

2013 Level III Mock Exam

The 2013 Level III Chartered Financial Analyst (CFA®) Mock Examination has 60 questions. To best simulate the exam day experience, candidates are advised to allocate an average of 18 minutes per item set (vignette and 6 multiple choice questions) for a total of 180 minutes (3 hours) for this session of the exam.

Questions	Topic
1–12	Ethical and Professional Standards
13-18	Risk Management
19-24	Equity Portfolio Management
25-30	Performance Attribution
31-36	Fixed Income Portfolio Management
37-48	Risk Management Applications of Derivatives
49-54	Portfolio Management of Global Bonds
55 -60	Global Investment Performance Standards
Total:	180

Questions 1 to 12 relate to Ethical and Professional Standards

Sue Kim Case Scenario

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.

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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.

Answer = A

Guidance for Standards I-VII, CFA Institute
2013 Modular Level III, Vol. 1, Standard II (A) Material Nonpublic Information, Guidance, Standard II (B), Market Manipulation, Guidance, Standard V (A) Diligence and Reasonable Basis, Guidance
Study Session 1–2–b
Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

A is correct because the hedge fund manager's trades do not represent a violation of Standard II (B), Market Manipulation. Kim is not engaging in practices that distort prices or artificially inflates trading volume with the intent to mislead market participants. Because the trades are based on material nonpublic information, however, Kim is in violation of Standard II (A) Material Nonpublic Information. Kim is also in violation of Standard V (A) Diligence and Reasonable Basis because she has based her investment decisions on information received from third parties and has not determined if this information is sound and the processes and procedures used by those responsible for the research were valid.

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

Answer = C

Guidance for Standards I-VII, CFA Institute

2013 Modular Level III, Vol. 1, Standard III (D) Performance Presentation, Guidance, Standard IV

(A) Loyalty, Guidance

Study Session 1–2–a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity.

C is correct because showing past performance of funds managed at a prior firm as part of a performance track record is permissible under Standard III (D) Performance Presentation only as long as showing that record is accompanied by appropriate disclosures about where the performance took place and the person's specific role in achieving that performance, which Kim did not do. In addition, the material used to create this performance record is the property of Kim's former employer, and in order to use this record she should have obtained permission to do so but did not as required by Standard IV (A) Loyalty.

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

Answer = C

Guidance for Standards I-VII, CFA Institute

2013 Modular Level III, Vol. 1, Standard IV (C) Responsibilities of Supervisors, Guidance,

Standard VI (C), Referral Fees, Guidance

Study Session 1–2–a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity.

C is correct because disclosure that fully explains the referral fee arrangement has not been properly provided in violation of Standard VI (C) Referral Fees. Akagi is required to disclose in writing, and prior to the execution of any agreement, referral fee agreements in place including the nature and the value of the benefit. Kim is also in violation of Standard IV (C) Responsibilities of Supervisors because she has a responsibility to oversee Akagi and ensure the appropriate disclosures are made concerning referral fees. In addition, Kim verbally telling clients that Green Note compensates Akagi for his efforts to find investors for the fund is not sufficient to meet the disclosure requirements.

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.

Answer = B

Guidance for Standards I–VII, CFA Institute

2013 Modular Level III, Vol. 1, Standard II (A) Material Nonpublic Information, Guidance, Standard III (B) Fair Dealing, Guidance, Standard VI (B) Priority of Transactions, Guidance
Study Session 1–2–a

Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity.

B is correct because Standard VI (B) Priority of Transactions concerns investment transactions for clients and employers having priority over investment transactions in which a member or candidate is the beneficial owner. Because the manager does not have beneficial ownership in securities traded in client accounts, this Standard has not been violated. By purchasing shares for Miriam's account before other client accounts, the manager has violated Standard III (B) Fair Dealing, which requires members and candidates to treat all clients fairly when taking investment action with regard to general purchases. In addition, because the hedge fund manager's trades are based on material nonpublic information, they are in violation of Standard II (A) Material Nonpublic Information. The mosaic theory is not applicable here because the manager used it as a way to hide her receipt of 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

Answer = A

Guidance for Standards I-VII, CFA Institute

2013 Modular Level III, Vol. 1, Code of Ethics, Standard I (A) Knowledge of the Law, Guidance Study Session 1–2–b

Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

A is correct because Kim has not violated the Code of Ethics and Standard I (A) Knowledge of the Law. Her efforts to influence the legislative process, including her personal donations, are legal and not a violation of any standard.

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

Answer = A

Guidance for Standards I-VII, CFA Institute

2013 Modular Level III, Vol. 1, Standard I (C) Misrepresentation, Guidance, Standard V (A) Diligence and Reasonable Basis, Guidance, Standard V (B) Communication with Clients and Prospective Clients, Guidance Study Session 1–2–b

Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

A is correct because Standard V (A) Diligence and a Reasonable Basis requires members and candidates to ensure their firms have standardized criteria for reviewing external advisers, which Kim has met. Kim is in violation of Standard V (B) Communication with Clients and Prospective Clients because she has not communicated the changes in her investment process to clients. By presenting the third-party research as her own, Kim has also violated Standard I (C) Misrepresentation.

Athena Case Scenario

Caitlyn Wilson, CFA, recently started her own asset management company, Athena Investment Services (Athena). The board of directors of Athena has adopted both the CFA Code of Ethics and Standards of Practice and the CFA Institute 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 his department's compliance with the Code.

Six months into the first financial year, Wilson meets with all of her managers to assess each department's compliance. Wilson asks her 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 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 we must implement the new Anti-Money Laundering Regulations being introduced by our local regulator with effect from the first quarter of next year. I've done an analysis of the new regulations and have found that all of the local requirements are part of new 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 states, "I would like each of you to explain how the implementation of the Asset Manager Code within your department is being supervised. Let's start with Shenal Mehta, our client service manager."

Mehta states, "With respect to the Asset Manager Code relating to client services, we have ensured we enforce the following policies: All disclosures are accurate and complete, and our calculations are shown, no matter how complicated. We also ensure 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: Any communication with clients is kept confidential and is only accessible by authorized personnel;
- Comment 2: On occasion, we are able to acquire securities we expect will be particularly strong performers, such as oversubscribed initial public offerings. In order to assure that all clients are treated fairly, each client portfolio is given the same number of shares; and
- Comment 3: A gift and entertainment policy is in place to help ensure that 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 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."

7. 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

Answer = B

"Asset Manager Code of Professional Conduct," Kurt Schacht, Jonathan J. Stokes, and Glenn Daggett

2013 Modular Level III, Vol. 1, Reading 6, General Principles of Conduct

Study Session 2–6–a

Explain the ethical and professional responsibilities required by the six components of the Asset Manager Code.

B is correct because Zefferman states the firm is responsible for putting clients' interests above the firm's when appropriate. The General Principles of Conduct embedded in the six components of the Asset Manager Code state that managers have the responsibility of acting for the benefit of clients. The code does not stipulate that this responsibility is applicable only when appropriate.

