

Corporate Finance

-- 2017

Instructor: Feng

Brief Introduction

Topic weight:

SS1	Ethics & Professional Standards	15%
SS2 - SS3	Quantitative Analysis	12%
SS4 - SS5	Economics	10%
SS6 - SS9	Financial Reporting and Analysis	20%
SS10-SS11	Corporate Finance	7%
SS12	Portfolio Management	7%
SS13 - SS14	Equity Investment	10%
SS15 - SS16	Fixed Income	10%
SS17	Derivatives	5%
SS18	Alternative Investments	4%
Weights:		100%

Brief Introduction

Content:

- Study Session 10: Corporate Governance, Capital Budgeting, and Cost of Capital
 - Reading 34: Corporate Governance and ESG: An Introduction
 - Reading 35: Capital Budgeting
 - Reading 36: Cost of Capital

Brief Introduction

Content:

- Study Session 11: Leverage, Dividends and Share Repurchases, and Working Capital Management
 - Reading 37: Measures of Leverage
 - Reading 38: Dividends and Share Repurchases: Basics
 - Reading 39: Working Capital Management

Brief Introduction



考纲对比:

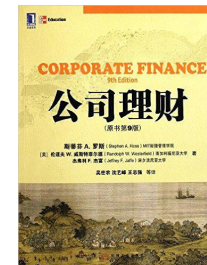
- 与2016年相比，2017年的考纲关于Corporate Governance (Reading 34) 部分有比较大的变化，位置也从6个Reading的最后移到最前。

Brief Introduction



推荐阅读:

- 公司理财
 - Stephen A. Ross 著
 - ISBN: 978-7-1113-6751-2
 - 机械工业出版社



Brief Introduction



学习建议:

- 本门课程难度不高，要确保拿分；
- 听课与做题相结合，但并不建议“刷题”；
- 最重要的，认真、仔细的听课。



定义人生的，不是所处的位置，是前进的方向！

Corporate Governance

Tasks:

- **Describe** corporate governance, a company's stakeholder, and relationships in corporate governance;
- **Describe** mechanisms of stakeholder management, and the board of directors and its committees;
- **Describe** ESG investment.

Corporate Governance

Definition

- The system of internal controls and procedures by which individual companies are managed.
 - Defines the rights, roles, and responsibilities of various groups within an organization.
 - Minimize and manage the conflicting interests between insiders and external shareowners.

Corporate Governance

Corporate governance theories

- **Shareholder theory**: the most important responsibility of a company's managers to maximize shareholder returns.
- **Stakeholder theory**: focuses on the interests of not only its shareholders, but also its customers, suppliers, employees, and others who have an interest in the company.

Corporate Governance

Stakeholders groups

- **Shareholders**
- **Board of directors**
- **Managers and employees**
- **Creditors**
- Customers
- Suppliers
- Governments/regulators

Corporate Governance



Stakeholder groups (Cont.)

- **Shareholders:** typically focused on growth in corporate profitability that maximizes the value of a company's equity.
 - Controlling shareholders
 - Minority shareholders



Corporate Governance



Stakeholder groups (Cont.)

- **Board of directors:** elected by shareholders to protect shareholders' interests, provide strategic direction, and monitor company and management performance;
- **Creditors:** generally prefer stability in company operations and performance.



Corporate Governance



Relationships in corporate governance

- Principal-agent relationship
 - Shareholder vs. Management/Board of directors
 - Controlling shareholder vs. Minority shareholder
 - Board of directors vs. Management
 - Shareholder vs. Creditor



Corporate Governance



Relationships in corporate governance (Cont.)

- Other relationship
 - Customers vs. Shareholders
 - Customers vs. Suppliers
 - Shareholders vs. Governments or regulators



Corporate Governance



Stakeholder management

- Involves identifying, understanding, and prioritizing the interests of stakeholder groups, then managing the company's relationships with these groups.
- Need to reflect **legal, contractual, organizational, and governmental** infrastructure that defines the rights, responsibilities, and powers of each group.

Corporate Governance



Mechanisms of stakeholder management

- General Meetings
 - Annual general meeting (AGM, 年度股东大会)
 - Extraordinary general meeting (EGM, 临时股东大会)
- **Board of directors**
- The audit function
- Reporting and transparency
- Policies on related-party transactions

Corporate Governance



Mechanisms of stakeholder management (Cont.)

- Remuneration policies
- Say on pay
- Contractual agreements with creditors
- Employee laws and contracts
- Contractual agreements with customers and suppliers
- Laws and regulations

Corporate Governance



Board of directors

- The board serves as the link between shareholders and managers and acts as the shareholders' monitoring tool within the company.
 - Duty of care: act on a fully informed basis, in good faith, with due diligence and care;
 - Duty of loyalty: act in the interest of the company and shareholders.

Corporate Governance



Board of directors committees

- **Audit committee:** oversee the audit and control systems at the company and ensure their effectiveness.
- **Governance committee:** ensure that the company adopts good corporate governance practices.
- **Remuneration/Compensation committee:** develops and proposes remuneration policies for the directors and key executives.



Corporate Governance



Board of directors committees (Cont.)

- **Nomination committee:** identifies candidates who are qualified to serve as directors and recommends their nomination for election by shareholders.
- **Risk committee:** assists the board in determining the risk policy, profile, and appetite of the company.
- **Investment committee:** reviews material investment opportunities and considers their viability.



Corporate Governance



Factors affecting stakeholder relationships

- Market factors
 - Shareholder engagement
 - Shareholder activism
 - Competition and takeovers
- Non-market factors
 - Legal environment
 - The media
 - The corporate governance industry



Corporate Governance



Risks of poor governance

- Weak control systems
- Ineffective decision making
- Legal, regulatory, and reputational risks
- Default and bankruptcy risks



Corporate Governance



Benefits of effective governance

- Operational efficiency
- Improved control
- Better operating and financial performance
- Lower default risk and cost of debt



Corporate Governance



Factors relevant to corporate governance analysis

- Economic ownership and voting control
- Board of directors representation
- Remuneration and company performance
- Investors in the company
- Strength of shareholders' rights
- Managing long-term risks



Corporate Governance



ESG integration/ESG investing

- The practice of considering environmental, social, and governance factors in the investment process.
 - Also referred to as sustainable investing (SI), responsible investing (RI), or social responsible investing (SRI).



Corporate Governance



ESG implementation methods

- **Negative screening:** exclude certain sectors companies that violate accepted standards in ESG concerns.
- **Positive screening/best-in-class approaches:** focus on investments with favorable ESG aspects, aims to identify companies that embrace solid ESG-related principles in their operations and strategies.



Corporate Governance



ESG implementation methods (Cont.)

- **Impact investing:** seeks to achieve targeted social or environmental objectives along with measurable financial returns.
- **Thematic investing:** strategies typically consider a single factor, such as energy efficiency or climate change.

