrowing from the supplier for 30 − 10 = 20 days at the cost of the forgone discount. One strategy is to borrow from a third party (e.g., a bank) at a relatively low interest rate, pay the supplier early to receive the prompt-payment discount, and later repay the bank.

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

Example

Cash Conversion Cycle

- Keown Corporation is an established manufacturer of custom paddleboards operating in the North American market. Keown operates its own manufacturing plant in Canada and sells its paddleboards exclusively through its website to avoid the cost of retail locations. Most of Keown's sales take place during the North American summer season from May to August. Keown's customers expect orders to be filled immediately, so it must maintain substantial inventory to start the summer season or risk losing sales to competitors. Given the seasonality of the business, Keown is particularly focused on meeting customers' needs. Since Keown lacks the necessary cash to pay its suppliers within 10 days, the CFO must decide whether to borrow from its bank at an effective annual rate (EAR) of 7.7% to take the prompt-payment discount offered by its supplier of materials or pay in 30 days. The terms from the supplier are 2/10, net 30.
  - ✓ Should Keown use the bank loan and pay the supplier within 10 days to receive the 2% discount, or simply forgo the discount and pay the supplier in 30 days?

Example

Cash Conversion Cycle

- **Solution**
  - To compare the relative cost of the bank loan with that of the trade credit, we can calculate the effective annual rate on the trade credit. Essentially, we are calculating the interest rate on a loan for which the interest cost is the forgone discount and the term is the additional time Keown gets to pay; in this case, 30 − 10 = 20 days.
    - ✓ Effective Annual Rate of Supplier Financing= $\left(\left(\mathbf{1}+\frac{\mathbf{2\%}}{\mathbf{100\%-2\%}}\right)^{\frac{\mathbf{365}}{\mathbf{30-10}}}\right)$-1
    - ✓ Effective Annual Rate of Supplier Financing = 0.446 or 44.6%
  - Since the effective annual rate of 44.6% on the supplier financing is significantly higher than the 7.7% interest rate on the bank loan, Keown should borrow from its bank. That way, it will still be able to preserve cash but will pay a far lower interest rate on the financing.

Cash Conversion Cycle

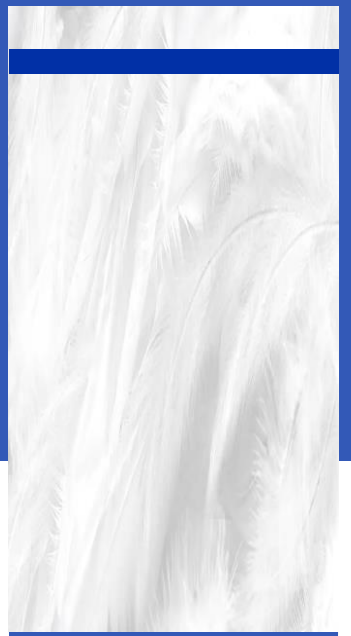
- **Working capital**
  - In addition to the cash conversion cycle, another measure analysts use to assess the efficiency of business operations is the amount of working capital
    - ✓ Total working capital=Current assets
      -Current liabilities
    - ✓ Net Working Capital=Current assets, excluding cash and marketable securities
      -Current liabilities, excluding short-term and current debt

Cash Conversion Cycle

- **Working capital**
  - The cash conversion cycle and the ratio of working capital to sales are interrelated. Since receivables and inventories are often large components of short-term assets and payables are a large component of short-term liabilities, a short cash conversion cycle is associated with a low ratio of working capital to sales and vice versa.
  - A high ratio of working capital to sales may be a result of industry characteristics, such as in the spirits industry, where inventory must age for several years before being sold to customers, or in the pharmaceutical industry, where companies hold a large amount of inventory, sometimes to comply with regulations.

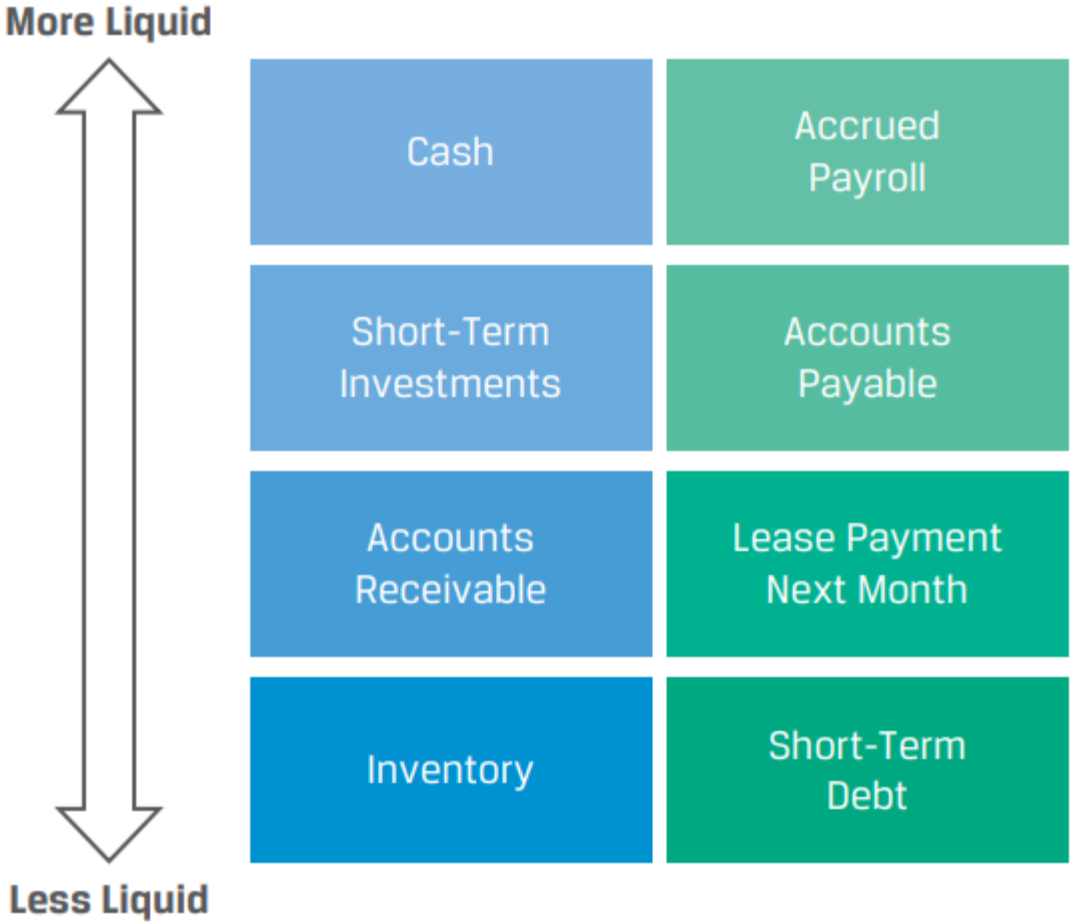
Liquidity

- Primary Liquidity Sources
- Secondary Liquidity Sources
- Factors Affecting Liquidity: Drags and Pulls
- Measuring and Evaluating Liquidity



Liquidity

- **Liquidity**
  - Liquidity for an individual asset or liability is its nearness to cash or settlement.
    - ✓ Cash is already cash, so it is the most liquid asset
    - ✓ Assets and liabilities that are not expected to convert into cash or settle within 12 months are presented as long-term assets and liabilities.
  - Liquidity for an issuer refers to its ability to meet its short-term liabilities.



Primary Liquidity Sources

- **Primary Liquidity Sources**
  - Cash and marketable securities on hand, which is cash available in bank accounts or held as currency or securities that could be sold quickly without significant loss of value.
  - Borrowings, from banks, bondholders, or suppliers' trade credit. While this source can yield cash to settle near-term obligations, it creates another obligation that will need to be repaid in the future.
  - Cash flow from the business, though it takes time to generate, is a substantial source of liquidity for profitable firms.

