2021 年 05 月 CFA 三级百题预测

1. SS1 Ethical and Professional Standards
2. SS2 Ethical and Professional Standards
3. SS3 Behavioral Finance
4. SS4 CME
5. SS5 Asset Allocation
6. SS6 Derivatives and Currency Management
7. SS7-8 Fixed income Portfolio Management
8. SS9-10 Equity portfolio management
9. SS11 Alternatives
10. SS12-13 Private Wealth Management
11. SS14 Portfolio Management for Institutional Investors
12. SS15 Trading, Performance Evaluation, and Manager Selection

1. SS1 Ethical and Professional Standards

Case 1: Rayne Brothers

Erin Mutini, CFA, a South African resident, is an employee of Oakwood Asset Management (OAM), an asset management company based in South Africa. OAM manages and sells its branded mutual funds and unit trusts through agents across Africa. Mutini was recently sent to Uganda to oversee OAM's new agency agreement with Rayne Brokers (Rayne), a licensed Ugandan stock brokerage company with a strong retail customer base.

Part of Mutini's oversight role is to establish policies and procedures to ensure the Ugandan sales force represents OAM in a professional manner. As a condition of its agency agreement, OAM requires all of Rayne's sales agents to adhere to South African financial regulations, generally considered to be stricter than those in Uganda. OAM also requires all of its sales agents to abide by the CFA Code of Ethics and Standards of Professional Conduct. OAM's lawyer has indicated South African laws are stricter than the CFA Code and Standards.

To inform the Rayne sales agents of their responsibilities under the OAM agency agreement, Mutini holds a meeting with them to discuss the financial regulations of South Africa and the CFA Code and Standards. To conclude the meeting, Mutini describes OAM's annual competition amongst its sales agents where the winner is determined by the value of products sold (assets under management), fees generated, and the number of new clients brought in. The competition prize is an all expense paid two-week holiday for two to Mauritius. Mutini advises the staff they should concentrate their sales efforts on OAM's front-end load funds since they earn the highest fees. She adds staff should not disclose this competition to clients.

Mutini next meets with Rayne supervisors to specifically discuss their roles in upholding the CFA Standards. She informs them they are responsible for the prevention of any violations of laws, rules, regulations or the Code and Standards by the staff directly under their supervision. To make their job easier, instead of focusing equally on all of the requirements Mutini suggests the supervisors should concentrate on:

- Communicating compliance policies and procedures to all covered staff;
- Undertaking periodic reviews to ensure procedures are followed;
- Enforcing investment related policies.

Later that day, Mutini scrutinizes Rayne's marketing material with Rayne's most successful sales agent, Tom Okello, another CFA Charterholder. They are preparing for a sales meeting to introduce OAM products to a potential client. Mutini notices Rayne's responsibility to uphold the CFA Code and Standards is not mentioned anywhere in the marketing material. Neither does the material mention that some of Rayne's employees are CFA Charterholders. Mutini notices Okello does not use the CFA designation on his business card. When Mutini asks him why, he responds, "If I use it, people will think I have a duty to Rayne's clients. I don't have a duty to clients, as

stockbrokers in Uganda are not required to uphold a fiduciary duty. I don't want to mislead our clients by using the CFA designation."

During the sales meeting with the potential client, Okello makes the following statements:

Statement 1: "Before making an investment for any of our mutual funds or unit trusts, Rayne follows an extensive due diligence process and research analysis. We will only invest in the company if that investment meets the investment criteria that I have outlined to you."

Statement 2: "Every six months you will be mailed an itemized investment statement with cash flows so that you can see if your portfolio is meeting your investment objectives. In addition, you can obtain other information about our firm and investment process from our website, which is updated on a regular basis to ensure the integrity of the site as well as offer confidentiality and security to our clients. For your security, we do not post client statements on the website."

1. According to the CFA Code and Standards, if there is a conflict, Mutini should most likely adhere to:

A. Uganda's laws and regulations.
B. South Africa's laws and regulations.
C. The CFA Code of Ethics and Standards of Professional Conduct.

2. By participating in OAM's annual competition, Rayne employees least likely violate which of the following CFA Standards?

A. Misrepresentation.
B. Independence and Objectivity.
C. Additional Compensation Arrangements.

3. In her meeting with Rayne supervisors, Mutini is *least likely* correct with regard to:

A. communicating with staff.
B. undertaking periodic reviews.
C. enforcing investment related policies.

4. Given Okello's comment regarding his reason for not using the CFA designation, he will *most likely violate* which of the following CFA Standards?

A. Duties to Clients.
B. Misrepresentation.
C. Reference to CFA Designation.

5. What CFA Standard did Okello *most likely* violate in his Statement 1?

A. Suitability.

B. Misrepresentation.

C. Diligence and Reasonable Basis.

6. Does Okello's Statement 2 *most likely* meet the recommended procedures for compliance with the CFA Standards?

A. Yes.

B. No, with regard to investment statements.

C. No, with regard to the company's website.

Case 2: Kim Tang

Kim Tang, CFA, is a consultant reviewing a hedge fund, CleanTech Research Fund. CleanTech invests in high-risk and volatile "clean technology" companies. CleanTech has adopted the CFA Institute Code of Ethics and Standards of Professional Conduct.

Tang examines the various forms of advertising used by CleanTech to attract new clients. In one of its advertising messages, CleanTech states, "We have a very experienced research team and are proud they are all CFA's. Several of our managers serve as volunteers for CFA Institute. CFA Institute recognizes their expertise, and as a result, you can rely on our team for superior performance results."

In reviewing CleanTech's marketing brochure, Tang reads the following statements:

Statement 1 The share prices of companies in the clean technology sector have increased recently because of the growing awareness of climate change issues and the rising cost of energy. There are many risks in this sector, some of which include new technology that is unproven. Also, the addition or removal of government incentives can make markets dysfunctional. Nevertheless, it is our opinion that returns in this area will continue to be above average for several years. In fact, our proprietary investment analytics software has determined that investments in green transportation companies are likely to double in value in the next six months based on a multiple factor regression analysis. Key risks associated with analytics software include the fact that they rely on historical data and that a set of unknown factors could interfere with the anticipated results. We will earn a 200% return over the next year on one of our solar power company investments based on sales projections we prepared, assuming that last year's generous tax incentives stay in place.

Statement 2 The CleanTech fund invests in publicly traded and highly liquid companies and is recommended only for investors who are able to assume a high level of risk. Last month, we invested in EnergyAlgae, a "green energy" company. The fund has benefited from the trade because EnergyAlgae partnered with a global energy firm early last year to create oil from algae. And EnergyAlgae's market capitalization quadrupled shortly after the partnership was formed. Recently, EnergyAlgae also patented a waste plastic-to-oil process that produces oil at less than $30 a barrel. One of the founders of CleanTech is on the board of EnergyAlgae, and information he gave us on the company's patent process led us to purchase additional stock in EnergyAlgae before the patent became widely publicized with the release of the company's semiannual financial report.* (*Information supporting the statements made in this communication is available upon request.)

When Tang asks CleanTech's founders for supporting documents related to their investment in EnergyAlgae, she is told that this information is based on third-party research from Slar Brokerage (Slar), who maintains all necessary records. Tang completes a due diligence exercise on

this research and learns that Slar has used sound assumptions and rigor in its analysis of EnergyAlgae. In particular, Tang learned that Slar used, at a minimum, the following attributes to form the basis of the recommendation: the company's past three years of operational history, current stage of the industry's business cycle, an annual research update, a historical financial analysis, and a one- year earnings forecast.

Tang also learns that the founders of CleanTech are majority shareholders of Slar, which underwrote the public offering of EnergyAlgae. Additionally, CleanTech's analysts inform Tang that they did not need to look at the quality of Slar's research because one of their former colleagues recently left CleanTech and established the research department at the brokerage firm.

In researching EnergyAlgae, Tang finds that potential customers and suppliers of EnergyAlgae are highly skeptical of the claims made regarding the company's respective products. She also contacts several energy companies and is unable to locate anyone who has even heard of EnergyAlgae. When Tang reviews CleanTech's trading activity in EnergyAlgae shares, she finds that CleanTech liquidated its position in EnergyAlgae soon after CleanTech's portfolio managers presented positive views on EnergyAlgae in a number of media interviews. In addition, many of CleanTech's employees also sold their shares in EnergyAlgae immediately after CleanTech sold its shares of the company. The share price of EnergyAlgae dropped dramatically after the stock sales made by CleanTech and its employees.

1. CleanTech's advertising is least likely in violation of the CFA Institute Standards of Professional Conduct with respect to:

A. expected performance results.
B. managers' volunteer activities.
C. use of the CFA designation.

2. In Statement 1, CleanTech management most likely violated the CFA Institute Standards of Professional Conduct with regard to their comments on:

A. investment analytics software.
B. clean technology sector returns.
C. solar power company investment.

3. In Statement 2, CleanTech least likely violated which of the following Standards of Professional Conduct?

A. Suitability
B. Material Nonpublic Information

C. Misrepresentation

4. To be in compliance with the CFA Institute Standards of Professional Conduct, CleanTech should most likely question the validity of Slar's research on EnergyAlgae for deficiencies in which of the following areas?

A. Operational analysis
B. Earnings projections
C. Annual research update

5. Tang's most appropriate course of action concerning the relationship between CleanTech and Slar is to recommend that CleanTech:

A. communicate relevant information to all clients.
B. explain the ownership structure to all clients.
C. sever the relationship immediately.

6. The EnergyAlgae trades are least likely to have violated the CFA Institute Standards of Professional Conduct with regard to:

A. the adverse and skeptical opinions of EnergyAlgae products.
B. the order in which the shares were traded.
C. share price distortion because of positive media presentations.

Case 3: Sue Kim

Sue Kim, CFA, is a hedge fund manager who specializes in biotechnology stocks. Kim has spent many years investing in biotech companies and in the past, worked as an equity portfolio manager for a large bank with substantial research capabilities. Two years ago, Kim started a hedge fund, Green Note Investments. She manages accounts for several wealthy individuals. Now that she no longer has the resources of the bank to support her research, Kim relies on a network of experts to help her search for profitable investment opportunities in the biotechnology area. These experts include legal, business, and political contacts.

Kim purchases information from several biotechnology company employees, none of whom are officers of their respective companies, who perform work outside their regular positions as biotechnology consultants or experts. These consultants work with Kim without the knowledge of their employers, none of which has a prohibition on outside employment, and provide her with information about quarterly earnings and other confidential data related to their companies' performance. Kim bases her final investment decision on this information and encourages the consultants and experts she works with to publicly disclose the information that has been passed on to her.

In order to spread the news about the positive returns Green Note has achieved, Kim hires a public relations consultant, Takehiko Akagi, CFA. Akagi tells Kim that for a marketing campaign to be effective, she needs a five-year return history. Kim tries to retrieve her performance history from the bank but is denied this request. Searching her home laptop computer, Kim finds her historical bank performance data. Kim uses this bank data to recreate the first two years of the requested five-year performance history. For the third year she simulates her investment performance by applying Green Note's current investment strategy to historical data, which she discloses in a footnote along with information about whether the performance is gross or net of fees. For the final two years, Kim uses the actual performance history of Green Note.

Because the marketing campaign takes longer than expected to accomplish its goal of bringing new clients to the fund, Kim asks Akagi to accept a revised fee arrangement. Instead of paying Akagi a monthly fee of $10,000 for his services marketing the fund, Kim proposes an investment management fee sharing arrangement. For each client Akagi brings to Kim and whom she signs on as an investor in Green Note, Kim will pay Akagi a fee of 10% of the investment management fee she charges that client for his first 24 months in the fund. Akagi agrees to this arrangement, and Kim makes sure to disclose this to prospective clients by verbally telling them that Green Note compensates Akagi for his efforts to find investors for the fund, which is the first time clients are made aware of this arrangement. Akagi also discloses to each client the fee he expects to earn from this arrangement once an investment management agreement is signed.

Kim's former university roommate, Donna Miriam, is now a legal expert in mergers and

acquisitions. Miriam has a number of connections to senior associates who specialize in this area of law at large, well-known law firms. Miriam updates Kim when she hears a deal is about to be completed. Kim uses this information as part of a mosaic of information she gathers from her own research and information from other experts in her network. Once Kim has determined Miriam's information is likely to be correct, Kim trades derivative securities of the acquisition target. In the past 18 months, her merger and acquisition investments have resulted in profits of $10 million for the hedge fund. Kim also manages a separate account for Miriam, who has authorized Kim to replicate the trades in the acquisition targets for her account. Because Miriam provides this valuable information, Kim makes sure she trades Miriam's account before any other client trades.

Julian Huang, a government lobbyist, is another key member of Kim's expert network. Huang keeps in constant contact with the many lobbyists involved in biotechnology issues and has close relations with many legislators. Recently, legislators proposed restricting biotechnology research. If the legislation had passed, it would have reduced valuations across the board for biotech stocks. Kim led the hedge fund industry's efforts to fight this change. She personally donated a large sum of money to support these efforts and was also very successful in raising funds from the hedge fund community to fight the passing of this proposed legislation.

Kim's efforts to grow her fund result in new clients and rapid growth of assets under management. Faced with a significant increase in her workload, Kim realizes she needs to change her investment process to meet these new demands. In order to bring specialized experience to her investment decision-making process, Kim hires several competent outside advisers to sit on her investment committee, using her standardized criteria for adviser selection. Kim also subscribes to several well-known third-party research vendors not considered previously because of their high expense. With increased fees earned from additional assets under management, Kim can now afford to request information from these vendors that is tailored to her specific needs. Because this research is so specialized and detailed, and because Kim is confident that the outside advisers use diligence and a reasonable basis in their research, she is able to use the reports, with a few minor changes, as her own. Other than showing off her new reports, Kim does not tell clients of the changes made to her investment process and reports.

1. By Kim executing trades based on the information she receives from the biotechnology consultants employees, she least likely violates the CFA Institute Standards of Professional Conduct concerning:

A. Market Manipulation.
B. Diligence and Reasonable Basis.
C. Material Nonpublic Information.

2. With regard to Green Notes's five-year investment performance history, Kim is inconsistent with the CFA Institute Standards of Professional Conduct concerning which of the following?

A. Performance as a hedge fund manager
B. Simulated performance of current strategy
C. Performance when she was an equity portfolio manager

3. With regard to Kim's fee arrangements with Akagi, whose actions are inconsistent with the CFA Institute Standards of Professional Conduct?

A. Kim's
B. Akagi's
C. Both Kim and Akagi's

4. Kim's relationship with Miriam is inconsistent with the CFA Institute Standards of Professional Conduct concerning:

A. Fair Dealing.
B. Priority of Transaction.
C. Material Nonpublic Information.

5. With regard to biotech legislation lobbying, is Kim consistent with the CFA Institute Standards of Professional Conduct?

A. Yes.
B. No, because of her efforts to influence legislation.
C. No, because she mixed personal and hedge fund donations.

6. Which of Kim's changes made as a result of having more assets under management is consistent with the CFA Institute Standards of Professional Conduct?

A. Use of outside advisors
B. Client communications
C. Use of third-party research

Case 4: Athena

Caitlyn Wilson, CFA, recently started her own asset management company, Athena Investment Services. The board of directors of Athena adopted both the CFA Institute Code of Ethics and Standards of Practice (Code and Standards) and the CFA Institute Asset Manager Code of Professional Conduct (Asset Manager Code) to institutionalize ethical behavior within the firm. The board also implemented half-yearly staff performance reviews, including an assessment of each manager's ability to ensure their department's compliance with the both the Code and Standards and the Asset Manager Code.

Six months into the first financial year, Wilson meets with all of the managers to assess each department's compliance. Wilson asks the compliance officer, Mark Zefferman, CFA, to make an opening statement to set the right tone for the meeting. Zefferman states,

"At a minimum, we are responsible for implementing procedures addressing the general principles embedded in the six components of the Asset Manager Code. As stated below, we must:

Statement 1: Act with skill, competence, and diligence while exhibiting independence and objectivity when giving investment advice,

Statement 2: Put our clients' interests above the firm's when appropriate and act in a professional and ethical manner at all times, and

Statement 3: Communicate with our clients in a timely and non-misleading manner and obey all rules governing capital markets."

Zefferman adds,

"With regard to the last statement, please be aware that we must implement the new anti-money-laundering regulations introduced by our local regulator, effective the first quarter of next year. I have analyzed the new regulations and have found that all of the local requirements are part of regulations recently introduced in Europe, where only a few of our clients reside. When we start taking on new clients based in Singapore in the second half of next year, we will also need to follow that country's anti-money-laundering regulations. The local anti-money-laundering legislation appears to be embedded in the Singapore regulations as well."

Wilson continues, "I would like each of you to explain how the implementation of the Asset Manager Code within your department is being supervised. Let us start with Shenal Mehta, our client service manager."

Mehta states,

"With respect to the Asset Manager Code relating to client services, we have ensured that we enforce the following policies: All disclosures are accurate and complete, and our calculations are shown, no matter how complicated. We also ensure that the client sees some sort of communication from us when they request it and that the marketing material sent to clients is

checked by the compliance department for accuracy and completeness."

Anders Peterson, CFA, chief investment officer, states,

"In addition to what Mehta has said, I have the following comments:

Comment 1: On occasion, we are able to acquire securities we expect will be particularly strong performers, such as oversubscribed initial public offerings. In order to ensure that all clients are treated fairly, each client portfolio is given the same number of shares.

Comment 2: Any communication with clients is kept confidential and is only accessible by authorized personnel.

Comment 3: A gift and entertainment policy is in place to help ensure our managers and analysts keep their independence and objectivity."

Richard Gilchrist, head of portfolio administration, then adds, "Our portfolio policies call for all assets to be valued at fair market prices using third-party pricing services. When a security price is not available from the service, a committee whose members have experience in valuing illiquid assets uses the hierarchy dictated by Global Investment Performance Standards (GIPS) to determine values."

Wilson concludes the meeting by mentioning that Athena must do even more to ensure its clients continue to have faith in Athena's ability to protect and grow their assets. She recommends they disclose their risk management practices, which identify, measure, and manage the various risk aspects of the business to clients and the regulator. She adds, "In addition, we need to create a business continuity plan covering data backup and recovery, alternate trading systems if the primary system fails, and methods to communicate to employees, critical vendors, and suppliers in case of an emergency that could disrupt normal business functions."

1. Which of Zefferman's opening statements is inconsistent with the Asset Manager Code of Professional Conduct?

A. Statement 1
B. Statement 2
C. Statement 3

2. Which of the following anti-money-laundering laws must Athena currently comply with to be consistent with the CFA Institute Standards of Professional Conduct?

A. Local
B. European
C. Singaporean

3. Which of Mehta's client service policies is consistent with the Asset Manager Code?

A. Types of disclosures

B. Communication timing

C. Marketing material reviews

4. Which of Peterson's comments is inconsistent with the Asset Manager Code?

A. Comment 1

B. Comment 3

C. Comment 2

5. Are Gilchrist's comments regarding portfolio valuation consistent with the Asset Manager Code?

A. Yes

B. No, with regard to third-party pricing services

C. No, with regard to the process used to price illiquid securities

6. Are Wilson's closing remarks consistent with recommended practices and procedures designed to prevent violations of the Asset Manager Code?

A. Yes.

B. No, with regard to the business continuity plan.

C. No, with regard to disclosure of the firm's risk management process.

Case 5: Jacaranda

Most financial services regulatory bodies in East Africa are moving toward risk-based supervision models. Miriam Bukenya, CFA, is the head of compliance at Jacaranda Asset Management, a manager of both retail and institutional portfolios. She is currently revising the company's compliance policies to address risk in all areas of Jacaranda's business and is checking different aspects of the firm to ensure that it will be able to meet new risk-based supervision regulations when they become effective in six months. The firm recently adopted the CFA Institute Code of Ethics and Standards of Professional Conduct as its own code and standards.

While reviewing Jacaranda's compliance manual, Bukenya realizes it needs a few changes to comply with the new risk-based regulations. To ensure that she follows best practice, she consults with Luc Remmy, CFA, and the head of compliance at her former employer, Mercury Advisory Services. Remmy, who now runs an independent consulting firm, e-mails Bukenya the compliance manual he uses for his own firm. While reviewing the compliance manual, Bukenya notices that many sections look familiar. She finds a statement in the document indicating it is for the "sole use of Mercury Advisory Services." When questioned, Remmy states that he only used the table of contents of Mercury's document but none of the other content in the document to develop his compliance manual.

Bukenya looks at the marketing materials Jacaranda uses to communicate with existing and prospective clients to ensure that everything mentioned in the material is factual and complies with the CFA Standards of Professional Conduct. The following marketing statements are examined:

Statement 1 Jacaranda looks for investments offering intrinsic value through a top-down approach, including a review of forecasts of economic and industry performance. We evaluate historical and projected company financials, perform extensive financial ratio analysis, conduct management interviews, and determine target prices using a variety of valuation models.

Statement 2 Jacaranda may, at times, hire outside advisers to manage real estate holdings on behalf of clients. These advisers have the necessary expertise to manage property assets.

Statement 3 Jacaranda has four CFA charterholders among its senior management. Their participation in the CFA Program has enhanced their investment management skills. All of these managers passed the three exams in the shortest time possible.

The new risk-based regulations also require accurate and complete performance presentations, with all discretionary accounts included in at least one composite. Bukenya believes Jacaranda's performance presentation policy meets these new requirements as well as the CFA Institute Standards of Professional Conduct because Jacaranda's single composite includes all current and terminated client accounts and presentations include the following statement: "Detailed information regarding the performance presentation is available on

request." Although Jacaranda does not currently comply with GIPS standards, Bukenya encourages the firm to do so within the next few years.

Bukenya then reviews Jacaranda's record-keeping policy. Currently, the policy requires retention of hard copies of all supporting documentation for investment recommendations and decisions made during the last five years. This policy meets the new risk-based regulations. Client meeting minutes and communication logs are kept electronically and backed up on a remote server. Fund managers and research analysts are responsible for maintaining their own personal notes and research models. This policy also applies to Jacaranda's independent research contractor, Mathew Ochieng, who (for security reasons) does not have access to the company's server. Ochieng, who only undertakes research for Jacaranda, sends his research reports to the head of research, who then archives these electronic copies.

While reviewing Jacaranda's counterparty risk policy, Bukenya discovers that trader Jackson Gatera recently convinced the back office to override controls designed to prevent overexposure to specific stockbrokers. This request was in violation of company rules. The rules state that if the trading allocation to a specific broker is breached, trading through that broker must be suspended until the exposure drops to within the exposure limits. The Counterparty Risk Committee predetermines these limits.

The new risk-based regulations also require companies to gather client information as part of know-your-client and anti-money-laundering processes. Bukenya creates a confidentiality policy restricting access to existing and prospective client information. The information is only available to personnel who are authorized by the existing or prospective client. The one exception is if the client or prospective client is thought to be conducting illegal activities. In this circumstance, the information can be released without authorization if the information is demanded through a court order or other legal requirement.

1. Which of the following CFA Institute Standards of Professional Conduct did Remmy least likely violate?

A. Loyalty

B. Responsibilities of Supervisors

C. Misrepresentation

2. Which marketing statement should Bukenya most likely revise to conform to the CFA Institute Standards of Professional Conduct?

A. Statement 2

B. Statement 1

C. Statement 3

3. Does Jacaranda's performance presentation policy most likely meet recommended procedures for complying with CFA Institute Standards of Professional Conduct?

A. No, because of the structure of the composite.

B. Yes.

C. No, because it is not in compliance with GIPS standards.

4. Jacaranda's record-keeping policy is most likely in violation of Standard V(C): Record Retention with regard to the:

A. Keeping of hard and electronic copies.

B. Retention of personal notes and research models.

C. Retention time frame.

5. In response to Gatera's actions, Bukenya should least likely recommend which of the following actions to prevent violations of the CFA Institute Standards of Professional Conduct?

A. Investigate further

B. Increase supervision of Gatera

C. Report Gatera to CFA Institute

6. Does Bukenya's confidentiality policy most likely violate Standard III(E): Preservation of Confidentiality?

A. Yes, with regard to client status

B. Yes, with regard to type of information

C. No

Case 6: Ravinder

After working as an equity research analyst for five years at Staple Asset Advisers, Davika Ravinder, CFA, receives a promotion to a junior asset manager position. She is given 20 relatively small portfolios, all involving middle-income clients who, are saving for their children's university educations and their own retirements. With her new position, Ravinder is given a higher base salary. Previously, her bonus was based on annual performance. She is now eligible for a percentage of the quarterly performance fee earned by the firm for returns higher than the client-negotiated performance hurdles. For competitive reasons, Staple does not allow any employee to disclose their compensation packages, including how bonuses are derived.

Once she has reviewed the investment objectives and constraints of each of her new clients, Ravinder arranges introduction meetings with each client. During a one-hour meeting with a self-employed client, 60-year-old James Canon, Ravinder discovers that he is newly divorced and has been ordered by the court to make a large one-time settlement to his ex-wife. In addition, his son and only child has dropped out of university and wants the money his father allocated for the son's university education as seed capital to start his own business. The funds needed to make both of these payments are currently in the investment portfolio Ravinder manages for Canon. This portfolio is also to be used for Canon's retirement at age 65. Based on what she learned during her meeting with Canon, Ravinder suggests he take a more aggressive investment strategy to compensate for the anticipated large withdrawals from his investment portfolio.

Ravinder receives permission from her supervisor to draft marketing materials to send out to potential clients with her name and contact information. She asks her assistant, Jon Obi, to edit the marketing content and design a simple brochure, ensuring that it complies with all the local regulations and company policies regarding marketing material. Obi does as requested and upon completion takes the initiative to send the brochure to potential clients. A week after the marketing brochure was sent to potential clients, Ravinder notices one of the clauses in the brochure is in violation of company policies.

While revising the marketing brochure, Ravinder determines it might be worthwhile to add some performance statistics to prove that her firm's investment performance is attractive. She works with the portfolio administration team to create five-year weighted composites using similar type portfolios and removing client accounts when terminated. The portfolio administration team works with the compliance officer to ensure they include all the necessary disclosures but agree that they do not need to comply with Global Investment Performance Standards (GIPS). Included in the brochure is a disclosure the company has adopted the CFA Institute Standards of Professional Conduct.

A colleague in the research department, Koffe Mensah, CFA, approaches Ravinder seeking advice about a research report he is writing on a listed company. The majority of Staple's clients

hold this company's shares in their portfolios. Mensah explains that his supervisor is pressuring him to make a buy recommendation to substantiate some positive rumors that the lead dealer heard about the company. Mensah states that his thorough research leads him to believe the company is overvalued. Ravinder reminds Mensah that if the share price moves up, Mensah will likely receive a higher bonus.

Shortly after becoming an asset manager, Ravinder is approached by one of the directors of Naivasha Cement, a company she used to cover as an equity analyst. The Naivasha director asks her if she would be interested in joining the board of directors. He adds, "The Naivasha Cement directors always appreciated your understanding of the industry and of our company in particular, so we think you would add value to the company." After getting approval from her employer, Ravinder accepts the invitation to become a director.

1. With regard to Ravinder's new compensation package, which of the following actions would be most appropriate to ensure she complies with the CFA Institute Standards of Professional Conduct? She should:

A. renegotiate her compensation package.
B. ask her clients to renegotiate their contracts with the firm.
C. disclose her new compensation package to her clients.

2. Under what circumstances would Ravinder's suggested investment strategy for Canon most likely meet the requirements of Standard III(C)–Suitability? If Canon:

A. has numerous other investment portfolios.
B. had a different employment status.
C. delays funding his son for at least five years.

3. Did Ravinder most likely violate the CFA Standards of Professional Conduct regarding the error in the marketing brochures sent to prospective clients?

A. Yes.
B. No, Ravinder gave proper instructions.
C. No, Obi made the error.

4. Does Staple's approach to their performance statistics most likely reflect recommendations for complying with Standard III(D)–Performance Presentation?

A. No, concerning the need for GIPS compliance.
B. Yes.
C. No, with regard to terminated accounts.

5. If Mensah gives in to his supervisor's pressure, what CFA Standard will he most likely violate?

A. Conflicts of Interests

B. Material Nonpublic Information

C. Diligence and Reasonable Basis

6. After accepting Naivasha's invitation, which of the following actions is the most appropriate for Ravinder to implement to avoid violating CFA Standards of Professional Conduct? She should:

A. exclude purchases of Naivasha shares for client portfolios.

B. refuse to attend Staple strategy meetings related to Naivasha.

C. only share Naivasha's nonmaterial information.

Case 7: Ruth McDougal

Ruth McDougal, CFA, is a vice president of research with Cratter Finance, which covers the healthcare and medical device industry and specializes in research and valuation services. McDougal has been a health care industry analyst for fifteen years, closely following the emerging biotechnology field for the last three years.

One of the companies McDougal follows, Randolph Enterprises, has developed a new treatment for a brain disorder associated with memory loss. The treatment has been in late-stage clinical trials for the last year. The majority of analysts who follow Randolph Enterprises believe that the new treatment, which uses a proprietary drug, will be successful. This consensus has caused the stock price of Randolph Enterprises to trade at a historical high. McDougal conducts her own independent analysis of Randolph Enterprises and agrees with the prevailing sentiment, resulting in a strong buy recommendation on the company.

McDougal attended an all-expenses paid seminar sponsored by the Institute on Aging as a guest of Randolph Enterprises. At the seminar, McDougal noted that the CEO of Turkell-Young, a public company and a major competitor of Randolph, was in attendance. While McDougal was familiar with Turkell-Young, it was not one of the firms that she actively covered. The seminar provided valuable insight and information on the biotechnology industry and focused on the new research that Turkell-Young was co-sponsoring with the Institute on Aging.

McDougal was introduced to Jay Turkell, the CEO of Turkell-Young, Turkell mentioned that when he was the CEO of a different firm, he engaged Cratter Finance as an advisor on some merger and acquisition work. Turkell also noted that he was aggressively seeking acquisitions, something that had not been reported in the press. Furthermore, Turkell made the following statement to McDougal:

Statement 1: Turkell-Young would pay McDougal a referral fee for any recommendations she made that resulted in an acquisition for Turkell-Young.

At a seminar gathering, McDougal overheard some industry experts at another table mention that the results of the late-stage clinical trial for Randolph Enterprises, although not yet public, were disappointing. McDougal knew that if this news became public, Randolph Enterprises' stock price would fall, and Randolph Enterprises would then become a potential acquisition target for Turkell-Young.

When McDougal returns to the office, she completes a research report on Randolph Enterprises that summarized the information she gathered at the seminar. She recommends that investors sell Randolph Enterprises shares and supports her conclusion with her opinion that too much value has been attributed to the outcome of the clinical trial for the new proprietary drug. She does not attribute her conclusion to any source, but in general represents that it is the result of her own fundamental analysis.

McDougal concurrently initiates coverage on Turkell-Young, issues a buy recommendation and comments in her report that Turkell-Young's prominence in the biotechnology field could

make the firm a successful industry consolidator through acquisitions. She circulates the Randolph Enterprises report internally for review but immediately releases the Turkell-Young report. Upon reading the Randolph Enterprises draft report, two portfolio managers cancel their buy orders on Randolph Enterprises on behalf of important Cratter Finance clients. Later, McDougal's report on Randolph Enterprises is released to Cratter Finance's clients.

The following day, it is publicly reported that Randolph Enterprises' late-stage clinical trial is not meeting expectations. McDougal's report is picked up in the press. The CEO of Turkell- Young calls McDougal and congratulates her on her work. Turkell asks if Turkell-Young could engage Cratter Finance for a special assignment to do a more in-depth analysis on Randolph Enterprises. Turkell says he is trying to assess the potential synergies Turkell-Young might have with Randolph Enterprises. Turkell executes an engagement letter with McDougal, who says she will complete the analysis in the next few weeks. Turkell-Young's engagement letter with Cratter Finance stipulates that if Turkell-Young acquires Randolph Enterprises based on McDougal's analysis, a referral fee will be paid directly to McDougal.

McDougal is concerned about revealing the referral fee that she could receive from Turkell-Young to her supervisor. Cratter Finance might assume that her recent buy recommendation on Turkell-Young was biased. McDougal decides to remain silent about the arrangement with Turkell-Young. McDougal justifies her actions as she does not want her colleagues to doubt her independence and objectivity.

1. Did McDougal violate CFA Institute Standards when she changed her recommendation on Randolph Enterprises from a buy to a sell based on the conversations she heard at the seminar?

A. Yes, since she did not have a reasonable basis for her recommendation.
B. Yes, because she did not disclose that some of the analysis was opinion.
C. No.

2. To comply with CFA Institute Standards, when invited to attend the all-expenses paid seminar as a guest of Randolph Enterprises, McDougal should have:

A. declined the offer and written an objective research report.
B. accepted the offer and written an objective research report.
C. dropped coverage of the company.

3. To comply with CFA Institute Standards, McDougal's responsibility regarding Turkell's offer in Statement 1 is to:

A. receive permission from the CFA Institute before she accepts the assignment.
B. turn down the assignment due to her conflict of interest.

C. review the proposal with her employer and receive the employer's permission before accepting the referral fee arrangement.

4. The portfolio managers who traded Randolph Enterprises based on the content of McDougal's report most likely violated which Standards?

A. Fair Dealing.

B. Fair Dealing and Priority of Transactions.

C. Fair Dealing, Priority of Transactions and Diligence and Reasonable Basis.

5. The purpose of Standard VI(C) Referral Fees is to help the client:

A. evaluate the transparency of the compliance system.

B. assess any conflicts of interest the fees may cause and evaluate the transparency of the compliance system.

C. assess any conflicts of interest the fees may cause and evaluate the full cost of the services.

6. A member of the CFA Institute found to be in serious violation of the Code and Standards and sanctioned by the CFA Institute can be penalized by:

A. a monetary fine.

B. a monetary fine and/or private censure.

C. private censure and/or suspension.

Case 8: Marcia Lopez

June 2017 was a life-changing month for Marcia Lopez. She earned a master's degree in finance from a top national university, sat for the Level I CFA Program exam, and accepted a job offer in her hometown as an associate in the wealth management division of BankGlobal, a multinational financial services firm.In August, Lopez finds out that she passed Level I and begins working for BankGlobal. On her first day at BankGlobal, Lopez meets with her supervisor, David Hockett, CFA. During their meeting, Hockett reviews BankGlobal's Code of Ethics, the specific policies and procedures needed to ensure compliance with their Code, the CFA Institute Code and Standards, and all applicable securities laws and regulations. At the end of the meeting, Lopez asks him to approve her Business Card Request form, on which she describes herself as a "CFA, Level I." Hockett tells her that she should also put on her business card the year she expects to receive her CFA designation so clients can track her success in the program.

Later that day, Hockett introduces Lopez to the four other members of his wealth management team. The team manages $900 million in assets for 150 high-net-worth clients. Almost 80% of the team's assets are managed in discretionary accounts, with the balance managed in non-discretionary accounts. For the past two years, the portfolios managed by Hockett's team have outperformed their benchmarks and most other wealth management teams at BankGlobal. This is partly due to the close relationships that the team has developed with the securities analysts in BankGlobal's research department. Because of bottlenecks in BankGlobal's information technology (IT) department, it generally takes about 45 minutes for changes in the analysts' recommendations to be published on the firm's website and emailed to clients. As a result, the analysts often call Hockett's team about changes in their recommendations before IT has published the information on BankGlobal's website. After receiving these calls, the team immediately acts upon any analyst changes for their discretionary accounts to prevent their clients' portfolios from being adversely impacted when the recommendations are posted or to take advantage of better than expected reports.

After several months of learning about the wealth management division's operations and products, Hockett believes Lopez is ready to meet with prospective clients. Next week, Hockett is meeting with Marty and Mary Kochanski for the first time. The Kochanskis were referred to Hockett by Gary White, their business banker at BankGlobal. The Kochanskis are both 61 years of age, and they recently retired after Mary sold her medical insurance consulting business for $7.4 million. Hockett invites Lopez to participate in the meeting with the older couple and asks her to prepare a presentation on BankGlobal's wealth management capabilities. Hockett also asks her to create a model "balanced portfolio" that he intends to recommend to the Kochanskis at the meeting.

Lopez is excited and immediately begins work on the presentation. To develop the Kochanski's "balanced portfolio," Lopez prepares a list of fixed-income funds, equity mutual funds, and exchange-traded funds (ETFs). The list includes mutual funds and ETFs from BankGlobal's

proprietary offerings as well as those from other firms. Lopez then selects the top two performing equity and fixed-income funds with the highest five-year returns. To create a balanced portfolio, she gives an equal weight to each fund. Unsure how to present the model portfolio's past performance, Lopez uses an average of the four funds' five-year annualized rates of return and labels it "Total Portfolio Return." For comparison purposes, Lopez shows the annual rates of return realized over a five-year period for a "composite portfolio" consisting of the team's discretionary accounts of similar size to the Kochanski's that also have a balanced objective. To simplify the presentation, she excludes terminated accounts.

The day before they are to meet with the Kochanskis, Hockett reviews Lopez's presentation. Although he is impressed with the quality of her work, he asks her why she did not use only BankGlobal's proprietary mutual funds to create the Kochanski's balanced portfolio. Hockett tells Lopez that, whenever possible, she should always use BankGlobal's products since they are "as good as any other firm's" and that the team receives a higher fee by using them. In addition, he states that "as employees and shareholders of BankGlobal, we have a fiduciary duty to maximize our shareholders' wealth." Before leaving to go home that evening, Lopez changes the funds in the Kochanski's model portfolio to include only BankGlobal's proprietary funds and then updates the presentation.

The next morning, Hockett and Lopez meet with the Kochanskis. At the time White had referred them to Hockett, White had told Hockett only how much the Kochanskis wanted to invest, their ages, and their employment status. At the face-to-face meeting, the Kochanskis share that while they have a solid understanding of the health care and medical insurance businesses, they don't know enough about financial markets and securities to manage their own investments. Instead, they would prefer to have an investment professional manage their money, allowing them more time to travel and enjoy their grandchildren. During the 30-minute meeting with the Kochanskis, Hockett and Lopez go through Lopez's presentation and explain why a balanced portfolio is most suited for them.

1. Does Lopez violate the Code and Standards in her description of herself on the Business Card Request form?

A. Yes.

B. No, because she found out in August that she passed Level I.

C. No, because she knows the year that she expects to receive her CFA designation.

2. By acting upon the analysts' recommendations for their discretionary accounts, are members of Hockett's team violating the Code and Standards?

A. No.

B. Yes, because they are not dealing fairly with all clients.

C. Yes, because they are acting on material nonpublic information.

3. Did Hockett/Lopez violate the Code and Standards in their recommendation of a balanced portfolio to the Kochanskis?

A. Yes.

B. No, because they know the Kochanski's investment objectives and risk tolerance.

C. No, because the balanced portfolio is most suitable for the Kochanskis given their age and wealth.

4. Which one of the following caused Lopez to violate the Code and Standards in her presentation of past performance information?

A. Exclusion of terminated accounts.

B. Using an average return for the model portfolio's performance.

C. Using discretionary accounts of similar size to the Kochanski's account.

Case 9: Frank Litman

Frank Litman, CFA, was recently hired as a portfolio manager by Twain Investments, a fairly small asset management firm. Since attending graduate school 10 years ago, Litman has managed a limited number of accounts belonging to friends. All of these accounts are currently too small to meet Twain's minimum balance requirement of $5 million and generate only modest fees for Litman. Litman disclosed the arrangement to the human resource (HR) manager when he interviewed for his position with Twain. The HR manager agreed that the accounts were too small and would probably never be large enough to meet Twain's minimum size requirement.