8. 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

Answer = B

"Guidance for Standards I-VII," CFA Institute 2013 Modular Level III, Vol. 1, Reading 2

Section: Standard I (A) Knowledge of the Law

Study Session 1–2–c

Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

B is correct because Zefferman, as a CFA charterholder, will be responsible for ensuring Athena complies with the stricter anti-money laundering laws of Europe, where some of its clients reside, as per Standard I (A) Knowledge of the Law. Europe's new laws, which encompass and

exceed the local anti-money-laundering regulations, are already in place; therefore, these are the regulations that must be currently followed.

9. 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

Answer = C

"Asset Manager Code of Professional Conduct," Kurt Schacht, Jonathan J. Stokes, and Glenn Daggett

2012 Modular Level III, Vol. 1, Reading 6

Sections: A. Loyalty to Clients, D. Risk Management, Compliance and Support, and F. Disclosures
Study Session 2–6–b

Determine whether an asset manager's practices and procedures are consistent with the Asset Manager Code.

C is correct because Section D, Risk Management, Compliance and Support of the Asset Manager Code states that portfolio information provided to clients should be reviewed by an independent third party. The compliance department would be considered an independent third party because compliance is not involved with compiling or presenting the information to clients. According to Section F, Disclosures, disclosures should be truthful, accurate, complete, and understandable. It is unlikely clients would easily understand complicated calculations. Section F, Disclosures calls for communications with clients to be on an ongoing and timely basis. Annual communication would not be considered timely.

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

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

Answer = B

"Asset Manager Code of Professional Conduct," Kurt Schacht, Jonathan J. Stokes, and Glenn Daggett

2012 Modular Level III, Vol. 1, Reading 6

Sections: A. Loyalty to Clients, and D. Risk Management, Compliance and Support
Study Session 2–6–b

Determine whether an asset manager's practices and procedures are consistent with the Asset Manager Code.

B is correct because Section B(6)(b) requires clients to be treated equitably, not equally. Clients have different investment objectives and risk tolerances, so treating clients equally would be inconsistent with the Asset Manager Code.

11. 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

Answer = A

"Asset Manager Code of Professional Conduct," Kurt Schacht, Jonathan J. Stokes, and Glenn Daggett

2012 Modular Level III, Vol. 1, Reading 6

Sections: E. Performance and Valuation, F. Disclosures

Study Session 2–6–b

Determine whether an asset manager's practices and procedures are consistent with the Asset Manager Code.

A is correct because Section E of the Asset Manager Code calls for the use of fair-market values sourced by third parties when available, and when such are not available, the code calls for the use of "good faith" methods to determine fair value. Athena's policy appears consistent with this requirement. In terms of client reporting, monthly valuation reports would be consistent with the call for timely reporting.

12. 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

Answer = B

"Asset Manager Code of Professional Conduct," Kurt Schacht, Jonathan J. Stokes, and Glenn Daggett

2012 Modular Level III, Vol. 1, Reading 6, Appendix 6 - Recommendations and Guidance

Study Session 2–6–c

Recommend practices and procedures designed to prevent violations of the Asset Manager Code.

B is correct because at minimum, Section D. Risk Management, Compliance and Support of the Asset Manager Code recommends a business continuity plan to include plans for contacting and communicating with clients during a period of extended disruption. Wilson's continuity plan includes no such strategy. Her recommendation for disclosing the firm's risk management process goes beyond the code recommendations to disclose the risk management process only to clients, not to regulators. Wilson recommends they disclose to both.

Questions 13 to 18 relate to Risk Management

Laura Hackett Case Scenario

Laura Hackett is a risk management consultant who helps investment companies build and enhance their risk management process. Jardins Advisors, a financial services firm with equity, fixed income, and commodity trading desks, recently hired her to evaluate and recommend improvements to their processes. Jardins' senior management outlines their current risk management process to Hackett as follows: "First, we establish policies and procedures for risk management. Next, we identify the types of risk we face. We then measure our exposures to those risks. Finally, we determine our risk tolerance and adjust levels of risk as appropriate." They ask her, "Is this process appropriate?"

Alpha Asset Management Inc., another of Hackett's clients, hired her to identify and separate its market risk exposures into categories. Alpha was incorporated during the current year and focuses on one investment strategy to generate returns. Alpha issues debt with a maturity of less than one year and invests the proceeds in emerging market debt. Hackett creates a list of Alpha's market risk categories.

Hackett asks Anthony Mackenzie, a recently hired associate, to apply the analytical method to estimate the VAR for Alpha Asset Management's portfolio, which is valued at \$20 million. The portfolio has an expected annual return of 7.5% and a standard deviation of 22.4%.

Another of Hackett's clients is Beta Investment Advisors. Beta invests in a variety of asset classes and international markets. It uses a historical simulation approach to measure the VAR of its portfolio, based on the previous 24 months of market data. Beta asks Hackett to evaluate its approach relative to other methods used for estimating portfolio VAR.

Sigma Investment Management Inc. is a potential new client that wishes to measure the credit risk of an over-the-counter American call option on a security. The call option has a strike price of \$65 and was purchased at a price of \$3.50 per option. The option's current value is \$8.50 per option.

In addition to measuring credit risk, Sigma asks Hackett to evaluate its over-the-counter derivative positions and recommend ways to decrease credit risk associated with these positions. Sigma provides a thorough explanation of its current process. At least 20 counterparties are used, each is limited to 7% of Sigma's total derivatives positions, and each must meet a minimum credit rating threshold. The contracts have a typical term of two years, at which time they are marked to market and all payments under the contract are netted and gains or losses settled.

13. What response would Hackett *most likely* make to Jardins Advisors' senior management?
The firm should:
- A. measure its risk levels before defining its risk tolerance.
 - B. define its risk tolerance before identifying the risks it faces.
 - C. identify the risks it faces before setting policies and procedures.

Answer = B

“Risk Management,” Don M. Chance, Kenneth Grant, and John Marsland

2013 Modular Level III, Vol. 5, Reading 34, Section 2

Study Session 14–34–a

Discuss the main features of the risk management process, risk governance, risk reduction, and an enterprise risk management system.

B is correct because the risk management process is as follows: (1) set policies and procedures, (2) define risk tolerance, (3) identify risks, (4) measure risks, and (5) adjust the level of risk.

14. Which of these risk categories is *least likely* to be on Hackett’s list for Alpha?

- A. Political risk
- B. Liquidity risk
- C. Interest rate risk

Answer = A

“Risk Management,” Don M. Chance, Kenneth Grant, and John Marsland

2013 Modular Level III, Vol. 5, Reading 34, Section 4.1, Section 4.11

Study Session 14–34–d

Evaluate a company’s or a portfolio’s exposures to financial and nonfinancial risk factors.

A is correct because although the company is exposed to political risk via its investment in emerging market debt, this risk is not a type of market risk. Market risks include risks associated with interest rates, exchange rates, stock prices, and commodity prices.

15. Assuming normally distributed returns, the 5% yearly VAR for the Alpha Asset Management portfolio is *closest to*:

- A. \$2,980,000.
- B. \$5,892,000.
- C. \$8,052,000.

Answer = B

“Risk Management,” Don M. Chance, Kenneth Grant, and John Marsland

2013 Modular Level III, Vol. 5, Reading 34, Section 5.2.2

Study Session 14–34–e

Calculate and interpret value at risk (VAR) and explain its role in measuring overall and individual position market risk.

