

Corporate Issuers

共享题干题

【题干】Modern Auto, an automobile parts supplier, has made an offer to acquire Sky Systems, creator of software for the airline industry. The offer is to pay Sky Systems' shareholders the current market value of their stock in Modern Auto's stock. The relevant information it used in those calculations is given below:

	Modern Auto	Sky Systems
Share price	\$40	\$25
Number of outstanding shares (millions)	40	15
Earnings (millions)	\$100	\$30

Although the total earnings of the combined company will not increase and are estimated to be \$130 million, Charles Wilhelm (treasurer of Modern Auto) argues that there are two attractive reasons to merge. First, Wilhelm says, "The merger of Modern Auto and Sky Systems will result in lower risk for our shareholders because of the diversification effect." Second, Wilhelm also says, "If our EPS increases, our stock price will increase in line with the EPS increase because our P/E will stay the same." Sky Systems managers are not interested in the offer by Modern Auto. The managers, instead, approach HiFly, Inc., which is in the same industry as Sky Systems, to see if it would be interested in acquiring Sky Systems. HiFly is interested, and both companies believe there will be synergies from this acquisition. If HiFly were to acquire Sky Systems, it would do so by paying \$400 million in cash.

1. 【单项选择题】The acquisition of Sky Systems by Modern Auto and the acquisition of Sky Systems by HiFly, respectively, would be examples of a:

- A. vertical merger and a horizontal merger.
- B. conglomerate merger and a vertical merger.
- C. conglomerate merger and a horizontal merger.

参考答案: C

【莽学解析】汽车零部件供应商，飞机行业软件设计商，跨行业，合并是企业集团合并。HiFly, Inc. 和 Sky System 是同行业，合并是横向合并。

2. 【单项选择题】If Sky Systems were to be acquired by Modern Auto under the terms of the original offer, the post-merger EPS of the new company would be closest to:

- A. \$2.00.
- B. \$2.32.
- C. \$2.63.

参考答案: C

【莽学解析】EPS is \$2.63. Because Modern Auto's stock price is \$40 and Sky Systems' stock price is \$25, Modern Auto will acquire Sky Systems by exchanging 1 of its shares for $40/25 = 1.60$ shares of Sky Systems. There are 15 million shares of Sky Systems. Their acquisition will take $15/1.60 = 9.375$ million shares of Modern Auto. The total number of shares after the merger = 49.375 million. The EPS after the merger = $130/49.375 = \$2.63$.

3. 【单项选择题】Are Wilhelm's two statements about his shareholders benefiting from the diversification effect of the merger and about the increase in the stock price, respectively, correct?

A. The Merger Will Result in Lower Risk for Shareholders: No; Stock Price Will Increase in Line with the EPS Increase: No.

B. The Merger Will Result in Lower Risk for Shareholders: No; Stock Price Will Increase in Line with the EPS Increase: Yes.

C. The Merger Will Result in Lower Risk for Shareholders: Yes; Stock Price Will Increase in Line with the EPS Increase: No.

参考答案: A

【莽学解析】Both of the statements by Wilhelm are wrong. The first statement is wrong because diversification by itself does not lower risk for shareholders. Investors can diversify very cheaply on their own by purchasing stocks of different companies (for example, a Modern Auto shareholder could purchase stocks of Sky Systems). The second statement is also wrong. The P/E ratio will not necessarily remain the same following the merger and is more likely to decline. The pre-merger P/E for Modern Auto is $40/2.50 = 16$. After the merger, the EPS would be $\$130 \text{ million} / 49.375 \text{ million shares}$, or 2.6329. The post-merger P/E will probably fall to $40/2.6329 = 15.19$.

4. 【单项选择题】Which of the following defenses best describes the role of HiFly in the acquisition scenario?

A. Crown jewel.

B. Pac-Man.

C. White knight.

参考答案: C

【莽学解析】Sky Systems表示并不想被Modern Auto收购, Sky Systems和HiFly是同一行业且HiFly愿意以一个合理的价格收购Sky Systems, 则HiFly是一个白衣骑士。

5. 【单项选择题】Suppose HiFly acquires Sky Systems for the stated terms. The gain to Sky Systems shareholders resulting from the merger transaction would be closest to:

A. \$25 million.

B. \$160 million.

C. \$375 million.

参考答案: A

【莽学解析】Target shareholders' gain = Premium = $P_T - V_T$ P_T = Price paid for the target company = \$400 million as provided in the vignette V_T = Pre-merger value of the target = \$25 share price \times 15 million shares = \$375 million $\$400 \text{ million} - \$375 \text{ million} = \$25 \text{ million}$

【题干】María Hernández is a sell-side analyst covering the electronics industry in Spain. One of the companies she follows, SG Electronics, S.A., has recently announced plans to begin producing and selling a new series of video cameras. Hernández estimates that this project will increase the value of the company and, consequently, she plans on changing her research opinion on the company from a "hold" to a "buy." Her initial financial predictions for the project are: ● Fixed capital equipment outlay is €2,750,000. ● At the beginning of the project, a

required increase in current assets of €200,000 and a required increase in current liabilities of €125,000. ● Straight-line depreciation to zero over a five-year life. ● Project life of five years. ● Incremental annual unit sales of 3,000 at a unit price of €600. ● Annual fixed cash expenses of €125,000; variable cash expenses of €125 per unit. ● The capital equipment is expected to be sold for €450,000 at the end of Year 5. At the end of the project, the net working capital investment will be recovered. ● Tax rate of 40 percent. ● Based on the capital asset pricing model, the required rate of return is 12 percent. Hernández estimates the expected net present value (NPV) of the project to be €975,538 and the internal rate of return (IRR) to be 24.6 percent. She also performs a sensitivity analysis by changing the input variable assumptions used in her initial analysis. When reviewing Hernández's work, her supervisor, Arturo Costa, notes that she did not include changes in the depreciation method, initial fixed capital outlay, or inflation assumptions in her sensitivity analysis. As a result, Costa asks the following questions: Question 1 "What would be the effect on the project's NPV if the initial fixed capital equipment outlay increased from €2,750,000 to €3,000,000, everything else held constant?" Question 2 "How would a higher than expected inflation rate affect the value of the real tax savings from depreciation and the value of the real after-tax interest expense, everything else held constant?" Question 3 "You are using a required rate of return of 12 percent when the company's weighted average cost of capital (WACC) is 10 percent. Why are you using a required rate of return for the project greater than the company's WACC?" Before ending the meeting, Costa tells Hernández: "Last year the company produced a prototype at a cost of €500,000. Now management is having doubts about the market appeal of the product in its current design, and so they are considering delaying the start of the project for a year, until the prototype can be shown to industry experts."

6. 【单项选择题】Using Hernández's initial financial predictions, the estimated annual after-tax operating cash flow is closest to:

- A. €780,000.
- B. €1,000,000.
- C. €1,075,000.

参考答案: B

【莽学解析】Using equation $CF = (S - C) \times (1 - T)$, the numbers are: Sales = $P \times Q = €600 \times 3,000 = €1,800,000$ Costs = Variable cost $\times Q$ Fixed costs = $(125 \times 3,000) €125,000 = 500,000$ Depreciation expense = $€2,750,000 \div 5 = €550,000$ $CF = (1,800,000 - 500,000) \times (1 - 0.40) = (1,300,000 \times 0.60) = 780,000$

7. 【单项选择题】Using Hernández's initial financial predictions, the estimated terminal year after-tax non-operating cash flow is closest to:

- A. €195,000.
- B. €270,000.
- C. €345,000.

参考答案: C

【莽学解析】The terminal year non-operating cash flow includes the after-tax salvage value and the recovery of net working capital = $€450,000 \times (1 - 0.40) + €75,000 = €345,000$. (Note: Terminal year recovery of net working capital investment = Decrease in current assets - Decrease in current liabilities = $€200,000 - €125,000 = €75,000$.)

8. 【单项选择题】Hernández's best response to Costa's first question is that the project's NPV would decrease by an amount closest to:

- A. €142,000.
- B. €178,000.
- C. €250,000.

参考答案: B

【莽学解析】Calculations: The outlay is higher by €250,000, which will increase annual depreciation by €50,000 over the 5-year period. The annual additional tax savings from the higher depreciation expense is: $50,000 \times (0.40) = 20,000$. Therefore NPV should decrease by:

$$NPV = -250,000 + \sum_{t=1}^5 \frac{20,000}{1.12^t} = -250,000 + 72,095.524 = -177,904$$

9. 【单项选择题】Hernández's best response to Costa's second question is that:

- A. real tax savings from depreciation and real interest expense would be lower.
- B. real tax savings from depreciation would be higher and real interest expense would be lower.
- C. real tax savings from depreciation would be lower and real interest expense would be higher.