Summary



- **Importance:** ☆
- **Content:**
 - Corporate governance and stakeholders;
 - Stakeholder management and board of directors;
 - Analyst considerations on corporate governance and ESG investing.
- **Exam tips:**
 - 不是考试重点。

Capital Budgeting & Its Principles



Tasks:

- **Describe** the capital budgeting process;
- **Distinguish** among the various categories of capital projects;
- **Describe** the basic principles of capital budgeting.

Capital Budgeting



Capital budgeting

- The process that companies use for decision making on capital projects-those projects with a life of a year or more.

Typical steps in the capital budgeting process

- Step 1: Generating ideas;
- Step 2: Analyzing individual project proposals;
- Step 3: Planning the capital budget for the firm;
- Step 4: Monitoring decisions and conducting a post-audit.

Capital Budgeting – Step 1



Types of Capital Projects

- **Replacement projects**
 - projects to maintain the business;
 - projects for cost reduction – need detailed analysis.
- **Expansion projects** – need detailed analysis;
- **New products or services** – need detailed analysis;
- **Mandatory projects** – for safety and environment;
- Other projects: pet projects, R&D projects.

Capital Budgeting – Step 2



Principles of Capital Budgeting

- The **after tax incremental cash flows** provide a sound basis for capital budgeting. It involves **basic principles** as follows:
 - **Include:**
 - ✓ **Opportunity costs** – the foregone return of the resource invests in the next-best project.
 - ✓ **Externalities** – cannibalization (negative effect); synergy (positive effect).

Capital Budgeting – Step 2



Principles of Capital Budgeting (Cont.)

- **Exclude:**
 - ✓ **Sunk costs** – decisions should not be affected by sunk costs.
 - ✓ **Financing costs** – they are considered in discount rate (avoiding double counting problem).
- Timing value of cash flows is crucial.

Summary



- **Importance:** ☆☆☆
- **Content:**
 - Capital budgeting process;
 - Categories of capital projects;
 - Principles of capital budgeting.
- **Exam tips:**
 - 常考点：Principles of capital budgeting，主要考概念辨析，也可能考现金流的计算。

Valuation of Single Capital Project (1)

Tasks:

- Calculate and interpret NPV and IRR methods for evaluation of a single capital project;
- Describe the problems associated with NPV and IRR methods.

Capital Budgeting – Step 2

Valuation methods for single project:

- Net Present Value (NPV)
- Intern Rate of Return (IRR)
- Payback Period (PB)
 - Discounted Payback Period (DPB)
- Profitability Index (PI)

Capital Budgeting – Step 2

Net Present Value (NPV)

- The sum of the present value of all the after-tax cash flows of the project.

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

- NPV indicates the expected change in the value of the firm.

Capital Budgeting – Step 2

Example:

- Assume a project with following cash flows and cost of capital (discount rate) of 10%, calculate its NPV.

End of Year	0	1	2	3
Cash Flow	-1000.00	200.00	400.00	800.00
Discounted CF	-1000.00	181.82	330.58	601.05

$$NPV = -1000 + \frac{200}{(1+10\%)^1} + \frac{400}{(1+10\%)^2} + \frac{800}{(1+10\%)^3} = 113.45$$

Capital Budgeting – Step 2



Net Present Value (Cont.)

- **Investment decision criteria** (for single/independent project):
 - If NPV > 0, then accept/invest;
 - If NPV < 0, then reject/not invest.
- **Advantages:**
 - Directly reflects the expect change of firm's value.
- **Disadvantages:**
 - Ignore the size of the project.

Capital Budgeting – Step 2



Internal Rate of Return (IRR)

- The discount rate that makes the total present value of all cash flows, the NPV, equal to zero.

$$NPV = 0 = CF_0 + \frac{CF_1}{(1 + IRR)^1} + \frac{CF_2}{(1 + IRR)^2} + \dots + \frac{CF_n}{(1 + IRR)^n}$$

- It is the expected return on the project.

Capital Budgeting – Step 2



Example:

- A project has the following cash flows, calculate its IRR.

End of Year	0	1	2	3
Cash Flow	-1000	200.00	400.00	800.00
Discounted CF @15.12%	-1000	173.73	301.83	524.37

$$NPV = -1000 + \frac{200}{(1 + IRR)^1} + \frac{400}{(1 + IRR)^2} + \frac{800}{(1 + IRR)^3} = 0$$

Use your calculator:

Input: CF₀ = -1000; CF₁ = 200; CF₂ = 400; CF₃ = 800;

CPT: IRR = 15.12%

Capital Budgeting – Step 2



Internal Rate of Return (Cont.)

- **Investment decision criteria** (for single/independent project):
 - If IRR > cost of capital, then accept/invest.
 - If IRR < cost of capital, then reject/not invest.
- **Advantages:**
 - It reflects the profitability.
- **Disadvantages:**
 - Multiple and no IRR problem (next 2 pages).
 - Impractical assumption of reinvestment rate (IRR).

Capital Budgeting – Step 2



Project cash flow types

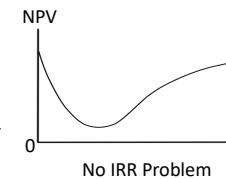
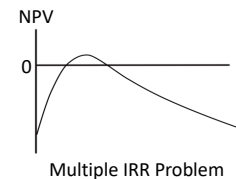
- **Conventional cash flows:** cash flows change signs once.
- **Nonconventional cash flows:** cash flows change signs more than once.

Capital Budgeting – Step 2



Multiple and no IRR problem

- For projects with nonconventional cash flows, there may be multiple IRRs or no IRR.



Summary



- **Importance:** ☆☆☆
- **Content:**
 - Calculation, decision criteria, advantage & disadvantage of NPV, IRR.
- **Exam tips:**
 - 常考点1: 直接考NPV和IRR的计算;
 - 常考点2: 考概念辨析, 主要是NPV和IRR两种方法的应用和优缺点。

Valuation of Single Capital Project (2)



Tasks:

- **Calculate and interpret** PB, DPB and PI methods for evaluation of a single capital project;
- **Describe** the problems associated with PB, DPB and PI methods.

Capital Budgeting – Step 2



Payback Period (PB)

- The number of years required to recover the original investment in a project.

$$PB = A + \frac{B}{C}$$

- A: the last period with negative cumulative cash flow;
- B: the absolute value of cumulative cash flow at the end of the period A;
- C: the cash flow during the period after A.

Capital Budgeting – Step 2



Example:

- A project has the following cash flows, calculate the payback period.

End of Year	0	1	2	3
Cash Flow	-1000	200	400	800
Cumulative Cash Flow	-1000	-800	-400	400

$$PB = 2 + 400 / 800 = 2.5 \text{ Years}$$

Firm recovers its initial investment in 2.5 years.

Capital Budgeting – Step 2



Payback Period (Cont.)