Primary Liquidity Sources

- **Cash flow from operations**
  - Cash flow from operations is a cash profit measure over a period for an issuer's primary business activities.
  - Cash received from customers

    Plus: Interest and dividends received on financial investments

    Minus: Cash paid to employees and suppliers

    Minus: Taxes paid to governments

    Minus: Interest paid to lenders

    Cash flows from operations
- **Free cash flow**
  - Cash flow from operations does not account for capital investments (covered in a subsequent learning module) that issuers make to improve operations or expand.
  - Cash flows from operations

    Minus: Investments in long-term assets

    Free cash flow

Secondary Liquidity Sources

- **Secondary Liquidity Sources**
  - Suspending or reducing dividends to shareholders.
  - Delaying or reducing capital expenditures, which will preserve cash in the near term but may result in missed opportunities and impair long-term value.
  - Issuing equity, by issuing shares in the public markets or privately to select investors. While equity issuance provides cash, it comes at the cost of dilution for existing shareholders.
  - Renegotiating contract terms, such as refinancing short-term debt to long-term debt; seeking concessions on interest, rent, and/or lease payments; restructuring debt covenants; and renegotiating payment or delivery terms with customers and suppliers.
  - Selling assets, which depends on the degree to which short-term and/or long-term assets can be liquidated and converted into cash without substantial loss in value.
  - Filing for bankruptcy protection and reorganization to continue operations while restructuring debt contracts and possibly selling assets.

Factors Affecting Liquidity: Drags and Pulls

- **Drag on liquidity**
  - Involve pressures from credit management and deterioration in other assets.
    - ✓ Uncollected receivables
    - ✓ Obsolete inventory
    - ✓ Tight credit: short-term debt becomes more expensive to arrange and use.
- **Pull on liquidity**
  - Restrict payment terms so much that the company's liquidity reserves are stretched thin.
    - ✓ Making payments early;
    - ✓ Reduced credit limits;
    - ✓ Limits on short-term lines of credit;
    - ✓ Low liquidity positions.

Measuring and Evaluating Liquidity

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

Summary

Module : Working Capital and Liquidity

Cash Conversion Cycle
Working Capital
Primary Liquidity Sources
Secondary Liquidity Sources
Factors Affecting Liquidity: Drags and Pulls
Measuring and Evaluating Liquidity

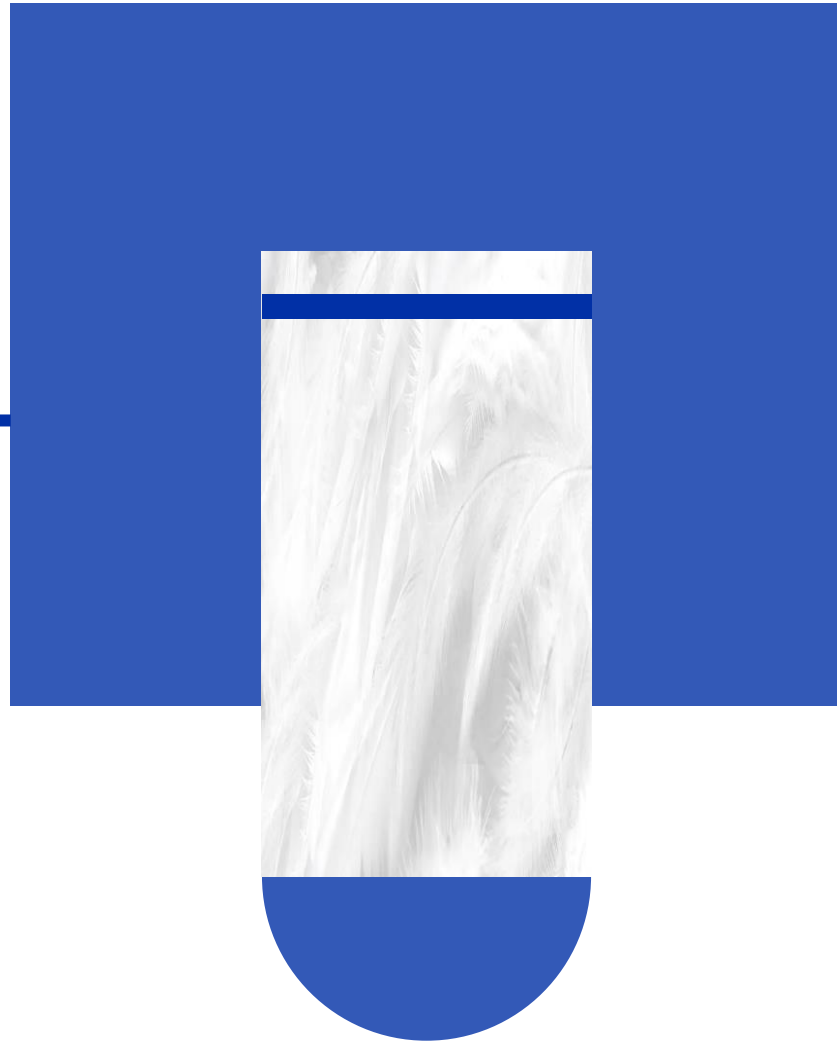
Module

Capital Investments and Capital Allocation

1. Capital Investments
2. Capital Allocation
3. Capital Allocation Principles and Pitfalls
4. Real Options

Capital Allocation Process

- Basic Principles of Capital Budgeting



Basic Principles of Capital Budgeting

- **Decision are based on incremental cash flows, not accounting income**
- **The timing of cash flows is important → time value of money**
  - Cash flows received earlier are worth more than cash flows to be received: accelerated depreciation.
- **Cash flow are analyzed on an after tax basis**
  - A decision should consider the impact of taxes.
  - The value of an firm is none of government's business.

Basic Principles of Capital Budgeting

- **Cash flows should be ignored**
  - **Sunk costs:** any costs that cannot be avoided, even if the project is not undertaken, consulting fee, advertisement costs.
  - **Financing costs/interest cost:** financing costs are included in the project cost of capital or WACC.
- **Cash flows should be included**
  - **Externalities**
    - ✓ A negative externalities (cannibalization): new project takes sales from an existing product
    - ✓ A positive externalities: the product benefits sales of a firm's other product lines
  - **Opportunity costs**
    - ✓ Opportunity cost: cash flows that a firm will lose by undertaking the project, generally an asset the firm already owns

Project Evaluation Methods and NPV profile

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

NPV

- **The Net Present Value (NPV)**
  - Definition

$$NPV = CF_0 + \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n}{(1+r)^n}$$

    - ✓ PV of the future after-tax cash flows minus the investment outlay
    - ✓ r: required rate of return (opportunity cost of capital, COC) related with risks.
  - Decision rule
    - ✓ For independent projects
      - If NPV>0, increase wealth, accept.
      - If NPV<0, decrease wealth, reject.
    - ✓ For mutually exclusive projects
      - Choose the one with highest NPV.

