2020 年 06 月 CFA 一级百题预测

1. **ETHICS AND PROFESSIONAL STANDARDS**
2. **QUANTITATIVE METHODS**
3. **ECONOMICS**
4. **FINANCIAL REPORTING AND ANALYSIS**
5. **CORPORATE FINANCE**
6. **EQUITY**
7. **FIXED INCOME**
8. **DERIVATIVES**
9. **ALTERNATIVE INVESTMENTS**
10. **PORTFOLIO MANAGEMENT**

5. Corporate Finance

5.1. Corporate Governance& ESG

5.1.1. 重要知识点

5.1.1.1. Corporate governance

- **Corporate governance** is the internal system including **checking, balancing and incenting various parties,** which could minimized and manage the conflicting interests between insiders and shareholders.
  - **Shareholder theory** takes the view that the most important responsibility of a company's managers is to maximize shareholder returns.
  - **Stakeholder theory** broadens a company's focus beyond the interests of only its shareholders to its customers, suppliers, employees, and others who have an interest in the company.

5.1.1.2. Various stakeholder groups

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

5.1.1.3. Conflict of interest

- **Shareholder and creditor**
  - Shareholders would likely prefer riskier projects with a strong likelihood of higher return potential
  - Creditors would likely prefer stable performance and lower-risk activities;
- **Customers and shareholders**
  - A company decides to charge a high price for its products or reduces product safety features to reduce costs;
- **Customers and suppliers**
  - A company offers overly lenient credit terms to its customers, whereby the company's ability to repay suppliers on time may be affected;
- **Shareholders and governments or regulators**
  - Bank's shareholders preferring a lower equity capital base while regulators prefer a higher capital position.

5.1.1.4. Corporate governance and stakeholder management framework

- **Legal infrastructure** defines rights established by law 企业不可控;
- The **contractual infrastructure** is shaped by the contractual arrangements entered;
- The **organizational infrastructure** refers to internal systems, governance procedures, and practices adopted and controlled by the company in managing its stakeholder relationships;
- The **governmental infrastructure** refers to regulations imposed on companies 企业不可控.

5.1.1.5. General meetings

- **Annual general meeting:** companies are ordinarily required to hold an AGM within a certain period following the end of their fiscal year;
- **Extraordinary general meetings** can be called by the company or by shareholders throughout the year when significant resolutions requiring shareholder approval are proposed;
- **Proxy voting** is a process that enables shareholders who are unable to attend a meeting to authorize another individual to vote on their behalf;
- **Cumulative voting** enables each shareholders to accumulate and vote all his or her shares for a single candidate in an election involving more than one director.

5.1.1.6. Structure of the board

- **One tier:** comprise a mix of executive and non-executive directors;
- **Two tier:** the supervisory and management boards are independent from each other(Ex: Separation of CEO and chairman).

5.1.1.7. Committees

- **Audit committee**
  - Committee member independence;
  - Committee member qualification;
  - Independent auditor (internal & external).
- **Remuneration /compensation committee**
  - Committee member independence;
  - Appropriate executive compensation packages;
  - Reasonable option schemes.
- **Nominationscommittee**
  - Committee member independence;
  - Creating nomination procedures and policies;
  - Recruiting qualified board members;

- Regularly reviewing performance, independence skills, and experience of existing board members.

➢ **Governancecommittee**

- Develop and oversee the implementation of the corporate governance code, the charters of the board and its committees, and the company's code of ethics and conflict of interest policy;
- Reviews regularly, monitoring the implementation;
- Recommends remedial actions.

➢ **Risk committee**

- Determines the risk policy, profile, and appetite of the company;
- Establishes ERM and monitors their implementation;
- Supervises the risk management functions in the company, receives regular reports, and reports on its findings and recommendations to the board.

➢ **Investmentcommittee**

- Reviews material investment opportunities proposed by management and considers their viability for the company;
- Establishing and revising the investment strategy and policies of the company.

5.1.1.8. Factors affecting stakeholder relationships

➢ **Market factors**

- Shareholder engagement
- Shareholder activism
- Competitive dynamics

➢ **Non-market factors**

- Legal environment
- The media
- The corporate governance industry

5.1.1.9. Benefit and risks

➢ **Risks of poor governance and stakeholder management**

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

➢ **Benefits of effective governance and stakeholder management**

- Operational efficiency
- Improved control
- Better operating and financial performance

- Lower default risk and cost of debt

➢ **Analyst considerations** in corporate governance and stakeholder management:

- Economic ownership and voting control
  - **Dual-class structures:** voting power is decoupled from ownership common shares may be divided into two classes, one of which has superior voting rights to the other.
  - Proponents and critics about dual-class structures argue that the systems promote company stability and enable management to make long-term strategic investments, insulated from the short-term pressures of outside investors.
- Board of directorsrepresentation
- Remuneration and company performance
- Investors in the company
- Strength of shareholders' rights
- Managing long-term risks

5.1.1.10. ESG considerations for investors

➢ **Definition:** the practice of considering **environmental, social, and governance** factors in the investment process is known asESG integration.

➢ **ESG integration**

- **Sustainable investing (SI)** and **responsible investing(RI)**: refer to the practice of considering ESG factors in the investment process;
- **Socially responsible investing (SRI):** represent the practice of excluding companies and industries that are in opposition to an investor's moral or ethical values, such as weapons or tobacco;

➢ **ESG implementation methods**

- **Negative screening:**refers to the practice of excluding certain sectors.
- **Positive screening:**aims to identify companies that embrace solid ESG-related principles in their operations and strategies.
- **The best-in-class approach:** seeks to identify the best ESG-scoring companies in each industry.
- **Thematic investing strategies:**typically consider a single factor, such as energy efficiency or climate change.
- **Full integration**: refers to the inclusion of ESG factors or ESG scores in traditional fundamental analysis.
- **Engagement/active ownership investing:** refers to using ownership of company shares or other securities as a platform to promote improved ESG

practices.

- **Green finance:** refers to producing economic growth in a more sustainable way by reducing emissions and better managing natural resource use. An important part of green finance is the issuance of green bonds.
- **Overlay/portfolio tilt strategies:** used by fund and portfolio managers to manage the ESG characteristics of their overall portfolios.
- **Risk factor/risk premium investing:** refers to the treatment of ESG factors as an additional source of systemic factor risk, along with such traditional risk factors as firm size and momentum.

5.1.1. 基础题

Q-1. An analyst is giving a presentation about the ESG consideration to his customers. When he is talking about the ESG implementation methods, the following statements are given by the analyst, and which of the statements are most likely to be correct?

A. Thematic investing strategy is typically considered as a single factor, such as energy efficiency or climate change.
B. Thematic investing strategy seeks to identify the best ESG-scoring companies in each industry.
C. Thematic investing strategy will exclude some certain sector from the analyst's investment portfolios.

Q-2. Which of the following is the best example of a good corporate governance practice?

A. Independent board members are prior, but not current employees of the firm.
B. Supervisory and management boards have overlapping membership.
C. The chief executive position is separate from the chair position on the company's board.

Q-3. Which of the following features is most likely to be found in a well-structured executive compensation plan?

A. Links to factors that drive overall corporate performance
B. Reasonably consistent total compensation from year to year
C. Higher total remuneration relative to peer companies with comparable performance

Q-4. Which of the following represents a principal-agent conflict between shareholders and

management?

A. Risk tolerance
B. Multiple share classes
C. Accounting and reporting practices

Q-5. For shareholders with a small number of shares, which of the type of voting in board elections they are least likely to choose?

A. statutory voting
B. voting by proxy
C. cumulative voting

Q-6. Based on best practices in corporate governance procedures, independent board members most likely:

A. meet only in the presence of management.
B. have a "lead" director when the board chair is not independent.
C. hire independent consultants who are pre-approved by management.

Q-7. Which of the following is most consistent with the best practices of corporate governance?

A. All stakeholders should have the right to participate in the governance of the firm.
B. All committees within the firm should benefit from the direct guidance of management.
C. Appropriate controls and procedures exist that cover management's activities in running the daily operations of the firm.

Q-8. Based on good corporate governance practices, it is most appropriate for a company's compensation committee to:

A. develop director remuneration policies.
B. recommend remuneration for the external auditors.
C. include some external directors.

Q-9. A credit rating agency assesses a company's corporate governance structure as favorable to creditor rights. The most likely impact of this assessment on the company is a(n):

A. increase in its risk of default.

B. reduction in its financial performance.

C. reduction in its cost of debt.

Q-10. Based on best practices in corporate governance procedures, it is most appropriate for a company's compensation committee to:

A. link compensation with long-term objectives.

B. include a retired executive from the firm.

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

5.2. Classification of Capital Project

5.2.1. 重要知识点

5.2.1.1. 掌握以下几种 capitalprojects

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

5.2.2. 基础题

Q-11. A large corporation accepts a project which generates no revenue and has a negative net present value. The project is most likely classified in which of the following categories?

A. Replacement project.

B. New product or service.

C. Regulatory or environmental project.

5.3. Key Principals of Capital Budgeting

5.3.1. 重要知识点

5.3.1.1. The capital budgeting process involves five key principles

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

5.3.2. 基础题

Q-12. When computing the cash flows for a capital project, which of the following is least likely to be included?

A. Financing costs
B. Opportunity costs
C. Tax effects

Q-13. Which of the following is least likely classified as an opportunity cost?

A. The cash flows generated by an old machine that is to be replaced.
B. The cash savings related to adopting a new production process.
C. The market value of vacant land used for a distribution center.

Q-14. When computing the cash flows for a capital project, which of the following is most likely to be excluded? （1906 考题回顾）

A. Externality
B. Sunk costs
C. Tax

5.4. Project Evaluation Methods：NPV, IRR, PI, PBP and DPBP

5.4.1. 重要知识点

5.4.1.1. Evaluation of a capital project 掌握一些概念的解释

- **Independent projects**
  - Accepting or rejecting one project does not affect the decision of other projects.
- **Mutually exclusive**
  - Projects compete directly with each other.Mutually exclusive projects are not independent projects.
- **Project sequencing**
  - Projects are sequenced through time, so that investing in a project creates the option to invest in future projects.
- **Unlimited funds**
  - Company can raise the funds it wants for all profitable projects by paying the

required rate of return.