- **Investment decision criteria** (for single/independent project):
 - No decision rule like that of the NPV or IRR.
- **Advantages:**
 - Simple and reflects the liquidity.
- **Disadvantages:**
 - Not a measure of value or profitability.
 - Ignores time value of money and the risk of the project.
 - Ignores cash flows beyond the payback period.

Capital Budgeting – Step 2



Discounted Payback Period (DPB)

- The number of years it takes for the cumulative discounted cash flows from a project to equal the original investment.

$$DPB = A + \frac{B}{C}$$

- A: the last period with negative cumulative discount cash flow;
- B: the absolute value of cumulative discount cash flow at the end of the period A;
- C: the discounted cash flow during the period after A.

Capital Budgeting – Step 2



Example:

- A project has the following cash flows and cost of capital of 10%, calculate the discounted payback periods.

End of Year	0	1	2	3
Cash Flow	-1000	200.00	400.00	800.00
Discounted Cash Flow	-1000	181.82	330.58	601.05
Cumulative DCF	-1000	-818.18	-487.60	113.45

$$DPB = 2 + 487.60 / 601.05 = 2.8 \text{ Years}$$

- Discounted payback period always greater than the payback period.

Capital Budgeting – Step 2



Discounted Payback Period (Cont.)

- **Investment decision criteria** (for single/independent projects):
- No decision rule like that of the NPV or IRR.
- **Advantages:**
- Reflects the liquidity.
 - Account for the time value of money and risk within the discounted payback period.

Capital Budgeting – Step 2



Discounted Payback Period (Cont.)

- **Disadvantages:**
- Not a measure of value or profitability.
 - Ignores cash flows beyond the discounted payback period.

Capital Budgeting – Step 2



Profitability Index (PI)

- Present value of future cash flows divided by initial investment.

$$PI = \frac{PV \text{ of Future CF}}{CF_0} = 1 + \frac{NPV}{CF_0}$$

- It indicates the value you are receiving in exchange for one unit of currency invested.

Capital Budgeting – Step 2



Example:

- A project has the following cash flows and cost of capital of 10%, calculate the profitability index.

End of Year	0	1	2	3
Cash Flow	-1000	200.00	400.00	800.00
Discounted Cash Flow	-1000	181.82	330.58	601.05

$$PI = \frac{\text{PV of future cash flows}}{\text{Initial investment}} = \frac{1113.45}{1000} = 1.13$$

Capital Budgeting – Step 2



Profitability Index (Cont.)

- Investment decision criteria (for single/independent project):
- If $PI > 1$, then accept/invest.
 - If $PI < 1$, then reject/not invest.

Capital Budgeting – Step 2



Profitability Index (Cont.)

- Advantage:
- It measures the profitability.
 - It directly shows the amount of value created per unit of investment.
- Disadvantage:
- The absolute NPV is ignored.

Capital Budgeting – Step 2



NPV & IRR & PI

- For single/independent project, NPV, IRR and PI give the same accept/reject decisions.
- If $NPV > 0$, $IRR > \text{cost of capital}$, $PI > 1$; and vice versa.
 - If $NPV < 0$, $IRR < \text{cost of capital}$, $PI < 1$; and vice versa.

Summary



- **Importance:** ☆☆
- **Content:**
 - Calculation, decision criteria, advantage & disadvantage of PB, DPB and PI.
- **Exam tips:**
 - 常考点: PB的计算。

Valuation of Interacting Projects



Tasks:

- **Explain** how the evaluation and selection of capital projects is affected by project interaction;
- **Explain** the NPV profile;
- **Describe** expected relations among an investment's NPV, company value, and share price.

Capital Budgeting – Step 3



Project interaction:

- **Independent projects:** projects are unrelated to each other.
 - **Unlimited funds:** the firm can raise the funds it wants for all profitable projects.

Capital Budgeting – Step 3



Project interaction:

- **Mutually exclusive projects:** projects compete directly with each other.
 - **Capital rationing:** the firm has a fixed amount of funds to invest.
- **Project sequencing** – projects should be taken in time order.

Capital Budgeting – Step 3



Independent projects

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

Mutual exclusive projects

- **NPV method:** choose the one with highest NPV.
- **IRR method:** choose the one with highest IRR.
- **PI method:** choose the one with highest PI.

Capital Budgeting – Step 3



Mutual exclusive projects (Cont.)

- NPV and IRR project rankings may conflict due to:
 - Different sizes of CFs.
 - Different timing of CFs.
 - Different reinvestment rate assumptions:
 - ✓ NPV assumes CFs can reinvest at the cost of capital (more conservative/realistic);
 - ✓ IRR assumes CFs can reinvest at project's IRR.

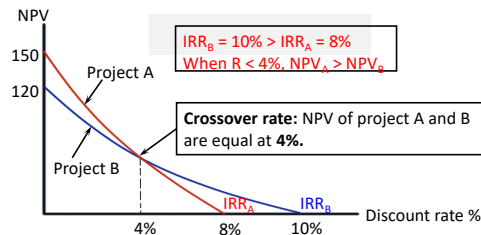
Choose the project with higher NPV.

Capital Budgeting – Step 3



NPV Profile

- A conventional cash flow project's NPV graphed as a function of various discount rates.



Capital Budgeting



NPV and stock price

- NPV is a direct measure of the expected change in shareholder wealth from a project. Theoretically:
 - A project with positive NPV will increase the wealth of shareholder and stock price;
 - A project with negative NPV will decrease the wealth of shareholder and stock price.

Changes in stock price = $NPV / \text{number of shares}$

Capital Budgeting



Example:

Firm A is investing \$600 million in distribution facilities. The present value of the future after-tax cash flows is estimated to be \$850 million. Firm A has 200 million outstanding shares with a current market price of \$32.00 per share. This investment is new information, and it is independent of other expectations about the company. What should be the effect of the project on the stock price of firm A?

Capital Budgeting



Answer:

NPV of this project: $850 - 600 = \$250$ million;

Change in stock price = $250/200 = \$1.25$ per share.

Summary



➤ Importance: ☆☆

➤ Content:

- Project interaction: mutually exclusive projects, project sequencing;
- Reason for NPV and IRR conflict, NPV profile;
- Relationship among NPV and stock price.

➤ Exam tips:

- 常考点1: 互斥项目的评价标准;
- 常考点2: NPV和IRR conflict的原因。

Weighted Average Cost of Capital



Tasks:

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

Cost of Capital



Cost of capital

- The rate of return that the suppliers of capital require as compensation for their contribution of capital, or the opportunity cost of funds for the suppliers of capital.

Alternative to raise capital

- A company can raise capital from:
 - Debt
 - Common equity
 - Preferred stock

Cost of Capital



Cost of capital of a company

- The required rate of return that investors demand for the average-risk investment of a company.
- The most common way to estimate the cost of capital of a company is **weighted average cost of capital (WACC)**, which is to calculate the **margin costs** of each sources of capital and then calculate a weighted average of these costs.
 - WACC also refers to the company's **marginal cost of capital (MCC)**.

