

Guideline Answers

Level III 2025 Portfolio Management Mock Exam 2 – Session 1

QUESTION SET 1: ASSET ALLOCATION

Part A

LOS: *recommend and justify an asset allocation using a goals-based approach*

- i. Module C for Goal 1: For a time horizon of 15 years and a 95% required probability of success, Module C provides the highest annualized minimum expectation return (4.50%) out of all the modules, which means it would offer the lowest funding cost for Goal 1.
- ii. Module D for Goal 2: For a time horizon of 15 years and a 75% required probability of success, Module D provides the highest annualized minimum expectation return (4.60%) out of all the modules, which means it would offer the lowest funding cost for Goal 2.
- iii. Module A for Goal 3: For a time horizon of 15 years and a 60% required probability of success, Module A provides the highest annualized minimum expectation return (4.90%) out of all the modules, which means it would offer the lowest funding cost for Goal 3.

Reference: “**Principles of Asset Allocation**,” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 4, Section 16 “Constructing Sub-Portfolios and the Overall Portfolio”

Part B

LOS: *discuss strategic considerations in rebalancing asset allocations*

The rebalancing ranges for equities and fixed income in Mueller’s separate portfolio should be narrowed given the increase in her risk aversion and the decrease in correlation between the two asset classes.

All else equal, more risk-averse investors should have a narrower rebalancing range. As Mueller has become more risk averse, a narrower rebalancing range would be appropriate.

Less-correlated assets should have narrower rebalancing ranges, all else equal. As equities and fixed income have become less correlated, a narrower rebalancing range would be appropriate.

Reference: “**Overview of Asset Allocation**,” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 3, Section 11 “Rebalancing: Strategic Considerations”

Part C

LOS: *discuss asset size, liquidity needs, time horizon, and regulatory or other considerations as constraints on asset allocation*

Asset size constraint: Access to asset classes such as private equity may be constrained for smaller asset owners like the Yangs, whose entire investment portfolio is worth only \$500,000. The commingled vehicles through which strategies such as private equity are offered typically require high minimum investments.

Liquidity constraint: The Yangs have several children expected to start college in the next two to three years, with each child's education expected to cost \$150,000. This indicates a need for increased liquidity from the Yangs' investment portfolio. An investment in private equity may be unsuitable for the Yangs given its less liquid nature.

Reference: “**Asset Allocation with Real-World Constraints,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 5, Section 2 “Constraints in Asset Allocation and Asset Size” and Section 3 “Liquidity”

Part D

LOS: *identify behavioral biases that arise in asset allocation and recommend methods to overcome them*

- i. Loss aversion: The Yangs are indifferent to the volatility of their portfolio gains but strongly prefer not to incur any losses, which is evidence of loss aversion bias. Loss-aversion bias is an emotional bias in which people tend to strongly prefer avoiding losses as opposed to achieving gains. The utility derived from a gain is much lower than the utility given up with an equivalent loss.
- ii. Illusion of control: By retaining a large, concentrated legacy asset that contributes diversifiable risk rather than diversifying their position in the stock of the company where Bill works, the Yangs display illusion of control bias. The illusion of control is a cognitive bias—the tendency to overestimate one's ability to control events. It can be exacerbated by overconfidence, an emotional bias. If investors believe they have more or better information than what is reflected in the market, they have excessive confidence in their ability to generate better outcomes.
- iii. Representativeness (or recency) bias: After recently reading in the newspaper that emerging market stocks have been constantly rising in value over the past few months, the Yangs are exhibiting representativeness, or recency, bias by wanting to invest in the emerging market stocks without further research. Representativeness, or recency, bias is the tendency to overweight the importance of the most recent observations and information relative to a longer-dated or more comprehensive set of long-term observations and information. Tactical shifts in asset allocation undertaken in response to recent returns or news are particularly susceptible to recency bias. Return chasing is a common

manifestation of recency bias, and it results in overweighting asset classes with good recent performance.

Reference: “**Asset Allocation with Real-World Constraints**,” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 5, Section 10 “Dealing with Behavioral Biases in Asset Allocation”

QUESTION SET 2: PORTFOLIO CONSTRUCTION

1. **C**
LOS: *describe market fragmentation*

C is correct because Alternative 1 and Alternative 2 are both appropriate strategies.

Alternative 1 is appropriate because traders filling large orders can take advantage of increasing market fragmentation by searching for liquidity across multiple venues and across time to control the market impact of their trades.

Alternative 2 is appropriate because electronic algorithmic trading techniques, such as liquidity aggregation and smart order routing, help traders take advantage of the opportunities presented by fragmentation. Smart order-routing algorithms send orders to the markets that display the best-quoted prices and sizes.

Reference: “Trading Costs and Electronic Markets,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 6, Section 3 “Development of Electronic Markets”

2. **A**
LOS: *describe abusive trading practices that real-time surveillance of markets may detect*

A is correct because spoofing, also known as layering, is a trading practice in which traders place exposed standing limit orders to convey an impression to other traders that the market is more liquid than it is or to suggest to other traders that the security is undervalued or overvalued.

For example, suppose that a spoofer wants to sell the stock at a high price. The spoofer might place a hidden sell order in the market. The spoofer then places one or more exposed buy limit orders in the market to convey the impression that prices may soon increase. Seeing the spoofing buy orders, one or more traders may conclude that values may be higher than market prices suggest. If other traders buy into the spoofer’s buy order, the spoofer will quickly sell at a higher price and immediately cancel the buy trades. Wong’s strategy would attempt to replicate this scenario to sell at a higher price.

B is incorrect because rumormongering is the dissemination of false information about fundamental values or about other traders’ trading intentions to alter investors’ value assessments.

C is incorrect because gunning the market is a strategy used by market manipulators to force traders to perform disadvantageous trades. A manipulator

generally guns the market by buying quickly to push prices up with the hope of triggering stop-loss buy orders. A stop-loss (or stop) buy order becomes valid for execution once the specified stop price condition is met by a trade occurring at or above the stop price. In this case, Wong does not intend to execute the buy orders they would place in the market, but rather to cancel them once the hidden sell orders are executed.

Reference: “Trading Costs and Electronic Markets,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 6, Section 7 “Detecting Abusive Trading Practices”

3.