Example

NPV calculation

- Assume that the firm's cost of capital is 9% (Use your calculator)

Year (t)	0	1	2	3
Net cash flow	-100	25	50	75
Discounted NCF	-100	22.94	42.08	57.91

- **Correct Answer:**
  - $\text{NPV} = -100 + \frac{25}{(1+9\%)^1} + \frac{50}{(1+9\%)^2} + \frac{75}{(1+9\%)^3}$

$= -100 + 22.94 + 42.08 + 57.91 = 22.93$

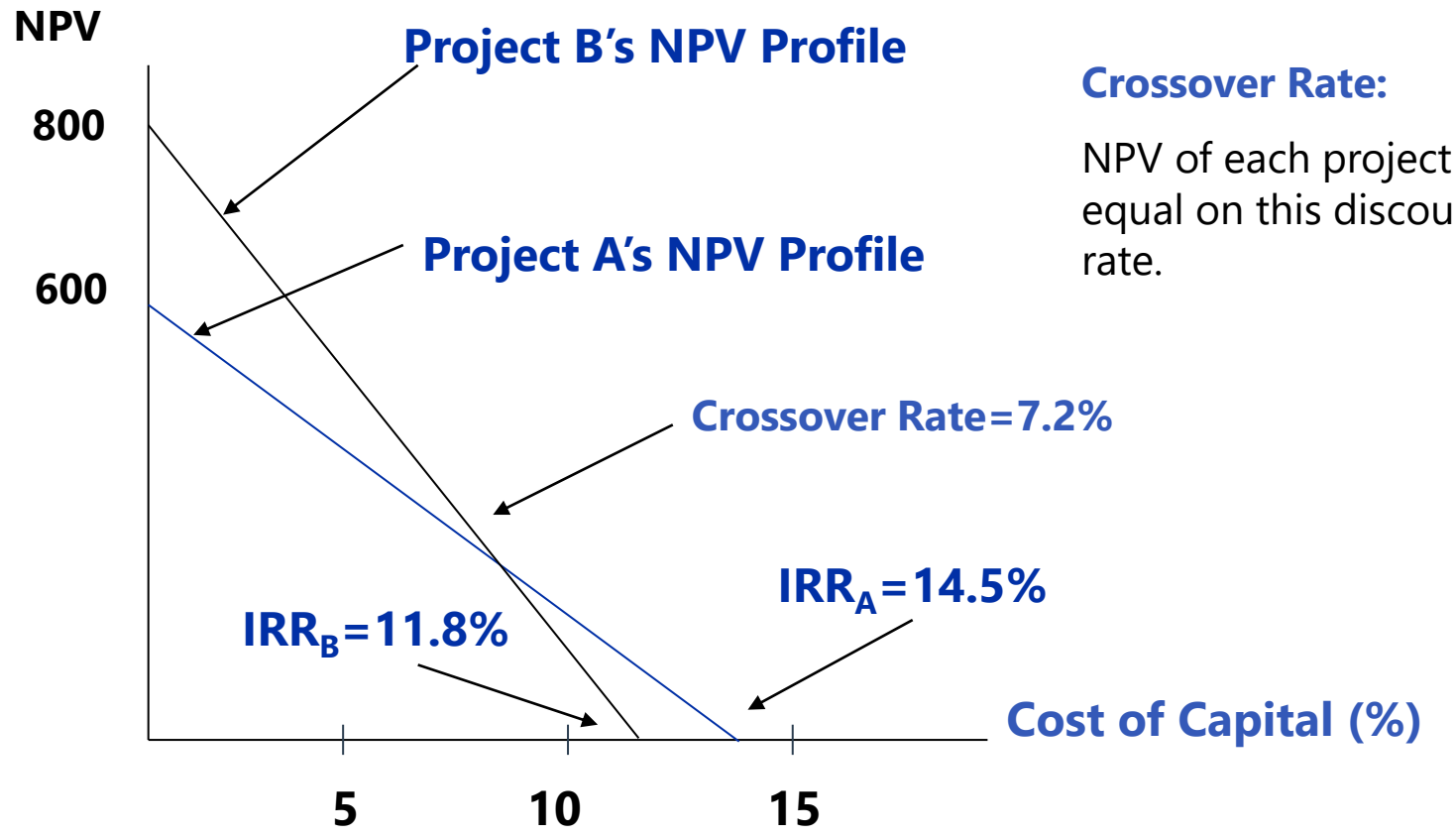
IRR

- **Internal rate of return (IRR)**
  - Definition
    - ✓ Discount rate that makes the PV of the future after-tax cash flows equal that investment outlay (NPV=0).

$$CF_0 + \frac{CF_1}{(1+IRR)^1} + \frac{CF_2}{(1+IRR)^2} + \cdots + \frac{CF_3}{(1+IRR)^3} = 0$$

  - Decision rule
    - ✓ For independent projects
      - Invest if IRR ≥ the required rate of return (hurdle rate);
      - Reject if IRR ≤ the required rate of return (hurdle rate).
    - ✓ For mutually exclusive projects
      - Choose the highest IRR.

NPV Profiles



Crossover Rate:

NPV of each project are equal on this discount rate.

Impact of NPV Rule and Stock Price

- When the NPV is **positive**, firm value is increased and shareholder wealth is **increased.**
- An NPV of **zero** means the project does **not increase** shareholder wealth.
- A **negative** NPV means **decrease** shareholder wealth.
- The **NPV of the project = change of the market value of the stocks**
  - In theory, when the NPV is **positive**, **P_{stock} is increased**, vice versa.

Example

Impact of NPV Rule and Stock Price

- Presstech is investing $500 million in new printing equipment. The present value of the future after-tax cash flows resulting from the equipment is $750 million. Presstech currently has 100 million shares outstanding, with a current market price of $45 per share. Assuming that this project is new information and is independent of other expectations about the company, calculate the effect of the new equipment on the value of the company and the effect on Presstech's stock price.

- **Correct Answer:**
  - NPV=750-500=250 million
  - New value = 45+250/100= $47.5

Impact of NPV Rule and Stock Price

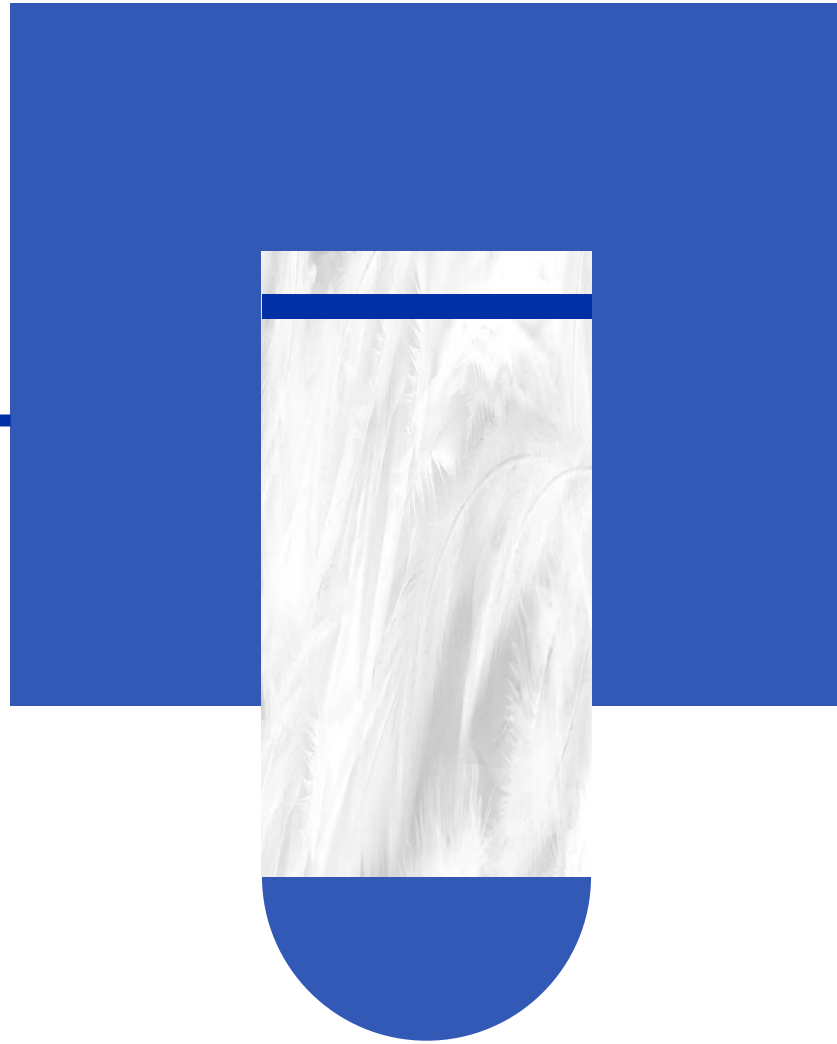
- **In reality**
  - The impact of a project on the company's stock price is more complicated than previous example.
  - The impact of an investment on the stock price will depend on whether the investment's profitability is more or less than expected.
  - An analyst could learn of a positive NPV project, but if the profitability is less than expectation, stock may drop in price on the news.
  - A project that by itself might add $2.5 to the value of the stock might signal the existence of other profitable projects, thus increase the stock price by far more than $2.5

Return on Invested Capital

- **Return on invested capital** is a measure of the profitability of a company relative to the amount of capital invested by the equity- and debt holders.
- ROIC reflects **how effectively** a company's management is able to **convert capital into profits**.
  - $\text{Return on invested capital} = \frac{\text{after tax operating profit}}{\text{average book value of invested capital}}$
    - ✓ 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.