B is correct because there is a 5% chance the portfolio will lose 29.46%:

$$0.075 - (1.65 \times 0.224) = 0.075 - 0.3696 = -0.2946;$$

hence the annual 5% VAR is

$$\$20,000,000 \times 0.2946 = \$5,892,000.$$

With a standard normal distribution, 5% of possible outcomes are likely to be smaller than -1.65 times the standard deviation of the distribution.

16. Hackett's description of Beta's current approach to VAR estimation would *most likely* mention that it:

- A. is a nonparametric method of estimating VAR.
- B. often assumes a daily portfolio expected return of zero.
- C. produces a wide range of randomly generated potential outcomes.

Answer = A

"Risk Management," Don M. Chance, Kenneth Grant, and John Marsland
2013 Modular Level III, Vol. 5, Reading 34, Section 5.2.3
Study Session 14–34–f

Compare the analytical (variance-covariance), historical, and Monte Carlo methods for estimating VAR and discuss the advantages and disadvantages of each.

A is correct because the historical simulation approach to VAR measurement calculates what the change in the current portfolio's value would have been had it been held in the past, without making any assumptions about the distribution of asset returns.

17. If the security held by Sigma Investment Management trades at \$70, the credit risk is *closest to*:

- A. \$3.35.
- B. \$5.00.
- C. \$8.50.

Answer = C

"Risk Management," Don M. Chance, Kenneth Grant, and John Marsland
2013 Modular Level III, Vol. 5, Reading 34, Section 5.6.4
Study Session 14–34–i

Evaluate the credit risk of an investment position, including forward contract, swap, and option positions.

C is correct because the amount at risk is the current value of the option, \$8.50. Once the seller has sold the option, all the credit risk falls on the buyer. In this instance, the amount of credit risk is the value of the option because this amount is what the buyer stands to lose if the seller were to default immediately.

18. Sigma can *most likely* reduce credit risk in its over-the-counter derivatives positions by changing which of the following practices?

- A. Netting
- B. Limiting counterparty exposure
- C. Frequency of marking-to-market

Answer = C

“Risk Management,” Don M. Chance, Kenneth Grant, and John Marsland
 2013 Modular Level III, Vol. 5, Reading 34, Section 6.2
 Study Session 14–34–k

Demonstrate the use of exposure limits, marking to market, collateral, netting arrangements, credit standards, and credit derivatives to manage credit risk.

C is correct because Sigma typically enters two-year contracts and does not mark to market until expiration of the contract. Increasing the frequency of the marking to market will decrease credit risk. When a contract is marked to market, the party to whom the contract has a positive value receives payment from the counterparty, thus eliminating credit risk. Consequently, more frequent marking to market decreases credit risk.

Questions 19 to 24 relate to Equity Portfolio Management

Sonera Endowment Fund Case Scenario

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:

“The fee structure must be easy to understand and avoid undue complexity wherever possible. Also, the fee structure must be predictable, so Sonera can reasonably forecast these costs on a yearly basis as an input to the annual budgeting process.”

He understands there are many different fee structures, and he wants to make sure he chooses the most appropriate one for the Sonera Endowment Fund. He prepares a recommendation to the investment policy committee regarding the most appropriate fee structure.

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.”

Gatchell is reviewing the performance of another investment manager, Far North, which employs a value-oriented approach and specializes in the Canadian market. Gatchell would like to recommend to the investment policy committee that the fund diversify geographically. The information for Far North and the related returns are found in Exhibit 2.

Exhibit 2
Far North: Return Information

	Rate of Return
Far North	14%
True active return	–1%
Misfit active return	5%

The investment policy committee reviews the information in Exhibit 2 and is not familiar with the terms true active return and misfit active return. Gatchell responds with the following statement:

“The true active return is the return Far North made above its normal benchmark return. The misfit active return is the return Far North made above the investor’s benchmark return. The term investor’s benchmark refers to the benchmark the investor uses to evaluate performance for a given portfolio or asset class.”

19. 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

Answer = B

"Equity Portfolio Management," Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
2013 Modular Level III, Vol. 4, Reading 27, Section 3, 5.1.4

Study Session 11–27–b,c

Discuss the rationales for passive, active, and semiactive (enhanced index) equity investment approaches and distinguish among those approaches with respect to expected active return and tracking risk.

Recommend an equity investment approach when given an investor's investment policy statement and beliefs concerning market efficiency.

B is correct because manager B has a positive information ratio, demonstrating that he has been able to deliver active returns relative to his level of tracking error. Manager B's investment style is consistent with a value investment style, with a higher beta for the two value indices, the small-cap value index and the large-cap value index.

20. 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

Answer = C

"Equity Portfolio Management," Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
2013 Modular Level III, Vol. 4, Reading 27, Section 5.1.5, 5.1.6

Study Session 11–27–j,k

Compare the methodologies used to construct equity style indices.

Interpret the results of an equity style box analysis and discuss the consequences of style drift.

C is correct because holdings data are required to create a style box and interpret the results. Gatchell is given the styles and the assets under management but not each individual investment or holding that each investment manager has selected.

21. Which fee structure is *most* appropriate for Sonera based on the criteria in the investment policy statement?

- A. An ad valorem fee structure

- B. A performance-based fee structure with a fee cap
- C. A performance-based fee structure with a high water mark

Answer = A

“Equity Portfolio Management,” Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
2013 Modular Level III, Vol. 4, Reading 27, Section 8.3
Study Session 11–27–u

Describe the process of identifying, selecting, and contracting with equity managers.

A is correct because ad valorem fee structures are both simple and predictable. The ad valorem fee structure is calculated by multiplying the value of the assets by a percentage.

22. 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.

Answer = C

“Equity Portfolio Management,” Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
2013 Modular Level III, Vol. 4, Reading 27, Section 4.1.1
Study Session 11–27–d

Distinguish among the predominant weighting schemes used in the construction of major equity share indices and evaluate the biases of each.

C is correct because an equal-weighted index is biased towards small-capitalization stocks.

23. In his statement to Lafite, Gatchell is *least likely* correct with respect to:

- A. cost.
- B. redemption.
- C. periodic rollover.

Answer = B

“Equity Portfolio Management,” Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
2013 Modular Level III, Vol. 4, Reading 27, Section 4.2
Study Session 11–27–e

Compare alternative methods for establishing passive exposure to an equity market, including indexed separate or pooled accounts, index mutual funds, exchange-traded funds, equity index futures, and equity total return swaps.

B is correct. Gatchell is correct that stock index futures and equity swaps are low-cost alternatives to equity index mutual funds. He is also correct that a drawback of stock index

futures is they have to be rolled over periodically. He is incorrect about the pricing of mutual funds: They are priced once daily.

24. Is Gatchell's statement regarding true active return and misfit active return correct?

- A. Yes
- B. No, he is incorrect about true active return
- C. No, he is incorrect about misfit active return

Answer = C

"Equity Portfolio Management," Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
2013 Modular Level III, Vol. 4, Reading 27, Section 7.1

Study Session 11–27–s

Distinguish among the components of total active return ("true" active return and "misfit" active return) and their associated risk measures and explain their relevance for evaluating a portfolio of managers.

C is correct because the definition of misfit active return is incorrect. Misfit active return is the difference between the normal benchmark and the investor's benchmark.