B

LOS: *calculate and interpret effective spreads and VWAP transaction cost estimates*

B is correct because the effective spread for a sell order is $2 \times (\text{Midpoint of the market at the time of order entry} - \text{Trade price})$. The calculations are as follows:

Effective spread of Trade 1 = $2 \times \{[(\$37.85 + \$38.09) / 2] - \$37.86\} = \0.2200

Effective spread of Trade 2 = $2 \times \{[(\$37.67 + \$37.86) / 2] - \$37.67\} = \0.1900

Effective spread of Trade 3 = $2 \times \{[(\$36.98 + \$37.19) / 2] - \$36.97\} = \0.2300

Effective spread of Trade 4 = $2 \times \{[(\$36.64 + \$36.83) / 2] - \$36.65\} = \0.1700

Effective spread of Trade 5 = $2 \times \{[(\$36.48 + \$36.59) / 2] - \$36.47\} = \0.1300

The average effective spread is then calculated as:

Average effective spread = $(\text{Effective spread of Trade 1} + \text{Effective spread of Trade 2} + \text{Effective spread of Trade 3} + \text{Effective spread of Trade 4} + \text{Effective spread of Trade 5}) / 5$

$= (\$0.2200 + \$0.1900 + \$0.2300 + \$0.1700 + \$0.1300) / 5 = \0.1880

A is incorrect because the multiplication by two in calculating each effective spread is omitted.

C is incorrect because the sum of the effective spreads is not divided by five to calculate the average.

Reference: “Trading Costs and Electronic Markets,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 6, Section 2 “Effective Spreads and Volume-Weighted Cost Estimates”

4.

A

LOS: *calculate and interpret effective spreads and VWAP transaction cost estimates*

The volume-weighted average price (VWAP) for the day is the total dollar volume divided by the total number of shares traded that day.

Trade	Shares Executed	Execution Price	Bid Price	Ask Price	Total Dollar Volume
Trade 1	170,000	\$37.86	37.85	38.09	\$6,436,200
Trade 2	240,000	\$37.67	37.67	37.86	\$9,040,800
Trade 3	220,000	\$36.97	36.98	37.19	\$8,133,400
Trade 4	180,000	\$36.65	36.64	36.83	\$6,597,000
Trade 5	190,000	\$36.47	36.48	36.59	\$6,929,300
Other trades	650,000	\$37.25	---	---	\$24,212,500
TOTAL	1,650,000	---	---	---	\$61,349,200

VWAP for the day = $\$61,349,200 / 1,650,000 = \37.1813

VWAP for Creative's trades:

Trade	Shares Executed	Execution Price	Bid Price	Ask Price	Total Dollar Volume
Trade 1	170,000	\$37.86	37.85	38.09	\$6,436,200
Trade 2	240,000	\$37.67	37.67	37.86	\$9,040,800
Trade 3	220,000	\$36.97	36.98	37.19	\$8,133,400
Trade 4	180,000	\$36.65	36.64	36.83	\$6,597,000
Trade 5	190,000	\$36.47	36.48	36.59	\$6,929,300
TOTAL	1,000,000	---	---	---	\$37,136,700

VWAP for Creative's trades = $\$37,136,700 / 1,000,000 = \37.1367

The VWAP transaction cost estimate for Creative's trades is the difference multiplied by the shares sold:

= $(\$37.1813 - \$37.1367) \times 1,000,000 = \$44,600$

Reference: "Trading Costs and Electronic Markets," 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 6, Section 2 "Effective Spreads and Volume-Weighted Cost Estimates"

QUESTION SET 3: PORTFOLIO MANAGEMENT

Part A

LOS: *discuss top-down approaches to credit strategies*

Goodwin most likely employs a top-down approach to credit strategy, given her focus on trends in the global economy and her belief that the recent move in credit spreads in response to geopolitical events was an overreaction.

A top-down approach to credit strategy focuses on a broader set of factors affecting the bond universe, in contrast to the more issuer-specific bottom-up approach. Macro factors critical to credit investors include economic growth, real rates and inflation, changes in expected market volatility and risk appetite, credit spread changes, industry trends, geopolitical risk, and currency movements.

Reference: “Fixed-Income Active Management: Credit Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 6, Section 3 “Credit Strategies”

Part B

LOS: *discuss liquidity risk in credit markets and how liquidity risk can be managed in a credit portfolio*

Active managers might consider liquid alternatives to individual bond trades to react quickly to rapidly changing markets. Alternatives to individual bonds include CDS and bond ETFs.

Reference: “Fixed-Income Active Management: Credit Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 6, Section 4 “Liquidity and Tail Risk”

Part C

LOS: *discuss the advantages and disadvantages of credit spread measures for spread-based fixed-income portfolios, and explain why option-adjusted spread is considered the most appropriate measure*

Based on Black’s expectations that spreads will tighten by 30%, Bond 2 has the highest expected excess spread.

Expected excess spread \approx Spread₀ – (EffSpreadDur \times Δ Spread) – (POD \times LGD)

Bond 1 = 1.00% – (5.25 \times (–0.300%)) – (0.25% \times 20%) = 2.53%

Bond 2 = 2.25% – (8.00 \times (–0.675%)) – (1.00% \times 25%) = 7.40%

Bond 3 = 4.30% – (3.75 \times (–1.290%)) – (3.50% \times 60%) = 7.04%

Reference: “Fixed-Income Active Management: Credit Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 6, Section 2 “Key Credit and Spread Concepts for Active Management”

Part D

LOS: *discuss the advantages and disadvantages of credit spread measures for spread-based fixed-income portfolios, and explain why option-adjusted spread is considered the most appropriate measure*

Assuming spreads remain constant over the next year, Bond 3 has the highest expected excess spread.

Expected excess spread \approx Spread₀ – (EffSpreadDur \times Δ Spread) – (POD \times LGD)

Bond 1 = 1.00% – (5.25 \times 0%) – (0.25% \times 20%) = 0.95%

Bond 2 = 2.25% – (8.00 \times 0%) – (1.00% \times 25%) = 2.00%

Bond 3 = 4.30% – (3.75 \times 0%) – (3.50% \times 60%) = 2.20%

Reference: “Fixed-Income Active Management: Credit Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 6, Section 2 “Key Credit and Spread Concepts for Active Management”

QUESTION SET 4: PORTFOLIO MANAGEMENT

1.