After accepting the position with Twain, Litman met with each of the friends for whom he manages portfolios. He recommended they find another financial adviser. Litman's friends argued that a different adviser would undoubtedly charge higher fees and asked Litman to continue managing their money as a personal favor. Following the meetings, Litman sent separate letters to both the Twain HR manager and his friends explaining his employment relationship and that he also manages some small portfolios for a few of his friends.

The following month, Litman updated the promotional material that he shares with all of his Twain clients and prospects. The material summarizes the portfolio trading strategy Litman developed by analyzing 20 years of historical data. In his analysis, Litman determined that his strategy of investing in large-capitalization US stocks would have outperformed the S&P 500 Index over the last 20 years with an average annual return of 8.91% versus 8.22% for the S&P 500. The concluding paragraph of the brochure states, "We believe long-term use of this trading strategy will lead to superior performance compared with the S&P 500." The brochure includes a footnote in small print stating, "Results are gross before taxes and thus may be higher than actual results would have been over the given period. Past performance cannot guarantee future results."

At Twain, Litman has discretionary authority over 30 individual clients who hold both stocks and bonds in their portfolios. His 10 largest clients vary widely in age, occupation, and wealth. For a variety of reasons, each of these accounts requires significant attention. The remaining two-thirds of Litman's clients are stable, long-term investors, all of whom are saving for retirement. Litman performs comprehensive quarterly reviews with the owners of the 10 largest accounts and similar annual reviews with the remaining clients. Recently, he made an exception to this rule when he learned that one of his smaller, less active clients had unexpectedly inherited $600,000 from an aunt's estate. Litman met with the client and performed a comprehensive review of the client's financial situation even though only three months had passed since their last meeting.

Twain hires a compliance officer and subsequently experiences significant change during the following year. The compliance officer immediately begins to update the firm's policies and procedures even though Twain adheres to the Asset Manager Code of Professional Conduct. In addition, after a thorough analysis, Twain senior management decides to outsource its

back-office operations and hires an independent consultant to review client portfolio information. At the same time, they add several research and investment staff members and upgrade the information management system. They also eliminate paper records in favor of electronic copies and develop a business-continuity plan based on current staffing.

Eighteen months later, the compliance officer resigns. Rather than hire an external replacement, management designates one of Twain's senior portfolio managers as the new compliance officer. The compliance officer reviews both firm and employee transactions and reports to the CEO rather than to the board of directors.

1. Are the significant changes made by Twain's management most likely in compliance with the Asset Manager Code of Professional Conduct?

A. No, with respect to back-office operations.
B. Yes.
C. No, with respect to the independent consultant.

2. With respect to its current compliance officer, do Twain's actions and procedures most likely comply with the recommendations and requirements of the Asset Manager Code of Professional Conduct?

A. No, with regard to reporting to the CEO.
B. Yes.
C. No, with regard to independence

3. According to the CFA Institute Standards of Practice Handbook, which of the following additional pieces of information would Litman least likely be required to supply to Twain to comply with his duty to employer? The:

A. duration of the investment management agreements with friends.
B. names of his friends who are his clients.
C. amount and type of compensation received from friends.

4. With regard to managing portfolios for Twain as well as for his friends, Litman should most likely undertake which of the following to ensure compliance with the CFA Institute Standards of Professional Conduct? He should:

A. inform his immediate supervisor.
B. obtain written consent from Twain and his friends.
C. do nothing further.

5. In the footnote of the promotional material about the performance of his portfolio trading

strategy, Litman is least likely in compliance with the CFA Institute Standards of Professional Conduct with respect to:

A. taxes
B. fees
C. results

6. Did Litman violate any CFA Institute Standards of Professional Conduct in regard to his performance reviews for Twain clients?

A. Yes, with respect to the frequency of reviews for his 10 largest clients.
B. No.
C. Yes, with respect to his recent review for the client with the inheritance.

2. SS2 Ethical and Professional Standards

Case 1: Redlands

Redlands Asset Management (RAM) is an active equity manager specializing in the Asian Pacific region. The firm was founded by Carol Schroeder, CFA at the beginning of 2006, with several members of her family serving as the firm's first clients providing the initial managed assets for the firm.

Schroeder has compiled the information in Exhibit 1 and plans to use it to market RAM to institutional investors.

Exhibit 1			
Redlands Asset Management GIPS Compliant Performance **Asia-Pacific Composite. (1/Jan/2006 thru 31/Dec/2008)**			
Year	**2006**	**2007**	**2008**
Gross of Fees Return	44.8%	66.9%	80.7%
Benchmark Return	43.1%	60.2%	85.6%
# of Portfolios	5	15	33
Composite Dispersion		6.7%	5.1%
Period Ending Total Assets ($ millions)	350	760	1,630
% of Firm Assets	14%	25%	52%

Notes:

1. Performance results are presented gross-of-fee so that they represent the return on assets reduced by any trading expenses incurred during the period.
2. The Asia-Pacific composite includes two non-fee-paying accounts of the Schroeder family.
3. A complete list and description of composites and their strategies, including any that have been discontinued within the last five years, is available upon request.
4. Portfolio valuations are computed monthly and are denominated in US dollars.
5. RAM uses cash-basis accounting for the recognition of interest income on its holdings of preferred stock.
6. The pricing source was changed prior to the end of the reporting period because, in management's opinion, performance was not fairly represented. The new source has significantly improved the firm's results.
7. RAM trades securities in illiquid markets with substantial political and economic risks so trades are recorded on a settlement date basis to ensure that these trades have been completed before they are included in performance calculations.
8. The composite presented above has been GIPS verified.

1. Which of the following performance presentation notes contains an error or omission that is

most likely to prevent RAM from being in compliance with the GIPS standards?

A. Composite list availability.

B. Non-fee paying accounts disclosure.

C. Disclosure concerning discontinued composites.

2. Which of the following performance presentation notes most likely comply with the recommendations and requirements of the GIPS standards?

A. Pricing source.

B. Cash-basis accounting.

C. Returns calculated gross of fees.

3. Which of the following performance presentation notes would least likely prevent RAM from being in compliance with the GIPS standards?

A. Monthly valuations.

B. Non-fee paying accounts.

C. Settlement-date accounting.

4. Which of the following concerning fees in RAM's performance presentation most likely meets GIPS standards?

A. Gross of fee labeling.

B. The firm's fee schedule.

C. The deduction of any other fees.

5. Does RAM's performance presentation most likely meet GIPS standards concerning dispersion?

A. Yes.

B. No, the method chosen must be disclosed.

C. No, the standard deviation must be presented.

6. RAM's verification most likely does not meet GIPS standards concerning verification because:

A. Composite verification is not allowed.

B. The minimum time period has not been met.

C. The calculation methodology must be disclosed.

Case 2: Arcadia

Arcadia, LLP, is one of several independently operated investment management subsidiaries of Swiss Corp, a global bank. Arcadia is headquartered in Philadelphia, Pennsylvania, and specializes in the management of equity, fixed income, and real estate portfolios. Arcadia's CEO recently hired Joan Westley, CFA, as chief compliance officer to achieve compliance with the Global Investment Performance Standards (GIPS). Arcadia just opened a division in Phoenix, Arizona, incorporated as Arcadia West, LLP, to accommodate one of its portfolio managers and his staff who manage a hedge fund. The staff in Phoenix works exclusively on the hedge fund's strategy, using an investment process distinct from the one used in the Philadelphia office.

Westley makes the following statement at a meeting with the CEO: "I am establishing and implementing policies and procedures to ensure Arcadia is in compliance with the GIPS standards. Although the hedge fund won't be in compliance, it won't affect our ability to be compliant firm-wide because it is in an autonomous unit. We will be the first Swiss Corp subsidiary to be compliant. Keep in mind that even after implementation, we will not be able to claim compliance until our performance measurement policies, processes, and procedures are verified by an independent firm."

Westley begins her review of Arcadia's current policies. She first reviews three policies regarding input data:

Policy 1: The accounting systems record the cost and book values of all assets. Portfolio valuations are based on market values, provided by a third-party pricing service.

Policy 2: Transactions are reflected in the portfolio when the exchange of cash, securities, and paperwork involved in a transaction is completed.

Policy 3: Accrual accounting is used for fixed-income securities and all other assets that accrue interest income; dividend-paying equities accrue dividends on the ex-dividend date.

Next, Westley reviews Arcadia's policies for return calculation methodologies:

Policy 4: Arcadia uses the Modified Dietz method to compute portfolio time-weighted rates of return on a monthly basis. Returns for longer measurement periods are computed by geometrically linking the monthly returns.

Policy 5: Arcadia revalues portfolios when capital equal to 10% or more of current market value is contributed or withdrawn. Returns are calculated after the deduction of trading expenses.

Policy 6: Cash and cash equivalents are excluded in total return calculations. Custody fees are not considered direct transaction costs.

Westley also looks at the investment policy statements (IPS) for the three sample portfolios that are included in Arcadia's large-capitalization equity composite:

Portfolio A: A portfolio managed for a local church in which all fees are waived. The IPS prohibits holdings of companies involved in firearms, alcohol, or tobacco. These securities represent 5% of

the benchmark, but the portfolio manager believes he can still implement his strategy with these restrictions.

Portfolio B: The equity carve-out portfolio of a balanced account. The client provides Arcadia discretion in the tactical asset allocation decision. Asset allocation among subportfolios is performed quarterly, and each subportfolio holds tactical or frictional cash.

Portfolio C: A large-cap equity mutual fund managed for a corporate retirement plan. Employees can make contributions and withdrawals daily. The client requires the portfolio manager to maintain at least 15% of assets in cash balances to meet potential withdrawals.

Finally, Westley examines a recent presentation to a prospective client regarding Arcadia's small-cap composite. Details of this presentation are presented in Exhibit 1 and its notes.

Exhibit 1 Small Capitalization Equity Composite; Benchmark: Russell 2000

Year	Gross of Fees Return (%)	Net of Fees Return (%)	Benchmark Return (%)	Number of Portfolios	Internal Dispersion (%)	Total Assets ($m)	
						Composite	Firm
2009	4.2	3.2	3.7	4	3.3	100	1,000
2010	3.7	2.7	7.0	9	4.6	225	1,250
2011	-1.0	-2.0	-4.5	7	1.7	350	900
2012	9.3	8.3	12.0	12	2.8	425	1,050
1Q13	5.2	4.2	-7.0	14	3.6	620	1,125

Notes:

1. Arcadia is an investment firm affiliated with a major global bank and founded in April 2001. The firm manages portfolios in various equity, fixed-income, and real estate strategies.
2. Arcadia has a number of affiliates owned by the parent company; a schedule is provided separately.
3. The composite has an inception date of 31 December 2007. A complete list and description of firm composites is available on request.
4. The composite includes all fee-paying, discretionary, nontaxable portfolios that follow a small-cap strategy. The composite does not include any non–fee-paying portfolios.
5. 1Q13 data is not annualized.
6. Valuations are computed and performance reported in US$.
7. Internal dispersion is calculated using the equal weighted standard deviation of all portfolios that were included in the composite for the entire year.
8. Gross-of-fees performance returns are presented before management and custodial fees but after all trading expenses. The management fee schedule is as follows: 1.00% on first US$25 million; 0.60% thereafter. Net-of-fees performance returns are calculated by deducting the

management fee of 0.25% from the quarterly gross composite return.

1. In her statement to the CEO, Westley is least likely correct with respect to:

A. Verification.

B. Exclusion of the Phoenix division.

C. The status of Swiss Corp's other subsidiaries.

2. Which policy regarding input data is least likely compliant with the GIPS standards?

A. Policy 1.

B. Policy 2.

C. Policy 3.

3. Which policy regarding return calculation methodologies most likely requires revision?

A. Policy 4.

B. Policy 5.

C. Policy 6.

4. Inclusion of which portfolio reviewed by Westley in the large-capitalization equity composite would least likely be compliant with the GIPS standard?

A. Portfolio A.

B. Portfolio B.

C. Portfolio C.

5. Based on Exhibit 1 and the notes following the exhibit, Arcadia is least likely in compliance with the GIPS standards with regard to the:

A. Performance record.

B. Performance presentation.

C. Measure of internal dispersion.

6. Regarding the notes to Exhibit 1, the GIPS standards would most likely imply that:

A. Notes 1 and 7 are required and Note 2 is recommended.

B. Notes 3 and 8 are required and Note 6 is recommended.

C. Notes 1 and 2 are required and Note 7 is recommended.

Case 3: Sing-Siew Lee

Sing-Siew Lee is a senior consultant with Stowe Partners, a firm that provides Global Investment Performance Standards (GIPS) compliance and verification services. Lee is preparing to meet with two clients, Orion Advisory Research and Gardere Associates.

Orion Advisory Research is an investment firm that manages retail and institutional accounts. It also manages a private equity fund. Orion has provided information on its measurement and reporting practices in order to help Lee evaluate the firm's compliance with the GIPS standards.

In regard to trading expenses, commissions are negotiated and deducted when the firm calculates rates of return. For separately managed retail accounts that have bundled fees, and the gross return is reduced by the entire amount of the bundled fee. Custody fees for certain offshore securities are charged on a per-transaction basis and are included in trading expenses.

Orion values its investments at the lower of cost or book value. Trade date accounting is used consistently for all transactions. In some cases, transactions may be recorded up to three days after the trade date.

Orion values the private equity fund on an annual basis and presents the following ratios: (1) total value to since-inception paid-in capital, (2) since-inception distributions to since-inception paid-in capital, (3) since-inception paid-in capital to cumulative committed capital, and (4) residual value to since-inception paid-in capital. Orion aggregates its various strategies in its composites. The composites are separated by vintage year.

Lee advises Orion's pricing and valuation committee to use the hierarchy of valuation methodologies presented in Exhibit 1 to establish fair values for its investments in private equity.

Exhibit 1 Hierarchy of Private Equity Valuation Methodologies		
Methodology	**Order**	**Description**
1	Best	Present value of risk adjusted cash flows
2	Next-Best	Market transactions
3	Least Preferred	Market-based multiples

Gardere Associates is an investment firm that invests in a variety of real estate–related investments. Gardere has asked Lee for advice on GIPS compliance. Lee outlines three categories of investments that are subject to the real estate provisions of the GIPS standards:

Category 1: Publicly traded real estate investment trusts.

Category 2: Commercial real estate loans.

Category 3: Investments in partially owned properties.

Prior to issuing his final reports to Orion and Gardere, Lee provides a statement with the following comments regarding the verification reports:

Comment 1: " It is recommended that the verification report cover all periods for which the firm laims GIPS compliance."

Comment 2: " The verification report confirms that the firm's processes and procedures are designed to calculate and present performance results in compliance with the GIPS standards."

Comment 3: " The verification report confirms that Stowe Partners has sole responsibility for maintaining the data and information necessary to perform the required calculations for the client."

1. With regard to trading expenses, Orion is not in compliance with GIPS® standards in its treatment of:

A. Custody fees.

B. Bundled fees.

C. Commissions.

2. Do Orion's policies on asset valuation most likely comply with GIPS standards?

A. Yes.

B. No, because valuations should be based on fair value.

C. No, because settlement date accounting should be used for all transactions.

3. Orion's private equity disclosure least likely meets GIPS standards with respect to the:

A. Use of multiples.

B. Timing of valuations.

C. Construction of composites.

4. Does Lee's proposed hierarchy of private equity valuation methodologies in Exhibit 1 most likely meet GIPS standards?

A. Yes.

B. No, the correct order of methodologies is 2, 3, 1.

C. No, the correct order of methodologies is 3, 2, 1.

5. Lee is most likely correct with regard to which category of investments being subject to the real estate provisions of the GIPS standards?

A. Category 1

B. Category 3

C. Category 2

6. Which of the comments made by Lee is not consistent with GIPS verification standards?

A. Comment 1.

B. Comment 2.

C. Comment 3.

Case 4: Anton

Beatriz Anton, CFA, is the chief compliance officer at Long Pond Advisors, an asset management firm catering to institutional investors. Long Pond is not currently GIPS compliant, but Anton would like to market the firm as being compliant as soon as possible. To assist Anton in achieving compliance, she hires Ana Basco, CFA, from Nantucket Advisors to provide guidance on achieving compliance.

At their initial meeting to discuss a framework for the implementation of GIPS standards, Anton asks Basco what she believes the fundamentals of GIPS compliance encompass. Basco responds, "A good starting point is input data because the Standards rely on the integrity of input data to accurately calculate results. Portfolios must be valued in accordance with the definition of fair value, not cost or book values. In fact, fair value supersedes market value. Transactions are reflected in the portfolio at settlement when the exchange of cash, securities, and paperwork involved in a transaction is completed. Accrual accounting is used for fixed income securities and all other assets that accrue interest income; dividend-paying equities accrue dividends on the ex-dividend date."

Basco then asks Anton about Long Pond's policies for return calculation methodologies. Anton responds that she has recently implemented the following polices:

Policy 1: Total return is calculated for portfolios using time-weighted rates of return computed by geometrically linking the periodic returns. Both realized and unrealized gains and losses are used in the calculation.

Policy 2: Large- and mid-cap equity portfolios are revalued on the date when capital equal to 10 percent or more of current market value is contributed or withdrawn. Small-cap and fixed income portfolios use a 5 percent threshold.

Policy 3: Cash and cash equivalents are excluded in total return calculations. Custody fees are not considered direct transaction costs. Returns are calculated after deduction of trading expenses.

Their conversation turns to the construction of composites and composite return calculations. Anton tells Basco:

Long Pond calculates composite returns by asset-weighting the individual portfolio returns using beginning-of-period values. For periods beginning 1 January 2010, we calculate composite returns by asset weighting the individual portfolio returns quarterly. All actual, fee-paying, discretionary portfolios are included in at least one composite. Non-fee-paying discretionary portfolios are also included in a composite, and appropriate disclosures are provided. Client portfolios that restrict the purchase of certain securities are excluded if this restriction hinders the portfolio manager's ability to execute the investment strategy. We consider a hierarchical structure of criteria for composite definition that promotes primary and secondary strategy characteristics, such as asset classes, style, benchmarks, and risk/return characteristics. The

composites are not always defined according to each level of the hierarchy.

Anton then provides Basco a recent presentation to a prospective client for Long Pond's mid-capitalization composite. Details of this presentation are found in Exhibit 1.

Exhibit 1 Mid-Capitalization Equity Composite; Benchmark: Russell Midcap Index

Column >	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Year	Gross-of-Fees Return (%)	Net-of-Fees Return (%)	Benchmark Return (%)	Number of Portfolios	Internal Dispersion (%)	Total Assets ($m)	
						Composite	Firm
2007	4.4	3.4	3.6	5	3.1	125	1,000
2008	2.7	1.7	6.2	8	4.0	220	1,150
2009	–1.5	–2.5	–4.3	7	1.9	345	910
2010	8.3	7.3	11.1	11	2.6	430	1,020
1Q11	6.6	5.6	–2.9	13	4.1	600	1,100

Notes:

1. Long Pond is an independent investment firm founded in May 1998 and has a single office in Seattle, WA. The firm manages portfolios in various equity, fixed income, and real estate strategies.
2. The composite has an inception date of 31 December 1999. A complete list and description of firm composites is available upon request.
3. The composite includes all fee-paying discretionary, nontaxable portfolios that follow a mid-cap strategy. The composite does not include any non-fee-paying portfolios.
4. First Quarter 2011 (1Q11) data are not annualized.
5. Valuations are computed and performance reported in US$.
6. Internal dispersion is calculated using the equal-weighted standard deviation of all portfolios that were included in the composite for the entire year.
7. Gross-of-fees performance returns are presented before management and custodial fees but after all trading expenses. The management fee schedule is as follows: 1.00% on first US$25M; 0.60% thereafter. Net-of-fees performance returns are calculated by deducting the management fee of 0.25% from the monthly gross composite return.

Anton concludes by describing Long Pond's real estate valuation practices to Basco:

Long Pond uses fair value to calculate returns on real estate assets, although for periods before 1 January 2011, we used market values. With effect from January 2011, we value real estate holdings annually and have an external expert value our real estate every 36 months. We calculate income returns and capital returns separately using geometrically linked time-weighted rates of return and composite returns by asset-weighting the individual portfolio returns at least quarterly.

1. In her statement regarding input data, Basco is least likely correct with respect to:

A. Fair value.

B. Accrual accounting.

C. Settlement date accounting.

2. Which policy regarding return calculation methodology is least likely compliant with GIPS standards?

A. Policy 1

B. Policy 2

C. Policy 3

3. With regard to Long Pond's procedures for composites, which of the following should most likely be modified in order to be compliant with GIPS standards? Composite:

A. Definition.

B. Construction.

C. Return calculations.

4. Based on Exhibit 1 and the notes following the table, Long Pond is least likely in compliance with GIPS standards with regard to the:

A. Length of performance record.

B. Measure of internal dispersion.

C. Presentation of 1Q11 performance.

5. In order for the real estate composite to be GIPS compliant, at a minimum, which of Long Pond's practices would most likely need to be modified?

A. Frequency of valuations

B. Rate-of-return calculations

C. The use of fair and market values

Case 5: Bud Walter

Bud Walter is the chief investment officer of Wryte Capital Management (WCM). He is meeting with T.M. McGourn, a prospective client, to discuss Wryte's investment performance as presented in Exhibit 1 and subsequent disclosure notes:

Exhibit 1 Wryte Capital Management U.S. Large-Cap Equity Composite

Year	Gross Return %	Benchmark Return %	Internal Dispersion %	Number of Portfolios	Composite Assets ($m)	Firm Assets ($m)
2007	15	15	5.2	20	100	175
2008	22	20	6.1	40	200	275
2009	–20	–25	5.7	30	150	200
2010	11	10	5.2	45	225	300
2011	20	20	4.7	50	250	350

Wryte Capital Management (WCM) has prepared this report in compliance with Global Investment Performance Standards (GIPS). The U.S. Large-Cap Equity Composite has been independently verified by a qualified third party to be GIPS compliant. The verification report was issued only for the composite and not for WCM. It states that during 2009, 2010, and 2011, WCM complied with all composite construction requirements for the composite and that WCM policies are designed to calculate and present performance in compliance with GIPS standards.

Notes:

1. The firm is defined as an independent investment manager that invests exclusively in US large-cap, US mid-cap, and US small-cap equity securities for US resident clients. WCM's policy for valuing portfolios and calculating performance is available upon request. WCM's calculation methodology is to use time-weighted rates of return. Subperiod rates of return are geometrically linked. Cash equivalent instruments are included in rate-of-return calculations. Returns are calculated quarterly or when large external cash flows (as defined by WCM) take place.
2. The US Large-Cap Equity Composite includes all actual fee-paying portfolios. Each portfolio contains positions in large-cap stocks, which are selected by WCM after an extensive independent analysis. Non-discretionary portfolios are not included in any composite. WCM does not include in any composite its large-cap model portfolio, which is used during the investment selection process.
3. The composite benchmark is the S&P 500 Index, which represents the size-weighted returns of the 500 largest (as measured by market capitalization) US-based publicly traded companies.
4. Gross-of-fees returns are presented before investment management fees but after trading

expenses, which include custodial fees. All clients pay an investment management flat fee of 75 basis points on the month-end account value plus a 10-basis-point performance fee whenever the composite return exceeds the benchmark return by 100 basis points.

5. Internal dispersion is the equal-weighted standard deviation of the annual gross returns of the five portfolios included in WCM's US Large-Cap Equity Composite.

McGourn asks Walter why he uses standard deviation as the measure of internal dispersion and whether there are better dispersion measures. Walter responds, "Standard deviation has the advantage of comparability across investment firms. Other measures, such as the high/low range and the interquartile range, are skewed by outliers."

Finally, McGourn asks Walter about WCM's investment valuation policies. Walter states that WCM uses a valuation hierarchy based on items 1 through 4 as follows:

Item 1. Observable quoted market prices for similar investments in active markets.

Item 2. Quoted prices for similar investments in markets that are not active.

Item 3. Market-based inputs other than quoted prices that are not observable for the investment.

Item 4. When no quotes or other market inputs are available, estimates based on quantitative models and assumptions.

1. Is WCM most likely correct in claiming compliance based on the verification report?

A. Yes

B. No, because of the level at which verification is claimed.

C. No, because of the timeframe for which verification is claimed.

2. WCM's methodology for calculating performance, as disclosed in Note 1, is least likely consistent with GIPS standards for:

A. External cash flows.

B. Geometrically linked returns.

C. Frequency of return calculations.

3. Is WCM most likely compliant with GIPS required standards for composite construction as disclosed in Note 2?

A. Yes

B. No, because of how the large-cap model portfolio is treated

C. No, because of how nondiscretionary portfolios are treated

4. With respect to gross-of-fees returns, Note 4 is least likely compliant with GIPS required

standards in its treatment of:

A. Custodial fees.

B. Performance fees.

C. Trading expenses.

5. With respect to relative merits of internal dispersion measures, Walter is least likely correct about:

A. High/low range.

B. Interquartile range.

C. Standard deviation.

6. Is Walter's response to McGourn's inquiry regarding WCM's valuation hierarchy most likely correct?

A. Yes.

B. No, item 4 from the valuation hierarchy should be excluded.

C. No, the valuation hierarchy should be reordered as item 2, item 1, item 3, and item 4.

Case 6: Ng

Katherine Ng, a Global Investment Performance Standards (GIPS) specialist, has been hired as a consultant to assist Rune Managers in becoming a GIPS-compliant firm. Rune is a global asset manager with several divisions around the world that invest in both stock and bond strategies. James Arnott, a performance specialist at Rune, is responsible for the project. In their first meeting, Ng and Arnott discuss the GIPS standards and the steps Rune will need to take to become compliant.

Ng recommends starting with the definition of the firm. She tells Arnott that how the firm is defined will affect the compliance process and that the standards recommend the firm be defined as broadly as possible. Arnott replies that Rune management has been discussing the firm definition, and they want the definition to include all Rune divisions except the European division, Rune Europe. Rune Europe has its own strategies and management team that are distinct from the rest of Rune. Ng replies that the Rune Europe division should be included in the definition of the firm because the division markets itself as part of Rune Managers.

Ng then asks about Rune's policies for the inclusion of portfolios in composites. Arnott responds that Rune has the following policies for all composites:

Policy 1: All new accounts funded with cash or securities on or before the 10th day of the month are added to the composite at the beginning of the following month. Those funded after the 10th day of the month are added at the beginning of the 2nd month after funding, or at the beginning of the calendar month after the proceeds are substantially invested in the appropriate strategy.

Policy 2: All portfolios are deemed "non-discretionary" on the date the notice of termination of the management relationship is received and removed from the composite at the end of the month of notification.

The discussion then moves on to a new composite that Rune is constructing. Arnott tells Ng that the marketing department has decided to target domestic Swiss investors and would like to carve out the Swiss portion of international and global accounts for the period of 1 January 2006 through 1 January 2011 and allocate cash to each carved-out segment to create a Swiss franc (CHF) composite. Ng responds that this new composite will comply with the standards, but Rune must disclose the percentage of composite assets that are carve-outs for each annual period end, as well as the policy used to allocate cash to the carved-out segments.

Arnott interjects that the marketing department is looking forward to claiming GIPs compliance in advertisements. He is meeting with the marketing department and asks Ng what they need to be aware of regarding the Standards in advertising. Ng responds that there are several requirements in the GIPS Advertising Guidelines; specifically, the following must be disclosed in the advertisements: the firm description, composite and benchmark descriptions,

and the number of accounts in the composite.

Arnott and Ng then move on to discuss one of Rune's GIPS-compliant performance presentations, provided in Exhibit 1.

Exhibit 1 Rune Mid-Capitalization Value Equity Composite; Benchmark: Russell Midcap Value Index

Year	Composite Gross Return (%)	Composite Net Return (%)	Benchmark Return (%)	Composite 3-Year Std. Dev. (%)	Number of Portfolios	Internal Dispersion (%)	Composite % of Firm Assets
2006	11.2	10.69	12.65		15	0.09	7.1
2007	18.92	18.68	20.22		19	0.06	7.2
2008	0.07	–0.17	–1.42		22	0.46	6.8
2009	–33.75	–33.95	–38.44		23	0.25	5.5
2010	31.44	31	34.21		26	0.95	5.9
2011	22.09	21.73	24.75	22.83	25	0.21	6.9

Rune Managers claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Rune Managers has not been independently verified.

Notes:

1. Rune Managers is an investment manager registered with the US SEC. Rune Managers has divisions in Europe, Asia, and the United States that invest in various equity and bond strategies.
2. The Rune Mid-Capitalization Equity Composite includes all institutional portfolios that invest in mid-capitalization US equities, with the goal of providing long-term capital growth and steady income from dividends by investing in low price-to-earnings, undervalued securities.
3. A complete list and description of Rune Managers' composites, as well as policies for valuing portfolios and preparing compliant presentations, are available upon request.
4. The composite was created on 30 November 2005.
5. Leverage, derivatives, and short positions are not used by this strategy.
6. Performance is expressed in US dollars. The returns include the reinvestment of all income. Gross-of-fees returns are presented before management and custodial fees but after all trading expenses. Net-of-fees returns are calculated by deducting the actual fees of the accounts from the gross composite return.
7. The management fee schedule is as follows: 0.80% on the first $10 million, 0.55% on the next $40 million, 0.40% on assets greater than $50 million.
8. This presentation is not required to conform to any laws or regulations that conflict with the GIPS standards.
9. Internal dispersion is calculated using the asset-weighted standard deviation of annual gross

returns of those portfolios that were included in the composite for the entire year.

10. The three-year annualized standard deviation measures the variability of the composite and the benchmark returns during the preceding 36-month period. The standard deviation is not presented for 2006 through 2010 because monthly composite and benchmark returns were not available, and it is not required for periods prior to 2011.

1. In their discussion of the Rune Europe division, which of the following is most likely correct?

A. Ng's analysis, because of how the division markets itself

B. Arnott's analysis, because of how the division is managed.

C. Arnott's analysis, because of how the strategies are run.

2. Which policy on the inclusion of portfolios in composites is most likely compliant with the GIPS standards?

A. Policy 1 and Policy 2

B. Policy 1

C. Policy 2

3. In the discussion of carve-outs, Ng is least likely correct in her statement regarding the:

A. Compliance of the composite.

B. Disclosure of the percentage of composite assets.

C. Disclosure of the cash allocation policy.

4. In the discussion of the GIPS Advertising Guidelines, Ng is most likely correct in her statement regarding the disclosure of:

A. Number of accounts in the composite.

B. Composite description.

C. Firm description.

5. Regarding the disclosures contained in the notes to Exhibit 1, the notes most likely required are:

A. 1, 5 and 6.

B. 6, 7 and 9.

C. 2, 7 and 8.

6. Regarding Exhibit 1, which item is least likely an error in the presentation?

A. Note 3

B. Composite percentage of firm assets

C. Three-year standard deviation

Case 7: Vision 2020（AMC）

Vision 2020 Capital Partners (V2020) has operated for the last ten years originating and brokering corporate finance deals through private placements in emerging and frontier markets. Due to the global financial crisis, investment banking deals have declined and V2020 has struggled to generate enough fees to sustain its business. The board of directors of V2020, ("the board") made up of corporate finance experts, has identified opportunities to generate a new revenue stream.

One such opportunity is the creation of a division to manage an Emerging and Frontier Market Balanced Fund ("the Fund"). The board has had several inquiries from clients asking for such a product. The board feels the Fund is an ideal business line to meet client demand and create monthly asset management fees. The board thinks the Fund should also be required to act as a buyer of last resort for all its corporate finance client's private placements. It believes this arrangement would act as a major incentive for private businesses to use their corporate finance services, thereby increasing revenues from their primary business activity.

Since none of the V2020 board members or senior managers are experienced in asset management, the board hires Lauren Akinyi, CFA, an independent consultant who works with various clients in the asset management industry. She is asked to undertake a study on an appropriate structure for the Fund to meet both corporate finance and Fund client needs. She is also asked to help V2020 set up policies and procedures for the new Fund to make certain that all capital market regulations have been followed. The board informs her that the policies and procedures should also ensure compliance with the CFA® Asset Manager Code of Professional Conduct.

Akinyi subsequently makes the following recommendations in a report to the Board concerning compliance with the CFA Asset Manager Code:

Recommendation 1: V2020 should abide by the following principles of conduct:

Principle 1: act with skill, competence, and diligence.

Principle 2: act with independence and objectivity; and

Principle 3: respond to all client inquiries.

Recommendation 2: To take advantage of their vast business experience, the board of directors should implement new policies. Specifically, the board should:

Policy 1: Take an active daily role in managing the Fund's assets.

Policy 2: Designate an existing employee as a compliance officer; and

Policy 3: Disclose any conflicts of interest arising from their business interests.

Recommendation 3: To avoid any conflicts of interest between the investment banking business and the new fund management business, a separate wholly owned subsidiary should be created to undertake the fund management business. The Fund would then provide a 100% guarantee to

buy the private placements of the corporate finance clients without having to disclose to all clients the relationship between the two entities.

Recommendation 4: To ensure timely and efficient trades in each of the markets the Fund invests in, only one stockbroker in each market should be utilized. The board should also consider buying an equity stake in each of the appointed brokers as an added profit opportunity.

After the Fund completes its first year of operations, V2020 receives a letter from its regulator. The notification imposes fines for poor disclosures to its Fund clients and mandates the replacement of the senior fund manager as a condition for the renewal of V2020's asset management license. The board challenges the ruling stating the Fund made the necessary full disclosures. Not wanting to incur expensive legal fees or waste precious time, the board, without admitting or denying fault, settles out of court paying a fine. Subsequently, the senior fund manager is terminated but receives a multi-million dollar bonus upon leaving. After the replacement of the senior fund manager, the license is renewed for a further year. The regulatory body however gives a warning that if the Fund has any future violations their license will be permanently revoked. Subsequently, the Fund discloses to its clients that the regulator has renewed its license for one year after the termination of the senior fund manager, a condition of the renewal. They also disclose the settlement out of court and the fine paid.

1. Given the board's intended purpose for starting the Fund, which of the following principles of conduct under the Asset Manager Code of Professional Conduct is *least likely* violated?

A. Act for the benefit of clients.
B. Uphold the rules governing capital markets.
C. Act in a professional and ethical manner at all times.

2. Which of the principles in Akinyi's Recommendation 1 is *least likely* sufficient to meet the principles of the Asset Manager Code?

A. Principle 1.
B. Principle 2.
C. Principle 3.

3. Which of Akinyi's policies in Recommendation 2 would *least likely* comply with the Asset Manager's Code if implemented?

A. Policy 1.
B. Policy 2.
C. Policy 3.

4. Which of the following would be *most* effective to prevent any violation of the Asset Manager Code as reflected in Akinyi's Recommendation 3?

A. "The Fund" only retains a minority shareholding in V2020.

B. "The Fund" not participate in any of V2020's private placements.

C. Disclose to all clients the relationship between V2020 and "the Fund".

5. If Recommendation 4 were to be implemented, which aspect of the Asset Manager Code would *most likely* be violated?

A. Fair dealing.

B. Best execution.

C. Priority of Transactions.

6. Does the Fund's disclosure to its clients regarding the renewal of the license *most likely* comply with the Asset Manager Code?

A. No.

B. Yes, the disclosure included the termination of the fund manager.

C. Yes, the disclosure included the out of court settlement and payment of fine.

Case 8: Access Wealth Management

Access Wealth Management (AWM) is a growing investment management firm with a core mission to provide customized investment solutions to all its clients. The firm is well-known for its advanced technology support to its customers. AWM is inclined towards hiring either CFA charterholders or candidates enrolled in the CFA Program, and it strives to gain recognition as a firm with high ethical and professional standards. Gary Kendall, CFA, is a recently hired Compliance Director, who is reviewing and updating AWM's policies and procedures. He realizes that certain client-related policies are not as stringent as the CFA Institute Code of Ethics and Standards of Professional Conduct. He feels these should be replaced with the CFA Institute Code and Standards to ensure that AWM acts in the best interest of the client and fulfills its fiduciary duty effectively.

Kendall decides to meet with all investment personnel. He first meets with the investment advisors of the firm and conducts a questions and answers session with them to ascertain their professionalism and knowledge of the Code and Standards. During the session, Kendall asks the personnel what constitutes a general ethical decision-making framework. Sheldon Cooper is an investment advisor who is registered to write the CFA Level III exam in June. Cooper explains that a general ethical framework involves the following steps:

1. To identify relevant facts, stakeholders, and duties owed to investors.
2. To consider situational influences and behavioral biases and when required seeking additional guidance from trusted sources.
3. To decide and act.
4. To provide clients with a guarantee of positive outcomes.

Kendall then asks the group, "Who do you approach for raising a concern when faced with an ethical predicament?"

Amy Prady, a senior investment advisor, responds, "We generally raise issues internally with colleagues or supervisors depending upon the problem. But all of us ensure that the firm's interests supersede those of our own in areas of regulatory consequences."

Kendall next emphasizes the importance of trust in the investment profession. He adds that it is important to develop trust because clients may not know the conflicts, risks, and fees involved, so investment professionals must fully disclose these issues to their clients. "If employers and regulators have their own standards and practices that are different from regulations set by professional bodies, how can the investment profession foster trust?" inquires Kendall. Kunal Nayyar feels that interdependency between the investment profession and the investment firms is important to promote trust.

Kendall concludes the session by asking about the biggest challenge facing the investment industry. He listens to the participants' responses and informs them of an upcoming training

session for them on the CFA Institute Code and Standards later in the week.

1. Does Cooper correctly state the steps of a general ethical framework?

A. Yes

B. No, he is incorrect regarding seeking additional guidance.

C. No, he is incorrect regarding providing a guarantee of positive outcomes.

2. Is Prady most likely correct in her response related to raising of a concern?

A. Yes.

B. No, an ethical issue should always be raised with an external mentor.

C. No, client interests should supersede firm and individual interests.

3. Regarding fostering of trust, is Nayyar most likely correct?

A. Yes.

B. No, the investment management profession must be interdependent with regulators.

C. No, the investment management profession must be interdependent with clients.

4. The greatest challenge for the investment profession most likely comes from

A. media.

B. technology.

C. globalization.

3. SS3 Behavioral Finance

Case 1: Doug Green

Doug Green is a Professor of Finance at a major university. Elizabeth Weaver is a Managing Director at Gates Investment Management. Gates focuses exclusively on high-net-worth clients with assets over $10 million dollars. Green and Weaver are panelists at an investment conference contrasting traditional finance with behavioral finance.

In Green's opening remarks, he discusses how traditional finance drives investment decision making. He explains that traditional finance is grounded in neoclassical economics and is normative, indicating how people and markets should behave. Green comments that individuals are assumed to be risk-averse, rational investors, who are self-interested utility maximizers. He concludes with the following three statements regarding traditional finance:

Statement 1 Market prices reflect all available and relevant information.

Statement 2 Investors have access to perfect information.

Statement 3 Investors process all available information based on their own experiences.

