

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

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

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

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

Twain hires a compliance officer and subsequently experiences significant change during the following year. The compliance officer immediately begins to update the firm's policies and procedures even though Twain adheres to the Asset Manager Code of Professional Conduct. In addition, after a thorough analysis, Twain senior management decides to outsource its back-office operations and hires an independent consultant to review client portfolio information. At the same time, they add several research and investment staff members and upgrade the

information management system. They also eliminate paper records in favor of electronic copies and develop a business-continuity plan based on current staffing.

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

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

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

Answer = C

According to the *Standards of Practice Handbook* IV(B), members should disclose the terms of any agreement under which a member will receive additional compensation. Terms include the nature of the compensation, the approximate amount of compensation, and the duration of the agreement. According to Standard III(E), members must keep information about current and prospective clients confidential. Client names would be considered confidential, particularly when tied to the other previously mentioned information to be given to the employer.

“Guidance for Standards I–VII,” CFA Institute
Standard IV(B)

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

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

Answer = A

According to Standard IV(B)—Additional Compensation Agreements because Litman must obtain written permission from all parties involved when conflicts of interest are present.

“Guidance for Standards I–VII,” CFA Institute
Standard IV(B)

3.) In the footnote of the promotional material about the performance of his portfolio trading strategy, Litman is *least likely* in compliance with the CFA Institute Standards of Professional Conduct with respect to:

- A. results.
- B. fees.
- C. taxes.

Answer = A

Standard III(D)–Performance Presentation allows the use of simulated performance analysis as long as it is clearly stated that the results are simulated. Litman uses historical data over 20 years, but he has only managed actual accounts for friends for 10 years. Consequently, he should have stated in the footnote that the results were simulated.

“Guidance for Standards I–VII,” CFA Institute
Standard III(D)

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

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

Answer = B

Standard III(C)–Suitability requires that members make a reasonable inquiry into a client or prospective client’s investment experience, risk and return objectives, and financial constraints prior to making any investment recommendations or taking investment action and must update this information regularly. Such an inquiry should be repeated at least annually and prior to material changes to specific investment recommendations or decisions on behalf of the client. The Code and Standards do not require clients to be treated the same.

“Guidance for Standards I–VII,” CFA Institute
Standard III(C)

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

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

Answer = B

The Asset Manager Code allows outsourcing, although managers retain the liability and responsibility for any outsourced work. Managers have a responsibility to ensure that the information they provide to clients is accurate and complete. By receiving an independent third-party confirmation or review of that information, clients can have an additional level of confidence that the information is correct, which can enhance the manager's credibility. Such verification is also good business practice.

Asset Manager Code of Professional Conduct, by Kurt Schacht, CFA, Jonathan J. Stokes, and Glenn Doggett, CFA
Section D: Risk Management, Compliance and Support

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

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

Answer = C

According to the recommendations and guidance in the Asset Manager Code because the compliance officer should be independent of any investment and operations personnel.

Asset Manager Code of Professional Conduct, by Kurt Schacht, CFA, Jonathan J. Stokes, and Glenn Doggett, CFA
Appendix 6–D2

Allison

Amy Allison is a fund manager at Downing Securities. The third quarter ends today, and she is preparing for her quarterly review with her five largest U.S.-based clients. To complete her analysis, she has obtained the market data in Exhibit 1.

Exhibit 1

Market Data As of 30 September

Level of NASDAQ 100 Index	1223.14
Level of S&P 500 Index	984.03
Level of S&P/Barra Growth Index	496.24
Level of S&P/Barra Value Index	484.28
Price of December S&P 500 Index futures contract	\$245,750
Price of December S&P/Barra Growth futures contract	\$117,475
Price of December S&P/Barra Value futures contract	\$120,875
Beta of S&P/Barra Growth futures contract	1.15
Beta of S&P/Barra Value futures contract	1.03
Price of December U.S. Treasury-bond futures contract	\$106,906
Implied modified duration of U.S. Treasury-bond futures contract	6.87
Macauley duration of U.S. Treasury-bond futures contract	7.05

Allison's assistant has prepared the following summaries of each client's current situation, including any recent inquiries or requests from the client.

- Client A has a \$20 million technology equity portfolio. At the beginning of the previous quarter, Allison forecasted a weak equity market and recommended adjusting the risk of the portfolio by reducing the portfolio's beta from 1.20 to 1.05. To reduce the beta, Allison sold NASDAQ 100 futures contracts at \$124,450 on 25 December. During the quarter, the market decreased by 3.5%, the value of the equity portfolio decreased by 5.1%, and the NASDAQ futures contract price fell from \$124,450 to \$119,347. Client A has questioned the effectiveness of the futures transaction used to adjust the portfolio beta.
- Client B's portfolio holds \$40 million of U.S. large-cap value stocks with a portfolio beta of 1.06. This client wants to shift \$22 million from value to growth stocks with a target beta of 1.21. Allison will implement this shift using S&P/Barra Growth and S&P/Barra Value futures contracts.

- Client C anticipates receiving \$75 million in December. This client is optimistic about the near-term performance of the equity and debt markets and does not want to wait until the money is received to invest it. The client wants Allison to establish a position that allocates 60% of the money to a well-diversified equity portfolio with a target beta of 1.00 and 40% of the money to a long-term debt portfolio with a target modified duration of 5.75. Allison plans to use the December U.S. Treasury-bond futures to establish the debt position.
 - Client D's \$100 million portfolio contains \$60 million in U.S. large-cap stocks, \$20 million in U.S. Treasury bills, and \$20 million in U.S. Treasury bonds. The client wants to create a synthetic cash position because he believes that in three months, the level of the S&P 500 Index will be 925.00, and Treasury bond yields will have declined.
 - Client E's \$60 million portfolio contains \$40 million in large-cap growth stocks and \$20 million in U.S. Treasury bonds. The beta of the stock portfolio is 1.25 and the duration of the bond portfolio is 5.0. The client believes that macro economic conditions over the next three months are such that the level of the S&P/Barra Growth Index will be 400.00 and the price of the U.S. Treasury bond futures contract will be \$110,400.
 - Client F has \$10 million in cash and is optimistic about the near-term performance of U.S. large-cap stocks and U.S. Treasury bonds. The client anticipates positive performance for approximately three months. Client F asks Allison to implement a strategy that will create profit from this view if it proves to be correct.
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1.) With respect to Client A, Allison's *most* appropriate conclusion is the futures transaction used to adjust the beta of the portfolio was:

- A. ineffective because the effective beta on the portfolio was 1.27.
- B. effective.
- C. ineffective because the effective beta on the portfolio was 1.64.

Answer = A

The effective beta is the (hedged) return on the portfolio divided by the return on the market. The return on the market is -3.5%. The return on the portfolio is -5.1% plus the return on the futures position. The return on the (short) futures position relative to the unhedged portfolio is $-25 \times (119,347 - 124,450) / 20,000,000 = +0.0064$. Effective beta = $(-0.051 + 0.0064) / -0.035 = 1.27$.

"Risk Management Applications of Forward and Futures Strategies," by Don M. Chance
Section 3.2

2.) When implementing the shift from value to growth stocks for Client B, the number of S&P/Barra Value future contracts Allison shorts will be *closest* to:

- A. 182.
- B. 177.