B

LOS: *evaluate strategies for managing a single liability*

Statement 1 is correct because immunization is the process of structuring and managing a fixed-income bond portfolio to minimize the variance in the realized rate of return over a known time horizon. This variance arises from the volatility of future interest rates.

Statement 2 is incorrect because, in the case of a single liability, immunization is achieved by matching the Macaulay duration – not the modified duration – of the bond portfolio to the horizon date. As time passes and bond yields change, the duration of the bonds changes and the portfolio needs to be rebalanced.

Reference: “**Liability-Driven and Index-Based Strategies**,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 4, Section 2 “Managing the Interest Rate Risk of a Single Liability”

2.

A

LOS: *evaluate strategies for managing a single liability*

In the case of a single liability, immunization is achieved by matching the bond portfolio’s Macaulay duration to the horizon date.

TM wants to immunize a single liability due in seven years. Portfolio A would best immunize this liability because it has a Macaulay duration of 7.0 years.

Reference: “**Liability-Driven and Index-Based Strategies**,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 4, Section 2 “Managing the Interest Rate Risk of a Single Liability”

3.

B

LOS: *evaluate strategies for managing a single liability*

Structural risk to immunization arises from twists and non-parallel shifts in the yield curve. Structural risk is reduced by minimizing the dispersion of cash flows in the portfolio, which can be accomplished by minimizing the portfolio convexity for a given Macaulay duration and cash flow yield.

Portfolio B would exhibit the lowest structural risk because it has the lowest convexity of the three portfolios.

Reference: “**Liability-Driven and Index-Based Strategies**,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 4, Section 2 “Managing the Interest Rate Risk of a Single Liability”

4.

B

LOS: *compare alternative methods for establishing bond market exposure passively*

In an enhanced indexing strategy, the investor purchases fewer securities than the full set of index constituents but matches primary risk factors reflected in the index. This strategy aims to replicate the index performance more efficiently than the full replication of a pure indexing approach by minimizing transaction costs of acquiring a representative portfolio and minimizing problems associated with bonds' unique characteristics.

A pure indexing strategy aims to replicate an existing market index by purchasing all of the constituent securities in the index to minimize tracking risk. In practice, it is neither feasible nor cost-effective for investors to pursue full replication for broad-based fixed-income indexes.

Active management involves taking positions in primary risk factors that deviate from those of the index in order to generate excess return.

Reference: “**Liability-Driven and Index-Based Strategies,**” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 4, Section 6 “Bond Indexes” and Section 7 “Alternative Methods for Establishing Passive Bond Market Exposure”

QUESTION SET 5: PORTFOLIO CONSTRUCTION

Part A

LOS: *evaluate the investment policy statement of an institutional investor*

The investment objective of Burger Shack's pension plan is to grow the plan's assets in line with the plan's liabilities, which will be achieved at the 7% annual rate of return that matches the rate used by the plan actuaries.

Reference: “**Portfolio Management for Institutional Investors**,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 5, Section 7 “Pension Funds: Investment Objectives and Asset Allocation”

Part B

LOS: *discuss investment policy of institutional investors*

	Investment Approach	Drawback
Current	Norway model	Limited potential for value-added
Proposed	Endowment model	Expensive and can be difficult to implement

The Norway model is a traditional approach characterized by a reliance on passive investments and a 60%/40% equity/fixed income allocation with little or no allocation to alternative investments. These are characteristics of the current Burger Shack pension fund.

The endowment model is characterized by a greater allocation to active management, externally managed assets, and a high allocation to alternative investments. This describes the proposed approach, particularly the emphasis on external asset management.

Reference: “**Portfolio Management for Institutional Investors**,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 5, Section 2 “Overview of Investment Policy”

Part C

LOS: *evaluate the investment portfolio of a private DB plan, sovereign wealth fund, university endowment, and private foundation*

The proposed allocation has an expected return of 9.25%, making it sufficient to cover the actuarial rate of 7%.

Asset Class	Expected Long-Term Return	Current Asset Allocation	Current Expected Return	Proposed Asset Allocation	Proposed Expected Return
Passive domestic equity	8%	45%	3.60%	10%	0.80%
Active domestic equity	10%	–	–	15%	1.50%
Passive international equity	10%	15%	1.50%	10%	1.00%
Active international equity	12%	–	–	10%	1.20%
Passive domestic fixed income	3%	40%	1.20%	10%	0.30%
Active domestic fixed income	5%	–	–	10%	0.50%
International fixed income	7%	–	–	5%	0.35%
Hedge funds	13%	–	–	20%	2.60%
Real estate	10%	–	–	10%	1.00%
Portfolio return	–	–	6.30%	–	9.25%

Reference: “Portfolio Management for Institutional Investors,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 5, Section 7 “Pension Funds: Investment Objectives and Asset Allocation”

QUESTION SET 6: ETHICAL AND PROFESSIONAL STANDARDS

1. **C**

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

Several Standards are germane here. As a CFA charterholder, Loy has an obligation to follow and to encourage her firm to follow the strictest applicable legal requirements (Standard I(A) Knowledge of the Law). In addition, non-compliance exposes MIM and its shareholders and employees to significant harm.

Although MIM is within its rights to challenge the regulation of an EU member nation that conflicts with the laws of the EU, doing so would expose its shareholders and employees within that nation to significant risk. Recommending this course of action would violate Loy's duty to MIM's clients in that country (Standard III(A) Loyalty Prudence, and Care) and her duty to her employer (Standard IV(A) Loyalty).

Furthermore, the Pacific Rim nation is not an EU member and can establish its own requirements regardless of EU regulations. Defying it is an even more obvious violation of Standard I(A) Knowledge of the Law, with inevitable adverse consequences.

Loy has a duty to not recommend actions that might expose her employer to legal action or its shareholders to harm.

Reference: "Guidance for Standards I–VII," 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 1 "Standard I(A) Knowledge of the Law"

2. **B**

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

Standard III(B) Fair Dealing demands that MIM treat both the domestic and offshore investors fairly.

The performance team does have a duty to review dispersion among similarly managed funds, but their primary focus should be on the integrity of the GIPS® composites. As the offshore risk officer, it is clearly within the scope of Loy's mandate and ethical duties to focus on the dispersion between the two different families of funds within each composite.

Loy has a duty to ensure fair dealing between the two families of funds. She would have been remiss in not following up on it.

Reference: “Guidance for Standards I–VII,” 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 24 “Standard III(B) Fair Dealing”

3.