Weaver's opening remarks focus on the impact of behavioral finance on our understanding of investment decision-making. She explains behavioral finance is largely grounded in psychology and attempts to understand and explain observed investor and market behaviors. Weaver states she sees the impact of behavioral finance every day and notes individuals are neither perfectly rational nor irrational. She challenges the validity of the rational economic man (REM) on the basis that it disregards the inner conflicts that people face and the limitations of individuals in making decisions.

Green moves on to discuss Utility Theory by stating people maximize the present value of utility subject to the present value of their budget constraints. He explains utility can be thought of as the level of relative satisfaction received from the consumption of goods and services. Green adds that decision makers choose between prospects by comparing their expected utility values. He stresses it is important to remember that the determination of value is based on price. Green remarks there are four axioms of utility theory and if a decision maker satisfies the four axioms, they are said to be rational.

Weaver responds to Green's statement by remarking that behavioral finance challenges the assumptions of traditional finance. It also attempts to understand and explain actual investor and market behaviors. She explains that instead of basing its assumptions on idealized behavior, it bases them on observed behavior. She recounts an instance when an elderly client asked her to realize losses in her portfolio to offset taxable realized gains. However, the very next day the same client called her in a panic to ask why her cash balance was so high.

Weaver discusses how decisions are shaped by the decision-making process itself. She provides the following example:

"A new client is interested in becoming an antique car investor and requested I make available $200,000 from his portfolio so he could start his collection. Shortly after the money was made available, the client visited an antique car auction not far from his home. Unfortunately, the auction had a limited number of cars meeting his requirements. He was drawn to one antique car, even though it was missing several of the features he wanted. After some consideration he decided to purchase it anyway. Within an hour, his purchase was placed in storage for safekeeping."

The final topic of the day was the impact of behavioral finance on capital markets. After a rigorous debate for and against the Efficient Market Hypothesis, Green and Weaver reached the following conclusions:

Conclusion 1 Support exists for both efficient markets and anomalous markets.

Conclusion 2 By understanding investor behavior, the investment solutions that are constructed will be closer to the rational solution provided by traditional finance.

Conclusion 3 If a market is strong form efficient, sophisticated investors may be better positioned to outperform fewer savvy participants.

1. Which of Green's opening statements is least likely correct regarding traditional finance assumptions?

A. Statement 3
B. Statement 2
C. Statement 1

2. Are Weaver's criticisms concerning the rational economic man (REM) most likely correct?

A. Yes.
B. No, with regards to the inner conflicts people face.
C. No, with regards to limitations in decision-making.

3. What behavior has Weaver's elderly client most likely exhibited?

A. Emotional bias
B. Bounded Rationality
C. Cognitive error

4. What behavior did Weaver's new client most likely demonstrate when he purchased the antique car?

A. Satisficing
B. Utility maximization

C. Using heuristics

5. Which of Green and Weaver's conclusions regarding market behavior is least likely correct?

A. Conclusion 1

B. Conclusion 3

C. Conclusion 2

Case 2: Meredith Yang

Meredith Yang recently joined Philly Investment Advisors (Philly) located in downtown Philadelphia, USA. Philly is an investment advisory firm focused on managing the assets of high-net-worth individuals and small institutional clients. Derick Owen is Yang's supervisor, a member of the firm's Investment Committee, and a senior member of Philly's Client Service team. Yang will be traveling with Owen to meet with the firm's clients and when possible, she is expected to attend the firm's daily research meetings and quarterly investment meeting so that she can adequately communicate the firm's investment strategy.

Owen's next meeting is with George Bailey, an entrepreneur and self-made millionaire. Owen and Yang talk prior to the meeting and he makes the following observations: Bailey is independent, strong willed, quick to make decisions, and extremely confident. Historically his portfolio has had a high turnover rate and he has tended to chase higher risk investments. He is also very "hands on." Bailey's youngest child is expected to graduate from university in the next couple of years and he has become increasingly more emotional about his investments. Yang questions if Owen has ever considered a behaviorally modified portfolio for Bailey, even though he demonstrates some of the shortcoming of classifying investors into personality types.

Owen and Yang have lunch with Richard Sloan, a new client, to discuss his Investment Policy Statement (IPS). Upon returning to the office, Yang writes up the following notes from their meeting and include Sloan's comments regarding why he has decided to change investment advisers:

Comment 1 Previous adviser solely focused on outperforming the S&P 500.

Comment 2 Previous adviser provided a consistent approach to managing their relationship.

Comment 3 Previous adviser did not understand him or his financial objectives.

Given Sloan's comments, Yang believes incorporating behavioral finance into his IPS will help to enhance the firm's relationship with him.

Owen and Yang meet with Callie Steven, an upper-level executive with AutoPay, a small but fast growing privately held company. She has been employed with AutoPay for more than 15 years and as a result, her holdings in AutoPay are estimated to be more than 30% of her total portfolio. She believes that over the next several years AutoPay will put together an initial public offering, resulting in a huge windfall. She states that she has a significant portion of her portfolio in short-term bonds and money market funds to offset the risk of her AutoPay shares. Owen points out to Steven that her current portfolio is subject to mental accounting, is not constructed in layers, and does not take into consideration covariance between assets.

Amelia Montgomery, Philly's analyst responsible for covering the consumer discretionary sector, attended an investor briefing with the management team for Cole & Garn. Philly's investment committee is particularly interest in Cole & Garn since the stock is held in many of the

portfolios they manage. Montgomery informs the committee that company management provided a favorable summary of the previous year and offered ambitious guidance for future earnings. She reminds the group that management is susceptible to behavioral biases and that they tend to be overconfident with an inclination to overestimate the likelihood of favorable outcomes. She felt that the best way to deal with management biases was to maintain a disciplined and systematic research approach. Remembering her days as a junior analyst, Yang cautioned that discounting management's comments and guidance could be problematic and detrimental to performance.

Philly's investment committee also met with their research analyst that covers the computer hardware industry to discuss the potential purchase of LTop Computers, a leading manufacturer of personal computer and tablets. Philly's research analyst presented his investment recommendation and upgraded his rating on the stock to buy from hold given LTop's new product introductions and an improved earnings outlook. During the discussion, committee chair Jackson Burke commented that he had suffered a major loss in LTop stock in the past so he would not be able to support buying the stock regardless of the improved outlook. There was little further discussion and the remaining committee members supported Burke's view.

Over the next week, Owen and Yang are scheduled to meet with Fillman Associates, Philly's largest institutional client. Owen mentions that Fillman is more sophisticated than Philly's typical client. To prepare for the meeting Yang reviews several of Fillman's annual due diligence forms completed by Owen. One question in particular catches her attention: it asked how the firm's equity portfolios performed during the 2005–2007 residential property boom and how the equity turnover rates varied from previous years when the markets were more efficient. In part, the response read, "During the residential property boom of 2005–2007 equity trading activity was significantly higher than previous years when the markets were more efficient. Our trading expertise allowed us to consistently harvest profits."

1. Based on Owen's observations, which of the following would least likely limit the applicability of behavioral models to Bailey?

A. Displaying characteristics of multiple investor types.
B. Both cognitive and emotional biases.
C. Behavioral changes as he ages.

2. Is Owen's comment regarding Steven's current portfolio correct?

A. No, he is incorrect with regard to portfolio construction.
B. Yes.
C. No, he incorrect with regard to covariance between assets.

3. What behavioral bias most likely influenced the investment committee members to decide against the purchase of LTop stock?

A. Loss Aversion.

B. Overconfidence.

C. Social Proof.

4. What behavioral bias is most likely indicated by Philly's equity turnover rates during the 2005 – 2007 residential boom?

A. Herding.

B. Overconfidence.

C. Recency effect.

Case 3: Laura Davidson

Laura Davidson is a financial advisory partner with Emerald Private Bank (Emerald). Emerald is based in Dublin, Ireland, and manages money on behalf of high-net-worth individual investors, foundations, and endowments. Davidson works in Emerald's private wealth group (PWG). This group is tasked with meeting clients, developing financial plans, and implementing recommendations from Emerald's investment committee. The PWG meets weekly to review new client relationships and to discuss the most appropriate approach for working with each client. Emerald believes there are significant benefits to incorporating behavioral finance as part of their client assessment process and has recently made changes to this effect. During preparation for the weekly PWG meeting, Davidson reviews the financial holdings of three new clients along with their risk assessment questionnaires. Her observations are summarized in Exhibit 1.

Exhibit 1 Client Assessment Highlights

Client	Assessment Notes
Kyra Conner	Conner is a mid level executive at a publicly traded technology company. Approximately 80 percent of her defined contribution plan is invested in her own company's stock. Conner focuses on short-term performance and is not comfortable with change. Her assessment indicates she is not comfortable taking excessive risks.
Michael Donnelly	Donnelly recently sold a large publishing firm that he founded 20 years ago. Although he has substantial assets, he spends at a rate that does not appear to be sustainable. He has a very high-risk tolerance and enjoys chasing high risk investments recommended by friends. He is strong willed and questions the benefits of portfolio diversification.
Alan O'Driscoll	O'Driscoll is a retired biotechnology executive. His investment portfolio is comprised of a variety of mutual funds and stocks he has acquired over the years based on recommendations from friends and colleagues. He tends to be drawn to the latest, popular investment themes. He is indicated as a moderate risk taker.

During the meeting, fellow adviser Liam Roche makes the following observation based on the information in Exhibit 1: "Mr. Donnelly should respond favorably to education focused on how the investment program affects financial security, retirement planning, and future generations. However, Ms. Connor and Mr. O'Driscoll will respond better to education on portfolio metrics, such as the Sharpe Ratio."

Amanda Kelly is an investment strategist and a member of Emerald's investment committee. Kelly sits in on the PWG meeting to provide an update on the firm's investment themes and positioning. Emerald has developed a multi-factor macro model to forecast such variables as GDP growth and interest rate movements. At the meeting, Kelly provides detailed information about

the macro model, including many statistics on how the factors have performed using both in-sample and out-of-sample backtesting. The model appears to have had a good track record of predicting changes in the macro environment over time.

As part of her investment update, Kelly notes that the macro model predicts that interest rates in Europe are going to revert to their historical averages over the next three years and that this move will start within the next six to nine months. Davidson asks Kelly if recent unprecedented monetary policy actions by the Bank of England and European Central Bank have affected the reliability of the model. Kelly responds that because the macro model incorporates more than 100 different variables, central bank policies are accurately accounted for.

Later that day, Kelly attends Emerald's weekly investment committee meeting. Kelly brings up Davidson's concerns regarding how central bank activity may affect the accuracy of their macro model. Emerald's chief investment officer (CIO), who chairs the meeting, dismisses Davidson's concerns as uninformed. The rest of the committee members agree. The CIO then suggests updating their stock selection model to incorporate a price momentum factor. Kelly states that she is concerned that momentum will not be effective across all sectors. The CIO counters that because several behavioral biases support the persistence of price momentum, they would be foolish not to incorporate this factor. After a brief discussion, the other committee members agree with the CIO and momentum is added to the stock selection model.

Following the meeting, Kelly is frustrated and writes an email to the CIO with suggestions she believes will improve the dynamics of the investment committee in the future. Her recommendations include the following:

1. Spending more time analyzing prior committee decisions.
2. Structuring the committee to ensure a higher level of common skills and experiences.
3. Requesting stated opinions from members prior to any formal committee discussion.

1. Roche's observation regarding client education is least likely accurate for which client?

A. Kyra Conner

B. Alan O'Driscoll

C. Michael Donnelly

2. Which behavioral investor type most likely describes Michael Donnelly?

A. Independent individualist

B. Active accumulator

C. Friendly follower

3. In Kelly's response to Davidson, she is most likely exhibiting:

A. illusion of control bias.
B. gambler's fallacy.
C. self-attribution bias.

4. Which of the following biases least likely provides behavioral support for the factor being added to the stock selection model?
A. Framing
B. Availability
C. Hindsight

5. Which of Kelly's recommendations is least likely to be effective?
A. Recommendation 1
B. Recommendation 2
C. Recommendation 3

Case 4: Krista Duchene

Krista Duchene, CFA, is an investment advisor for U.S. clients. Below, she summarizes some recent conversations with her clients.

Jonathan: Jonathan faces mandatory retirement from his unionized job in five years. He has a relatively srnall portfolio and will be highly dependent on it in retirement. His only other asset will be a modest pension. He wants to avoid all international equities in his portfolio because he read in a few online news stories that many of them have performed poorly in the past year, despite having performed well for many years before that. Jonathan's portfolio consists primarily of investment grade bonds that he inherited from his father. He feels that his father was a knowledgeable investor, so it will be good to hold the bonds. Duchene plans to apply behaviorally modified asset allocation (BMAA) to Jonathan's situation.

Seth: Seth attended his bachelor party in Las Vegas last week where he gambled and lost $5,000. Afraid to come home and share the news with his future spouse, he accepted a proposal with a 50% chance of losing another $5,100 (therefore, losing $10,100 in total) or a 50% chance of winning $5,000 (therefore, losing $0 in total). Being sure his luck would turn, he won and ended up breaking even overall.

Leah: Leah played a coin tossing game with her son. They tossed a quarter 10 times and it came up heads every time. Given that the long-term mean must be 50% heads and 50% tails, Leah said that the probability oftails turning up on the 11th loss is much more likely than heads.

Micah: After careful analysis, Micah purchased 200 shares of Ruby Corp. (Ruby) several months ago at $25 per share. The share price fell shortly thereafter due to an unexpected anti -trust court ruling that increased competition in Ruby's industry. The current share price is $20 and reliable analyst reports suggest that price accurately reflects the new situation. Micah says he may consider selling his shares when the price rises above $25.

Stacey: Stacey owns 6% of the outstanding voting common stock of a private company. She is not involved in the company and has considered selling the shares in the past but has not found the time to do so. Also, because Stacey is independently wealthy, she would have no need for the funds anyways.

1. In applying BMAA to Jonathan's situation and his desire to avoid international equity and hold the bonds, the most appropriate action would be to:

A. mitigate both his requests and have him invest in international equity and sell the investment grade bonds.

B. accommodate his request to hold the investment grade bonds.

C. accommodate his request not to invest in international equities.

2. Seth's behavior in accepting the 50/50 proposal is best described as:

A. risk averse.

B. risk neutral.

C. risk seeking.

3. Leah's description ofthe coin toss is best described by which of the following cognitive errors?

A. Anchoring and adjustment bias.

B. Confirmation bias.

C. Gambler's fallacy.

4. Which bias best describes Micah's actions regarding his holdings of Ruby shares?

A. Anchoring and adjustment bias.

B. Confirmation bias.

C. Conservatism bias.

5. Which bias is Stacey most likely exhibiting?

A. Endowment bias.

B. Regret aversion bias.

C. Status quo bias.

6. Which of the following models least likely assumes that investors satisfice rather than maximize utility?

A. Behavioral asset pricing.

B. Behavioral portfolio theory.

C. Adaptive markets hypothesis.

Case 5: Arzac Wealth Management Services

Victoria Arzac recently formed Arzac Wealth Management Services, catering to high-net-worth individuals. Arzac is working with a marketing consultant to determine how she should market her firm's services. She describes her ideal clients as people who readily acknowledge their limitations regarding investments, will easily follow her advice, tend to be cautious about their investment portfolios, and are mainly concerned about conserving their capital.

In preparing for her first meeting with David Pak, a potential new client, Arzac develops a "Know Your Client" process, including the design of several tools she can use to get to know her client's investment objectives and risk profile. One of these tools is a risk tolerance questionnaire. Arzac's questionnaire contains inquiries relating to mean–variance optimization and the maximum loss the client would be willing to tolerate each year. She includes a few other questions about the client's confidence in his own abilities as an investor.

Arzac holds a meeting with David Pak, her first potential client. Arzac asks Pak to describe how he has constructed his investment portfolio over time. He informs Arzac that 12 years ago his employer offered him company shares at a discount, but share prices declined because the company was not performing as well as expected. He decided he would rather construct his investment portfolio by investing in three mutual funds he had analyzed, two of which were balanced funds and the third a global equity fund. Pak allocated one-third of his available funds to each of the mutual funds. Pak then describes how over the last five years, he has reviewed his portfolio each year, leading to a higher allocation in global securities over time on the understanding they would help reduce overall risk.

One day after the Brexit referendum, Arzac met with Pak for the annual review of his portfolio and an assessment of his earlier decision to continually add global securities to his portfolio. In the meeting, Pak tells Arzac he and his friends discussed the possible impact of Brexit on their portfolios if the UK decided to leave the EU. His friends subsequently got out of the market prior to the referendum. Pak, however, decided to stay in the market. The referendum results caused a sharp drop in security prices worldwide, causing Pak's portfolio value to decline by 20%. He now wants to sell the biggest losers so he can realign his portfolio because he thinks the market will continue to decline given the current momentum. Pak adds, "I should have known the Brexit referendum would go the way it did."

As Arzac continues to grow the firm, she starts building a research department, so the firm is less reliant on third-party research. Arzac interviews Christine Torok, who has more than 20 years of experience as an equity analyst following the banking industry. Torok considers herself to be one of the most sought-after analysts in the market, ranking in the top five analysts in the industry year after year. Her earnings forecasts have tended to be within 1% of actual results. She attributes the accuracy to her firm's overly complex forecast models, including sensitivity analysis

and the confirmation of similar information sourced from multiple databases. She is repeatedly asked to speak at investment conferences and on TV to make comments on financial securities. As part of the investment management process, Arzac requires her analysts to present their investment recommendations to a newly formed investment committee. The committee, made up of five highly experienced investment professionals with extensive personal investment portfolios, meets weekly. The committee members have diverse backgrounds and contrasting personal investment styles. The committee chair insists that no opinions should be expressed until such time as the analysts presenting have made their investment case and given their investment recommendations. The chair also mandates that all presentations be made available to the committee well in advance of each meeting. At the most recent investment committee meeting, one of Arzac's analysts, despite lacking confidence in his analysis, recommends a company he knows is held in the personal portfolios of the chair and other senior members of the committee.

1. Given Arzac's description of her ideal clients, her clients could most likely be described as which type of investor personality?

A. Celebrity
B. Individualist
C. Guardian

2. The "Know Your Client" tools Arzac develops for new clients will most likely cause an unfavorable investor–adviser relationship for which investor type?

A. Active Growth
B. Active aggressive
C. Passive moderate

3. Which behavioral factor most likely impacted Pak's decisions on how to construct his investment portfolio over time?

A. Naive diversification
B. Home bias
C. Familiar investing

4. Pak's conversation with Arzac in the annual review meeting after the Brexit referendum most likely reflects which type of bias?

A. Herding
B. Hindsight

C. Loss aversion

5. Given Torok's analysis of the banking industry, she least likely exhibited which of the following behavioral biases?

A. Self-attribution

B. Overconfidence

C. Illusion of control

6. What is the most likely criticism of Arzac's investment committee? The committee:

A. chair may dictate decisions.

B. is unlikely to reach group consensus.

C. exhibits social proof bias.

Case 6: Vito Chen

Vito Chen, works for Rocky Road Investments in New York. He works as a financial consultant and helps individuals manage their investments and savings. It is his company's policy to review the client's IPS once a year to monitor any change in risk-taking ability and willingness, the individual's circumstances, and any behavioral biases they may have. The following paragraphs detail profiles of four of his clients.

Client 1: Mrs. Wentworth

Mrs. Wentworth is retired and lives alone in New York. She has no children and donates a considerable amount of her retirement earnings to charity. During the annual meeting, Vito tried to convince her to invest in international stocks (given her high-risk ability), but Mrs. Wentworth refused. Mrs. Wentworth believes that all international stocks are risky, even though Vito has shown her several research reports stating otherwise.

Client 2: Mr. Jack Black

Mr. Jack Black belongs to a rich entrepreneurial family and has several investments in startup companies. He prides himself on knowing good investments and having a keen sense of the market.

As a result, he keeps investing in a new startup every month. When a startup succeeds, he tells all his friends about his superior investment skills, but when a startup fails, he blames it on unexpected market conditions.

Client 3: Mr. Henry Tillman

Mr. Henry Tillman is in his mid-forties and an executive in a pharmaceutical company. He started his investment in his early 20s and since then has made little change to his portfolio despite Vito's insistence. Henry's portfolio is mainly invested in pharmaceutical and oil company stocks, and he does not want to change the portfolio. He tells Vito that his parents left him this portfolio, and he will not sell it off.

Next month, Vito prepares a presentation on behavioral biases and investor types for newly hired internees at her firm. One of the internees asks a question about mental accounting bias and its consequences, which Vito then explains. Vito then moves on to explain the different investor types.

Client 4: Mrs. Sherry Xie

Mrs.Sherry Xie is 25 and married to a billionaire, she has ranked three investments and labled them as A, B, and C. She prefers investment A to investment B and investment B to investment C, but she is not able to rank investment A relative to investment C.

1. Which of the following behavioral bias is most likely demonstrated by Mrs. Wentworth?

A. Conservatism bias

B. Confirmation bias

C. Availability bias

2. Which of the following behavioral bias is *most* likely demonstrated by Jack Black?

A. Illusion of knowledge bias

B. Self-attribution bias

C. Hindsight bias

3. Which of the following bias(es) did Henry Tillman NOT demonstrate?

A. Anchoring and adjustment bias

B. Status quo bias

C. Endowment bias

4. Which of the following is not a typical consequence of mental accounting bias?

A. Allocating funds to different 'buckets'.

B. Neglecting to focus on total return and total risk.

C. A higher risk profile in the portfolio due to pursuit of higher returns.

5. Not being able to rank investment A relative to C, Sherry would most likely violate which of the four axioms of utility?

A. Continuity.

B. Independence.

C. Transitivity.

6. According to prospect theory, Sherry is more concerned with changes in wealth than in returns. Prospect theory suggests that Sherry:

A. is risk averse.

B. can be loss averse.

C. place more value on gains than on losses of equal magnitude.

4. SS4 CME

Case 1: Brian O'Reilly

Brian O'Reilly is a capital markets consultant for the Tennessee Teachers' Retirement System (TTRS). O'Reilly is meeting with the TTRS board to present his capital market expectations for the next year.

Board member Arnold Brown asks O'Reilly about the use of high-frequency (daily) data in developing capital market expectations. O'Reilly answers:

"Sometimes it is necessary to use daily data to obtain a data series of the desired length. High-frequency data are more sensitive to asynchronism across variables and, as a result, tend to produce higher correlation estimates."

Board member Harold Melson noted he recently read an article on psychological traps related to making accurate and unbiased forecasts. He asks O'Reilly to inform the board about the anchoring trap and the confirming evidence trap. O'Reilly offers the following explanation:

"The anchoring trap is the tendency for forecasts to be overly influenced by the memory of catastrophic or dramatic past events that are anchored in a person's memory. The confirming evidence trap is the bias that leads individuals to give greater weight to information that supports a preferred viewpoint than to evidence that contradicts it."

The board asks O'Reilly about using a multifactor model to estimate asset returns and covariances among asset returns. O'Reilly presented the factor covariance matrix for global equity and global bonds shown in Exhibit 1 and market factor sensitivities and residual risk shown in Exhibit 2.

Exhibit 1 Factor Covariance Matrix

	Global Equity	**Global Bonds**
Global Equity	0.0225	0.0022
Global Bonds	0.0022	0.0025

Exhibit 2 Market Factor Sensitivities and Residual Risk

	Sensitivities		
	Global Equity	Global Bonds	Residual Risk
Market 1	1.20	0	12.0%
Market 2	0.90	0	7.0%
Market 3	0	0.95	1.8%

Finally, the board asks about forecasting expected returns for major markets given that price earnings ratios are not constant over time and that many companies are repurchasing shares instead of increasing cash dividends. O'Reilly responds that the Grinold-Kroner model accounts for those factors and then makes the following forecasts for the European equity market:

- Dividend yield will be 1.95%
- Shares outstanding will decline 1.00%
- Long-term inflation rate will be 1.75% per year
- An expansion rate for P/E multiples of 0.15% per year
- Long-term corporate real earnings growth at 3.5% per year

1. With respect to his answer to Brown's question, O'Reilly most likely is:

A. Correct.

B. Incorrect, because high-frequency data are less sensitive to asynchronism.

C. Incorrect, because high-frequency data tend to produce lower correlation estimates.

2. Is O'Reilly's explanation of the anchoring trap most likely correct?

A. Yes.

B. No, because the anchoring trap is the tendency to temper forecasts so that they do not appear extreme.

C. No, because the anchoring trap is the tendency for the mind to give a disproportionate weight to the first information it receives on a topic.

3. Given the data in Exhibits 1 and 2, the covariance between Market 1 and Market 2 is closest to:

A. 0.0017.

B. 0.0225.

C. 0.0243.

4. Given O'Reilly's forecasts for the European market, the expected long-term equity return using the Grinold-Kroner model is closest to:

A. 6.35%.

B. 7.35%.

C. 8.35%.

Case 2: Rogers

Ted Rogers is the director of a research team that analyzes traditional and nontraditional sources of energy for investment purposes. For traditional energy sources, several high-frequency historical data series are available. For nontraditional energy sources, the data are generally quarterly and tend to hide a great deal of the volatility that Rogers knows to exist because appraised values are used instead of market values. To supplement the quarterly data, Rogers' team uses an index of the top 30 firms in new and experimental technologies called the NEXT Index. While not all the firms in the NEXT are energy firms, the index is available as a weekly series. However, the NEXT does change its composite mix of firms frequently as firms in the index fail or are sold to larger firms that are not in the index.

To determine the correlation matrix within the different energy sectors, Rogers' team relies on a weighted average of correlations derived from multifactor models and historical correlations. Although the combined experience within the team favors emphasizing the correlations derived from the multifactor models, historical correlations are given a greater weight within the weighted average calculations to lower the future expected performance estimates of different investment models being considered. This practice of purposefully understating the expected future performance of these investment models is viewed as a safety measure by the team and to manage client expectations.

In a recent meeting, the team discussed how using the last two years of historical data for oil-related industries generated relationships between factors that had not existed in the past. One member of the team, Steve Phillips, stated:

The relationships reflect the fact that hurricane activity in the last two years has impacted oil concerns worldwide. There is no reason to believe that such relationships will continue in the future.

1. The data available for non-traditional energy sources are best described as data with:

A. Smoothing.

B. A time-period bias.

C. A survivorship bias.

2. The NEXT Index data most likely reflect:

A. Survivorship bias.

B. Transcription errors.

C. Volatility clustering.

3. The approach taken by Rogers' team to calculate the correlation matrix is best described as

which type of estimator?

A. Historical
B. Shrinkage
C. Time-series

4. Which of the following psychological traps best describes the Rogers team's decision to give historical correlation more weight in the correlation matrix?

A. Prudence trap
B. Anchoring trap
C. Overconfidence trap

5. Which of the following types of biases best describes Steve Phillips' statement about oil-related industry data?

A. Data mining
B. Time-period
C. Survivorship

Case 3: Minglu Li

REDD Partners specializes in forecasting and consulting in particular sectors of the equity market. Minglu Li is an analyst for REDD Partners who specializes in the consumer credit industry.

A new consumer credit mechanism was being tested on a small scale using a "smart phone" application to pay for items instead of the traditional credit card. The application had proved successful in the use of microloans in developing countries and was now being applied to a much broader consumer base. The new challenge for Li's team is to develop a model for the expected return for these new consumer credit companies, called "smart credit" companies, that combine the consumer credit industry and what traditionally was considered the telecommunications industry.

Although smart credit company returns data are sparse, a five-year monthly equally weighted index called the Smart Credit Index (SCI) was created from the existing companies' returns data. The number of companies in the index at a given time varies because of firms failing and also combining through time.

Li's team also examined survey data within the consumer credit and telecommunications industries during the same time for which the actual data was collected. They found that projections in the surveys of the CCI and TELI tended to be more volatile than the actual data. Li's team has decided not to make any adjustments, however, because a definitive procedure could not be determined.

Given the effect of short-term interest rates on consumer credit, Li's team then decides to determine where the short-term interest rate is expected to be in the future. The Central Bank recently issued a statement that 2.5% appeared to be the appropriate rate assuming no other factors. Li's team then considers potential factors that may make the Central Bank behave differently from the 2.5% rate in the statement (see Exhibit 1).

Exhibit 1 Central Bank Factors	
GDP growth forecast	2.0%
GDP growth trend	1.0%
Inflation forecast	1.5%
Inflation target	3.5%
Earnings growth forecast	4.0%
Earnings growth trend	2.0%

Based on Taylor's rule with an assumption of equal weights applied to forecast versus trend measures, the short-term rate is expected to increase from the current 1.23% and the yield curve is expected to flatten.

For further insight, Li decides to consult an in-house expert on central banking, Randy Tolliver. Tolliver states that a flat yield curve is consistent with tight monetary and tight fiscal policies.

1. The SCI data most likely exhibits which type of bias?

A. Time period

B. Data mining

C. Survivorship

2. A comparison between the survey data containing projections of the CCI and TELI and the actual CCI and TELI most likely exhibits:

A. A status quo traps.

B. A recallability trap.

C. Ex post risk being a biased measure of ex ante risk.

3. Based on how the Taylor rule is applied by Li's team, the Central Bank's optimal short-term rate is closest to:

A. 1.5%.

B. 2.0%.

C. 2.8%.

4. Tolliver's statement regarding the yield curve is most likely:

A. Correct.

B. Incorrect about fiscal policy.

C. Incorrect about monetary policy.

Case 4: Ptolemy

The Ptolemy Foundation was established to provide financial assistance for education in the field of astronomy. Tom Fiske, the foundation's chief investment officer, and his staff of three analysts use a top-down process that begins with an economic forecast, assignment of asset class weights, and selection of appropriate index funds. The team meets once a week to discuss a variety of topics ranging from economic modeling, economic outlook, portfolio performance, and investment opportunities, including those in emerging markets.

At the start of the meeting, Fiske asks the analysts, Len Tuoc, Kim Spenser, and Pier Poulsen, to describe and justify their different approaches to economic forecasting. They reply as follows.

Tuoc: I prefer econometric modeling. Robust models built with detailed regression analysis can help predict recessions well because the established relationships among the variables seldom change.

Spenser: I like the economic indicators approach. For example, the composite of leading economic indicators is based on an analysis of its forecasting usefulness in past cycles. They are intuitive, simple to construct, require only a limited number of variables, and third-party versions are also available.

Poulsen: The checklist approach is my choice. This straightforward approach considers the widest range of data. Using simple statistical method, such as time-series analysis, an analyst can quickly assess which measures are extreme. This approach relies less on subjectivity and is less time-consuming."

Upon a review of the portfolio and his discussion with the investment team, Fiske determines a need to increase US large-cap equities. He prefers to forecast the average annual return for US large-cap equities over the next 10 years using the Grinold–Kroner model and the data in Exhibit 1.

Exhibit 1 Current and Expected Market Statistics, US Large-Cap Equities			
Expected dividend yield	2.10%	Expected inflation rate	2.30%
Expected repurchase yield	1.00%	Current P/E	15.6
Expected real earnings growth	2.60%	Expected P/E 10 years prior	15

The analysts think that adding to US Treasuries would fit portfolio objectives, but they are concerned that the US Federal Reserve Board is likely to raise the fed funds rate soon. They assemble the data in Exhibit 2 to use the Taylor rule (giving equal weights to inflation and output gaps) to help predict the Fed's next move with respect to interest rates.

Exhibit 2 Current Data and Forecasts from the Fed		
Statistic	**Status**	**Value (%)**
Fed funds rate	Current	3
	Neutral	2.5

GDP growth rate	Trend	4.5
	Forecast	3
Inflation	Target	2.5
	Forecast	3.2

To assess the attractiveness of emerging market equities, Fiske suggests that they use the data in Exhibit 3 and determine the expected return of small-cap emerging market equities using the Singer–Terhaar approach.

Exhibit 3 Data for Analyzing Emerging Markets

Asset Class	Standard Deviation	Correlation with GIM	Degree of Integration with GIM
Emerging small-cap equity	23%	0.85	65%
Global investable market (GIM)	7.00%		
Additional information			
Risk-free rate: 2.5%		Illiquidity premium: 60 bps	
Sharpe ratio for GIM and emerging small-cap equity: 0.31			

Finally, after examining data pertaining to the European equity markets, the investment team believes that there are attractive investment opportunities in selected countries. Specifically, they compare the recent economic data with long-term average trends in three different countries, shown in Exhibit 4.

Exhibit 4 Relationship of Current Economic Data to Historical Trends: Selected European Countries

	Ireland	Spain	Hungary
Production	Above trend, declining	Well above trend	Below trend, rising
Inflation	Above trend, declining	Average, rising	Below trend, stable
Capacity utilization	Above trend	Average, rising	Below trend
Confidence	Average, declining	Well above trend	Below trend, rising
Fiscal/monetary policies	Cautionary	Restrictive	Stimulatory

1. Regarding the approaches to economic forecasting, the statement by which analyst is most accurate?

A. Poulsen

B. Tuoc

C. Spenser

2. Using the data in Exhibit 1 and Fiske's preferred approach, the estimated expected annual return for US large-cap equities over the next 10 years is closest to:

A. 7.9%.

B. 7.6%.

C. 7.4%.

3. Using the data in Exhibit 2 and the investment team's approach to predict the Fed's next move, the new fed funds rate will most likely be:

A. 2.9%.

B. 2.1%.

C. 2.6%.

4. Using the data in Exhibit 3 and Fiske's suggested approach, the forecast of the expected return for small-cap emerging market equities is closest to:

A. 9.5%.

B. 8.9%.

C. 9.9%.

5. Among the three countries examined by the investment team, which is in the most attractive phase of the business cycle for equity returns?

A. Hungary

B. Ireland

C. Spain

Case 5: CME

The United States–based CME Foundation serves a wide variety of human interest causes in rural areas of the country. The fund's investment policy statement sets forth allocation ranges for major asset classes, including U.S. large, mid-, and small-cap stocks, international equities, and domestic and international bonds.

When revising its outlook for the capital markets, CME typically applies data from GloboStats Research on the global investable market (GIM) and major asset classes to produce long-term estimates for risk premiums, expected return, and risk measurements. Although they have worked with GloboStats for many years, CME is evaluating the services of RiteVal, a competing research firm, via a trial offer. Unlike the equilibrium modeling approach applied to GloboStats's data, RiteVal prefers to use a multifactor modeling approach. Both research firms also provide short- and long-term economic analysis.

CME has asked Pauline Cortez, chief investment officer, to analyze the benefit of adding U.S. real estate equities as a permanent asset class. To determine the appropriate risk premium and expected return for this new asset class, Cortez needs to determine the appropriate risk factor to apply to the international capital asset pricing model (ICAPM). Selected data from GloboStats is shown in Exhibit 1.

Exhibit 1 Selected Data from GloboStats

Asset Class	Standard Deviation	Covariance with GIM	Integration with GIM	Sharpe Ratio
U.S. real estate	14.0%	0.0075	0.60	n/a
Global investable market				0.36
Additional Information				
Risk-free rate: 3.1%		Expected return for the GIM: 7.2%		

Cortez's colleague Jason Grey notes that U.S. real estate is a partially segmented market. For this reason, Grey recommends using the Singer–Terhaar approach to the ICAPM and assumes a correlation of 0.39 between U.S. real estate and the GIM.

Cortez reviews RiteVal data (Exhibit 2) and preferred two-factor model with global equity and global bonds as the two common drivers of return for all other asset classes.

Exhibit 2 Selected Data from RiteVal

	Factor Sensitivities		
Asset Class	Global Equity	Global Bonds	Residual Risk (%)
U.S. real estate equities	0.60	0.15	4.4
Global timber equities	0.45	0.20	3.9
Additional Information			
Variances	0.025	0.0014	

Correlation between global equities and global bonds: 0.33

Grey makes the following observations about the two different approaches the research firms use to create their respective covariance matrices:

- GloboStats uses a historical sample to estimate covariances, whereas.
- RiteVal uses a target covariance matrix by relating asset class returns to a particular set of return drivers.

Grey recommends choosing the GloboStats approach.

Cortez states: I disagree. We will use the results of both firms by calculating a weighted average for each covariance estimate.

Grey finds that RiteVal's economic commentary reveals a non-consensus view on inflation. Specifically, they believe that a near-term period of deflation will surprise many investors but that the current central bank policy will eventually result in a return to an equilibrium expected level of inflation.

Grey states: If RiteVal is correct, in the near-term our income producing assets, such as Treasury bonds and real estate, should do well because of the unexpected improvement in purchasing power. When inflation returns to the expected level, our equities are likely to perform well.

Cortez points out that RiteVal uses an econometrics approach to economic analysis, whereas GloboStats prefers a leading indicator–based approach. Cortez and Grey discuss these approaches at length.

Cortez comments: The big disadvantage to the leading indicator approach is that it has not historically worked because relationships between inputs are not static. One major advantage to the econometric approach is quantitative estimates of the effects on the economy of changes in exogenous variables."

1. Using the data provided in Exhibit 1 and assuming perfect markets, the calculated beta for U.S. real estate is closest to:

A. 1.08.
B. 0.38.
C. 0.58.

2. Using the data provided in Exhibit 1 and Grey's recommended approach and assumed correlation, the expected return for U.S. real estate is closest to:

A. 6.3%.
B. 6.9%.
C. 4.3%.

3. Using the multifactor model preferred by RiteVal and Exhibit 2, the standard deviation of U.S. real estate is closest to:

A. 24.5%.

B. 21.0%.

C. 23.1%.

4. Cortez's statement to use the work of both firms to determine a covariance estimate is most likely an example of:

A. A prudence trap.

B. A shrinkage estimate.

C. Nonstationarity.

5. Grey's statement regarding the impact of RiteVal's inflation scenario is most likely:

A. Incorrect because of his comment about real estate.

B. Incorrect because of his comment about equities.

C. Correct.

6. Cortez's comment regarding the two different approaches to economic analysis is most likely:

A. Incorrect because of the statement regarding leading indicators.

B. Correct.

C. Incorrect because of the statement regarding econometrics.

Case 6: Culpepper

Alexandra Sorenson has been made an investment strategist at Culpepper Investment Management (Culpepper) after working as a senior investment analyst the past several years. Sorenson has covered US equities throughout her career and has only limited knowledge of international capital markets. She is reviewing the economic and capital markets forecast report recently prepared by Culpepper's economist as she evaluates the holdings in the firm's investment portfolio.

Sorenson discusses the valuation of the EuroCountryX Stock Index with Stefan Dreschler, a fellow investment strategist. The Index comprises mature, large-cap common equities. Sorenson plans to use the Cobb–Douglas model, assuming constant returns to scale, to estimate the country's GDP growth. Given the mature nature of the economy and the market index, growth in both inflation-adjusted earnings and dividends is expected to equal real GDP growth. The current year annual dividend of the EuroCountryX Stock Index is €133.

Sorenson assumes that a 6.0% discount rate is appropriate for the foreseeable future and calculates the fair value of the Index on 31 December.

Sorenson comments to Dreschler:

"I see that at the end of December this year, the index was trading nearly 20% above its level a year ago. What do you think may have caused the price gain?"

The two continue discussing what changes Sorenson might face in her new position. She asks Dreschler:

"What challenges do we face when using discounted dividend models and macroeconomic forecasts to estimate the intrinsic value of an equity market in a developing country?"

Dreschler responds by making several points:

- Discount rates are relatively easy to estimate, whereas growth rates are difficult to estimate.
- Corporate profit trends should be relatively consistent with the overall growth of the country's GDP.
- Gathering accurate and consistent economic data could be a challenge.