参考答案: A

【莽学解析】Higher than expected inflation increases the corporation's real taxes because it reduces the value of the depreciation tax shelter; it also decreases the real interest expense because payments to bondholders in real terms are lower than expected.

10. 【单项选择题】Hernández's best response to Costa's third question is: "Because:

- A. the project will plot above the security market line."
- B. the project's beta is greater than the company's beta."
- C. the project's IRR is greater than the required rate of return."

参考答案: B

【莽学解析】When a project is more or less risky than the company, project beta and not WACC should be used to establish the required rate of return for the capital project. In this case, the required rate of return is greater than the WACC, which means the project beta (risk) is greater than the company's beta.

11. 【单项选择题】Should Costa's end-of-meeting comments result in changes to Hernández's capital budgeting analysis?

- A. No.
- B. Yes, but only to incorporate the possible delay.
- C. Yes, to incorporate both the possible delay and the cost of producing the prototype.

参考答案: B

【莽学解析】Timing options (e.g., delay investing) should be included in the NPV analysis, but sunk costs should not.

【题干】Mark Zin and Stella Lee are CEO and CFO, respectively, of Moonbase Corporation. They are concerned that Moonbase is undervalued and subject to a hostile takeover bid. To assess the value of their own firm, they are reviewing current financial data for Jupiter PLC, Saturn Corporation, and Voyager Corporation, three firms they believe are comparable to Moonbase.

Relative Valuation Ratio	Jupiter	Saturn	Voyager
P/E	23.00	19.50	21.50
P/B	4.24	5.25	4.91
P/CF	12.60	11.40	13.30

Zin believes Moonbase should trade at similar multiples to these firms and that each valuation ratio measure is equally valid. Moonbase has a current stock price of \$34.00 per share, earnings of \$1.75 per share, book value of \$8.50 per share, and cash flow of \$3.20 per share. Using the average of each of the three multiples for the three comparable firms, Zin finds that Moonbase is undervalued. Lee states that the low valuation reflects current poor performance of a subsidiary of Moonbase. She recommends that the board of directors consider divesting the subsidiary in a manner that would provide cash inflow to Moonbase. Zin proposes that some action should be taken before a hostile takeover bid is made. He asks Lee if changes can be made to the corporate governance structure in order to make it more difficult for an unwanted suitor to succeed. In response, Lee makes two comments of actions that would make a hostile takeover more difficult. Lee's first comment is "Moonbase can institute a poison pill that allows our shareholders, other than the hostile bidder, to purchase shares at a substantial discount to current market value." Lee's second comment is: "Moonbase can instead institute a poison put. The put allows shareholders the opportunity to redeem their shares at a substantial premium to current market value." Zin is also concerned about the general attitude of outside investors with the governance of Moonbase. He has read brokerage reports indicating that the Moonbase governance ratings are generally low. Zin believes the following statements describe characteristics that should provide Moonbase with a strong governance rating. Statement 1: Moonbase's directors obtain advice from the corporate counsel to aid them in assessing the firm's compliance with regulatory requirements. Statement 2: Five of the ten members of the board of directors are not employed by Moonbase and are considered independent. Though not employed by the company, two of the independent directors are former executives of the company and thus can contribute useful expertise relevant for the business. Statement 3: The audit committee of the board is organized so as to have sufficient resources to carry out its task, with an internal staff that reports routinely and directly to the audit committee. Zin is particularly proud of the fact that Moonbase has begun drafting a "Statement of Corporate Governance" (SCG) that will be available on the company website for viewing by shareholders, investment analysts, and any interested stakeholders. In particular, the SCG pays special attention to policies that ensure effective contributions from the board of directors. These policies include the following: Policy 1: Training is provided to directors prior to joining the board and periodically thereafter. Policy 2: Statements are provided of management's assessment of the board's performance of its fiduciary responsibilities. Policy 3: Statements are provided of directors' responsibilities regarding oversight and monitoring of the firm's risk management and compliance functions. Zin concludes the discussion by announcing that Johann Steris, a

highly regarded ex-CFO of a major corporation, is under consideration as a member of an expanded board of directors. Zin states that Steris meets all the requirements as an independent director including the fact that he will not violate the interlocking directorship requirement. Steris also will bring experience as a member of the compensation committee of the board of another firm. He also comments that Steris desires to serve on either the audit or compensation committee of the Moonbase board and that good governance practice suggests that Steris would not be prohibited from serving on either committee.

12. 【单项选择题】The value the CEO estimated based on comparable company analysis is closest to:

A. \$37.33.

B. \$39.30.

C. \$40.80.

参考答案: B

【莽学解析】Value is \$39.30. Average P/E ratio is $21.33 = (23.00 + 19.50 + 21.50)/3$ Value based on P/E ratio = $21.33 (1.75) = 37.33$ Average P/B ratio is $4.80 = (4.24 + 5.25 + 4.91)/3$ Value based on P/B ratio = $4.80 (8.50) = 40.80$ Average P/CF ratio is $12.43 = (12.60 + 11.40 + 13.30)/3$ Value based on P/CF ratio = $12.43 (3.20) = 39.79$ Since Zin believes each valuation ratio is equally valid, value is a simple average of the three values. Value = $(37.33 + 40.80 + 39.79)/3 = 39.30$

13. 【单项选择题】The divestiture technique that Lee is recommending is most likely:

A. a spin-off.

B. a split-off.

C. an equity carve-out.

参考答案: C

【莽学解析】An equity carve-out involves sale of equity in a new legal entity to outsiders, and would thus result in a cash inflow for Moonbase. A spin-off or a split-off does not generate a cash flow to the firm.

14. 【单项选择题】With regard to poison pills and puts, Lee's comments are:

A. correct.

B. incorrect with regard to the poison put.

C. incorrect with regard to the poison pill.

参考答案: B

【莽学解析】The first comment about the poison pill is correct, but the second comment is incorrect. Shareholders do not "put" their shares to the company; rather bondholders can exercise the put in the event of a hostile takeover. Bondholders have the right to sell their bonds back to the target at a redemption price that is pre-specified in the bond indenture, typically at or above par value.

15. 【单项选择题】Which statement by Zin provides the most support for a strong governance rating?

A. Statement 1

B. Statement 2

C. Statement 3

参考答案: C

【莽学解析】Statement 3 provides the most support for a strong governance rating. The statement describes the manner in which the audit committee should work. The other two statements do not support a strong governance rating as each casts doubt about the independence of the board from management's control.

16. 【单项选择题】Which policy of the Statement of Corporate Governance is least likely to ensure effective contributions from the board of directors?

A. Policy 1

B. Policy 2

C. Policy 3

参考答案: B

【莽学解析】The second policy is least likely to ensure effective contributions from the board. The board through self-assessment, and not management, should assess the board's performance.

17. 【单项选择题】Is Zin's comment that good governance practice does not preclude Steris from serving on either of the two committees of the Moonbase board correct?

A. Yes.

B. No, good governance practice precludes Steris from serving on the audit committee.

C. No, good governance practice precludes Steris from serving on the compensation committee.

参考答案: A

【莽学解析】As an independent director, without an interlocking relationship and with the expertise required, Steris would be eligible to serve on either of the two committees.

【题干】Karen Maghami is a portfolio manager for a mutual fund. Maghami, working with analyst Marcel Lynbrock, is researching two companies: Syvie Electric and EnileGEN. Located in the same country, both companies produce electricity from conventional and renewable sources. Maghami wants to integrate environmental, social, and governance (ESG) factors into the analysis of each company's financial statements. Syvie Electric is a stock exchange-listed, state-owned enterprise (SOE). The sovereign government holds 58% of shares; remaining shares are publicly traded. EnileGEN is a public company owned primarily by institutional investors. Lynbrock starts with an analysis of corporate governance factors. Relevant information about the two companies is summarized in Exhibit 1.

After reviewing the corporate governance information, Maghami and Lynbrock focus on factors related to environmental and social considerations. Lynbrock asks Maghami, "What resource would you recommend using to find a list of ESG factors material to the electricity generation sector?" Next, Maghami and Lynbrock discuss the effect of expected regulatory changes on stock and bond values for both companies. The government recently announced that it intends to authorize a new environmental regulation requiring that a minimum of 35% of electricity be produced from renewable sources. The exact timing of the new regulation is unknown, but EnileGEN already exceeds the minimum level by a significant margin. Maghami notes that the new regulation should give EnileGEN a competitive edge in the industry, and for scenario analysis purposes, she asks Lynbrock to assume that the regulation will take effect in two years. Lynbrock uses a discounted cash flow model to value EnileGEN stock under the assumption requested by Maghami. Lynbrock believes that the new regulation will make three of Syvie

Exhibit 1 Select Corporate Governance Information: Syvie Electric and EnileGEN

	Syvie Electric	EnileGEN
Ownership Information and Voting Policies		
Percentage of shares owned by the largest shareholder	58%	9%
Straight voting	Yes	Yes
Board Information		
Board structure	One-tier	Two-tier
CEO duality	No	Yes
Number of directors	8	11
Percentage of directors with experience in industry	27%	88%
Remuneration Policies		
Clawback policy	No	Yes
Say-on-pay provision	Yes	No

Electric's coal-fired power stations no longer financially viable within 10 years following implementation. Maghami asks Lynbrock to estimate the potential effect on Syvie Electric's balance sheet and the potential impact on the value of Syvie Electric bonds. Maghami reads in Syvie Electric's most recent financial statements that the company plans to issue green bonds. Maghami asks Lynbrock to evaluate any possible valuation risks or opportunities associated with green bonds. Lynbrock tells Maghami the following:

Statement 1: Green bonds offer higher protection for an investor because they typically are backed by the income derived from the environmental project they are used to fund.