C

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

Loy has a duty of loyalty to all of MIM’s clients and a duty to her employer. Her duty to the client requires her to ensure that clients and prospects of MIM’s services receive all the information they legitimately need to make informed decisions. Her duty to her employer requires her to ensure that all proper measures are taken to support the firm’s claim of compliance with the GIPS® standards.

Not taking follow-up action ignores these other duties.

The GIPS® composite should depict the results of an ongoing and consistent management process. While all the funds in the composite were briefly “non-discretionary” during this market disruption, this was an industry-wide event. However, the impact on the performance of this fund was singularly significant and stemmed from a unique confluence of external circumstances not representative of the management style. It is large enough to compromise the integrity of the composite and be materially misleading to clients and prospects.

Reference: “Guidance for Standards I–VII,” 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 30 “Standard III(D) Performance Presentation”

4.

B

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

Reason 2 is not consistent with Loy’s ethical duties under the Standards. Both boards owe a fiduciary duty to their respective shareholders. Any rationale that the new procedure primarily benefits MIM or the investment management department is subordinate to this duty. The proposal to the boards should focus on how the shareholders will benefit.

Reason 1 is consistent with the Standards. Trading costs do reduce the return to the investor, and if MIM can achieve better execution via this plan, it benefits the shareholders of the DFI funds.

Reason 3 is consistent with the Standards. The proposal does eliminate difficulties for the investment team but is intended primarily for the benefit of the DFI funds' shareholders.

Reference: “**Guidance for Standards I–VII,**” 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 21
“Standard III(A) Loyalty, Prudence, and Care”

QUESTION SET 7: PORTFOLIO MANAGEMENT

Part A

LOS: *describe elements of a manager's investment philosophy that influence the portfolio construction process*

Expected active return is calculated as follows:

$$E(R_A) = IC\sqrt{BR}\sigma_{R_A}TC$$

where:

IC = information coefficient

BR = breadth

σ_{R_A} = active risk

TC = transfer coefficient

Expected active return = $0.40 \times (49)^{0.5} \times 4.0\% \times 0.20 = 2.24\%$

Reference: “Active Equity Investing: Portfolio Construction,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 3, Section 2 “Building Blocks of Active Equity Portfolio Construction”

Part B

LOS: *distinguish between Active Share and active risk and discuss how each measure relates to a manager's investment strategy*

Active share is calculated as follows:

$$\text{Active Share} = \frac{1}{2} \sum_{i=1}^n |\text{Weight}_{\text{portfolio } i} - \text{Weight}_{\text{benchmark } i}|$$

	Portfolio Weight	Benchmark Weight	Absolute Value of Difference
Stock A	0.65	0.60	0.05
Stock B	0.20	0.40	0.20
Stock C	0.15	0.00	0.15

Hence, active share = $(0.05 + 0.20 + 0.15) / 2 = 0.40 / 2 = 0.20$

Active share is a measure of the differentiation of the holdings of a portfolio from the holdings of a chosen benchmark. An active share of 0 indicates that the portfolio completely resembles the benchmark index, and a value of 1 indicates that the portfolio does not share any investments with the benchmark. The active share of 0.20 indicates that Voyager's portfolio is closer to the former than the latter.

Reference: “Active Equity Investing: Portfolio Construction,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 3, Section 4 “Measures of Benchmark-Relative Risk”

Part C

LOS: *discuss how assets under management, position size, market liquidity, and portfolio turnover affect equity portfolio construction decisions*

One concern is the size of the new contributions relative to the market capitalizations of the current portfolio holdings. The total market capitalization of the three stocks currently held in the portfolio is \$800 million, which is significantly less than the total new contributions of \$1.1 billion. Hypothetically, Voyager’s portfolio could acquire 100% of Company A, Company B, and Company C and still have a large amount of uninvested cash.

Another concern is the average daily trading volume of the current portfolio holdings relative to their total shares outstanding. Stock A, Stock B, and Stock C each have less than 0.1% of their total shares outstanding traded daily. Hence, the potential price movement and trading costs of purchasing a large number of shares of the current constituents could be high and could negatively erode Voyager’s alpha.

Reference: “Active Equity Investing: Portfolio Construction,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 3, Section 10 “Implicit Cost-Related Considerations”

Part D

LOS: *discuss approaches for constructing actively managed equity portfolios*

A top-down, systematic approach emphasizes macro factors and factor timing and typically results in a diversified portfolio. A bottom-up, discretionary approach emphasizes firm-specific characteristics and may incorporate factor timing. The resulting portfolio may be concentrated or diversified depending on the manager’s style and strategy.

Reference: “Active Equity Investing: Portfolio Construction,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 3, Section 3 “Portfolio Construction Approaches”

QUESTION SET 8: PERFORMANCE MEASUREMENT

1. **B**

LOS: *analyze and interpret a sample performance-based fee schedule*

Fund Name	Base Fee	Sharing Fee	Maximum Annual Fee	Previous Year Gross Active Return	Gross Active Return less Base Fee	Sharing Fee	Base Plus Sharing Fee
Alpha	1.50%	25%	5.50%	22%	20.50%	5.13%	6.63%
Sigma	1.30%	20%	4.00%	14%	12.70%	2.54%	3.84%
Lambda	1.75%	15%	3.75%	17%	15.25%	2.29%	4.04%

The investment management fee for Lambda Digital Fund in the previous year is a combination of the base fee and the sharing (performance) fee above the base fee.

$$= 1.75\% + [15\% \times (17\% - 1.75\%)] = 4.04\% \text{ (rounded)}$$

However, the calculated investment management fee of 4.04% is greater than the maximum annual fee of 3.75%. Therefore, the management fee will be equal to the maximum annual fee of 3.75%.

Reference: “Investment Manager Selection,” 2025, L3, Core, Performance Measurement, Volume 3, Learning Module 2, Section 9
“Management Fees”

2. **A**

LOS: *analyze and interpret a sample performance-based fee schedule*

The Alpha Digital Fund fee arrangement allows for a sharing fee of 25% and a maximum annual fee of 5.50%, both of which are the highest among the three funds. Therefore, Alpha Digital Fund has the greatest incentive to assume excess risk to earn greater management fees.