As an investment analyst, Sorenson is experienced with bottom-up analysis but realizes that top-down analysis will now be important. She asks Dreschler what they should consider when comparing the two approaches. Dreschler makes the following points:

- Top-down analysis can be slower than bottom-up analysis in detecting cyclical turns.
- Top-down estimates coming out of a recession may be less optimistic than bottom-up estimates.
- We should expect to get the same results regardless of which method we use.

1. Dreschler's most appropriate response to Sorenson's question about the change in value of the EuroCountry X Index is that there was a decrease in the:

A. Long-term, real dividend growth rate.
B. Discount rate over the period.
C. Dividends paid.

2. Which of Dreschler's responses to Sorenson's question about the challenges to equity market valuation is most accurate? His response concerning:

A. The gathering of economic data.
B. Discount rates and growth rates.
C. Corporate profit and GDP growth.

3. Which of Dreschler's points comparing top-down analysis and bottom-up analysis is the most accurate? His point regarding:

A. Estimates coming out of a recession.
B. Consistency of the results.
C. Detecting cyclical turns.

Case 7: Olli Nava Scenario

Olli Nava is a junior economist for Globofunds Asset Management, a large investment management company. She has been asked to produce capital market expectations for asset classes in several different markets relevant to the Diversified Absolute Return Strategies Fund (DARS), the company's largest fund.

Nava is aware that long-term GDP trend forecasting is considered the starting point to form capital market expectations at Globofunds, but she is unsure why this is the case. She asks a colleague, Jedd Wiggins to explain why long-term trend GDP growth is considered so important when forecasting asset class returns. Wiggins makes the following two statements.

- **Statement 1**: There is both theoretical and empirical support for the case that the average level of real government bond yields is causally linked to the trend rate of growth in the economy.
- **Statement 2**: Over the long run, the total return of an equity market is causally linked to the growth rate of GDP.

To make a forecast of trend GDP growth in the domestic economy, Nava collates the following Globofunds data displayed in Figure 1.

Figure 1: Information on Domestic Economy	
Annual labor input growth	0.8%
Annual labor productivity growth	1.2%
Annual inflation	2.5%
Dividend yield	3.0%
Long-term change in profits as a share of GDP	0%
Long-term change in PE multiples	0%

Nava has the view that increased levels of globalization will lead to the current account playing a larger role in growth rate of economies. She considers the macroeconomic linkages between the three main economies which the fund is exposed to. Macroeconomic data relating to these economies is displayed in Figure 2.

Figure 2: Macroeconomic Data Relating to Three Economies				
Economy	Savings	Investment	Taxation	Government Spending
1	Increasing	Decreasing	Increasing	Decreasing
2	Decreasing	Increasing	Decreasing	Increasing
3	Increasing	Increasing	Increasing	Increasing

Nava also considers the movement in foreign exchange to be a key determinant of the medium-term performance of DARS. She considers the macroeconomic policy of the three main developing markets which the fund is exposed to and collates the data as shown in Figure 3.

Figure 3: Macroeconomic Data Relating to Three Developing Markets

Developing Market	Capital Flows	Exchange Rate
A	Restricted	Fixed
B	Unrestricted	Fixed
C	Unrestricted	Floating

Nava attempts to forecast the likely foreign exchange rate movements that will affect the fund. She notes that the largest foreign currency exposure is in Country X. The current spot rate of the domestic currency of the fund (DOM) versus the foreign currency of Country X (FOR) is DOM/FOR = 1.3020. Data related to the expected returns in the domestic and foreign markets is displayed below in Figure 4.

Figure 4: Expected Returns in Domestic Markets and Foreign Country X		
Return	Domestic	Country X
Short-term interest rates	0.75%	1.25%
Term premium	0.00%	0.50%
Credit premium	1.10%	0.60%
Equity premium	3.00%	4.00%
Liquidity premium	0.00%	0.00%

Nava also considers purchasing power parity as a tool for long-term foreign exchange rate forecasting. She notes that expected inflation in the domestic country is higher than the expected inflation in Country X.

1. How many of the statements made by Wiggins are accurate?

A. Zero.

B. One.

C. Two.

2. Based on the data in Figure 1, the projected long-term domestic market equity return is closest to:

A. 4.5%.

B. 5.0%.

C. 7.5%.

3. Based on the information in Figure 3, the market that is least likely to be able to pursue an independent monetary policy is developing:

A. Market A.

B. Market B.

C. Market C.

4. Based in the data in Figure 4, the forecast one-year DOM/FOR foreign exchange rate, based on capital flows using the Dornbusch overshooting, is closest to:

A. 1.2825.

B. 1.2889.

C. 1.3215.

5. Based on purchasing power parity, Nava should forecast that, relative to the current spot rate, the DOM/FOR exchange rate is forecast to:

A. fall.

B. rise.

C. remain unchanged.

Case 8: Earl Warren

Earl Warren is an investment strategist who develops capital market expectations for an investment firm that invests across asset classes and global markets. Warren's approach to economic forecasting utilizes a structural model in conjunction with a diffusion index to determine the current phase of a country's business cycle. Warren also determines whether any adjustments need to be made to his initial estimates of the respective aggregate economic growth trends based on historical rates of growth for Countries A and B (both developed markets) and Country C (a developing market). Exhibit 1 summarizes Warren's predictions:

Exhibit 1 Prediction for Current Phase of the Business Cycle		
Country A	Country B	Country C
Initial Recovery	Contraction	Late Expansion

Warren then discusses various risks of investing in emerging market equities and states that "We try to identify the forces that will likely exert the most powerful influences and assess their relative strength before investing in that market." The following economic indicators of India from CEIC database to explain the impact of various factors on exchange rates:

Exhibit 2 Economic Indicators of India (fiscal year starting in April)						
	2015	2016	2017	2018	2019	2020
Real GDP rate %	8.2	7.1	6.7	7.2	7.0	7.2
CPI %	4.9	4.5	3.6	4.5	4.0	4.5
Fiscal deficit % of GDP	3.9	3.5	3.5	3.4	3.3	3.2
Current account deficit % of GDP	1.1	0.6	1.9	2.3	3.1	2.9
RBI repo rate % end-of-period	6.75	6.25	6.00	6.25	6.00	6.00
INR per USD end-of-period	66.33	64.84	65.18	70.80	69.00	65.00

After the discussion, Warren makes a professional explanation of the impact of monetary and fiscal policies on the yield curve. With regard to their combining impact on the yield curve and the economic environment, he made the following statements:

Statement 1: If monetary policy is expansionary and fiscal policy is restrictive, the yield curve is moderately steep and the economic implications are less clear.

Statement 2: If both monetary and fiscal policies are expansionary, the yield curve is steep and the economy will likely expand.

Statement 3: If monetary policy is restrictive and fiscal policy is expansionary, the yield curve is moderately inverted and the economic implications are less clear.

Warren is considering adding three new securities to his internationally focused fixed income portfolio. He has gathered the following information:

Exhibit 3 Fixed income securities return forecast related information

Risk free interest rate (1-year, incorporating 2.6% inflation expectation)	2.5%
Term premium (10-year vs. 1-year government bond)	1%
10-year BBB credit premium (over 10-year government bond)	85bp
Estimated liquidity premium on 10-year corporate bonds	65bp

Warren seeks to establish expectations for rate of return for properties in the industrial sector over the next year. He has obtained the following information:

Exhibit 4 Real estate return forecast information	
Current industrial sector capitalization rate ("cap" rate)	4.6%
Expected cap rate at the end of the period	4.45%
NOI growth rate (nominal)	2.5%

1. Warren is most likely to make significant adjustments to her estimate of the future growth trend for which of the following countries?

A. Country B only.

B. Country C only.

C. Countries B and C.

2. Based on Exhibit 1, what capital market effect is Country C most likely to experience in the short-term?

A. Unemployment starts to fall but the output gap remains negative.

B. Monetary policy becomes restrictive.

C. The output gap is large.

3. What is the likely short-term impact of capital flows on the exchange rate? The exchange rate $S_{d/f}$ (INR is the domestic currency) will most likely:

A. rise.

B. fall.

C. remain unchanged.

4. Which of Warren's statements with respect to the impact of monetary and fiscal policies on the yield curve is least likely correct?

A. Statement 1.

B. Statement 2.

C. Statement 3.

5. Based on the Exhibit 3, using the risk premium approach to calculate the expected return of 10-year BBB rated corporate bond:

A. 2.5%.

B. 3.5%.

C. 5.0%.

6. Based on the Exhibit 4, estimate the expected return from the industrial sector properties:

A. 4.6%.

B. 7.1%.

C. 10.36%.

5. SS5 Asset Allocation

Case 1: Windsong

Eunice Fox is head of Strategic Asset Allocation at Windsong Wealth Management, Inc. (WWM). WWM's clients include pension funds, foundations, sovereign funds, high-net-worth individuals, and family trusts. Fox is in the process of hiring an asset allocation analyst and has just completed interviewing two candidates, Ambrose Kelly and Catherine Trainor, for the position. The interviews were directed around the case study of Jane Lennon, a fictitious client, described in Exhibit 1. Fox reviews her interview notes.

Exhibit 1 Case Study of Jane Lennon	
Name	Jane Lennon
Occupation and Family Structure	She is the morning news anchor for a national broadcasting company, where she has worked for the past 20 years. She is 56 years of age, divorced, and the sole supporter of her two children, Everett, aged 18, and Marshall, aged 14. Marshall suffers from severe medical and developmental issues.
Current and Expected Future Employment Income	She currently earns $1 million per year as a broadcaster. She plans on retiring in four years. With typical raises in her industry, she estimates that the present value of her pre-retirement income is $4.5 million.
Financial Assets and Liabilities	She has an investment portfolio worth $8 million, which consists of 30% equities and the remainder in fixed-income securities. She also owns $1 million in shares of the broadcasting company she works for, but she is restricted from selling them for two more years. Her primary residence carries no mortgage and was recently valued at $2 million. She also owns a vacation property worth $3 million, with an outstanding mortgage of $1 million. Her defined-contribution pension plan has vested and is valued at $2.5 million.
Aspirational Goals and Extended Liabilities	Everett is just beginning university and plans to pursue a medical degree. Lennon plans on paying for his entire education and living expenses as well as providing some assistance in funding his future practice. She believes that these goals will be covered with $1.5 million in present value terms. She has begun the process of setting up a special needs trust to provide lifetime benefits for Marshall that will not interfere with the government benefits that he is eligible to receive. It will be funded with $2 million within the year. She recently received an honorary doctorate from her alma mater and has started the process of endowing a chair in its communications department. She anticipates that the funding will be made available to the university in two years; it has a present value of $1.75 million. The present value of future consumption is estimated to be $9 million.

Risk Tolerance	In the past, she has had a tendency to sell winning investments to avoid the risk of giving back gains. She also has had a tendency to retain losing investments even when there is little chance of them recovering in value.

Fox told the candidates to assume that Lennon would use sub-portfolios to achieve her aspirational goals and asked them to identify which of the sub-portfolios is in the best position to tolerate the greatest risk exposure.

In reviewing Lennon's risk tolerance, Fox pointed out that Lennon's prior investment experience clearly indicates some behavioral biases that would influence her reaction to any asset allocation proposals.

Fox reminded the candidates that in addition to high-net-worth individuals, the firm's client base also includes various institutional investors. The candidates made the following statements:

Trainor: A goals-based approach to asset allocation is appropriate for individual investors, but institutions need to focus either on the asset or liability side of the balance sheet, depending on the nature of their business.

Kelly: A typical objective of some institutions is to maximize their Sharpe ratio for an acceptable level of volatility, and they rely on the law of large numbers to assist them in modeling their liabilities. Other institutions behave much like individuals by segmenting general account assets into sub-portfolios associated with specific lines of business with their individual return objectives.

Fox mentioned to the candidates that when dealing with strategic asset allocation, investors often had difficulty understanding the relevant characteristics of asset classes. They responded:

Kelly: I like to stress to clients that asset classes should have high within-group correlations but low correlations with other classes. In addition, because investors need to rebalance to a strategic asset allocation, asset classes need to have both sufficient liquidity and low transaction costs.

Trainor: It is important that asset classes should be diversifying. I always look for low pairwise correlations with other asset classes.

Other general comments were noted about asset classes, but Fox could not recall their sources:

- Emerging market equities should not be considered a separate asset class from global equities.
- Asset classes differ from strategies in offering a non-skill-based ex ante expected return premium.
- Asset classes should be defined in such a way that there is no overlap in sources of risk.

1. Based on the information in Exhibit 1, Lennon's economic net worth (in $ millions) is closest to:

A. 4.75.
B. 5.75.
C. 1.25.

2. Which of the sub-portfolios dedicated to Lennon's aspirational goals is in the best position to tolerate the greatest risk exposure? The one dedicated to:
A. Everett's education
B. Marshall's trust
C. University endowment

3. The behavioral bias that Lennon's past investment experience illustrates is best described as:
A. self-control bias.
B. mental accounting bias.
C. loss-aversion bias.

4. The most appropriate statement in regards to approaches to asset allocation by institutions is made by:
A. Kelly, regarding their goals-based allocations.
B. Trainor.
C. Kelly, regarding the Sharpe ratio and modeling of liabilities.

5. In the candidates' responses to Fox regarding the relevant characteristics of asset classes, the statement that is least accurate is:
A. Kelly's regarding correlations.
B. Trainor's.
C. Kelly's regarding rebalancing.

6. In the general comments about asset classes that Fox noted, the most accurate comment is the one regarding:
A. the overlap of sources of risk.
B. emerging markets.
C. the return premiums from asset classes.

Case 2: Noir Rashwan

The Azur fund is a sovereign wealth fund valued at USD792 billion located in the country of Azurbikan. Azurbikan is a member of OPEC petroleum exporting countries with the main funding source of the fund being oil exports.

Noir Rashwan, CFA, is the managing director ofthe fund and is currently meeting with the board of directors of the fund, consisting of representatives from various goverment departments, business leaders, and other stakeholders. Her agenda is to discuss concerns regarding low oil prices and how that affects the country's wealth in its concentrated position in oil, a proposed change to the fund's strategic asset allocation to increase the overall return of the fund in response to the low price of oil, and divestiture of some real estate assets to capture gains. Rashwan first presents the current and proposed asset allocations shown below.

	Current Asset Allocation	Proposed asset Allocation
Cash		4%
Domestic government bonds	20%	1%
Domestic corporate bonds	10%	2%
Global bonds	10%	2%
Domestic equity	35%	9%
Global equities	10%	12%
Real estate	15%	10%
Infrastructure		10%
Hedge funds		17%
Private equity		33%

She explains to the board of directors that since the fund has low liquidity needs the proposed strategic asset allocation will allow the skilled submanagers to add value through active management of the non-traditional assets.

In 2008, many of the fund's foreign investments that were purchased at the peak of the real estate market lost substantial amounts of value. Some of those real estate values have since rebounded and are currently above the purchase price. Rashwan proposes to sell the fund's USD 100 million stake in a hotel located in the United States in South Beach Miami. Zein Minkara, president of a major pharmaceutical company, states, "We should sell now to lock in the gains, avoiding the substantial and painfullosses that many of our real estate holdings experienced during the last global recession." The hotel property value has a pre-tax standard deviation of 13% and would be subject to a 20% capital gains tax.

Regarding the low price of oil, Jamal Zayat, Sultan of Azurbikan, states, "Since we're part of OPEC, a consortium of oil exporting nations, we should agree to restrict the world supply of oil,

thus propping up its price as we've been able to do in the past." Siham Atallah, chairman of the central bank of Azurbikan, discusses changes in the economic environment of oil production putting downward pressure on oil prices. These changes include reduced demand in gasoline through greater fuel-efficient cars, weak economies of Europe and developing countries, and the development of new technologies allowing countries to extract oil and natural gas from areas that were once unprofitable.

Atallah ends with a summary of short-term capital market expectations:

- "Overall global GDP is expected to grow at a moderate pace,
- the yield curve is expected to flatten with shor-term rates increasing while long-term rates remain steady,
- yield spreads are exceedingly high, and
- global real estate values are showing signs of overvaluation in some markets."

1. Which of the following statements regarding the proposed change in strategic asset allocation for the Azur fund is least accurate?

A. Due to the large size of the fund, it may not be possible to find enough alternative investments to meet the proposed strategic asset allocation.

B. The percent allocated to alternative investments is acceptable given the low liquidity needs, long time horizon, and desire for increased return.

C. The proposed asset allocation is too heavily weighted towards non-traditional assets with not enough exposure towards more traditional bond and equity investments.

2. The behavioral bias displayed by Minkara, the president of the pharmaceutical company, is most likely described as:

A. recency bias.

B. loss aversion.

C. mental accounting.

3. The after-tax standard deviation on the sale of the USD 100 million stake in the hotel is closest to:

A. 10.4%.

B. 13.6%.

C. 16.3%.

4. After implementing the new strategic asset allocation, the pre-tax rebalancing range for real estate is now 5% to 15%. The after-tax rebalancing range for the sovereign wealth fund's

allocation to real estate is closest to:

A. 7.25% to 12.75%.

B. 5.00% to 15.00%.

C. 3.75% to 16.25%.

5. The statements made by the Sultan regarding reducing the supply of oil reflect which behavioral bias?

A. Framing.

B. Home bias.

C. Illusion of control.

6. Based on the short-term capital market expectations, which of the following tactical asset allocations would least likely be implemented?

A. Increase high yield bonds and reduce real estate.

B. Decrease long-term bonds and reduce real estate.

C. Increase equities and increase corporate bonds.

Case 3: Angelica Mukasa

Angelica Mukasa was recently hired as the CFO of Channel, a leading property and casualty insurer based in a developed European country. Channel is financially strong, and the industry outlook is stable. Channel's profitability is high, primarily driven by robust underwriting results and favorable investment returns on its large reserve of assets.

Channel's investment group is focused on matching premium reserve assets to projected policyholder claims, investing excess assets for growth. The reserve currently has sufficient surplus to support its liabilities. Regulators impose a maximum limit of 10% of total reserve assets (which include matched and excess assets) on non-publicly traded securities. Mukasa's new assistant, Samiah Pai, presents three possible allocation options for total reserve assets, as shown in Exhibit 1.

Exhibit 1 Possible Allocations			
Asset Class	**Allocation 1**	**Allocation 2**	**Allocation 3**
Equity	10%	25%	50%
Fixed Income	75%	50%	30%
Real Estate	5%	10%	0%
Private Equity	5%	10%	0%
Cash	5%	5%	20%
Total	100%	100%	100%

Mukasa also serves as a trustee of Channel's defined-benefit pension plan. The plan is legally distinct from Channel's assets. The company has made contributions sufficient to maintain a fully funded status. It is a tax-exempt fund and must hold 20% of its assets in domestic government bonds to maintain its tax-exempt status. The plan's key objective is to meet current and future pension obligations. The plan's current allocation is 60% global equities, 20% domestic government bonds, 15% domestic corporate bonds, and 5% cash.

Mukasa is considering adding a new asset class to Channel's pension fund to improve expected returns. Pai compiles data for three possible new asset classes (Exhibit 2).

Exhibit 2 Possible Asset Class		
Asset Class	**Sharpe Ratio**	**Correlation with Current Portfolio**
Global real estate (REITs)	1.40	0.70
Emerging markets equities	1.75	0.70
Global high-yield corporate bonds	0.75	0.55

Several years later, Channel's pension plan has grown to over EUR 5 billion in assets. During that time, the fund's allocation to illiquid assets (which includes direct real estate, private equity and infrastructure) increased to 30%.

Channel maintains its leading position in the insurance industry and its balance sheet remains healthy. However, given heightened competition and increasingly soft pricing conditions,

Channel staff members are researching possible cost saving strategies for management consideration. While viewed as an unlikely choice by Mukasa, reducing Channel's cash contributions to its pension plan is among them. The plan is currently 90% funded.

Pai reviews key benefits and constraints of large institutional investors in asset allocation that may be relevant to Channel's pension plan. He makes the following statements.

Statement 1: A substantial allocation to illiquid assets may be inappropriate for Channel's pension plan if there is a significant probability of Channel lowering its contributions to the plan.

Statement 2: Large institutional investors, such as Channel's pension plan, will likely benefit from deploying active equity strategies, due to manager access, liquidity, and trading cost advantages.

Statement 3: Channel's pension fund may rebalance portfolio weights from the strategic allocation to exploit perceived opportunities based on its latest five-year capital market expectations.

1. Which allocation in Exhibit 1 is most appropriate for Channel's insurance reserve assets?

A. Allocation 1.

B. Allocation 2.

C. Allocation 3.

2. Which approach is least relevant to a strategic allocation for Channel's pension plan?

A. Shortfall risk.

B. Heuristic approach.

C. Surplus optimization.

3. Which asset class in Exhibit 2 is most likely to be considered for inclusion by Channel's pension plan?

A. Global real estate (REITs).

B. Emerging markets equities.

C. Global high-yield corporate bonds.

4. Which of Pai's statements is most appropriate for the pension plan, given Channel's current market circumstances?

A. Statement 1

B. Statement 2

C. Statement 3

Case 4: Preston Remington

Preston Remington is the managing partner of Remington Wealth Partners. The firm manages high-net-worth private client investment portfolios using various asset allocation strategies. Analyst Hannah Montgomery assists Remington.

Remington and Montgomery's first meeting of the day are with a new client, Spencer Shipman, who recently won $900,000 in the lottery. Shipman wants to fund a comfortable retirement. Earning a return on his investment portfolio that outpaces inflation over the long term is critical to him. He plans to withdraw $54,000 from the lottery winnings investment portfolio in one year to help fund the purchase of a vacation home and states that it is important that he be able to withdraw the $54,000 without reducing the initial $900,000 principal. Montgomery suggests they use a risk-adjusted expected return approach in selecting one of the portfolios provided in Exhibit 1.

Exhibit 1 Investment Portfolio One-Year Projections		
	Return	Standard Deviation
Portfolio 1	10.50%	20.0%
Portfolio 2	9.00	13.0
Portfolio 3	7.75	10.0

Remington and Montgomery discuss the importance of strategic asset allocation with Shipman. Remington states that the firm's practice is to establish targeted asset allocations and a corridor around the target. Movements of the asset allocations outside the corridor trigger a rebalancing of the portfolio. Remington explains that for a given asset class, the higher the transaction costs and the higher the correlation with the rest of the portfolio, the wider the rebalancing corridor. Montgomery adds that the higher the volatility of the rest of the portfolio, excluding the asset class being considered, the wider the corridor.

Remington and Montgomery next meet with client Katherine Winfield. The firm had established Winfield's current asset allocation on the basis of reverse optimization using the investable global market portfolio weights with further adjustments to reflect Winfield's views on expected returns.

Remington and Montgomery discuss with Winfield some alternative asset allocation models that she may wish to consider, including resampled mean–variance optimization (resampling). Remington explains that resampling combines mean–variance optimization (MVO) with Monte Carlo simulation, leading to more diversified asset allocations. Montgomery comments that resampling, like other asset allocation models, is subject to criticisms, including that risker asset allocations tend to be under-diversified and the asset allocations inherit the estimation errors in the original inputs.

Montgomery inquires whether asset allocation models based on heuristics or other

techniques might be of interest to Winfield and makes the following comments:

1. The 60/40 stock/bond heuristic optimizes the growth benefits of equity and the risk reduction benefits of bonds.
2. The Norway model is a variation of the endowment model that actively invests in publicly traded securities while giving consideration to environmental, social, and governance issues.
3. The 1/N heuristic allocates assets equally across asset classes with regular rebalancing without regard to return, volatility, or correlation.

1. Which of the portfolios provided in Exhibit 1 has the highest probability of enabling Shipman to meet his goal for the vacation home?

A. Portfolio 1
B. Portfolio 2
C. Portfolio 3

2. When discussing asset allocation corridors with Shipman, which of Remington's and Montgomery's statements is the least accurate? The one regarding:

A. volatility.
B. correlation.
C. transaction costs.

3. The model on which Winfield's current asset allocation is based is best characterized as:

A. mean–variance optimization.
B. Black–Litterman.
C. reverse optimization.

4. In Remington and Montgomery's discussion with Winfield on resampling, Montgomery's comment is most likely:

A. correct.
B. incorrect regarding estimation errors.
C. incorrect regarding diversification of asset allocations.

5. In describing heuristics and other modeling techniques, Montgomery is most accurate with respect to:

A. Comment 1.
B. Comment 2.
C. Comment 3.

Case 5: Teddy Brealer

Teddy Brealer is the president of Vitting University (VU). VU just successfully completed a fundraising campaign of $300 million that significantly increased the funds in the endowment (Exhibit 1).

Exhibit 1 Vitting University endowment fund assets and obligations ($ millions)	
Immediately available funds	50.2
Immediately available funds, restricted to scholarships	53.2
Current endowment obligations	89.5
PV of future endowment obligations*	502.4
PV of pledged future contributions to endowment, unrestricted*	505.4
PV of pledged future contributions, restricted to scholarships	87.8
*These funds may be used for scholarship and non-scholarship items.	

At a meeting with VU's board of regents, Brealer proposes that the endowment should fund a new capital improvements project for the university that will cost $210.3 million. Brealer acknowledges that it is a large amount that will require another fundraising campaign in the future, but he states that he has already found a wealthy alumnus, Roger Clement, who is willing to donate $50 million if the project is undertaken.

Jennifer Wong, a board member, asks: "If we undertake the project with Clement's donation but without a new fundraising campaign, how much will the endowment be underfunded?" Other board members agree that the answer to this question should be considered before making a decision. Consequently, the board decides to discuss Brealer's proposal further at a future meeting.

The board moves on to a discussion about the investment of the endowment with the recently raised funds. Ronald Black, an investment adviser to the board, suggests the following:

- The asset allocation choice should have a heavy emphasis on fixed-income securities with cash distributions. This type of allocation will offset the future cash disbursements necessary to cover costs at the university in excess of tuition revenue.
- The weightings within the portfolio should be able to deviate within 5% of the target portfolio weights to take advantage of short-term market opportunities for additional return.

Brealer suggests bringing Black's portfolio allocation ideas to the University Planning and Priorities Committee (UPPC). The UPPC is composed of six tenured faculty members and three final-year students. Three of the faculty members are from the arts area, and three are from the sciences area. Faculty appointments to the committee are for two-year, non-renewable terms.

Brealer states that the UPPC desires to have the endowment invested in a socially responsible manner, which will require developing a new investment policy statement (IPS). The

UPPC intends to draft the new IPS and present it to the board for approval. Upon receiving board approval, the UPPC will direct a financial advisory team and the investment managers to implement the asset allocation indicated in the IPS. Progress reports and governance audits will be provided to the board upon request.

The board is agreeable to this plan and assigns Black to be part of the advisory team after the IPS is drafted and approved.

Black states that the UPPC should also consider such issues as the cost associated with rebalancing the portfolio and that the future distribution of asset returns may not be fully characterized by the expected return and volatility. Black further states that his preferred method for dealing with these additional allocation issues is the use of Monte Carlo simulation.

1. Which asset allocation approach best describes the asset allocation choice suggested by Black to the board?

A. Mean–variance optimization.
B. Black-Litterman
C. Liability-relative

2. Black's suggestion to the board in regard to the asset weightings in the endowment portfolio is best described as allowing for an asset allocation that is:

A. dynamic.
B. tactical.
C. indexed.

3. The process for creating and implementing the investment policy statement (IPS) by the University Planning and Priorities Committee (UPPC) most likely follows best governance practices in regard to:

A. transparency of decision rights for approving a proposed asset allocation.
B. expertise for developing the asset allocation.
C. governance audit reporting.

4. When addressing the University Planning and Priorities Committee, Black's preferred approach for dealing with the additional allocation issues is most likely:

A. correct.
B. incorrect because it is unable to address rebalancing costs.
C. incorrect because it is unable to address distributions that are dependent on parameters other than expected return and volatility.

Case 6: Olivinia Heritage

Olivinia is an oil-rich state in the country of Puerto Rinaldo, which uses the US dollar as its official currency of exchange. In 1981, the state's legislature created the Olivinia Heritage Fund (OHF) to collect a portion of the state's non-renewable resource revenue and invest it on behalf of future generations. James Lafferty, the managing director of the fund, is one of the keynote speakers at the Global Wealth Creation Conference. He begins his presentation with a brief overview of OHF's history (Exhibit 1).

Exhibit 1 An overview of the olivinia heritage fund

Phase 1 (1981–1991)

- The fund was given an initial allocation of $1 billion by the state. The fund was to receive 10% of all state revenues arising from taxes on oil and gas production and extraction. The fund was given a 20-year accumulation period over which no distributions were allowed and the fund was forecasted to grow to $10 billion. Income earned following the accumulation period was to be used to provide for public works and other public infrastructure within the state. Investments were restricted to cash and investment-grade bonds.

Phase 2 (1991–2001)

- By 1991, after being in existence for 10 years, the fund value had grown to $2.2 billion. At this time, transfers of state revenues from taxes on oil-related resources was halted and the government began to use income generated by the fund for direct economic development and social investment purposes. In addition to cash and investment-grade bonds, the investment mandate for the fund was expanded to include investments in private and public companies, real estate, and infrastructure investments. Management of cash and bond investments was performed in-house. For the higher-risk component of the portfolio, the fund hired external managers in an effort to increase return and correspondingly lower the incidence of negative performance. These managers were hired or retained if they had outperformed other active managers in their sectors in at least the prior two years. The fund value at the end of this period was $6 billion.

Phase 3 (2001–2014)

- Strong reform legislation related to the original intent of the fund was introduced in 2001. It reinstated transfers of oil-related taxes to the fund, increasing them to 35% of oil- and gas-related state revenues. In addition, the fund was mandated to have 50% in public equities through passive index funds and 10% in cash and investment-grade bonds. The remainder was to be divided equally between high-yield bonds, real estate, private equity, and hedge funds and would continue to be managed externally. All investments were to be made outside the country to avoid overheating the national economy. Investments managed by individual external managers was limited to approximately $75 million. A

two-thirds majority in both the upper and lower legislative bodies was required to change any future legislation related to the fund. By the end of this phase, the fund was worth $28 billion.

Phase 4 (2014–Present)

- The fund's management felt that the significant decline in oil prices since mid-2014 and lowered production levels were likely to persist through several business cycles, requiring a change in strategy to maintain the long-term objectives of the funds. They sought government approval for lower withdrawals from the fund, higher equity exposure, and the flexibility to vary asset class policy weights by as much ±5% for each asset class from the static weights that had previously existed. The government reaffirmed its commitment to the fund given in Phase 3, and legislative approval was received for these changes, including the ability to increase public equity exposure to 65% and reduce investment-grade bond exposure to as little as 7.5%. Of the remaining authorized assets, no one asset class could have a weight in excess of 10%.

Lafferty states that ever since the fund was given the authority to vary asset class policy weights from their strategic levels, it has actively engaged in tactical asset allocation (TAA) using a variety of proprietary short-term forecasting tools that have been developed in-house. He provides the data in Exhibits 2 and 3 to illustrate the results of one such shift in the fund's asset allocation following a signal from its TAA model.

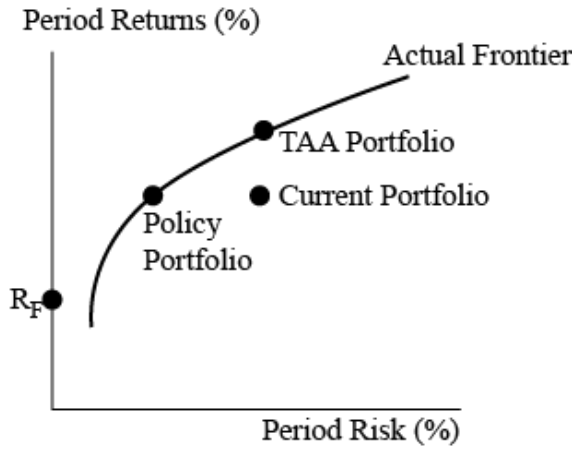
Exhibit 2 Example of a short-term shift in asset allocation

Asset Class	Current Weights*	Policy Weights	TAA Weights	Period Returns
Investment-grade bonds	12%	15%	10%	1.75%
High-yield bonds	8	6.25	10	3.0
Public equity	63	60	65	7.0
Private equity	5	6.25	6.25	4.5
Real estate	6.25	6.25	2.5	−4.0
Infrastructure	6.25	6.25	6.25	2.5

* Current weight refers to the weighting in effect just prior to when the TAA signal occurred.

Lafferty concludes the morning portion of his presentation at the conference by comparing the relative performance of the three portfolios (from Exhibit 2) utilizing a graph (Exhibit 3) of the efficient frontier derived from the asset classes used by the fund.

Exhibit 3 Efficient frontier from assets utilized by OHF



1. During Phase 1, the most significant constraint on OHF's asset allocation choices was the result of:

A. liquidity needs.
B. asset size.
C. regulation.

2. In Phase 3, the most likely change in the constraints facing OHF's ability to undertake asset allocation arose from an increased need for:

A. governance resources.
B. Liquidity.
C. risk reduction.

3. Based on Exhibit 2, compared with the strategic asset allocation, the incremental return added to the fund through tactical asset allocation was closest to:

A. 0.39%.
B. 0.53%.
C. 0.13%.

4. The most appropriate conclusion that can be drawn from Exhibit 3 is that:

A. management's risk–return objectives may not have been achieved with the TAA portfolio.
B. the current portfolio is a corner portfolio.
C. the Sharpe ratios for the policy portfolio and the TAA portfolio are the same.

6. SS6 Derivatives and Currency Management

Case 1: Joenia Dantas

Joenia Dantas is a financial risk manager for Alimentos Serra (AS), a Brazilian manufacturer and exporter of soybean-based food products. AS is a privately held corporation, wholly owned by Cesar Serra. Recently, AS took out a R25,000,000, four-year, floating-rate bank loan requiring semi-annual payments of interest based on SELIC (Banco Central do Brasil's overnight lending rate) plus a spread of 4.50 percent and repayment of principal at maturity. Serra believes that interest rates will rise in the near future and worries that AS will be unable to absorb the higher loan costs associated with an increase in rates. Dantas tells him that she will convert the loan to a 10.80 percent fixed rate by entering into the pay-fixed side of a four-year, R25,000,000 notional principal interest rate swap with semi-annual payments that exchanges SELIC for a fixed rate of 10.80 percent. She explains that the swap will act as a hedge for the loan, reducing the company's net cash flow risk and net market value risk.

Discussions with Dantas about using interest rate swaps to reduce risk cause Serra to think about the fixed income portion of his personal investment portfolio, which includes R12.0 million in bonds that have a modified duration of 5.50 years. Serra's beliefs about rising interest rates make him want to reduce the bond portfolio's modified duration to 2.00 years using interest rate swaps. In order to determine the correct swap position, he needs to learn how to calculate the modified duration of a swap. He asks Dantas how to do this. She explains it to him, using the example described in Exhibit 1.

Exhibit 1 Data for Swap Example	
Maturity of swap	4 years
Payment structure	semiannual
Fixed rate on swap	10.8%
Duration of 4-year, 10.8% coupon bond	2.91 years

Serra decides to use a swap that has a modified duration of -2.40 years for the pay-fixed side to reduce his bond portfolio's duration to the desired level.

Dantas knows that AS currently needs to borrow an additional R30,000,000 for 5 years to fund its growth. Brazilian credit markets have tightened and it would cost 17.70 percent per year to borrow this amount locally, but AS can obtain a yen-denominated loan at a fixed rate of 9.50 percent. This would expose it to substantial currency risk. A 5-year currency swap is available in which AS would pay interest in real to the counterparty at 12.20 percent and receive interest in yen from the counterparty at 7.10 percent. The current exchange rate is ¥40/R.

In addition to the current needs, in six months AS will enter into a four-year, quarterly payment, R50,000,000 loan to fund local projects. Dantas expects to borrow these funds at a floating rate and convert the loan to fixed using an interest rate swap. She explains to Serra that

AS can commit to a fixed rate of 14.3 percent for the future loan by buying a payer swaption today with an exercise rate of 14.3 percent for a four-year swap with quarterly payments and a notional principal amount of R50,000,000.

1. Dantas' explanation of her plan to convert the four-year loan from floating to fixed is most likely:

A. correct.
B. incorrect, because the fixed loan rate will be 15.30%.
C. incorrect, because the swap should be entered to pay SELIC.

2. Dantas' characterization of the interest rate swap as a hedge for the bank loan is most likely:

A. correct.
B. incorrect, because the swap increases the cash flow risk of AS.
C. incorrect, because the swap increases the market value risk of AS.

3. The duration of the interest rate swap described in Exhibit 1 is closest to:

A. -2.41 years.
B. -2.66 years.
C. -2.91 years.

4. In order to reduce the duration of his bond portfolio to the desired level, Serra will enter into a pay-fixed swap position with a notional principal closest to:

A. R17.5 million.
B. R27.5 million.
C. R42.0 million.

5. If AS enters into the yen-real currency swap with a notional principal of ¥1.2 billion (R40.0 million), net yen interest expense for each year is closest to:

A. ¥28.80 million.
B. ¥85.20 million.
C. ¥114.00 million.

Case 2: Omega Analytics

Omega Analytics provides risk management consulting for institutional and individual clients. Rachel Osborne, CFA, is an investment advisor for Omega who works with the firm's larger accounts. She is considering derivative strategies for several clients.

- HMM Foundation owns 30,000 shares of Nasdaq 100 Index Tracking Stock (Symbol: QQQQ), which has a current price of $30 per share. Osborne believes there is substantial risk of downside price movement in the index over the next six months. She recommends HMM use a six-month collar for the entire position of 30,000 shares as protection against the QQQQ price falling below $27. Exhibit 1 illustrates current QQQQ puts and calls expiring in 6 months.

Exhibit 1 QQQQ Puts and Calls Expiring in Six Months		
Option Type	**Exercise Price ($)**	**Option Premium ($)**
Call	35	0.80
Put	27	0.95

  HMM would hold the collar strategy until expiration of the put and call options.

- Bob Valentine believes the prices of large capitalization stocks will rise slightly and he wants to profit from this movement using a bull spread strategy. Osborne recommends Valentine use Dow Jones Industrial Average (DJX) options expiring in two months. The current price of DJX is $91. Exhibit 2 illustrates current option information for two DJX call options expiring in two months.

Exhibit 2 DJX Call Options Expiring in Two Months		
Exercise Price ($)	**Option Premium ($)**	**Delta**
88	4.40	0.75
94	1.00	0.30

  Valentine decides to use 100 contracts per position. Each contract is equal to 100 shares.

1. If the HHM Foundation enters into the collar recommended by Osborne and the market value of QQQQ is $33 at the expiration of the options, the profit from the position would be closest to:

A. $85,500.

B. $90,000.

C. $94,500.

2. If the HHM Foundation enters into the collar recommended by Osborne, the maximum potential profit from the position at expiration of the options is closest to:

A. $145,500.

B. $150,000.

C. $154,500.

3. At expiration of the DJX call options, the maximum potential profit from the bull spread strategy recommended for Valentine is closest to:

A. $6,000.

B. $26,000.

C. $60,000.

4. The delta of Valentine's bull spread just before contract expiration, if the price of DJX is $93, will most likely be in the range of:

A. 0.00 to 0.20.

B. 0.40 to 0.60.

C. 0.80 to 1.00.

Case 3: Kamiko Watanabe

Kamiko Watanabe, CFA, is a portfolio advisor at Wakasa Bay Securities. She specializes in the use of derivatives to alter and manage the exposures of Japanese equity and fixed income portfolios. She has meetings today with two clients, Isao Sato and Reiko Kondo.