C. 187.

Answer = C

To convert \$22 million of the value-stock portfolio to cash (beta = 0) will require:

$$N_{vf} = \left(\frac{\beta_T - \beta_S}{\beta_f} \right) \left(\frac{S}{f} \right) = [(0 - 1.06) / 1.03] \times (22,000,000 / 120,875) = -187.3 \text{ futures}$$

“Risk Management Applications of Forward and Futures Strategies,” by Don M. Chance
Section 4.2

3.) The number of December U.S. Treasury-bond futures contracts Allison will buy for Client C is *closest* to:

- A. 335.
- B. 235.
- C. 229.

Answer = B

The number of bond futures contracts required is:

$$N_{bf} = \left(\frac{\text{MDUR}_T - \text{MDUR}_B}{\text{MDUR}_f} \right) \frac{B}{f_b} = (5.75 - 0) / (6.87) \times (30,000,000 / 106,906) = 234.9$$

“Risk Management Applications of Forward and Futures Strategies,” by Don M. Chance
Section 4.2

4.) With respect to Client D's market view, Allison will *most likely*:

- A. buy S&P 500 Index Futures and buy U.S. Treasury bond futures
- B. sell S&P 500 Index Futures
- C. sell U.S. Treasury bond futures

Answer = B

Selling the S&P 500 Index futures will be a profitable trade should the index decline to 925, and it effectively converts a long stock position into cash.

“Risk Management Applications of Forward and Futures Strategies,” by Don M. Chance
Section 3.4

5.) For Client E to shift, for three months, the portfolio allocation to 50% large cap growth stocks and 50% U.S. Treasury, and presuming no other changes in the characteristics of the portfolio, Allison will *most likely*:

- A. sell 92 stock index contracts and buy 136 Treasury future bond contracts.
- B. sell 370 stock index contracts and buy 68 Treasury future bond contracts.
- C. sell 92 stock index contracts and buy 68 Treasury future bond contracts.

Answer = C

Shifting the asset allocation from 66.66% stock/33.33% bonds to 50% stock/50% bonds requires that Allison sell stock index futures and buy bond index futures for a notional amount of \$10,000,000.

$$-N_{vf} = \left(\frac{\beta_T - \beta_S}{\beta_f} \right) \left(\frac{S}{f} \right) = [(0.00 - 1.25) / 1.15] \times (10,000,000 / 117,475) = -92.5 \text{ stock futures.}$$

That is, sell 92.5 or 92 futures contracts.

$$N_{bf} = \left(\frac{MDUR_T - MDUR_B}{MDUR_f} \right) \frac{B}{f_b} = [(5.0 - 0.0 / 6.87)] \times (\$10,000,000 / \$106,906) =$$

68 bond futures (+ futures means to buy)

“Risk Management Applications of Forward and Futures Strategies,” by Don M. Chance
Section 4.1

6.) To implement Client F's request, Allison's *most* appropriate course of action is to:

- A. sell U.S. Treasury bond futures contracts and buy S&P 500 Index futures contracts.
- B. buy U.S. Treasury bond futures contracts and buy S&P 500 Index futures contracts.
- C. buy stocks in the S&P 500 Index and sell U.S. Treasury bond futures contracts.

Answer = B

Buying U.S. Treasury bond futures and S&P 500 Index futures creates synthetic bond position and synthetic stock index fund positions, respectively. Client F is long \$10 million in cash, which can be used to fund the purchases.

“Risk Management Applications of Forward and Futures Strategies,” by Don M. Chance
Section 3.3

Montero

Pascal Montero is the director of the treasury department of the Viewmont Corporation, which is based in Chicago, Illinois. Viewmont manufactures steel and aluminum food cans in plants located in the United States and Brazil. Generally, raw materials are sourced from suppliers located in the country where the plant is located. But when shortages occur at a particular location, Viewmont imports raw materials.

Montero's duties include procuring financing and managing interest rate and currency risk for Viewmont. Montero is meeting with two of his senior analysts, Maissa Bazlamit and Jacky Kemigisa, to plan the company's hedging and financing activities.

Bazlamit informs Montero that because of domestic shortages, Viewmont will need to import aluminum from Brazil for its U.S. plant. Payment for the aluminum will be in Brazilian reals (BRL) and is due on delivery three months from now. Bazlamit states, "To manage our translation exposure from unfavorable exchange rate movements, we should enter into a long forward contract on Brazilian reals."

Kemigisa has determined that in 60 days, Viewmont will also need to raise USD50,000,000 for domestic operations. To protect against a rise in interest rates over this period, Kemigisa is evaluating the purchase of a USD50,000,000 interest rate call option. Interest and principal on the loan is due upon its maturity. Details of the loan and the interest rate call are provided in Exhibit 1.

Exhibit 1 Loan, Option, and Interest Rate Information

Item Description	
Maturity of loan	180 days from today
Loan amount	USD50,000,000
Annual loan interest rate	LIBOR + 0.50%
Call option premium	USD150,000
Call option strike	1%
Call option expiration	60 days from today
Call option underlying	180 day LIBOR
Current LIBOR rate	1.5%

Bazlamit suggests using an interest rate swap instead of interest rate call options. She states, "By entering into an interest rate swap in which we receive a floating rate in return for paying a fixed rate of interest, we can hedge against rising interest rates and thus stabilize Viewmont's cash outflows. The swap will also reduce the sensitivity of Viewmont's overall position to changes in interest rates."

Montero responds, "I think a better alternative to the interest rate swap you suggest is an interest rate swaption. For example, we could purchase a payer swaption with an exercise rate of 3% that allows us to receive a rate of LIBOR. If fixed rates rise above 3% in 60 days, then excluding the effect of the swaption premium, our net interest payment will be equal to 3%."

Viewmont is planning an expansion of its manufacturing capacity in Brazil. At the current exchange rate, BRL1.72/USD1, the expansion will cost BRL86,000,000, or USD50,000,000. Montero and his team discuss alternative ways to raise the capital required so that Viewmont can achieve the lowest borrowing cost and hedge against exchange rate risk. Bazlamit suggests Viewmont can achieve the lowest borrowing cost and avoid currency risk by borrowing directly in Brazilian reals. Kemigisa disagrees and suggests that Viewmont, being based in the United States, receives the best terms by borrowing domestically and then converting the proceeds to Brazilian reals at current exchange rates. Montero states, "Viewmont will enjoy the lowest borrowing cost by borrowing in U.S. dollars and then engaging in a currency swap to obtain Brazilian reals."

Earnings from the Brazilian operation are repatriated to the United States each quarter. Montero and his team estimate that over the next year, quarterly cash flows from the Brazilian unit will be BRL5,000,000. Montero asks his team to evaluate the use of a currency swap to manage the currency risk of the earnings repatriation. The swap will involve fixed interest for fixed payments and the annual fixed interest rate for payments in Brazilian reals is 5% and 3% for U.S. dollars.

1.) Is Bazlamit's statement on the type of currency risk faced by Viewmont Corporation and the proposed hedge *most likely* correct?

- A. No, she is incorrect with regard to the type of forward contract.
- B. No, she is incorrect about the type of currency risk.
- C. Yes

Answer = B

Since the fear is that the U.S. dollar will weaken against the Brazilian real, the appropriate hedge is to enter into a long forward contract to lock in the purchase price of the real. She is correct in this regard. But Bazlamit is incorrect about the type of currency risk. The currency risk faced here is best described as transaction exposure, not translation exposure.