- **Capital rationing**
  - Company has a limited amount of funds to invest

5.4.1.2. The calculation of NPV, IRR, PI, PBP and DPBP

- **NPV**
  - 计算：$\mathrm{NPV} = \sum_{t=0}^{n} \frac{CF_t}{(1+r)^t}$
  - 通常用金融计算器进行对应计算
  - Decision rule: 独立项目选择 NPV 大于 0 的项目，互斥项目选择 NPV 最大的项目
- **IRR**
  - NPV 等于 0 时的项目折现率
  - 通常用金融计算器进行计算
  - Decision rule: 独立项目选择 IRR 大于要求回报率的项目 ,互斥项目选择 IRR 最大的项目
  - 在 NPV 和 IRR 的决策冲突时，以 NPV 为主
- **Payback period (PBP)**
  - 能够收回最初投资本金的时间
  - $\mathrm{PBP} = \text{full year until recovery} + \frac{unrecovered\ cost\ at\ the\ beginning\ of\ last\ year}{cash\ flow\ during\ the\ last\ year}$
  - 独立项目选择 PBP 小于 benchmark PBP 的项目 ,互斥项目选项 PBP 最小的项目
- **Discounted payback period**
  - 在 PBP 的基础上考虑了货币的时间价值
  - 独立项目选择 DPBP 小于 benchmark DPBP 的项目，互斥项目选项 DPBP 最小的项目

- 通常 DPBP 会大于 PBP，同时 PBP 和 DPBP 都没有考虑回收期之后的现金流，因此没有考虑项目的盈利性

➢ **Profitability index**

- $\text{PI} = \frac{PV\ of\ the\ future\ CFs}{|CF_0|} = 1 + \frac{NPV}{|CF_0|}$
- 对于独立项目，投资于 PI 大于 1 的项目；对于互斥项目，选择 PI 最大的项目进行投资

5.4.2. 基础题

Q-15. A project has the following annual cash flows:

Year 0	Year 1	Year 2	Year 3	Year 4
−$75,000	$21,600	$23,328	$37,791	$40,815

With a discount rate of 8%, the discounted payback period (in years) is closest to:

A. 3.0.

B. 3.2.

C. 2.8

Q-16. An analyst determined the following cash flows for a capital project:

Year	0	1	2	3	4	5
Cash flow (€)	-100	35	30	40	30	20

The required rate of return for the project is 13%. The internal rate of return (IRR) and the discounted payback period for the project, respectively, are closest to:

	IRR	Discounted payback period
A.	15.85%	2.75
B.	17.89%	2.75
C.	17.89%	3.97

Q-17. A project has the following annual cash flows:

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

Which of the following discount rates most likely produces the highest net present value

(NPV)?

A. 8%

B. 15%

C. 10%

Q-18. A project has the following cash flows:

Year 0	Year 1	Year 2	Year 3	Year 4
–$1,000	$100	$100	$100	$1,100

The internal rate of return (IRR) for the project is closest to:

A. 9.1%.

B. 10.0%.

C. 8.8%.

Q-19. A project has a cost of €16,253 with a net present value (NPV) of €423.11. The corresponding profitability index (PI) is most likely:

A. 0.03.

B. 1.42.

C. 1.03.

Q-20. Consider the two projects below. The cash flows as well as the NPV and IRR for the two projects are given. For both projects, the required rate of return is 10 percent.

Cash Flow							
Year	**0**	**1**	**2**	**3**	**4**	**NPV**	**IRR (%)**
Project 1	—100	36	36	36	36	14.12	16.37
Project 2	—100	0	0	0	175	19.53	15.02

What discount rate would result in the same NPV for both projects?

A. A rate between 0.00 percent and 10.00 percent.

B. A rate between 10.00 percent and 15.02 percent.

C. A rate between 15.02 percent and 16.37 percent.

Q-21. Wilson Flannery is concerned that this project has multiple IRRs.

Year	**0**	**1**	**2**	**3**

Cash flows	—50	100	0	—50

How many discount rates produce a zero NPV for this project?

A. One, a discount rate of 0 percent.

B. Two, discount rates of 0 percent and 32 percent.

C. Two, discount rates of 0 percent and 62 percent.

Q-22. Which of the following statements is least accurate? The discounted payback period:

A. frequently ignores terminal values.

B. is generally shorter than the regular payback.

C. is the time it takes for the present value of the project's cash inflows to equal the initial cost of the investment.

Q-23. A company has a fixed $1,100 capital budget and has the opportunity to invest in the four independent projects listed in the table:

Project	Investment outlay	NPV
1	$600	$100
2	$500	$100
3	$300	$50
4	$200	$50

The combination of projects that provides the best choice is:

A. 2, 3, and 4.

B. 1, 3, and 4.

C. 1 and 2.

Q-24. Hermann Corporation is considering an investment of €375 million with expected after-tax cash inflows of €115 million per year for seven years and an additional after-tax salvage value of €50 million in Year 7. The required rate of return is 10 percent.

What is the investment's PI?

A. 1.19.

B. 1.33.

C. 1.56.

Q-25. Two mutually exclusive projects have the following cash flows (€) and internal rates of

return (IRR):

Project	IRR	Year 0	Year 1	Year 2	Year 3	Year 4
A	27.97%	-4,900	690	1,698	1,270	7,290
B	28.37%	-4,900	690	1,698	2,102	6,350

Assuming a discount rate of 8% annually for both projects, the firm should most likely accept:

A. both projects.

B. Project A only.

C. Project B only.

Q-26. A project has the following annual cash flows:

Year 0	Year 1	Year 2	Year 3	Year 4
–$9,324,010	$45,221,446	–$82,144,522	$66,233,100	–$20,000,000

Which of the following discount rates most likely produces the highest net present value (NPV)?

A. 10%

B. 12%

C. 15%

5.5. NPV& IRR

5.5.1. 重要知识点

5.5.1.1. NPV, IRR comparison

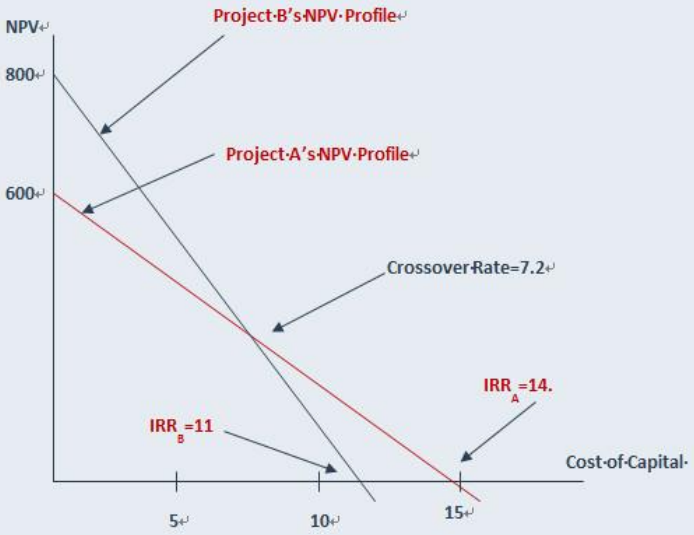
- **Advantages of NPV & IRR（和其他项目评估方法对比）**
  - Based on cash flows;
  - Considering time value of money——opportunity cost;
  - Take into account the cash flows generated over the whole project life.
- **NPV advantage**
  - Shows the amount of gains as currency amount;
  - The NPV of project increases the value of shareholders instead of creditors;
  - Realistic discount rate – opportunity cost of funds.
- **NPV disadvantage**
  - Size effect ignored.
- **IRR advantage**

- Reflect the profitability of the project.

➢ **IRR disadvantage**

- Assume the reinvestment rate is IRR;
- No IRR & multiple IRR (unconventional CFs);
- Conflicting ranking results of mutually exclusive projects with NPV.

5.5.1.2. NPV profile:



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

➢ NPVprofile 和横坐标交点：NPV=0 时的项目的折现率，即该项目 IRR

➢ NPV profile 和纵坐标交点 :折现率为 0 时项目的 NPV ,即不考虑货币时间价值，将该项目所有现金流加总的总和

➢ Crossover rate: 两个项目的 NPV profile 的交点，即在这个点上，用相同的折现率折现，两个项目的 NPV 相同

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

➢ **原因：**

- Different project's size;
- Different timing of CF;
- Reinvestment rate assumption different.

- **决策：**当 IRR 与 NPV 发生矛盾时，选用 NPV.

5.5.1.4. Criteria preference

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

5.5.2. 基础题

Q-27. Given two mutually exclusive projects with normal cash flows, the point at which their net present value profiles intersect the horizontal axis is most likely the projects':

A. weighted average cost of capital.

B. crossover rate.

C. internal rate of return.

Q-28. Two mutually exclusive projects have conventional cash flows, but one project has a larger NPV while the other has a higher IRR. Which of the following is *least likely* responsible for this conflict?