Sato is the manager of the Tsushima Manufacturing pension fund, which has a target asset allocation of 60% equity and 40% bonds. The fund has separate equity and fixed income portfolios, whose characteristics are provided in Exhibits 1 and 2. Sato expects equity values to increase in the coming two years and, in order to avoid substantial transaction costs now and in two years, would like to use derivatives to temporarily rebalance the portfolio. He wants to maintain the current beta of the equity portfolio and the current duration of the bond portfolio.

Exhibit 1 Tsushima Pension Fund, Equity Portfolio Characteristics	
Current market value	JPY27.5 billion
Benchmark	Nikkei 225 Index
Current beta	1.15

Exhibit 2 Tsushima Pension Fund, Bond Portfolio Characteristics	
Current market value	JPY27.5 billion
Benchmark	Nikko Bond Performance Index composite
Current duration	4.75

In order to rebalance the pension fund to its target allocations to equity and bonds, Watanabe recommends using Nikkei 225 Index futures contracts, which have a beta of 1.05 and a current contract price of JPY1,525,000, and Nikko Bond Performance Index futures, which have a duration of 6.90 and a current contract price of JPY4,830,000. She assumes the cash position has duration of 0.25.

Sato wants to know if other derivatives could be used to rebalance the portfolio. In response, Watanabe describes the characteristics of a pair of swaps that, together, would accomplish the same rebalancing as the proposed futures contracts strategy.

Kondo manages a fixed income portfolio for the Akito Trust. The portfolio's market value is JPY640 million, and its duration is 6.40. Kondo believes interest rates will rise and asks Watanabe to explain how to use a swap to decrease the portfolio's duration to 3.50. Watanabe proposes a strategy that uses a pay-fixed position in a 3-year interest rate swap with semi-annual payments.

Kondo decides he wants to use a 4-year swap to manage the portfolio's duration. After some calculations, Watanabe tells him a pay-fixed position in a 4-year interest rate swap with a duration of –2.875 would require a notional principal of JPY683 million (rounded to the nearest million yen) to achieve his goals.

Watanabe meets with a client A. Client A has $10 million in cash and is optimistic about the

near-term performance of the large-cap stocks in the U.S. equity market. The client anticipates positive performance for approximately 3 months at which time inflation fears will begin to be priced into the market and the large-cap stocks will underperform cash. Client A asks Watanabe to implement a strategy that will create profit from this view if it proves to be correct and can be exited quickly if it proves to be incorrect.

1. The number of Nikkei 225 Index futures Sato must buy to rebalance the Tsushima pension fund to its target allocation is closest to:

A. 3,293.

B. 3,950.

C. 4,148.

2. Which of these is most likely to be a characteristic of one of the two swaps Watanabe describes to Sato?

A. Receive LIBOR.

B. Pay return on Nikkei 225 Index.

C. Receive return on Nikko Bond Performance Index.

3. The duration of the swap in Watanabe's first proposal to Kondo is closest to:

A. –1.75.

B. –2.00.

C. –2.75.

4. To implement Client A's request, Watanabe's most appropriate course of action is to purchase:

A. risk-free bonds and buy S&P 500 index futures contracts.

B. the stocks in the S&P 500 index and sell S&P 500 index futures contracts.

C. the stocks in the S&P 500 index and sell U.S. Treasury bond futures contracts.

Case 4: Manuel Silva

Manuel Silva is a principal at Raintree Partners, a financial advisory firm, and a specialist in providing advice on risk management and trading strategies using derivatives. Raintree's clients include high-net-worth individuals, corporations, banks, hedge funds, and other financial market participants.

One of Silva's clients, Iria Sampras, is meeting with Silva to discuss the use of options in her portfolio. Silva has collected information on S&P 500 Index options, which is shown in Exhibit 1.

Exhibit 1		
Options Data for S&P 500 Stock Index **Options Expire in Six Months. Multiplier $100**		
Exercise Price	**Call Price**	**Put Price**
$1,100	$95.85	$42.60
$1,125	$80.50	$48.00
$1,150	$64.70	$60.00

At the beginning of the meeting Sampras states: "My investment in Eagle Corporation stock has increased considerably in value, and I would like suggestions on options strategies I can use to protect my gains." Silva responds: "There are two strategies that you may wish to consider: covered calls or protective puts. Covered calls provide a way to protect your gains in Eagle Corporation stock. Adding a short call to your long position in Eagle stock will provide protection against losses on the stock position, but it will also limit upside gains. A protective put also provides downside protection, but it retains upside potential. Unlike covered calls, protective puts require an upfront premium payment."

At the end of the meeting Sampras asks Silva to provide a written analysis of the following option strategies:

Strategy A: A butterfly spread strategy using the options information provided in Exhibit 1.

Strategy B: A straddle strategy using options in Exhibit 1 with an exercise price of $1,125.

Strategy C: A collar strategy using options information in Exhibit 1.

1. Is Silva's response to Sampras regarding reducing exposure to Eagle Corporation stock most likely correct?

A. Yes.

B. No, he is incorrect about covered calls.

C. No, he is incorrect about protective puts.

2. Based on the information presented in Exhibit 1, the maximum loss per contract for Strategy B is *closest* to:

A. $10,350.

B. $12,850.

C. $20,900.

3. The expected volatility of the S&P 500 Index, relative to market expectations, is least likely to be a factor in the decision to implement:

A. strategy A.

B. strategy B.

C. strategy C.

Case 5: Anna Lehigh

Anna Lehigh, CFA, is a portfolio manager for Brown and White Capital Management (B&W), a U.S.-based institutional investment management firm whose clients include university endowments.

Packer College is a small liberal arts college whose endowment is managed by B&W. Lehigh is considering a number of derivative strategies to tactically adjust the Packer portfolio to reflect specific investment viewpoints discussed at a meeting with Packer's investment committee. At the meeting, the committee reviews Packer's current portfolio, whose characteristics are shown in Exhibit 1:

Exhibit 1 Packer Portfolio Characteristics		
Investment	**Amount (USD millions)**	**Risk Measure**
Mountain Hawk, Inc. common stock	20	Beta: 1.30
U.S. large-cap stocks	30	Beta: 0.95
U.S. midcap stocks	10	Beta: 1.20
Eurozone large-cap stocks (unhedged, USD equivalent)	10	Beta: 1.10
S&P 500 Index call options (notional amount)	10	Delta: 0.50
A-rated corporate bonds	20	Duration: 5.0
Total	**100**	

Kemal Gulen, a member of the investment committee, asks Lehigh how she manages the risk exposure of the call options investment. Lehigh responds by stating that she ensures that her call option positions are delta hedged. She notes, however, that in some instances, at an option's expiration, the option gamma is very high and maintaining a delta hedged position becomes very difficult.

Lehigh notes the holding of Mountain Hawk common stock. The shares were recently donated by an alumnus who mandated that they not be sold for three years. Lehigh provides three potential options strategies to use in order to benefit from changes in Mountain Hawk's stock price, which is presently USD 100.00. Options strategies are provided in Exhibit 2:

Exhibit 2 Options Strategies for Mountain Hawk stock (in USD)		
Strategy	**Lower Strike**	**Upper Strike**
Straddle	95.00	95.00
Bull spread	105.00	110.00
Bear spread	90.00	100.00

Lehigh tells the committee she believes U.S. large-cap stocks will perform well over the next year. The committee agrees and wants B&W to adjust the beta of the U.S. large-cap part of the portfolio to a target of 1.10 by purchasing large-cap futures contracts. Lehigh proposes

purchasing 15 contracts. For each contract, the beta is 1.00 and the price is USD 100,000.

The committee is concerned that Europe's sovereign debt crisis may lead to volatility in European stock markets and the euro currency (EUR). It considers hedging strategies outlined in Exhibit 3:

Exhibit 3 Hedging Strategies		
Strategy	**Forwards**	**Futures**
1	Sell EUR and buy USD	Buy US stock market
2	Sell EUR and buy USD	Sell European stock market
3	Buy EUR and sell USD	Sell European stock market

Finally, Lehigh discusses B&W's market view that over the next 24 months, midcap stocks will underperform small-cap stocks and interest rates will rise. She recommends executing a swap transaction in order to alter the stock and bond allocation and thus capture the economic benefit of B&W's market view. The investment committee considers the swap strategies outlined in Exhibit 4.

Exhibit 4 Swap Strategies		
Swap Strategies	**Receive**	**Pay**
Swap 1	LIBOR	Midcap index
Swap 2	Midcap index	Small-cap index
Swap 3	Small-cap index	LIBOR

1. Lehigh's response to Gulen is most likely correct when the option is:

A. in the money.

B. at the money.

C. out of the money.

2. If the price of Mountain Hawk stock declines to USD 88.00, which options strategy will most likely have the highest value at expiration?

A. Straddle

B. Bull spread

C. Bear spread

3. Will Lehigh's purchase of U.S. large-cap futures contracts most likely result in the committee's beta objective for the U.S. large-cap investment being attained?

A. Yes

B. No, because the beta will be below the target

C. No, because the beta will be above the target

4. Given the committee's view about the sovereign debt crisis, which hedging strategy is most likely to result in Packer earning the U.S. risk-free rate of return?

A. Strategy 1

B. Strategy 2

C. Strategy 3

5. Which of the following swaps will most likely capture the greatest economic benefit based on the committee's 24-month market view?

A. Swap 1

B. Swap 2

C. Swap 3

Case 6: Garrison Investments Scenario

Garrison Investments is a money management firm focusing on endowment management for small colleges and universities. Over the past 20 years, the firm has primarily invested in U.S. securities with small allocations to high quality long-term foreign government bonds. Garrison's largest account, Point University, has a market value of $800 million and an asset allocation as detailed in Figure 1.

Figure 1: Point University Asset Allocation

Asset Class	Allocation	Dividend/Coupon*	Beta
Large cap equities	40%	2.0%	1.0
Mid cap equities	25%	1.2%	1.3
Small cap equities	15%	0.9%	1.5
U.S. Bonds	10%	5.0%	0
U.K. Bonds	5%	4.7%	0
German Bonds	5%	4.0%	0
European Index	0%	1.8%	1.2

*Bond coupon payments are all semiannual.

Garrison recently convinced the board of trustees at Point University that the endowment should allocate a portion of the portfolio to European equities. The board has agreed to the plan but wants the allocation to international equities to be a short-term tactical move. Managers at Garrison have put together the following proposal for the reallocation:

To minimize trading costs while gaining exposure to international equities, the portfolio can use futures contracts on the domestic 12-month mid-cap equity index and on the 12-month European equity index. This strategy will temporarily exchange $80 million of U.S. mid-cap exposure for European equity index exposure. Relevant data on the futures contracts are provided in Figure 2.

Figure 2: Mid-cap Index and European Index Futures Data

Futures Contract	Price	Beta	Multiplier
Mid-cap Index	$908	1.10	250
European Index	$2,351	1.05	50

Three months after proposing the international diversification plan, Garrison was able to persuade Point University to make a direct short-term investment in Haikuza International (HI), a Japanese electronics firm. Analysts at Garrison have regressed the historical returns of the HI stock with changes in value of the yen. When the HI returns are measured in U.S. dollars, the regression slope coefficient is +0.80.

The managers at Garrison are discussing other factors that may be considered if they continue to diversify into foreign markets. The following statements are made:

- **Statement 1**: The minimum variance hedge ratio is riskier than a simple direct one-for-one hedge ratio because it depends on the correlation between asset and currency returns.
- **Statement 2**: An alternative to selling the yen forward to implement the HI currency hedge would be to buy calls on the USD. This would protect the portfolio from currency risk while still retaining potential currency upside. Unfortunately, it will have a higher initial cost.

1. With regard to Garrison's proposal to generate temporary exposure to European equities in the Point University portfolio, determine the appropriate position in the mid-cap equity index futures.

A. Buy 417 contracts.
B. Sell 298 contracts.
C. Sell 417 contracts.

2. Garrison's analysis to determine a hedge ratio for the HI exposure is best described as producing a:

A. cross hedge.
B. transaction hedge.
C. minimum variance hedge.

3. Which of the following is the correct short position in yen the managers at Garrison will execute to implement a minimum variance hedge for a JPY 200,000,000 currency exposure?

A. 40 million.
B. 160 million.
C. 240 million.

4. Which of the statements regarding diversifying into foreign markets is most accurate?

A. Statement 1.
B. Statement 2.
C. Both statements.

Case 7: Declan Kaufman Scenario

Declan Kaufman is an investment manager working at New Wave Advisers, an investment firm specializing in providing innovative derivatives solutions to institutional investors and sophisticated individuals.

Ariadne Burch is corporate treasurer of a large European retailer, looking to expand operations into the United States. She is exploring ways of borrowing USD, which is required for the expansion, and has presented Kaufman with the following information:

- The rate on USD loan direct from a U.S. bank is the USD reference rate +100 bps.
- The rate on EUR loan direct from European bank is the EUR reference rate +70 bps.
- The EUR-USD cross-currency basis swap is quoted at –20 bps.

Burch would like to know what the effective cost of borrowing USD would be if this were conducted through a cross-currency basis swap rather than directly borrowing USD.

Another client of Kaufman, Beatrice Rutledge, has asked Kaufman for advice on derivatives based on volatility. Rutledge is aware that volatility is a key input when pricing options; however, she is not familiar with other derivatives used to trade volatility.

Kaufman prepares a short presentation on variance swaps. He bases his presentation on data displayed below in Figure 1.

Figure 1: Variance Swap Example Data	
Volatility strike on swap (quoted as annual volatility)	19%
Variance notional	$263
Realized volatility at end of swap	21%

During Kaufman's presentation, Rutledge asks Kaufman how the payoff of a variance swap is likely to behave. Kaufman replies with the following comments:

- **Comment 1**: The sensitivity of the value of a variance swap to changes in implied volatility falls over the life of the swap.
- **Comment 2**: The payoff of a variance swap is convex with respect to changes in volatility.

1. If Burch's firm raises USD financing through a cross currency basis swap, the cost of borrowing verses a direct USD loan would be:

A. 20 bps lower.
B. 10 bps lower.
C. 20 bps higher.

2. Using the data in Figure 1, the approximate gain or loss for a 1% change in volatility, under the variance swap, is closest to:

A. $14.

B. $263.

C. $10,000.

3. Using the data in Figure 1, the payoff to the variance buyer, from the variance swap, at the end of its life is closest to:

A. $526.

B. $21,000.

C. $800,000.

4. How many of Kaufman's comments regarding the payoff behavior of a variance swap are most accurate?

A. Zero.

B. One.

C. Two.

Case 8: Gari Dimeola Scenario

Gari Dimeola is an investment advisor specializing in derivatives strategies in equity, fixed income, and currency markets.

Dimeola is approached by his client, Ryan Karunathilike, for advice regarding option strategies. Karunathilike is a U.K. domiciled client who wants to hedge a short position in Euros (EUR) over the coming month. The current spot EUR/GBP exchange rate is 1.1523. Dimeola advises Karunathilike that he has three strategies using derivatives on the EUR/GBP exchange rate available to him, which are displayed in Figure 1.

Figure 1: Hedging Strategies Recommended by Dimeola	
Strategy	Position
1	Sell one month EUR/GBP forward
2	Buy one month GBP/EUR call option
3	Buy one-month EUR/GBP put option

Karunathilike asks Dimeola to review his existing options strategies. He presents the signs of the Greek exposures of his strategies as displayed in Figure 2.

Figure 2: Greek Exposures of Dimeola's Existing Option Strategies				
Strategy	Delta	Gamma	Theta	Vega
A	Positive	Positive	Positive	Positive
B	Positive	Negative	Positive	Negative
C	Small	Negative	Positive	Negative

Karunathilike has identified a stock, GHS Corp., which historically has had options exhibiting a volatility skew. The options of GHS currently exhibit a volatility smile, and Karunathilike believes that within the next days implied volatility will revert back to a more usual profile. Karunathilike asks Dimeola to design an options strategy to allow him to profit from this view.

1. How many of the strategies in Figure 1 meet the objective of Karunathilike?

A. Zero.

B. Two.

C. All three.

2. Which of Karunathilike's options strategies in Figure 2 is most likely a short straddle position?

A. Strategy A.

B. Strategy B.

C. Strategy C.

3. Based on the Greek exposures displayed in Figure 2, Strategy B is most likely a:

A. short straddle.

B. short put.

C. bull spread.

4. The most appropriate options strategy, given Karunathilike's view on the implied volatility profile of GHS Corp, is to sell:

A. out-the-money calls and buy out-the-money puts.

B. out-the-money puts and buy in-the-money puts.

C. at-the-money calls and buy at-the-money puts.

Case 9: Upsala Asset Management Scenario

Albert Wulf, CFA, is a portfolio manager with Upsala Asset Management, a regional financial services firm that handles investments for small businesses in Northern Germany. For the most part, Wulf has been handling locally concentrated investments in European securities. Due to a lack of expertise in currency management, he works closely with James Bauer, a foreign exchange expert who manages international exposure in some of Upsala's portfolios. Both individuals are committed to managing portfolio assets within the guidelines of client investment policy statements.

To achieve global diversification, Wulf 's portfolio invests in securities from developed nations including the United States, Japan, and Great Britain. Due to recent currency market turmoil, translation risk has become a huge concern for Upsala's managers. The U.S. dollar has recently plummeted relative to the euro, while the Japanese yen and British pound have appreciated slightly relative to the euro. Wulf and Bauer meet to discuss hedging strategies that will hopefully mitigate some of the concerns regarding future currency fluctuations.

Wulf currently has a $1,000,000 investment in a U.S. oil and gas corporation. This position was taken with the expectation that demand for oil in the U.S. would increase sharply over the short-run. Wulf plans to exit this position 125 days from today. In order to hedge the currency exposure to the U.S. dollar, Bauer enters into a 90-day U.S. dollar futures contract, expiring in September. Bauer comments to Wulf that this futures contract guarantees that the portfolio will not take any unjustified risk in the volatile dollar.

Wulf recently started investing in securities from Japan. He has been particularly interested in the growth of technology firms in that country. Wulf decides to make an investment of ¥25,000,000 in a small technology enterprise that is in need of start-up capital. The spot exchange rate for the Japanese yen at the time of the investment is ¥135/€. Wulf also implements a cost-effective hedge structure using ¥/€ options that will completely eliminate the downside risk of his portfolio's exposure to the yen.

The exposure of Wulf 's portfolio to the British pound results from a 180-day pound-denominated investment of £5,000,000. The spot exchange rate for the British pound is £0.78/€. The value of the investment is expected to increase to £5,100,000 at the end of the180 day period. Bauer informs Wulf that due to the minimal expected exchange rate movement, it would be in the best interest of their clients, from a cost-benefit standpoint, to hedge only the principal of this investment. Unfortunately, the closest available contract match was a maturity of 270 days, so that was used for the hedge.

Before entering into currency futures and options contracts, Wulf and Bauer discuss the possibility of also hedging market risk due to changes in the value of the assets. Bauer suggests that in order to hedge against a possible loss in the value of an asset Wulf should short a given

foreign market index. Wulf is interested in executing index hedging strategies that are perfectly correlated with foreign investments. Bauer, however, cautions Wulf regarding the increase in trading costs that would result from these additional hedging activities.

1. Of the following cash management approaches, the one that best reflects Wulf and Bauer's currency management strategy is a:

A. strategic hedge ratio.
B. currency overlay.
C. separate asset allocation.

2. Regarding the U.S. investment in the oil and gas company, which of the following approaches would be best in eliminating potential basis risk?

A. When the 90-day futures contract expires, Bauer should enter into another 90-day contract to further hedge against any changes in the dollar relative to the euro.
B. Instead of the 90-day contract, Bauer should enter into a 180-day contract to cover the full 125-day period, which would eliminate additional transactions costs brought on by short-term contracts.
C. Despite the large amount of transaction costs, Bauer should continually adjust the hedge until the futures maturity equals the desired holding period.

3. The cost-effective hedge structure that Wulf implements for his portfolio's exposure to the yen is most likely to involve him buying:

A. an ATM call option and selling a 25-delta call option.
B. an ATM call option and selling a 25-delta put option.
C. a 25-delta call option and selling a 25-delta put option.

4. Is Bauer correct in stating to Wulf that put options provide a cheaper means of hedging than futures?

A. No, since Bauer is only concerned with unfavorable currency movements, futures would be cheaper.
B. No, despite being less liquid, futures are less expensive to use.
C. Yes, given that Bauer can choose to exercise the options or let them expire, options are cheaper since the payoff is only to one side.

5. Calculate the total rate of return that Wulf can expect from hedging the principal amount in the British denominated asset with currency futures. Assume that Bauer hedges the

principal by selling £5,000,000 in pound futures at £0.79/€ and the value of the investment is £5,100,000. When this hedge is lifted the futures rate is £0.785/€ and the spot rate is £0.75/€.

A. 6.08%.

B. 5.45%.

C. 2.00%.

6. Assuming Wulf and Bauer are successful in hedging both the foreign currency exposure and market risk exposure from the appreciation and depreciation of the asset, the expected return would be closest to:

A. zero, since all risks have been hedged.

B. the domestic risk-free rate.

C. the foreign risk-free rate.

Case 10: Tony Kalman

A US bond portfolio manager Tony Kalman wants to hedge a long position in a 10-year Treasury bond against a potential rise in domestic interest rates.

Besides, he observes that the VIX term structure is upward sloping. In particular, the VIX is at 19.60, the front-month futures contract trades at 21.50, and the second-month futures contract trades at 23.00. Assuming the shape of the VIX term structure will remain constant over the next three-month period, he decides to implement a trade that would profit from the VIX carry roll down.

In his spare time, Kalman also operates a subscription website through which he offers financial advice on currency issues to retail investors. One morning he receives three subscriber e-mails seeking guidance.

Exhibit 1 E-mails from subscribers	
Subscriber 1	"As an Italian national now working in the United States, I hold US dollar-denominated assets currently valued at USD 600,000. The USD/EUR exchange rate has been quite volatile and now appears oversold based on historical price trends. With my American job ending soon, I will return to Europe. I want to protect the value of my USD holdings, measured in EUR terms, before I repatriate these funds back to Italy. To reduce my currency exposure I am going to use currency futures contracts. Can you explain the factors most relevant to implementing this strategy?"
Subscriber 2	"I have observed that many of the overseas markets for Korean export goods are slowing, while the United States is experiencing a rise in exports. Both trends can combine to possibly affect the value of the won (KRW) relative to the US dollar. As a result, I am considering a speculative currency trade on the KRW/USD exchange rate. I also expect the volatility in this exchange rate to increase."
Subscriber 3	"As a French trader, I observe that in prior years the correlation between movements in the foreign-currency asset returns for the USD-denominated assets and movements in the exchange rate was estimated to be +0.45. Now I expect that this correlation will increase to +0.72, although my forecast for foreign-currency asset returns is unchanged."

1. Regarding his view on domestic interest rates, Kalman would most likely:

A. sell fixed-income (bond) futures.

B. enter a receive-fixed 10-year interest rate swap.

C. sell a strip of 90-day Eurodollar futures contracts.

2. Based on his view about VIX term structure, Kalman will most likely purchase the:

A. VIX and sell the VIX second-month futures.

B. VIX and sell the VIX front-month futures.

C. VIX front-month futures and sell the VIX second-month futures.

3. For Subscriber 1, the most significant factor to consider would be:

A. margin requirements.

B. transaction costs of using futures contracts.

C. different quoting conventions for future contracts.

4. For Subscriber 2, and assuming all of the choices relate to the KRW/USD exchange rate, the best way to implement the trading strategy would be to:

A. write a straddle.

B. buy a put option.

C. use a long NDF position.

5. Based on Subscriber 3's correlation forecast, the expected domestic-currency return (measured in EUR terms) and expected domestic-currency return risk will most likely:

A. increase and decrease.

B. decrease and remain unchanged.

C. remain unchanged and increase.

7. SS7-8 Fixed income Portfolio Management

Case 1: Franconia Notch

Mark Whitney, CFA, is the Chief Investment Officer of Granite State Partners, a fixed income investment boutique serving institutional pension funds. Paula Norris, a partner at consulting firm Franconia Notch Associates, is conducting due diligence of Granite's capabilities. At a meeting they go over a presentation Whitney has prepared.

The first page of the presentation addresses Granite's investment style for managing portfolios. It states:

"Granite adjusts the portfolio's duration slightly from the benchmark and attempts to increase relative return by tilting the portfolios in terms of sector weights, varying the quality of issues, and anticipating changes in term structure. The mismatches are expected to provide additional returns to cover administrative and management costs."

Norris asks Whitney about Granite's ability to successfully reflect, in its portfolios, its views on the market and the direction of interest rates. Whitney makes the following statements:

Statement 1 "Granite uses effective duration to measure the sensitivity of the portfolio's price to a relatively small parallel shift in interest rates. For large parallel changes in interest rates, we make a convexity adjustment to improve the accuracy of the estimated price change. We believe that parallel shifts in the yield curve are relatively rare; therefore, duration by itself is inadequate to capture the full effect of changes in interest rates."

Statement 2 "We address yield curve risk by using key rate durations. When using this method, we stress the spot rates for all points along the yield curve simultaneously. By changing the spot rates across maturities, we are able to measure a portfolio's sensitivity to those changes."

Statement 3 "We also measure spread duration contribution. This analysis is not related to interest rate risk. This measure describes how securities such as corporate bonds or mortgages will change in price as a result of the widening or narrowing of the spread to Treasuries."

Norris provides information on three clients she might refer to Whitney for portfolio management services and asks him to design a dedication strategy for each. Whitney makes the following recommendations:

Client 1: "This bank has sold a five-year guaranteed investment contract that guaranties an interest rate of 5.00% per year. I would purchase a bond with a target yield of 5.00% maturing in 5 years. Regardless of the direction of rates, the guaranteed value is achieved."

Client 2: The defined benefit pension plan for this client has an economic surplus of zero. In

order to meet the liabilities for this plan, I will construct the portfolio duration to be equal that of the liabilities. In addition, I will have the portfolio payments be less dispersed in time than the liabilities.

Client 3: This client's long-term medical benefits plan has known outflows over 10 years. Because perfect matching is not possible, I propose a minimum immunization risk approach, which is superior to the sophisticated linear program model used in the current cash flow matching strategy.

Norris then asks Whitney, "What sectors are you currently recommending for client portfolios?" Whitney responds: "I recommend investing 25% of the portfolio in mortgage-backed securities because they are trading at attractive valuations. I will not however buy floating rate securities because these do not hedge liabilities appropriately."

1. The style of investing described in Whitney's presentation is most likely:

A. a full replication approach.
B. enhanced indexing by small risk factor mismatches.
C. active management by larger risk factor mismatches.

2. Which of Whitney's Statements with regard to implementing its market and interest rate views is least likely correct?

A. Statement 1.
B. Statement 2.
C. Statement 3.

3. Which of the following statements regarding Whitney's recommendations for Norris' three clients is most likely correct?

A. Client 1 will only achieve the guaranteed value if the term structure of interest rates is downward sloping.
B. Client 2 will meet the necessary conditions for a multiple-liability immunization in the case of a non-parallel rate shift.
C. Client 3 will require less money to fund liabilities with the proposed strategy relative to cash flow matching.

Case 2: Farro

Aina Farro and Aninda Kumar are portfolio managers at High Income Advisors, LLC (HIA), and an institutional fixed income firm based in Portsmouth, NH. Farro and Kumar manage credit portfolios for clients that include pension funds and endowments. HIA has been selected as one of three finalists to potentially manage a credit portfolio for the Delmarva City pension fund. They are making a presentation to Delmarva's investment committee, discussing HIA's investment process and trading strategies.

Farro begins the presentation by telling the investment committee that the firm's current macro view is the domestic economy is beginning to slow down given the sluggish global economic environment and, from a trading perspective, bid–ask spreads are widening.

She then begins to articulate HIA's broad capabilities in fixed income. She describes the firm's investment process using relative value as follows, "We employ a traditional portfolio construction process. Our approach is to use top-down analysis to drive asset allocation while the bottom-up component focuses on individual issuer and issue selection. Our goal with regard to relative value analysis is to identify the best values across spread sectors by ranking investments by sectors, structures, and issuers."

Nikki Winston, an investment committee member, asks Kumar to explain the various return measures contained in the presentation. Kumar responds, "In the context of a credit relative value framework, total return is often the goal of portfolio management and reflects gains and losses from both the movement of interest rates as well as the contraction and expansion of credit spreads. Excess returns refers to the credit component of total return without adjusting for the duration differential among asset classes. Relative value analysis is used to generate a ranking of expected returns during a future period of time. The analysis of expected returns is primarily focused on estimating future returns by de-composing historical patterns that are likely to recur."

Farro makes a statement regarding portfolio liquidity. "Our approach is to balance liquidity in the portfolio with the additional spread you get for holding less liquid issues. Since liquidity in the market varies over time, we monitor market conditions and position portfolios accordingly." Gomes points out, "We are unsure of our cash flow needs but may need to redeem some portion of this portfolio in the near term."

1. Is Farro's description to the investment committee of traditional portfolio construction using relative value analysis most likely correct?

A. Yes.

B. No, she is incorrect with regards to approach.

C. No, she is incorrect with regards to relative value analysis.

2. Which return measure that Kumar explains to Winston is least likely defined correctly?

A. Total return

B. Excess return

C. Expected return

3. Which is the most likely portfolio management implication for Farro given Gomes' comments about liquidity? She will:

A. favor purchases of large corporate issues to private placements.

B. require a smaller liquidity premium when buying large medium-term notes.

C. ignore the liquidity premium for certain issues.

Case 3: Kingsbridge

London-based Kingsbridge Partners has been selected to manage a GBP150 million global bond portfolio for a pension fund. Jonathan Bixby, CFA, Kingsbridge's portfolio manager, meets with Iain Seymour, CFA, a fixed income analyst at the firm to review the portfolio and its holdings relative to the client's objectives.

The pension fund allows the use of 100% leverage to generate incremental returns. Bixby evaluates the use of leverage in the portfolio using the data in Exhibit 1.

Exhibit 1		
	Assets	**Liabilities**
Portfolio (GBP millions)	300	150
Duration	5.50	1.00
Expected Return or Cost (%)	4.75	3.95

Bixby's current macro view is that the economy is growing at a rate above the trend rate and, as a result, interest rates are likely to rise. Given his view, he is concerned the duration of the portfolio is inappropriate and plans to use the futures market to manage its interest rate risk. His new duration target for the asset portfolio is 4.25, and he uses the data in Exhibit 2 to reposition the portfolio.

Exhibit 2 Futures Market Data	
Futures Contract Price	GBP100,500
Conversion Factor	1.12
Duration of Cheapest to Deliver Bond	5.3
Price of Cheapest to Deliver Bond	GBP97,750

Seymour suggests to Bixby that as an alternative to futures he could use interest rate swaps or options to alter the portfolio's duration. He says he can alter the duration by receiving fixed and paying floating on a swap. Seymour also suggests that buying a protective put will achieve the hedging objective but provides more upside if Bixby is wrong about the future direction of interest rates. He says Bixby can also express his view by writing a covered call and not incur the cost of the premium.

Bixby asks Seymour whether the model portfolio should be hedged back to its domestic currency, the pound sterling (GBP). Bixby tells him that actively managing currency risk is an expected source of incremental returns for the portfolio and has historically accounted for 25% of Kingsbridge's alpha relative to the benchmark.

Seymour refers to the data in Exhibit 3 to support his current view that currency exposure in the portfolio should be actively managed.

Exhibit 3 Currency Market Data			
	United States	**Eurozone**	**United**

			Kingdom
Risk free rate – One Year	0.25%	1.50%	0.90%
Spot rate (GBP per USD or EUR)	0.6098	0.8929	—
Forward rate (GBP per USD or EUR)	0.6137	0.8875	—
Kingsbridge forecast spot rate in 1 year	0.6173	0.8850	—

1. Based on the data in Exhibit 1, the duration of equity in the leveraged portfolio is closest to:

A. 4.50.

B. 5.00.

C. 10.00.

2. Given Bixby's new target duration and the data in Exhibits 1 and 2, the most appropriate action using Treasury futures is to sell:

A. 646 contracts.

B. 789 contracts.

C. 811 contracts.

3. Which of Seymour's comments regarding alternative ways to alter the portfolio's duration is most likely correct? The comment regarding:

A. interest rate swaps.

B. a protective put.

C. the covered call.

4. Based on the data in Exhibit 3, the most likely action that Kingsbridge would take to actively manage the portfolio's currency exposure in the currency forward markets is to sell:

A. USD and buy EUR.

B. EUR and buy USD.

C. USD, sell EUR, and buy GBP.

Case 4: Chesapeake Partners

Virginia Norfolk, CFA, is head of the client strategy committee at Chesapeake Partners, LLC, an investment consulting firm. Chesapeake advises a diverse client base on a variety of investment matters including asset allocation and manager selection. Each month the committee meets to discuss client inquiries and assignments the consultants are working on. Norfolk convenes the committee to discuss pressing issues for several clients.

Norfolk asks William Burg, a field consultant, to present on a new client, a small college that Chesapeake advises with regard to their pension fund and endowment. Burg needs to recommend to the client an appropriate benchmark for each fund. Burg tells the committee, "I recommend that the pension fund benchmark be changed from the pension's liabilities as the benchmark to a bond market index. The pension is closed to new participants and thus the amount and timing of future cash flows are known. The endowment is invested across many asset classes and generate an adequate return to meet its obligations, which consists of a 5% annual contribution to the college's operating fund. The endowment's benchmark for fixed-income managers should continue to be a bond market index, such as Barclays Aggregate Bond Index."

Alex Manassas, a committee member, asks Burg, "What factors do you consider in selecting a benchmark bond index?" Burg responds, "I look at three key factors when selecting a benchmark. Market value risk should be similar for the portfolio and the benchmark. The longer the duration, the greater the total return potential because rates are low now and the yield curve is so steep. Income risk is important for comparable assured income streams, which can be more stable and dependable in a portfolio with long maturities. The average credit risk in the benchmark should be measured against the investor's overall portfolio and satisfy credit quality constraints in the policy statement."

Boris Markov, CFA, is the firm's actuary and expert on asset liability management. His client is a life insurance company that sells guaranteed investment contracts (GICs). The company hired Chesapeake because it has not met the target yield of 4% on the GICs it sold. Markov proposes a new approach to satisfy the obligation: "First, the new single-period immunization strategy should require as a minimum condition that the duration of the bond portfolio equal the investment horizon. In addition, if the bond portfolio has a yield to maturity equal to the target yield and a maturity equal to the investment horizon, then the target value will be achieved".

Juan Ramirez, CFA, Chesapeake's chief investment officer, brings forward to the committee two investment issues that he would like to discuss. Ramirez tells the committee, "Some of our client's portfolios are for the purpose of funding liabilities, and I am concerned that these liabilities will not be met, given certain risks. In particular, I have noticed that client portfolios have a substantial position in mortgaged-backed securities. We should reallocate these securities

to invest in corporate bonds so the portfolio's convexity matches that of the liabilities."

Ramirez then presents the committee with the second investment issue. He is focused on a presentation that Alpha Managers, an investment firm that hopes to make it onto Chesapeake's "buy list," made recently. He tells the committee, "I am perplexed by the bottom-up capability that Alpha claims to have in adding value to portfolios. They claim to have a bias to yield maximization across securities without regard to rating differentials."

1. Is Burg correct with regard to his recommendations to the committee regarding benchmarks for the pension and endowment respectively?

A. Pension: Correct, Endowment: Correct

B. Pension: Incorrect, Endowment: Correct

C. Pension: Correct, Endowment: Incorrect

2. Is Markov correct regarding the necessary conditions to immunize the GIC portfolio for his client?

A. No, he is incorrect regarding the bond portfolio characteristics

B. No, he is incorrect regarding duration

C. Yes

3. Ramirez most likely criticizes the relative-value methodology that Alpha uses to add value because:

A. it better reflects a top-down approach to portfolio management.

B. a total return approach is a far superior framework.

C. it better reflects a structure trade.

Case 5: Laredo Advisers

Tyler Austin is a fixed-income portfolio manager at Laredo Advisers. He manages a $1 billion fund that opportunistically seeks the best ideas across fixed-income markets. He meets daily with Odessa Houston, the fund's senior analyst to discuss trade ideas that might be implemented that day. Austin has identified six ideas that he would like Houston to evaluate in more detail for potential inclusion in the fund.

Austin notes that the current low level of interest rates is limiting the potential absolute return the fund generates. He asks Houston to evaluate the use of leverage to enhance returns. He can borrow 25% of the fund's value at an annual interest rate of 1.50% and earn a rate of return of 5% per year on the invested funds.

Austin also asks Houston whether the euro-denominated bonds they buy should be hedged back to the US dollar, the fund's domestic currency. Houston responds that they should hedge back to the US dollar because short-term interest rates are 2.50% in the eurozone and 0.25% in the United States, and her forecast shows that she expects the euro to depreciate by 1.75% relative to the US dollar.

1. If Austin uses leverage as he proposes, the rate of return on the portfolio's equity will be closest to:

A. 4.70%.

B. 6.25%.

C. 5.88%.

2. Based on Houston's forecast for the euro relative to the US dollar, and assuming interest rate parity holds, should Austin most likely hedge the portfolio's euro exposure using forward contracts?

A. No, because the euro is expected to depreciate by more than implied by the forward contracts

B. Yes

C. No, because the euro is expected to depreciate by less than implied by the forward contracts

Case 6: Andres Rioja

Andres Rioja is the treasurer of Empresas Crianza. His duties have recently been expanded to include oversight of the firm's pension fund. Given his limited experience in overseeing investments, he is relying on an outside consultant. Rioja prepares a number of questions for his first meeting with the consultant, Manolo Priorat of Consulta Jerez.

Priorat starts the meeting by summarizing for Rioja the status of the defined benefit pension plan and makes the following statement:

The pension liability has a duration of 14 years and a present value of $4 billion. The liabilities are discounted using the spot rate on high-quality long-term corporate bonds. Presently, the asset portfolio covers 87.5% of these liabilities and is invested entirely in fixed-income assets. The plan assets have fallen short of the pension liabilities over the past five years because their durations are not properly matched. I am concerned that Crianza has selected the wrong benchmark for the pension plan. The current benchmark is a weighted average of the benchmarks for the various strategies used in the investment of pension assets. I believe the appropriate benchmark should be the liability itself.

Priorat and Rioja review the fixed-income funds in which the pension assets are currently invested. Portfolio managers have been given the mandate to meet or exceed their respective benchmarks based on their investment styles. Details of the various portfolios are provided in Exhibit 1.

Exhibit 1 Portfolio Information

Portfolio	Duration (years)	Asset Value ($ thousands)	Benchmark	Investment Style
Money market	0.25	175,000	3-Month US T-Bill	Active management
Mortgage-backed securities fund	3	700,000	Barclays Mortgage	Enhanced indexing
Emerging market bond fund	4.6	675,000	JP Morgan EMBI	Active management
Long corporate bond fund	14	1,575,000	Barclays Long Corporate	Active management
Treasury bond STRIPs	24	375,000	Barclays 20+Year STRIP	Pure bond indexing

Rioja updates Priorat on Crianza's current plans for the pension plan. Rioja states: "Crianza will make a $500 million contribution to fully fund the plan and invest the funds in Treasury STRIPs. In addition, we would like to completely reallocate pension investments away from the fund that presents the greatest contingent claim risk and into the long corporate bond fund."