"Risk Management Applications of Forward and Futures Strategies," by Don M. Chance
Sections 5, 5.1, and 5.2

2.) If the 180-day LIBOR rate in 60 days is 2.25%, based on information in Exhibit 1, the effective annual interest rate on Viewmont's USD50,000,000 loan is *closest* to:

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

Answer = B

Future value of call premium in 60 days = $150,000 [1 + (0.015 + 0.005)(60/360)] = \text{USD}150,500$
Effective loan proceeds = $50,000,000 - 150,500 = \text{USD}49,849,500$
Loan interest = $50,000,000 [(0.0225 + 0.005)(180/360)] = \text{USD}687,500$
Call payoff = $50,000 [\text{Max}(0, 0.0225 - 0.01)(180/360)] = \text{USD}312,500$
Effective interest = $687,500 - 312,500 = \text{USD}375,000$
Effective annualized loan rate = $[(50,000,000 + 375,000)/49,849,500]^{(365/180)} - 1 = 0.0215$,
or 2%

“Risk Management Applications of Option Strategies,” by Don M. Chance
Section 3.1

3.) With regard to the use of an interest rate swap, is Bazlamit correct with regard to the type of interest rate swap and the effect on interest sensitivity of the overall position?

- A. Type of interest rate swap: YES and Interest Rate Sensitivity: YES
- B. Type of interest rate swap: NO and Interest Rate Sensitivity: NO
- C. Type of interest rate swap: YES and Interest Rate Sensitivity: NO

Answer = C

Bazlamit is correct with regard to the type of interest rate swap but incorrect with regard to the impact of the swap on the interest rate sensitivity of the overall position. Because Viewmont Corporation has a variable rate loan, entering into an interest rate swap to pay a fixed receive a variable interest rate would stabilize cash outflows and thus hedge the firm's interest rate risk. But, the swap converts the variable rate loan to a fixed rate loan. Because the duration of the fixed-rate loan will exceed the duration of the variable rate loan, the interest rate sensitivity of the overall position increases.

“Risk Management Applications of Swap Strategies,” by Don M. Chance
Section 2.1

4.) With respect to the swaption, is Montero *most likely* correct?

- A. No, he is incorrect about the net interest rate paid.
- B. No, he is incorrect about the type of swaption.
- C. Yes.

Answer = A

He is correct about the purchase of the payer swaption. But the net interest payment is likely to be in excess of 3.5%. If the fixed rate in 60 days is above 3%, the swaption will be exercised, thus locking in 3%. But the loan has a rate of LIBOR + 0.50%, and the floating receipt on the swap is LIBOR. So the net effect is that the interest payment will likely be in excess of 3.5%.

“Risk Management Applications of Swap Strategies,” by Don M. Chance
Section 5.1

5.) With respect to Viewmont's goal of borrowing at the lowest cost and hedging currency risk, who is *most likely* correct?

- A. Kemigisa
- B. Bazlamit
- C. Montero

Answer = C

Montero is correct. Viewmont can reduce its overall borrowing costs by borrowing in U.S. dollars and engaging in a currency swap for Brazilian reais. This swap not only reduces borrowing costs but also hedges currency exposure.

“Risk Management Applications of Swap Strategies,” by Don M. Chance
Section 3.1

6.) By engaging in a currency swap, Viewmont can ensure that quarterly earnings repatriated from Brazil are *closest* to:

- A. USD2,906,976.
- B. USD4,844,961.
- C. USD1,744,186.

Answer = C

Implied notional BRL principal = $\text{BRL}5,000,000 / (0.05/4) = \text{BRL}400,000,000$

Equivalent notional USD principal = $\text{BRL}400,000,000 / 1.72 = \text{USD}232,558,139.53$

Implied USD interest payment = $\text{USD}232,558,139.53 \times (0.03/4) = \text{USD}1,744,186.05$

2014 CFA Level III

“Risk Management Applications of Swap Strategies,” by Don M. Chance
Section 3.2

Chesapeake

Virginia Norfolk, CFA, is head of the client strategy committee at Chesapeake Partners, LLC, an investment consulting firm. Chesapeake advises a diverse client base on a variety of investment matters including asset allocation and manager selection. Each month the committee meets to discuss client inquiries and assignments the consultants are working on. Norfolk convenes the committee to discuss pressing issues for several clients.

Norfolk asks William Burg, a field consultant, to present on a new client, a small college that Chesapeake advises with regard to the pension fund and the endowment. Burg needs to recommend to the client an appropriate benchmark for each fund. Burg tells the committee, "I recommend that the pension fund benchmark be changed from the pension's liabilities as the benchmark to a bond market index. The pension is closed to new participants and thus the amount and timing of future cash flows are known. The endowment is invested across many asset classes and generate an adequate return to meet its obligations, which consists of a 5% annual contribution to the college's operating fund. The endowment's benchmark for fixed-income managers should continue to be a bond market index, such as Barclays Aggregate Bond Index."

Alex Manassas, a committee member asks Burg, "What factors do you consider in selecting a benchmark bond index?" Burg responds, "I look at three key factors when selecting a benchmark. Market value risk should be similar for the portfolio and the benchmark. The longer the duration, the greater the total return potential because rates are low now and the yield curve is so steep. Income risk is important for comparable assured income streams, which can be more stable and dependable in a portfolio with long maturities. The average credit risk in the benchmark should be measured against the investor's overall portfolio and satisfy credit quality constraints in the policy statement."

Boris Markov, CFA, is the firm's actuary and expert on asset liability management. His client is a life insurance company that sells guaranteed investment contracts (GICs). The company hired Chesapeake because it has not met the target yield of 4% on the GICs it sold. Markov proposes a new approach to satisfy the obligation: "First, the new single-period immunization strategy should require as a minimum condition that the duration of the bond portfolio equal the investment horizon. In addition, if the bond portfolio has a yield to maturity equal to the target yield and a maturity equal to the investment horizon, then the target value will be achieved".

Markov then discusses another client that will require a rebalancing of its portfolio after a shift in interest rates over the last year to maintain the initial dollar duration. He uses the data in the table below to explain to the committee his rebalancing methodology.

Exhibit 1**Data for Initial Portfolio and after Interest Rate Shift**

	Initial Portfolio			Portfolio after Rate Shift over One Year		
	Price	Market Value	Duration	Price	Market Value	Duration
Bond #1	\$104.35	\$10,435,000	5.5	\$99.75	\$9,975,000	4.7
Bond #2	89.55	8,955,000	2.2	95.00	9,500,000	1.3
Bond #3	107.15	10,715,000	5.4	102.40	10,240,000	4.6

Juan Ramirez, CFA, Chesapeake's chief investment officer, brings forward to the committee two investment issues that he would like to discuss. Ramirez tells the committee, "Some of our client's portfolios are for the purpose of funding liabilities, and I am concerned that these liabilities will not be met, given certain risks. In particular, I have noticed that client portfolios have a substantial position in mortgaged-backed securities. We should reallocate these securities to invest in corporate bonds so the portfolio's convexity matches that of the liabilities."

Ramirez then presents the committee with the second investment issue. He is focused on a presentation that Alpha Managers, an investment firm that hopes to make it onto Chesapeake's "buy list," made recently. He tells the committee, "I am perplexed by the bottom-up capability that Alpha claims to have in adding value to portfolios. They claim to have a bias to yield maximization across securities without regard to rating differentials."

1.) Is Burg correct with regard to his recommendations to the committee regarding benchmarks for the pension and endowment respectively?

- A. Pension: Correct, Endowment: Incorrect
- B. Pension: Incorrect, Endowment: Correct
- C. Pension: Correct, Endowment: Correct

Answer = B

The investor with liabilities will measure success by whether the portfolio generates the funds necessary to pay out the cash outflows associated with the liabilities—in this case, a defined benefit pension plan. Meeting the liability is the investment objective; as such, it also becomes the benchmark for the portfolio. The endowment is focused on measuring the success of its fixed-income managers and does not have a specific liability to meet, therefore a bond market index is an appropriate benchmark.