A. Reinvestment rate assumption.

B. Size of the projects' initial investments.

C. Risk of the projects as reflected in the required rate of return.

Q-29. With regard to the net present value (NPV) profiles of two projects, the vertical ordinate at the crossoverpoint of two profiles represents:

A. The NPV when two projects have the same cost of capital.

B. The crossover rate.

C. The discounted rate when two projects have the same NPV.

Q-30. An investment has an outlay of 100 and after-tax cash flows of 40 annually for four years. A project enhancement increases the outlay by 15 and the annual after-tax cash flows by 5. As a result, the vertical intercept of the NPV profile of the enhanced project shifts:

A. up and the horizontal intercept shifts left.

B. up and the horizontal intercept shifts right.

C. down and the horizontal intercept shifts left.

Q-31. Erin Chou is reviewing a profitable investment project that has a conventional cashflow pattern. If the cash flows for the project, initial outlay, and future after-tax cash flows all double, Chou would predict that the IRR would:

A. increase and the NPV would increase.

B. stay the same and the NPV would increase.

C. stay the same and the NPV would stay the same.

5.6. Impact of NPV Rule and Stock Price

5.6.1. 重要知识点

5.6.1.1. Impact of NPV rule and stock price

- **The relationship for NPV of the project and firm's value**
  - **NPV is positive**
    - **Firm** value is increased;
    - **Shareholder** wealth is increased.
  - **NPV is zero**
    - **Shareholder** wealth remain constant.
  - **NPV is negative**
    - **Shareholder** wealth is decreased.
- **The relationship between NPV rule and the stock price**
  - In theory
    - When the NPV is positive, P_{stock} is increased, vice versa;
    - Δprice per share=NPV/ outstanding common shares.
  - In reality
    - 股价的变动取决于投资者对于未来项目的预期

5.6.2. 基础题

Q-32. Printing company will invest $10 million in new printing machine. The present value of the future after-tax cash flows resulting from the new machine is $30 million. Fullen currently has 180 million shares of common stock outstanding, with a current market price of $12 per share. Assuming that this project is new and independent about the company, what is the effect of the new equipment on Fullen's stock price? The stock

price will:

A. increase to $12.16.

B. increase to $12.11.

C. decrease to $11.89.

5.7. WACC

5.7.1. 重要知识点

5.7.1.1. WACC 计算

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

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

5.7.2. 基础题

Q-33. A firm's estimated costs of debt, preferred stock, and common stock are 12%, 17%, and 20%, respectively. Assuming equal funding from each source and a marginal tax rate of 40%, the weighted average cost of capital (WAAC) is closest to:

A. 13.9%.

B. 14.7%.

C. 16.3%.

Q-34. An analyst gathered the following information about a company that expects to fund its capital budget without issuing any additional shares of common stock:

Source of Capital	Capital Structure Proportion	Marginal After-Tax Cost
Long-term debt	50%	6%
Preferred stock	10%	10%
Common equity	40%	15%

IRR of Two Independent Projects

Warehouse project 8%

Equipment project 12%

If no significant size or timing differences exist among the project(s) and both projects have the same risk as the company's existing projects, which project(s) should be accepted?

A. The warehouse project only
B. The equipment project only
C. Both projects

Q-35. Frank Merlo, a researcher analyst, gathered the following data in order to estimate the cost of capital of a drug company:

Cost of 6-month T-bills	2.6%
Cost of 10-year treasury bonds	4%
Cost of 10-year corporate bonds	6.8%
Beta	1.6
Market risk premium	7%
Target D/E ratio	1.7
Marginal tax rate	34%

The company's cost of capital estimated *closest* to:

A. 11.85 %.
B. 8.45 %.
C. 10.36 %.

Q-36. The cost of which source of capital most likely requires adjustment for taxes in the calculation of a firm's weighted average cost of capital?

A. Common stock.
B. Preferred stock.
C. Bonds.

Q-37. An analyst gathered the following Information about the capital structure and before-tax component costs for a company. The company's marginal tax rate is 40%.

Capital component	Book Value (000)	Market Value(000)	Component cost
Debt	$100	$80	8%
Preferred stock	$20	$20	10%
Common stock	$100	$200	12%

The company's weighted average cost of capital (WACC) is closest to:

A. 8.55%.

B. 9.95%.

C. 10.00%.

Q-38. Which of the following is the least appropriate method for an external analyst to estimate a company's target capital structure for determining WACC? Using the:

A. averages of comparable companies' capital structure.

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

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

5.8. Cost of Debt

5.8.1. 重要知识点

5.8.1.1. Cost of debt 计算

- Yield to maturity approach
  - 一般出题的方式给定一个 bond，让考生计算一个 yield.
    - 注意一：计算 yield 的时候，看清楚题目是如何分期的（一般是半年付息一次）；
    - 注意二：PV 和 FV（PMT）现金流的方向相反，所以一定有一个在计算器上需要按"-"键；
    - 注意三：如果承租人采用融资租赁，那么需要确认一部分负债，也需

要考虑在 cost of debt 里面。

- Debt rating approach
  - 在债券没有公允报价的时候使用
  - 找到同评级，同期限且有公允报价的债券，该债券的收益率即本公司债券的要求回报率

5.8.2. 基础题

Q-39. Which of the following is most likely considered an example of matrix pricing when determining the cost of debt?

A. Debt-rating approach only.

B. Yield-to-maturity approach only.

C. Both the yield-to-maturity and the debt-rating approaches.

Q-40. When computing the weighted average cost of capital (WACC) and assuming a fixed-rate non-callable bond is currently selling above par value, the before-tax cost of debt is closest to the:

A. coupon rate.

B. current yield.

C. yield to maturity.

Q-41. A company issues new 20-year $1,000 bonds with a coupon rate of 6.2% payable semiannually at an issue price of $1,030.34. Assuming a tax rate of 28%, the firm's annual after-tax cost of debt (%) is closest to:

A. 5.94.

B. 4.28.

C. 4.46.

5.9. Cost of Equity

5.9.1. 重要知识点

5.9.1.1. Cost of equity 计算

- **CAPM**
  - $r_e = r_f + \beta(r_m - r_f)$
  - **注意题目给出的到底是 market portfolio return 还是 market risk premium**
- **DDM**
  - 注意一：dividend 在题目中的表述，看清楚是 current (D_0)还是 expected (D_1)，公式是 $r_e = D_1/P_0 + g$，所以若题目表述的是 D_0，就需要用 $D_0(1+g)$先算出 D_1.
  - 注意二：这个公式有一个假设，即公司有 stable dividend policy，并且 without issuing additional common stock，这样 g=(1-DPS/EPS)ROE.
  - 注意三：D_1/P_0 叫做 forward annual dividend yield.
- **Bond yield plus risk premium**
  - Bond **yield plus risk premium:** 这个 premium 指的是 cost of equity 与本公司 cost of debt 之间的差值。

5.9.1.2. 计算 cost of preferred stock:

- 将优先股看做永续年金进行计算，其收益等于 D/P;
- preferred stock 没有 tax advantage.

5.9.2. 基础题

Q-42. A company's $100 par value preferred stock with a dividend rate of 9.5% per year is currently priced at $103.26 per share. The company's earnings are expected to grow at an annual rate of 5% for the foreseeable future. The cost of the company's preferred stock is closest to:

A. 9.5%.

B. 9.2%.

C. 9.7%.

Q-43. Using the dividend discount model, what is the cost of equity capital for Zeller Mining if the company will pay a dividend of C$2.30 next year, has a payout ratio of 30 percent, a return on equity (ROE) of 15 percent, and a stock price of C$45?

A. 9.61 percent.

B. 10.50 percent.

C. 15.61 percent.

Q-44. An analyst gathered the following information about a company and the market:

Current market price per share of common stock	25.00
Most recent dividend per share paid on common stock (D_0)	$1.50
Expected dividend payout rate	50%
Expected return on equity (ROE)	20%
Beta for the common stock	1.2
Expected rate of return on the market portfolio	15%
Risk-free rate of return	5%

Using the discounted cash flow (DCF) approach, the cost of retained earnings for the company is closest to:

A. 15.7%.

B. 16.6%.

C. 17.0%.

Q-45. Which method of calculating the firm's cost of equity is most likely to incorporate the long-run return relationship between the firm's stock and the market portfolio?

A. Capital asset pricing model

B. Dividend discount model

C. Bond yield plus risk premium approach

Q-46. Altamy Company currently issues new common stocks, relative information as following.

Numbers of shares of stock outstanding	1.2 million

Expected market return	10 percent
Current risk-free rate of interest	3 percent
Equity beta	2.2
Marginal tax rate	30 percent

The cost of equity of Altamy is closest to:

A. 18.4%.

B. 15.4%.

C. 12.9%.

Q-47. A 10-year $100 fixed-rate non-callable bond with 8% annual coupons currently sells for $110. Assuming a 30% marginal tax rate and an additional risk premium for equity relative to debt of 6%, the cost of equity using the bond-yield-plus-risk-premium approach is closest to:

A. 14.0%

B. 12.6%

C. 10.4%

Q-48. A company that wants to determine its cost of equity gathers the following information:

Rate of return on 3-month Treasury bills	3.2%
Rate of return on 10-year Treasury bonds	3.6%
Market risk premium	7.0%
The company's equity beta	1.5
Dividend growth rate	7.0%
Corporate tax rate	30%

Using the capital asset pricing model (CAPM) approach, the cost of equity (%) for the company is closest to:

A. 13.7%.

B. 8.7%.

C. 14.1%.

Q-49. The following information is available for a company:

- Bonds are priced at par and have an annual coupon rate of 9%.

- Preferred stock is priced at $8 and pays an annual dividend of $1.20.
- Common equity has a beta of 1.2.
- The risk-free rate is 5% and the market premium is 12%.
- Capital structure: Debt = 40%; Preferred stock = 10%; Common equity = 50%.
- The tax rate is 30%.

The weighted average cost of capital (WACC) for the company is closest to:

A. 13.7%

B. 14.0%

C. 14.8%

5.10. Pure-Play Method and Country Risk Premium

5.10.1. 重要知识点

5.10.1.1. 掌握 β 的概念及其计算

- Project's β is a measure of its systematic or market risk.
- 在 CAPM 模型当中，如果计算上市公司的 cost of equity，β 可以通过回归得到；但是对非上市公司，由于缺少历史数据，需要通过 pure play method 计算非上市公司的 β 值
- **Pure-play method 的计算步骤**
  - **首先，寻找可比公司：**在行业内找一家与此非上市公司(X)在商业风险上相似的上市公司(Y)，此公司 equity β 已知；
  - **其次，去杠杆：**用公式计算出上市公司(Y)的 assetβ，这是去公司杠杆化的过程（带入的 debt，equity 及 tax rate 均是可比公司的值）
    - $\beta^{*}_{asset} = \frac{\beta_{equity}}{\left[1+\left(1-t\right)\frac{D}{E}\right]}$
  - **第三，加杠杆：**用计算出上市公司(Y)的 assetβ，用被估值的非上市公司的资本结构，重新杠杆化 β，即加杠杆过程（带入的 debt，equity 及 tax rate

均为该非上市公司的值）

- $\beta_{equity}=\beta^{*}_{asset}\left[1+\left(1-t'\right)\frac{D'}{E'}\right]$
- 注意：以上公式在应用于不同公司的时候，用不同公司的 D/Eratio 来计算。若去杠杆化上市公司 Y，就用 Y 公司的 D/Eratio；若给非上市公司 X 加杠杆，就用 X 公司的 D/E ratio。

■ **最后**，通过 CAPM 模型来估算非上市公司的 cost of equity。

5.10.1.2. Country risk premium (CRP):

- It is used to estimate the cost of equity in developing countries.
- $k_{ce}=R_f+\beta[E(R_{MKT})-R_F+CRP]$
- $\text{CRP=Sovereign yield spread}\times\frac{\sigma_{\text{equity index of developing country}}}{\sigma_{\text{sovereign bond market}}}$
- Spread= difference between the yields of government bonds in the developing country and Treasury bonds of similar maturities.