Questions 25 to 30 relate to Performance Attribution

Minglu Li Case Scenario

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. Last year (2012), Li and her team gathered data to determine the expected return for the industry (see Exhibit 1).

Exhibit 1
Returns and Premiums Data (2012)

Securities and Interest Rates	Expected Yield
10-year U.S. Treasury securities	3.8%
Short-term real rate	2.0%
Long-term real rate	2.3%
10-year AA corporate bond yield	4.4%
Type of Premium	Premium
Inflation premium	0.6%
Illiquidity premium	0.9%
Equity risk premium	8.4%

After considering a number of approaches, Li and her team decided to use the bond-yield-plus-risk-premium method. The method worked well in 2012, but a new assignment presented to Li's team the previous week posed a new challenge.

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 as a result of firms failing and also combining through time.

The SCI risk premium, equal to the SCI return less the risk-free rate, denoted as SCIRP, is used as the dependent variable in a two-factor regression where the independent variables are index returns less the risk-free rate for the consumer credit industry (CCIRP) and the telecommunications industry (TELIRP). The regression results are in Exhibit 2.

Exhibit 2
Data, Statistics, and Regression Results

Index	Mean	Variance	
SCIRP	5.4%	0.2704	
CCIRP	4.6%	0.0784	
TELIRP	2.8%	0.1024	
<i>Note:</i> CCIRP and TELIRP are uncorrelated.			
Regression Coefficient	α	β (CCIRP)	β (TELIRP)
Coefficient Value:	0.011	1.020	1.045
<i>Note:</i> All coefficients are statistically significant at the 95% level.			

Although volatility information is available from the SCI data and correspondingly for the SCIRP, Li’s team wants to determine the statistical relationship between the SCIRP and both the consumer credit index risk premium (CCIRP) and the telecommunications index risk premium (TELIRP) because forecasting the CCIRP and TELIRP is much less difficult than forecasting the SCIRP. After some discussion, the team believes that the volatility measure for the SCIRP data based on the volatility of CCIRP and TELIRP through the regression should be adjusted to incorporate a correlation coefficient of 0.25 between the CCIRP and TELIRP. Although the two index risk premiums were uncorrelated in the past and within the regression, Li’s team believes the two technologies will become more correlated in the future.

Li’s team also examined survey data within the consumer credit and telecommunications industries during the same time period 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 3).

Exhibit 3
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.

25. Based on Exhibit 1 and the method used by Li's team, the expected return for the consumer credit industry in 2012 was *closest* to:

- A. 12.2%.
- B. 12.8%
- C. 13.7%.

Answer = A

"Capital Market Expectations," John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub

2013 Modular Level III, Vol. 3, Reading 18, Section 3.1.3.3

Study Session 6–18–c

Demonstrate the application of formal tools for setting capital market expectations, including statistical tools, discounted cash flow models, the risk premium approach, and financial equilibrium models.

A is correct. The bond-yield-plus-risk-premium method (Equation 8) sets the expected return to the yield to maturity on a long-term government bond plus the equity risk premium (12.2% = 3.8% + 8.4%).

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

- A. Time period

- B. Data mining
- C. Survivorship

Answer = C

“Capital Market Expectations,” John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub

2013 Modular Level III, Vol. 3, Reading 18, Section 2.2.2

Study Session 6–18–b

Discuss in relation to capital markets expectations, the limitations of economic data, data measurement errors and biases, the limitations of historical estimates, *ex post* risk as a biased measure of *ex ante* risk, biases in analysts’ methods, the failure to account for conditioning information, the misinterpretation of correlations, psychological traps, and model uncertainty.

C is correct. The SCI data is an index that is not composed of the same number of firms in each period because of firm failures and combinations through time, which indicates survivorship bias.

27. Based on the correlation that Li’s team believes to exist between the CCIRP and TELIRP, the new volatility for the SCIRP is *closest* to:

- A. 31.8%.
- B. 49.1%.
- C. 56.4%.

Answer = C

“Capital Market Expectations,” John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub

2013 Modular Level III, Vol. 3, Reading 18, Section 3.1.1.4

Study Session 6–18–c

Demonstrate the application of formal tools for setting capital market expectations, including statistical tools, discounted cash flow models, the risk premium approach, and financial equilibrium models.

C is correct. Based on Equation (3a) applied to a regression:

$$\begin{aligned} Var(M) &= Var(F_1) \times (b_1)^2 + Var(F_2) \times (b_2)^2 + 2 \times b_1 \times b_2 \times Cov(F_1, F_2) \\ &\quad + Var(\varepsilon) \end{aligned}$$

Find the variance of the error term using values from Exhibit 2:

$$0.2704 = 0.0784 \times (1.020)^2 + 0.1024 \times (1.045)^2 + 2 \times 1.020 \times 1.045 \times 0 + Var(\varepsilon)$$

$$Var(\varepsilon) = 0.0770$$

The adjustment is a correlation of 0.25.

Change the correlation into a covariance:

$$\text{Cov}(F_1, F_2) = \text{Corr}(F_1, F_2) \times \text{Std Dev}(F_1) \times \text{Std Dev}(F_2)$$

$$0.0224 = 0.25 \times (0.0784)^{0.5} \times (0.1024)^{0.5}$$

Apply the new covariance to Equation (3a) to find the new variance:

$$\begin{aligned} 0.3181 &= 0.0784 \times (1.020)^2 + 0.1024 \times (1.045)^2 \\ &\quad + 2 \times 1.020 \times 1.045 \times 0.0224 + 0.0770 \end{aligned}$$

The volatility of SCI after adjusting for the correlation is $56.4\% = \sqrt{0.3181}$.

28. 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 trap.
- B. a recallability trap.
- C. *ex post* risk being a biased measure of *ex ante* risk.

Answer = C

“Capital Market Expectations,” John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub

2013 Modular Level III, Vol. 3, Reading 18, Section 2.2.4

Study Session 6–18–b, d

Discuss in relation to capital markets expectations, the limitations of economic data, data measurement errors and biases, the limitations of historical estimates, *ex post* risk as a biased measure of *ex ante* risk, biases in analysts’ methods, the failure to account for conditioning information, the misinterpretation of correlations, psychological traps, and model uncertainty. Explain the use of survey and panel methods and judgment in setting capital markets expectations.

C is correct. As stated, the projections in the survey data tended to be more volatile than the actual outcomes over the same time period. This finding indicates that the *ex post* risk (i.e., the volatility of the actual data) tends to have a downward bias relative to the *ex ante* risk displayed by the survey data. This result is evidence of *ex post* risk being a biased measure of *ex ante* risk.

29. 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%.

Answer = B

“Capital Market Expectations,” John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub

2013 Modular Level III, Vol. 3, Reading 18, Section 4.1.5.3

Study Session 6–18–h

Demonstrate the use of the Taylor’s rule to predict central bank behavior.

B is correct.

The Taylor rule (Equation 12 p. 66) sets the optimal short-term rate as:

Neutral rate + $0.5 \times (\text{GDP growth forecast} - \text{GDP growth trend}) + 0.5 \times (\text{Inflation forecast} - \text{Inflation target})$

Applying numbers from Exhibit 3,

$$2.0\% = 2.5\% + 0.5 \times (2.0\% - 1.0\%) + 0.5 \times (1.5\% - 3.5\%).$$

30. Tolliver’s statement regarding the yield curve is *most likely*:

A. correct.

B. incorrect with regard to fiscal policy.

C. incorrect with regard to monetary policy.

Answer = B

“Capital Market Expectations,” John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub

2013 Modular Level III, Vol. 3, Reading 18, Section 4.1.5.4

Study Session 6–18–i

Evaluate 1) the shape of the yield curve as an economic predictor and 2) the relationship between the yield curve and fiscal and monetary policy.