"Fixed-Income Portfolio Management - Part I," by H. Gifford Fong and Larry D. Guin
Section 2

2.) Burg's statement regarding the factors he uses in selecting a benchmark bond index is *most likely*:

- A. incorrect regarding credit risk and incorrect regarding market risk.

- B. correct regarding market risk and incorrect regarding income risk.
- C. incorrect regarding market risk and correct regarding income risk.

Answer = C

Burg is incorrect regarding market risk. Although market risk should be comparable for the portfolio and benchmark index, given a normal upward-sloping yield curve, a bond portfolio's yield to maturity increases as the maturity of the portfolio increases. Because a long duration portfolio is more sensitive to changes in interest rates, a long portfolio will likely fall more in price than a short one. Burg's statement on credit risk is correct.

"Fixed-Income Portfolio Management - Part I," by H. Gifford Fong and Larry D. Guin
Section 3.2.1

3.) Is Markov correct regarding the necessary conditions to immunize the GIC portfolio for his client?

- A. No, he is incorrect regarding duration
- B. Yes
- C. No, he is incorrect regarding the bond portfolio characteristics

Answer = C

To immunize a portfolio's target value or target yield against a change in the market yield, a manager must invest in a bond or a bond portfolio whose (1) duration is equal to the investment horizon and (2) initial present value of all cash flows equals the present value of the future liability. Thus, investing in a bond portfolio with a yield to maturity equal to the target yield and a maturity equal to the investment horizon does not assure that the target value will be achieved because of reinvestment risk.

"Fixed-Income Portfolio Management - Part I," by H. Gifford Fong and Larry D. Guin
Section 4.1.1

4.) Using dollar duration and the data in Exhibit 1, how much cash does Markov's client need to rebalance the portfolio, assuming new investments are in equal proportions of one-third of each bond?

- A. \$7,993,335.
- B. \$28,618,000.
- C. \$8,098,245.

Answer = A

First calculate the dollar duration initially and after the shift in interest rates, as shown in the table below:

Market Value	Duration	Dollar Duration	Market Value	Duration	Dollar Duration
\$10,435,000	5.5	\$573,925	\$9,975,000	4.7	\$468,825
8,955,000	2.2	197,010	9,500,000	1.3	123,500
10,715,000	5.4	578,610	10,240,000	4.6	471,040
	Sum	1,349,500			1,063,365

Then calculate a rebalancing ratio: $\$1,349,500 / \$1,063,365 = 1.269$. Rebalancing requires each position to be increased by 26.9%. The cash required for the rebalancing is calculated as: Cash required = $0.269 \times (9,975,000 + 9,500,000 + 10,240,000) = \$7,993,335$.

“Fixed-Income Portfolio Management - Part I,” by H. Gifford Fong and Larry D. Guin
Section 4.1.1.5

5.) The risk that Ramirez notes is prevalent in client portfolios is *most likely*:

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

Answer = C

When such assets 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 seen with a noncallable security. Mortgaged-backed securities exhibit negative convexity. But corporate bonds, if noncallable, are positively convex.

“Fixed-Income Portfolio Management-Part I,” by H. Gifford Fong and Larry D. Guin
Section 4

6.) Ramirez most likely criticizes the relative-value methodology that Alpha uses to add value because:

- A. it better reflects a top-down approach to portfolio management.
- B. it better reflects a structure trade.
- C. a total return approach is a far superior framework.

Answer = C

Yield measures have limitations as an indicator of potential performance. The total return framework is a superior framework for assessing potential performance for a trade.

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

Sarkar

Bobby Sarkar is a senior consultant with Experian Financial Consultants (EFC), an investment advisory firm based in Cambridge, Massachusetts. EFC provides a range of consulting services including advice on investment strategy and selection of money managers. Currently, Sarkar is working with three clients: (1) Hayes University Endowment, (2) Bayside Foundation, and (3) Daniels Corporation Pension Plan.

Hayes University Endowment

The Hayes University Endowment is willing to accept a certain degree of tracking risk, provided that it is compensated with incremental returns. In particular, Hayes wants to implement an investment approach that maximizes the information ratio.

Sarkar indicates that there are two alternate methods to implement the investment approach favored by Hayes:

Method 1

Under this method, cash in the portfolio is equitized by using a long futures position. The cash is invested in short- to medium-term fixed-income securities.

Method 2

The manager will only invest in stocks expected to outperform the index. If the manager has no opinion on a stock, or if the stock is expected to underperform, the stock will not be included in the investment portfolio.

Bayside Foundation

The investment policy committee for Bayside Foundation follows a fairly conservative investment strategy and pays particular attention to the minimization of tracking error. Bayside seeks to achieve two specific objectives.

Objective 1

Invest a portion of the portfolio in an index with a large-cap bias. In addition to minimizing tracking error, Bayside would also like to ensure that the index strategy involves minimal rebalancing costs.

Objective 2

Allocate another portion of the portfolio so it earns alpha associated with small-cap stocks but without the associated small-cap market beta exposure.

Daniels Corporation Pension Plan

Daniels Corporation pension trustees want to allocate a portion of the equity pension portfolio to an active money manager with a value investment style. Sarkar has collected information on three active portfolio managers and will recommend one of them to Daniels. Selected information for the three managers is presented in Exhibit 1.

Exhibit 1

Investment Manager Data

31 December 2012

	Manager	Manager	Manager
	A	B	C
Assets under management (\$ millions)	2,876	3,752	4,619
Price-to-earnings ratio (P/E)	8.7	17.5	23.1
Dividend yield	3.50%	1.70%	1.00%
Earnings per share growth (5-year projected)	6.75%	5.25%	14.50%
Portfolio active return	3.50%	3.00%	4.30%
Portfolio tracking risk	5.00%	1.50%	6.00%
Style fit	87.00%	95.00%	85.00%

1.) To meet the objectives of the Hayes University Endowment, the *most* appropriate investment approach is an:

- A. index approach using stratified sampling.
- B. enhanced index approach.
- C. active market-oriented approach.

Answer = B

The Hayes University Endowment seeks to maximize the information ratio while controlling tracking error. The appropriate investment approach is semiactive management or enhanced indexing. Because of the strict control of tracking error, enhanced indexing tends to have the highest information ratio compared with indexing and active investment management.

“Equity Portfolio Management,” by Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
Section 3

2.) Are Sarkar’s statements on the methods that can be used to implement the investment approach for Hayes Endowment correct?

- A. No, Method 2 is incorrect.
- B. No, Method 1 is incorrect.
- C. Yes.

Answer = A

Method 2 is incorrect. Semiactive strategies are appropriate for the Hayes Endowment. They come in two forms: a derivatives-based strategy (Method 1) and a stock-based strategy (Method 2). The derivatives-based strategy is described accurately by Sarkar. But the description of Method 2, the stock-based strategy, is incorrect. In a stock-based strategy, all decisions regarding stock holdings are made relative to the benchmark weight. That is, if the manager has no opinion on the stock, then he will hold it in his portfolio at the benchmark weight. If he has a negative opinion, then he will underweight it relative to the benchmark weight. The manager will overweight the stock in his portfolio if he has a positive expectation for the stock. Sarkar is incorrect when he states: "Here the manager will only invest in stocks expected to outperform the index. If the manager has no opinion on a stock, or if the stock is expected to underperform, then the stock will not be included in the investment portfolio."