Statement 2: Issuing green bonds ensures a lower cost of capital because the green feature typically results in a tighter credit spread compared with conventional bonds.

Statement 3: A unique risk related to green bonds is greenwashing, which is the risk that the bond's proceeds are not actually used for a beneficial environmental or climate-related project.

18. 【单项选择题】Based on Exhibit 1 and their ownership structures, market scrutiny of Syvie Electric's management is most likely:

- A. lower than EnileGEN.
- B. the same as EnileGEN.
- C. higher than EnileGEN.

参考答案: A

【莽学解析】Syvie Electric is a listed SOE with a mixed-ownership model in which 58% of the shares are owned by a sovereign government. The remaining shares trade on a public stock market. A mixed-ownership model tends to have lower market scrutiny of management than that of corporate ownership models. Additionally, Syvie Electric has a lower percentage of directors with industry experience compared to EnileGEN. A board with experience that is not directly

related to the company's core operations may lack sufficient expertise to govern. EnileGEN's shares are owned primarily by institutional investors. Even though EnileGEN has dispersed ownership, institutional investors can promote good corporate governance by holding a company's board and management accountable when the board or management does not appear to be acting in the best interests of shareholders. Consequently, market scrutiny of Syvie Electric's management is most likely lower compared with EnileGEN.

19. 【单项选择题】Based on the ownership structures of Syvie Electric and EnileGEN, a principal-principal problem is most likely to occur in the case of:

- A. only EnileGEN.
- B. only Syvie Electric.
- C. both Syvie Electric and EnileGEN.

参考答案: B

【莽学解析】Syvie Electric's largest shareholder owns 58% of the shares; therefore, the company can be described as having concentrated ownership and concentrated voting power. The combination of concentrated ownership and concentrated voting power is generally associated with controlling shareholders maintaining a position of power over both managers and minority shareholders, known as a principal-principal problem. EnileGEN's largest stockholder owns 9% of shares; hence, the company can be classified as having dispersed ownership. EnileGEN also has a straight voting policy, which results in each of the shareholders having one vote per share; thus, EnileGEN also has dispersed voting power. The combination of dispersed ownership and dispersed voting power is generally associated with shareholders who lack the power to exercise control over managers. This conflict is known as a principal-agent problem. Consequently, the principal-principal problem is most likely to occur in Syvie Electric, not in EnileGEN.

20. 【单项选择题】Based on Exhibit 1, which of the following statements is correct?

- A. Due to also being on the board, the EnileGEN CEO has two votes for each share owned.
- B. In the case of managerial misconduct, EnileGEN may be able to recover previously paid remuneration.
- C. Syvie Electric's corporate structure can be described as having concentrated ownership and dispersed voting power.

参考答案: B

【莽学解析】EnileGEN has a clawback policy, which allows a company to recover previously paid remuneration if certain events—such as financial restatements, misconduct, breach of the law, or risk management deficiencies—are uncovered. Consequently, EnileGEN may be able to recover previously paid remuneration from management in case of misconduct.

A is incorrect because even though EnileGEN's CEO also serves as chair of the board (CEO duality), the CEO does not hold dual-class shares because the company has a straight voting policy (i.e., one share, one vote). Consequently, the CEO of EnileGEN does not have two votes for each share.

C is incorrect because Syvie Electric has concentrated ownership and concentrated voting power (58% of shares are owned by a single shareholder). Consequently, Syvie Electric's ownership structure cannot be described as concentrated ownership with dispersed voting power.

21. 【单项选择题】In response to Maghami's ESG question, Lynbrock should most likely recommend

using:

- A. the SASB Materiality Map.
- B. the Green Bond Principles.
- C. each company' s sustainability report.

参考答案: A

【莽学解析】Maghami wants to find a resource that lists ESG factors material to the electricity generation sector. In an ESG context, materiality typically refers to ESG-related issues that are expected to affect a company' s operations, its financial performance, and the valuation of its securities. The Sustainability Accounting Standards Board (the SASB) seeks to promote uniform accounting standards for sustainability reporting. For this purpose, the SASB developed the SASB Materiality Map, which lists relevant ESG-related, sector-specific factors that the organization deems to be material.

B is incorrect because the Green Bond Principles are voluntary standards to guide issuers in the determination of labeling a bond green. The Green Bond Principles do not provide a list of ESG-related factors that are material to a specific sector.

C is incorrect because companies' definitions of materiality in an ESG context may differ in usefulness. For example, some companies may use the term "material" in emphasizing positive ESG information even though such information may have little impact on the company' s operations or financial performance. Other companies may minimize or not report negative ESG information that investors might consider material. Consequently, a company' s sustainability report is not as likely as a SASB Materiality Map to provide a list of ESG-related factors that are material to a specific sector.

22. 【单项选择题】To reflect the effect of the regulatory scenario requested by Maghami on EnileGEN' s stock value, Lynbrock should:

- A. increase the credit spread.
- B. decrease the discount rate.
- C. increase projected operating costs.

参考答案: B

【莽学解析】For scenario analysis purposes, Maghami asks Lynbrock to assume that the new environmental regulation will take effect in two years. In equity security analysis, ESG-related factors are often analyzed in the context of forecasting financial metrics and ratios, by adjusting valuation model variables (e.g., discount rate), or using sensitivity and/or scenario analysis. Lynbrock should decrease the discount rate given that EnileGEN should have a competitive edge over its competitors due to the new environmental regulation.

A is incorrect because Lynbrock is estimating the expected effect of the new environmental regulation on EnileGEN' s stock, not bond, value. Additionally, to justify a credit spread increase, the risk for a company would have to increase. Instead, the anticipated environmental regulation should give EnileGEN a competitive edge, thereby reducing risk.

C is incorrect because the new environmental regulation should not impact EnileGEN' s operating costs. The company already exceeds the minimum percentage of renewably sourced electric production expected to be required by the new regulation.

23. 【单项选择题】To reflect the effect of the new regulation on Syvie Electric' s balance sheet, Lynbrock should:

- A. increase terminal value.

B.increase impaired assets.

C.decrease capital expenditures.

参考答案: B

【莽学解析】Syvie Electric is facing risk from stranded assets—that is, assets that are obsolete or not economically viable owing to changes in regulatory or government policy. ESG-related adjustments to a company's balance sheet often reflect an analyst's estimate of impaired assets. A is incorrect because adjusting terminal value applies to equity valuation; it is not an adjustment to a company's balance sheet.

C is incorrect because decreasing capital expenditures would be reflected in the income and cash flow statements, not the balance sheet.

24. 【单项选择题】Under the regulatory scenario requested by Maghami, Lynbrock should increase the credit spread of a Syvie Electric 10-year bond:

A.less than the spread of a 2-year bond.

B.by the same amount as the spread of a 2-year bond.

C.more than the spread of a 2-year bond.

参考答案: C

【莽学解析】Syvie Electric is facing risk from stranded assets—that is, assets that are obsolete or not economically viable owing to changes in regulatory or government policy. The new environmental regulation is expected to be in effect in 2 years, so a 10-year bond will be more negatively impacted than a current 2-year bond. To reflect this, Lynbrock should increase the credit spread of the 10-year bond more than the spread of the 2-year bond.

25. 【单项选择题】Which of Lynbrock's statements about green bonds is correct?

A.Statement 1

B.Statement 2

C.Statement 3

参考答案: C

【莽学解析】Statement 3 is correct because one unique risk of green bonds is greenwashing, which is the risk that the bond's proceeds are not actually used for a beneficial environmental or climate-related project. Greenwashing can result in an investor overpaying for a bond (if the investor paid a premium for the bond's green feature) or holding a bond that does not satisfy a prescribed environmental or climate investment mandate.

A is incorrect because Statement 1 is incorrect. Green bonds are typically similar to an issuer's conventional bonds, with the exception that the bond proceeds are earmarked for green projects. Green bonds normally have the same credit ratings and bondholder recourse as conventional bonds of the same issuer (all else being equal).