Real Options

- Types of Real Options



Real Options

- **Real options are capital budgeting options** that allow managers to make decisions in the future that alter the value of capital budgeting investment decisions made today.
  - Just deal with real assets instead of financial assets;
  - Entail the right to make a decision, but not the obligation;
  - The flexibility is given to managers to enhance the NPV of the company's capital investments.
- **Types of real options include**
  - Timing options;
  - Sizing options;
  - Flexibility options;
  - Fundamental options.

Types of Real Options

- **Timing Options**
  - Instead of investing now, the company can delay investing.
  - **Project sequencing options** allow the company to defer the decision to invest in a future investment until the outcome of some or all of a current investment is known.
- **Sizing options**
  - **Abandonment option**
    - ✓ The company can abandon the project when the financial results are disappointing after investing.
  - **Growth (expansion) option**
    - ✓ The company can make additional investments when future financial results are strong after investing.

Types of Real Options

- **Flexibility options**: once an investment is made, other operational flexibilities may be available besides abandonment or expansion.
  - **Price-setting options**
    - ✓ By increasing prices, the company could benefit from the excess demand, which it cannot do by increasing production.
  - **Production flexibility options**
    - ✓ The company can profit from working overtime or from adding additional shifts.
- **Fundamental options**
  - Options embedded in a project that can raise its value. In other cases, the whole investment is essentially an option.
  - The payoffs from the investment are contingent on an underlying asset, just like most financial options.
  - High oil prices, drill a well.

Summary

Module : Capital Investments and Capital Allocation

Basic Principles of Capital Budgeting
Net present value (NPV)
Internal rate of return (IRR)
Return on invested capital (ROIC)
Types of Real Options

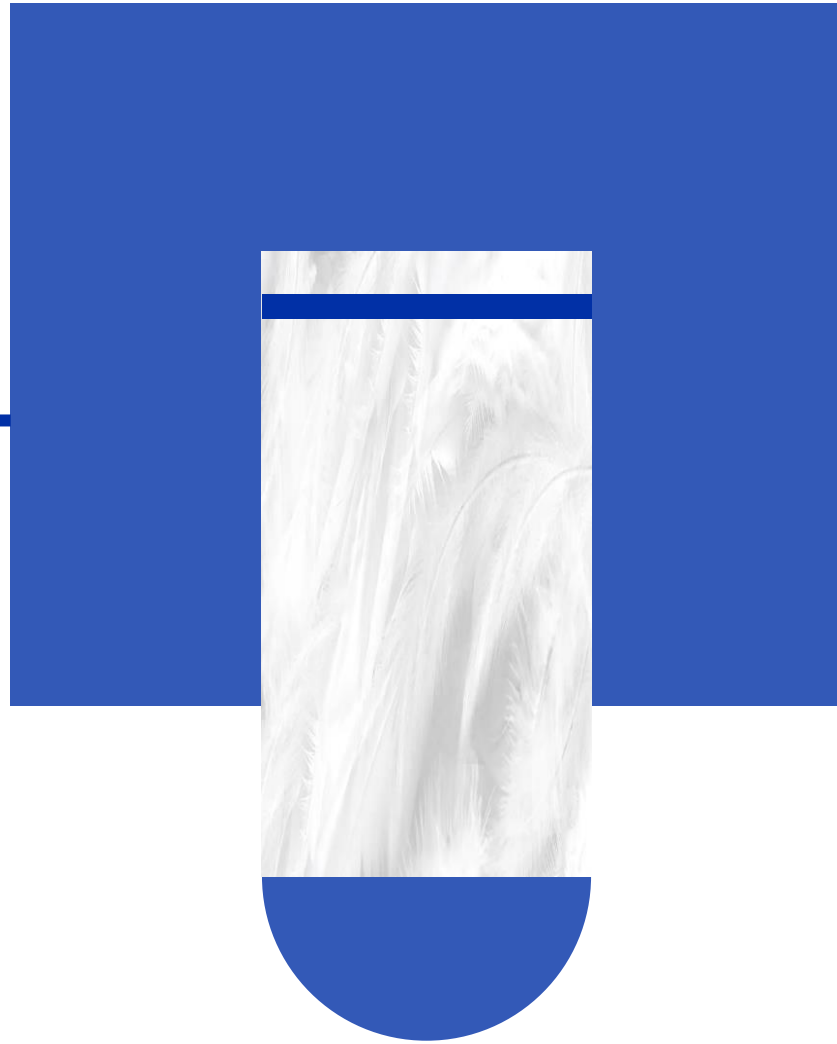
Module

Capital Structure

1. Capital Structure
2. MM Propositions
3. Static Trade-off Theory
4. Pecking Order Theory

MM Propositions

- MM Propositions
  - MM1 without tax
  - MM2 without tax
  - MM1 with tax
  - MM2 with tax



Capital Structure Theory

- **Capital Structure Theory**
  - MM theory 1958 → No taxes, no costs of financial distress;
  - MM theory 1963 → With taxes, no costs of financial distress;
  - The static trade – off theory → With taxes, with costs of financial distress.

MM: Modigliani - Miller

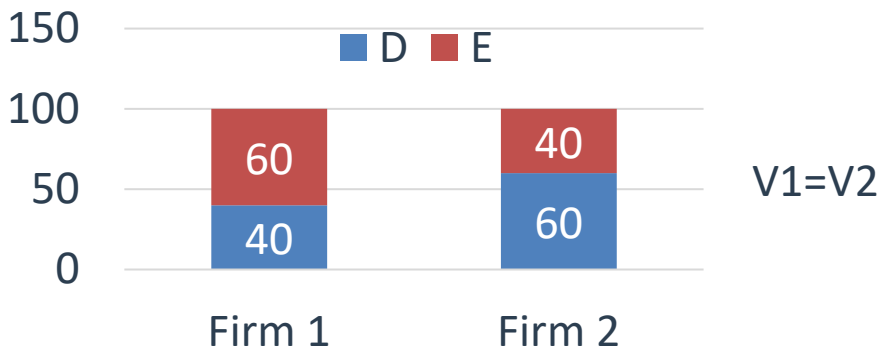
Under different assumptions of taxes, transaction costs, and bankruptcy costs, there are different conclusions.

Capital Structure Theory

- **Basic assumptions for MM theory**
  - **Homogenous expectations**
    - ✓ Investors agree on the expected cash flow from a given investment.
  - **Perfect capital market**
    - ✓ Bonds and shares of stock are traded in a perfect capital market.
  - **Risk free rate**
    - ✓ Investors can borrow/lend at the risk-free rate.
  - **No agency costs**
    - ✓ Managers act to maximize shareholder wealth.
  - **Independent decisions**
    - ✓ Financing decision and investment decision are independent.

Capital Structure Theory

- **MM proposition 1 without taxes: capital structure irrelevance**
  - Conclusion
    - ✓ The market value of a company is not affected by the capital structure.



Capital Structure Theory

- **MM proposition 1 without taxes: capital structure irrelevance**
  - Value is not created simply by changing company's capital structure;
  - 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.
  - For simplification, assume 2 firms have the same cash flow (FCFF) and uncertainty.
  - The firm value is the same as the discount rate is the same.