"Equity Portfolio Management," by Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
Section 6

3.) The type of index that would *most likely* help Bayside Foundation achieve Objective 1 is a(n):

- A. value-weighted index.
- B. price-weighted index.
- C. equal-weighted index.

Answer = A

A value-weighted index is biased toward large, mature companies and minimizes tracking error. Furthermore, the index is self-rebalancing because the weights automatically adjust as stock prices change, thus rebalancing costs are minimal.

"Equity Portfolio Management," by Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
Section 4.1.1

4.) The *most* appropriate approach for Bayside to achieve Objective 2 is to invest in small-cap stocks using a:

- A. long-only strategy.
- B. market-neutral long–short strategy.
- C. short extension strategy.

Answer = B

A market-neutral long–short strategy implemented by using small-cap stocks will help Bayside earn alpha associated with small-cap stocks but without beta exposure to the

small-cap sector. The overall market beta of the market-neutral long–short strategy is zero.

“Equity Portfolio Management,” by Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
Section 5.3

5.) Based on the information presented in Exhibit 1, Sarkar should recommend to the Daniels Corporation Pension Fund that the *most* appropriate manager to meet its investment objective is:

- A. Manager B.
- B. Manager A.
- C. Manager C.

Answer = B

Manager A has a low P/E, high dividend yield, and a style fit of 87%, which suggests that he is following an active value strategy.

“Equity Portfolio Management,” by Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
Section 5.1.4

6.) Based on Exhibit 1, which of the following sub-styles is *most* consistent with Manager C’s investment style?

- A. Low P/E
- B. High yield
- C. Earnings momentum

Answer = C

Manager C follows a growth investment style. Earnings momentum is a growth investment sub-style.

“Equity Portfolio Management,” by Gary L. Gastineau, Andrew R. Olma, and Robert G. Zielinski
Section 5.1.2

Spong

Jennifer Simko's fixed-income portfolio has underperformed its benchmark, the Barclays Capital Aggregate Bond Index. Simko asks her investment adviser, Mike Spong, to recommend a new fixed-income manager. Spong selects three fixed-income portfolio managers for Simko to consider:

- Mondavi Investment Partners
- Smithers Associates
- Vertex Group

Selected characteristics for each manager's portfolio are provided in Exhibit 1.

Exhibit 1

Selected Portfolio Characteristics for the Benchmark Portfolio and Three Potential Fixed-Income Managers, December 2013

	Percent of Market Value	Contribution to Spread Duration						
Sector	Benchmark	Mondavi	Smithers	Vertex	Benchmark	Mondavi	Smithers	Vertex
Treasury	25	25	20	15	0.0	0.0	0.0	0.0
Agency	11	11	11	0	0.4	0.4	0.4	0.0
Credit	25	25	30	24	1.4	1.4	1.6	1.1
Mortgage	34	34	35	43	1.5	1.5	1.6	1.7
Asset-backed	2	2	0	2	0.0	0.0	0.0	0.2
CMBS	3	3	4	8	0.1	0.1	0.1	0.5
Cash	0	0	0	8	0.0	0.0	0.0	0.0
Total	100	100	100	100	3.4	3.4	3.7	3.5

Note that in Exhibit 1, the portfolio duration for the benchmark, Mondavi Investment Partners, and Smithers Associates portfolios is 4.7. Portfolio duration for Vertex Group is 4.3.

Spong makes the following statements to Simko regarding Exhibit 1:

1. Mondavi follows a full-replication approach in which portfolio performance will match the fixed-income benchmark's performance. Mondavi's portfolio sector weights, duration, convexity, and term structure match those of the benchmark. Smithers's portfolio characteristics do not match the benchmark's because Smithers has minor risk factor mismatches with the benchmark.

2. Vertex's strategy is to construct a portfolio that has significant mismatches with the benchmark with respect to duration, key rate duration, and sector allocations. Vertex also relies on proprietary interest rate forecast models to generate superior portfolio returns. Vertex's objectives are to ensure that tracking risk is minimized and portfolio return exceeds benchmark return.

3. Vertex evaluates potential trades using total return analysis. Total return analysis assesses the expected effect of a trade on total portfolio return based on an interest rate forecast. For example, Vertex recently evaluated the expected total return for a single bond, with a beginning price of \$103, a 5% semiannual coupon, an expected price at the end of one year of \$102.5, and an annual reinvestment rate of 2%.

4. Vertex also positions the portfolio to reflect the firm's opinions on the direction of interest rates and credit spreads. Over the next six months, Vertex is forecasting

- low and stable implied interest rate volatility,
 - spreads to narrow across all spread sectors by 25 bps, and
 - a positively sloped yield curve with short rates rising 50 bps and long rates rising by about 75 bps.
-

1.) Based on Exhibit 1 and Statement 1, Smithers's investment strategy is *best* described as:

- A. active management.
- B. enhanced indexing.
- C. pure bond indexing.

Answer = B

In Exhibit 1, the contributions to spread duration for the credit sector (1.6) and for the mortgage sector (1.6) are slightly higher than the corresponding contributions to spread duration in the benchmark—that is, there are minor risk factor mismatches. But note, however that the portfolio duration of the benchmark and the Smithers portfolio is 4.7. Thus, the strategy followed by Smithers is best described as an enhanced indexed strategy with minor risk factor mismatches. Also, in Statement 1, Spong states "Smithers has minor risk factor mismatches with the benchmark."

"Fixed-Income Portfolio Management—Part I," by H. Gifford Fong and Larry D. Guin
Section 3.1

2.) Based on Exhibit 1 and Statement 1, one disadvantage of the investment strategy followed by Mondavi is that the portfolio will *most likely*:

- A. have higher advisory and non-advisory fees.

- B. be expensive to construct.
- C. result in a poorly diversified portfolio.

Answer = B

Statement 1 indicates that Mondavi follows a full-replication approach that is pure bond indexing. In this approach, many issues in the bond index may be illiquid and infrequently traded. This factor makes full replication of an index not only difficult but also expensive to implement.

“Fixed-Income Portfolio Management–Part I,” by H. Gifford Fong and Larry D. Guin
Section 3.1

3.) In Statement 2, are Vertex's objectives with regard to tracking risk and portfolio return consistent with its strategy?

- A. No, the objective regarding portfolio return is inconsistent with its strategy.
- B. No, the objective regarding tracking risk is inconsistent with its strategy.
- C. Yes.

Answer = B

The objective regarding tracking risk is inconsistent with their strategy. In Statement 2, Spong states that Vertex's strategy is to construct a portfolio with significant risk factor mismatches with the benchmark and that it relies on proprietary interest rate forecast models to generate returns. Exhibit 1 indicates that for Vertex the contributions to spread duration are significantly different from the benchmark in the credit and CMBS sectors. Note also that portfolio duration is different from the benchmark duration. All this suggests that Vertex is an active manager. As an active manager, Vertex would be willing to accept a large tracking error with the objective of generating portfolio returns that exceed the benchmark.

“Fixed-Income Portfolio Management–Part I,” by H. Gifford Fong and Larry D. Guin
Sections 3.1, 3.2.4

4.) For the example given in Spong's Statement 3, the one-year expected total return is *closest* to:

- A. 4.35%.
- B. 4.50%.
- C. 4.84%.

Answer = A

The first step is to calculate the total coupon payments plus reinvestment income. Two coupon payments are received, one of which is reinvested at one-half the annual reinvestment rate, so: $\text{Income flow} = \$2.50 + (\$2.50 \times 1.01) = \$5.025$.