B is incorrect because Statement 2 is incorrect. It is true that some green bonds command a premium, or tighter credit spread, versus comparable conventional bonds because of high market demand. This would reduce a company's cost of capital. However, issuing green bonds does not always ensure a lower cost of capital for a company because green bonds are typically similar to an issuer's conventional bonds. Green bonds normally have the same credit ratings and bondholder recourse as conventional bonds of the same issuer. Furthermore, green bonds may be less liquid than conventional bonds, such that they don't command a premium from investors. Green bonds also have higher reporting and monitoring costs than conventional bonds, thus potentially resulting in higher costs for the issuer.

【题干】The capital budgeting committee for Laroache Industries is meeting. Laroache is a North American conglomerate that has several divisions. One of these divisions, Laroache Livery, operates a large fleet of vans. Laroache's management is evaluating whether it is optimal to operate new vans for two, three, or four years before replacing them. The managers have estimated the investment outlay, annual after-tax operating expenses, and after-tax salvage cash flows for each of the service lives. Because revenues and some operating costs are unaffected by the choice of service life, they were ignored in the analysis. Laroache Livery's opportunity cost of funds is 10 percent. The following table gives the cash flows in thousands of Canadian dollars (C\$).

Service Life	Investment	Year 1	Year 2	Year 3	Year 4	Salvage
2 years	-40,000	-12,000	-15,000			20,000
3 years	-40,000	-12,000	-15,000	-20,000		17,000
4 years	-40,000	-12,000	-15,000	-20,000	-25,000	12,000

Schoeman Products, another division of Laroache, has evaluated several investment projects and now must choose the subset of them that fits within its C\$40 million capital budget. The outlays and NPVs for the six projects are given below. Schoeman cannot buy fractional projects and must buy all or none of a project. The currency amounts are in millions of Canadian dollars.

Project	Outlay	PV of Future Cash Flows	NPV
1	31	44	13
2	15	21	6
3	12	16.5	4.5
4	10	13	3
5	8	11	3
6	6	8	2

Schoeman wants to determine which subset of the six projects is optimal. A final proposal comes from the division Society Services, which has an investment opportunity with a real option to invest further if conditions warrant. The crucial details are as follows: The original project: An outlay of C\$190 million at time zero. Cash flows of C\$40 million per year for Years 1-10 if demand is "high." Cash flows of C\$20 million per year for Years 1-10 if demand is

"low." Additional cash flows with the optional expansion project: An outlay of C\$190 million at time one. Cash flows of C\$40 million per year for Years 2-10 if demand is "high." Cash flows of C\$20 million per year for Years 2-10 if demand is "low." Whether demand is "high" or

"low" in Years 1-10 will be revealed during the first year. The probability of "high" demand is 0.50, and the probability of "low" demand is 0.50. The option to make the expansion

investment depends on making the initial investment. If the initial investment is not made, the option to expand does not exist. The required rate of return is 10 percent. Society Services wants to evaluate its investment alternatives. The internal auditor for Laroache Industries has made several suggestions for improving capital budgeting processes at the company. The internal auditor's suggestions are as follows: Suggestion 1 "In order to put all capital budgeting proposals on an equal footing, the projects should all use the risk-free rate for the required rate of return." Suggestion 2 "Because you cannot exercise both of them, you should not permit a given project to have both an abandonment option and an expansion/growth option." Suggestion 3 "When rationing capital, it is better to choose the portfolio of investments that maximizes the company NPV than the portfolio that maximizes the company IRR." Suggestion 4 "Project betas should be used for establishing the required rate of return whenever the project's beta is different from the company's beta."

26. 【单项选择题】What is the optimal service life for Laroche Livery's fleet of vans?

- A. Two years.
- B. Three years.
- C. Four years.

参考答案: B

【莽学解析】The way to solve the problem is to calculate the equivalent annual annuity and choose the service life with the lowest annual cost. For a two-year service life, the NPV is:

$$NPV = -40,000 + \frac{-12,000}{1.10^1} + \frac{-15,000}{1.10^2} + \frac{20,000}{1.10^2} = -46,776.86$$

The EAA (PV = -46,776.86, N = 2, and i = 10%) is -26,952.38. For a three-year service life, the NPV is:

$$NPV = -40,000 + \frac{-12,000}{1.10^1} + \frac{-15,000}{1.10^2} + \frac{-20,000}{1.10^3} + \frac{17,000}{1.10^3} = -56,559.73$$

The EAA (PV = -65,559.73, N = 3, and i = 10%) is -26,362.54. For a four-year service life, the NPV is:

$$NPV = -40,000 + \frac{-12,000}{1.10^1} + \frac{-15,000}{1.10^2} + \frac{-20,000}{1.10^3} + \frac{-25,000}{1.10^4} + \frac{12,000}{1.10^4} = -87,211.26$$

The EAA (PV = -87,211.26, N = 4, and i = 10%) is -27,512.61. The three-year service life has the lowest annual cost. Laroche should replace the vans every three years.

27. 【单项选择题】The optimal subset of the six projects that Schoeman is considering consists of Projects:

- A. 1 and 5.
- B. 2, 3, and 4.
- C. 2, 4, 5, and 6.

参考答案: A

【莽学解析】To help the selection process, use the profitability index for each project, which shows the total present value per dollar invested.

Try to incorporate the high PI projects into the budget using trial and error. These trials

Project	Outlay	PV of Future Cash Flows	NPV	PI	PI Rank
1	31	44	13	1.419	1
2	15	21	6	1.400	2
3	12	16.5	4.5	1.375	(tie) 3
4	10	13	3	1.300	6
5	8	11	3	1.375	(tie) 3
6	6	8	2	1.333	5

include the following:

Set of Projects	Total Outlay	Total NPV
1 and 5	39	16
2, 3, and 4	37	13.5
2, 3, and 5	35	13.5
2, 4, 5, and 6	39	14

Among the sets of projects suggested, the optimal set is the one with the highest NPV, provided its total outlay does not exceed C\$40 million. The set consisting of Projects 1 and 5 produces the highest NPV.

28. 【单项选择题】What is the NPV (C\$ millions) of the original project for Society Services without considering the expansion option?

A. -6.11.

B. -5.66.

C. 2.33.

参考答案: B

【莽学解析】If demand is “high,” the NPV is:

$$NPV = -190 + \sum_{t=1}^{10} \frac{40}{1.10^t} = C\$55.783 \text{ million}$$

If demand is “low,” the NPV is:

$$NPV = -190 + \sum_{t=1}^{10} \frac{20}{1.10^t} = -C\$67.109 \text{ million}$$

The expected NPV is $0.50 \times (55.783) + 0.50 \times (-67.109) = -C\5.663 million

29. 【单项选择题】What is the NPV (C\$ millions) of the optimal set of investment decisions for Society Services including the expansion option?

A. 6.34.

B. 12.68.

C. 31.03.

参考答案: B

【莽学解析】Assume we are at time = 1. The NPV of the expansion (at time 1) if demand is “high” is:

$$NPV = -190 + \sum_{t=1}^9 \frac{4}{1.10^t} = -C\$40.361 \text{ million}$$

The NPV of the expansion (at time 1) if demand is “low” is:

$$NPV = -190 + \sum_{t=1}^9 \frac{20}{1.10^t} = -C\$74.820 \text{ million}$$

The optimal decision is to expand if demand is “high” and not expand if “low.” Because the expansion option is exercised only when its value is positive, which happens 50 percent of the time, the expected value of the expansion project, at time zero, is

$$NPV = \frac{1}{1.10} \times 0.50 \times 40.361 = C\$18.346 \text{ million}$$

The total NPV of the initial project and the expansion project is $NPV = -C\$5.663 \text{ million} + C\$18.346 \text{ million} = C\12.683 million . The optional expansion project, handled optimally, adds sufficient value to make this a positive NPV project.

30. 【单项选择题】Should the capital budgeting committee accept the internal auditor’s first and second suggestions, respectively?

A. No for Suggestions 1 and 2.

B. No for Suggestion 1 and Yes for Suggestion 2.

C. Yes for Suggestion 1 and No for Suggestion 2.

参考答案: A

【莽学解析】Both suggestions are bad. In valuing projects, expected cash flows should be discounted at required rates of return that reflect their risk, not at a risk-free rate that ignores risk. Even though both options cannot be simultaneously exercised, they can both add value. If demand is high, you can exercise the growth option, and if demand is low, you can exercise the abandonment option.

31. 【单项选择题】Should the capital budgeting committee accept the internal auditor’s third and fourth suggestions, respectively?

A. No for Suggestions 3 and 4.

B. Yes for Suggestions 3 and 4.

C. No for Suggestion 3 and Yes for Suggestion 4.

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参考答案: B

【莽学解析】Both suggestions are good. Choosing projects with high might cause the company to concentrate on short-term projects that reduce the NPV of the company. Whenever the project risk differs from the company risk, a project-specific required rate of return should be used.