Rioja then asks Priorat, “I would like to understand the risk profile of each index benchmark we have assigned to the portfolio managers. What measures are available to do this?” Priorat responds,

There are several key measures that come to mind. Effective duration measures the sensitivity of the index’s price to a relatively small parallel shift in interest rates. For large non-parallel changes in interest rates, a convexity adjustment is used to improve the accuracy of the index’s estimated price change. Key rate duration measures the effect of shifts in key points along the yield curve. Key rate durations are particularly useful for determining the relative attractiveness of various portfolio strategies, such as bullet strategies versus barbell strategies. Spread duration describes how a non-Treasury security’s price will change as a result of the widening or narrowing of the spread contribution.

1. Is Priorat's statement with regard to selecting a benchmark for the pension plan most likely correct?

A. No, because Crianza should select a high-quality long-term corporate bond index as the benchmark

B. Yes

C. No, because the current benchmark is appropriate to measure each strategy's performance

2. For which portfolio in Exhibit 1 is a sampling approach most likely to be used in an attempt to match the primary index risk factors?

A. Treasury STRIPs

B. Emerging market bond fund

C. Mortgage-backed securities fund

3. If Rioja rebalances the portfolio as he proposes in his statement to Priorat, the dollar duration of the assets relative to the dollar duration of the liabilities is most likely to:

A. fall well short.

B. be nearly matched.

C. be far exceeded.

4. In Priorat’s response to Rioja regarding the explanation of key measures of an index’s profile, he is most likely correct regarding:

A. convexity adjustment and incorrect regarding key rate duration.

B. key rate duration and incorrect regarding convexity adjustment.

C. spread duration and incorrect regarding effective duration.

Case 7: Midwest

Erik Smith, CFA, is director of investments for Midwest Industries' pension fund. He is meeting with James Brown, ASA, his actuary, and Paul Jones, CFA, an investment consultant, to discuss changes to the fund's management and asset allocation. Brown makes the following statement regarding Midwest's pension plan:

Discounting the projected benefit cash flows using a market-based discount rate of 6.2%, I find that the present value of Midwest's pension fund is $1 billion. The fund's duration is 12, and the plan assets currently cover 100% of this liability. Because the objective is primarily to meet these liabilities and we are using market rates as the discount rate, we should select a bond market index as the benchmark.

Jones offers his opinion on the appropriate investment strategy for the pension fund:

I believe that an immunization strategy that meets multiple liabilities is the best strategy. For multiple liability immunization, the necessary and sufficient conditions are: (1) the duration of the portfolio must equal the duration of the weighted average liabilities and (2) the distribution of durations of individual portfolio assets must have a wider range than the distribution of the liabilities. This strategy will not require us to rebalance the portfolio if interest rates change.

Smith expresses some concerns about immunization as a strategy:

Even if immunization minimizes risk, it assumes that the yield curve shifts in a parallel fashion, which is not what I have observed in the market. In addition, with immunization, the ability to earn some incremental return to offset additional benefit requirements is not possible.

Jones then comments on the portfolio holdings:

The current portfolio contains 40% in mortgage-backed securities (MBS), which present certain risks when immunizing a portfolio. These securities have market values that are below their purchase prices, and I am reluctant to recommend a sale in which we have to recognize a loss.

The discussion progresses to the implementation of an investment strategy. Brown presents several alternative portfolios that could be used to implement this strategy. Before presenting the portfolios, he states:

Although the pension fund is currently fully funded, I am concerned that future service benefits are not covered unless we make additional contributions. We should evaluate the following alternative portfolios to determine which one best addresses this concern while covering the liability's market-related exposures.

Portfolio A: The fixed-income assets will closely mimic the liabilities with regard to both expected return and variability. This portfolio is a low-risk strategy to meet our objectives.

Portfolio B: This portfolio hedges uncompensated liability risks, such as interest rate risk, with derivatives. This approach would free up capital to invest in higher-returning assets, such as

equities and bonds.

Portfolio C: This portfolio has a traditional mix of securities, with 60% in equities and the remainder in medium-duration bonds, but does not fully hedge interest rate risk.

Smith is not completely convinced that the portfolio choices offer the right approach for the pension fund, and he offers the following alternative:

I believe cash flow matching is a superior strategy. It allows funds to be available when each liability is due and requires less cash to fund liabilities. A conservative interest rate assumption for cash must be made throughout the life of the plan.

1. Based on Midwest's stated objective, has Brown recommended the most appropriate benchmark?

A. No, because the liability itself is the benchmark

B. No, because the benchmark should contain a broader universe of asset classes

C. Yes

2. Jones's opinion of the appropriate investment strategy for the pension fund is least likely correct with respect to:

A. rebalancing the portfolio under certain conditions.

B. the distribution of durations.

C. matching durations.

3. Smith's concerns regarding immunization as a strategy are best addressed by:

A. decreasing the dispersion of cash flows around the horizon date.

B. matching assets to liabilities by using functional duration and targeting a cushion spread.

C. increasing the dispersion of cash flows around the horizon date and targeting a cushion spread.

4. Based on Brown's concerns regarding future benefits, which portfolio is the most appropriate?

A. Portfolio C

B. Portfolio B

C. Portfolio A

5. Is Smith's assertion about cash flow matching most likely correct?

A. No, he is incorrect regarding the interest rate assumption.

B. Yes.

C. No, he is incorrect regarding cash balances.

Case 8: Berg

Alpha Consultants is working with the German-based Berg Pension Fund to select a fixed-income firm to manage a €100 million global bond portfolio. Delta Managers is the third and final presenter to Berg's investment committee. After going through its investment philosophy and process, Delta addresses several questions.

Alpha expresses concern about the use of leverage in the portfolio. Delta indicates that by using 100% leverage, it can generate incremental returns. Delta provides the committee with the portfolio's characteristics in Exhibit 1.

Exhibit 1 Portfolio Characteristics		
	Assets	**Liabilities**
Portfolio (€ millions)	200	100
Duration	6	1
Expected return (%)	5.5	—
Interest rate on borrowed funds (%)	—	4.75

Berg's committee is concerned that the portfolio's duration is inappropriate given the committee's view that rates might rise. They ask how Delta can use the futures market to manage the portfolio's interest rate risk. The committee states that it would like a target duration of 4.

Exhibit 2 Futures Market Data	
Futures contract price	€ 100,000
Conversion factor	1.15
Duration of cheapest-to-deliver bond	5.2
Market price of cheapest-to-deliver bond	€ 98,000

Delta then makes the following statement to the committee:

Berg's committee then asks Delta to make a recommendation about whether the portfolio should be hedged back to the euro, its domestic currency. Delta responds that short interest rates are currently 2.50% in the United Kingdom and 3.25% in Germany and that Delta's currency strategists forecast that the euro will depreciate by 0.35%.

Berg's committee then asks whether a global portfolio would benefit from the inclusion of emerging market debt. Delta responds that returns can be attractive in emerging markets during certain periods but that the following risks of this asset class must be understood:

Risk 1: Returns are frequently characterized by substantial positive skewness.

Risk 2: If a default of sovereign debt occurs, recovery against sovereign states can be difficult.

Risk 3: The frequency of default and ratings transition is significantly higher than it is in developed market corporate bonds with similar ratings.

At the conclusion of the presentation, Alpha and Berg's committee convene to discuss which

of the three managers that presented should be selected for the €100 million mandate. Alpha advises Berg that the following considerations are important when evaluating fixed-income portfolio managers:

Criterion 1: Style analysis will enable us to understand the active risks the manager has taken relative to the benchmark and which biases have consistently added to performance.

Criterion 2: Decomposing the portfolio's historical returns will show whether the manager's skills will allow the manager to consistently outperform over time.

Criterion 3: We could select two of the three managers that presented if our analysis shows that the correlation between their alphas is low.

1. Based on Exhibit 1, the duration of the equity in the leveraged portfolio is closest to:

A. 5.00.

B. 11.00.

C. 5.50.

2. Based on Exhibits 1 and 2, and assuming no leverage is used, the number of futures contracts Delta needs to sell to achieve the Berg committee's target duration is closest to:

A. 682.

B. 784.

C. 902.

3. Based on Delta's expectations regarding currencies, and assuming that interest rate parity holds, should Delta most likely recommend using forward contracts to hedge the portfolio's British pound exposure?

A. No, because the euro is expected to depreciate by more than 0.35%

B. Yes

C. No, because the euro is expected to appreciate by more than 0.35%

4. Delta is least likely correct with respect to which risk of investing in emerging market debt?

A. Risk 1

B. Risk 2

C. Risk 3

Case 9: Aina Monts

Aina Monts, CFA, is a fixed income portfolio manager at Girona Advisors. She has been awarded the management of a €150 million portfolio for Fondo de Pensiones Lerida, a pension fund based in Barcelona, Spain. The previous manager was fired for underperforming the benchmark by more than 100 basis points in each of the last three years. Lerida's primary objective is to immunize its liabilities, which have a duration of 4.40 years, while achieving a total rate of return in excess of the Barclays Capital U.S. Aggregate Bond Index. The benchmark's duration is currently 4.42 years. At Girona's portfolio review meeting, Monts makes the following statement:

Statement 1: "We will invest the €150 million in a multi-sector portfolio with a yield-to-maturity of 6.75%. This is above Lerida's required rate of return of 6.25%. The duration of the portfolio will be equal to the duration of the liabilities and we will manage the portfolio with an expectation of beating the Barclays Capital U.S. Aggregate Bond Index."

Monts will rebalance the portfolio by investing in securities that her research group has identified as providing the most attractive total return potential. Sector allocations for her portfolio and the benchmark, are presented in Exhibit 1.

Exhibit 1 Sector Weightings

	Portfolio			Benchmark		
Sector	**% of Portfolio**	**Duration**	**Contribution to Spread Duration**	**% of Portfolio**	**Duration**	**Contribution to Spread Duration**
Treasury	27.92	5.0	0.00	30.00	3.8	0.00
Mortgage - MBS	24.76	3.7	0.92	22.90	4.0	0.92
Corporate	47.32	4.5	2.13	47.10	5.0	2.37
Total	100.00		3.05	100.00		3.29

Monts also uses security selection in addition to sector rotation as sources of alpha and is evaluating several new trades. At the portfolio review meeting, Monts makes the following statements:

Statement 2: "I am concerned that certain types of securities in the portfolio pose a risk of not providing sufficient cash flow to pay liabilities when they come due. The allocation to mortgage-backed securities in the portfolio, for instance, exposes us to contingent claims risk. We should therefore increase the allocation to non-callable fixed-rate corporate bonds, which do not expose us to contingent claims risk."

Statement 3: "Our research team anticipates that the credit fundamentals of most issuers will deteriorate over the coming months as the economy contracts. The market consensus is not in line with our view yet and spreads do not reflect the proper

valuation."

Statement 4: "Structural analysis of corporate bonds is a key part of our research process. Given Girona's view that interest rates are in secular decline, we expect callable bonds to outperform bullets. In the event interest rates rise sharply, put structures will provide investors with some protection."

1. Based on Monts' Statement 1, the extension of classical immunization theory that Monts will use to meet Lerida's investment objective is best described as:

A. contingent immunization.
B. symmetric cash flow matching.
C. multiple liability immunization.

2. Based on the data in Exhibit 1, Mont's positioning of the portfolio would suggest that the sector that poses the most tracking error relative to the benchmark is:

A. treasury.
B. mortgage.
C. corporate.

3. Is Mont's Statement 2 mostly likely correct?

A. Yes.
B. No, she is incorrect about corporate bonds.
C. No, she is incorrect about mortgage-backed securities.

4. The strategy that is most likely to benefit from the environment described by Monts in Statement 3 is to:

A. increase exposure to the crossover sector.
B. rotate from consumer non-cyclical to consumer cyclical sectors.
C. shift the portfolio's positions to shorter duration corporate bonds.

5. Is Monts' Statement 4 most likely correct?

A. Yes.
B. No, because callable bonds would underperform.
C. No, because putable bonds would not provide protection.

Case 10: Mike Spong

Jennifer Simko's fixed income portfolio has underperformed its benchmark, the Barclays Capital Aggregate Bond Index. Simko has asked her investment advisor, Mike Spong, to recommend a new fixed income manager. Spong has selected three fixed income portfolio managers for Simko to consider:

- Mondavi Investment Partners
- Smithers Associates
- Vertex Group

Selected characteristics for each manager's portfolio are provided in Exhibit 1.

Exhibit 1 Selected Portfolio Characteristics for the Benchmark Portfolio and Three Potential Fixed Income Managers, December 2009

Percent of Market Value				
Sector	Benchmark	Mondavi	Smithers	Vertex
Treasury	25	25	20	15
Agency	11	11	11	0
Credit	25	25	30	24
Mortgage	34	34	35	43
Asset-backed	2	2	0	2
CMBS	3	3	4	8
Cash	0	0	0	8
Total	100	100	100	100
Contribution to Spread Duration				
Treasury	0.0	0.0	0.0	0.0
Agency	0.4	0.4	0.4	0.0
Credit	1.4	1.4	1.6	1.1
Mortgage	1.5	1.5	1.6	1.7
Asset-backed	0.0	0.0	0.0	0.2
CMBS	0.1	0.1	0.1	0.5
Cash	0.0	0.0	0.0	0.0
Total	3.4	3.4	3.7	3.5

Note that in Exhibit 1, the portfolio duration for the benchmark, Mondavi Investment Partners and Smithers Associates portfolios is 4.7. Portfolio duration for Vertex Group is 4.3. Spong makes the following statements to Simko regarding Exhibit 1:

1. "Mondavi follows a full-replication approach where portfolio performance will match the fixed income benchmark's performance. Mondavi's portfolio sector weights, duration, convexity, and term structure match those of the benchmark. Smithers's

portfolio characteristics do not match the benchmark's because Smithers has minor risk factor mismatches with the benchmark."

2. "Vertex's strategy is to construct a portfolio that has significant mismatches with the benchmark with respect to duration, key rate duration, and sector allocations. Vertex also relies on proprietary interest rate forecast models to generate superior portfolio returns. Vertex's objectives are to ensure that tracking risk is minimized and portfolio return exceeds benchmark return."
3. "Vertex also positions the portfolio to reflect the firm's opinions on the direction of interest rates and credit spreads. Over the next six months Vertex is forecasting:
    - low and stable implied interest rate volatility,
    - spreads to narrow in all other spread sectors,
    - a positively sloped yield curve with short rates rising 25 basis points and long rates rising by about 75 basis points."

1. Based on Exhibit 1 and Statement 1, Smithers's investment strategy is best described as:

A. pure bond indexing
B. enhanced indexing.
C. active management.

2. Based on Exhibit 1 and Statement 1, one disadvantage of the investment strategy followed by Mondavi is that the portfolio will most likely:

A. be expensive to construct.
B. result in a poorly diversified portfolio.
C. have higher advisory and non-advisory fees.

3. In Statement 2, are Vertex's objectives with regard to tracking risk and portfolio return consistent with its strategy?

A. Yes.
B. No, the objective regarding tracking risk is inconsistent with its strategy.
C. No, the objective regarding portfolio return is inconsistent with its strategy.

4. Given Vertex's interest rate volatility and yield curve forecasts in Statement 3, compared to bullet structures, callable structures and putable structures, respectively, will most likely:

	Callable Structures	Putable Structures
A.	underperform	outperform
B.	outperform	underperform

C. outperform outperform

5. Given Vertex's forecasts in Statement 3, the most appropriate strategy for Vertex is to:

A. lengthen duration in all spread sectors.

B. lengthen duration in the credit sector and shorten it in the Treasury sector.

C. shorten duration in the credit sector and lengthen it in the Treasury sector.

Case 11: Allied Advisors

The Flagstone College endowment fund recently received a significant donation and has decided to allocate the new funds to fixed income. Flagstone selected Allied Advisors to manage the fixed income portfolio and is currently evaluating Allied's recommendations on structuring the portfolio. Greg Thorne, fixed income portfolio manager with Allied Advisors, is meeting with the endowment fund's trustees. Jerome Moir, a trustee, makes the following statements:

Statement 1: "We want to use portfolio returns to fund as many scholarships as possible; the endowment fund has no specific liabilities to meet."

Statement 2: "The endowment fund's investment policy statement indicates a medium term time horizon and seeks to avoid capital losses."

Thorne responds: "Irrespective of whether you have specific liabilities to meet, a bond market index must be selected that will serve as a benchmark."

Thorne then presents the trustees with four benchmarks that could be used to evaluate the performance of a fixed income portfolio. The characteristics of the benchmarks are outlined in Exhibit 1.

Exhibit 1 Fixed Income Benchmark Indices		
Benchmark Index	**Duration**	**Bond Sectors Represented**
Barclays 1-3 year Government / Corporate	1.8	Investment grade corporate and U.S. Treasury
Barclays Aggregate	4.9	Investment grade corporate, ABS, MBS, U.S. Treasury
Barclays U.S. High Yield	4.8	Corporate below investment grade
Barclays Long Government / Corporate	8.7	Investment grade corporate and U.S. Treasury

Moir asks Thorne to present the historical performance of one of Allied's portfolios relative to the benchmark index. Thorne's comparison is shown in Exhibit 2.

Exhibit 2 Allied Representative Portfolio vs. Benchmark		
Year	**Portfolio Return***	**Benchmark Return**
2004	9.70%	9.40%
2005	-3.50%	-3.75%
2006	5.40%	6.00%
2007	0.75%	1.00%
2008	6.95%	6.25%
*Returns are net of management fees of 0.15% annually.		

Moir also is interested in the risks that Allied takes in spread sectors. He asks for additional information on the amount of spread risk in Allied's portfolio relative to the benchmark. Thorne

responds with the information shown in Exhibit 3.

Exhibit 3 Contribution to Spread Duration				
	Portfolio		Benchmark	
Sector	% of Portfolio	Contribution to Spread Duration	% of Portfolio	Contribution to Spread Duration
Treasury	44.0	0.0	45.0	0.0
Corporate	22.5	1.96	23.0	1.38
Mortgage	14.0	0.42	17.0	0.53
Asset backed	19.5	0.49	15.0	0.40
Total	100.0	2.87	100.0	2.31

Moir then asks Thorne for his interest rate forecast for the coming year. Thorne responds, "At Allied we expect long rates to underperform short rates causing a twist in the yield curve."

1. Is Thorne's statement regarding the selection of a bond market index as a benchmark most likely correct?

A. Yes

B. No, because if the portfolio has a liability to meet, then the liability becomes the benchmark

C. No, because the selection of a bond market index is only required if a full-blown active management strategy is followed

2. Based on Statement 2 made by Moir and the information presented in Exhibit 1, the most appropriate benchmark for Flagstone's endowment fund is the:

A. Barclays Aggregate.

B. Barclays U.S. High Yield.

C. Barclays 1-3 year Government/Corporate.

3. The strategy of the portfolio whose returns and risk characteristics are presented in Exhibits 2 and 3 is best described as:

A. enhanced indexing by minor risk factor mismatches.

B. active management by larger risk factor mismatches.

C. enhanced indexing by matching primary risk factors.

4. Given the information in Exhibit 3, a mismatch of risk exposures between the portfolio and the benchmark should most likely be attributed to the:

A. mortgage sector.

B. corporate sector.

C. asset backed sector.

5. Given Thorne's interest rate forecast, which method for managing interest rate risk relative to the benchmark will be most effective?

A. Key rate duration

B. Effective duration

C. Convexity adjustment

Case 12: Robert Waterman

Robert Waterman, CFA, and Sophia Chen, CFA, are portfolio managers of a U.S-based investment firm, Simon Fraser Analytics. Waterman and Chen are thinking investing in U.S. and U.K bonds. They consider all kinds of yield curve and other strategies. Exhibit 1 shows the data they collected from the liquid government bonds on U.S and U.K market.

Exhibit 1 Government Bonds Yield		
Duration	United States	United Kingdom
0.9	0.5%	1.00%
1.9	0.8%	1.70%
3.0	1.00%	2.00%
4.1	1.10%	2.10%
4.9	1.20%	2.20%
5.8	1.25%	2.25%

Also both of them are interested in:

1. Riding the yield curve over next year
2. Long or short call and/or put options on U.K. government bonds through purchasing convexity
3. Carrying out a carry trade between U.S and U.K 3-year duration bonds.

Waterman and Chen consider to buy a bond issued by a Norwegian BeeBalm Manufacture firm. Exhibit 2 shows their expectation.

Exhibit 2 BeeBalm Manufacture firm bond data	
Risk free rate in Norway	2.8%
Risk free rate in U.S.	0.50%
Return on BeeBalm bond in Norwegian NOK	7.00%
Expected changes in the NOK relative to the U.S. dollar	-0.40%

According to their market expectation, they decide to hedge the NOK currency risk with a one-year forward contract after investing in the BeeBalm bond. However, they find that market has become inactive resulting in high transaction costs. There is a more active forward market for the Swedish currency (SEK), so they determine to construct a cross hedge by selling the SEK forward to buy the USD.

Lastly, Waterman and Chen think about to purchase a BB-rated U.S. corporate bond with a duration of 3.5 and a yield of 3.7%. While they do not agree on the best way to measure the credit spread, they both agree its credit will improve and spread will narrow down.

- Waterman says we can use Exhibit 1 to calculate the G-spread of the U.S. bond as being 3.64%
- Chen says the I-spread is superior because it is based on swap fixed rates and these have less credit risk.

- Chen also admit that G-spread has an advantage because it is the return we can expect to earn if we hedge interest rate risk.

1. Based on the data presented, it is more likely correct to say a “riding the yield curve” strategy:

A. Assumes the level of the yield curve will change.
B. Would be more profitable in the U.K than in the U.S.
C. Cannot work in the U.S. yield curve environment.

2. Buying convexity will most likely:

A. involve increasing the portfolio’s yield.
B. require selling calls but not puts.
C. require buying both calls and puts.

3. Based on the data presented, it is most correct to say the carry trade:

A. Involves borrowing in the U.S. and investing in the U.K.
B. Does best when interest rate parity correctly predicts the change in value of currencies.
C. Would perform better if U.S. rates decrease and U.K. interest rates increase.

4. Based on the data in Exhibit 2, should the BeeBalm Manufacture bond be hedged against currency risk and what is the hedged return?

A. No, the hedge return is 4.70%
B. No, the hedge return is 6.60%
C. Yes, the hedge return is 6.60%

5. In order for the cross hedge of selling the SEK forward to work, the correlation of:

A. SEK and NOK must be high, approaching +1
B. SEK and USD must be high, approaching +1
C. Both the SEK and NOK must be highly correlated to the USD, approaching +1

6. Regarding their statements concerning the spread for the BB-rated U.S. corporate bond, the most correct statement is :

A. Waterman’s comment on G-spread.
B. Chen’s comment on I-spread.
C. Chen’s comment on G-spread.

Case 13: Samuel Morse

Samuel Morse, CFA, is a senior analyst in the Balance Sheet Strategy Division of Bayside Insurance.Morse has been asked to contrast the merits of cash flow matching and duration matching. Bayside presently uses both strategies, but given the recent increase in volatility in US interest rates over the last month, Bayside's management wants to better prepare for future opportunities.

Morse also considers the use of derivatives to manage interest rate risk. This would be a new strategy for Bayside. Morse determines the number of bond futures needed to immunize the overall interest rate risk exposure of the company. The basis point value (BPV) for the asset portfolio is 48,000, while the liability portfolio has a BPV of 22,000. To facilitate her analysis, Morse compiles the additional information related to bond futures shown in Exhibit 1.

Exhibit 1	5-Year T-Note
Modified duration	4.72
BPV per 100,000 in par value	44.8
Conversion factor for cheapest-to-deliver	0.8

Morse intends to construct sample portfolio structures by shifting the allocations between three tenors of bullet government bonds: 2-year, 10-year and 30-year US Treasury securities. The allocations in the sample portfolios are shown in Exhibit 2. The expected return estimates for the 2- and 30-year bonds, which are shown in Exhibit 3.

Exhibit 2 Sample Portfolio Allocation			
Sample Portfolio	2-year	10-year	30-year
1	50%	0%	50%
2	20%	70%	10%
3	40%	30%	30%

Exhibit 3		
	2-year	10-year
Annual coupon payment	4.75	6.00
Current bond price	100	100
Expected price in one year	101.05	101.00

Morse interviews Horace Mann to assist him in evaluating fixed-income funds and securities for the bank's fixed-income offerings. Morse shows his the following financial data of three funds presented in Exhibit 4 and asks him to review each fund. Mann assumes that there is no reinvestment income and the yield curve remains unchanged in the preliminary review of each fund.

Exhibit 4 Selected Data on Global Bond Portfolio

Current average bond price	97
Expected average bond price in one year (end of Year 1)	97.5
Average annual coupon payment	2
Average bond convexity	0.30
Average bond modified duration	4.25
Expected average yield and yield spread change	0.20%
Expected credit losses	0.20%
Expected currency gains (US$ appreciation)	0.30%

Morse recommends Treasuries from the existing portfolio that he believes are overvalued and will generate capital gains. Mann asks Morse why he chose only overvalued bonds with capital gains and did not include any bonds with capital losses. Morse responds with two statements.

Statement 1 Taxable investors should prioritize selling overvalued bonds and always sell them before selling bonds that are viewed as fairly valued or undervalued.

Statement 2 Taxable investors should never intentionally realize capital losses.

1. Which immunization strategy is most likely to be more negatively impacted by non- parallel shifts in the yield curve?

A. Cash flow matching.

B. Duration matching.

C. The strategies will perform the same.

2. The number of five-year T-note futures contracts required to be sold in order to rebalance the immunizing portfolio is closest to:

A. 329 contracts.

B. 464 contracts.

C. 501 contracts.

3. Which portfolio is most likely to benefit from a flattening yield curve environment?

A. Portfolio 1.

B. Portfolio 2.

C. Portfolio 3.

4. Given the expected prices over the next year, which bond has the higher expected total return?

A. The 2-year.

B. The 30-year.

C. Both bonds have the same expected total return.

5. Based on Exhibit 4, the total expected return of the fund's global bond portfolio is closest to:

A. 3.52%.

B. 2.31%.

C. 1.83%.

6. Are Morse's statements to Mann supporting Morse's choice of bonds to sell correct?

A. Only Statement 1 is correct.

B. Only Statement 2 is correct.

C. Neither Statement 1 nor Statement 2 is correct.

Case 14: Louis Armstrong

Louis Armstrong are analysts with Cefrino Investments, which sponsors the Cefrino Sovereign Bond Fund (the Fund).

Armstrong develops two alternative portfolio scenarios based on his own yield curve outlook. Construct a condor to benefit from less curvature in the 5-year to 10-year area of the yield curve. The condor will utilize the same 1-year, 5-year, 10-year, and 30-year bonds held in the Fund. The maximum allowable position in the 30-year bond in the condor is $15 million, and the bonds must have equal (absolute value) money duration.

Armstrong evaluates the Fund's positions from Exhibit 1:

Exhibit 1 Sovereign bonds fund current fund holdings of on- the-run bonds		
Maturity	**Coupon/YTM**	**Modified Duration**
1-year	0.78%	0.95
5-year	1.80%	4.52
10-year	2.34%	8.28
30-year	2.95%	20.61

Stephen Foster is concerned that the scenario analysis models for the credit portfolio underestimate tail risk, and he asks Armstrong how to address this issue. Armstrong responds, "We can change the expected correlations between prices in our models to generate more extremely unusual outcomes."

Armstrong is preparing for the annual meeting with one of the firm's largest clients. The client wants to explore more international credit investing. Armstrong anticipates that the client will ask about differences between investing in emerging markets credits and developed markets credits. To address this potential inquiry, Armstrong plans to emphasize the following differences.

Difference 1: Commodity producers and banks represent a higher proportion of emerging markets indexes than of developed market indexes.

Difference 2: Total or partial government ownership of emerging markets issuers is common, which results in a higher average recovery rate for defaulted senior unsecured bonds for emerging markets than for developed markets.

Difference 3: Compared with developed markets, the credit quality of emerging markets issuers tends to be more concentrated at the very high and very low portions of the credit spectrum.

Armstrong also is preparing a more general discussion about domestic versus international portfolio management. The written report by Armstrong identifies three statements that he would like to check for accuracy.

Statement 1 Currency risk in global credit portfolios can be mitigated by using currency swaps or by investing in credits denominated in currencies that are pegged or tightly managed by the government.

Statement 2 Liquidity concerns for emerging markets credits are mitigated by their frequency of trading and modest legal risk.

Statement 3 Sectors tend to perform similarly across regions.

1. Based on Exhibit 1, which short position is most likely to be included in the condor outlined?

A. 1-year $325 million.

B. 5-year $68 million.

C. 10-year $37 million.

2. To address Foster's tail risk concern, Armstrong should recommend that expected correlations with their models:

A. decrease.

B. do not change.

C. increase.

3. Which of Armstrong's three differences about investing in EM credits compared with developed market credits is most correct?

A. Difference 1.

B. Difference 2.

C. Difference 3.

4. Which of Armstrong's statements about international credit management is correct?

A. Statement 1.

B. Statement 2.

C. Statement 3.

8. SS9-10 Equity portfolio management

Case 1: William Pugh

William Pugh is a portfolio manager for the pension plan of the FMJ Corporation. Pugh is evaluating portfolio managers for the pension plan.

PMA Asset Management follows a passive investment strategy that is implemented using ETF's rather than conventional mutual funds. PMA proposes to offer a new index portfolio that reflects the Russell 2000 small-cap value index. PMA indicates that the technique used to construct the new index portfolio assumes that the factors used to explain stock returns are uncorrelated.

ASM Partners is an active manager. A common strategy that ASM implements is a pairs trade where they take equal long and short positions in two common stocks in a single industry. These positions are constructed so that they have no correlation with equity market returns.

CKI Financial Advisors also follows an active portfolio strategy. CKI has an active risk of 6%, an information coefficient of 0.2, and a transfer coefficient of 0.5. CKI's portfolio has a 2.8% expected active return this year. A portfolio analysis for CKI is provided below in Exhibit 1.

Exhibit 1 Portfolio Analysis for CKI

	Portfolio	Benchmark
Number of Stocks	25	700
Weighted Average Market Cap	$25 billion	$50 billion
Dividend Yield	3.7%	1.8%
P/E	12	22
P/B	1.2	2.5
Projected EPS growth	8%	13%

ECO Asset Management follows an ESG investment strategy, its Investment universe includes all US companies and sectors that have favorable environmental, social, and governance (ESG) ratings and specifically excludes companies with products or services related to tobacco and defense.

The manager of ECO is considering advocating for the implementation of ESG standards through activist investing, and he makes the following comments:

Plenty of activist managers focusing on ESG issues exist, managers of these strategies utilize the same tactics as more traditional activist investors because they both typically have shorter time horizons and take stakes in target companies greater than 10% of the target's outstanding equity. Some of these tactics include proposing significant changes in corporate governance, seeking board representation and engaging in proxy contests.

1. The most appropriate technique for constructing PMA's new portfolio is:

A. optimization.
B. full-replication.
C. stratified sampling

2. Relative to a long-only strategy, the expected alpha of ASM Partners' investment strategy is most likely:
A. half.
B. twice.
C. similar.

3. The number of truly independent decisions CKI would need to make in order to earn the expected active portfolio return this year is closest to:
A. 5.
B. 18.
C. 22.

4. Based on the information presented in Exhibit 1, CKI Financial Advisors most likely follows a:
A. value strategy.
B. growth strategy.
C. core strategy.

5. The ECO Asset Management's approach to the tobacco and defense industry is best described as:
A. positive screening.
B. negative screening.
C. thematic investing.

6. The comments of ECO's manager about ESG-focused activists are most likely incorrect because:
A. activist investors typically have a longer time horizon.
B. ESG-focused activists use different processes and tactics than traditional activists.
C. activist investors typically take a stake of less than 10%.

Case 2: Bobby Sarkar

Bobby Sarkar is a senior consultant with Experian Financial Consultants (EFC), an investment advisory firm based in Cambridge, Massachusetts. EFC provides a range of consulting services including advice on investment strategy and selection of money managers. Currently, Sarkar is working with two clients: 1) Bayside Foundation and 2) Daniels Corporation Pension Plan.

Bayside Foundation

The investment policy committee for Bayside Foundation follows a fairly conservative investment strategy and pays particular attention to the minimization of tracking error. Bayside seeks to achieve two specific objectives:

Objective 1

Invest a portion of the portfolio in an index with a large cap bias. In addition to minimizing tracking error, Bayside would also like to ensure that the index strategy involves minimal rebalancing costs.

Objective 2

Allocate another portion of the portfolio so that it earns alpha associated with small cap stocks but without the associated small cap market beta exposure.

Daniels Corporation Pension Plan

Daniels Corporation wishes to allocate a portion of its pension portfolio to an active money manager with a value investment style. Sarkar has collected information on three active portfolio managers and will recommend one of them to Daniels. Selected information for the three managers is presented below in Exhibit 1.

Exhibit 1 Investment Manager Data: December 31, 2020

	Manage A	**Manager B**	**Manager C**
Assets under management ($ millions)	2,876	3,752	4,619
P/E	8.7	17.5	23.1
Dividend yield	3.50%	1.70%	1.00%
EPS growth (5-year projected)	6.75%	5.25%	14.50%
Portfolio active return	3.50%	3.00%	4.30%
Portfolio tracking risk	5.00%	1.50%	6.00%
Style fit	87.00%	95.00%	85.00%

1. The type of index that would most likely help Bayside Foundation achieve Objective 1 is a:

A. price-weighted index.

B. value-weighted index.

C. equal-weighted index.

2. The most appropriate manner for Bayside to achieve Objective 2 is to invest in small cap stocks using a:

A. long-only strategy.
B. short extension strategy.
C. market-neutral long-short strategy.

3. Based on the information presented in Exhibit 1, Sarkar should recommend to the Daniels Corporation Pension Fund that the most appropriate manager to meet its investment objective is:

A. Manager A.
B. Manager B.
C. Manager C.

4. Based on Exhibit 1, which of the following sub styles is most consistent with Manager C's investment style?

A. Low P/E
B. High yield
C. Earnings momentum

Case 3: Fig Tree

Fig Tree Management (FTM) is a global asset management firm. Currently, it offers four funds for its retail investors, fund descriptions are presented in Exhibit 1.

Exhibit 1	
Fund	**Fund Description**
Acore Fund	Fully passive investment in US market
Beto Fund	Passive investment in global developed markets
Charm Fund	Passive with active tilt investing in multiple frontier and emerging markets
Deal Fund	An active global portfolio covering all geographic sectors

Han Solo is a portfolio manager with FTM and collects the following notes on the funds in Exhibit 1.

Note 1: Acore Fund is constructed with full replication, defined as a 95% match to the index.

Note 2: Beto Fund is constructed with stratified sampling and also utilizes security lending.

Note 3: Charm Fund is constructed with optimization and utilizes security lending.

Note 4: Deal Fund utilizes aggressive shareholder engagement strategies.

Note 5: All funds charge a single management fee that covers all costs to investors in that fund.

Solo is also interested in the degree of security specific risk diversification within FTM's portfolios. He asks the portfolio managers for the Herfindahl-Hirschman index (HHI) for each of three portfolios. Each portfolio use some form of market cap or free float weighting.

The HHI results are shown in Exhibit 2.

Exhibit 2 HHI Calculations	
Portfolio 1	0.043
Portfolio 2	0.0055
Portfolio 3	0.002

One of Solo's clients is a large foundation that uses multiple managers and strategies. The Board of Trustees for the foundation relies on Solo and FTM for advice on manager and strategy allocation. The board asks Solo to evaluate the performance of one of their managers. Solo collects the data in Exhibit 3.

Exhibit 3 Manager and Benchmark Data			
Sector	**Sector Returns**	**Manager Sector Weights**	**Benchmark Sector Weights**
Information technology	10.00%	35.00%	25.00%
Consumer staples	4.40%	25.00%	25.00%
Energy	-1.30%	20.00%	25.00%
Financials	2.00%	20.00%	25.00%

At his next meeting with the board, Solo discusses the results of his analysis. One of the board members askes about a new index manager he has heard of. The manager describes his process as focused on dividends, P/E and a size factor. The board member says, "This sounds like

an active manager and not a passive index manager." Solo promises to look into it before their next meeting.

1. Which of the following three funds in Exhibit 1 most likely charges the highest management fee?

A. Acore Fund.

B. Beto Fund.

C. Charm Fund.

2. Which of the following statements regarding the four funds in Exhibit 1 is most likely correct?

A. Investors in Deal are at greater risk of free riders than investors in Acore.

B. Investors in Beto are more likely to be charged an incentive management fee than investors in Charm.

C. If FTM restructure the investor fee schedule to separately charge for distribution expenses, total cost to investors in the funds would likely decline.

3. Based on the data regarding the HHI calculations, which of the following is most likely correct?

A. Portfolio 3 holds more than 500 stocks.

B. The effective number of stocks in Portfolio 1 is 182.

C. Portfolio 3 has more non-systematic risk that Portfolio 2.

4. Regarding the data in Exhibit 3, which sector weighting decision added the most value to the manager's performance?

A. Information technology.

B. Consumer staples.

C. Energy.

5. Regarding the manager who describes his process as "focused on dividends, P/E, and a size factor," Solo will most likely conclude that the manager:

A. cannot be a passive index manager.

B. could be using fundamental factors to replicate the index.

C. uses a blended indexing approach of optimization within cells.

Case 4: Sonera Endowment Fund

William Gatchell, CFA, is an investment analyst with the Sonera Endowment Fund. Sonera is considering hiring a new equity investment manager. In preparation, Gatchell meets with Anjou Lafite, another analyst at the fund, to review a relevant part of the endowment's investment policy statement:

"Funds will be invested in the most efficient vehicle that meets the investment objective. Each manager must demonstrate the efficiency with which the tracking error they take on delivers active return. In addition, each manager must consistently adhere to his stated style."

Gatchell is given the task of reviewing three investment managers and selecting a manager that is most likely to adhere to Sonera's investment policy statement. Information about the investment managers is found in Exhibit 1.

Exhibit 1 Investment Manager Data

	Investment Manager		
	A	**B**	**C**
Assets under management ($ millions)	1,325	3,912	524
Information ratio	–0.27	0.50	0.75
Small-cap value index– beta	0.95	0.98	1.05
Small-cap growth index– beta	0.32	0.43	0.48
Large-cap value index – beta	1.05	1.10	0.96
Large-cap growth index – beta	0.47	0.39	0.37
Manager stated style	Value	Value	Growth
Manager stated sub-style	Low P/E	High yield	Momentum

Gatchell is reviewing the fee structures proposed by the three investment managers. He finds the following reference in the investment policy statement:

Sonera has followed an active investment style for many years. Gatchell would like to recommend to the investment policy committee that a portion of the funds be invested using a passive investment style. His research shows there are a number of methods used to weight the stocks in an index, each having its own characteristics. The one key feature he feels is important is that the method chosen not be biased towards small-capitalization stocks.

Gatchell is also examining different ways to establish passive equity exposure. He states to Lafite, "There are a number of ways to get passive equity exposure; we can invest in an equity index mutual fund, a stock index futures contract, or a total return equity swap. Stock index futures and equity swaps are low-cost alternatives to equity index mutual funds; however, a drawback of stock index futures is they have to be rolled over periodically. One advantage of investing in equity mutual funds is that shares can be redeemed at any point during the trading day."