Cost of Capital



Weighted Average Cost of Capital (WACC)

$$WACC = w_d \times k_d \times (1-t) + w_{ps} \times k_{ps} + w_{ce} \times k_{ce}$$

w = the proportion of each resource for the company to raises new funds, and should be base on the **market value**;

k_d = the before-tax marginal cost of debt;

k_{ps} = the marginal cost of preferred stock;

k_{ce} = the marginal cost of common equity;

t = the company's marginal tax rate.

Cost of Capital



Tax & Cost of capital

- Interest on debt financing is a deduction to arrive at taxable income, so the before-tax cost on new debt need to be adjusted by a factor of $(1 - t)$.
 - Keep other factors constant, **the higher the tax rate, the lower the debt cost, the lower the WACC.**

Cost of Capital



Tax & Cost of capital

➤ Example:

- $t = 40\%$

EBIT	\$1000	EBIT	\$1000	→
Int.	(\$400)	Int.	(\$600)	\$200 ↑
EBT	\$600	EBT	\$400	\$200 ↓
Tax	(\$240)	Tax	(\$160)	\$80 ↓
NI	\$360	NI	\$240	\$120 ↓

Cost of Capital



Weights of WACC

- If a target capital structure is available, use this target capital structure.
- If target capital structure is not available, estimate weights using one of the several approaches:
 - The company's current capital structure;
 - Infer the target capital structure by trends in the company's capital structure or statements by management;
 - Use averages of comparable companies' capital structures.

Cost of Capital



Application of cost of capital

- Capital-budgeting decision making:
 - Decide the optimal capital budget;
 - Calculate the NPV of a project (as discount rate).
- Security valuation using DCF models (as discount rate).
- **Optimal capital budget:** the intersection of MCC curve and IOS curve.

Cost of Capital



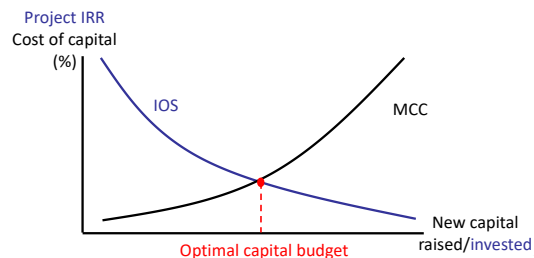
Application of cost of capital (Cont.)

- **Marginal cost of capital (MCC):** the cost of an additional dollar of capital. MCC generally increases as the firm increases the capital raised.
- **Investment opportunity schedule (IOS):** returns to a company's investment opportunities generally decrease as the company make additional investments.

Cost of Capital

Application of cost of capital (Cont.)

➤ Optimal capital budget



Cost of Capital

Application of cost of capital (Cont.)

- The WACC or MCC, **adjusted appropriately for the risk of a given project**, plays a role in capital-budgeting decision making based on the NPV of that project.
- When using the **company's WACC** as discount rate in the calculation of the NPV of a project, there are two implied assumptions:

Cost of Capital

Application of cost of capital (Cont.)

- The project has the average-risk of the company;
- ✓ If project's risk > average-risk: discount rate will be underestimated, and NPV will be overestimated.
- ✓ If project's risk < average-risk: discount rate will be overestimated, and NPV will be underestimated.
- The company will have a constant target capital structure throughout its useful life.

Summary

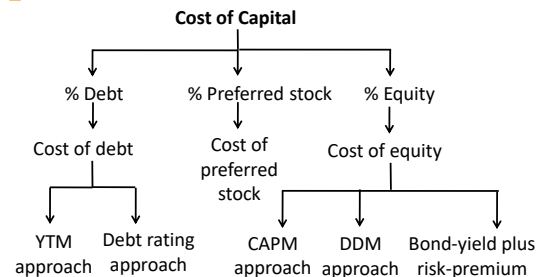
- **Importance:** ☆☆☆
- **Content:**
 - WACC & MCC;
 - Calculation of WACC, including weight of WACC;
 - Application of WACC.
- **Exam tips:**
 - 常考点1: 直接考WACC的计算;
 - 常考点2: 考概念辨析, 包括WACC中weight的确定和WACC的应用。

Cost of Debt, Preferred stock, and Equity

Tasks:

- Calculate and interpret the cost of debt capital, preferred stock, and equity capital.

Cost of Capital



Cost of Capital

Cost of debt – YTM approach

- Yield to maturity (YTM, k_d) is the annual return that an investor earns on a bond if the investor purchases the bond today and holds it until maturity.

$$P_0 = \frac{PMT}{(1+YTM)^1} + \frac{PMT}{(1+YTM)^2} + \dots + \frac{PMT}{(1+YTM)^n} + \frac{FV}{(1+YTM)^n}$$

Cost of Capital

Cost of debt – YTM approach (Cont.)

- After-tax cost is the true effective cost of debt to the company since interest payments are generally tax-deductible.

$$\text{After-tax cost of debt} = k_d (1 - t)$$

Cost of Capital



Cost of debt - Debt-rating approach

- When a reliable current market price for a company's debt is not available, the debt-rating approach can be used to estimate the before-tax cost of debt.
- Using the yield (k_d) on **comparably rated** bonds for **maturities that closely match** that of the company's existing debt.

$$\text{After-tax cost of debt} = k_d (1 - t)$$

Cost of Capital



Cost of preferred stock

- For nonconvertible, non-callable preferred stock that has a fixed dividend rate and no maturity date, we can use the formula for the cost of a preferred stock:

$$k_{ps} = \frac{D_{ps}}{P}$$

where: D_{ps} — the preferred stock dividend per share;
 P — the current preferred stock price per share.

Cost of Capital



Cost of common equity – CAPM approach

- Capital Asset Pricing Model (CAPM)

$$k_{ce} = R_f + \beta [E(R_m) - R_f]$$

Where: R_f — risk-free rate;

β — beta (systematic risk) of firm's stock;

$E(R_m)$ — expected market return;

$E(R_m) - R_f$ — market risk premium.

Example



An analyst gathered the following information about firm X:

Current market price per share of common stock	\$40
Most recent dividend per share paid on the common stock	\$2
Expected dividend payout ratio	40%
Expected return on equity (ROE)	20%
Beta for the common stock	1.4
Expected rate of return on the market portfolio	14%
T-bill rate	4%
Tax rate	35%

Example (Cont.)