The second step is to determine the horizon price that is given in Statement 3: \$102.50

The third step is to add the income flow and horizon price together to equal horizon future dollars: $\$5.025 + \$102.5 = \$107.525$

The fourth step is to calculate the semiannual total return by dividing the total future dollars by the beginning price: $(\$107.525/\$103)^{0.5} - 1.0 = 0.02173$, or 2.173%

The final step is to double the semiannual total return to get the total return:
 $2.173\% \times 2 = 4.3459\%$.

“Fixed-Income Portfolio Management—Part I,” by H. Gifford Fong and Larry D. Guin
Section 3.3.2

5.) Given Vertex's interest rate volatility and yield curve forecasts in Statement 4, compared with bullet structures, callable structures and putable structures, respectively, will *most likely*:

- A. Callable Structures: Underperform and Putable Structure: Outperform
- B. Callable Structures: Outperform and Putable Structures: Outperform
- C. Callable Structures: Outperform and Putable Structure: Underperform

Answer = B

Spong's fourth statement indicates that Vertex expects a 25 bp rise in short-term rates and a 75 bp increase in long-term rates—that is, the yield curve is expected to steepen. In this environment callables and putables will outperform bullet structures. As rates rise, given low implied interest rate volatility, the probability of a call diminishes as does the value of the call option. Consequently, callables will outperform bullets. As rates rise the put option becomes more valuable, furthermore the put allows the investor to put the option back at par, thus avoiding losses. For these reasons, the value of the putable structure can be expected to increase. In contrast, the bullet structure will decline in value. Thus, putables also outperform bullets.

“Relative Value Methodologies for Global Credit Bond Portfolio Management,” by Jack Malvey
Sections 7, 8

6.) Given Vertex's forecasts in Statement 4, the *most* appropriate strategy for Vertex is to:

- A. shorten duration in the credit sector and lengthen duration in the Treasury sector.
- B. lengthen duration in the credit sector and shorten duration in the Treasury sector.
- C. lengthen duration in all spread sectors and the Treasury sector.

Answer = B

As spreads tighten the credit sector will benefit from increased exposure to longer duration issues. Because the yield curve is expected to steepen, it would be appropriate for Vertex to shorten duration in Treasuries because rising yields will cause security prices to fall. Ideally, the net effect should be to reduce duration below the benchmark.

“Relative Value Methodologies for Global Credit Bond Portfolio Management,” by Jack Malvey
Section 5

Pena

Jorge Peña is a broker at Northwest Securities and a CFA Institute member who passed Levels I and II of the CFA examination in 2011 and 2012, respectively. Because of a demanding work schedule, he did not enroll for the 2013 Level III exam. He hopes to enroll for the 2014 Level III exam.

In January 2013, Peña decides to apply for a broker position with Harvest Financial and updates his résumé (curriculum vitae). He prominently displays “CFA candidate” on his resume and states, “I have completed both Level I and Level II of the CFA Program.” Under the “personal” section of his résumé, Peña lists “referee for regional football league for the past five years” and “a member of the investment committee at the Mueller School.”

During an interview with Peter Williams, a partner at Harvest Financial, Peña is asked about his outside interests. Williams specifically asks about the referee position. Peña explains that it is a significant time commitment on weekends, but he enjoys the activity and the fees of \$50 per game more than pay for his travel expenses. Peña and Williams agree that \$50 per game is not material.

They then discuss Peña’s role on the investment committee of the Mueller School. The committee monitors and evaluates the performance of the school’s asset managers and brokers, including Harvest. It is a volunteer position, but the school allows all volunteers free use of the school’s athletic facilities. The school recently started charging non-students and faculty a membership fee of \$500 per year to help recover their investment in new athletic equipment. Peña adds he has been told by the committee chair that he adds the most value to the committee. Peña and Williams agree that his investment committee activities will not interfere with his duties at Harvest.

After lunch, Williams introduces Peña to a former colleague, Gabriella Martinez, who happens to be a client of Peña’s current employer and who also attended the same university as Peña, although Peña did not graduate. Martinez asks, “In what area is your degree?” Peña replies, “I mostly studied finance. I found the coursework to be helpful preparation for the CFA Program.” Martinez then asks, “Why are you here?” Peña responds, “There are rumors that Northwest is in trouble, which is why I want to leave. You should consider moving your account to Harvest.”

One month later, Peña accepts an offer of employment from Harvest Financial and formally discloses to their human resources department that he referees football games and that he sits on the Mueller School investment committee. On the first day in his new job, he hangs a framed copy of the CFA Institute Code of Ethics on his wall and places a copy of the Standards of Practice Handbook on his bookshelf for easy reference. Later that day, Peña uses public records to contact his clients, as well as Martinez. He informs them of his new position and asks them to transfer their accounts to Harvest so he can continue acting as their broker.

At Harvest, Peña attends an educational seminar about a new tax-advantaged investment program available for clients saving for university expenses. The program offers families the opportunity to obtain growth and distribution of earnings free from federal and state taxes. For the sake of simplicity, the Harvest supervisor advises Harvest employees to only provide clients

information on a plan with federal tax benefits. He informs the brokers that the plan is subject to the same compliance and suitability requirements that apply to the sale of non-tax advantaged products and offers similar commission structures as with all other plans. The supervisor then distributes the paperwork associated with the plan along with the firm's compliance and suitability requirements.

1.) When describing himself as a CFA candidate on his résumé (curriculum vitae) and listing the CFA exams he passed, did Peña violate any CFA Institute Standards of Professional Conduct?

- A. Yes, with regard to completion level.
- B. Yes, with regard to candidacy.
- C. No.

Answer = B

Peña violated Standard VII(B)—References to CFA Institute, the CFA Designation, and the CFA Program. Peña is not a candidate in the CFA Program because he is not enrolled to sit for a specific examination.

“Guidance for Standards I–VII,” CFA Institute
Standard VII(B)

2.) With respect to the fees he receives as a football referee, has Peña violated any CFA Institute Standards of Professional Conduct?

- A. No
- B. Yes, he failed to receive written consent from his employer
- C. Yes, he failed to receive written consent from all parties involved

Answer = A

Standard IV(B)—Additional Compensation Arrangements only requires "written consent" from both parties in situations in which consideration might reasonably be expected to create a conflict of interest with the employer's interest. The fees in question are small and unrelated to Peña's professional activities. The employer confirmed in the interview process that the fees created no conflict of interest with or for the employer.

“Guidance for Standards I–VII,” CFA Institute
Standard IV(B)

3.) According to the CFA Institute Standards of Professional Conduct, after commencing employment with Harvest, Peña is *least likely* to have violated which standard with regard to his relationship with Mueller School?

- A. Misrepresentation

- B. Additional Compensation
- C. Conflicts of Interest

Answer = A

It does not appear that Peña has made any misrepresentations despite bragging about his value to the committee. But Peña must disclose benefits he receives in exchange for his services on the investment committee. According to Standard IV(B)—Additional Compensation Arrangements, members must not accept benefits or consideration that competes with or might reasonably be expected to create a conflict of interest with their employer's interest unless they obtain written consent from all parties involved. In addition, Peña must also disclose the potential conflicts of interest—Standard VI(A)—that may arise, given that Harvest potentially trades the same shares for its other clients as well as for Mueller's portfolio.

“Guidance for Standards I–VII,” CFA Institute
Standard VI(A)

4.) During Peña's conversation with Martinez, which of the following Standards is *least likely* to have been violated?