【题干】Janet Wu is treasurer of Wilson Paper Company, a manufacturer of paper products for the office and school markets. Wilson Paper is selling one of its divisions for \$70 million cash. Wu is considering whether to recommend a special dividend of \$70 million or a repurchase of 2 million shares of Wilson common stock in the open market. She is reviewing some possible effects of the buyback with the company's financial analyst. Wilson has a long-term record of gradually increasing earnings and dividends. Wilson's board has also approved capital spending of \$15 million to be entirely funded out of this year's earnings.

32. 【单项选择题】Wilson's share buyback could be a signal that the company:

- A. is decreasing its financial leverage.
- B. views its shares as undervalued in the marketplace.
- C. has more investment opportunities than it could fund internally.

参考答案: B

【莽学解析】Management sometimes undertakes share repurchases when it views shares as being undervalued in the marketplace.

33. 【单项选择题】The most likely tax environment in which Wilson Paper's shareholders would prefer that Wilson repurchase its shares (share buybacks) instead of paying dividends is one in which:

- A. the tax rate on capital gains and dividends is the same.
- B. capital gains tax rates are higher than dividend income tax rates.
- C. capital gains tax rates are lower than dividend income tax rates.

参考答案: C

【莽学解析】Shareholders would prefer that the company repurchase its shares instead of paying dividends when the tax rate on capital gains is lower than the tax rate on dividends.

【题干】Carlos Velasquez, CFA, is a financial analyst with Embelesado, S.A., a Spanish manufacturer of sailboats and sailing equipment. Velasquez is evaluating a proposal for Embelesado to build sailboats for a foreign competitor that lacks production capacity and sells in a different market. The sailboat project is perceived to have the same risk as Embelesado's other projects. The proposal covers a limited time horizon—three years—after which the competitor expects to be situated in a new, larger production facility. The limited time horizon appeals to Embelesado, which currently has excess capacity but expects to begin its own product expansion in slightly more than three years. Velasquez has collected much of the information necessary to evaluate this proposal in Exhibits 1 and 2.

Exhibit 1. Selected Data for Sailboat Proposal (Currency Amounts in € Millions)

Initial fixed capital outlay	60
Annual contracted revenues	60
Annual operating costs	25
Initial working capital outlay (recovered at end of the project)	10
Annual depreciation expense (both book and tax accounting)	20
Economic life of facility (years)	3
Salvage (book) value of facility at end of project	0
Expected market value of facility at end of project	5

Exhibit 2. Selected Data for Embelesado, S.A.

Book value of long-term debt/total assets	28.6%
Book value of equity/total assets	71.4%
Market value of long-term debt/market value of company	23.1%
Market value of equity/market value of company	76.9%
Coupon rate on existing long-term debt	8.5%
Interest rate on new long-term debt	8.0%
Cost of equity	13.0%
Marginal tax rate	35.0%
Maximum acceptable payback period	2 years

Velasquez recognizes that Embelesado is currently financed at its target capital structure and expects that the capital structure will be maintained if the sailboat project is undertaken. Embelesado's managers disagree, however, about the method that should be used to evaluate capital budgeting proposals. One of Embelesado's vice presidents asks Velasquez the following questions:

Question 1 Will projects that meet a corporation's payback criterion for acceptance necessarily have a positive net present value (NPV)?

Question 2 For mutually exclusive projects, will the NPV and internal rate of return (IRR) methods necessarily agree on project ranking?

Question 3 For the sailboat project, what will be the effects of using accelerated depreciation (for both book and tax accounting) instead of straight-line depreciation on a) the NPV and b) the total net cash flow in the terminal year?

Question 4 Assuming a 13 percent discount rate, what will be the increase in the sailboat project's NPV if the expected market value of the facility at end of project is €15 million rather than €5 million?

34. 【单项选择题】The weighted average cost of capital for Embelesado is closest to:

A. 10.78%.

B. 11.20%.

C. 11.85%.

参考答案: B

【莽学解析】The weighted average cost of capital for Embelesado is calculated as: $WACC = (\text{Market weight of debt} \times \text{After-tax cost of debt}) + (\text{Market weight of equity} \times \text{Cost of equity})$
 $WACC = w_d k_d \times (1 - T) + w_{CS} k_{CS} = 0.231 \times (8.0\%) \times (1 - 0.35) + 0.769 \times (13.0\%) = 1.201\% + 9.997\% = 11.198\% \approx 11.20\%$

35. 【单项选择题】The total net cash flow (in € Millions) for the sailboat project in its terminal year is closest to:

A. 33.00.

B. 39.75.

C. 43.00.

参考答案: C

【莽学解析】The terminal year cash flow is:

Revenues	€60.00
Less operating costs	25.00
Less depreciation expenses	20.00
= Taxable Income	15.00
Less taxes @ 35%	(5.25)
= Net Income	9.75
Plus depreciation expenses	20.00
= After-tax operating CF	29.75
+ Recover WC	10.00
+ Ending market value	5.00
Less taxes on sale proceeds @ 35%	(1.75)*
= Terminal Year CF	€43.00

* The tax on the sale proceeds is 35% times the gain of €5.00 = €1.75

36. 【单项选择题】The IRR for the sailboat project is closest to:

A. 18.5%.

B. 19.7%.

C. 20.3%.

参考答案: C

【莽学解析】 This is the IRR for a project with the following cash flows: (€70,000) in Year 0, €29,750 at Years 1 and 2, and €43,000 at Year 3.

	Years 1 & 2	Year 3
Revenues	€60,000	€60,000
Less operating costs	25,000	25,000
Less depreciation expense	20,000	20,000
= Taxable income	15,000	15,000
Less taxes @ 35%	5,250	5,250
= Net income	9,750	9,750
Plus depreciation expense	20,000	20,000
= After-tax operating CF	€29,750	29,750
+ Recover WC		10,000
+ Salvage value		5,000
- Less taxes on sal. value @ 35%		1,750
= Terminal year CF		€43,000

37. 【单项选择题】 The best responses that Velasquez can make to Question 1 and Question 2 are:

A. No No

B. No Yes

C. Yes No

参考答案: A

【莽学解析】 Projects with shorter paybacks do not necessarily have a positive NPV. For mutually exclusive projects, the NPV and IRR criteria will not necessarily provide the same project ranking.

38. 【单项选择题】 In response to Question 3, what are the most likely effects on the NPV and the total net cash flow in the terminal year, respectively?

A. Increase Increase

B. Increase Decrease

C. Decrease Increase

参考答案: B

【莽学解析】Additional depreciation in earlier time periods will shield Embelesado from additional taxes, thus increasing the net cash flows in earlier years of the project and increasing the project's NPV. However, this also means that there will be less depreciation expense in the terminal year of the project, thus shielding less income and increasing taxes. Terminal-year net cash flow will likely decrease.

39. 【单项选择题】In response to Question 4, the increase in the sailboat project's NPV(in € Millions) is closest to:

A. 4.50.

B. 6.50.

C. 6.76.

参考答案: A

【莽学解析】The entire €10 million will be subject to taxes, resulting in an additional €6.5 million after taxes. As indicated below, when discounted at 13 percent for three years, this has a present value of €4.5048 (rounded to €4.50 million):

$$PV = \frac{10.0 \times (1 - 0.35)}{1.13^3} = 4.50$$

【题干】Barbara Andrade is an equity analyst who covers the entertainment industry for Greengable Capital Partners, a major global asset manager. Greengable owns a significant position with a large unrealized capital gain in Mosely Broadcast Group (MBG). On a recent conference call, MBG's management states that they plan to increase the proportion of debt in the company's capital structure. Andrade is concerned that any changes in MBG's capital structure will negatively affect the value of Greengable's investment. To evaluate the potential impact of such a capital structure change on Greengable's investment, she gathers the information about MBG given in Exhibit 1.

Exhibit 1. Current Selected Financial Information for MBG

Yield to maturity on debt	8.00%
Market value of debt	\$100 million
Number of shares of common stock	10 million
Market price per share of common stock	\$30
Cost of capital if all equity-financed	10.3%
Marginal tax rate	35%

Andrade expects that an increase in MBG's financial leverage will increase its costs of debt and equity. Based on an examination of similar companies in MBG's industry, Andrade estimates MBG's cost of debt and cost of equity at various debt-to-total capital ratios, as shown in Exhibit 2.

Exhibit 2. Estimates of MBG's before Tax Costs of Debt and Equity

Debt-to-Total Capital Ratio (%)	Cost of Debt (%)	Cost of Equity (%)
20	7.7	12.5
30	8.4	13.0
40	9.3	14.0
50	10.4	16.0

40. 【单项选择题】MBG is best described as currently:

- A. 25% debt-financed and 75% equity-financed.
- B. 33% debt-financed and 66% equity-financed.
- C. 75% debt-financed and 25% equity-financed.