B is correct. A flat yield curve is consistent with tight monetary policy and loose fiscal policy making. Tolliver’s statement is incorrect in regard to fiscal policy.

Questions 31 to 36 relate to Fixed Income Portfolio Management

Franconia Notch Case Scenario

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 he 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 guarantees an interest rate of 5.00% per year. I would purchase a bond with a target yield of 5.00% maturing in five 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 asks Whitney what steps he takes to reestablish the dollar duration of a portfolio to the desired level in an asset–liability matching (ALM) application. Whitney responds: “First, I calculate a new dollar duration for the portfolio after moving forward in time and shifting the yield curve. Second, I calculate the rebalancing ratio by dividing the original dollar duration by the new dollar duration and subtracting 1 to get a percentage change. Third, I multiply the new market value of the portfolio by the desired percentage change from step two”.

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.”

Norris asks how changing market conditions lead to secondary market trading in Granite’s client portfolios. Whitney responds: “Our research teams run models to assess relative value across fixed income sectors which, combined with our economic outlook, leads to trade ideas. For example, currently our macroeconomic team is concerned about the situations in several sovereign nations and the spillover effect to capital markets. These issues range from geopolitical risks that will likely increase the price of oil to outright sovereign defaults or restructuring.”

31. 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.

Answer = C

“Fixed-Income Portfolio Management – Part I,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 23, Section 3.1
Study Session 9–23–b

Compare pure bond indexing, enhanced indexing, and active investing with respect to the objectives, advantages, disadvantages, and management of each.

C is correct because Granite is not only tilting the portfolios with regard to certain sectors, quality, or term structure as an enhanced indexer would, it is also making duration adjustments. An indexer (full replication approach) or enhanced indexer would keep the duration matched to the index.

32. 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

Answer = B

“Fixed-Income Portfolio Management – Part I,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 23, Section 3.2.2; 4.1.1.6

Study Session 9–23–d, h

Describe and evaluate techniques, such as duration matching and the use of key rate durations, by which an enhanced indexer may seek to align the risk exposures of the portfolio with those of the benchmark bond index;

Explain the importance of spread duration.

B is correct because the statement regarding key rate durations is incorrect. Key rate duration is one established method for measuring the effect of shifts in key points along the yield curve. In this method, we hold the spot rates constant for all points along the yield curve but one. By changing the spot rate for that key maturity, we are able to measure a portfolio’s sensitivity to a change in that maturity. We repeat the process for other key points (e.g., 3, 7, 10, 15 years) and measure their sensitivities as well. Simulations of twists in the yield curve can then be conducted to see how the portfolio would react to these changes.

33. Which of the following statements regarding Whitney’s recommendations for Norris’ three clients is *most likely* correct?

- A. Client 1 will achieve the guaranteed value only 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 because a less conservative rate of return can be assumed for short-term balances.

Answer = C

“Fixed-Income Portfolio Management – Part I,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 23, Section 4.1

Study Session 9–23–f; k

Formulate a bond immunization strategy to ensure funding of a predetermined liability and evaluate the strategy under various interest rate scenarios.

Compare immunization strategies for a single liability, multiple liabilities, and general cash flows.

C is correct because perfect matching of assets and liabilities is unlikely given the difficulty in finding all the bonds in the market that exactly match the liabilities. As a result, cash flow matching requires a relatively conservative rate of return assumption for short-term cash, and cash balances may be occasionally substantial.

34. Is Whitney’s approach to rebalancing a portfolio using dollar duration *most likely* correct?

- A. Yes.
- B. No, there is no need to move forward in time
- C. No, the steps do not provide the amount of cash needed for rebalancing

Answer = A

“Fixed-Income Portfolio Management – Part I,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 23, Section 4.1.1.5
Study Session 9–23–g

Demonstrate the process of rebalancing a portfolio to reestablish a desired dollar duration.

A is correct because Whitney has correctly outlined the three steps necessary to rebalance a portfolio to reestablish a desired dollar duration.

35. The two risks that Whitney’s is *most likely* exposed to given his recommendations on sectors are:

- A. interest rate risk and cap risk.
- B. contingent claim risk and cap risk.
- C. interest rate risk and contingent claim risk.

Answer = C

“Fixed-Income Portfolio Management – Part I,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 23, Section 4.1.2.2
Study Session 9–23–j

Explain the risks associated with managing a portfolio against a liability structure, including interest rate risk, contingent claim risk, and cap risk.

C is correct because when assets such as mortgage-backed securities have a contingent claim provision, explicit or implicit, there is an associated risk. As rates fall, the security might have coupons halted and principal repaid. This results in reinvestment risk and also limits any potential upside as would be generated by a noncallable security. In addition, all fixed income securities that have fixed rather than floating interest rates are exposed to interest rate risk, because prices move in the opposite direction of rates.

36. Whitney’s secondary trading rationale is *best* described as:

- A. structure trades.
- B. credit-defense trades.
- C. sector-rotation trades.

Answer = B

“Relative-Value Methodologies for Global Credit Bond Portfolio Management,” Jack Malvey

B is correct because credit-defense trades become more popular as geopolitical and economic uncertainty increase. Secular sector changes often generate uncertainties and induce defensive positioning by investors.

Questions 37 to 48 relate to Risk Management Applications of Derivatives

Anna Lehigh Case Scenario

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 intends to synthetically modify the duration of the corporate bond component of the portfolio to a target of 3.0 in anticipation of rising interest rates. Interest rate swap data are provided in Exhibit 2:

Exhibit 2
Pay Fixed Interest Rate Swaps

Swap	Maturity	Duration
A	3 years	−2.125
B	4 years	−2.875

C	5 years	-3.625
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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 3:

Exhibit 3
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 4:

Exhibit 4
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 5.

Exhibit 5
Swap Strategies

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

37. 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.

Answer = B

“Risk Management Application of Option Strategies,” Don M. Chance
2012 Modular Level III, Vol. 5, Reading 37, Section 4.2
Study Session 15–37–f

Interpret the gamma of a delta-hedged portfolio and explain how gamma changes as in-the-money and out-of-the money options move toward expiration.

B is correct. At expiration, at-the-money call options move very rapidly to a delta of 1 or 0. At this point, the gamma is the highest and it is very difficult to maintain a delta-hedged position.

38. Based on the data in Exhibit 2, modifying the duration of the fixed income allocation to its target will require an interest rate swap which has notional principal *closest* to:

- A. USD 6,956,000.
- B. USD 11,030,000.
- C. USD 18,823,000.

Answer = B

“Risk Management Application of Swap Strategies,” Don M. Chance
2012 Modular Level III, Vol. 5, Reading 36, Section 2.2
Study Session 15–38–d

Determine the notional principal value needed on an interest rate swap to achieve a desired level of duration in a fixed income portfolio.