- A. Misrepresentation
- B. Reference to the CFA Program
- C. Loyalty

Answer = B

In the conversation with Martinez, Peña did not violate Standard VII(B)—Reference to CFA Institute, the CFA Designation, and the CFA Program because he did not call himself a candidate but explained his participation in the program and properly stated that he had passed Levels I and II of the CFA Program. Peña's statement regarding damaging rumors about Northwest Securities was in violation of Standard IV(A)—Loyalty because it could cause harm to his current employer. Peña also implied that he had completed his university work to obtain a degree when he did not clarify his failure to receive a degree, a violation of Standard I(C)—Misrepresentation.

“Guidance for Standards I–VII,” CFA Institute
Standards I(C), IV(A), and VII(B)

5.) Did Peña violate any CFA Institute Standards during his first month at Harvest?

- A. Yes, because he solicited clients from his previous employer.
- B. Yes, because he failed to inform his supervisor in writing of his obligation to comply with the Code and Standards.
- C. No.

Answer = C

No violation occurred. According to Standard IV(A), Peña is free to solicit his former employer's clients using public information. Although CFA Institute encourages members and candidates to disclose to their employers their obligation to comply with the Code of Ethics and Standards Professional Conduct, it is not a requirement. Therefore, Peña did not violate the Code and Standards.

“Guidance for Standards I–VII,” CFA Institute
Standard IV(A)

6.) Based on the information provided regarding the tax-advantaged savings plan, the Harvest supervisor is *least likely* to have violated the Standard relating to:

- A. Responsibilities of Supervisors
- B. Independence and Objectivity
- C. Suitability

Answer = B

Standard I(B)—Independence and Objectivity requires members to use reasonable care to achieve independence and objectivity. According to the standard, members must not offer or accept any gifts or benefits that reasonably could be expected to compromise their independence. On the basis of information provided, the commission structure is unlikely to influence the sale of this product. Nevertheless, the supervisor failed to exercise thoroughness in analyzing the various tax-advantaged plans and lacked a reasonable basis for suggesting one plan over the many others. As a supervisor, he failed to establish adequate compliance procedures for determining the suitability of tax-advantaged programs, instead using standard compliance procedures designed for non-tax-advantaged products.

“Guidance for Standards I–VII,” CFA Institute
Standard I(B)

CME

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

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

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

Exhibit 1 Selected Data from GloboStats

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

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

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

Exhibit 2**Selected Data from RiteVal**

	Factor Sensitivities		
Asset Class	Global Equity	Global Bonds	Residual Risk (%)
U.S. real estate equities	0.60	0.15	4.4
Global timber equities	0.45	0.20	3.9
<i>Additional Information</i>			
Variances	0.025	0.0014	
Correlation between global equities and global bonds: 0.33			

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

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

Grey recommends choosing the GloboStats approach.

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

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

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

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

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

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

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

Answer = C

$$\beta_i = \text{Cov}(R_i, R_M) / \text{Var}(R_M)$$

Note that covariance is given as 0.0075.

Find $\text{Var}(R_M)$ by using the Sharpe ratio = RP_M / σ_M and solve for σ_M

Expected return – Risk-free rate = RP_M

$$7.2\% - 3.1\% = 4.1\% \text{ (or 0.041)}$$

$$\sigma_M = 0.041 / 0.36 = 0.1139$$

$$\text{Var}(R_M) = (0.1139)^2 = 0.0130$$

$$\beta_i = 0.0075 / 0.0130 = 0.58$$

“Capital Market Expectations,” by John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub
Section 3.1.4

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

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

Answer = A

Grey recommends the Singer–Terhaar approach and a correlation of 0.39 between real estate and the market. Use these steps to solve for the expected return:

Step 1	Fully integrated risk premium	$(14.0\% \times 0.39 \times 0.36) =$	1.97%
	Fully segmented risk premium	$(14.0\% \times 0.36) =$	5.04%
Step 2	Fully integrated and segmented risk premium, considering the degree of integration	$(1.97\% \times 0.6) + (5.04\% \times 0.4) =$	3.20%
Step 3	Expected return estimate: Fully integrated and segmented risk premium + Risk-free rate	$3.20\% + 3.1\% =$	6.3%

“Capital Market Expectations,” by John P. Calverley, Alan M. Meder, Brian D. Singer, and Renato Staub
Section 3.1.4

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

- A. 24.5%.
- B. 21.0%.
- C. 23.1%.

Answer = C

F_1 = Factor 1, Global Equity

F_2 = Factor 2, Global Bonds

$$\sqrt{\text{Var}}(F_1) = 0.025^{0.5} = 0.1581$$

$$\sqrt{\text{Var}}(F_2) = 0.0014^{0.5} = 0.0374$$

$$\text{Cov}(F_1, F_2) = \sigma_1 \sigma_2 \rho_{1,2} = 0.1518 \times 0.374 \times 0.33 = 0.002$$

Real estate factor sensitivities are $b_{re,1}$ 0.6 for sensitivity to global equity and $b_{re,2}$ 0.15 for global bonds. Residual risk variance (given) is $\text{Var}(\epsilon_{re}) = 0.044$.

Variance of real estate =

$$b_{re,1}^2 \text{VAR}(F_1) + b_{re,2}^2 \text{VAR}(F_2) + 2 b_{re,1} b_{re,2} \text{COV}(F_1, F_2) + \text{Var}(\epsilon_{re})$$

$$= (0.6)^2 \times 0.025 + (0.15)^2 \times 0.0014 + 2 \times 0.6 \times 0.15 \times 0.002 + 0.044 = 0.053392$$

Square root of variance is the standard deviation = 0.231, or 23.1%.

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

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

- A. a prudence trap.
- B. a shrinkage estimate.
- C. nonstationarity.

Answer = B

Cortez's statement to calculate a weighted average for the covariance estimate is an example of shrinkage estimation. Shrinkage estimation involves taking a weighted average of a historical estimate of a parameter and some other parameter estimate, in which the weights reflect the analyst's relative belief in the estimates. A shrinkage estimator of the covariance matrix is a weighted average of the historical covariance matrix and an alternative estimator of the covariance matrix.

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

Sections 2.2.3, 2.2.8, 3.1.1.2

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

- A. incorrect because of his comment about real estate.
- B. incorrect because of his comment about equities.
- C. correct.

Answer = A

In deflation, real estate experiences downward pricing pressure (negative) and bonds benefit from improving purchasing power (positive). Therefore, Grey's comment about real estate is incorrect. In equilibrium, inflation at or below expectations is a positive for equities. The comment about equities is correct.

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

Section 4.1.3

6.) Cortez's comment with regard to the two different approaches to economic analysis is *most likely*:

- A. incorrect because of the statement regarding leading indicators.
- B. correct.
- C. incorrect because of the statement regarding econometrics.

Answer = B

Cortez's statement is entirely correct. A disadvantage of the leading indicators-based approach is that historically, it has not consistently worked because relationships between inputs are not static. An advantage to the econometric approach is that it provides quantitative estimates of the effects on the economy of changes in exogenous variables.

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

Sections 4.5.4

Arcadia

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

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

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

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

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

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

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

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

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

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

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

Portfolio A: A portfolio managed for a local church in which all fees are waived. The IPS prohibits holdings of companies involved in firearms, alcohol, or tobacco. These securities represent 5% of the benchmark, but the portfolio manager believes he can still implement his strategy with these restrictions.