Reference: “Investment Manager Selection,” 2025, L3, Core, Performance Measurement, Volume 3, Learning Module 2, Section 9
“Management Fees”

3. **B**

LOS: *analyze and interpret a sample performance-based fee schedule*

Gross active return in the current year = 12.65%

Gross active return – Base fee = 12.65% – 1.00% = 11.65%

Additional fee due to sharing fee = $11.65\% \times 20\% = 2.33\%$

Billed fee = Base fee + Additional sharing fee = $1.00\% + 2.33\% = 3.33\%$

Reference: “Investment Manager Selection,” 2025, L3, Core, Performance Measurement, Volume 3, Learning Module 2, Section 9
“Management Fees”

4. **B**

LOS: *describe the three basic forms of performance-based fees*

Statement 1 is correct. A high-water mark will protect clients from paying a sharing fee on current outperformance without first being compensated for prior underperformance. For example, if a fund has negative returns in Year 1, clients will not pay a performance-based fee until the Year 1 losses are recouped.

Statement 2 is incorrect. A manager is fully exposed to both the downside and the upside in a symmetrical performance-based fee structure, which is not beneficial to the manager. A manager with a symmetrical performance-based fee structure may also face bankruptcy risk when the market experiences a significant downturn.

Reference: “Investment Manager Selection,” 2025, L3, Core, Performance Measurement, Volume 3, Learning Module 2, Section 9
“Management Fees”

QUESTION SET 9: ASSET ALLOCATION

Part A

LOS: *discuss approaches to setting expectations for fixed-income returns*

The term premium in Country A will most likely increase, for the following reasons:

- Level-dependent inflation uncertainty: Inflation is arguably the main driver of long-run variation in both nominal yields and the term premium. Higher levels of inflation (as in Country A) tend to coincide with greater inflation uncertainty. Hence, nominal yields rise with inflation because of changes in both expected inflation and the inflation risk component of the term premium.
- Ability to hedge recession risk: When growth and inflation are driven primarily by aggregate supply (as in Country A), nominal bond returns tend to be positively correlated with growth, necessitating a higher term premium.

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 3 “Forecasting Fixed Income Returns”

Part B

LOS: *discuss risks faced by investors in emerging market fixed-income securities and the country risk analysis techniques used to evaluate emerging market economies*

Debt-to-GDP ratio = $(\$8,000,000,000 + \$134,000,000,000) / \$175,000,000,000 = 81.1\%$. A debt-to-GDP ratio exceeding 70%–80%, perhaps of only mild concern for a developed market, is a sign of vulnerability for an emerging market.

Foreign exchange reserves / short-term debt = $\$7,250,000,000 / \$8,000,000,000 = 90.6\%$. Foreign exchange reserves less than 100% of short-term debt is risky.

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 4 “Risks in Emerging Market Bonds”

Part C

LOS: *discuss risks faced by investors in emerging market equity securities*

Possible reasons for Ferrera’s reluctance to invest in Country C’s equity market include:

- Country C’s accounting standards do not follow IFRS and are generally considered to be less reliable. Weak accounting standards may allow management and other insiders to hide or misstate important information. Weak disclosure rules may also impede transparency and favor insiders.

- The corporate governance regulatory standards in Country C are known to be weak. Weak corporate governance may allow interested parties to manipulate the capital structure of companies and to misuse business assets.

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 5 “Forecasting Equity Returns”

Part D

LOS: *recommend and justify changes in the component weights of a global investment portfolio based on trends and expected changes in macroeconomic factors*

The equity allocation of the Country D portfolio should be increased.

Regarding trend growth, all else the same, an increase in trend growth (as in Country D) favors equities because it implies more rapid long-run earnings growth. Faster growth due to productivity is especially beneficial. In contrast, higher trend growth generally results in somewhat higher real interest rates, a negative for currently outstanding bonds.

Regarding the phase of the business cycle, the best time to buy equities is generally when the economy is approaching the trough of the business cycle (as in Country D). Valuation multiples and expected earnings growth rates are low and set to rise. At this stage of the cycle, the term premium is high (the yield curve is steep) and the credit premium is high (credit spreads are wide). However, short-term interest rates are likely to start rising soon, and the yield curve can be expected to flatten again as the economy gains strength.

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 9 “Adjusting a Global Portfolio”

QUESTION SET 10: PORTFOLIO MANAGEMENT

1. **C**

LOS: *compare the full replication, stratified sampling, and optimization approaches for the construction of index-based equity portfolios*

C is correct because a stratified sampling approach combined with optimization could be used to limit the number of smaller holdings and is a plausible implementation to produce low tracking error with a somewhat reduced number of holdings.

A is incorrect because the number of holdings in both funds is about half the number of index constituents. Therefore, these funds do not attempt to fully replicate the index.

B is incorrect because a derivatives-based approach would be unlikely to hold as many as 98 or 99 issues and there is no indication that appropriate derivatives products exist to provide low-tracking-error performance relative to this low-volatility equity strategy.

Reference: “**Index-Based Equity Strategies,**” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 1, Section 5 “Portfolio Construction”

2. **C**

LOS: *discuss potential causes of tracking error and methods to control tracking error for index-based equity portfolios*

C is correct because index constituent prices and returns are based on the closing prices of the primary markets, with major European exchanges closing at 4:30 p.m. London time (11:30 a.m. New York time). Both daily index returns and mutual fund prices and returns are determined using equity prices and foreign exchange rates published at this time. For the ETF, which trades in the US like a stock, the daily price is the last trade price at the US market close. Although the ETF holdings’ local currency prices remain unchanged after European markets close, changes in foreign exchange rates (e.g., EUR/USD and GBP/USD) and market sentiment in US afternoon trading are reflected in the ETF’s trading price during the remainder of the day. This may lead to increased tracking error for the LVEU ETF compared to the LVEUX mutual fund, which does not experience similar effects.

A is incorrect because management fees have a minimal impact on the LVEU ETF compared to the LVEUX mutual fund, as the annual fees differ by only a couple basis points.

B is incorrect because mutual fund performance is reported using the same asset closing prices as the index provider, so any tracking error would be due to differences in portfolio composition rather than pricing. ETFs are traded intraday like stocks, but daily returns are based on market close prices which do not account for bid–ask spreads. Although ETF authorized participants may incur bid–ask spreads when creating or redeeming units, these transactions are in kind and do not incur spread costs for the fund itself.