Capital Structure Theory

- **MM proposition 2 without taxes: higher leverage raises the cost of equity**
  - The cost of equity is a linear function of D/E;
  - Assumption
    - ✓ Financial distress has no cost;
    - ✓ Debt holders have prior claim to assets and income → $r_d < r_e$
  - r_e rises with higher D/E to offset the increased use of cheaper debt to maintain constant WACC.

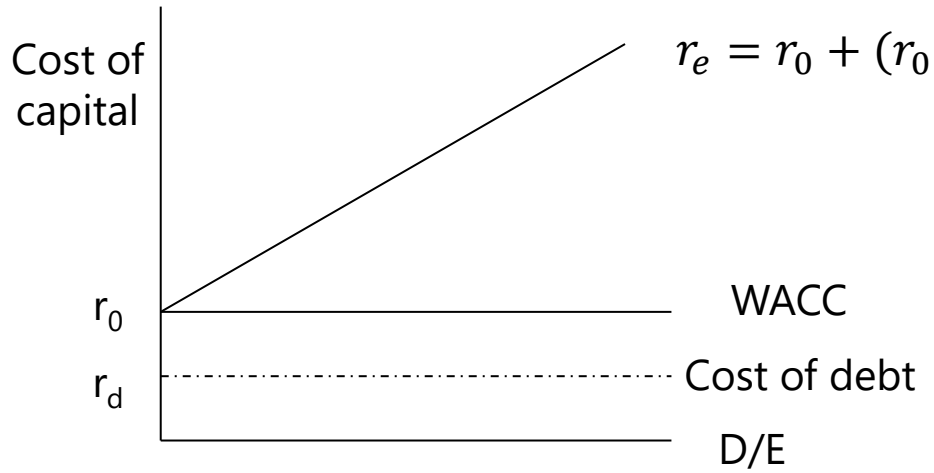
$$r_{WACC} = \frac{D}{V} r_d + \frac{E}{V} r_e$$

  - Let us define r_0 as the cost of capital for a company financed only by equity (an "all-equity company"). Then, by MM Proposition I, $r_{wacc} = r_0$, so

$$r_{WACC} = \frac{D}{V} r_d + \frac{E}{V} r_e = r_0$$

Capital Structure Theory

- **MM proposition 2 without taxes: higher leverage raises the cost of equity**



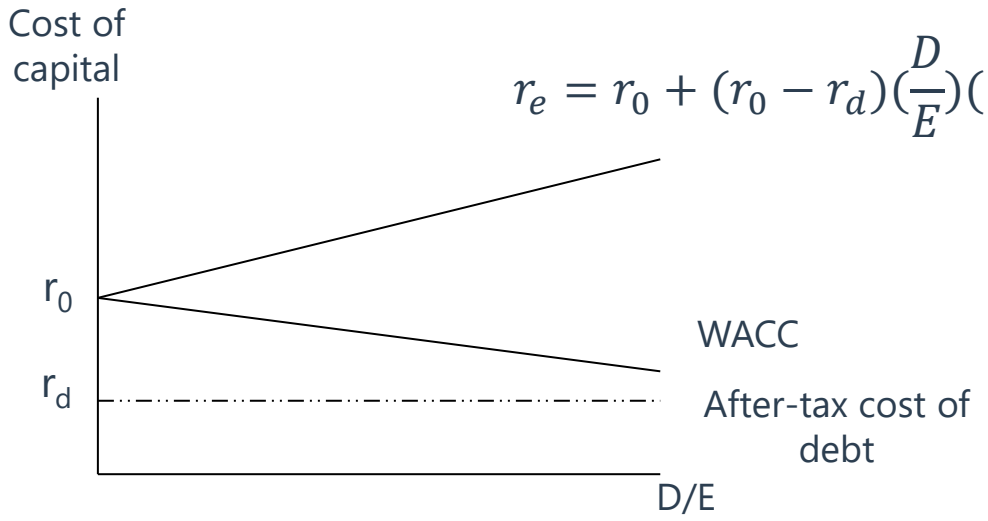
$$\beta_a = (\frac{D}{V})\beta_d + (\frac{E}{V})\beta_e \Rightarrow \beta_e = \beta_a + (\beta_a - \beta_d)\frac{D}{E} \qquad V = \frac{EBIT}{r_0}$$

The r_0 is not determined by capital structure, but by business risk of the company.

Capital Structure Theory

- **MM proposition 1 (with taxes)**
  - The tax deductibility of interest payment creates a tax shield that adds value to the firm, and the optimal capital structure is 100% debt.
  - $V_L = V_u + t \times D$
- **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.

Capital Structure Theory



$$r_e = r_0 + (r_0 - r_d)(\frac{D}{E})(1-t)$$

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

$V_L = D + E$ （公司价值 = 股权价值 + 债权价值）

$$V_L = V_U + t \times D \Rightarrow V_U = V_L - t \times D = (D+E) - t \times D = E + (1-t)D$$

$$V_U = \frac{EBIT(1-t)}{r_0} \Rightarrow EBIT(1-t) = V_U \times r_0 = [E + (1-t)D] \times r_0$$

$$r_e = \frac{NI}{E} = \frac{(EBIT - r_d \times D)(1-t)}{E} = \frac{EBIT(1-t) - r_d \times D(1-t)}{E}$$
$$= \frac{[E + (1-t)D] \times r_0 - r_d \times D(1-t)}{E} = \frac{r_0 \times E + r_0(1-t)D - r_d \times D(1-t)}{E}$$
$$= r_0 + r_0(1-t)\frac{D}{E} - r_d \times (1-t)\frac{D}{E} = r_0 + (r_0 - r_d)(\frac{D}{E})(1-t)$$

Short summary for MM theory

- **Difference between Proposition 2 without taxes and with taxes**
  - When t ≠ 0, (1 - t) lowers cost of leveraged equity compared to no-tax case.
    - ✓ re becomes greater as the company increases the debt financing, but re does not rise as fast as it does in the no-tax case. Because the slope coefficient (r0-rd)(1-t) < (r0-rd) 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 all debt.