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

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

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

Exhibit 1: Small-Capitalization Equity Composite
Benchmark: Russell 2000

Year	Gross of Fees Return (%)	Net of Fees Return (%)	Benchmark Return (%)	Number of Portfolios	Internal Dispersion (%)	Total Assets (\$ millions)	
						Composite	Firm
2009	4.2	3.2	3.7	4	3.3	100	1,000
2010	3.7	2.7	7.0	9	4.6	225	1,250
2011	-1.0	-2.0	-4.5	7	1.7	350	900
2012	9.3	8.3	12.0	12	2.8	425	1,050
1Q13	5.2	4.9	-7.0	14	3.6	620	1,125

Notes:

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

million; 0.60% thereafter. Net-of-fees performance returns are calculated by deducting the management fee of 0.25% from the quarterly gross composite return.

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

- A. verification.
- B. exclusion of the Phoenix division.
- C. the status of Swiss Corp's other subsidiaries.

Answer = A

Although the GIPS standards recommend that firms undertake verification, it is not required to claim compliance. The Phoenix office holds itself separate geographically, as well as with respect to personnel and its investment process. Philadelphia will be able to be GIPS compliant even if its Phoenix office is not. Finally, because Arcadia markets itself as separate and distinct from the other affiliates, it can claim compliance even if the others units are not compliant.

“Overview of the Global Investment Performance Standards,” by Phillip Lawton
Section 6

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

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

Answer = A

The GIPS standards require all transactions to be recognized on the trade date and not the settlement date. Trade date is when the transaction takes place, whereas settlement date is when the exchange of cash, securities, and paperwork involved in a transaction is completed.

“Overview of the Global Investment Performance Standards,” by Phillip Lawton
Section 3.2

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

- A. Policy 5
- B. Policy 4
- C. Policy 6

Answer = C

The GIPS standards require cash and cash equivalents to be included in total return calculations for all asset classes.

“Overview of the Global Investment Performance Standards,” by Phillip Lawton
Sections 3.3–3.5

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

- A. Portfolio A
- B. Portfolio B
- C. Portfolio C

Answer = C

Portfolio C is required to hold cash at 15%, which is too much for the portfolio manager to execute his strategy effectively. The unanticipated nature of the contributions and withdrawals that can occur daily makes it difficult to invest the funds in equities. This large cash balance implies the portfolio is nondiscretionary.

“Overview of the Global Investment Performance Standards,” Phillip Lawton
Section 3.7

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

- A. performance presentation.
- B. measure of internal dispersion.
- C. performance record.

Answer = C

Arcadia is required by the GIPS standards to present five years of performance because the composite has been in existence for that period. The small-cap composite was started on 31 December 2007. For each composite presented to be GIPS compliant, the Standards require that firms show at least 5 years of annual performance (less if the firm or composite has been in existence for a shorter period) and then the performance record must be extended each year until 10 years of results have been presented.

“Overview of the Global Investment Performance Standards,” Phillip Lawton
Sections 3.11, 3.12

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

- A. Notes 1 and 7 are required and Note 2 is recommended.
- B. Notes 3 and 8 are required and Note 6 is recommended.
- C. Notes 1 and 2 are required and Note 7 is recommended.

Answer = A

Note 1 is required. It describes the definition of the firm used to determine the total firm assets. Note 2 is recommended because the firm is encouraged but not required to provide a list of the firms contained within the parent company. Note 7 is required because firms must disclose which dispersion measure is presented.

“Overview of the Global Investment Performance Standards,” Phillip Lawton
Section 3.11

Pearson

Dena Pearson is a recent hire at a large international bank. She is working in the risk management group, from which she receives several assignments.

Pearson's first assignment is to address an inquiry from a client, Joseph Varnet. Varnet asks for clarification on the contents of a risk report he received that describes value at risk (VaR).

Varnet states:

This month's report states that using a 95% confidence level, the portfolio has an average daily VaR of \$1 million. Please clarify what this means. I would like to know what happens to the VaR measure if the confidence level is increased to 99% and if the frequency is changed from daily to monthly. In the notes, the report states that the VaR is based on the analytical or variance–covariance method. Has the bank considered using other methods for calculating VaR?

Pearson's responds to Varnet's inquiry as follows:

The VaR calculation in the monthly report assumes 250 trading days in a year and indicates that the daily portfolio loss will likely exceed \$1 million approximately 12 to 13 times over a one-year period. A change to a 99% confidence level would provide a lower VaR estimate. The bank uses the analytical method because other methods have significant disadvantages. For example, the disadvantages of the historical simulation method are the model:

1. is nonparametric, and
2. applies historical price changes to the current portfolio.

Pearson's second assignment is to evaluate the credit risk of the following positions:

1. A call option the bank purchased for \$30. The current market price of the option is \$35.
 2. A short position in a one-year forward contract with a forward price of \$200 and six months remaining until expiration. The forward price was determined based on a risk-free rate of 5.5%. The current spot price of the underlying asset is \$207.
-

1.) Pearson's clarification of the meaning of the VaR measure in Varnet's monthly report is *most likely*:

- A. correct.
- B. incorrect because over a full year, the VaR will be exceeded on five or fewer days.
- C. incorrect because VaR represents a maximum loss that will not be exceeded.

Answer = A

Assuming 250 trading days per year, if daily VaR at 95% confidence level (violated 5% of the time) is \$1 million, over one year, a daily loss exceeding \$1 million should occur approximately 5% of 250 days, or 12.5 days.

“Risk Management,” by Don M. Chance, Kenneth Grant, and John Marsland
Section 5.2

2.) To address Varnet's question regarding a change to a monthly VaR measure, Pearson's *most appropriate* response would be that the VaR estimate for the portfolio would:

- A. not change.
- B. decrease.
- C. increase.

Answer = C

The longer the time period chosen the greater the VaR will be because the magnitude of potential losses increases with the time span over which they are measured.

“Risk Management,” by Don M. Chance, Kenneth Grant, and John Marsland
Section 5.2

3.) An advantage of the bank's method for estimating VaR is the:

- A. simplicity of the method.
- B. assumption that returns are normally distributed.
- C. ability to incorporate optionality into the analysis.

Answer = A

The analytical model uses readily available data and simple calculations.

“Risk Management,” by Don M. Chance, Kenneth Grant, and John Marsland
Section 5.2.2

4.) Are Pearson's statements regarding the disadvantages of the historical method for estimating VaR *most likely* correct?

- A. No, the second statement is not a disadvantage.
- B. No, the first statement is not a disadvantage.
- C. Yes.

Answer = B

The nonparametric feature of the historical method is an advantage, not a disadvantage. The historical method requires minimal probability-distribution assumptions compared with other methods.

“Risk Management,” by Don M. Chance, Kenneth Grant, and John Marsland
Section 5.2.2

5.) The current potential credit loss of the bank's call option position is *closest to*:

- A. \$0.
- B. \$30.
- C. \$35.

Answer = C

A failure (e.g., bankruptcy) of the option seller would mean the option holder (the bank) would lose the entire market value of \$35.

“Risk Management,” by Don M. Chance, Kenneth Grant, and John Marsland
Section 5.6.4

6.) The current amount of potential credit risk in the forward contract position is *closest to*:

- A. \$0.
- B. \$1.53.
- C. \$12.28.

Answer = A

The value of the long position is $\$207 - \$200/(1.055)^{0.5} = \$12.28$. This result means that the short (the bank) owes the long, so the bank would suffer no loss if the long went bankrupt.

“Risk Management,” by Don M. Chance, Kenneth Grant, and John Marsland
Section 5.6.2