5.10.2. 基础题

Q-50. The following information is available for a firm.

Market Risk Premium	7.0%
Risk-free Rate	2.0%
Firm's Debt-to-Equity Ratio	1.2
Comparable Firm Return	10.4%
Comparable Firm Debt-to-Equity Ratio	1.0
Comparable Firm Tax Rate	40.0%
Firm's Tax Rate	35%

The firm's unlevered beta is *closest* to:

A. 0.7.

B. 0.67.

C. 0.75.

Q-51. Recently GF Company has made an adjustment for its capital structure, so the equity

beta under the new capital structure for GF Company needs to be calculated, and relevant information is shown below:

Asset beta	1.25
Debt to equity ratio before the structure change	3:4
Debt to equity ratio after structure change	2:3
Comparable Firm Tax Rate	40.0%

GF Company'sequity beta is closest to: (1906 考题回顾)

A. 1.25.

B. 1.75.

C. 0.89.

Q-52. Wang Securities had a long-term stable debt-to-equity ratio of 0.65. Recent bank borrowing for expansion into South America raised the ratio to 0.75. The increased leverage has what effect on the asset beta and equity beta of the company?

A. The asset beta and the equity beta will both rise.

B. The asset beta will remain the same and the equity beta will rise.

C. The asset beta will remain the same and the equity beta will decline.

Q-53. A firm's D/E ratio increase from 1.2 to 1.4, the β Equity will increase and β Asset will: (8

A. Increase

B. Decrease

C. Remain unchanged

Q-54. An analyst gathered the following information about the capital markets in the U.S. and in Paragon, a developing country.

	Selected Market Information (%)
Yield on U.S. 10-year Treasury bond	4.5
Yield on Paragon 10-year government bond	10.5
Annualized standard deviation of Paragon stock index	35
Annualized standard deviation of Paragon dollar-denominated government bond	25

Based on the analyst's data, the estimated country equity premium for Paragon is

closest to:

A. 4.29%.

B. 6.00%.

C. 8.40%.

Q-55. An analyst gathered the following information about GF, a manufacturing company in a developing country.

	Selected Market Information (%)
Beta of GF	1.5
Yield on 10-year government bond	2
Annualized return of stock index	8
Country risk premium	3

Based on the analyst's data, the estimated cost of equity concerning country equity premium for GF is closest to:

A. 14.29%.

B. 6.5%.

C. 15.5%.

Q-56. A company has an equity beta of 1.5 and is 50% funded with debt. Assuming a tax rate of 30%, the company's asset beta is closest to:

A. 1.50.

B. 2.55.

C. 0.88.

5.11. MCC

5.11.1. 重要知识点

5.11.1.1. MCC (marginal cost of capital)

- **概念**：MCC is the cost of the last new dollar of capital a firm raises.
- 首先，当公司 R/E 不够用于发展的时候，有两种方式增加 capital，一个是 debt，一个是 equity。我们都知道发债具有税盾作用，所以公司一开始都采用发债，

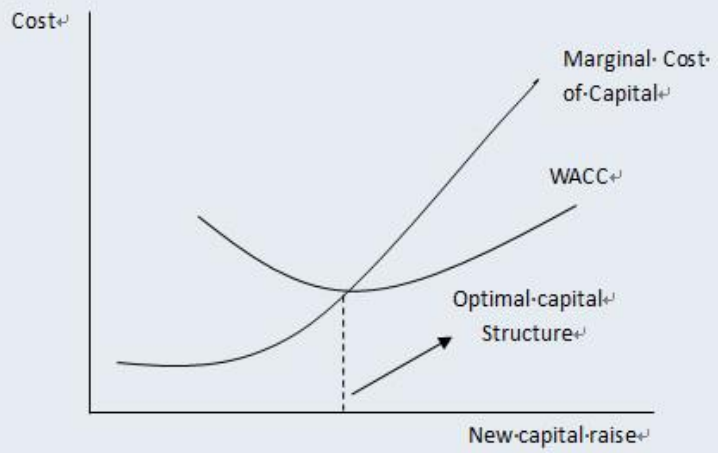
r_d 和 r_e 都是增加的；但是由于借债的成本低且有税盾作用，所以 MCC 先下降后上升，下降的原因是 debt 和 equity 的 trade-off，也就是 balance（不是由于 economies of scale）。

5.1.1.1. WACC 作为项目折现率的可靠性

- WACC 可作为计算新项目 NPV 时的折现率，但是有 2 个假设条件：
  - 该项目的风险=公司现有项目的平均风险；
  - 该项目在其有效期内 have a constant target capital structure。
- 一般来说，公司的风险和项目的风险是肯定不一样的，如果没有上述 2 个假设条件，就不能用 WACC 折现 CF 计算项目的 NPV。
  - If a project's risk > firm's risk, use a discount rate greater than WACC →NPV will be overestimated if using WACC;
  - If a project's risk < firm's risk, use a discount rate lower than WACC →NPV will be underestimated if using WACC.

5.1.1.2. Optimal capital structure

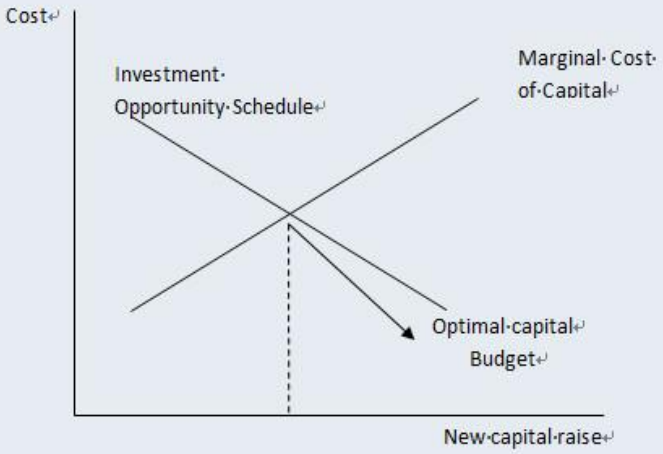
- **在 WACC 最小时达到最优资本结构，而且此刻 MCC=WACC**



5.1.1.3. Optimal capital budgeting

- **IOS 是资金的需求曲线**，企业将所有的投资项目按 IRR 从大向小排，就形成了 IOS；

- **MCC 是资金的供给曲线**，起初由于 cost of debt 的税盾效应，MCC 最初会呈现下降状态，但是由于随着债务融资增加，企业风险上升，企业的融资成本上升，导致最终企业 MCC 呈现上升趋势。
- 企业在选择时，肯定是选 IRR>MCC 的项目，而当 MCC 和 investment opportunity schedule 相交时，就形成了 optimal capital budgeting。



5.11.2. 基础题

Q-57. The optimal capital budget for a firm is best described as occurring when the company's marginal cost of capital is:

A. equal to the investment opportunity schedule.
B. less than the investment opportunity schedule.
C. greater than the investment opportunity schedule.

Q-58. Freytag Company currently has assets on its balance sheet that are financed with 60% equity and 40% debt. The company can issue debt at the yield of 8% when the value of the debt doesn't exceed 1 million. If larger amounts of debt are issued by the company, the yield of the debt will be 9%.Calculate the break points for the company.

A. 1 million.
B. 1.67 million.
C. 2.5 million.

Q-59. A company's optimal capital budget most likely occurs at the intersection of the:

A. marginal cost of capital and net present value profiles.

B. net present value and internal rate of return profiles.

C. marginal cost of capital and investment opportunity schedule.

5.12. Flotation Cost

5.12.1. 重要知识点

5.12.1.1. 考虑 flotation cost：

- **方法 1**
  - Flotation cost 将会放在折现率的分子当中进行衡量，考试当中通常**以定量计算为主**
  - 计算公式
    - $r_e = \frac{D_1}{P_0 - F} + g$（当 flotation cost 是一个绝对数值时）
    - $r_e = \frac{D_1}{P_0(1-f)} + g$（当 flotation cost 是百分比时）
- **方法 2**
  - **CFA 协会认为 flotation cost 应当视为是 initial cash outflow，无需在分母中调整折现率（定性考察）**
  - 计算公式
    - $\mathbf{NPV = -initial\ cash\ outflow - flotation\ cost + \sum_{i=1}^{n} \frac{CF_i}{(1+WACC)^i}}$

5.12.2. 基础题

Q-60. Which of the following statements is the most appropriate treatment of flotation costs for capital budgeting purposes? Flotation costs should be:

A. expensed in the current period.

B. incorporated into the estimated cost of capital.

C. deducted as one of the project's initial-period cash flows.

Q-61. A company intends to issue new common stock with floatation costs of 5.0% per share. The expected dividend next year is $0.32, and the dividend growth rate is expected to be 10% in perpetuity. Assuming the shares are issued at a price of $14.69, the cost (%) of external equity for the firm is closest to:

A. 12.3.

B. 12.5.

C. 12.2.

Q-62. A company is planning a new issue of $100 par preferred stock with a 12% dividend. The preferred stock can be sold for $95 per share and the company must pay flotation costs of 5% of the market price. Assuming a marginal tax rate of 40%, the after-tax cost of the preferred stock is closest to:

A. 8.0%.

B. 12.6%.

C. 13.3%.

5.13. Leverage

5.13.1. 重要知识点

5.13.1.1. Salerisk, operating risk&financial risk

- **Business risk** is the risk associated with operating earnings (EBIT) and results from a combination of sales risk and operating risk.
  - **Sales risk:** uncertainty with respect to the price and quantity of goods and services;
  - **Operating risk** is attributed to the use of fixed costs in operations;
- **Financial risk** is associated with the use of debt.