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

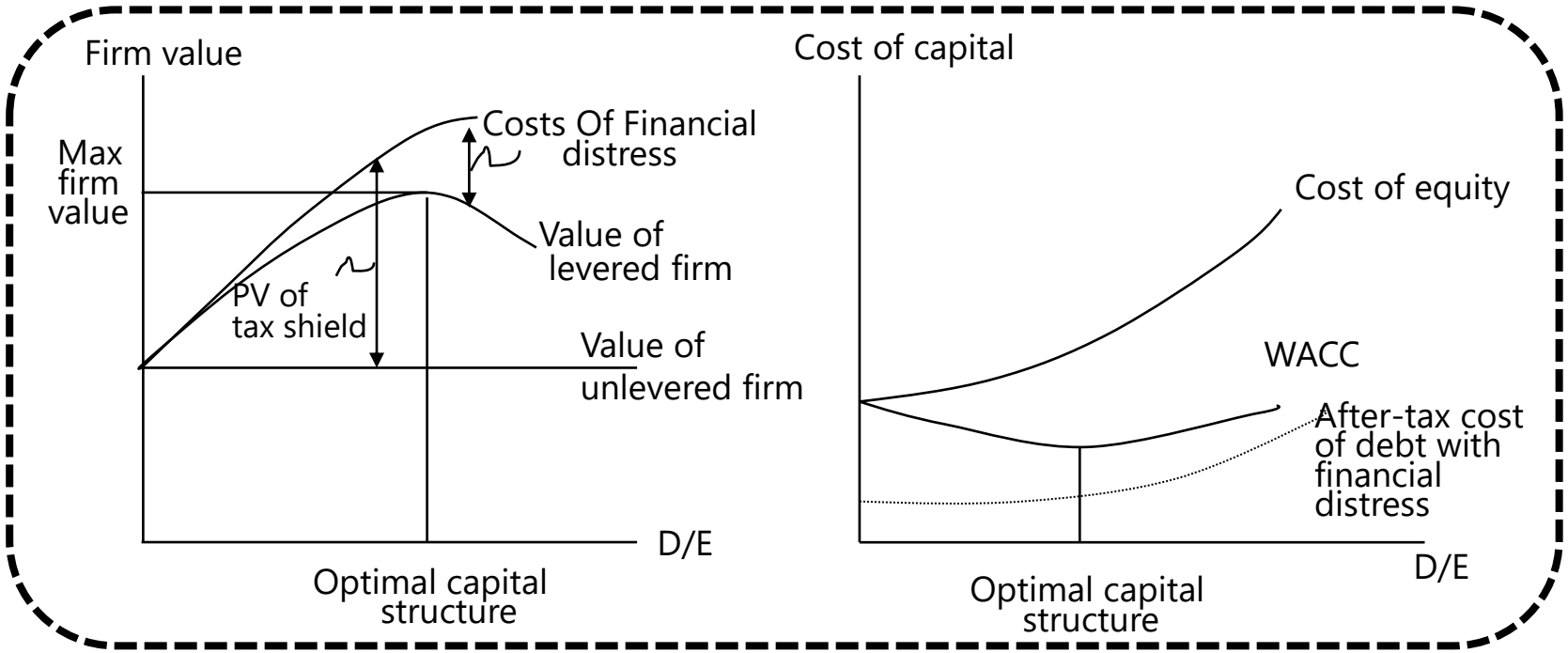
Static Trade-off Theory

- Static trade-off theory
- Cost of financial distress
- Agency cost

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.

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



Costs of financial distress

- **Financial distress** refers to the heightened uncertainty regarding a company's ability to meet its various obligations because of diminished earnings power or actual current losses.
- **Cost of financial distress**
  - **Direct costs:** actual cash expenses associated with the bankruptcy process, such as legal and administrative fees.
  - **Indirect costs:**
    - ✓ Forgone investment opportunities
    - ✓ Reputational risk
    - ✓ Impaired ability to conduct business
    - ✓ Agency costs of debt, during periods in which the company is near or in bankruptcy.
- **Probability that financial distress and bankruptcy happen**
  - Operating leverage and financial leverage;
  - Quality of management and corporate governance structure.

Agency Costs

- **Agency cost**
  - The **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 decreases agency costs.**

Summary

Module : Capital Structure

MM Propositions

Static trade-off theory

Cost of financial distress

Agency cost

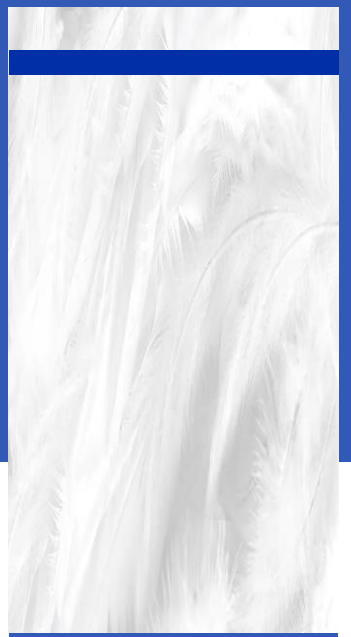
Module

Business Models

1. Defining the Business Model
2. Business Model Types

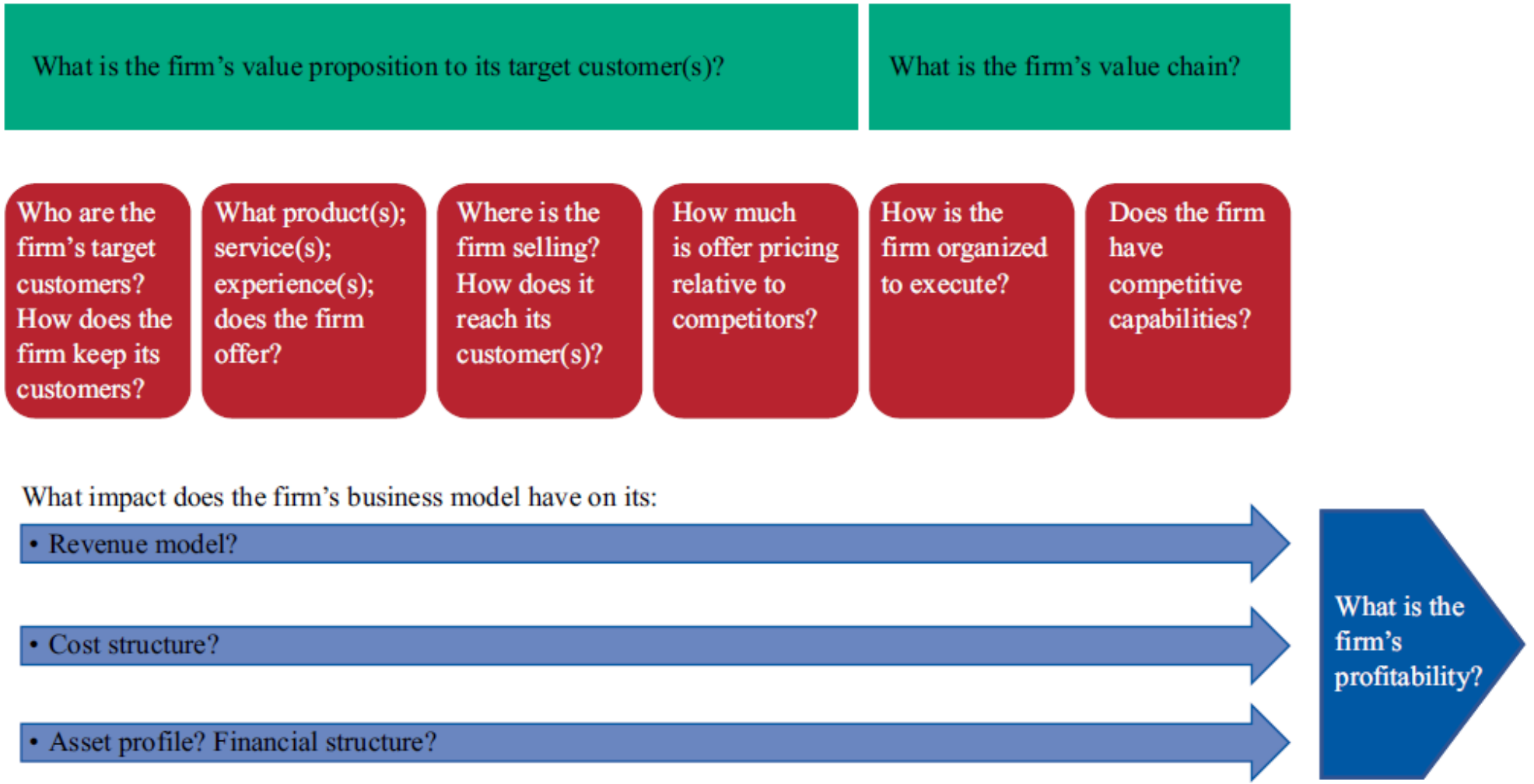
Business Models

- Definition of business model
- Key features of business model



Definition

- **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.