Using the capital asset pricing model (CAPM) approach, the cost of retained earnings for firm X is closest to:

- A. 18%
- B. 17.6%
- C. 11.7%

Answer: A

Cost of retained earnings = $4\% + 1.4 \times (14\% - 4\%) = 18\%$

Cost of Capital



Cost of common equity – DDM approach

➤ Dividend discount model (DDM) approach

$$k_{ce} = \frac{D_1}{P_0} + g$$

where: D_1 = next year's dividend

P_0 = current stock price

g = firm's expected constant growth rate

= (ROE)(retention rate)

= (ROE)(1-payout ratio)

Example



An analyst gathered the following information about firm X:

Current market price per share of common stock	\$40
Most recent dividend per share paid on the common stock	\$2
Expected dividend payout ratio	40%
Expected return on equity (ROE)	20%
Beta for the common stock	1.4
Expected rate of return on the market portfolio	14%
T-bill rate	4%
Tax rate	35%

Example (Cont.)



Using the dividend discount model (DDM) approach, the cost of retained earnings for firm X is closest to:

- A. 17%
- B. 17.6%
- C. 13.4%

Answer: B

The expected growth rate = $20\% \times (1-40\%) = 12\%$

The expected dividend yield = $2 \times (1+12\%) / 40 = 5.6\%$

Cost of common stock = $5.6\% + 12\% = 17.6\%$

Cost of Capital



Cost of common equity – bond yield plus risk premium

- Bond yield plus risk premium approach:

$$k_{ce} = k_d + \text{risk premium}$$

where: k_d — before-tax cost of debt;

risk premium — historical spread between stock return and debt return.

- In developed country, risk premium ranges from 3% to 5%.

Summary



- Importance: ☆☆☆

- Content:

- Cost of debt: YTM & debt rating approach;
- Cost of preferred stock;
- Cost of common equity: CPAM, DDM and bond yield plus risk premium.

- Exam tips:

- 常考点：直接考计算，特别是equity成本的计算。

Cost of Capital for a Project

Tasks:

- Calculate and interpret the beta and cost of capital for a project.

Cost of Capital



Cost of capital for a project

- When estimating the cost of equity with CAPM approach, beta (β_{Equity}) must be estimated.
 - For publicly traded company, estimation of the company's stock beta (β_{Equity}) is not a problem: **market model regression**.
 - ✓ But this beta (β_{Equity}) is only applicable to the average-risk projects of the company.
- For non-publicly traded company, estimation of the company's stock beta (β_{Equity}) is challenging.

Cost of Capital



Cost of capital for a project (Cont.)

- Factors affecting the beta (β_{Equity}) of a company's stock:
 - Systematic components of **business risk**;
 - ✓ Sales risk: risk related to the uncertainty of revenues;
 - ✓ Operating risk: risk attributed to fixed cost of operation.
 - **Financial risk**: risk attributed to fixed cost of financing (e.g. interest of debt).

Cost of Capital



Cost of capital for a project (Cont.)

- **Pure-play method**: using a publicly traded **comparable company's** stock beta ($\beta_{\text{Equity, Comp.}}$) and adjusting it for financial leverage differences to estimate stock beta ($\beta_{\text{Equity, project}}$) for a project or company that is not publicly traded.
- **Comparable company**: a company with similar business risk, generally a company in the same industry that is in that single line of business (pure-play).

Cost of Capital



Cost of capital for a project (Cont.)

- 4 steps of pure-play method:
 - Step 1: select the comparable company (publicly traded, similar business risk);
 - Step 2: estimate comparable's stock beta ($\beta_{\text{Equity, Comp.}}$);

Cost of Capital



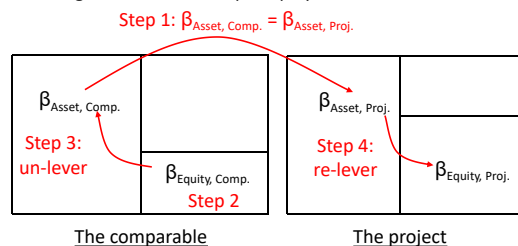
Cost of capital for a project (Cont.)

- 4 steps of pure-play method:
 - Step 3: Un-lever the comparable's stock beta, remove the effects of financial leverage, then have the comparable's asset beta ($\beta_{\text{Asset, Comp.}}$);
 - Step 4: Re-lever the asset beta, then we have the project's stock beta ($\beta_{\text{Equity, Proj.}}$).

Cost of Capital

Cost of capital for a project (Cont.)

➤ Diagram illustration of pure-play method:



Cost of Capital

Cost of capital for a project (Cont.)

➤ Pure-play method: un-lever & re-lever

- **Un-lever:**

$$\beta_{\text{asset}} = \beta_{\text{equity}} \times \left[\frac{1}{1 + (1 - t) \frac{D}{E}} \right]$$
 - **Re-lever:**

$$\beta_{\text{equity}} = \beta_{\text{asset}} \times \left[1 + \left((1 - t) \frac{D}{E} \right) \right]$$
- ✓ D/E: debt-to-equity ratio.

Practice

Trade Co is thinking of investing in a software project, calculate the beta of the software project given the following information:

The average levered beta of comparable listed software firms is 1.1, and the average debt-to-equity ratio, based on market value, is 0.4. Its software project has a debt-to-equity ratio, based on market value, of 0.6. Tax rate is 35%.

The beta of the software project is:

Practice

- A. 0.833
- B. 0.997
- C. 1.213

Answer: C

$$\beta_{\text{asset}} = 1.1 \times \left[\frac{1}{1 + [(1 - 0.35) * 0.4]} \right] = 0.873$$

$$\beta_{\text{project}} = 0.873 * [1 + (1 - 0.35) * 0.6] = 1.213$$

Summary

- Importance: ☆☆
- Content:
 - Cost of capital for a project: pure-play method.
- Exam tips:
 - 常考点：通常是考概念辨析，但也可能出计算。



Three other issues for Cost of Capital

Tasks:

- Describe uses of country risk premiums in estimating the cost of equity;
- Describe the marginal cost of capital schedule, and calculate and interpret its break-points;
- Explain the correct treatment of flotation costs.



Cost of Capital

Cost of capital in developing country

- Problem: empirical studies show that beta does not adequately capture country risk for companies in developing countries.
- Solution: adding a country risk premium (CRP) to the market risk premium when using the CAPM to estimate the cost of equity.

$$k_{ce} = R_f + \beta * [E(R_m) - R_f + CRP]$$



Cost of Capital

Cost of capital in developing country (Cont.)

- Calculation of CRP:

Country risk premium (CRP) = sovereign yield spread

$$\times \left[\frac{\text{Annualized standard deviation of equity index of developing country}}{\text{Annualized standard deviation of sovereign bond market in terms of the developed market currency}} \right]$$



Cost of Capital

Cost of capital in developing country (Cont.)

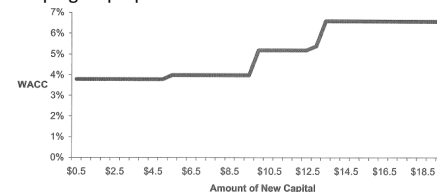
- Calculation of CRP:
 - **Sovereign yield spread:** difference between the yield of government bonds in the developing country, denominated in the currency of a developed country, and Treasury bonds yield with similar maturity in the developed country.