Reference: “Index-Based Equity Strategies,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 1, Section 6 “Tracking Error Management”

3.

B

LOS: *compare different approaches to index-based equity strategies*

B is correct because a fund investor’s realized returns include the effect of both direct and indirect trading costs. The direct cost to purchase shares of each fund (commissions for LVEU, the load for LVEUX) are both about 0.25%. However, investor trades in ETF shares are also subject to indirect market bid–ask spread costs in the same manner as ordinary equity trades. In contrast, mutual fund shares are traded directly with the fund management company at the daily fund price with no market spread effect. In addition, fund manager trades for the mutual fund portfolio can be accomplished at the same net market closing prices used in determining benchmark index returns due to the zero-commission trading arrangements offered by the European brokers.

A is incorrect because the effect of management fees cannot be worse for LVEU than for LVEUX since the fees are slightly smaller, 0.22% vs. 0.24%.

C is incorrect because, although differences in pricing practices contribute to tracking error, they would be expected to have a random effect on an investor’s realized returns, i.e., no consistently negative (or positive) effect.

Reference: “Index-Based Equity Strategies,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 1, Section 3 “Pooled Investments”

4.

A

LOS: *explain sources of return and risk to an index-based equity portfolio*

Securities lending generates revenue for the lending fund, and both funds participate in the CMR securities lending program. All securities lending activity will contribute positively to fund performance and have no negative impact on returns. Although the amount of securities lending revenue to each fund may be unpredictable, the direction of its impact is not.

Reference: “**Index-Based Equity Strategies**,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 1, Section 7
“Sources of Return and Risk in Index-Based Equity Strategies”

QUESTION SET 11: DERIVATIVES AND RISK MANAGEMENT

Part A

LOS: *discuss the investment objective(s), structure, payoffs, risk(s), value at expiration, profit, maximum profit, maximum loss, and breakeven underlying price at expiration of the following option strategies: bull spread, bear spread, straddle, and collar*

A short seagull spread consists of three individual options and combines a bear put spread and a covered call, as follows:

Short seagull spread = Long an ATM put + Short an OTM put + Short an OTM call

The premium paid for the ATM put option (i.e., \$60 strike) is \$3.11.

The premium received for the OTM put option (i.e., \$55 strike) is \$0.71.

The premium received for the OTM call option (i.e., \$65 strike) is \$0.84.

Cost of short seagull spread (per share) = $\$3.11 - \$0.71 - \$0.84 = \1.56

Total cost of implementing the short seagull spread to protect WBIT position:

= Total number of WBIT shares \times Cost of short seagull spread (per share)

= $1,000,000 \times \$1.56 = \$1,560,000 = \$1.56 \text{ million}$

Reference: “Options Strategies,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 1, Section 7 “Spreads and Combinations”

“Currency Management: An Introduction,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 3, Section 10 “Currency Management Strategies”

Part B

LOS: *discuss the investment objective(s), structure, payoffs, risk(s), value at expiration, profit, maximum profit, maximum loss, and breakeven underlying price at expiration of the following option strategies: bull spread, bear spread, straddle, and collar*

Strategy 1 is the most profitable. The calculations are as follows:

Strategy 1

Collar = Buy an ATM \$60 strike put and sell an OTM \$65 strike call

Total premium = $\$3.11 - \$0.84 = \$2.27$

At expiration, the price of WBIT is \$47.50. The \$60 put option is in the money (ITM) and the \$65 call option expires worthless. The total profit on the collar is:

Profit on the put option – Total premium =

$$(\$60 - \$47.50) - \$2.27 = \$12.50 - \$2.27 = \$10.23$$

Strategy 2

Bull call spread = Buy an ITM \$55 strike call and sell an OTM \$65 strike call

At expiration, the price of WBIT is \$47.50 so both call options expire worthless. Hence, this bull call spread does not yield any profit.

$$\text{Loss} = -\text{Total premium} = -(\$9.23 - \$0.84) = -\$8.39$$

Strategy 3

Bear put spread = Buy an ITM \$65 strike put and sell an OTM \$55 strike put

$$\text{Total premium} = \$8.21 - \$0.71 = \$7.50$$

At expiration, the price of WBIT is \$47.50 so both put options are ITM. The total profit on the bear put spread is:

Profit on \$65 strike put – Loss on \$55 strike put – Total premium =

$$(\$65 - \$47.50) - (\$55 - \$47.50) - \$7.50 = \$17.50 - \$7.50 - \$7.50 = \$2.50$$

Reference: “Options Strategies,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 1, Section 7 “Spreads and Combinations” and Section 8 “Straddle”

Part C

LOS: *discuss the investment objective(s), structure, payoffs, risk(s), value at expiration, profit, maximum profit, maximum loss, and breakeven underlying price at expiration of the following option strategies: bull spread, bear spread, straddle, and collar*

Long straddle = Buy an ATM call + Buy an ATM put

The maximum loss in a long straddle is the total premium paid:

Premium on \$3,700 strike call + Premium on \$3,700 strike put =

$$\$43.26 + \$35.78 = \$79.04$$

There are two breakeven prices for a straddle, one on the downside and one on the upside. The downside breakeven price is:

$$\text{Strike price} - \text{Total premium paid} = \$3,700 - \$79.04 = \$3,620.96$$

The upside breakeven price is:

$$\text{Strike price} + \text{Total premium paid} = \$3,700 + \$79.04 = \$3,779.04$$

Reference: “Options Strategies,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 1, Section 8 “Straddle”

Guideline Answers

Level III 2025 Portfolio Management Mock Exam 2 – Session 2

QUESTION SET 1: ETHICAL AND PROFESSIONAL STANDARDS

1. **C**

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

LaPoint could only have violated Standard II(A) Material Nonpublic Information if she revealed the information about the layoffs before it became public. As it was already on the national news channels roughly two hours prior to the opening of the market, she has not revealed nonpublic information to Saltzman. Similarly, she has not revealed confidential information in breach of her duty of loyalty to her employer (Standard IV(A) Loyalty).

In different circumstances, had the information proved less newsworthy (i.e., if it wasn't big enough news to immediately become a national story), she may well have violated Standard II(A) Material Nonpublic Information for not allowing sufficient time for the information to spread through the investment community.

Reference: “**Guidance for Standards I–VII,**” 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 16 “Standard II(A) Material Nonpublic Information”

2. **A**

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

LaPoint's handling of her social media accounts complied with the Standards, and her maintenance of separate personal and professional accounts is exemplary.