参考答案: A

【莽学解析】The market value of equity is $(\$30)(10,000,000) = \$300,000,000$. With the market value of debt equal to \$100,000,000, the market value of the company is \$100,000,000 + \$300,000,000 = \$400,000,000. Therefore, the company is $\$100,000,000 / \$400,000,000 = 0.25$ or 25% debt-financed.

41. 【单项选择题】Holding operating earnings constant, an increase in the marginal tax rate to 40 percent would:

- A. result in a lower cost of debt capital.
- B. result in a higher cost of debt capital.
- C. not affect the company's cost of capital.

参考答案: A

【莽学解析】The after-tax cost of debt decreases as the marginal tax rate increases.

42. 【单项选择题】According to the pecking order theory, MBG's announced capital structure change may be optimal:

- A. because debt is cheaper than equity on an after-tax basis.
- B. if new equity is issued before new debt as a source of capital.
- C. if new debt is issued after all internally generated funds are first used as sources of capital.

参考答案: C

【莽学解析】If internally generated funds have already been fully used, the use of new debt may be optimal according to the pecking order theory of capital structure.

【题干】Josh Logan is a buy-side equity analyst who follows Durtech. Logan's supervisor believes that Durtech is a likely takeover candidate and has asked Logan to estimate the company's value per share in the event of an "all stock" takeover bid. Logan plans to estimate Durtech's value per share using three approaches: discounted cash flow, comparable company analysis, and comparable transaction analysis. Durtech has 1.2 million common shares outstanding and no outstanding long-term debt or preferred stock. Logan estimates that Durtech's free cash flows at the end of the next three years will be \$5.0 million, \$6.0

million, and \$7.0 million, respectively. After Year 3, he projects that free cash flow will grow at 5 percent per year. He determines the appropriate discount rate for this free cash flow stream is 15 percent per year.

Applying discounted cash flow analysis to the preceding information, Logan determines that Durtech's fair enterprise value is \$61.8 million. In a separate analysis based on ratios, Logan estimates that at the end of the third year, Durtech will be worth 10 times its Year 3 free cash flow. Logan gathers data on two companies comparable to Durtech: Alphatech and Betatech. He believes that price-to-earnings, price-to-sales, and price-to-book-value per share of these companies should be used to value Durtech. The relevant data for the three companies are given in Exhibit 1.

Exhibit 1. Valuation Variables for Durtech and Comparable Companies

Valuation Variables	Alphatech	Betatech	Durtech
Current stock price (\$)	72.00	45.00	24.00
Earnings per share (\$)	2.00	1.50	1.00
Sales per share (\$)	32.00	22.50	16.00
Book value per share (\$)	18.00	10.00	8.00

Logan also identifies one recent takeover transaction and analyzes its takeover premium (the amount by which its takeover price per share exceeds its current stock price). Omegatech is comparable to the possible transaction on Durtech. Omegatech had a stock price of \$44.40 per share prior to a newspaper report of a takeover rumor. After the takeover rumor was reported, the price rose immediately to \$60.30 per share. Eventually, the takeover offer was accepted by Omegatech's shareholders for \$55.00 per share. One-year trailing earnings per share for Omegatech immediately prior to the takeover were \$1.25 per share.

43. 【单项选择题】Based on Exhibit 1 and the mean of each of the valuation ratios, Logan's estimate of Durtech's value per share should be closest to:

- A. \$30.44.
- B. \$33.67.
- C. \$34.67.

参考答案: B

【莽学解析】

44. 【单项选择题】Based upon the premium on a recent comparable transaction, Logan's best estimate of the takeover premium for Durtech is closest to:

- A. 19.9%.
- B. 23.9%.
- C. 35.8%.

参考答案: B

【莽学解析】A comparable transaction sells for premium of $55/44.4 - 1 = 23.9\%$.

Step 1. Compute Valuation Ratios

Valuation Ratio	Alphatech	Betatech	Mean
P/E	36.00	30.00	33.00
P/S	2.25	2.00	2.125
P/BV	4.00	4.50	4.25

Step 2. Apply to Durtech's Variables

Valuation Ratio	Durtech	Mean Multiple	Estimated Stock Price
Earnings per share	1.00	33.00	33.00
Sales per share	16.00	2.125	34.00
Book value per share	8.00	4.25	34.00

Step 3. Determine Mean Value: $(33 + 34 + 34)/3 = \$33.67$ per share

45. 【单项选择题】Using comparable transaction analysis, Logan's estimate of the fair acquisition value per share for Durtech is closest to:

A. \$35.52.

B. \$42.59.

C. \$44.00.

参考答案: C

【莽学解析】Omegatech's transaction P/E ratio: $55/1.25 = 44$. So estimated fair acquisition value per share is $44 \times 1 = \$44.00$.

【题干】Maximilian Bohm is reviewing several capital budgeting proposals from subsidiaries of his company. Although his reviews deal with several details that may seem like minutiae, the company places a premium on the care it exercises in making its investment decisions. The first proposal is a project for Richie Express, which is investing \$500,000, all in fixed capital, in a project that will have operating income after taxes of \$20,000 and depreciation of \$40,000 each year for the next three years. Richie Express will sell the asset in three years, paying 30 percent taxes on any excess of the selling price over book value. The proposal indicates that a \$647,500 terminal selling price will enable the company to earn a 15 percent internal rate of return on the investment. Bohm doubts that this terminal value estimate is correct. Another proposal concerns Gasup Company, which does natural gas exploration. A new investment has been identified by the Gasup finance department with the following projected cash flows: ● Investment outlays are \$6 million immediately and \$1 million at the end of the first year. ● After-tax operating cash flows are \$0.5 million at the end of the first year and \$4 million at the end of each of the second, third, fourth, and fifth years. In addition, an after-tax outflow occurs at the end of the five-year project that has not been included in the operating cash flows: \$5 million required for environmental cleanup. ● The required rate of return on natural gas exploration is 18 percent. The Gasup analyst is unsure about the calculation of the NPV and the IRR because the outlay is staged over two years. Finally, Dominion Company is evaluating two mutually exclusive projects: The Pinto grinder involves an

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outlay of \$100,000, annual after-tax operating cash flows of \$45,000, an after-tax salvage value of \$25,000, and a three-year life. The Bolten grinder has an outlay of \$125,000, annual after-tax operating cash flows of \$47,000, an after-tax salvage value of \$20,000, and a four-year life. The required rate of return is 10 percent. The net present value (NPV) and equivalent annual annuity (EAA) of the Pinto grinder are \$30,691 and \$12,341, respectively. Whichever grinder is chosen, it will have to be replaced at the end of its service life. The analyst is unsure about which grinder should be chosen. Bohm and his colleague Beth Goldberg have an extended conversation about capital budgeting issues, including several comments listed below. Goldberg makes two comments about real options: Comment 1 "The abandonment option is valuable, but it should be exercised only when the abandonment value is above the amount of the original investment." Comment 2 "If the cost of a real option is less than its value, this will increase the NPV of the investment project in which the real option is embedded." Bohm also makes several comments about specific projects under consideration: Comment A The land and building were purchased five years ago for \$10 million. This is the amount that should now be included in the fixed capital investment." Comment B "We can improve the project's NPV by using the after-tax cost of debt as the discount rate. If we finance the project with 100 percent debt, this discount rate would be appropriate." Comment C "It is generally safer to use the NPV than the IRR in making capital budgeting decisions. However, when evaluating mutually exclusive projects, if the projects have conventional cash flow patterns and have the same investment outlays, it is acceptable to use either the NPV or IRR." Comment D "You should not base a capital budgeting decision on its immediate impact on earnings per share (EPS)."

46. 【单项选择题】What terminal selling price is required for a 15 percent internal rate of return on the Richie project?

- A. \$588,028.
- B. \$593,771.
- C. \$625,839.

参考答案: C

【莽学解析】The after-tax operating cash flow for each of the next three years is \$20,000 + \$40,000 = \$60,000. The book value in three years will be \$380,000 (the original cost less three years' depreciation). So the terminal year after-tax non-operating cash flow will be $Sal_3 - 0.3 \times (Sal_3 - \$380,000)$, where Sal_3 is the selling price. For a 15 percent return, the PV of future cash flows must equal the investment:

$$500,000 = \frac{60,000}{1.15} + \frac{60,000}{1.15^2} + \frac{60,000}{1.15^3} + \frac{Sal_3 - 0.30 \times (Sal_3 - 380,000)}{1.15^3}$$

There are several paths to follow to solve for Sal_3 .

$$363,006.5 = \frac{Sal_3 - 0.30 \times (Sal_3 - 380,000)}{1.15^3}; \quad Sal_3 = \$625.839$$

47. 【单项选择题】The NPV and IRR, respectively, of the Gasup Company investment are closest to:
A. \$509,600 and 21.4%.