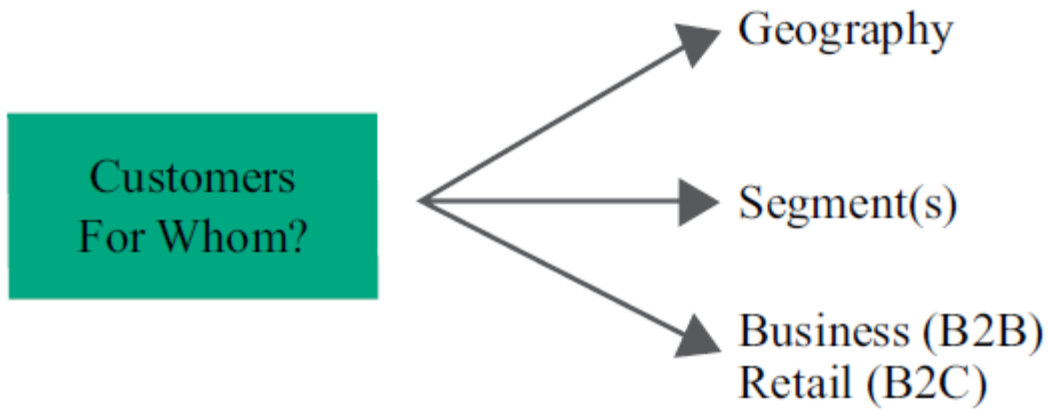


Key features of business model

- **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.

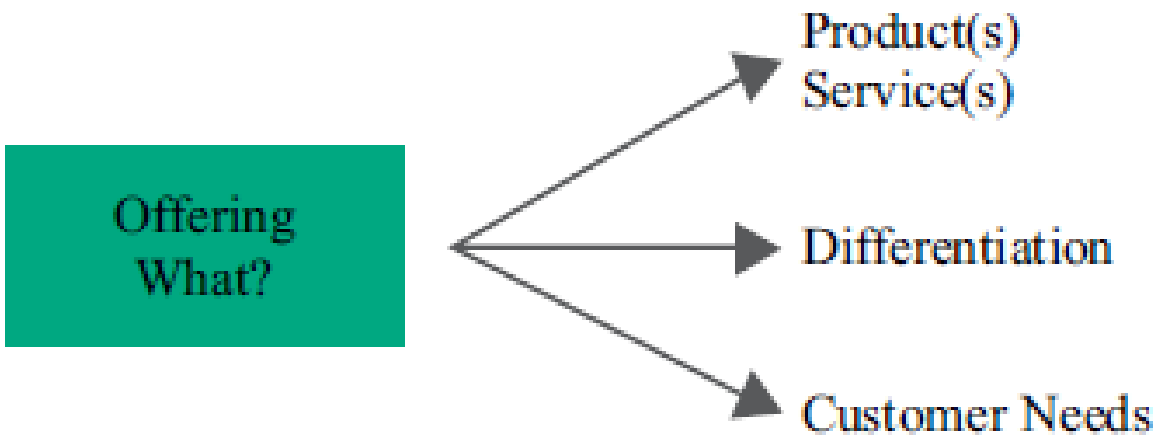
Value Proposition: Customers, Market: Who

- **The business model should identify the firm's target customers:**
  - What geographies will be served?
  - What market segments will be served?
  - What customer segments will be served? Is this a business (B2B) or consumer (B2C) market?
    - ✓ It is common in consumer markets to think of target demographic segments as defined by marketers (e.g., high-income suburban families).
    - ✓ Business opportunities often arise because established firms may not effectively serve (or even recognize) particular customer segments.



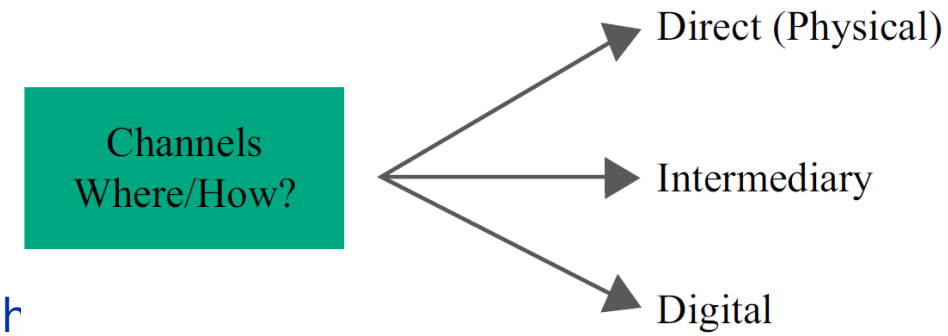
Firm Offering: What

- The business model should define **what the firm offers (what product or service),** in terms that differentiate it from competitor offerings, and with reference to the needs of its target customers.
  - This helps the analyst to understand the addressable market for the business and to identify key competitors and associated risks.

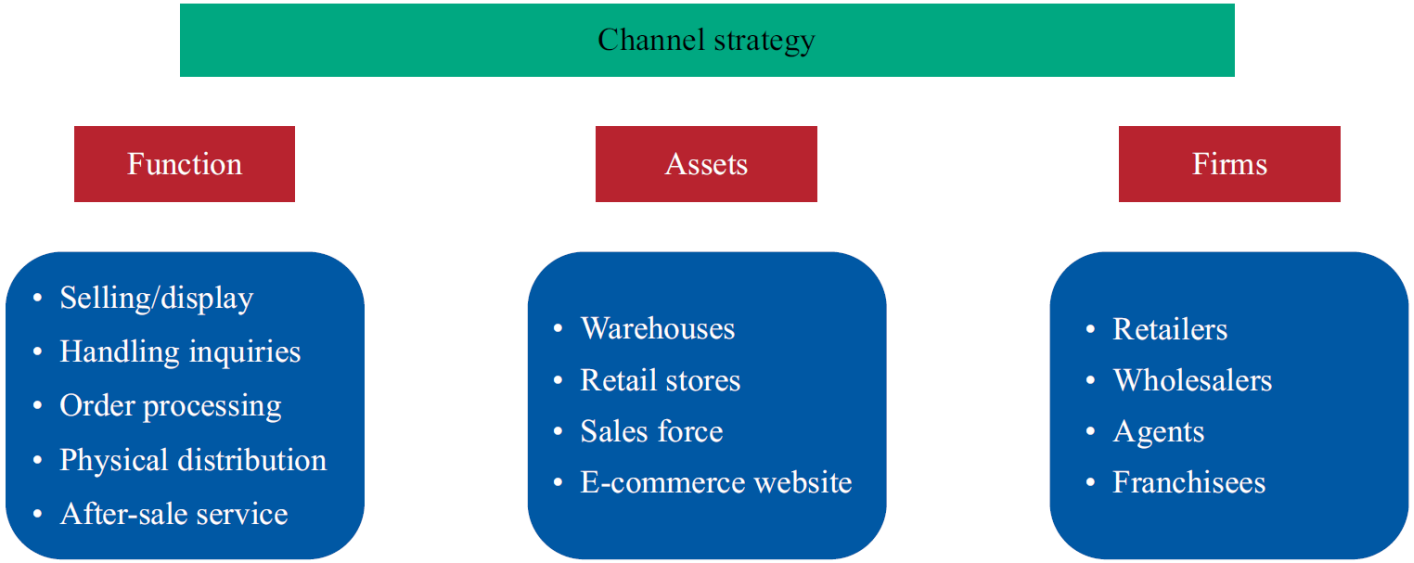


Channels: Where

- **Channel strategy usually involves two main functions:**
  - 1. Selling the firm's products and services
  - 2. Delivering them to customers