Cost of Capital

Marginal cost of capital schedule

- In reality, the marginal cost of capital curve is not as smooth as we learn before, instead, it is a upward-sloping step-up cost schedule.



Cost of Capital

Marginal cost of capital schedule (Cont.)

- **Break point:** the amount of capital at which the WACC changes, which means that the cost of one of the sources of capital change.

$$\text{Break point} = \frac{\text{Amount of capital at which the source's cost of capital changes}}{\text{Proportion of new capital raised from the source}}$$



Cost of Capital

Marginal cost of capital schedule (Cont.)

- **Example:** Firm X has a target capital structure of 40% equity and 60% debt, and the schedule of financing costs for Firm X is shown as follows. Calculate the break points of Firm X's cost of capital.

Amount of new debt (M)	After-tax cost of debt	Amount of new equity (M)	Cost of equity
0~199	7.0%	0~99	5.0%
200~399	8.2%	100~199	6.2%
400~599	10.5%	200~299	7.6%



Cost of Capital



Marginal cost of capital schedule (Cont.)

➤ Answer:

- Break point $_{Debt} = \$200M = \$200/0.6 = \$333 (M)$
- Break point $_{Debt} = \$400M = \$400/0.6 = \$667 (M)$
- Break point $_{Equity} = \$100M = \$100/0.4 = \$250 (M)$
- Break point $_{Equity} = \$200M = \$200/0.4 = \$500 (M)$

Cost of Capital



Flotation cost

- **Flotation cost** : the fee charged by investment bankers when a company raises additional capital.
- For debt and preferred stock, flotation cost is quite small (<1%), and usually do not incorporate in the estimated cost of capital.
- **For equity**, the flotation cost may be substantial, and **should be considered** when estimating the cost of external equity capital.

Cost of Capital



Flotation cost (Cont.)

- **Wrong way**: incorporate into the cost of capital.

$$r_e = \frac{D_1}{P_0 - F} + g \quad \text{OR} \quad r_e = \frac{D_1}{P_0(1 - f)} + g$$

- F/f: flotation cost by dollar/percentage.
- **Right way**: deduct the flotation cost from the initial cash flow of projects.

Summary



- **Importance**: ☆☆
- **Content**:
 - Country risk premium;
 - Marginal cost of capital schedule;
 - Treatment of flotation cost.
- **Exam tips**:
 - 常考点1: 包含CRP的cost of equity的计算;
 - 常考点2: flotation cost的正确处理方法, 一般考概念。

Leverage and Its Components

Tasks:

- Define and explain leverage;
- Define and classify business risk, sales risk, operating risk, and financial risk.

Measures of Leverage

Leverage definition

- A given change in one variable leads to a greater change in other variable because of **fixed cost**.
 - **Operating leverage:** created by fixed operating cost (e.g. depreciation and rent).
 - **Financial leverage:** created by fixed financial cost (e.g. interest).

Measures of Leverage

Example:

- Firm X has a product with price of \$10 and variable cost of \$5 per unit, the fixed operating cost is \$200 and fixed financial cost(interest) is \$150.

	Recession	Normal	Booming
Sales	900 (10%↓)	1000	1100 (10%↑)
VC	450(10%↓)	500	550 (10%↑)
FOC	300	300	300
EBIT	150 (25%↓)	200	250 (25%↑)
Int.	100	100	100
EBT	50 (50%↓)	100	150 (50%↑)

Measures of Leverage

Leverage definition (Cont.)

- Leverage increases the volatility of a company's earnings and cash flows (both up and down), and increases the **risk** of lending to (creditors) or owning a company (shareholders).

Measures of Leverage



Risk decomposition

- **Business risk:** the risk associated with **operating earning**, and is the combination of **sales risk** and **operating risk**.
- **Sales risk:** uncertainty with respect to the price and quantity of goods and services;
- **Operating risk:** risk attributed to the use of fixed cost in operation (e.g., rent, depreciation).

Measures of Leverage



Risk decomposition (Cont.)

- ✓ The greater the fixed operating costs relative to variable operating costs, the greater the operating risk.
- **Financial risk:** the risk associated with how a company finances its operations.
- The more fixed-cost financial obligations (e.g. debt), the greater the financial risk.

Summary



- **Importance:** ☆☆
- **Content:**
 - Leverage;
 - Business risk, sales risk, operating risk, and financial risk.
- **Exam tips:**
 - 常考点: 考概念, 各种风险的辨析。

Measurements of Leverage



Tasks:

- **Calculate and interpret** DOL, DFL, and DTL;
- **Calculate** breakeven quantity of sales and operating breakeven quantity of sales.

Measures of Leverage



Degree of operating leverage (DOL)

- DOL is a quantitative measure of operating risk.

$$DOL = \frac{\text{percentage change in EBIT}}{\text{percentage change in sales}} = \frac{\frac{\Delta EBIT}{EBIT}}{\frac{\Delta Q}{Q}}$$

$$DOL = \frac{Q(P - V)}{Q(P - V) - F} = \frac{\text{Contribution Margin}}{\text{Contribution Margin} - F} = \frac{EBIT + F}{EBIT}$$

- If EBIT is positive and fixed operating cost is greater than 0, DOL is greater than 1.

Measures of Leverage



Degree of financial leverage (DFL)

- DFL is a quantitative measure of financial risk.

$$DFL = \frac{\text{percentage change in NI}}{\text{percentage change in EBIT}} = \frac{\frac{\Delta NI}{NI}}{\frac{\Delta EBIT}{EBIT}} = \frac{EBIT}{EBIT - \text{Int.}}$$

- If interest is greater than 0, DFL is greater than 1.
- DFL is not affected by the tax rate because tax is not fixed cost.

Measures of Leverage



Degree of total leverage (DTL)

- A combination of DOL and DFL.

$$DTL = \frac{\frac{\Delta NI}{NI}}{\frac{\Delta \text{Sales}}{\text{Sales}}} = \frac{\frac{\Delta EBIT}{EBIT}}{\frac{\Delta \text{Sales}}{\text{Sales}}} \times \frac{\frac{\Delta NI}{NI}}{\frac{\Delta EBIT}{EBIT}} = DOL \times DFL$$

$$DTL = \frac{Q(P - V)}{Q(P - V) - F - \text{Int.}}$$

Practice



An analyst gathered the following information about a software company.

Income Statement	Million
Revenue	10.5
Variable Operating Cost	7.8
Fixed Operating Cost	1.2
Operating Income	1.5
Interest	0.6
Taxable Income	0.9
Tax	0.27
Net Income	0.63

Practice

Using the company's income statement presented, its degree of operating leverage is closest to:

- A. 1.7.
- B. 1.8.
- C. 3.1.