B. \$509,600 and 31.3%.

C. \$946,700 and 31.3%.

参考答案: A

【莽学解析】The cash flows (in \$ million) for the 5-year gas project are as follows:

Time	Outlays	After-Tax Operating Cash Flows	Total After-Tax Cash Flows
0	6.0	0.0	-6.0
1	1.0	0.5	-0.5
2	0.0	4.0	4.0
3	0.0	4.0	4.0
4	0.0	4.0	4.0
5	5.0	4.0	-1.0

Given the required rate of return of 18 percent, the NPV can be calculated with Equation 2 or with a financial calculator:

$$NPV = -6.0 + \frac{-0.5}{1.18} + \frac{4.0}{1.18^2} + \frac{4.0}{1.18^3} + \frac{4.0}{1.18^4} + \frac{-1.0}{1.18^5} = \$509,579$$

Similarly, the IRR can be calculated from Equation 3:

$$-6.0 + \frac{-0.5}{1+r} + \frac{4.0}{(1+r)^2} + \frac{4.0}{(1+r)^3} + \frac{4.0}{(1+r)^4} + \frac{-1.0}{(1+r)^5} = 0$$

Solving for r with a financial calculator or spreadsheet software will yield 21.4 percent for the internal rate of return. Note that in spite of the fact that we are dealing with a nonconventional cash flow pattern, the IRR has a unique solution. The NPV profile declines as the required rate of return increases, and the NPV value crosses the x-axis (required rate of return) only one time, at 21.4 percent.

48. 【单项选择题】Of the two grinders that the Dominion Company is evaluating, B?hm should recommend the:

A. Bolten grinder because its NPV is higher than the Pinto grinder NPV.

B. Bolten grinder because its EAA is higher than the Pinto grinder EAA.

C. Pinto grinder because its EAA is higher than the Bolten grinder EAA.

参考答案: C

【莽学解析】Because the mutually exclusive projects have unequal lives, the EAA should be used instead of the NPV. The NPV and EAA for the Pinto grinder are correct. For the Bolten grinder, the NPV is

$$NPV = -125,000 + \sum_{t=1}^4 \frac{47,000}{1.10^t} + \frac{20,000}{1.10^4} = 37,644$$

To find the Bolten EAA, take the NPV for Bolten and annualize it for four years ($N = 4$, $PV = 37,644$, and $i = 10\%$). The Bolten EAA is \$11,876. Consequently, the Pinto grinder has the better EAA of \$12,341.

49. 【单项选择题】Are Goldberg's comments about real options correct?

- A.No for Comment 1 and Comment 2.
- B.No for Comment 1 and Yes for Comment 2.
- C.Yes for Comment 1 and No for Comment 2.

参考答案: B

【莽学解析】Goldberg's first comment is wrong. A project should be abandoned in the future only when its abandonment value is more than the discounted value of the remaining cash flows. Goldberg's second comment is correct.

50. 【单项选择题】Is Bohm most likely correct regarding Comment A about the \$10 million investment and Comment B about using the after-tax cost of debt?

- A.No for both comments.
- B.Yes for both comments.
- C.No for Comment A and Yes for Comment B.

参考答案: A

【莽学解析】The \$10 million original cost is a sunk cost and not relevant. The correct investment is today's opportunity cost, the market value today. The correct discount rate is the project required rate of return.

51. 【单项选择题】Is Bohm most likely correct regarding Comment C that it is acceptable to use either NPV or IRR and Comment D about the immediate impact on EPS?

- A.No for both comments.
- B.Yes for both comments.
- C.No for Comment C and Yes for Comment D.

参考答案: C

【莽学解析】Even if they are the same size, a short-term project with a high IRR can have a lower NPV than a longer-term project. The immediate impact on EPS does not capture the full effect of the cash flows over the project's entire life.

【题干】Mei Yang is head of analyst recruiting for PPA Securities. She has been very frustrated by the number of job applicants who, in spite of their stellar pedigrees, seem to have little understanding of basic financial concepts. Yang has written a set of conceptual questions and simple problems for the human resources department to use to screen for the better candidates in the applicant pool. A few of her corporate finance questions and problems follow. Concept 1 "A company invests in depreciable assets, financed partly by issuing fixed rate bonds. If inflation is lower than expected, the value of the real tax savings from depreciation and the value of the real after-tax interest expense are both reduced." Concept 2 "Sensitivity analysis and scenario analysis are useful tools for estimating the impact on a project's NPV of changing the value of one capital budgeting input variable at a time." Concept 3 "When comparing two mutually exclusive projects with unequal lives, the IRR is a good approach for choosing the better project because it does not require equal lives." Concept 4 "Project
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specific betas should be used instead of company betas whenever the risk of the project differs from that of the company.” Problem “Bo Gansu Electronics Co., Ltd. is investing CNY100 in a project that is being depreciated straight line to zero over a two- year life with no salvage value. The project will generate earnings before interest and taxes of CNY50 each year for two years. Bo Gansu Company’ s weighted average cost of capital and required rate of return for the project are both 12%, and its tax rate is 30%.”

52. 【单项选择题】 For Concept 1, the statement is correct regarding the effects on:

- A. the real tax savings from depreciation, but incorrect regarding the real after-tax interest expense.
- B. both the real tax savings from depreciation and the real after-tax interest expense.
- C. neither the real tax savings from depreciation nor the real after-tax interest expense.

参考答案: C

【莽学解析】 The value of the depreciation tax savings is increased, and the value of the real after-tax interest expense is also increased. Due to the lower inflation, the value has increased (essentially discounting at a lower rate).

53. 【单项选择题】 For Concept 2, the statement is correct regarding:

- A. sensitivity analysis, but not correct regarding scenario analysis.
- B. scenario analysis, but not correct regarding sensitivity analysis.
- C. both sensitivity analysis and scenario analysis.

参考答案: A

【莽学解析】 The statement is correct for sensitivity analysis, but not for scenario analysis (in which several input variables are changed for each scenario).

54. 【单项选择题】 Are the statements identified as Concept 3 and Concept 4 correct?

- A. No for Concepts 3 and 4.
- B. No for Concept 3, but yes for Concept 4.
- C. Yes for Concept 3, but no for Concept 4.

参考答案: B

【莽学解析】 Either the least-common multiple of lives or the equivalent annual annuity approach should be used (both use the NPV, not the IRR). Concept 4 is correct as given.

55. 【单项选择题】 The after-tax operating cash flows in euros for the Fontenot Company are:

- A. CNY 50 in both years.
- B. CNY 70 in both years.
- C. CNY 85 in both years.

参考答案: C

【莽学解析】 The problem gives EBIT not EBITDA.

$$CF = (S - C - D)(1 - T) + D = 50(1 - 0.3) + 50 = \text{€}85 \text{ each year}$$

【题干】 Nanjing Techno Group is considering the purchase of a new 60-ton stamping press. The press costs CNY360,000, and an additional CNY40,000 is needed to install it. The press will be depreciated straight line to zero over a five- year life. The press will generate no additional

revenues, but it will reduce cash operating expenses by CNY140,000 annually. The press will be sold for CNY120,000 after five years. An inventory investment of CNY60,000 is required during the life of the investment. Nanjing Techno is in the 40% tax bracket.

56. 【单项选择题】What is the Nanjing Techno net investment outlay?

- A. CNY400,000.
- B. CNY420,000.
- C. CNY460,000.

参考答案: C

【莽学解析】The investment outlay is

$$\begin{aligned}\text{Outlay} &= \text{FCInv} + \text{NWCInv} - \text{Sal}_0 + T(\text{Sal}_0 - B_0) \\ &= (360,000 + 40,000) + 60,000 - 0 + 0 = \$460,000\end{aligned}$$

57. 【单项选择题】Nanjing Techno's incremental annual after-tax operating cash flow is closest to:

- A. CNY116,000.
- B. CNY124,000.
- C. CNY140,000.

参考答案: A

【莽学解析】Depreciation will be $400,000/5 = 80,000$ per year. The annual after-tax operating cash flow is

$$\text{CF} = (S - C - D)(1 - T) + D = [0 - (-140,000) - 80,000](1 - 0.40) + 80,000 = \$116,000$$

58. 【单项选择题】What is the terminal year after-tax non-operating cash flow at the end of year five?

- A. CNY108,000.
- B. CNY132,000.
- C. CNY180,000.

参考答案: B

【莽学解析】The terminal year non-operating cash flow is

The terminal year non-operating cash flow is

$$\begin{aligned}\text{TNOCF} &= \text{Sal}_5 + \text{NWCInv} - t(\text{Sal}_5 - B_5) \\ &= 120,000 + 60,000 - 0.40(120,000 - 0) \\ &= \text{CNY132,000.}\end{aligned}$$

【题干】Lindsay White, CFA, is an analyst with a firm in London, England. She is responsible for covering five companies in the Consumer Staples industry. White believes the domestic and

global economies will grow slightly below average over the next two years, but she is also concerned about the possibility of a mild recession taking hold. She has been asked to review the companies that she covers, and she has collected information about them, presented in Exhibit 1. White has estimated that earnings before interest and taxes (EBIT) will remain constant for all five companies for the foreseeable future. Currency is in terms of the British pound (£). The marginal corporate tax rate is 30% for all five companies.