5.13.1.2. Leverage

- Leverage is associated with the use of fixed costs.
- 注意：financial expenses 也包括在 fixed costs 里，要区分 operating 和 financial.
- Degree of operating leverage (DOL)
  - 定义： Δ% EBIT / Δ% units sold. 代表产品销量变化 1%，operating income

变化的百分比。

- 定义式：$\mathrm{DOL}=\frac{\Delta EBIT/EBIT}{\Delta Q/Q}$
- 计算式：$\mathrm{DOL}=\frac{Q\times(P-V)}{Q\times(P-V)-F}$

➢ Degree of financial leverage (DFL)

- 定义：Δ% net income / Δ% EBIT. 代表 EBIT 变化 1%，企业净利润变化的百分比
- 定义式：$\mathrm{DFL}=\frac{\Delta EPS/EPS}{\Delta EBIT/EBIT}$
- 计算式：$\mathrm{DFL}=\frac{EBIT}{EBIT-interest}$

➢ Degree of total leverage

- Δ% net income / Δ% units sold. 代表产品销量变化 1%，企业净利润变化的百分比
- 定义式：$\mathrm{DTL}=\frac{\Delta EPS/EPS}{\Delta sales/sales}=DOL\times DFL$
- 计算式：$\mathrm{DTL}=\frac{Q\times(P-V)}{Q\times(P-V)-F-Interest}$

5.13.2. 基础题

Q-63. Given the following information, the degree of operating leverage (DOL) isclosest to:

IncomeStatement	Millions($)
Revenues	9.8
Variableoperatingcosts	7.2
Fixedoperatingcosts	1.5
Operatingincome	1.1
Interest	0.6
Taxableincome	0.5
Tax	0.2
Netincome	0.3

A. 2.4.

B. 1.1.

C. 1.7.

Q-64. A firm is uncertain about both the number of units the market will demand and the price it will receive for them. This type of risk is best described as:

A. sales risk.

B. operating risk.

C. business risk.

Q-65. Degree of operating leverage is best described as a measure of the sensitivity of:

A. net earnings to changes in sales.

B. fixed operating costs to changes in variable costs.

C. operating earnings to changes in the number of units produced and sold.

Q-66. The following information is available for a firm:

Unit	5 million
Total variable cost	40 million
Total fixed cost	25 million
Price	80
Interest	35 million

If sales increase by 15%, the net income will:

A. Increase by 18%.

B. Decrease by 18%.

C. Increase by 15%.

Q-67. Consider two companies that operate in the same line of business and have the same degree of operating leverage: the Basic Company and the Grundlegend Company. The Basic Company and the Grundlegend Company have, respectively, no debt and 50 percent debt in their capital structure. Which of the following statements is most accurate? Compared to the Basic Company, the Grundlegend Company has:

A. a lower sensitivity of net income to changes in unit sales.

B. the same sensitivity of operating income to changes in unit sales.

C. the same sensitivity of net income to changes in operating income.

Q-68. The unit contribution margin for a product is $30. A firm's fixed costs of production of up to 300,000 units is $600,000. The degree of operating leverage (DOL) is most likely the lowest at which of the following production levels (in units)?

A. 150,000

B. 200,000

C. 250,000

Q-69. Financial risk is least likely affected by:

A. debentures.

B. long-term leases.

C. dividends.

Q-70. The following information is available for a firm:

Revenue	£400,000
Variable cost	200,000
Fixed cost	100,000
Operating income	100,000
Interest	30,000
Net income	70,000

The firm's degree of total leverage (DTL) is closest to:

A. 1.43.

B. 2.00.

C. 2.86.

Q-71. A company has decided to switch to using accelerated depreciation from straight-line depreciation. Holding other factors constant, the degree of total leverage (DTL) will most likely:

A. decrease.

B. not change.

C. increase.

Q-72.

Income Statement	Millions ($)
Revenues	10.0
Variable operating costs	4.5
Fixed operating costs	1.8
Operating income	3.7
Interest	1.0
Taxable income	2.7
Tax	1.0
Net income	1.7

The degree of financial leverage (DFL) is closest to:

A. 2.1.

B. 1.7.

C. 1.4.

5.14. Breakeven Points

5.14.1. 重要知识点

5.14.1.1. Breakeven point &operating breakeven point

- **Breakeven point:**the level of sales that a firm must generate to cover all of its fixed and variable costs.
  - $Q_{BE}=\frac{\text{Fixed operating cost+fixed financial cost}}{\text{P-V}}$ (breakeven point)
- **Operating breakeven point:**operating breakeven quantity of sales that only consider fixed operating costs and ignore fixed financing cost
  - $Q_{OBE}=\frac{\text{Fixed operating cost}}{\text{P-V}}$ (operating breakeven point)

5.14.2. 基础题

Q-73. If the degree of financial leverage (DFL) is 1.00, the operating breakeven point compared with the breakeven point is most likely:

A. lower.

B. the same.

C. higher.

Q-74. The per unit contribution margin for a product is $12. Assuming fixed costs of $12,000, interest costs of $3,000, and taxes of $2,000, the operating breakeven point (in units) is closest to:

A. 1,417.
B. 1,000.
C. 1,250.

Solution: B.

The operating breakeven point is: $\frac{\text{Fixed costs}}{\text{Contribution margin}} = \frac{\$12{,}000}{\$12} = 1{,}000$

C is incorrect because the numerator is ($12,000 + $3,000) making it the breakeven quantity and not the operating breakeven quantity.

A is incorrect because the numerator is ($12,000 + $3,000 + $2,000) = 1,417.

Q-75. A company's EBIT remains the same. The degree of financial leverage of changes from 1.2 to 1.3, the operating break point would be :

A. Higher
B. Lower
C. The same

Q-76. Myundia Motors now sells 1 million units at $3,529 per unit. Fixed operating costs are $1,290 million and variable operating costs are $1,500 per unit. If the company pays $410 million in interest, the levels of sales at the operating breakeven and breakeven points are, respectively:

A. $1,500,000,000 and $2,257,612,900.
B. $2,243,671,760 and $2,956,776,737.
C. $2,975,148,800 and $3,529,000,000.

5.15. Liquidity Measures and Management

5.15.1. 重要知识点

5.15.1.1. 了解流动性的两大来源

- **Primary sources of liquidity**represent the most readily accessible resources available.

- Ready cash balances: cash available at bank accounts resulting from payment collections, investment income, liquidation of near-cash securities;
- Short-term funds;
- Cash flow management.

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

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

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

5.15.1.2. Liquidity measures

➢ Working capital management is a concern regarding firm liquidity

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

➢ **Liquidity ratios:**

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

➢ **Receivable turnover:**a measure of accounts receivable liquidity.

- $\text{Receivables turnover}=\frac{\text{credit sales}}{\text{receivables}}$
- $\text{Number of days receivable}=\frac{365}{\text{receivable turnover}}$

➢ **Inventory turnover**: a measure of a firm's efficiency with respect to its processing and inventory management.

- Inventory turnover=$\frac{\text{cost of goods sold}}{\text{inventory}}=\frac{\text{purchases}}{\text{inventory}}$
- Number of days inventory=$\frac{365}{\text{inventory turnover}}$

➢ **Payables turnover:** a measure of the use of credit by the firm.

- Payables turnover ratio=$\frac{\text{purchases}}{\text{trade payables}}$
- Number of days of payables=$\frac{365}{\text{payables turnover ratio}}$

➢ **Operating cycle:**the average number of days that it takes to turn raw materials into cash proceeds forms.

- Operating cycle=days of inventory+days of receivables
- Cash conversion cycle (net operating cycle)
  =days of inventory+days of receivables-days of payable

5.15.2. 基础题

Q-77. The following information is available for a company and the industry in which it competes:

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

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

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

B. and cash conversion cycle are both longer.

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

Q-78. Which is most likely considered a "pull" on liquidity?

A. Obsolete inventory.

B. Reduction in a line of credit.

C. Increased difficulty in collecting receivables.

Q-79. Suppose a company has a current ratio of 2.5 times and a quick ratio of 1.5times. If the company's current liabilities are €100 million, the amount of inventoryis closest to:

A. €50 million.

B. €100 million.

C. €150 million.

Q-80. An analyst collected the following information of a company.

	2017	**2016**
Sales	$24,000	$20,000
Cost of goods sold	$12,000	$10,000
Inventory	$2,400	$2,000
Accounts payable	$1,200	$1,000

The firm's number of days of payable in year 2017 are *closest* to:

A. 18.3.

B. 35.3.

C. 36.5.

Q-81. All else equal, when the suppliers of a company provide less trade credit, the operating cycle of the company will *most likely* become:

A. shorter.

B. longer.

C. unchanged.

Q-82. Which action is *most likely* considered a secondary source of liquidity?

A. Increasing the availability of bank lines of credit

B. Increasing the efficiency of cash flow management

C. Renegotiating current debt contracts to lower interest payments

Q-83. Other factors held constant, the reduction of a company's average accountspayable because of suppliers offering less trade credit will most likely: （18 年模考题）

A. not affect the operating cycle.

B. reduce the operating cycle.

C. increase the operating cycle.

Q-84. Selected information for a company is provided below. （1906 考题回顾）

	$ millions
Sales	9,600
Cost of goods sold	5,760
Purchase	5,880
Average receivables	1,250
Average inventory	1,420
Average payables	290

The company's cash conversion cycle (in days) is *closest* to:

A. 84.

B. 120.

C. 138.

5.16. Cash Management and ST Funding

5.16.1. 重要知识点

5.16.1.1. Money market yield 及 discount basis yield, bond equivalent yield 掌握公式：

- discount basis yield=$(\frac{F-P}{F})(\frac{360}{t})$
- $R_{mm}=(\frac{F-P}{P})(\frac{360}{t})=HPR\times(\frac{360}{t})$
- $BEY=(\frac{F-P}{P})(\frac{365}{t})=HPR\times(\frac{365}{t})$

5.16.1.2. 通过对现金流的管理和预测，可以判断企业现金流是盈余还是短缺。

- 如果判断企业资金短期是 cash surplus，需要对盈余现金进行投资；
- 如果判断短期企业资金是 shortage the cash，需要进行融资弥补现金的短缺。

5.16.2. 基础题

Q-85. Alan company acquired a bankers acceptance for $364,500. It will mature in 90 days for $380,000. The discount-basis yield and the bond equivalent yield for this security are closest to:

	Discount basis yield	Bond equivalent Yield
A.	18.0%	17.0%
B.	17.0%	16.3%
C.	16.3%	17.0%

Q-86. Which of the following sources of short-term financing is most likely used by smaller companies?