It would be unreasonable to assume that the less active members of her professional networks would be aware of her change in status in such a short timeframe. Not immediately deleting her professional account, by itself, does not automatically form the basis of a solicitation violation.

The automatic update only conveys information that her former clients would have already received directly from TCP itself or via news reports.

Reference: “**Guidance for Standards I–VII,**” 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 36 “Standard IV(A) Loyalty”

3.

A

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

While LaPoint's actions were not intentional, she has violated Standard IV(A) Loyalty by keeping proprietary company data without the knowledge or permission of her former employer.

Keeping the drive but not restoring her former employer's data would turn an inadvertent violation into a conscious one.

LaPoint has a duty to return company data to her former employer. She can request permission to keep the drive but she cannot on her own decide to keep the drive.

Reference: "Guidance for Standards I–VII," 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 36 "Standard IV(A) Loyalty"

4.

B

LOS: *demonstrate a thorough knowledge of the CFA Institute Code of Ethics and Standards of Professional Conduct by interpreting the Code and Standards in various situations involving issues of professional integrity*

TCP does have a minor retail presence, and this would put LaPoint in direct violation of her contractual obligations to TCP and Standard IV(A) Loyalty.

Although LaPoint's experience is in commercial real estate and the temporary offer deals with the residential market, a conflict with her obligations to TCP is still possible.

The assurances given to LaPoint are inherently unreliable. When LaPoint is assigned as a broker representing the buyer or seller in any particular real estate deal, it would be impossible for her to avoid being confronted at some point with a counterparty represented by a TCP real estate broker. Simply operating in the same market creates a conflict with her obligations to TCP and Standard IV(A) Loyalty.

Reference: "Guidance for Standards I–VII," 2025, L3, Core, Ethical and Professional Standards, Volume 5, Learning Module 2, Section 36 "Standard IV(A) Loyalty"

QUESTION SET 2: PORTFOLIO CONSTRUCTION

Part A

LOS: *explain the roles that alternative investments play in multi-asset portfolios*

Alternative investments can play the following functional roles in a portfolio:

Capital growth: This role may be a top priority for portfolios with a long-term time horizon and relatively high return target. Usually, public and private equity investments would be the most obvious choices for this role.

Income generation: Certain asset classes, like fixed income or real estate, can generate reasonably steady cash flow streams for investors.

Risk diversification: In the case of an equity-oriented portfolio, investors may seek assets that diversify the dominant equity risk. Real assets and several hedge fund strategies may fit here. Similarly, fixed income investors may be interested in diversifying pure yield curve risk via private credit.

Safety: Certain asset classes may play the role of safe haven when risky asset classes suffer. Government bonds or gold may potentially play such roles in a well-diversified portfolio with their low or negative correlation with other asset classes.

Reference: “**Asset Allocation to Alternative Investments**,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 3, Section 1 “Introduction”

Part B

LOS: *compare alternative investments and bonds as risk mitigators in relation to a long equity position*

Statement 1 is too broad and general. It does not address some of the significant challenges associated with alternative investments. Ford should make the following points to the CIO:

- Unlike publicly traded securities, alternative investment asset classes do not trade every day. Rather, they are usually valued/appraised with a lag and are therefore subject to smoothing of their returns. The smoothing of returns causes the correlations of alternative investments with publicly traded securities to appear lower than they actually are, especially during times of high market volatility. Unsmoothing alternative investment returns becomes necessary for properly estimating risk and expected return.
- Advocates of alternative investments as risk reducers sometimes argue that alternative investments’ volatilities based on reported returns are significantly lower than the volatility of public equities. An immediate technical challenge is that

reported returns of many alternative asset classes need an adjustment referred to as unsmoothing for proper risk estimation. Various approaches have been developed to unsmooth a return series that demonstrates serial correlation. Specifically, in the case of private investments, reported returns are calculated from appraisal-based valuations that may result in volatility and correlation estimates that are too low. The underlying assumptions in most appraisal models tend to lead to gradual and incremental changes in appraised value that may not accurately capture the asset's true price realized in an actual transaction. The low volatility of the return stream may also dampen the reported correlation between the appraisal-based asset and the more volatile market-based asset.

Reference: “**Asset Allocation to Alternative Investments**,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 3, Section 2
“Diversifying Equity Risk”

Part C

LOS: *compare traditional and risk-based approaches to defining the investment opportunity set, including alternative investments*

The CIO is asking Ford to take a traditional approach based on expected performance under distinct macroeconomic regimes. Specifically, investors may categorize asset classes based on how they are expected to behave under different macroeconomic environments, and investors may assign roles to them in a broad macroeconomic context.

Given the expected high inflation in the economic forecast, Ford should choose an inflation-hedging asset or “real assets” such as real estate, commodities, natural resources, and inflation-linked bonds. These would be expected to outperform other asset classes when inflation expectations rise or actual inflation exceeds expectations.

Reference: “**Asset Allocation to Alternative Investments**,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 3, Section 3
“Traditional Approaches to Asset Classification”

Part D

LOS: *compare traditional and risk-based approaches to defining the investment opportunity set, including alternative investments*

The key justifications of using a risk-based approach are:

- Common risk factor identification. Investors are able to identify common risk factors across all investments, whether public or private, passive or active.
- Integrated risk framework. Investors are able to build an integrated risk management framework, leading to more reliable portfolio-level risk quantification.

The following factors can be used in a risk-based approach:

Equity market return: representative of the general direction of global equity markets, and investors may also refer to this as the best market proxy for “growth”

Size: excess return of small-cap equities over large-cap equities

Value: excess return of value versus growth stocks (negative factor sensitivity = growth bias)

Liquidity: the Pastor–Stambaugh liquidity factor, which is a market-wide liquidity measure based on the excess returns of stocks with large sensitivity to changes in aggregate liquidity (less-liquid stocks) versus stocks with less sensitivity to changing liquidity (more-liquid stocks)

Duration: sensitivity to 10-year government yield changes

Inflation: sensitivity to 10-year breakeven inflation changes obtained from the inflation-linked bond markets

Credit spread: sensitivity to changes in high-yield spread

Currency: sensitivity to changes in the domestic currency versus a basket of foreign currencies

This framework can easily be extended further to other risk factors, like momentum or volatility.