B is correct because $NP = B \times \frac{(MDUR_t - MDUR_b)}{MDUR_s}$, where:

NP = notional principal,

B = bond portfolio,

$MDUR_t$ = duration target of portfolio,

$MDUR_b$ = duration of bond portfolio, and

$MDUR_s$ = duration of swap.

B is correct:

$$11,030,000 = 20,000,000 \times \frac{3 - 5}{-3.625}.$$

39. 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

Answer = C

“Risk Management Application of Option Strategies,” Don M. Chance
2012 Modular Level III, Vol. 5, Reading 37, Section 2.3, 2.4
Study Session 15–37–b

Calculate and interpret the value at expiration, profit, maximum profit, maximum loss, breakeven underlying price at expiration, and general shape of the graph for the following options strategies: bull spread, bear spread, butterfly spread, collar, straddle, box spread.

C is correct. Strategy 3 will have a value of USD10. A put bear spread entails buying the put with the higher exercise price (USD100) and selling the put with the lower exercise price (USD90).

$$\text{Value at expiration} = \max(0, 100 - 88) - \max(0, 90 - 88) = 10$$

40. 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

Answer = B

“Risk Management Applications of Forward and Futures Strategies,” Don M. Chance
2012 Modular Level III, Vol. 5, Reading 36, Section 3.2
Study Session 15–36–a

Demonstrate the use of equity futures contracts to achieve a target beta for a stock portfolio and calculate and interpret the number of futures contracts required.

B is correct because purchasing 15 futures contracts increases the beta to 1.00, not 1.10. Purchasing 45 futures contracts is necessary to attain the beta target.

$$N_f = \frac{(\beta_t - \beta_s)}{\beta_f} \times \frac{S}{f}, \text{ where:}$$

N_f = number of futures,

β_t = beta target,

β_s = beta of the stock portfolio,

β_f = beta of the futures contract,

S = stock portfolio value, and

f = price of the futures contract.

$$45 = \frac{(1.10 - 0.95)}{1.00} \times \frac{30,000,000}{100,000}$$

41. 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

Answer = B

"Risk Management Applications of Forward and Futures Strategies," Don M. Chance
2012 Modular Level III, Vol. 5, Reading 36, Section 5.3
Study Session 15–36–g

Explain the limitations to hedging the exchange rate risk of a foreign market portfolio and discuss two feasible strategies for managing such risk.

B is correct. Shorting European stock market futures, selling EUR, and buying USD will result in the Packer endowment fund earning the U.S. risk-free rate.

42. 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

Answer = A

"Risk Management Application of Swap Strategies," Don M. Chance
2012 Modular Level III, Vol. 5, Section 4.3
Study Session 15–38–g

Explain how equity swaps can be used to diversify a concentrated equity portfolio, provide international diversification to a domestic portfolio, and alter portfolio allocations to stocks and bonds.

A is correct because a swap that receives LIBOR and pays the midcap index will outperform either of the other swap alternatives outlined. Given the market expectation, Lehigh wants to receive LIBOR because rates are expected to rise and pay the midcap index because that index is expected to underperform the small-cap index.

Karina Mamani Case Scenario

Karina Mamani is a senior partner at Trujillo Partners, an investment advisory firm headquartered in Lima, Peru. Mamani specializes in domestic (Peruvian) markets. Peru's currency is the nuevo sol (PEN). Its major stock exchange is the Bolsa de Valores de Lima (BVL), and the primary index for that market is the Indice General Bolsa de Valores (IGBVL).

One of Mamani's clients, Angel Huanca, anticipates receipt of PEN10,000,000 from debt investments that are maturing in two months. He will invest these proceeds in an IGBVL index fund. He expects the Peruvian stock market to increase dramatically in the next two months and does not want to miss out on the expected gain. He asks Mamani to recommend a way to get exposure to the IGBVL immediately. Mamani recommends a long futures position using a two-month futures contract on the IGBVL, which is priced at 21,800 and has a contract size of PEN 10 times the price. The index has a beta of 0.98, and the futures contract has a beta of 1.05.

Huanca owns a company that produces auto parts, primarily for export to the United States. He tells Mamani he is worried the nuevo sol will strengthen relative to the U.S. dollar and other currencies, making it more difficult for him to compete with firms in the United States and elsewhere. He asks Mamani to help him devise long-term strategies to deal with this risk.

Huanca recently received 3.2 million common stock shares of Urubamba Copper, Ltd. in partial payment for a mining equipment company he sold to Urubamba. The terms of the sale require him to hold this stock for at least 18 months before selling it. Although Huanca believes Urubamba is a well-run company, its share price is closely tied to commodity prices, which he believes might decline. He tells Mamani, "I know I can use options on Urubamba to manage the risk of my concentrated stock position. Either a covered call strategy or a protective put strategy will reduce the volatility of my position and establish a minimum value for it, but the covered call strategy will also enhance my return if Urubamba's price remains stable, and the protective put strategy will not."

Another of Mamani's clients, Arequipa Industries (AI), is about to borrow PEN120 million for two years at a floating rate of 180-day LIBOR (currently 3.25%) plus a fixed spread of 90 basis points with semiannual resets, interest payments based on actual days/360, and repayment of principal at maturity. AI's management is worried that LIBOR might rise over the term of the loan and asks Mamani to recommend strategies to reduce this risk. Mamani suggests a zero-cost collar on 180-day LIBOR with a cap of 4.70% and a floor 2.25%, payment dates matching the loan payments (on 30 June and 31 December, with the first payment on 31 December) and interest based on actual days/360. She

develops various examples of the impact of the collar, including one using the interest rate scenario in Exhibit 1.

Exhibit 1
180-Day LIBOR Rates

Date	LIBOR	Days in Period
30 June 2012	2.60%	182
31 December 2012	2.25%	183
30 June 2013	2.00%	183
30 December 2013	2.50%	182

Mamani informs AI's management that, as an alternative, it could enter into an interest rate swap to effectively convert its floating-rate loan to a fixed-rate loan. Mamani states, "You would take a position in a two-year swap with semiannual payments and a notional principal equal to your loan balance. You would pay a fixed rate equal to current two-year LIBOR and receive 180-day LIBOR. [Q5] Mamani further explains, "Entering into the swap would reduce your firm's market value risk and cash flow risk."

43. The number of IGBVL futures contracts needed to establish the position recommended by Mamani for Huanca is *closest to*:

- A. 43.
- B. 46.
- C. 49.

Answer = A

"Risk Management Applications of Forward and Futures Strategies," Don M. Chance
2013 Modular Level III, Vol. 5, Section 4.2
Study Session 15–36–e

Demonstrate the use of futures to adjust the allocation of a portfolio across equity sectors and to gain exposure to an asset class in advance of actually committing funds to the asset class.

A is correct because the number of futures contracts is $\left(\frac{\beta_T - \beta_S}{\beta_f} \right) \left(\frac{S}{f} \right)$, where T is the target,

S is the current position, and f is the futures contract. In this case, the number of contracts is

$$\left(\frac{0.98 - 0}{1.05} \right) \left(\frac{10,000,000}{10 \times 21,800} \right) = 42.8 = 43.$$

44. The type of exchange rate risk Huanca is concerned about is *most likely*:

- A. economic exposure.

- B. translation exposure.
- C. transaction exposure.