A. Commercial paper
B. Collateralized loans
C. Uncommitted lines

Solution: A.

B is correct. Smaller companies use collateralized loans, factoring, or loans from non-bank companies as their sources of short-term financing. Larger companies can take advantage of commercial paper, banker's acceptances, uncommitted lines, and revolving credit agreements.

A and C are incorrect because smaller companies use collateralized loans, factoring, or loans from non-bank companies as their sources of short-term financing. Larger companies can take advantage of commercial paper, banker's acceptances, uncommitted lines, and revolving credit agreements.

Q-87. For a 90-day US Treasury bill selling at a discount, which of the following methods most likely results in the highest yield?

A. Money market yield (MMY)
B. Bond equivalent yield (BEY)
C. Discount-basis yield (DBY)

5.17. Trade Discounts

5.17.1. 重要知识点

5.17.1.1. Trade discounts cost 计算

- 了解关于应付账款相关术语的理解
  - Example: 2/10, net 30
    - 2/10 意味着企业在形成应付账款后，如果在 10 天内付款，则可以享受 2%的折扣率
    - Net 30 意味着在形成应付账款之后，即便不享受折扣，也需要在 30 天内支付对应货款
  - 对应 trade discount cost 的计算
    - $\text{cost of trade credit} = (1 + \frac{discount}{1-discount})^{\frac{365}{t}} - 1$

5.17.2. 基础题

Q-88. A company increasing its credit terms for customers from 1/10, net 30 to 1/10, net 60 will most likely experience:

A. an increase in cash on hand.
B. a higher level of uncollectible accounts.
C. an increase in the average collection period.

Q-89. A company is offered trade credit terms of 2/10, net 45. The annual cost of this trade credit is closest to:

A. 21.28%.
B. 23.10%.
C. 23.45%.

5.18. 进阶题

Q-1. Jurgen Knudsen has been hired to provide industry expertise to Henrik Sandell, CFA, an analyst for a pension plan managing a global large-cap fund internally. Sandell is concerned about one of the fund's larger holdings, auto parts manufacturer Kruspa AB Kruspa currently operates in 80 countries, with the previous year's global revenues at €5.6 billion. Recently, Kruspa's CFO announced plans for expansion into China. Sandell worries that this expansion will change the company's risk profile and wonders if he should recommend a sale of the position. For the new project, D/E=80/20

Additional information:

Equity risk premium, Sweden	4.82%
Risk-free rate of interest, Sweden	4.25%
Industry debt-to-equity ratio	0.3
Market value of Krista's debt	€900 million
Market value of Kruspa's equity	€2.4 billion
Kruspa's equity beta	1.3
Kruspa's before-tax cost of debt	9.25%
China credit A2 country risk premium	1.88%
Corporate tax rate	37.5%

Sandell would like to use the asset beta of Kruspa as a base in his calculations. The China project's weighted average cost of capital (WACC) calculated using the equity beta without and with the country risk premium is, respectively:

A. 9% and 10%.

B. 10% and 9.03%.

C. 9.03% and 10.42%.

Solutions

A true friend is the one who holds your hand and touches your heart.

一个真正的朋友会握着你的手，触动你的心。

5. Corporate Finance

5.1. 基础题

Q-1. Solution: A.

A is the definition of the thematic investing strategy;

B talks about the best-in-class approach for ESG implementation, but not the thematic methods;

C gives the definition of the negative screening.

Q-2. Solution: C.

C is correct. The CEO and board chair roles should be separated to prevent too much executive power.

A is incorrect because former employees are not independent board members.

B is incorrect because supervisory and management boards should be independent of each other.

Q-3. Solution: A.

A is correct. Plans that link compensation to the factors that drive overall corporate performance are well structured because they create alignment between shareholder and executive objectives.

B is incorrect because plans that exhibit little variation in results from year to year may be failing to distinguish strong from weak performance.

C is incorrect because compensation plans should result in comparable remuneration for comparable companies with comparable performance.

Q-4. Solution: A.

A is correct. Shareholder and manager interests can diverse with respect to risk tolerance. In the same cases, shareholders with diversified investment portfolios can have a fairly high tolerance because specific company risk can be diversified away. Managers are typically more risk averse in their corporate decision making to better project their employment status.

Q-5. Solution: A.

In statutory voting, each share represents one vote, which is least beneficial for shareholders with a small number of shares.

Q-6. Solution: B.

B is correct. Under best practices in corporate governance procedures, independent board

members should have a “lead” director when the board chair is not independent.

Q-7. Solution: C.

C is correct. Appropriate controls and procedures exist that cover management’s activities in running the daily operations of the firm is consistent with the best practices of corporate governance.

Q-8. Solution: A.

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

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

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

Q-9. Solution: C.

C is correct. Governance arrangements that help protect creditor rights can reduce a company’s cost of debt and default risk.

A is incorrect. Governance arrangements that help protect creditor rights can reduce a company’s cost of debt and default risk.

B is incorrect. Good corporate governance usually results in better (increased) financial performance, not decreased.

Q-10. Solution: A.

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

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

auditors are not independent and should not be a part of the compensation committee.

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

Q-11. Solution: C.

Regulatory, safety, and environmental projects are often mandated by governmental agencies. They may generate no revenue and might not be undertaken by a company maximizing its own private interests. For example, a corporation may be required to install equipment to meet a regulatory standard, and the cost of satisfying the standard is born by the corporation. In this case, the corporation selects the lowest cost alternative that meets the requirement, i.e., the alternative with the least negative net present value.

Q-12. Solution: A.

Financing costs are not included in a cash flow calculation but are considered in the calculation of the discount rate.

B is incorrect because opportunity costs are considered in computing a firm's cash flows.

C is incorrect because tax effects are considered in computing a firm's cash flows.

Q-13. Solution: B.

The cash savings related to adopting a new production process is an incremental cash flow, not an opportunity cost.

Q-14. Solution: B.

Sunk costs should be excluded in the cash flow calculation.

Externality and opportunity cost should be included when calculating cash flow, and the cash flow should be after tax cash flow.

Q-15. Solution: B.

Year	Cash Flow	Discounted Cash Flow @ 8%	Amount to Pay Back
0	−$75,000	−$75,000	$75,000
1	21,600	20,000	55,000
2	23,328	20,000	35,000
3	37,791	30,000	5,000

4 40,815 30,000

The first three cash flows recover $70,000 (in present value terms) of the cost, making only $5,000 of the $30,000 in Year 4 necessary to completely recover the cost. Therefore, the discounted payback is three years plus 5000/30,000 or 3.2 years.

C is incorrect because it is the payback period.

A is incorrect because it is the payback period without interpolation.

Q-16. Solution: C.

Using a calculator, the IRR is 17.89%. The discounted payback period is the number of years (and fractional part of a year) that it takes to recover the initial investment in terms of discounted future cash flows discounted at the project's required rate of return. The discounted cash flows for the first four years are: €30.97, €23.49, €27.72, and €18.40. The cumulative sum through year three is €82.13. The portion of year four required to recover the initial investment is €17.87 / €18.40 = 0.97. Therefore, the discounted payback period is 3.97 years.

Q-17. Solution: B.

B is correct. The NPV at 15% is $99.93. The NPV at 10% is −$0.01. The NPV at 8% is −$307.59.

A and C are incorrect because see the above calculation.

Q-18. Solution: B.

The IRR is the discount rate when the net present value (NPV) = 0. The NPV is zero when discounting at 10%: ($100/10%) × [1 − 1/(1 +10%)3] + $1,100/(1 +10%)4 − $1,000.00 = $0. Consequently, 10% is the IRR. Using a financial calculator and recognizing that it is a bond: PV = 1,000, FV = –1,000, PMT = –100, N = 4, and solve for i, which will equal 10%.

C is incorrect because the NPV will be positive, and it is calculated as the holding period return: ($1400/$1000)1/4 – 1.

A is incorrect because the NPV will be positive, and it is calculated as $100 / $1,100.

Q-19. Solution: C.

$$\mathbf{PI} = \frac{\boldsymbol{PV\ of\ future\ cash\ flow}}{|\boldsymbol{CF_0}|} = \mathbf{1} + \frac{\boldsymbol{NPV}}{|\boldsymbol{CF_0}|} = \mathbf{1} + \frac{\mathbf{423.11}}{\mathbf{16253}} = \mathbf{1.026}$$

Q-20. Solution: B.

For these projects, a discount rate of 13.16 percent would yield the same NPV for both (an NPV of 6.73).

Q-21. Solution: C.

Discount rates of 0 percent and approximately 61.8 percent both give a zero NPV.

Rate	0%	20%	40%	60%	61.8%	80%	100%
NPV	0.00	4.40	3.21	0.29	0.00	—3.02	—6.25

Q-22. Solution: B.

The discounted payback is longer than the regular payback because cash flows are discounted to their present value.

Q-23. Solution: A.

A is correct. The company should choose the combination of projects that maximizes net present value (NPV) subject to the budget constraint of $1,100.

Project	Investment required	NPV	decision
1+2	1100	200	
2+3+4	1100	200	
2+3+4	1000	200	NPV=$200withtheleastinvestment

Q-24. Solution: C.

$$PV=\sum_{t=1}^{7}\frac{115}{1.10^{t}}+\frac{50}{1.10^{7}}=585.53$$

$$PI=\frac{585.53}{375}=1.56$$

Q-25. Solution: B.

The NPV of project A is €3,561.18:

$$3,561.18 = -4,900+\frac{690}{(1.08)^{1}}+\frac{1,698}{(1.08)^{2}}+\frac{1,270}{(1.08)^{3}}+\frac{7,290}{(1.08)^{4}}$$

The NPV of Project B is €3,530.73:

$$3,530.73 = -4,900+\frac{690}{(1.08)^{1}}+\frac{1,698}{(1.08)^{2}}+\frac{2,102}{(1.08)^{3}}+\frac{6,350}{(1.08)^{4}}$$

B is correct because Project A has a higher NPV and the projects are mutually exclusive, only Project A should be accepted.