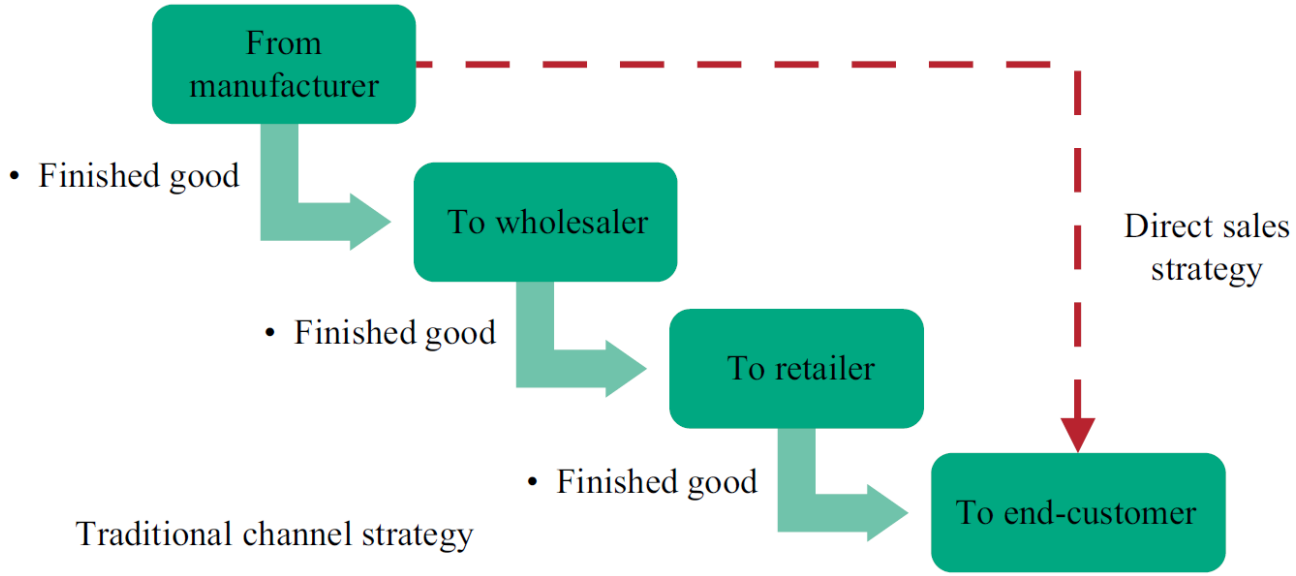


- In assessing a firm's channel strategy, it is important to distinguish that might be involved and different firms that might be involved in performing those functions or owning those facilities.



Channels: Where

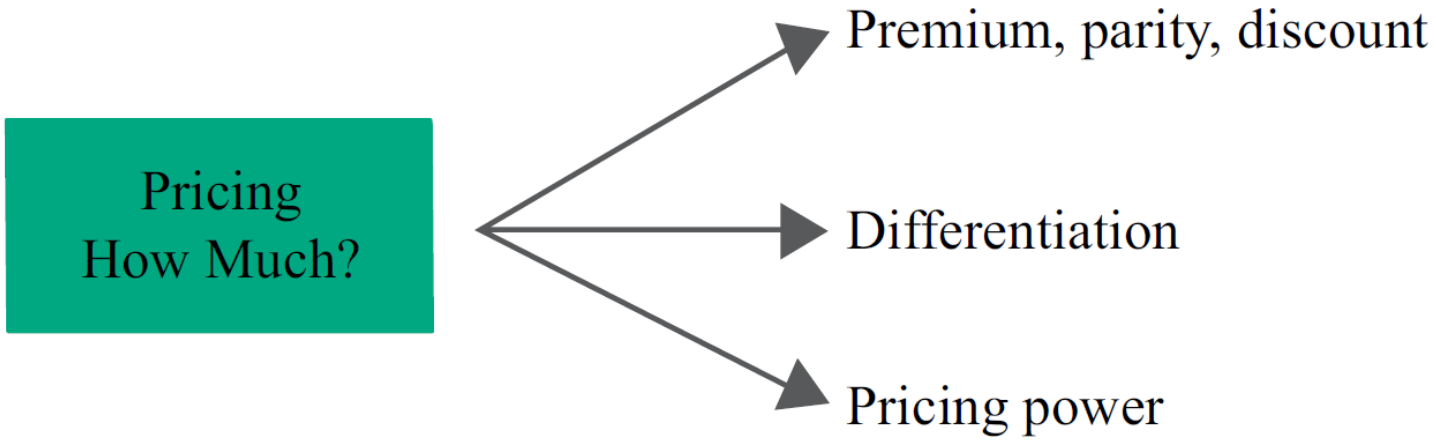
- For "product" businesses, the traditional channel strategy is typically reflected in the flow of finished goods (e.g., from manufacturer to wholesaler, retailer, and end customer), each with its own physical facilities and with the product sold and purchased at each stage.
- In some categories, manufacturers employ a direct sales strategy, selling directly to the end customer.
  - ✓ With e-commerce, however, direct sales have become a cost-effective strategy across many business and consumer markets.
- Often, channels are used in combination. With an **omnichannel** strategy, both digital and physical channels are used to complete a sale.



Drop shipping (without taking the goods into inventory.)

Pricing: How Much

- **Does the firm price at a premium, parity, or discount relative to competitors?**
  - Companies with little differentiation are **"commodity" producers** that must **accept market prices** dictated to them **("price taker (parity)").**
  - Companies with **high differentiation** can command **premium pricing ("price setter").**
  - Companies whose demand is **highly price-elastic** can command **discounting strategy**.
- **How is the firm's pricing justified in its business model?**
  - Pricing approaches are typically value or cost based.
    - ✓ Value-based pricing attempts to set pricing based on the value received by the customer.
    - ✓ Cost-based pricing attempts to set pricing based on costs incurred.



Pricing: How Much

- **Price Discrimination**
  - ✓ Common pricing strategies in this category include the following:
    - Tiered pricing charges different prices to different buyers, most commonly based on volume purchased.
    - Dynamic pricing charges different prices at different times.
    - Auction/reverse auction models establish prices through bidding (by sellers in the case of reverse auctions).
- **Pricing for Multiple Products**
  - ✓ Some pricing models are used by firms selling multiple or complex products:
    - Bundling refers to combining multiple products or services so that customers are incentivized, or required, to buy them together.
    - Optional product pricing applies when a customer buys additional services or product features, either at the time of purchase (e.g., a deluxe interior for a car or a side order with a restaurant meal) or afterward (e.g., change orders in a construction contract).

Pricing: How Much

- **Pricing for Rapid Growth**
  - ✓ 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.
  - ✓ 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.
  - ✓ Hidden revenue business models provide services to users at no charge and generate revenues elsewhere.
- **Alternatives to Ownership**
  - ✓ Recurring revenue/subscription pricing ("product as a service") enables customers to "rent" a product or service for as long as they need it.
  - ✓ Fractionalization creates value by selling an asset in smaller units or through the use of an asset at different times
  - ✓ Leasing involves shifting the ownership of an asset from the firm using it to an entity that has lower costs for capital and maintenance.
  - ✓ Licensing typically gives a firm access to intangible assets (e.g., a brand name or intellectual property, such as a film library, song, or patented formula) in return for royalty payments (often a percentage of revenues).

Value chain vs. supply chain

- **Value chain:** the systems and processes within a firm that create value for its customers.
  - A value chain includes only those functions performed by a single firm, which may be functions that are valued by customers but do not involve physical transformation or handling the product.
- **Supply chain:** 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 (multiple firms).

Value chain

- **Value chain** analysis provides a link between the firm's value proposition for customers and its profitability. It involves:
  - **1.** identifying the specific activities carried out by the firm,
  - **2.** estimating the value added and costs associated with each activity,
  - **3.** identifying opportunities for competitive advantage.

Evaluating the value chain

- **Five primary activities**: inbound logistics, operations, outbound logistics, marketing, and sales and service.
- **Four primary "support" activities** are procurement, human resources, technology development, and firm infrastructure.

Summary

Module : Business Models

Definition of business model

Key features of business model

问题反馈

- 如果您认为金程**课程讲义/题库/视频**或其他资料中**存在错误，欢迎您告诉我们**，所有提交的内容我们会在最快时间内核查并给与答复。
- **如何告诉我们?**
  - 将您发现的问题通过扫描右侧二维码告知我们，具体的内容包含:
    - ✓ 您的姓名或网校账号
    - ✓ 所在班级
    - ✓ 问题所在科目(若未知科目，请提供章节、知识点和页码)
    - ✓ 您对问题的详细描述和您的见解
- **非常感谢您对金程教育的支持，您的每一次反馈都是我们成长的动力。**


求知无坦途。
There is no royal road to learning.