Answer = A

“Risk Management Applications of Forward and Futures Strategies,” Don M. Chance
2013 Modular Level III, Vol. 5, Section 5
Study Session 15–36–f

Explain exchange rate risk and demonstrate the use of forward contracts to reduce the risk associated with a future receipt or payment in a foreign currency.

A is correct because economic exposure is the type of exchange rate risk that refers to changes in exchange rates that make a business less price competitive.

45. Huanca’s comment about using options to manage the risk of his Urubamba common stock position is *least likely* correct regarding:

- A. return enhancements.
- B. reduction of volatility.
- C. establishing a minimum value.

Answer = C

“Risk Management Applications of Option Strategies,” Don M. Chance
2013 Modular Level III, Vol. 5, Section 2.2
Study Session 15–37–a

Compare the use of covered calls and protective puts to manage risk exposure to individual securities.

C is correct because although a protective put establishes a minimum value for the position when the price of the underlying stock declines, a covered call does not. Therefore, Huanca’s statement is incorrect.

46. Using the LIBOR scenario shown in Exhibit 1 and assuming the zero-cost collar is put in place, the effective interest due on AI’s loan for the semiannual period ended on 31 December 2013 is *closest to*:

- A. PEN1,365,000.
- B. PEN1,911,000.
- C. PEN2,062,667.

Answer = B

“Risk Management Applications of Option Strategies,” Don M. Chance
2013 Modular Level III, Vol. 5, Section 3.5
Study Session 15–37–d

Calculate the payoffs for a series of interest rate outcomes when a floating rate loan is combined with 1) an interest rate cap, 2) an interest rate floor, or 3) an interest rate collar.

B is correct because the effective interest in period t = Loan balance \times (Actual days in period/360) \times [LIBOR $_{t-1}$ + spread + max(0, LIBOR $_{t-1}$ – Cap rate) + max(0, Floor rate – LIBOR $_{t-1}$)]. For the fourth and final period, Effective interest =
 $120,000,000 \times \left(\frac{182}{360}\right) \times [0.02 + 0.009 + \max(0, 0.02 - 0.047) + \max(0, 0.0225 - 0.02)] = 1,911,000.$

47. Mamani's description of the interest rate swap to be used to convert AI's floating-rate loan to a fixed-rate loan is *least likely* correct regarding the:

- A. notional principal amount.
- B. fixed interest rate to be paid.
- C. floating interest rate to be received.

Answer = B

"Risk Management Applications of Swap Strategies," Don M. Chance

2013 Modular Level III, Vol. 5, Section 2.1

Study Session 15–38–a

Demonstrate how an interest rate swap can be used to convert a floating-rate (fixed-rate) loan to a fixed-rate (floating-rate) loan.

B is correct because the fixed interest rate on the swap would equal not the LIBOR rate for the maturity of the swap but rather the rate that would make the present value of the fixed and floating payments equal.

48. Is Mamani's explanation of the impact of the interest rate swap on AI's risk *most likely* correct?

- A. Yes
- B. No, it is incorrect regarding cash flow risk
- C. No, it is incorrect regarding market value risk

Answer = C

"Risk Management Applications of Swap Strategies," Don M. Chance

2013 Modular Level III, Vol. 5, Section 2.1

Study Session 15–38–c

Explain the effect of an interest rate swap on an entity's cash flow risk.

C is correct because although converting the loan from a floating rate to a fixed rate using the swap reduces AI's cash flow risk (because the firm's loan payments become known), it increases the firm's market value risk because the value of the firm will be negatively impacted if market interest rates decrease.

Questions 49 to 54 relate to Portfolio Management of Global Bonds

Kingsbridge Case Scenario

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
Asset and Liability Data

	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 tells Bixby, "International interest rates are not perfectly correlated. We can see the impact of a change in U.S. interest rates on our model global bond portfolio. This portfolio contains U.S. and German bonds and is not currently hedged with regard to currency or interest rates. Our analysis shows that the country beta between the United States and Germany is 0.62." Model global bond portfolio data is provided in Exhibit 3.

Exhibit 3
Global Bond Model Portfolio

	Duration	Allocation (%)
U.S. bond issuers	6.6	60
German bond issuers	3.9	40

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 4 to support his current view that currency exposure in the portfolio should be actively managed.

Exhibit 4
Currency Market Data

	U.S.	Eurozone	U.K.
Risk free rate – one year	0.25%	1.50%	0.90%
Spot rate (GBP per USD or EUR)	0.6098	0.8929	NA
Forward rate (GBP per USD or EUR)	0.6137	0.8875	NA
Kingsbridge forecast spot rate in one year	0.6173	0.8850	NA

Bixby asks whether this global portfolio would benefit from including emerging market debt securities. Seymour responds that returns can be attractive in emerging markets during certain periods, but risks also abound. He notes the following risks:

- Risk 1: Returns are frequently characterized by significant negative skewness because the potential large downside is not offset by a comparable upside.
- Risk 2: Emerging markets offer less protection from interference by the executive branch than developed countries.
- Risk 3: Emerging market countries have limited access to secondary sources of liquidity.

Finally, Seymour asks Bixby if he plans to purchase mortgaged-backed securities (MBS) in the portfolio. Bixby responds, "Yes; because MBS spreads are cheap relative to historical levels, I can buy MBS, hedge the interest rate risk by shorting Treasuries, and capture the OAS. By matching the dollar duration of the Treasury position with the dollar duration of the mortgage security, I will have a stable hedge."

49. Based on the data in Exhibit 1, the duration of the equity in the leveraged portfolio is *closest to*:

- A. 4.50.
- B. 5.00.
- C. 10.00.

Answer = C

"Fixed-Income Portfolio Management – Part II," H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 25, Section 5.2
Study Session 10–25—a
Evaluate the effect of leverage on portfolio duration and investment returns.

C is correct. Kingsbridge can leverage the GBP150 million portfolio by 100% by borrowing an additional GBP150 million. The duration of equity is provided by

$$D_E = \frac{D_A A - D_L L}{E}$$

$$D_E = \frac{5.50(300) - 1.00(150)}{150} = 10.00.$$

50. 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.

Answer = C

"Fixed-Income Portfolio Management – Part II," H. Gifford Fong and Larry D. Guin

2013 Modular Level III, Vol. 4, Reading 25, Section 5.3.4

Study Session 10–25–d

Demonstrate the advantages of using futures instead of cash market instruments to alter portfolio risk.

C is correct. To hedge against rising rates, Bixby needs to reduce duration by selling the following number of Treasury futures contracts:

$$\left(\frac{(D_T - D_I) \times P_I}{D_{CTD} P_{CTD}} \right) \times \text{Conversion factor for the CTD bond}$$

where D = duration, T = target, and I = initial.

$$\left(\frac{(4.25 - 5.50) \times 300,000,000}{5.3 \times 97,750} \right) \times 1.12 = \frac{-375,000,000}{518,075} \times 1.12 = -810.69$$

51. Based on Seymour's statement regarding international interest rates, as well as the data in Exhibit 3, the impact of a 100-basis-point decline in U.S. interest rates on the model portfolio's value is *closest to*:

- A. 3.41%.
- B. 4.02%.
- C. 4.93%.