Q-26. Solution: B.

The NPV at 15% is $199.87. The NPV at 12% is $221.82. The NPV at 10% is -$0.024.

Q-27. Solution: C.

C is correct. For a project with normal cash flows, the NPV profile intersects the horizontal axis at the point where the discount rate equals the IRR. The crossover rate is the discount rate at which the NPVs of the projects are equal. Although it is possible that the crossover rate is equal to each project's IRR, it is not a likely event. It is also possible that the IRR is equal to the WACC, but that scenario is not the most likely one.

B is incorrect. The crossover rate is the discount rate at which the NPVs of the projects are equal. While it is possible that the crossover rate is equal to each project's IRR, it is not a likely event.

A is incorrect. The project's net present value (NPV) occurs when the NPV profile intersects the vertical axis or when the discount rate = 0.

Q-28. Solution: C.

Conflicting decision rules based on the NPV and IRR methods are related to the reinvestment rate assumption, the timing of the cash flows, or the scale of the projects. Differing required rates of return are not related to conflicting NPV and IRR decisions.

Q-29. Solution: A.

The vertical axis of NPV profile represents NPV, so the vertical ordinate at the crossover point of two profiles represents the NPV when two projects have the same cost of capital.

Q-30. Solution: A.

The vertical intercept changes from 60 to 65 (NPV when cost of capital is 0%), and the horizontal intercept (IRR, when NPV equals zero) changes from 21.86 percent to 20.68 percent.

Q-31. Solution: B.

The IRR would stay the same because both the initial outlay and the after-tax cash flows double, so that the return on each dollar invested remains the same. All of the cash flows and their present values double. The difference between total present value of the future cash flows and the initial outlay (the NPV) also doubles.

Q-32. Solution: B.

The NPV of the new machine is $30 million - $10 million = $20 million. The value of this machine is added to Printing's current market value. The addition is worth $20 million / 180 million shares on per share, for a net addition to the share price of $0.11. So, the stock price would be $12.00 + $0.11 = $12.11.

Q-33. Solution: B.

B is correct. WACC = $w_d r_d(1\text{-}t)+w_p r_p + w_e r_e$= [0.12 × (1 – 0.40) + 0.17 + 0.20]/3 = 14.73%.

A is incorrect because tax effect is miscalculated: [0.12 × 0.40 + 0.17 + 0.20]/3 = 13.93%.

C is incorrect because tax effect is ignored: [0.12 + 0.17 + 0.20]/3 = 16.33%.

Q-34. Solution: B.

The company's weighted average cost of capital (WACC) is calculated as WACC = 0.5(6%) + 0.1(10%) + 0.4(15%) = 10%. In this scenario, the company should accept projects that have an internal rate of return greater than the cost of capital. The equipment project's IRR exceeds the WACC. The warehouse project does not.

C and A are incorrect because accept projects that have an internal rate of return greater than the cost of capital. The equipment project's IRR exceeds the WACC. The warehouse project does not.

Q-35. Solution: B.

$$w_d=\frac{1.7}{1.7+1}=63\%,$$

$$w_e=1\text{-}63\%=37\%,$$

$$r_e=r_f+\beta\times RP=4\%+1.6\times 7\%=15.2\%$$

$$WACC=w_d r_d(1\text{-}t)+w_e r_e=63\%\times 6.8\%\times(1\text{-}34\%)+37\%\times 15.2\%=8.45\%$$

Notes: <u>should use the risk-free rate with comparable period, that is, the maturity of risk free rate equals to the duration of CF.</u>

Q-36. Solution: C.

Bonds are a form of debt that must be adjusted for taxes when calculating the weighted average cost of capital.

Q-37. Solution: B.

As the target capital weights are not given, you can use market value weights to compute the WACC. The market value weights for debt, preferred stock and equity are 0.2667, 0.0667, and 0.6667 respectively.

$$WACC=\left(w_d\right)\left[k_d\left(1\text{-}t\right)\right]+\left(w_{ps}\right)\left(k_{ps}\right)+\left(w_{ce}\right)\left(k_s\right)$$

$$= 0.2667 \times 8\% \left(1 - 0.4\right) + 0.0667 \times 10\% + 0.6667 \times 12\% = 9.95\%$$

Q-38. Solution: B.

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

Q-39. Solution: A.

A is correct. The debt-rating approach is an example of matrix pricing.

B is incorrect because the yield-to-maturity approach is not an example of matrix pricing.

C is incorrect because the yield-to-maturity approach is not an example of matrix pricing.

Q-40. Solution: C.

With a fixed-rate non-callable bond, the before-tax cost of debt is the bond's yield to maturity.

Q-41. Solution: B

B is correct. The annual after-tax cost of debt is the after tax annual yield to maturity (YTM). Find the YTM by using a financial calculator as follows:

PV = –1,030.34, FV = 1,000, N = 40 (20 × 2), PMT = 31 (0.062 × 1,000 × 0.5), compute i.

i = 2.97 semiannually

Annually, YTM = 2.97 × 2 = 5.94

Therefore, the associated after-tax value = 0.0428 = 0.0594 × (1 – 0.28).

Q-42. Solution: B.

rp = Dp/Pp (or Dividend/Price) = ($100 × 0.095)/$103.26 = 9.2%.

A is incorrect because it uses $100 as the denominator, i.e., ($100 × 0.095)/$100 = 9.5%.

C is incorrect because it assumes 5% growth in the dividend, i.e., 9.5 × (1.05)/103.26 = 9.7%.

Q-43. Solution: C.

First calculate the growth rate using the sustainable growth calculation, and then calculate the cost of equity using the rearranged dividend discount model:

g = (1 —Dividend payout ratio) (Return on equity) = (1 —0.30) (15%) = 10.5%

$r_e = (D_1 / P_0) + g = ($2.30 / $45) + 10.50% = 15.61%$

Q-44. Solution: B.

The expected return is the sum of the expected dividend yield plus expected growth. The expected growth is (1-0.5)20% = 10%. The expected dividend yield is 1.5×1.1/ 25 =6.6%. The sum is 16.6%.

Q-45. Solution: A.

The capital asset pricing model uses the firm's equity beta, which is computed from a market model regression of the company's stock returns against market returns.

Q-46. Solution: A.

$r_e = 3\% + 2.2 \times (10\% - 3\%) = 18.4\%$.

Q-47. Solution: B.

First, determine the yield to maturity, which is the discount rate that sets the bond price to $110 and is equal to 8%. This calculation can be done with a financial calculator:

FV = $100,PV = -$110, N =10, PMT = $8, solve for i, which will equal 6.6%.

The bond-yield-plus-risk-premium approach is calculated by adding a risk premium to the cost of debt (i.e., the yield to maturity for the debt), making the cost of equity 12.60% (= 6.6% +6%).

Q-48. Solution: C.

CAPM: Cost of equity = Risk-free rate + Beta × Market risk premium = 3.6% +1.5 × (7.0%) = 14.1%

The 10-year risk-free rate is appropriate based on the long-term duration of the cash flows from the project.

B is incorrect. Deducting the risk-free rate from the market risk premium would lead to:

3.6% + 1.5 × (7.0% – 3.6%) = 8.7%

A is incorrect. If the 90-day T-Bill rate is used as the risk-free rate, the answer will be:

3.2% + 1.5 × (7.0%) = 13.7%

Q-49. Solution: A.

The yield to maturity on a par value bond is the coupon rate of the bond:

$r_d = 9\%$

$r_p = \frac{D_P}{P_P} = \frac{\$1.2}{\$8} = 15\%$

$r_e = R_F + \beta\left[E(R_M) - R_F\right] = 5\% + 1.2(12\%) = 19.4\%$

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

$WACC = 40\% \times 9\% \times (1-30\%) + 10\% \times 15\% + 50\% \times 19.4\% = 13.72\%$

Q-50. Solution: C.

Find the comparable firm's beta: (10.4% - 2.0%) ÷ 7.0% = 1.20.

β_u=comparable ÷ (1 + (1 – tax rate) × debt-to-equity ratio) = 1.20 ÷ (1 + (1 – 40%) x 1.0)

=0.75.

Q-51. Solution: B.

To calculate the equity beta with asset beta known, the new debt to equity ratio to GF Company should be used.

$$\beta_{equity} = \beta^{*}_{asset}\left[1+\left(1-t^{'}\right)\frac{D^{'}}{E^{'}}\right]$$

$$\beta_{equity} = 1.25\times[1+(1-40\%)\times\frac{2}{3}] = 1.75$$

Q-52. Solution: B.

Asset risk does not change with a higher debt-to-equity ratio. Equity risk rises with higher debt.

Q-53. Solution: C.

β Asset is unleveraged β, therefore the β Asset remains unchanged even though there is a change in D/E ratio.

Q-54. Solution: C.

The country equity premium can be estimated as the sovereign yield spread times the volatility of the country's stock market relative to its bond market. Paragon's equity premium is (10.5% — 4.5%) × (35%/25%) = 6% × 1.4 = 8.40%.

Q-55. Solution: C.

GF's cost of equity is 2% × 1.5(8%-2%+3%) = 15.5%.

Q-56. Solution: C.

Note: 50% debt financing is equivalent to a debt-to-equity ratio of 1.00 = 0.50/(1 – 0.50).

$\beta_{Asset} = \beta_{EQ} \times \{1/[1 + (1 – t)D/E)]\} = 1.5/[1 + (1 – 0.30) \times 1.00] = 0.8823$.

Q-57. Solution: A.

A is correct. The optimal capital budget occurs when the marginal cost of capital (MCC) intersects with (is equal to) the investment opportunity schedule (IOS).

B and C are incorrect because the optimal capital budget occurs when the marginal cost of capital (MCC) intersects with (is equal to) the investment opportunity schedule (IOS).

Q-58. Solution: C.

When the value of the debt exceeds 1 million, the yield of the bonds issued changed. So the break point for the company occurs when 40% of the whole capital exceeds 1 million. Break point

= 1 million/40% = 2.5 million.

Q-59. Solution: C.

The point at which the marginal cost of capital intersects the investment opportunity schedule is the optimal capital budget.

Q-60. Solution: C.

C is correct. Flotation costs are an additional cost of the project and should be incorporated as an adjustment to the initial-period cash flows in the valuation computation.