Exhibit 1. Selected Company Financial Data

	Aquarius	Bema	Garth	Holte	Vega
EBIT (£)	600,000	600,000	400,000	400,000	400,000
Debt-to-equity ratio (market value)	0.60	0.00	0.00	0.71	0.62
Debt (market value) (£)	2,000,000	0	0	2,000,000	2,000,000
S&P debt rating	A+	n.a.	n.a.	A-	A
Weighted average cost of capital	—	10%	10%	—	—

Based on conversations with management of the five companies, as well as on her own independent research and analysis, White notes the following:

Aquarius: ● has lower bonding costs than does Bema. ● has a higher percentage of tangible assets to total assets than does Bema. ● has a higher degree of operating leverage than does Bema.

Garth: ● invests significantly less in research and development than does Holte. ● has a more highly developed corporate governance system than does Holte. ● has more business risk than does Holte.

In addition, White has reached various conclusions regarding announcements by Bema, Garth, and Vega:

Announcement Bema has announced that it will issue debt and use the proceeds to repurchase shares. As a result of this debt-financed share repurchase program, Bema indicates that its debt/equity ratio will increase to 0.6 and its before-tax cost of debt will be 6%.

Conclusion As a result of the announced program, Bema's total market value should decrease relative to Aquarius's.

Announcement Garth has announced that it plans to abandon the prior policy of all-equity financing by the issuance of £1 million in debt in order to buy back an equivalent amount of equity. Garth's before-tax cost of debt is 6%.

Conclusion This change in capital structure is reasonable, but Garth should take care subsequently to maintain a lower D/E ratio than Holte.

Announcement Vega has announced that it intends to raise capital next year, but is unsure of the appropriate method of raising capital.

Conclusion White has concluded that Vega should apply the pecking order theory to determine the appropriate method of raising capital.

59. 【单项选择题】Based on Exhibit 1 and White's notes, which of the following is most consistent with White's conclusion regarding Garth's announcement?

- A. Garth has more business risk than does Holte.
- B. Garth invests significantly less in research and development than does Holte.
- C. Garth has a more highly developed corporate governance system than does Holte.

参考答案: A

【莽学解析】The statement implies that Garth possesses a lower ability to assume debt than does

Holte, all else being equal.

60. 【单项选择题】Based on White's conclusion regarding determining the appropriate method of raising capital, Vega should raise capital in the following order:

- A. debt, internal financing, equity.
- B. equity, debt, internal financing.
- C. internal financing, debt, equity.

参考答案: C

【莽学解析】According to the pecking order theory, managers prefer internal financing. If internal financing is not sufficient, managers next prefer debt, and finally equity.

【题干】Geet Patel is a sell-side analyst who covers the pharmaceutical industry. One of the companies she follows, PRT-Assam Pharma, is evaluating a regional distribution center. The financial predictions for the capital project are as follows: ● Fixed capital outlay is INR1.50 billion. ● Investment in net working capital is INR0.40 billion. ● Straight-line depreciation is over a six-year period with zero salvage value. ● Project life is 12 years. ● Additional annual revenues are INR0.10 billion. ● Annual cash operating expenses are reduced by INR0.25 billion. ● The capital equipment is sold for INR0.50 billion in 12 years. ● Tax rate is 40 percent. ● Required rate of return is 12 percent. Simpson is evaluating this investment to see whether it has the potential to affect Bayonne Pharma's stock price. Simpson estimates the NPV of the project to be INR0.41 billion, which should increase the value of the company. Simpson is evaluating the effects of other changes to her capital budgeting assumptions. She wants to know the effect of a switch from straight-line to accelerated depreciation on the company's operating income and the project's NPV. She also believes that the initial outlay might be much smaller than initially assumed. Specifically, she thinks the outlay for fixed capital might be INR0.24 billion lower, with no change in salvage value. When reviewing her work, Simpson's supervisor provides the following comments. "I note that you are relying heavily on the NPV approach to valuing the investment decision. I don't think you should use an IRR because of the multiple IRR problem that is likely to arise with the Bayonne Pharma project. However, the equivalent annual annuity would be a more appropriate measure to use for the project than the NPV. I suggest that you compute an EAA."

61. 【单项选择题】Simpson should estimate the after-tax operating cash flow for Years 1-6 and 7-12, respectively, to be closest to:

- A. €0.31 billion and €0.21 billion.
- B. €0.31 billion and €0.25 billion.
- C. €0.35 billion and €0.25 billion.

参考答案: A

【莽学解析】The annual depreciation charge for Years 1-6 is $1.5/6 = 0.25$. Annual after-tax operating cash flows for Years 1-6 are:

$$CF = (S - C - D)(1 - T) + D$$

$$CF = [0.10 - (-0.25) - 0.25](1 - 0.40) + 0.25$$

$$CF = 0.06 + 0.25 = \text{€}0.31 \text{ billion}$$

Annual after-tax operating cash flows for Years 7-12 are:

$$CF = (S - C - D)(1 - T) + D$$

$$CF = [0.10 - (-0.25) - 0](1 - 0.40) + 0$$

$$CF = \text{€}0.21 \text{ billion}$$

62. 【单项选择题】Simpson should estimate the initial outlay and the terminal year non-operating cash flow, respectively, to be closest to:

- A. €1.50 billion and €0.70 billion.
- B. €1.90 billion and €0.70 billion.
- C. €1.90 billion and €0.90 billion.

参考答案: B

【莽学解析】Outlay at time zero is:

$$\text{Outlay} = \text{FCInv} + \text{NWCInv} - \text{Sal}_0 + T \times (\text{Sal}_0 - B_0)$$

$$\text{Outlay} = 1.50 + 0.40 - 0 + 0 = \text{€}1.90 \text{ billion}$$

Terminal year after-tax non-operating cash flow is

$$\text{TNOCF} = \text{Sal}_{12} + \text{NWCInv} - T(\text{Sal}_{12} - B_{12})$$

$$\text{TNOCF} = 0.50 + 40 - 0.40(0.50 - 0) = \text{€}0.70 \text{ billion}$$

63. 【单项选择题】Is Simpson's estimate of the NPV of the project correct?

- A. Yes.
- B. No. The NPV is - €0.01 billion.
- C. No. The NPV is €0.34 billion.

参考答案: B

【莽学解析】期初投资-1.9, 1-6年ATOCF是0.31, 7-12年ATOCF是0.21, 12年终值是0.7, NPV用计算器计算得出, 等于-0.01。

64. 【单项选择题】A switch from straight-line to accelerated depreciation would:

- A. increase the NPV and decrease the first year operating income after taxes.
- B. increase the first year operating income after taxes and decrease the NPV.
- C. increase both the NPV and first year operating income after taxes.

参考答案: A

【莽学解析】Accelerated depreciation shifts depreciation expense toward the earlier years so that first-year operating income after taxes will be lower. However, because depreciation is a noncash expense, it must be added back to operating income after taxes in order to obtain after-tax operating cash flow. This process shifts cash flows from later years to earlier years, increasing the NPV.

65. 【单项选择题】If the outlay is lower by the amount that Simpson suggests, the project NPV should increase by an amount closest to:

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- A. €0.09 billion.
- B. €0.14 billion.
- C. €0.17 billion.

参考答案: C

【莽学解析】The outlay is lower by €0.24, which will decrease the annual depreciation by €0.04 for the first six years. The annual additional taxes from the loss of the depreciation tax shelter are €0.04(0.40) = €0.016. The after-tax cash flows are higher by €0.24 at time zero (because of the smaller investment) and lower by €0.016 for the first six years. The NPV increases by:

$$NPV = +0.24 - \sum_{t=1}^6 \frac{0.016}{1.12^t} = 0.24 - 0.0658 = 0.1742 = \text{€ } 0.17 \text{ billion}$$

66. 【单项选择题】How would you evaluate the comments by Simpson's supervisor about not using the IRR and about using the EAA? The supervisor is:

- A. incorrect about both.
- B. correct about IRR and incorrect about EAA.
- C. incorrect about IRR and correct about EAA.

参考答案: A

【莽学解析】Both of the supervisor's comments are incorrect. Because the Bayonne Pharma project is a conventional project (an outflow followed by inflows), the multiple IRR problem cannot occur. The EAA is preferred over the NPV when dealing with mutually exclusive projects with differing lives, a scenario which is not relevant for this decision. The Bayonne Pharma project is free-standing, so the NPV approach is appropriate.