1. Based on Exhibit 1, which investment manager most likely meets the criteria established in the endowment's investment policy statement?

A. Manager A

B. Manager B

C. Manager C

2. Based on Exhibit 1, is there sufficient information for Gatchell to create and interpret the results of a style box?

A. Yes

B. No, because additional index data are required

C. No, because additional holdings data are required

3. If the investment policy committee decides to accept Gatchell's recommendation to also use passive investing, the index structure that least likely meets Gatchell's requirement is:

A. a price-weighted index.

B. a value-weighted index.

C. an equal-weighted index.

4. In his statement to Lafite, Gatchell is least likely correct with respect to:

A. cost.

B. redemption.

C. periodic rollover.

Case 5: McMorris

McMorris Asset Management (MCAM) is an investment adviser based in Atlanta, Georgia. Tom Morris manages the active equity portfolios. Dan McKeen manages the semiactive equity portfolios and the semiactive derivatives portfolios. They are preparing to meet with Maggie Lau, the chief investment officer of Philaburgh Capital, who is considering hiring MCAM to replace one of its current managers.

At the meeting, Morris and McKeen discuss MCAM's investment approaches with Lau and present her with the risk and return characteristics detailed in Exhibit 1.

Exhibit 1 Summary Information for MCAM's Investment Strategies

	Approaches		
	Active Equity	**Semiactive Equity**	**Semiactive Derivatives**
Tracking risk	4.90%	3.70%	3.30%
Information ratio	0.50%	0.60%	0.70%
Expected alpha	2.40%	2.20%	2.30%

Lau asks if MCAM's active equity strategy is long only. McKeen responds that MCAM uses market-neutral long–short strategies for several reasons. He indicates that long–short strategies:

Reason 1: enhance portfolio performance by increasing the beta.

Reason 2: generate alpha by identifying undervalued or overvalued securities.

Reason 3: are able to fully express short ideas than under a long-only strategy

Lau considers each approach listed in Exhibit 1 but is uncertain about what would be an optimal investment strategy.

She then reviews the current characteristics of MCAM's active equity approach using the first method, as presented in Exhibit 2.

Exhibit 2 Method 1—Portfolio Characteristics for MCAM Active Equity Strategy Based on Current-Period Data

	Active Equity	**Benchmark**
Number of stocks	50	1,000
Market value	$180 billion	$4,400 billion
Weighted average market capitalization	$4.0 billion	$4.1 billion
Dividend yield	3.00%	2.00%
Price/Earnings	8×	12×

Lau then selects three benchmarks—value, blend, and growth—in addition to the normal benchmark to assess the manager's style using the second method, as presented in Exhibit 3.

Exhibit 3 Method 2—Return Correlations between MCAM's Active Equity Approach and Benchmarks Based on 36 Months of Historical Data

	Value	Blend	Growth
Coefficient of determination	0.39	0.45	0.65

Lau indicates that Philaburgh's performance measurement is compliant with the Global Investment Performance Standards. In considering investment performance, Morris identifies three risks that may prevent MCAM's active equity approach from generating incremental returns:

Risk 1: Overestimating a stock's earnings per share growth.

Risk 2: Deciding incorrectly that a stock's earnings multiple would not contract.

Risk 3: Misjudging whether a stock's undervaluation will correct within the investor's investment horizon.

1. Based on Exhibit 1, the approach that is least likely efficient with respect to delivering active returns for a given level of tracking risk is:

A. active equity.

B. semiactive derivatives.

C. semiactive equity.

2. McKeen's response to Lau's question about MCAM's active equity style is least likely correct with respect to:

A. Reason 2.

B. Reason 1.

C. Reason 3.

3. Based on Exhibits 2 and 3, what can Lau most likely determine about MCAM's investment style over time? MCAM's style has:

A. drifted from value to growth.

B. not drifted.

C. drifted from growth to value.

4. Which of the risks Morris identifies with respect to MCAM's active equity strategy is least likely applicable to a growth-oriented investor?

A. Risk 3

B. Risk 1

C. Risk 2

Case 6: Daenerys Targaryen

Daenerys Targaryen is the owner of an investment management firm, Westeros Funds. The firm's three largest funds, Arya Investments, Bran Capital and Cersei Partners, offer a variety of investment styles with a range of investment approaches. Characteristics of the three funds are presented in Exhibit 1.

Exhibit 1: Fund Information for Arya, Bran and Cersei			
	Arya	**Bran**	**Cersei**
Target active risk	9.00%	6.50%	1.00%
Maximum sector deviation	2.50%	0.00%	2.00%
Maximum risk contribution to a single security	7.00%	1.00%	1.00%
Monthly arithmetic return	0.70%	0.80%	1.00%
Standard deviation of return	3.00%	4.00%	4.50%

Targaryen has been worried recently that her fund managers may be subject to some common behavioral biases. Commenting on these biases, Targaryen makes the following two statements:

1) "I noticed that one of the funds has been poorly diversified, with a large number of holdings in securities that haven't performed well over the last few years. I think this fund has excessive risk exposure."
2) "The manager of one of my funds has not sold his securities in a very long time with the expectation of strong returns, and as a result likely missed out on profitable new investment opportunities."

The North foundation is one of Westeros' Clients. In a meeting with Westeros, the foundation board tells Targaryen that they are considering hiring a new equity investment manager, and want Targaryen to evaluate two candidate funds. Fund information is presented in Exhibit2.

Exhibit 2: Description of Funds	
Fund	**Description**
Dorne	Dorne's manager seeks returns by following a comprehensive process of understanding the business model and competitive advantages of each firm. He also uses financial models to forecast free cash flows and integrates growth in the analysis to determine each security's current valuation. The fund manager uses his judgment to evaluate the relative importance of this analysis and decides on portfolio allocation with the help of the investment committee. The fund, with the help of analysts, maintains a wide coverage of companies within each industry.
Essos	Essos is a long-only fund and takes no leverage. It aims to achieve return premiums from a balanced exposure to known, rewarded factors. It incorporates research-based rules and factor-based models to determine appropriate sector weights. The fund seeks to reduce exposure to idiosyncratic risk and holds a large number of securities using a scoring approach to rank them according to value and

	profitability metrics within sectors. The limit on any single security position is ⩽ 2% irrespective of benchmark weight, sector deviations ⩽ 8% from the benchmark, and active risk limited to 5%.
Riverland	Riverland focuses on skillfully timing exposures to factors, both rewarded and unrewarded, and to other asset classes. The fund's managers use timing skills to opportunistically shift their portfolio to capture returns from factors such as country, asset class, and sector.

1. Based on information in Exhibit 1, which of the funds is most likely to be a closet indexer?

A. Arya.

B. Bran.

C. Cersei.

2. Targaryen comments that some of the securities in the Bran fund may be subject to a value trap. Targaryen is most likely implying that:

A. the securities are overpriced because of their high price-earnings (P/E) ratio.

B. the securities have low P/E ratios, but their future prospects may worsen.

C. the securities' share prices already reflect the expectation of future growth.

3. Based on return and risk data in Exhibit 1, which manager's portfolio has the highest expected compound return using a leverage factor of 2?

A. Arya.

B. Bran.

C. Cersei.

4. Dorne can best be characterized as:

A. a systematic, bottom-up manager.

B. a discretionary, top-down manager.

C. a discretionary, bottom-up manager.

5. Which of the following statements about Essos is most likely correct? Essos:

A. follows a discretionary, top-down approach.

B. follows a multi-factor strategy with both relative and absolute constraints.

C. is a closet indexer.

6. Based on Exhibit 2, the main building block of portfolio construction on which Riverland focuses is most likely:

A. alpha skills.

B. position sizing.

C. rewarded factor weightings.

9. SS11 Alternatives

Case 1: Wanda Maximoff

Wanda Maximoff is a Swiss-based wealth manager who offers discretionary portfolio management services to high net worth individuals. She believes that the portfolios of a number of her clients would benefit from investments in hedge funds. Maximoff has discussed the relative merits of hedge fund investing with six clients and has received their approval to add this asset class to their portfolios, subject to agreed upon investment criteria. Maximoff consults the notes that she has made during her conversations with these clients.

Client 1 prefers a hedge fund strategy that uses top-down analysis in a broad range of securities markets, taking positions that are thematic or directional. Markets can be valued using macroeconomic and fundamental analysis, and the hedge fund strategy is typically implemented using discretionary trading. Maximoff also notes that this client has a high tolerance for investment risk.

Client 2 has given Maximoff a mandate to invest in event-driven strategies only. Maximoff's notes on event-driven strategies include the following statements.

Statement 1: Distressed security investing generally uses high levels of leverage.

Statement 2: A merger arbitrage strategy is analogous to writing insurance on the acquisition.

Statement 3: A hard-catalyst event-driven strategy tends to be riskier and more volatile than a soft-catalyst strategy.

Client 3 has expressed a preference for multi-strategy funds instead of fund-of-funds for the following reasons:

Reason 1: Multi-strategy funds can reallocate funds into different strategy areas more quickly and easily compared to a fund-of-funds.

Reason 2: The fee structure of multi-strategy funds is often more attractive than that of a fund-of-funds.

Client 4 wants to add a volatility trading strategy as a portfolio diversifier and has specified that the strategy must by highly liquid. Maximoff's notes indicate that there are multiple ways of implementing a volatility trading strategy; although, some strategies offer more liquidity than others.

Client 5 decides to invest in an equity hedge fund strategy and substantial amount of leverage is allowed. Due to a recent large increase in interest rates and geopolitical tensions, Maximoff's forecast about equity market has changed from one of modestly rising equities to several periods of non-trending markets.

Client 6 is a small foundation that has a traditional asset allocation of 65% stocks/35% bonds. It considers allocating 10% of portfolio asset to hedge fund strategy. The foundation requires the

hedge fund strategy allocation to: a) limit volatility, b) maximize risk-adjusted returns, and c) limit downside risk.

Wanda prepares expected risk and return characteristics for three portfolios that have allocations of 60% stocks, 30% bonds, and 10% hedge funds, where the 10% hedge fund allocation follows either an equity market-neutral, global macro, or convertible arbitrage strategy. The risk and return characteristics of the three portfolios are presented in Panel B of Exhibit 1.

Exhibit 1

Hedge Fund Strategy	SD (%)	Sharpe Ratio	Sortino Ratio	Maximum Drawdown (%)
Panel A: Current Portfolio				
N/A	10.06	0.80	1.23	18.63
Panel B: Three Potential Portfolios with a 10% Hedge Fund Allocation				
Equity market neutral	10.03	0.78	1.19	17.37
Global macro	9.83	0.93	1.32	17.25
Convertible arbitrage	10.33	0.81	1.24	23.23

1. The most appropriate hedge fund strategy for Client 1 is:

A. a global macro strategy.

B. a managed futures strategy.

C. a dedicated short-selling strategy.

2. Which of Maximoff's statements is correct?

A. Statement 1.

B. Statement 2.

C. Statement 3.

3. Which of Client 3's reasons for preferring multi-strategy funds over a fund-of-funds is correct?

A. Only Reason 1.

B. Only Reason 2.

C. Both Reasons 1 and 2.

4. Which of the following volatility trading strategies is most likely to meet Client 4's liquidity preference?

A. VIX index futures.

B. OTC variance swaps.

C. OTC volatility swaps.

5. What is the most appropriate equity-related hedge fund strategy for Client 5 based on Maximoff's latest equity market forecast?

A. Short biased strategy.

B. Equity market neutral strategy.

C. Long/short equity strategy.

6. Which hedge fund strategy is most suitable for Client 6?

A. Equity market neutral

B. Global macro

C. Convertible arbitrage

Case 2: Stephen Strange

Stephen Strange is a high net worth individual who has just sold the company that he founded when he was 23 and wants to review his investment portfolio. He contacts Natasha Romanoff, his investment advisor of 10 years, to seek her advice about his future investment plan. Strange's portfolio is currently invested in liquid stocks and bonds in accordance with his investment objectives prior to the sale of his company. He now wants to enhance the capital growth of his portfolio, even if that means investing in less liquid assets.

Strange is relatively familiar with commercial real estate and private equity investments. He asks Romanoff if there are other types of alternative investments that would enable his portfolio to benefit primarily from capital growth and inflation-hedging, and have a relatively low correlation with public equities to provide diversification benefits. Romanoff replies that the alternative investments universe is very broad and includes hedge funds, private credit, and private real assets. She is certain she could recommend a strategy from these three types of alternative investments to meet Strange's requirements.

As Strange is considering an investment in alternative investments for the first time, Romanoff uses a traditional approach to defining the opportunity set for asset allocation based on asset class liquidity. Romanoff mentions that investors are increasingly turning to risk factor-based asset allocation approaches when incorporating alternative investments into their portfolios although these approaches also have their limitations.

Romanoff has primarily used mean-variance optimization (MVO) to manage Strange's portfolio asset allocations over the last 10 years. She tells Strange that relying solely on MVO for portfolio asset allocation with alternative investments may cause over allocation to this asset class. As a result, she may need to specify minimum and maximum weights for different asset classes when running an MVO for Strange's portfolio asset allocation, when including alternative investments.

Strange asks Romanoff how the performance of an alternative investments strategy for his portfolio will be evaluated. Romanoff acknowledges that benchmarking an alternative investments strategy can be a challenging exercise and makes the following two statements.

Statement 1: A custom index proxy is unlikely to have the same risk-return characteristics of the actual alternative investments strategy.

Statement 2: Peer group comparisons of an alternative investments strategy are more useful because existing providers of these benchmarks have agreed to follow the same benchmark construction rules.

1. In response to Strange's question about an alternative investments strategy, Romanoff is most likely to recommend:

A. a timber investment.
B. a long or short equity strategy.
C. a distressed debt investment.

2. Which of the following is a limitation of the risk factor-based approach when defining the opportunity set for asset allocation?
A. Liquidity risk exposure cannot be identified.
B. Risk factor exposures can change over time.
C. Portfolio diversification can be over-estimated.

3. The efficient frontier obtained using MVO with minimum and maximum weights for the different asset classes is most likely to:
A. lie above that obtained using unconstrained MVO.
B. lie below that obtained using unconstrained MVO.
C. be the same as that obtained using unconstrained MVO.

4. How many of Romanoff's statements are correct?
A. None.
B. One.
C. Two.

Case 3: Bruce Banner

Bruce Banner, CFA, is creating the asset allocation for the Shield Foundation (Shield), a nonprofit organization that provides grants and scholarships on an annual basis to researchers and students in environmental protection. Banner would like to add alternative investments to Shield's portfolio, which currently includes only US common equity and debt securities.

The dollar amount of the grants provided each year by Shield is not fixed, so the organization would like Banner to consider liquidity a priority. Additionally, Shield's investment committee wants to be more mindful about ensuring that the foundation's investments are in line with the organization's overall mission of environmental protection. The committee would like Banner to consider a shift to an ESG-focused portfolio.

Banner first contemplates the asset allocation approach. He is aware of both the traditional and risk-based approaches, and ultimately decides to use a risk-based approach to asset allocation despite its known limitations.

Banner is looking at three potential hedge funds to add to the portfolio:

Fund 1 has a history of consistently high returns buying distressed companies.

Fund 2 specializes in quantitative long-short equity strategies.

Fund 3 is a long-only equity fund that focuses on high-growth companies.

Banner decides to consult his firm's annual economic briefing which has a section describing the expectations for the upcoming year. The report highlights many macroeconomic factors, including GDP growth, unemployment rates and consumer spending. The report outlines the following expectations:

- GDP growth will remain at 3.5% into the following year.
- The unemployment rate is expected to drop to 3%.
- Consumer spending is on track to reach its highest level in three years.

The report also indicates that the US will likely experience high inflation due to recent monetary policy. Finally, Banner looks into the possibility of an ESG-focused portfolio for Shield. Banner determines that this objective could be achieved with the current asset classes. However, he is concerned by the lack of transparency of holdings typically associated with ESG funds.

Banner sets the asset allocation and plans to meet with the investment committee later to discuss the ESG direction of the portfolio.

Shield also wants to understand and analyze the risk exposures of hedge fund strategy before investing in it. Banner suggests to use a risk factor approach to investigate several risk factors that may be impacted significantly under abnormal market conditions. Banner makes the following statements regarding conditional linear factor model:

Statement 1: A conditional model can show whether the hedge fund strategy's risk exposures to these risk factors that are insignificant during calm periods have

become significant during turbulent market periods.

Statement 2: The model identifies a set of macro-oriented, market-based risks and then estimates the return based on those risk exposures.

Statement 3: Multi-collinearity is not an issue when using conditional linear factor model to annalyse hedge fund strategies.

1. Which of the following is least likely to be a limitation of Banner's approach to setting Shield's asset allocation?

A. Combining investments with varying risk characteristics into a single portfolio.

B. The impact of the historical sample on risk factor exposure.

C. The need for additional considerations for liquidity and rebalancing.

2. Based on the use of the organization's portfolio, the least suitable hedge fund is:

A. Fund 1.

B. Fund 2.

C. Fund 3.

3. Based on the macroeconomic expectations, the alternative asset class that should perform the best over the next year is most likely:

A. private equity.

B. gold.

C. real estate.

4. An alternative investment that would most likely address Banner's ESG concern is a:

A. hedge fund specializing in trading commodity derivatives.

B. private real estate fund with holdings in both the US and Canada.

C. hedge fund with a long-short strategy invested only in publicly traded equities.

5. Which of Banner's statements regarding conditional linear factor model is least correct:

A. Statement 1

B. Statement 2

C. Statement 3

Case 4: Olympia Investments

Olympia Investments (OI) is an investment advisory firm based in US. One of OI's clients HYDU is a private university with an endowment valued at USD 1.5 billion invested primarily in traditional assets. During the investment committee's annual meeting, the chief investment officer (CIO) of the endowment , Erik Lensherr suggests changing allocations in alternatives, specifically in hedge funds and private equity. The investment committee (IC) asks Robert Reynold, a senior portfolio manager at OI, to evaluate Lensherr's suggestion. During their meeting, Reynold explains the risk factor-based asset allocation framework, and currently the endowment still follows the traditional approach to asset allocation. Reynold makes the following comments about the benefits and limitations of the risk-based approach.

"The risk-based approach helps in identifying common risk factors across all investments, whether public or private, passive or active. Investors can have an integrated risk management framework, which can quantify risk effectively. This approach also faces certain limitations. The risk-factor estimation may be sensitive to the historical sample, and it can sometimes lead to the overestimation of portfolio diversification."

Lensherr shows Reynold the endowment's current asset given in Exhibit 1. The endowment's spending rate is 4% calculated as a percentage of the endowment's trailing 5-year average value. The IC assumes capital calls for private investments over the coming year to be about 20% of the current private asset net asset value. Lensherr adds that the IC would like an expected return of 8% and accept volatility of 15%. Reynold discovers that the IC is willing to tolerate a 1-year 99% CVaR of -20%.

Exhibit 1

	Strategic Asset Allocation Target	**Rebalancing Ranges**	**Current Asset Allocation (with alternatives)**
Cash	2%	0-5%	2%
Public Equities	35%	30-40%	34%
Government Bonds & High investment-grade Corporate Bonds (70%Govt/30% Corp.)	10%	5-15%	15%
Hedge Funds(excluding long/short strategies)	20%	15-25%	18%
Private Real Estate	10%	5-15%	10%
Private Equity	23%	20-30%	21%
The high investment-grade corporate bonds are as liquid as the government bond investments.			

Reynold presents the following expected returns prepared by OI's analysts to Lensherr based on a stress scenario of the capital market for the next 12 months. OI predicts inflation to be at expectations levels, short rates to be slightly up, bonds yield to be stable, and equities to be

trending upwards.

Exhibit 2 Return Stress Scenario	
Cash	2.20%
Public Equities	-3.00%
Government Bonds & High investment-grade Corporate Bonds (70%Govt/30% Corp.)	-1.00%
Hedge Funds	-2.00%
Private Real Estate	0.00%
Private Equity	-8.00%

Another client of OI is Atlantis Insurance. Reynold is discussing with Scott Lang, CFO of Atlantis Insurance, how to diversify the insurance company's portfolio. Lang is interested in investing in different hedge fund strategies. In selecting a hedge fund manager, Lang prefers to hire a manager that uses the following:

Take advantage of arbitrage opportunities between securities that arise because of variations in duration, credit quality, liquidity, and optionality.

To exploit price differences relative to expected future price relationships, with mean reversion being an important consideration.

To forecast macroeconomic conditions to enable trades across various points on the yield curve.

Reynold presents the following potential hedge fund investments:

Hedge Fund 1: A relative value strategy fund focusing only on fixed-income arbitrage.

Hedge Fund 2: An equity strategy fund focusing only on Long/short equity strategies.

Hedge Fund 3: An opportunistic strategy fund focusing on global macro strategies.

1. Which of the benefits or limitations of the risk-based approach is least accurate?

A. The risk-based approach provides investors with an integrated risk management framework.

B. The risk-factor estimation may be sensitive to the historical sample.

C. The risk-factor approach may result in over-estimation of portfolio diversification.

2. Based on the current asset allocations, the total next 12-month liabilities of the HYDU endowment are closest to:

A. $60 million.

B. $153 million.

C. $147 million.

3. Given OI's next 12-month outlook and based on Exhibit 2, the tactical asset allocation Reynold could most likely suggest is to:

A. increase cash and private equity allocations.

B. decrease hedge funds and public equities allocations.

C. increase hedge funds and public equities allocations.

4. The fund most appropriate for Lang is:

A. Hedge Fund 1.

B. Hedge Fund 2.

C. Hedge Fund 3.

10. SS12-13 Private Wealth Management

Case 1: Boylan

The human resources department of The Tredway Medical Group hired Joe Boylan, a private wealth consultant, to provide a series of presentations to its employees covering the fundamentals of financial planning.

Boylan's current presentation deals with two aspects of personal risk management related to age: premature death and outliving one's resources. He begins his presentation by stating that people often harbor misleading views about life insurance. As an example, he provides them with the following three comments which he claims to have heard many times in the past:

Comment 1 Since everyone is going to die, everyone needs life insurance.

Comment 2 Life insurance is an efficient method of risk reduction.

Comment 3 Premiums on a newly issued life insurance policy are higher when interest rates are lower.

Boylan states that when considering life insurance needs and investment strategies, it is important to understand the notion of human capital. He provides the following four examples of individuals connected to the health care industry in Exhibit 1 and asks the audience which of them has the highest human capital risk.

Exhibit 1 Four Individuals Connected to the Health Care Industry	
Henry	• A 33-year-old orthopedic surgeon. • A leading financial publication ranks orthopedic surgery as the highestpaying medical specialty. • Has been practicing for three years but still has over $80,000 of studentloans outstanding. • Married with a one-year-old son.
Marie	• A 62-year-old cardiac surgeon who is celebrating her birthday today. • Plans on retiring in two years, on the day before she turns 64. • The previously-mentioned financial publication ranks cardiac surgery asthe second highest paying specialty. • A member of Mensa (the largest and oldest high IQ society in the world) with the highest Mensa IQ of any other Mensa member in her profession. • A widow with three financially independent adult children. • Has no debt and her total assets calculated using a traditional balancesheet amount to $4 million, which includes $3 million in stocks andbonds and $250,000 in real estate.
Jason	• A 50-year-old medical technician. • Also a member of Mensa, with a perfect score on the Mensa IQ test.

	• A single parent with a 20-year-old daughter. • Has no outstanding debt and an investment portfolio currently valued at$125,000. • His employer provides him with a defined benefit pension whose pension payments will adjust with inflation.
Janice	• Jason's twin sister. • Works as a stock broker specializing in medical technology. • Has no outstanding debts and an investment portfolio currently valued at$375,000. • Her employer provides her with a defined contribution pension. • Unmarried with no dependents. • Has about the same level of risk tolerance as Jason.
Note: All of these individuals are non-smokers and are in excellent health given their respective ages.	

One of the attendees at the presentation told Boylan that she had accessed several life insurance carrier websites but found that it was very hard to compare the costs of their whole life policy offerings, as the companies often used different assumptions about the amount of the death benefit, premiums, cash value growth rates and divi-dend reinvestment rates. Using the information in Exhibit 2 for a hypothetical whole life policy, Boylan illustrates a convenient method for comparing the cost of different policies when these variables change.

Exhibit 2 Hypothetical Whole Life Insurance Policy	
Death benefit	$300,000
Expected holding period	25 years
Annual premium, paid at start of year	$2,750
Estimated cash value at the end of 25 years	$60,000
Discount rate	6%
Dividend reinvestment rate	6%
Estimated annual dividend, paid at year end	$850

Boylan turns his attention to investments. He tells his audience that if the twins, Janice and Jason, wish to invest optimally, they should consider the nature of their human capital when making asset allocation decisions. He asks how this would affect their relative allocation to high grade government bonds.

Boylan tells the audience that life annuities are a convenient investment to deal with longevity risk. He again uses the twins, Jason and Janice, as an example, in discussing some of the characteristics of these annuities. Assuming that they were both to invest the same amount into this product, he makes the following statements:

Statement 1 If both of them were to purchase the annuity immediately, they would both receive

the same annual income yield.

Statement 2 If Jason were to purchase the annuity in 10 years rather than immediately, his annual income yield would be higher at that time than now.

Statement 3 If Janice were to add a 10-year period certain option to her annuity, her income yield would be reduced when compared to not having the option, but it would be reduced by greater amounts the longer she waits to purchase the annuity.

1. Which of Boylan's initial comments about life insurance is most accurate?

A. Comment 2

B. Comment 1

C. Comment 3

2. From Exhibit 1, the individual who has the greatest amount of human capital at risk is:

A. Marie.

B. Henry.

C. Jason.

3. Using the information in Exhibit 2, the surrender cost index per $-thousand per year for the hypothetical whole life policy is closest to:

A. $3.05.

B. $2.69.

C. $6.49

4. The most appropriate response to Boylan's question about the twins' relative allocation to high grade bonds is that, when compared to Jason, the proportion in Janice's investment portfolio should be:

A. the same.

B. lower.

C. higher.

5. Which of Boylan's statements about life annuities is least accurate?

A. Statement 2

B. Statement 1

C. Statement 3

Case 2: Cooper Reyder

Cooper Reyder was asked by her employer, Astounding Wealth Advisors, to attend a symposium on managing assets for high-net-worth individuals. Sessions were available covering a wide range of topics, including managing individual investor portfolios, lifetime financial advice, setting asset allocation policies, and applying risk tolerance concepts to asset allocation. The Jones Family Case Study, shown in Exhibit 1, provided a helpful framework to present and discuss many of the concepts. The moderator, Vince Dunne, conducted the sessions using panel discussions and lectures, each followed by question and answer (Q&A) periods.

The initial session on lifetime financial advice evolved into a discussion of the concept of human capital. The speaker briefly described how the present value of an individual's lifetime of income can be considered as an asset class that should be viewed in relation to financial assets. During the lengthy Q&A period, Reyder made the following additional notes:

- Term life insurance is superior to lifetime payout annuities when attempting to hedge against the risks of the loss of human capital.
- Risk tolerance of the combined portfolio of financial assets and human capital increases proportionally with greater human capital regardless of wage earnings risk.
- The magnitude of loss of human capital at younger ages is less important than the higher probability of death at older ages.

Exhibit 1 The Jones Family			
Family Member	Peter married to Gladys for 33 years	Gladys married to Peter for 33 years	Mark son and sole heir of Gladys and Peter
Age	56	55	30
Occupation	Owns architecture firm	College library director	Stock broker
Annual Compensation	$70,000 salary plus $25,000 bonus when business is good	$55,000 cost of living raises averaging 2% each of last 10 years	$40,000 salary plus commissions which were equal to his salary last year in a bull stock market
Psychological Risk Profile Types	Individualist	Methodical	Spontaneous
Stated Client Goals	Retire within ten years. Sell company for at least $2 million	Not to outlive our assets	To benefit from a $1 million irrevocable trust that Dad has promised to establish for me when he sells the company
Investment	Jointly owned portfolio valued at $600,000		$120,000 stock portfolio

Portfolio		

During a discussion of ways Gladys could achieve her stated goal, the following statements were made:

- A jointly owned fixed annuity lifetime payout would achieve her goal as well as providing purchasing power protection.
- A jointly owned variable payout lifetime annuity product would also meet her goal but would provide less certainty in terms of cash flow.
- Although annuity products would help, it is more important to change the asset allocation of the joint portfolio toward less risk.

Mark's stated goal prompted a review of the use of trusts to implement investment and estate planning strategies. Reyder was unfamiliar with trusts. After listening to Dunne's lecture on the topic, Reyder summed up the possibilities to see if she had heard him correctly.

"In establishing an irrevocable trust, Peter would be the grantor and Mark would be the beneficiary. A motivation for using this structure could be for Peter to make resources available to Mark without yielding control of those resources to him. A discretionary irrevocable trust could enable the trustee to determine how much to distribute to Mark from time to time based on Mark's general welfare, but the assets cannot be protected from claims made by Mark's creditors."

1. Which of Reyder's additional notes from the discussion on human capital is most accurate? Her note about:

A. the magnitude of loss of human capital
B. the risk tolerance of the combined portfolio
C. term life insurance versus annuities

2. Which of the statements made about meeting Gladys' stated goal is most accurate? The statement regarding:

A. fixed annuity products
B. revised asset allocation
C. variable annuity products

3. In Reyder's summary on the use of trusts to meet Mark's stated goal, the statement that is least accurate is the one dealing with:

A. claims by creditors.
B. yielding control of resources.
C. trust distributions.

Case 3: Buylak

Geri Buylak, a financial adviser, is preparing for a meeting with Kasey McLoughlin, the recent widow of Bryn McLoughlin, a resident of the country of Weshvia. From her files for the McLoughlin family, Buylak notes the following facts, which she thinks might be relevant in the meeting:

- Kasey was Bryn's second wife.
- Bryn had been the sole provider for his grandson Paulo for the past 20 years; Paulo was orphaned at the age of three and initially lived with Bryn and his first wife. Mainly as a result of the stress arising from the disabilities and medical problems that Paulo developed, Bryn's first marriage ended in divorce within one year. Two years later, it was determined that Paulo would be better off living in a private care facility in the sunny warm climate of Izlandia, where he continues to live today.
- To ensure that Paulo's future needs would be met, shortly after the child was orphaned, Bryn purchased a €3 million life insurance policy on his own life for a one-time premium of €500,000. At the same time, Bryn's father bought a similar, but smaller, policy on his own life. Ownership of both policies was transferred to a discretionary irrevocable trust with Paulo as the primary beneficiary and the University of Izlandia as the remainderman.
- Buylak was appointed as the investment adviser for the trust.
- Bryn and Kasey were married two years after Bryn's divorce from his first wife.

Buylak had been faxed a copy of Bryn's will and in combination with other information she had available made the following notes:

- Two years ago, Bryn disposed of his very successful construction company and invested the proceeds in two overseas distribution centers. The first property is located in the country of Landlochen, and at the time of his death it was jointly owned with Kasey with the right of survivorship. For the second of these properties, Bryn's will named Paulo as the beneficiary of the property. The property is located in Izlandia, where Paulo resides.
- Kasey was named the beneficiary of Bryn's taxable account and two tax-advantaged retirement accounts.
- Weshvia, Izlandia, and Landlochen all use the euro, and none of the three tax regimes impose any tax consequences on spousal transfers either before or after death.

As they begin their meeting, Kasey first asks Buylak if any of the provisions of the life insurance policy or dispositions of the investment properties might be challenged in the probate process.

Kasey mentions to Buylak that she is aware that a large part of her wealth now depends on the investment property in Landlochen. She asks Buylak what cash flow will be available to her annually after taxes from its lease income and what after-tax cash proceeds she might obtain if

the property were to be sold when the current lease expires. Buylak had prepared for these questions, and her responses were based on the following:

- The investment real estate property in Landlochen had a cost basis of €2,900,000 and has a present market value of €3,000,000. It produces income of €450,000 (pre-tax) annually through a lease agreement that expires in five years.
- After reviewing several reports analyzing Landlochen real estate values, Buylak estimates that the property could be sold at the termination of the lease at 30% above its present market value.
- The tax structure in Landlochen differs from Kasey's home country Weshvia, as shown in Exhibit 1. Fortunately, there is a provision for some relief from double taxation. Weshvia allows use of the deduction method with regard to income taxes and the credit method toward capital gains.

Exhibit 1 Tax Rates on Investment Property Relevant to Kasey McLoughlin		
	Country	
Type of Real Estate Property Tax	Landlochen	Weshvia
Wealth tax	1.5% of cost basis, accumulated annually and paid at the time of sale	None
Income tax	35% of annual income	25% of annual income
Capital gains	20% at time of sale	25% at time of sale
Applies to location	Locally operating within borders	Owned by residents anywhere in the world

On the basis of her calculations for the cash flows from the Landlochen investment property, Buylak recommends that the three inherited investment accounts be held for the next 12 years with all earnings and gains reinvested. In anticipation of another after-tax cash flow question, she estimates the accrual equivalent after-tax rate of return on the portfolio of combined accounts over the next 12 year period using the information in Exhibit 2.

Exhibit 2 Panel A. Kasey McLoughlin's Inherited Investment Portfolio			
	Taxable	Tax Deferred	Tax Exempt
Current asset value in euros	1,200,000	700,000	180,000
Expected rate of annual pre-tax return	12.00%	7.50%	11.00%
Panel B. Tax Treatment of Investment Income in Weshvia			
Taxable accounts	Total returns are taxed at 28% annually		
Tax-deferred accounts	Distributions are taxed at 40% with deferral allowed for a maximum of 12 years, at which time a full distribution is required		

1. If Paulo had predeceased Bryn, the life insurance proceeds would most likely have been paid to:

A. Bryn.

B. Kasey.

C. the University of Izlandia.

2. Buylak's best response to which of the items might be challenged in the probate process is the:

A. Izlandia distribution center.

B. Landlochen distribution center.

C. proceeds of the life insurance.

3. Using Exhibit 1, the annual amount of after-tax cash flow that will be generated by the Landlochen property lease is closest to:

A. €219,375.

B. €230,625.

C. €175,875.

4. If Buylak's expectations about the Landlochen investment property are realized, using Exhibit 1, the after-tax net cash proceeds that Kasey will receive at the end of the lease is closest to:

A. €3,432,500.

B. €3,232,500.

C. €3,457,500.

5. Using Exhibit 2, the accrual equivalent after-tax annual return that Buylak calculates for Kasey's investment portfolio is closest to:

A. 7.35%.

B. 7.45%.

C. 7.58%.

Case 4: Richards

Edvard Richards is president and sole owner of More Than Lumber Corporation (MTL), a privately held building materials company. Founded by the Richards family, the company has been run by Edvard Richards for over 40 years. Richards also owns investment real estate in the form of a warehouse unrelated to MTL, as well as 70,000 common shares of publicly traded Cintas (CTAS) that he inherited. He wants these two items to be considered concentrated positions.

Now 68, Richards is seeking advice on how to transition to retirement. He provides information about his holdings (Exhibit 1) to two competing financial advisers, Todd Adams and Linda Boshe:

Exhibit 1 Richards's Values		
Asset	**Estimated Value ($000's)**	**Cost Basis ($000's)**
Primary residence (no mortgage)	2,000	2,000
MTL Corp	11,000	2,000
Common stock (70,000 shares CTAS)	4,000	1,000
Warehouse	3,000	4,300
Municipal bond portfolio	3,000	3,150
Global All Cap Equity Fund	3,400	1,650
Cash equivalents	300	300
Tax Rates		
Capital gains tax rate = 20%	Income tax rate = 40%	

Richards asks each adviser to apply a goal-based planning framework he has read about that uses three risk buckets: personal, market, and aspirational. As a first step, he estimates his own after-tax primary capital assuming that all assets are sold today and converted into cash. He asks the two advisers to assess his after-tax primary capital under the same assumptions (all three estimates are provided in Exhibit 2.

Exhibit 2 Estimates of After-Tax Primary Capital ($000's)	
Richards	11,780
Adams	8,380
Boshe	11,640

Richards wants to monetize and eliminate the concentration risk of his CTAS holding without paying taxes on capital gains and then invest the proceeds in a balanced portfolio. He notes the following comments in his discussions with the two advisers:

Richards: "My broker says he can arrange a cashless collar against CTAS or a short sale against the box. I understand that both methods will avoid incurring an immediate capital gain and both will expose me to the same level of market risk. I can borrow against the position in both cases and offset the cost of borrowing with the CTAS dividends."

Adams: “We could help you complete a short against the box transaction. This strategy will provide a high loan-to-value (LTV) ratio and avoid counterparty risk. A total return equity swap has these same advantages. You can thus realize the economic gain on CTAS while deferring capital gains taxes.”

Boshe: “We suggest either a forward conversion with options or an equity forward sale. Either will achieve high LTV ratio monetization without incurring immediate capital gains taxes, and both methods avoid counterparty risk.”

Adams has strong connections to the real estate market and informs Richards that the market value estimate of $3 million for the warehouse is much too low. He advises Richards to consider reducing his real estate risk directly by, using the immediate cash inflows, net of tax liabilities and costs, to increase his stock and bond portfolios. Adams is confident he can arrange any of the following real estate offers:

1. Sell the warehouse for $4.8 million to an outside investor.
2. Enter into a recourse mortgage loan with the warehouse valued at $5.8 million by the lender and an LTV ratio of 80%.
3. Enter into a sale-and-leaseback, with the warehouse valued at $4.9 million and the first year’s rental payment of $150,000 payable at the start of the lease.

Boshe has strong connections to the investment banking community. Richards has authorized her to ascertain the level of interest for the sale of MTL. Boshe is confident she can arrange any of the following strategies:

MTL Strategy 1: A private equity firm can arrange to leverage MTL, paying Richards 40% of his estimated value of MTL (as shown in Exhibit 1), in cash up front and rolling the remaining 60% of the value into new shares that pay no dividends. Richards will stay on as president for five years, during which time he will help transition leadership to a new team. After five years, he will sell or monetize the remaining ownership.

MTL Strategy 2: A small but rapidly growing publicly traded building materials company is willing to acquire 100% ownership and pay Richards $7 million in cash up front and employee stock options that he can exercise after two years and that expire in five years. The public company is too small to support publicly traded stock options. Should the public company’s stock rise, Richards can exercise his employee stock options, which will be taxed as ordinary income. To protect the value of his appreciated stock while participating in further upside potential, he can purchase long-term protective put options on an industry ETF that closely tracks the building materials industry. If the public company’s stock subsequently drops along with the industry, he can sell the puts.

MTL Strategy 3: Create an employee stock ownership plan (ESOP) that would borrow sufficient funds to purchase 40% of Richards’ ownership. Richards would maintain upside potential in his

retained shares, which could be sold at some point in the future.

1. Using the planning framework that Richards suggests, which person's estimate for the after-tax primary capital is most accurate?

A. Boshe

B. Adams

C. Richards

2. Richards's understanding about monetizing CTAS is most accurate with respect to:

A. the risk exposure of both strategies.

B. using the CTAS dividends to offset borrowing costs.

C. avoiding immediate capital gains under both strategies.

3. Which of Adams's and Boshe's comments about counterparty risk is most accurate? The comment made by:

A. Adams about the short sale against the box.

B. Boshe about her proposed strategies.

C. Adams about the total return equity swap.

4. Using the information in Exhibit 1 and Adams's real estate proposals, which offer will provide the largest immediate addition of funds to Richards's stock and bond portfolios?