A is incorrect. Expensing is an accounting treatment of the costs, not a capital budgeting treatment.

B is incorrect. Including the flotation cost in the estimated cost of capital is theoretically incorrect. By doing so we are adjusting the present value of the future cash flows by a fixed percentage, i.e., the adjusted cost of capital.

Q-61. Solution: A.

Use the following formula

$$r_e = \left(\frac{D_1}{P_0(1-f)}\right) + g = \left(\frac{0.32}{14.69(1-0.05)}\right) + 0.1 = 12.29\%$$

Q-62. Solution: C.

The component cost of preferred stock is calculated as: (100 × 0.12) / [95 × (1-0.05)]= 0.133 or 13.3%. Note that preferred stock is not tax advantaged.

Q-63. Solution: A.

$$\text{DOL} = \frac{\text{Revenues} - \text{Variable operating costs}}{\text{Revenues} - \text{Variable operating costs} - \text{Fixed operating}} = \frac{9.8-7.2}{9.8-7.2-1.5} = 2.36$$

B is incorrect because it is Revenues/(Variable operating costs + Fixed operating costs).

C is incorrect because it is (Revenues – Variable operating costs)/Fixed operating costs.

Q-64. Solution: A.

Sales risk is associated with uncertainty with respect to total revenue, which, in turn, depends on price and units sold.

B is incorrect because operating risk is the risk attributed to the operating cost structure. A company with a greater proportion of fixed costs in its cost structure has greater operating risk.

C is incorrect because business risk is risk associated with operating earnings and this risk is the

combination of sales risk and operating risk.

Q-65. Solution: C.

The degree of operating leverage is the elasticity of operating earnings with respect to the number of units produced and sold. As elasticity, the degree of operating leverage measures the sensitivity of operating earnings to a change in the number of units produced and sold.

Q-66. Solution: A.

$$\text{DTL} = \frac{Q \times (P - VC)}{Q \times (P - VC) - FC - I} = \frac{5 \times (80 - 40/5)}{5 \times (80 - 40/5) - 25 - 35} = \frac{360}{300} = 1.2$$

Degree of total leverage: Δ% net income / Δ% units sold

Δ% net income=1.2*15% =18%

Q-67. Solution: B.

Grundlegend's degree of operating leverage is the same as Basic Company's, whereas Grundlegend's degree of total leverage and degree of financial leverage are higher.

Q-68. Solution: C.

$$\text{DOL}=\frac{\text{Q(P-V)}}{\text{Q(P-V)-F}}$$

$$\text{DOL}(150{,}000 \text{ units}) = \frac{\$30 \times 150{,}000}{(\$30 \times 150{,}000 - \$600{,}000)} = 1.154$$

$$\text{DOL}(200{,}000 \text{ units}) = \frac{\$30 \times 200{,}000}{(\$30 \times 200{,}000 - \$600{,}000)} = 1.111$$

$$\text{DOL}(250{,}000 \text{ units}) = \frac{\$30 \times 250{,}000}{(\$30 \times 250{,}000 - \$600{,}000)} = 1.087$$

The DOL is lowest at the 250,000 unit production level.

Q-69. Solution: C.

By taking on fixed obligations, such as debt (including debentures) and long-term leases, a company increases its financial risk. Dividends will not increase financial risk.

Q-70. Solution: C.

DTL = (Revenue – Variable cost)/Net income = (£400,000 – £200,000)/£70,000 = 2.86.

Q-71. Solution: C.

$$\text{Based on the equation}: \text{DTL}=\text{DOL}\times\text{DFL}=\frac{\text{Q(P-V)}}{\text{Q(P-V)-F-I}},$$

The change to accelerated depreciation increases the fixed costs, thus making DTL increase (i.e., the numerator does not change and the denominator decreases).

Q-72. Solution: C.

$$\text{DFL} = \frac{\text{EBIT}}{\text{EBIT} - \text{I}} = \frac{3.7}{3.7 - 1.0} = 1.37$$

Q-73. Solution: B.

When DFL = Operating income/Net income = 1.00, Operating income = Net income, meaning the fixed cost of debt is zero.

The breakeven point is: Fixed costs + Fixed cost of debt/Contribution margin.

Because the fixed cost of debt is zero, the company's breakeven point becomes Fixed costs/Contribution margin, which is the same as the operating breakeven point.

A is incorrect because the breakeven point is equal to the operating breakeven point when DFL = 1.00.

C is incorrect because the breakeven point is equal to the operating breakeven point when DFL = 1.00.

Q-74. Solution: B.

The operating breakeven point is: $\frac{\text{Fixed costs}}{\text{Contribution margin}} = \frac{\$12{,}000}{\$12} = 1{,}000$

C is incorrect because the numerator is ($12,000 + $3,000) making it the breakeven quantity and not the operating breakeven quantity.

A is incorrect because the numerator is ($12,000 + $3,000 + $2,000) = 1,417.

Q-75. Solution: C.

The change of DFL from 1.2 to 1.3 means an increase of interest expense, but the changeof interest does not affect operating breakeven point.

Q-76. Solution: B.

$$\text{Operating breakeven units} = \frac{\$1290 \text{ million}}{(\$3{,}529\text{-}\$1{,}500)} = 635{,}781.173 \text{ units}$$

$$\text{Operating breakeven sales} = \$3{,}529 \times 635{,}781.173 \text{ units} = \$2{,}243{,}671{,}760$$

$$\text{Total breakeven} = \frac{\$1290 \text{ million} + \$410 \text{ million}}{\$3{,}529\text{-}\$1{,}500} = 837{,}851.1582 \text{ units}$$

$$\text{Breakeven sales} = \$3{,}529 \times 837{,}851.1582 \text{ units} = \$2{,}956{,}776{,}737$$

Q-77. Solution: A.

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

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

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

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

Q-78. Solution: B.

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

Q-79. Solution: B

Current ratio = current assets/current liabilities = current assets/€100 million = 2.5

Therefore, current assets = €250 million

Quick ratio = (current assets − inventory)/ current liabilities = (€250 million − inventory)/€100 million = 1.5

Therefore, inventory = €100 million

Q-80. Solution: B.

$$\text{The days in payables} = \frac{\text{Accounts payable}}{\text{Purchases} \div 365} = \frac{\text{Accounts payable}}{(\text{Change in inventory} + \text{Cost of goods sold}) \div 365}$$

$$= \frac{\$1{,}200}{(\$2{,}400 - \$2{,}000 + \$12{,}000) \div 365} = 35.3$$

Q-81. Solution: C.

Less trade credit offered by the suppliers will only affect accounts payable, however, the number of days of payables is not a component of the operating cycle.

Q-82. Solution: C.

C is correct. Renegotiating debt contracts is a secondary source of liquidity because it may affect

the company's operating and/or financial positions.

Q-83. Solution: A.

A is correct. Payables are not part of the operating cycle calculation, which includes receivables and inventory.

B is incorrect. As per above, payables are not part of the operating cycle calculation.

C is incorrect. As per above, payables are not part of the operating cycle calculation.

Q-84. Solution: B.

Cash conversion cycle = days sales outstanding + days of inventory on hand – days of payables

	A/R days in sales	Inventory days on hand	A/P days in payables
Turnover	Sales ÷ A/R	Cost of Goods Sold ÷ Inventory	Purchases ÷Payables
	9,600 ÷ 1,250= 7.68 times	5,760 ÷ 1,420= 4.06 times	5,880 ÷ 290= 20.3 times
In days	365 ÷ 7.68= 47.53 days	365 ÷ 4.06= 89.98 days	365 ÷ 20.3= 18 days

Cash conversion cycle = days in sales + days on hand – days in payables

= 47.53 + 89.98 – 18

= 119.51 days

Q-85. Solution: C.

The actual discount on the acceptance is (380,000 – 364,500) / 380,000 = 4.08%. Theannualized discount, or discount-basis yield, is 4.08% × (360/90) = 16.32%.

The holding period yield is (380,000 – 364,500) / 364,500 = 4.25%. The bond equivalent yield is 4.25% ×(365/90) =17%.

Q-86. Solution: A.

B is correct. Smaller companies use collateralized loans, factoring, or loans from non-bank companies as their sources of short-term financing. Larger companies can take advantage of commercial paper, banker's acceptances, uncommitted lines, and revolving credit agreements.

A and C are incorrect because smaller companies use collateralized loans, factoring, or loans from non-bank companies as their sources of short-term financing. Larger companies can take advantage of commercial paper, banker's acceptances, uncommitted lines, and revolving credit agreements.

Q-87. Solution: B.

The face value is greater than the purchase price because the T-bill sells at a discount.

$$\text{discount basis yield} = (\frac{F - P}{F})(\frac{360}{t})$$

$$R_{mm} = (\frac{F-P}{P})(\frac{360}{t}) = HPR \times (\frac{360}{t})$$

$$BEY = (\frac{F-P}{P})(\frac{365}{t}) = HPR \times (\frac{365}{t})$$

$$BEY = R_{mm} \times \frac{365}{360}, BEY > R_{mm} > \text{discount basis yield}$$

Q-88. Solution: C.

A higher level of uncollectible accounts may occur, but a longer average collection period will certainly occur.

Q-89. Solution: C.

The cost of trade credit if paid on day = $(1+2/98)^{365/35} - 1 = 23.45\%$

5.2. 进阶题

Q-1. Solution: C.

Asset β = Un-levered β= 1.3/(1+[(1—0.375)(€900/€2400)] = 1.053 for prior to China project.

Projectβ= 1.053 { 1+ [(1 — 0.375) (€80/€20)] = 1.053 {3.5} = 3.686 for China project.

Cost of equity without the country risk premium: r_e =0.0425 + 3.686 (0.0482) = 22.02%

Cost of equity with the country risk premium: r_e = 0.0425 + 3.686 (0.0482 + 0.0188) = 28.95%

Weighted average cost of capital without the country risk premium:

WACC = [0.80 (0.0925) (1 — 0.375) + [0.20 (0.2202)] = 0.04625 + 0.04404 = 9.03%

Weighted average cost of capital with the country risk premium:

WACC = [0.80 (0.0925) (1 — 0.375) + [0.20 (0.2895)] = 0.04625 + 0.0579 = 10.42%