Answer: B

Using the DOL formula to calculate.

$$DOL = \frac{EBIT + F}{EBIT} = \frac{1.5 + 1.2}{1.5} = 1.8$$



Measures of Leverage

Effect of financial leverage on NI and ROE

- The use of financial leverage will:
 - Reduce the net income due to interest payment;
 - Result in higher return of equity (ROE), and higher volatility of ROE, i.e. increase both potential return and risk to the common shareowners.



Measures of Leverage

Breakeven point

- **Breakeven point (Q_{BE}):** quantity of sales at which the company's net income is zero.

$$Q_{BE} = \frac{\text{Fixed Cost}}{\text{Unit Contribution Margin}} = \frac{F + I}{P - V}$$

- **Operating breakeven point (Q_{OBE}):** quantity of sales at which the company's operating income is zero.

$$Q_{OBE} = \frac{\text{Fixed Operating Cost}}{\text{Unit Contribution Margin}} = \frac{F}{P - V}$$



Measures of Leverage

Breakeven point

- The effect of leverage on breakeven point:
 - All else equal, a firm with higher leverage owns higher breakeven point.
 - The farther unit sales are from the breakeven point for high-leverage companies, the greater the magnifying effect of leverage.



Summary



- Importance: ☆☆
- Content:
 - DOL, DFL, and DTL;
 - Breakeven quantity and operating breakeven quantity.
- Exam tips:
 - 常考点: 考计算。

Dividends



Tasks:

- Describe forms of dividends, and their expected effect on financial ratio;
- Describe dividend payment chronology.

Dividends



Forms of dividends

- A dividend is a distribution paid to shareholders based on the number of shares owned.
 - **Cash dividend**: distribute cash to shareholders.
 - ✓ Regular dividends
 - ✓ Special/Extra dividends
 - ✓ Liquidating dividends
 - **Stock dividend**: distribute additional shares.
 - **Stock split** (e.g. 2-for-1 stock split)
 - ✓ **Reverse stock split** (e.g. 1-for-20 reverse stock split)

Dividends



Effects of dividends on shareholders' wealth

- Cash dividends
 - Stock price will drop by the dividend amount, but the wealth of shareholders will not change **if there is no tax.**
- Stock dividends & stock split
 - The wealth of shareholders will not change.

Dividends



Effects of dividends on financial ratio

- Cash dividends
 - Reduces both the asset and shareowners' equity.
 - Liquidity ratio will decrease (current ratio, cash ratio, etc).
 - Financial leverage ratio will increase (debt-to-equity, debt-to-asset ratio).

Dividends



Effects of dividends on financial ratio (Cont.)

- Stock dividends and stock split
 - No effect on total asset and total shareowners' equity, but number of shares will increase.
 - Both share price and EPS will decline, but P/E ratio will keep unchanged.

Dividends



Effects of dividends on financial ratio (Cont.)

	After cash dividend	After stock dividend /stock split
Asset	Lower	Same
Equity	Lower	Same
Cash	Lower	Same
EPS	Same	Lower
Price	Lower	Lower
P/E	Lower	Same
Liquidity Ratio	Lower	Same
Leverage Ratio	Higher	Same

Dividends



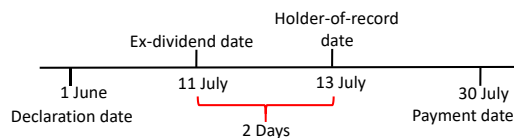
Payment chronology

- **Declaration date:** the day that the corporation issues a statement declaring a specific dividend.
- **Ex-dividend date(ex-date):** the first date that a share trades without the dividend.
- **Holder-of-record date:** the date that a shareholder listed in the corporation's records will be deemed to have ownership of the shares for purposes of receiving the upcoming dividend.
 - Typically two business days after the ex-dividend date.

Dividends

Payment chronology (Cont.)

- **Payment date:** the date that the company actually mails out or electronically transfers the dividend payment.
- **Example of payment chronology:**



Summary

- **Importance:** ☆☆
- **Content:**
 - Forms of dividends: cash dividend and stock dividend;
 - Payment chronology: declaration date, ex-dividend date, holder-of-record date, payment date.
- **Exam tips:**
 - 常考点: 不同类别的 dividend 对 financial ratio 的影响。



Share Repurchase

Tasks:

- **Compare** share repurchase methods;
- **Calculate and compare** the effect of a share repurchase on earning per share and book value per share.



Share Repurchase

Share repurchase

- **Share repurchase:** a transaction in which a company buys back its own shares.
 - Can be viewed as an alternative to cash dividends.
- **Treasury shares/stocks:** shares that have been issued and subsequently repurchased.
 - Not considered for dividends, voting, or computing EPS.



Share Repurchase



Share repurchase method (listed in order of importance)

➤ Buy in the open market

- Buy at market price in the open market.
- Flexibility in timing and amount.

Share Repurchase



Share repurchase method (listed in order of importance)

➤ Tender offer

- **Fixed price tender offer:** buy a fixed number of shares at a fixed price, typically at a premium to market.
- **Dutch auction:** use auction to determine the lowest price.

➤ Direct negotiation

- Typically at a premium to market.

Share Repurchase



Effect on financial statement - EPS

➤ Repurchased with excess cash (financed internally)

- Balance sheet
 - ✓ Asset (cash) and equity will decline; leverage (debt ratio) will increase.
- Income statement
 - ✓ EPS will increase (only if the fund used to repurchase do not earn their cost of capital).

Share Repurchase



Effect on financial statement - EPS

➤ Repurchased with debt (financed externally)

- Balance sheet
 - ✓ Debt increase and equity decline, leverage (debt ratio) will increase (even more than repurchase by excess cash).

Share Repurchase



Effect on financial statement – EPS (Cont.)

➤ Repurchased with debt (financed externally)

- Income statement
 - ✓ If earning yield > after-tax cost of debt, EPS will increase;
 - ✓ If earning yield < after-tax cost of debt, EPS will decrease.

Share Repurchase



Effect on financial statement - BVPS

➤ Share repurchase will result book value per share (BVPS):

- Decrease, if the repurchase price > the original BVPS;
- Remain the same, if the repurchase price = the original BVPS;
- Increase, if the repurchase price < the original BVPS.

Dividends Vs. Share Repurchase



Dividends Vs. Share repurchase

- #### ➤ Assuming the **tax treatment** of these two methods is the same, a share repurchase has the same impact on **shareholder wealth** as a cash dividend payment of an equal amount.

Summary



➤ Importance: ☆☆

➤ Content:

- Methods of share repurchase;
- Effect of share repurchase on EPS and BVPS.

➤ Exam tips:

- 常考点：share repurchase对EPS和BVPS的影响，主要是概念辨析。

Definition and Measurements of Liquidity

Tasks:

- **Describe** sources of liquidity and factors that influence a company's liquidity position;
- **Compare** a company's liquidity measures with those of peer companies.