A. Offer 1

B. Offer 2

C. Offer 3

5. Which of Boshe's MTL strategies least likely describes a staged exit strategy? MTL Strategy:

A. 1

B. 3

C. 2

6. Which of the following statements about Boshe's proposed exit strategies from MTL is most accurate? MTL strategy:

A. 3 exhibits a mismatch in character.

B. 2 exhibits cross hedging.

C. 2 provides for the possibility of yield enhancement.

Case 5: Rhys Jacobs

Rhys Jacobs is a 70-year-old resident of Sahjong, a small island country off the coast of Australia that caters to high-net-worth individuals because of its low tax rates and status as a sought-after free trade zone. Jacobs grew up in Sahjong and is a well-respected entrepreneur.

Jacobs has long put it off but believes that now is the time to finally receive some much-needed assistance in tax-efficient wealth accumulation, retirement and estate planning, and other financial matters, so he recently hired Jassica Simson as his tax and financial adviser.

In preparing for their introductory meeting, Jacobs performs initial research on various tax-planning strategies available in Sahjong, where the capital gains tax rate is much lower than the income tax rate. He finds several strategies that might be appropriate for his investment portfolio and summarizes them as follows:

1 A strategy based on low portfolio turnover whereby assets are held for extended periods.
2 A strategy that concentrates on tax- exempt securities.
3 A strategy to restructure his portfolio to focus on annual capital gains versus income generation.

Jacobs provides materials to Simson, including the following notes he took from a recent financial blog discussing the various tools currently being used in retirement planning:

1 Long-term market return and historical inflation averages are simple but effective strategies for accurately extrapolating how much wealth will be accumulated after a period of time if one could earn, say, 10% a year.
2 The Monte Carlo approach helps an investor get to a straightforward “yes/no” determination on whether a particular retirement income goal can be achieved.
3 Given a particular investment strategy, the likelihood of achieving a certain percentage return throughout retirement can be answered with a Monte Carlo simulation.
4 Sustainable spending rates in retirement can be approximated without the need for a Monte Carlo simulation by using the notion of ruin probabilities.

Jacobs asks Simson to evaluate these notes.

Simson states that she is very much in favor of a long-term buy-and-hold strategy focused on capital appreciation. She states that investors often do not realize just how much of their investment returns are consumed by taxes, and she provides Jacobs with the data in Exhibit 1 to illustrate the point.

Exhibit 1 Data Illustrating the Effect of Taxes on Wealth Accumulation	
Initial investment	$250,000
Holding period	25 years
Expected annual gain	8%
Tax rate on investment returns	10%

Turning to retirement planning, Simson confirms that sustainable spending rates in retirement can be approximated without the need for a Monte Carlo simulation by using the notion of ruin probabilities. The analysis incorporates lifespan uncertainty as well as financial market risk. After they discuss the method, Jacobs asks her to determine how much he could withdraw annually from a balanced portfolio if he wants to be at least 94% certain that the portfolio will last for the remainder of his life. He states that the current value of his (balanced) portfolio is $2 million, made up of 50% income-producing equities and 50% bonds. Simson uses the ruin probabilities in Exhibit 2 as the basis for her calculation of Jacobs' lifetime sustainable annual withdrawal.

Exhibit 2 Ruin Probabilities for a Balanced Portfolio: 50% Equity and 50% Bonds

		Real Annual Spending per $100 of Initial Nest Egg								
Current Age	Hazard Rate, λ (%)	$2 (%)	$3 (%)	$4 (%)	$5 (%)	$6 (%)	$7 (%)	$8 (%)	$9 (%)	$10 (%)
70	4.75	0.8	2.8	6.3	11.4	17.6	24.7	32.2	39.8	47.2

The oil firm that Jacobs controls is headquartered in the island country of Mahjong,located near Sahjong. Because of the foreign location of the oil firm, Simson believes there might be opportunities to reduce taxes.

Simson knows that Sahjong uses the exemption method, whereby it does not impose taxes on income that stems from a foreign country. However, Sahjong will soon hold parliamentary elections, and the opposition party is said to favor the deduction method. Simson plans to investigate how this possible change might affect Jacobs' tax liability. She compares the tax rates in the two countries in Exhibit 3.

Exhibit 3 Comparative Income Tax Rates

Country	Sahjong	Mahjong
Income tax rate	10.00%	15.50%

1. Which of the tax-planning strategies summarized by Jacobs is best described as tax deferral?

A. Strategy 1

B. Strategy 2

C. Strategy 3

2. Which of Jacobs' notes on retirement planning from the financial blog is most accurate?

A. Note 3

B. Note 2

C. Note 1

3. Based on the data in Exhibit 1 and assuming that all returns are taxed annually, the proportion of the investment's return that is consumed by taxes is closest to:

A. 19.9%.

B. 17.0%.

C. 10.0%.

4. Based on Exhibit 2 and Jacobs' stated level of concern for the probability of retirement ruin, the lifetime sustainable annual withdrawal is closest to:

A. $80,000.

B. $120,000.

C. $95,000.

5. If the opposition party wins the election in Sahjong and its tax proposals are passed into law, the tax rate that Jacobs will face on income stemming from Mahjong will be closest to:

A. 0.0%.

B. 15.5%.

C. 24.0%.

Case 6: Connor McClelland

Conner McClelland is a private client financial consultant with US-based Edmonstone Wealth Management LLC. McClelland has been engaged by Bradley and Reagan Graham to develop a personal wealth management plan. Prior to meeting with McClelland, the Grahams filled out a personal profile questionnaire that will be used in developing their wealth management plan. Using information from the questionnaire, McClelland prepares Exhibit 1.

Exhibit 1 Graham Family: Personal and Financial Information
Occupations and Family Structure
Bradley is a 50-year-old electrical engineer at a major utility company. His annual income of $175,000 is projected to increase 3% per year. He has a defined-contribution pension plan and expects to retire at age 65.
Reagan is a 48-year-old pharmacist with a pharmaceutical company. Her annual income of $132,000 is projected to increase 3% per year. She has a defined-contribution pension plan and expects to retire at age 65. Prior to joining thepharmaceutical company, Reagan had a 20-year career in the US Navy, retiring at the rank of commander.
The family has two children, ages 10 and 8.

Financial Information	
Checking account	$27,000
Taxable investment account	625,000
Residence	525,000
Residential mortgage	285,000
Outstanding balance on a $100,000 home equity line of credit	38,000
Bradley's defined-contribution plan (vested; normal retirement age for the plan is 65)	796,000
Cash value of Bradley's life insurance ($250,000 death benefit)	67,000
Estimated present value of Bradley's future earnings	2,150,000
Reagan's defined-contribution plan (vested; normal retirement age for the plan is 65)	160,000
Present value of Reagan's military pension (vested; inflation indexed; survivor benefit)	1,320,000
Cash value of Reagan's life insurance ($250,000 death benefit)	52,000
Estimated present value of Reagan's future earnings	1,790,000
Estimated present value of the Grahams' future consumption	3,700,000

Aspirational and Other Goals
Cost of four years of university for the two children, with an estimated present value of $350,000

Purchase of a vacation home in the next five years, with an estimated present value of $325,000
Donations to charitable organizations during the next 15 years, with an estimated present value of $400,000

At their initial meeting, Bradley tells McClelland that he recently attended a financial planning seminar conducted by his employer's human resources department. One of the presenters discussed the importance of preparing and understanding the components of an economic balance sheet compared with a traditional balance sheet. Bradley was confused by a few of the presenter's comments and asks McClelland for further clarification. The presenter's comments were as follows:

- Real estate can be described as a personal asset, an investment asset, and a mixed asset.
- Financial capital consists of tangible and intangible assets, including both the vested and unvested portions of an employer pension plan.
- The value of human capital relative to overall economic wealth is typically higher for an individual in mid-career with an established earnings record than for an individual in the early stages of his career.

As McClelland reviews insurance coverage with the Grahams, he explains that there are various ways to manage risk. "It depends on the frequency of a risk occurring and the severity of the potential loss. For example, consider the following two risks:

- An earthquake: This risk seldom occurs but would result in a large financial loss;
- Dental cavities: This risk arises frequently, resulting in small financial losses."

McClelland determines that both Bradley's and Reagan's life insurance coverage is inadequate. Bradley is particularly concerned about the inadequacy of his life insurance and asks McClelland to calculate how much additional insurance he should purchase to cover him until he retires in exactly 15 years and begins to receive his employer pension. McClelland prefers to use the human life value method to determine the appropriate level of life insurance coverage. Exhibit 2 contains additional personal and financial information about Bradley.

Exhibit 2 Bradley Graham: Additional Personal and Financial Information	
Current annual income; salary and expenses expected to increase 3% per year	$175,000
Income and payroll taxes (percentage of annual income)	30%
Employer contribution to defined-contribution plan (percentage of annual income)	5%
Annual family expenses attributable to Bradley	20,000
Estimated tax rate on income earned on insurance proceeds	20%
Applicable discount rate	4%

The Grahams mention that a primary concern is the ability to manage the risks to both their

financial and human capital so that they can achieve their financial goals of maintaining a comfortable lifestyle while having sufficient assets to purchase a vacation home, pay for their children's university education, and fund charitable donations.

Bradley mentions that he and Reagan have some concern about possibly outliving their assets and that he understands annuities can help protect against this risk. He is interested in an annuity that will provide income for as long as one of them is alive. The Grahams have average risk tolerance and expect they will be able to adjust their spending in retirement if necessary.

1. Using the data in Exhibit 1, the Grahams' net wealth (in thousands) is closest to:

A. $2,174.

B. $2,414.

C. $2,795.

2. Which of the presenter's comments regarding economic and traditional balance sheets is most accurate?

A. The comment about human capital

B. The comment about financial capital

C. The comment about real estate

3. Which of the following risk management techniques is most appropriate for the second risk exposure example provided by McClelland?

A. Risk retention

B. Risk reduction

C. Risk transfer

4. Based on the data in Exhibits 1 and 2 and using the human life value method for determining life insurance needs, the additional amount of life insurance that Bradley should purchase is closest to:

A. $1,701,345.

B. $1,547,862.

C. $1,951,345.

5. Risk to which of the following is least likely to compromise the Grahams' ability to achieve their financial and aspirational goals?

A. Health

B. Earnings

C. Property

6. The type of life annuity that is most consistent with the Grahams' risk tolerance and retirement spending plans is a:

A. variable joint life annuity.

B. fixed joint life annuity.

C. variable life annuity with period certain.

Case 7: Cliff Richard

Cliff Richard works as a private wealth adviser at a global wealth management company. He meets with Henry Ford, who plans to retire in 12 years and wants to discuss his retirement goals. Ford gives the following background information to Richard:

"My house will need a major renovation in 12 years, which will cost approximately $500,000. My current income is sufficient for my expenses, but in retirement, I estimate annual after-tax living costs to be $100,000 rising with inflation, which is expected to continue at 3 percent annually. In retirement, my primary objective is to maintain my current lifestyle."

Richard suggests using annuities to analyze Ford's retirement needs. In response, Ford feels he is willing to pay a lump sum in exchange for the fixed payments, but he wants to maintain control over his assets. He also shows his concern over the high cost of annuities.

Ford continues, I have a secondary objective to gift $1 million to my daughter in 15 years. I prefer low volatility investments. My portfolio assets include safe investments – 40% large-cap dividend-paying blue-chip equities, 40% government Treasury bills and investment-grade corporate bonds, and 20% real estate. I wish to grow my assets over my 12 years investment horizon to meet my retirement goals."

Richard decides to implement a goal-based investing approach and runs a Monte Carlo simulation to determine the probability of success - the likelihood that Ford can meet his gifting objectives. The simulation results are reproduced in Exhibit 1.

Exhibit 1 Monte Carlo Simulation Inflation-Adjusted Results for Gifting Goals			
	Year 15 Portfolio Value	Year 20 Portfolio Value	Year 25 Portfolio Value
25th %	$980,866	$1,128,450	$1,400,372
50th %	$839,837	$943,820	$1,250,974
75th %	$1,020,039	$1,110,039	$840,000

As the meeting concludes, Richard hands out a client feedback form, where Ford is asked to give a performance review of the wealth adviser. Ford comments that Richard listened to his various retirement objectives and understood his goals. He had a working knowledge of traditional and alternative asset classes. He showed exceptional quantitative skills to create different scenarios for his goals. Finally, he liked the pleasant office atmosphere.

1. Based on the background information, which of the following items, Richard, should most likely include in the investment objectives section of Ford's IPS?

A. Below-average risk tolerance.

B. Allocations to different asset classes.

C. $100,000 inflation-adjusted costs and $1 million bequest goals.

2. Using annuities for Ford's retirement goals may not be appropriate because of:

A. Ford's uncertainty about his retirement expenses.

B. longevity risk.

C. the behavioral consideration exhibited by Ford.

3. Ford's investment horizon in the IPS should most likely be:

A. 12 years.

B. more than 12 years.

C. less than 12 years.

4. Based on Ford's information and Exhibit 1, the probability that he will be able to meet his gifting goals is closest to:

A. 25%.

B. 50%.

C. 75%.

5. Which comment in Ford's response to the client feedback form least likely describes a technical skill? The comment related to:

A. Richard's listening to his various retirement objectives and understanding his goals.

B. Richard's working knowledge of traditional and alternative asset classes.

C. Richard's exceptional quantitative skills to create different scenarios for his goals.

Case 8: James Clerk Maxwell

James Clerk Maxwell works as a private wealth adviser for Sunnyhill Asset Management. He is reviewing his clients – Josh and Susan Trevor's portfolio. Over the year, Trevor's USD 3,000,000 investment portfolio earned a 14% before-tax return. This return included interest of USD 91,800, dividends of USD 23,400, and realized capital gains of USD 48,600. The tax rate on dividends and realized capital gains is 15%, and the tax rate on interest earned is 30%.

Lea Michaels, an international client of Maxwell, invests in global bonds and equities. She holds two different types of accounts – a non-dividend-paying equities account and a fixed-income account. Each account is valued at €300,000 and has a cost basis of €300,000. Both accounts have an expected return of 7% and are taxed annually at 25%. Michaels plans to make no contributions or withdrawals and will liquidate these in 10 years. Maxwell calculates the after-tax values and compares the difference in future wealth accumulation of these accounts. The future after-tax value of the fixed-income account over 10 years is €500,429. Maxwell then explains the difference between the tax treatment of the two accounts to Michaels.

Later, Maxwell reviews the allocation of a client who is investing for retirement in 15 years. The client invests equal amounts in his two accounts. Contributions to TDAs are tax-deductible, whereas contributions to the tax-exempt accounts are not. The client places pre-tax funds worth $250,000 in growth stocks in a TDA, and invests €150,000 after taxes in bonds in a tax-exempt account. The client's current tax rate is 30%, but withdrawals from the TDA account will be taxed at 20%. The client will make a single contribution today and withdraw all funds—paying any necessary taxes in 15 years. Maxwell looks at various return scenarios to observe the impact on future wealth accumulation of the two accounts over 15 years.

1. The investment portfolio's annual return after realized taxes is closest to:

A. 11.6%.

B. 12.7%.

C. 8.3%.

2. The expected future accumulation in 15 years of the non-dividend-paying account assuming the return and tax rates hold for that period is closest to:

A. €718,968.

B. €575,174.

C. €517,609.

3. The higher after-tax wealth accumulation of the non-dividend-paying account is most likely because of:

A. tax deferral and its compounding effect.

B. lower tax rate relative to tax drag.

C. higher cost basis, leading to lower tax liability.

4. If the expected pre-tax annual return of both the investments is 8% and tax rates remain unchanged, the future accumulations of the TDA after taxes and the tax-exempt account over 15 years are closest to:

A. €683,580 in TDA; €454,087 in tax-exempt.

B. €634,434 in TDA; €475,825 in tax-exempt.

C. €690,145 in TDA; €486,860 in tax-exempt.

5. The difference between the after-tax accumulations of both accounts is because:

A. the current tax rate exceeds the tax rate at withdrawal.

B. contributions to TDA are pre-tax, whereas contributions to the tax-exempt account are after taxes.

C. a contribution limit is imposed on the two accounts.

Case 9: Aneurin Bevan

Aneurin Bevan will shortly retire after a long career as a medical administrator of a local hospital. He and his wife, Melissa, own a 2 million share position in Sesdra Pharmaceuticals (SeP). At the current market price of $15 per share, the position is worth $30 million and represents 80% of their total investment portfolio. SeP is a large publicly-traded dividend-paying company. Bevan and his wife, Melissa, plan to use these dividends for their day-to-day living expenses. Bevan wants to maintain their current standard of living during retirement. The Bevans meet with their financial advisor, Nicholas Manning, for advice on how to achieve their key objective.

Manning discovers that Bevan is very loyal to SeP and follows the stock regularly. Although he has the same information about the company as the other investors, Bevan believes he knows about SeP's prospects better than other investors. Melissa remembers that she and Bevan invested in this stock early in their marriage when they practically had no investment. Over time their net worth grew as their SeP position appreciated rapidly in value. She also realizes that for many years, the dividends received on their SeP stake helped pay a reasonable amount of their living expenses.

Manning first notes the cost basis of Bevan's shares is close to zero, and the capital gains tax rate is 20%, levied only on the sale or disposal of security. He informs the Bevans about the tools for addressing a concentrated position in a publicly-traded common stock. Regarding their SeP shares, the Bevans have the following objectives:

- to protect against a decline in value by locking in a floor price and
- to capture significant upside potential.

Manning suggests Bevans buy put options on their SeP shares. He finds put options on SeP shares that have a strike price of $15.00, one year to expiration, and an option price of $1.50 per SeP share. Edward calculates the cost of the put option strategy and asks Manning about different put options alternatives that will reduce the cost of hedging.

Manning discusses various equity monetization tools with the Bevans. Finally, he talks about a yield enhancement strategy that would assist the Bevans in establishing a liquidation value at which they would be willing to sell 20% of their stake in SeP.

1. The three primary objectives Manning is likely to discuss with the Bevans given their position in SeP are:

A. to reduce wealth concentration risk, to generate liquidity to diversify and meet spending needs, and to optimize tax efficiency.

B. to estimate spending needs, to liquidate a concentrated position, and to diversify holdings.

C. to optimize tax efficiency, to reduce wealth concentration risk, and to invest in alternatives.

2. The cognitive biases most likely to affect either Edward or Melissa in their decision making are:

A. overconfidence and familiarity.

B. naïve extrapolation of past returns and loyalty effects.

C. confirmation and anchoring and adjustment bias.

3. To reduce the Bevans cost of hedging, the two most likely put option strategies on SeP shares are using:

A. long puts with an expiry of more than a year and a put spread.

B. a“knock-out” put option and cashless collars.

C. a put spread, and long puts with a lower strike price.

4. An advantage of the yield enhancement strategy for the Bevans SeP position is:

A. unlimited upside potential.

B. psychological preparation for the sale of shares.

C. hedging of downside risk.

11. SS14 Portfolio Management for Institutional Investors

Case 1: Bruce Wayne

Bruce Wayne, CFA, an investment advisor for Arthur Capital, meets with Andrew Lee, fund manager of GME's defined benefit (DB) pension plan to discuss the plan's asset allocation. The plan is now fully funded, and the plan sponsor wants to maintain this status. GME's revenues are stable. The returns on its pension assets have been sufficient to meet pension payments to present retirees. It has not made contributions to its pension plan since last year and will hold contributions for a few years. Wayne discusses the investment objectives of the plan. Lee tells him that the plan seeks to maximize returns for the level of risk taken.

The DB pension plan has the following characteristics.

- Size of the plan is 6.5% of the market capitalization of GME.
- Average age of the workforce is 43; the retirement age is 65.
- Proportion of active lives to retired lives is 0.81.
- No provision for early retirement.

Wayne next looks at the asset allocation of the pension portfolio. The portfolio's holdings are 60% in large-capitalization US equities and 40% in high- quality, long- maturity US corporate bonds. The investments are largely passive, with tight tracking error limits.

Wayne's next client is Dracula Assurance, a large insurance company. The company's investment council wants to consider the effect on the overall risk profile of the company by decreasing the equity ratio from 25% to 20%. Wayne estimates that Dracula's annualized standard deviation of returns on investment assets is 7.0%, and on liabilities, it is 5.0%. The correlation between asset and liability returns is 0.35. Wayne determines the impact on the volatility of equity capitalization values.

1. GME DB plan's investment objective of a higher long-term return on plan assets than the discount rate used for the valuation of liabilities is appropriate because:

A. the liquidity profile of the plan will improve.
B. the asset base will grow minimizing contributions.
C. the volatility in funded status will decrease.

2. Which of the following factors relate to a lower risk tolerance for the GME DB pension?

A. No provision for early retirement.
B. Size of the plan.
C. Proportion of active lives to retired lives.

3. GME's investment approach for its pension plan can be best characterized as the:

A. Canada model.

B. Norway model.

C. Endowment model.

4. The change in the volatility of the shareholder equity value after decreasing the equity ratio from 25% to 20% is closest to:

A. -7% per year.

B. -10% per year.

C. +5% per year.

12. SS15 Trading, Performance Evaluation, and Manager Selection

Case 1: Ahmed

Nadia Ahmed is the head trader for Tweed Asset Management (Tweed) based in London, England. She is reviewing some of the trade requests the desk has received from its personal and institutional portfolio managers and is deciding on what tactics to recommend.

Ahmed starts by reviewing the trade requests from one of Tweed's personal portfolio managers, Edwin Moore.Moore asks Ted Norsk, a trader of Tweed, to execute a purchase of 1,000 shares of JAK pie with a limit order of £25.00 good for the day.

Norsk was unsuccessful in filling the limit order on the first day and after consultation with the client they agree to revise the price. Two days later Norsk successfully purchases 800 shares of JAK at £26.25 with commission costs of £135.00. Moore decides to cancel the order for the remaining 200 shares when the shares close that day at £26.75.

Exhibit 1 Selected Trading Information London Stock Exchange

Stock	Average Daily Volume (ADV)	Previous Day Price History		
		High	Low	Close
WWT	450,000	£12.50	£12.43	£12.48
JAK	2,000,000	£25.80	£24.20	£ 25.50

Moore and Ahmed discuss the implementation shortfall from the investment in JAK, based on the $25.50 closing price in Exhibit 1.

The next trade request Moore passes along to Norsk is to purchase 2,000 shares of BDF Ltd., which trades on the SEAQ, London's dealer market for infrequently traded shares.

The final request that Ahmed reviews is for the purchase of 300,000 shares of WWT pie from a client who is quite concerned about price execution. She reviews the trading volumes from the previous day (Exhibit 1) and, prepares her recommendation on the trade.

1. The implementation shortfall, in basis points, on the purchase of the JAK shares is closest to:

A. 360.

B. 386.

C. 332.

2. Which of the three trades reviewed by Ahmed would best be handled via direct market access? The trade concerning:

A. JAK

B. WWT

C. BDF

Case 2: Lancaster

Carol Lancaster, a senior analyst of Trident Funds is discussing trading strategies and portfolio performance evaluation with a new employee, Mary Clark. With regard to trading strategies, Lancaster makes the following statements:

Statement 1: Trading in securities with a higher rate of alpha decay will have better execution if we adopt a longer trade time horizon.

Statement 2: The more liquid the security, the lower the market impact of trading will be.

Clark asks Lancaster about the appraisal criteria used to evaluate the different managers employed by the Fund. Lancaster states, "The Fund is willing to risk firing good managers, in order to prevent retaining poor managers. But I would prefer if the Fund would relax the appraisal criteria."

Clark also asks Lancaster to describe an effective attribution process. Lancaster responds as follows:

Response 1: Performance attribution draws conclusions regarding the quality of a portfolio manager's investment decisions.

Response 2: Performance attribution should help explain how performance was achieved by breaking apart the return or risk into different explanatory components.

Lancaster then introduces Clark to a typical micro attribution model used by the Fund to evaluate a manager's ability using the information in Exhibit 1.

Exhibit 1 Fund Performance-Allocation by Sector

Return Attribution	Portfolio Weight	Benchmark Weight	Portfolio Return	Benchmark Return
Sector 1	30.62%	25.50%	15.85%	15.82%
Sector 2	35.78%	43.22%	21.84%	23.89%
Sector 3	15.35%	20.10%	11.20%	12.57%
Sector 4	18.25%	11.18%	19.00%	32.73%
Total	**100.00%**	**100.00%**	**17.86%**	**20.54%**

1. Which of Lancaster's statements regarding trading strategies is most likely to be correct?

A. Statement 1.

B. Statement 2.

C. Neither Statement 1 nor Statement 2 is correct.

2. If the Fund adopted Lancaster's preferred appraisal criteria, the most likely impact would be an increase in:

A. Type I error only.

B. Type II error only.

C. Both types of errors.

3. Which of Lancaster's responses regarding effective performance attribution is correct?

A. Only Response 1

B. Only Response 2

C. Both Response 1 and Response 2

4. Based on Exhibit 1, the allocation effect for Sector 2 is closest to:

A. - 0.24%

B. - 0.25%

C. 0.38%

5. Based on Exhibit 1, the decision to overweight or underweight which of the following sectors contributed negatively to performance at the overall fund level?

A. Sector 1

B. Sector 3

C. Sector 4

6. Based on Exhibit 1, the underperformance at the overall fund level is predominantly the result of poor security selection decisions in:

A. Sector 2

B. Sector 3

C. Sector 4

Case 3: Subramanium

Asis Subramanium was recently hired by the defined benefit pension fund Nash, Barwich, and Stuart (NBS) as a Portfolio Performance Evaluation Specialist. Collecting research related to performance evaluation, Subramanium tells Dev Radia, Director of Portfolio Management, that performance evaluation includes three primary components, each addresses the following three major issues:

1. Performance measurement whcin provides an overall indication of the portfolio's performance, typically relative to a benchmark;
2. Performance attribution which investigates the sources of the account's performance relative to a manager's past performance and the importance of those sources; and
3. Performance appraisal which attempts to answer the question whether the account's performance is due to luck or skill.

Subramanium reviews the entire plan's characteristics, asset allocation, and benchmark. Subramanium observes that the plan's benefits are no longer indexed to inflation and that the workforce is, on average, younger than it was when the current fund allocations were approved. When disscussing the benchmarking of hedge funds, Subramanium and Radia agree that hedge fund performance can be especially difficult to benchmark. They provide three reasons why this is so:

1. Hedge funds may have an unlimited investment universe, vary substantially from one to another, and can vary their asset allocations over time.
2. Short positions and derivatives used in long–short strategies can increase return or reduce risk. A manager's use short positions, and derivatives may change over time.
3. Hedge fund peer groups suffer only survivorship bias.

The two agree that investment skill requires a manager to outperform an appropriate benchmark, on average over time, and on a risk-adjusted basis. Commonly used measures that adjust for risk are the Treynor measure and the Sharpe ratio. To demonstrate the differences between these two measures, Subramanium collects the data given in Exhibit 1 along with his partially completed calculations on three accounts.

Exhibit 1 Data Relating to Common Risk-Adjustment Tools

Account	Average Asset Return	Standard Deviation of Asset Returns	Ex Post Beta of the Asset	Sharpe Ratio	Treynor Measure
W-Life	15%	22%	1.35	0.5	
Lee Co	9%	6%	1.05	0.83	4.76
G. Ltd	8%	7%	0.85		4.71
Market Data:					
Average Risk-free Return				4%	
Average Return on the Market				12%	

Standard Deviation of the Market Return	14%	

1. In describing the three major issues relating to a performance evaluation policy, Subramanium is least accurate with respect to performance:

A. Management.

B. Attribution.

C. Appraisal.

2. Based on Subramanium's observation, the NBS pension fund should use:

A. a liability-based benchmark.

B. an absolute return benchmark.

C. a manager universe benchmark.

3. Which of Subramanium's and Radia's reasons as to why hedge funds are difficult to evaluate is the least accurate? The statement regarding:

A. Determing investment universe.

B. Long–short strategies.

C. Peer groups.

4. Using the data in Exhibit 1, the account which has produced the highest return per unit of systematic risk is:

A. Lee Co.

B. G. Ltd.

C. W-Life.

Case 4: Kim Simpson and Janet Long Scenario

Kim Simpson, CFA, manages a $75 million multi-cap growth portfolio. Simpson follows a growth investment strategy and her investment universe consists of small, medium, and large capitalization stocks. She turns the entire portfolio over once each year. Simpson is concerned about the amount of trading costs she has generated through the implementation of her investment strategy and decides to conduct a trade cost analysis with the cooperation of her trader, Janet Long, CFA.

Simpson and Long review a trade in Nano Corporation, a small biotechnology company. To capture both explicit and implicit trading costs, Simpson measures execution costs using implementation shortfall. The buy order of Nano Corporation has the following details:

- Simpson decided to buy 100,000 shares of Nano Corp. at 9:00 am when the stock price was $35.00 per share. She sets a price limit of $35.50 per share.
- Long did not release the order to the market until 9:40 am when the share price was $35.15.
- By the end of the trading day, 90,000 shares of the order had been purchased at an average price of $35.41, and the share price closed at $35.65 per share.
- The commission paid was $0.02 per share.
- The beta of Nano Corp is equal to 1.

Long suggests to Simpson that a market-adjusted cost should be used to assess trading cost. She notes that VWAP for a relevant stock index over the trade horizon is lower than the index arrival price for the trade.

Long suggests reviewing the trade policy document of the firm. She makes the following suggestions to improve the trade governance of the firm:

- Restrict the list of eligible brokers to only those who transact at the lowest trading costs in order to ensure best execution is being attained.
- Restrict the list of execution venues disclosed in the document to only lit exchanges so it does not compromise anonymity when trading on dark pool trading venues.
- Include a trade aggregation and allocation policy for trades executed across multiple accounts.

1. The total implementation shortfall for the trade in Nano Corporation is closest to:

A. –$45,200.

B. $43,400.

C. $45,200.

2. The arrival cost for the trade in Nano Corporation is closest to:

A. 50 bps.

B. 74 bps.

C. 117 bps.

3. The market-adjusted cost for the Nano Corporation trade, relative to the arrival cost, is most likely to be:

A. lower.

B. higher.

C. the same.

4. Which of the suggestions by Lang would most likely improve the trade governance of the firm?

A. Restricting the list of eligible brokers.

B. Restricting the list of execution venues.

C. Including a trade aggregation and allocation policy.

Case 5: Education Investment Foundation Scenario

The investment committee (IC) of the Education Investment Foundation (EIF) has recently approved a change in the fund's IPS to increase its allocation to alternative investments.

The investment staff have drafted manager selection procedures for assessing potential external alternative investment managers. An excerpt from the policy is displayed below in Figure 1.

Figure 1: Excerpt from Manager Selection Policy
The investment committee is aware that the costs to the fund of hiring and firing decisions are significant, and that policy should ensure as much as possible that mistakes are minimized. A central part of the manager selection policy is a proprietary database with two key purposes: **Purpose 1:** record the subsequent performance of managers that met initial screening criteria and were interviewed by investment staff, but not allocated to by the fund. **Purpose 2:** record the subsequent performance of managers that were removed from the fund due to sub-optimal performance.

The IC is keen to monitor external alternative investment fund managers for style drift. They are contemplating whether to use returns-based style analysis (RBSA) or holdings-based style analysis (HBSA). The IC lists the following considerations when choosing which style analysis method to use:

- Due to the private nature of most alternative investment structures, the method should not use data that is potentially difficult to get.
- The method should mitigate the effect of window dressing by the manager.
- The IC is also concerned about the higher fee structures that are seen in alternative fund structures verses traditional fund structures. They ask the investment staff to summarize the different types of fee schedules employed by managers. This summary is displayed in Figure 2.

Figure 2: Fee Schedules

Fee Schedule	Base Fee	Profit-Share	Computation
1	0.50%	30%	higher of base or base + share of active return. maximum fee = 3%
2	0.75%	20%	higher of base or base + share of performance net of base
3	1.00%	10%	base + share of performance net of base

The IC requests that the investment staff apply the fee schedule to a year where the gross return of the fund is +10% while the benchmark returns 5%, and secondly where the gross return of the fund is –10% while the benchmark returns –5%.

1. With regard to the manager selection policy purposes described in Figure 1, which of these is correct?

A. Both Purpose 1 and 2 are designed to minimize Type I errors.

B. Both Purpose 1 and 2 are designed to minimize Type II errors.

C. Purpose 1 is designed to minimize Type I errors, Purpose 2 is designed to minimize Type II errors.

2. Based on the IC's considerations regarding style analysis, the most appropriate method to use is:

A. returns-based style analysis.

B. holding-based style analysis.

C. both methods of analysis because both are equally appropriate.

3. Which of the fee schedules listed in Figure 2 would give rise to the highest investment management fees given a gross performance of +10% and a benchmark return of 5%?

A. Schedule 1.

B. Schedule 2.

C. Schedule 3.

4. Which of the fee schedules listed in Figure 2 would give rise to the lowest or most negative investment management fees given a gross performance of –10% and a benchmark return of -5%?

A. Schedule 1.

B. Schedule 2.

C. Schedule 3.

Case 6: Cameron Li and Rick Gleeson Scenario

Somerset Investment Limited is a Singapore-based money management firm that is conducting an appraisal of its investment performance. Cameron Li, CFA, has been charged with conducting the appraisal and is to report back to upper management with his findings.

Li is convinced that trade executions play a substantial role in overall portfolio performance, particularly for funds that have a relatively high level of turnover during the year. As a result, he is seeking methods that will allow him to evaluate the quality of trade executions.

He first consults the firm's head trader, Rick Gleeson, about the relationship between trade urgency, market impact and execution risk. Gleeson makes the following two statements.

Statement 1: Market impact increases when large orders are traded with higher urgency.

Statement 2: Trading with lower urgency is associated with lower execution risk.

Li asks Gleeson for some recent trade data that he can use for analysis and presentation to management. He receives the following data relating to a series of buy trades for Sumatra Natural Resources (SNR), with all currency values in Singapore dollars:

Trades of Sumatra Natural Resources		
Time	**Execution Price**	**Shares Bought**
10:30	$22.33	900
11:15	$22.43	600
13:45	$22.47	700
15:00	$22.65	800

Gleeson also tells Li that the portfolio manager had originally made the decision to purchase 5,000 SNR shares at 10:00 am when the price was $22.26. Gleeson released the order to the market at 10:20 am when the price was $22.29. The closing price for the day was Gleeson's last trade at $22.65, at which point the order for the remaining 2,000 shares was cancelled. Gleeson executed the trade at an average price of $22.47 and total commissions paid amounted to $210.

Gleeson subsequently provides Li with a summary of the algorithmic trading strategies that he has used in the last month. Li notes that a significant number of Gleeson's algorithmic trades have been executed using arrival price algorithms.

1. How many of Gleeson's statements regarding trade urgency are correct?

A. None.

B. One.

C. Two.

2. The trading cost for purchasing 3,000 SNR shares is closest to:

A. $210.

B. $534.

C. $624.

3. The arrival cost for purchasing 3,000 SNR shares is closest to:

A. 63 bp.

B. 72 bp.

C. 81 bp.

4. The trades executed by arrival price algorithms are most likely to:

A. require high urgency.

B. be relatively large orders.

C. be in relatively illiquid securities.

Case 7: Diana Prince

Diana Prince, a senior analyst at the Themyscira Wealth Advisory (TWA), a firm based in UK. One of TWA's clients is a large pension fund of DaMi Corporation, its CEO Ares Lei is considering adding an equity strategy into the pension's portfolio, and he asks Prince to initiate a manager selection process. Prince begins the selection process by defining feasible manager universe and makes the following statements:

Statement 1: One approach to build a universe of managers is excluding managers based on historical risk-adjusted returns.

Statement 2: When defining this manager universe, the selection process should identify the benchmark against which managers will be evaluated.

Statement 3: It's an efficient way to use third-party categorizations of managers to find those that might fill the desired role in the portfolio.

After building the appropriate manager universe, Prince inspects the risk attribution approach to apply for evaluating those candidate managers. One of the candidate managers is Manager J. Manager J specializes in timing sector exposure and generally avoids idiosyncratic risks within sectors. Using technical analyses and econometric methodologies, she produces several types of forecasts. The manager uses this information to determine appropriate sector weights. The risk contribution from any single sector is limited to 20% of total portfolio risk. She hedges aggregate market risk and seeks to earn T-bills plus 200 bps.

Prince also prepares the following estimates of Manager J's 10-year risk-adjusted-performance.

Exhibit 1	
Upside capture	82.0%
Downside capture	65.5%
Maximum drawdown	-31%
Drawdown duration	4 months

As a part of the investment due diligence process, Prince interviews those candidate managers. During the interview, Manager U, one of the managers, tells Prince that he captures alpha by identifying and exploiting structural inefficiencies that are created by external or internal rules and regulations.

Manager U also states that if the inefficiency is a unique event that occurs infrequently, and the level of gross return is greater than the amount of transaction costs and expenses, and the aggregate value of all assets affected by the inefficiency is larger than the AUM of the manager and its competitors, then the investment process of exploiting a structural inefficiency is repeatable.

Another client of TWA is a foundation, which is considering investing in a fixed income fund called Wonder Fund. Barry Allen, the CIO of the foundation investment committee, asks Prince to

review the performance results of the fund. Prince conducts an exposure decomposition analysis. Exhibit 2 below gives the Wonder Fund's attribution results.

Exhibit 2 Exposure Decomposition: Attribution Results							
Duration Bucket	**Sector**	**Duration Effect**	**Curve Effect**	**Total Interest Rate Allocation**	**Sector Allocation**	**Bond Selection**	**Total**
Short	Government					0.00%	0.00%
	Corporate				0.06%	0.00%	0.04%
	Total	0.40%	0.11%	0.50%	0.06%	0.00%	0.57%
Mid	Government					0.00%	0.00%
	Corporate				0.00%	0.00%	-0.05%
	Total	0.37%	0.09%	0.46%	0.00%	0.00%	0.46%
Long	Government					0.00%	0.00%
	Corporate				-0.15%	0.10%	-0.09%
	Total	-1.46%	0.24%	-1.22%	-0.15%	0.10%	-1.27%
Total		-0.70%	0.44%	-0.26%	-0.08%	0.10%	-0.25%

1. Which of Prince's statements regrading defining manager universe is least accurate:

A. Statement 1

B. Statement 2

C. Statement 3

2. The most appropriate risk attribution approach to use for Manager J is:

A. Marginal contribution to tracking risk.

B. Factor's marginal contributions to total risk and specific risk.

C. Marginal contribution to total risk.

3. Based on Exhibit 1, the estimates of Manager J's portfolio most likely indicated:

A. the portfolio's slow recovery from its maximum loss.

B. a convex return profile.

C. an average maximum loss of 31.00% over 10 years.

4. Which of Manager U's statements is least likely the reason to pursue the inefficiency:

A. The nature of the inefficiency

B. The level of gross return

C. The aggregate value of all assets affected by the inefficiency

5. Given the data in Exhibit 2, which one of the following statements is most likely correct?

A. The fund underperformed its benchmark by 127 bps.

B. As a result of changes in the shape of the yield curve, 44 bps were gained.

C. By overweighting the corporate sector, 10 bps were gained.