Answer = C

“Fixed-Income Portfolio Management – Part II,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 25, Section 6.1
Study Session 10–25–i

Evaluate 1) the change in value for a foreign bond when domestic interest rates change and 2) the bond’s contribution to duration in a domestic portfolio, given the duration of the foreign bond and the country beta.

C is correct because the U.S component contributes 3.96 in duration to the portfolio ($0.60 \times 6.6 = 3.96$); therefore, a 1.00 change will contribute $\pm 3.96\%$ to the value of the portfolio. The German component has a contribution to duration of 1.56 ($0.4 \times 3.9 = 1.56$) but moves only 0.62 times the movement in U.S. rates, thus contributing $\pm 0.97\%$ to portfolio return ($1.56 \times 0.62 = 0.97$). The total impact is $\pm 4.93\%$ ($3.96 + 0.97 = 4.93$).

52. Based on the data in Exhibit 4, 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.

Answer = B

“Fixed-Income Portfolio Management – Part II,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 25, Section 6.2
Study Session 10–25–j

Recommend and justify whether to hedge or not hedge currency risk in an international bond investment.

B is correct. The forward rates for both USD and EUR fully reflect the interest rate differentials as expected by interest rate parity. As such, forwards reflect that USD is expected to appreciate relative to GBP and EUR to depreciate relative to GBP. Kingsbridge’s view, however, is that USD will appreciate more than the forward implies and EUR will depreciate more than the forward implies. The result in actively managing the portfolio is that the EUR bonds should be hedged into USD.

Interest rate parity holds versus the USD: $f \approx i_d - i_f$, $0.90 - 0.25 = 0.65\%$; $f = (F - S_0) / S_0$,
 $f = (0.6137 - 0.6098) / 0.6098 = 0.0065 = 0.65\%$.
Based on expected spot rates, $(0.6173 - 0.6098) / 0.6098 = 0.0123 = 1.23\%$.
Interest rate parity holds versus the euro: $f \approx i_d - i_f$, $0.90 - 1.50 = -0.60\%$; $f = (F - S_0) / S_0$,
 $F = (0.8875 - 0.8929) / 0.8929 = -0.0060 = -0.60\%$.

Based on expected spot rates, $(0.8850 - 0.8929)/0.8929 = -0.88\%$.

53. Seymour is *least likely* correct with respect to which risk regarding investing in emerging market debt?

- A. Risk 1
- B. Risk 2
- C. Risk 3

Answer = C

“Fixed-Income Portfolio Management – Part II,” H. Gifford Fong and Larry D. Guin
2013 Modular Level III, Vol. 4, Reading 25, Section 6.4
Study Session 10–25–I
Discuss the advantages and risks of investing in emerging market debt.

C is correct because this statement is incorrect, Emerging market countries in fact have access to lenders on the world stage, such as the International Monetary Fund and the World Bank.

54. Will Bixby’s strategy to hedge his purchases of MBS *most likely* be effective?

- A. Yes
- B. No, because one security in the transaction amortizes and the other does not
- C. No, because when interest rates decline, the durations of the two securities will change by different amounts

Answer = C

“Hedging Mortgage Securities to Capture Relative Value,” Kenneth B. Dunn, Roberto M. Sella, and Frank J. Fabozzi
2013 Modular Level III, Vol. 4, Reading 26, Section 2
Study Session 10–26–a
Demonstrate how a mortgage security’s negative convexity will affect the performance of a hedge.

C is correct. Mortgage-backed securities exhibit negative convexity while Treasuries (the hedge) exhibit positive convexity. For a security that exhibits positive convexity, the duration changes in the desired direction; for a security that exhibits negative convexity, there is an adverse change in the duration. If interest rates rise, the duration of the MBS increases while the duration of the Treasury decreases. The hedge therefore will not be effective.

Questions 55 to 60 relate to Global Investment Performance Standards

Bud Walter Case Scenario

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 U.S. large-cap, U.S. midcap, and U.S. small-cap equity securities for U.S. 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 U.S. Large-Cap Equity Composite includes all actual fee-paying portfolios. Each portfolio contains positions in large-cap stocks, which are selected by WCM following an extensive independent analysis. Nondiscretionary portfolios are not included in any composite. WCM does not include in any composite its large-cap model portfolio, which is utilized 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) U.S.-based publicly traded companies.
4. Gross-of-fees returns are presented before investment management fees and custodial fees but after trading expenses. 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 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 policies regarding the valuation of its investments. 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, we use WCM estimates based on quantitative models and assumptions.

55. 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

Answer = B

"Global Investment Performance Standards," Philip Lawton
2013 Modular Level III, Vol. 6, Reading 43, Section 6
Study Session 18–43–t
Discuss the purpose, scope, and process of verification.

B is correct because a single verification report is required to be issued with respect to the whole firm. Verification cannot be carried out only on a composite and, accordingly, does not provide assurance about the investment performance of any specific composite. The Standards stress that firms must not state or imply that a particular composite has been "verified."

56. 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.

Answer = C

“Global Investment Performance Standards,” Philip Lawton

2013 Modular Level III, Vol. 6, Reading 43, Section 3.2

Study Session 18–43–e

Discuss the requirements of the GIPS standards with respect to return calculation methodologies, including the treatment of external cash flows, cash and cash equivalents, and expenses and fees.

C is correct. WCM’s return calculation is not GIPS compliant. GIPS requires that returns are calculated on a monthly basis for periods beginning on or after 1 January 2001.

57. 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

Answer = A

“Global Investment Performance Standards,” Philip Lawton

2013 Modular Level III, Vol. 6, Reading 43, Section 3.12

Study Session 18–43–g

Explain the meaning of “discretionary” in the context of composite construction and, given a description of the relevant facts, determine whether a portfolio is likely to be considered discretionary.

A is correct because the composite consists of all actual, fee-paying portfolios, which are managed on a discretionary basis.

58. 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.

Answer = A

“Global Investment Performance Standards,” Philip Lawton

2013 Modular Level III, Vol. 6, Reading 43, Section 3.11

Study Session 18–43–k

Explain the requirements and recommendations of the GIPS standards with respect to disclosure, including fees, the use of leverage and derivatives, conformity with laws and regulations that conflict with the GIPS standards, and noncompliant performance periods.

A is correct because custodial fees should not be considered a component of direct trading expenses.

59. 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.

Answer = B

“Global Investment Performance Standards,” Philip Lawton
2013 Modular Level III, Vol. 6, Reading 43, Section 3.12
Study Session 18–43–n

Evaluate the relative merits of high/low range, interquartile range, and equal-weighted or asset-weighted standard deviation as measures of the internal dispersion of portfolio returns within a composite for annual periods.

B is correct. Walter is correct about the high/low range, which is skewed by outliers. He is also correct that the standard deviation allows for comparability across investment firms. However, he is incorrect about the interquartile range. Because this measure includes only the middle 50% of portfolio returns, thus excluding extreme observations, it is not impacted by outliers.

60. 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.

Answer = A

“Global Investment Performance Standards,” Philip Lawton
2013 Modular Level III, Vol. 6, Reading 43, Section 4
Study Session 18–43–r

Explain the requirements and recommended valuation hierarchy of the GIPS Valuation Principles.

A is correct. The valuation hierarchy presented by Walter is GIPS compliant.