Working Capital Management

Working capital management

- The short-term aspects of corporate finance activities.
 - Working capital = Current asset – Current liability
 - ✓ Current asset: cash, account receivable, inventory;
 - ✓ Current liability: account payable.



Working Capital Management

Working capital management

- Goal of effective work capital management:
 - Ensure adequate ready access to the funds necessary for day-to-day operating expenses (**liquidity risk**);
 - Make sure that the company's (current) assets are invested in the most productive way.



Definition of Liquidity

Defining liquidity

- Liquidity is the extent to which a company is able to meet its short-term obligations using assets that can be readily transformed into cash.
- Liquidity management refers to the ability of an organization to generate cash when and where it is needed.



Definition of Liquidity



Sources of liquidity

- **Primary source of liquidity:** cash from normal day-to-day operations.
 - Ready cash balances;
 - Short-term funds: trade credit, bank lines of credit, short-term investment portfolio;
 - Cash flow management.

Definition of Liquidity



Sources of liquidity (Cont.)

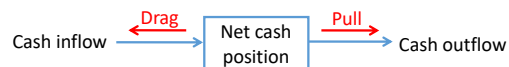
- **Secondary sources of liquidity:** using a secondary source may change the company's financial and operating positions.
 - Negotiating debt contract;
 - Liquidating assets;
 - Filing for bankruptcy protection and reorganization.

Definition of Liquidity



Drags and pulls on liquidity

- **Drags on liquidity:** delay or reduce cash inflows, or increase borrowing cost.
 - Uncollected receivables; obsolete inventory; tight credit.
- **Pulls on Liquidity:** accelerate cash outflows.
 - Making payment early; reduced credit limits.
- Both drags and pulls reduce the net cash position of a firm.



Measurement of Liquidity



Liquidity Ratios

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

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

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

- The greater the liquidity ratios, the higher a company's liquidity.

Measurement of Liquidity



Turnover ratios

$$\text{Receivables turnover} = \frac{\text{Credit sales}}{\text{Average receivables}}$$

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

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

- The greater the turnover ratios, the better a company's current assets and liabilities are managed over time.

Measurement of Liquidity



Number of days

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

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

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

- The smaller the number of days, the better a company's current assets and liabilities are managed over time.

Measurement of Liquidity



Operating Cycle

- A measure of the time needed to convert raw materials into cash from a sale.
 - Operating cycle = Number of days of receivable + Number of days of inventory
- The shorter the operating cycle, the more effective a company manage its working capital.

Measurement of Liquidity



Cash Conversion Cycle (Net operating cycle)

- A measure of the time from paying suppliers for materials to collecting cash from the subsequent sale of goods.
 - Cash conversion cycle = Number of days of receivable + Number of days of inventory - Number of days of payable
- The shorter the cash conversion cycle, the more effective a company manage its working capital.

Summary

- **Importance:** ☆☆
- **Content:**
 - Sources of liquidity, drag and pull of liquidity;
 - Measurement of liquidity: liquidity ratio, turnover ratio, number of days, and (net) operating cycle.
- **Exam tips:**
 - 常考点: liquidity衡量方法的计算与比较。



Management of Liquidity

Tasks:

- **Calculate and interpret** comparable yields on cash management;
- **Evaluate** a company's management of accounts receivable, inventory, and accounts payable over time and compared to peer companies.



Management of Liquidity

Management of cash position

- Assure sufficient cash on hand to make net daily cash position to be positive.
- Excess cash should be invested in short-term securities.



Management of Liquidity

Management of cash position (Cont.)

- Comparing short-term yields:

$$\text{Discount basis yield} = \frac{\text{Face value} - \text{price}}{\text{Face value}} \times \frac{360}{\text{Days}}$$

$$\text{Money market yield} = \frac{\text{Face value} - \text{price}}{\text{Price}} \times \frac{360}{\text{Days}}$$

$$\text{Bond equivalent yield} = \frac{\text{Face value} - \text{Price}}{\text{Price}} \times \frac{365}{\text{Days}}$$
- The yield for investment decision and evaluation is the bond equivalent yield, but the discount basis yield is often quoted.



Management of Liquidity



Management of cash position (Cont.)

- Cash management investment policy (IPS)
 - Purpose and objective of investment portfolio
 - Strategy guidelines
 - Types of securities
 - Individuals responsible for the portfolio
 - Corrective steps
 - Limitations

Management of Liquidity



Management of accounts receivable

- A company must have a well-conceived strategy customized to the company's needs and goals.
- A weak, ineffective credit management function may enhance sales, but many of those sales may become bad debts.

Management of Liquidity



Management of accounts receivable (Cont.)

- Approaches to evaluate accounts receivable management:
 - Receivable turnover and number of days of receivable;
 - Accounts receivable aging schedule.

Management of Liquidity



Management of Inventory

- Inventory management involves a trade-off:
 - Too low inventory level may result in lost sales;
 - Too high inventory level will result in high carrying costs.
- Approaches to evaluate inventory management:
 - Inventory turnover and number of days of inventory;
 - Compare with the firm's historical performance or with the average of comparable companies.

Management of Liquidity



Management of accounts payable

- Paying too early results in opportunity cost unless the company can take the advantage of **trade discount**, and paying late affects the company's perceived credit-worthiness.
- **Trade discount**: credit terms of "**2/10 net 50**" mean that the net amount is due 50 days from the date of the invoice, and if the invoice is paid within 10 days, the company gets a 2% discount.

Management of Liquidity



Management of accounts payable (Cont.)

- **Cost of trade credit**: the cost to the company of not taking the trade discount.

$$\text{Cost of trade credit} = \left(1 + \frac{\% \text{ discount}}{1 - \% \text{ discount}} \right)^{\frac{365}{\text{days past discount}}} - 1$$

- If the company's cost of funds or short-term investment rate is less than the cost of trade credit, the company should take the trade discount.

Management of Liquidity



Management of accounts payable (Cont.)

- Approaches to evaluate accounts payable management:
 - Payable turnover and number of days of payable;
 - Compare with the firm's historical performance or with the average of comparable companies.

Management of Liquidity



Managing short-term financing

- **Source of short-term financing**
 - Bank sources:
 - ✓ Uncommitted/committed/revolving lines of credit;
 - ✓ Collateralized borrowing;
 - ✓ Banker's acceptances;
 - ✓ Factoring;
 - Nonbank sources:
 - ✓ Nonbank finance companies;
 - ✓ Commercial paper.

Summary



- **Importance:** ☆☆
- **Content:**
 - Management and evaluation of cash position, receivable, inventory, and payable.
- **Exam tips:**
 - 常考点: payable的管理, cost of trade credit的计算及是否 take trade credit 的选择。