Reference: “**Asset Allocation to Alternative Investments**,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 3, Section 4 “Risk-Based Approaches to Asset Classification”

QUESTION SET 3: ASSET ALLOCATION

1.

B

LOS: *formulate an economic balance sheet for a client and interpret its implications for asset allocation*

B is correct because an economic balance sheet includes conventional financial assets and liabilities, as well as extended portfolio assets and liabilities that are relevant in making asset allocation decisions. The economic balance sheet for Nichols is as follows:

Assets		Liabilities and Economic Net Worth	
Equities	\$1,350,000	Mortgage debt	\$130,000
Bonds	\$625,000	Present value of future consumption	\$1,900,000
Residence	\$750,000	---	---
PV of Nichols's pre-retirement earnings (human capital)	\$320,000	---	---
<i>Total economic assets</i>	\$3,045,000	<i>Total economic liabilities</i>	\$2,030,000
		<i>Economic net worth</i>	\$1,015,000

Total economic assets = \$1,350,000 + \$625,000 + \$750,000 + \$320,000 = \$3,045,000

Total economic liabilities = \$130,000 + \$1,900,000 = \$2,030,000

Economic net worth = Total economic assets – Total economic liabilities

= \$3,045,000 – \$2,030,000 = \$1,015,000

Reference: “Overview of Asset Allocation,” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 3, Section 3 “The Economic Balance Sheet and Asset Allocation”

2.

B

LOS: *compare the investment objectives of asset-only, liability-relative, and goals-based asset allocation approaches*

B is correct because Nichols has informed Sanchez that her objectives in retirement are to maintain her current lifestyle and be able to fund each of her various interests and hobbies, and that she would like her overall asset allocation to reflect her required probability of achieving each individual objective. The goals-based approach to asset allocation is used primarily for individuals and families and involves specifying asset allocations for sub-portfolios, each of

which is aligned to specified goals ranging from supporting lifestyle needs to satisfying aspirations.

Each goal is associated with regular, irregular, or bulleted cash flows; a distinct time horizon; and a risk tolerance level expressed as a required probability of achieving the goal. Each goal is assigned to its own sub-portfolio, and an asset allocation strategy specific to that sub-portfolio is derived. The sum of all sub-portfolio asset allocations results in an overall strategic asset allocation for the total portfolio.

A is incorrect because an asset-only approach does not explicitly model liabilities or goals. Rather, it aims to maximize the Sharpe ratio for an acceptable level of volatility.

C is incorrect because a liability-relative approach models legal and quasi-liabilities and is more commonly used with institutional rather than individual investors. It aims to fund liabilities and invest excess assets for growth.

Reference: “Overview of Asset Allocation,” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 3, Section 4 “Approaches to Asset Allocation”

3.

B

LOS: *recommend and justify an asset allocation using mean–variance optimization*

B is correct because Allocation B generates the highest expected utility given Baker’s risk aversion level. The risk aversion coefficient (λ) for Baker is 8. The objective MVO utility function is as follows:

$$U_m = E(R_m) - 0.005\lambda\sigma_m^2$$

where:

U_m = the investor’s expected utility for asset allocation m

R_m = the return for asset allocation m

λ = the investor’s risk aversion coefficient

σ_m^2 = the expected variance of return for asset allocation m

Baker’s expected utility for Allocation A:

$$U_m = 10.0\% - 0.005 \times 8 \times (10.5\%)^2 = 5.59\%$$

Baker’s expected utility for Allocation B:

$$U_m = 9.0\% - 0.005 \times 8 \times (9.0\%)^2 = 5.76\%$$

Baker’s expected utility for Allocation C:

$$U_m = 6.0\% - 0.005 \times 8 \times (5.0\%)^2 = 5.00\%$$

Therefore, the most appropriate strategic asset allocation for Baker is Allocation B, as it generates the highest expected utility given her risk aversion level.

Reference: “**Principles of Asset Allocation**,” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 4, Section 2 “Asset-Only Asset Allocations and Mean–Variance Optimization”

4.

B

LOS: *discuss the use of short-term shifts in asset allocation*

B is correct because Sanchez plans to qualitatively interpret the uncertainty surrounding an upcoming election and its anticipated impact on economic and financial market conditions to make short-term adjustments in asset allocation, which describes discretionary tactical asset allocation (TAA).

Discretionary TAA relies on a qualitative interpretation of political, economic, and financial market conditions. It is predicated on the existence of manager skill in predicting and timing short-term market moves away from the expected outcome for each asset class that is embedded in the strategic asset allocation (SAA) policy portfolio. In practice, discretionary TAA is typically used in an attempt to mitigate or hedge risk in distressed markets while enhancing return in positive return markets (i.e., an asymmetric return distribution).

A is incorrect because systematic TAA relies on quantitative signals to capture return anomalies that have been shown to have some predictability and persistence and thus may be inconsistent with market efficiency.

C is incorrect because trend following is an investment or trading strategy based on the expectation that asset class returns will continue in the same upward or downward trend that they have most recently exhibited. Trend signals are widely used in systematic TAA.

Reference: “**Asset Allocation with Real-World Constraints**,” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 5, Section 9 “Short-Term Shifts in Asset Allocation”

QUESTION SET 4: PORTFOLIO MANAGEMENT

Part A

LOS: *analyze bottom-up strategies, including their rationale and associated processes*

The forward P/Es and P/E-to-growth (PEG) ratios of the companies and their sector P/Es are:

	P/E	PEG	Sector P/E
Company 1	$\$48/\$4 = 12$	$12/3 = 4.0$	12
Company 2	$\$28/\$2 = 14$	$14/5 = 2.8$	35
Company 3	$\$30/\$10 = 3$	$3/-2 = \text{negative}$	15
Company 4	$\$36/\$4 = 9$	$9/10 = 0.9$	10

Company 2 has a forward P/E of 14, which is considerably lower than its sector average. This makes Company 2 the most appropriate candidate for a relative value strategy. Companies 1 and 4 have forward P/Es which are close to their sector averages, while Company 3 has a negative three-year EPS growth forecast.

Reference: “Active Equity Investing: Strategies,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 2, Section 3 “Bottom-Up Strategies”

Part B

LOS: *analyze bottom-up strategies, including their rationale and associated processes*

Company 1 has the greatest dividend yield of the four companies, and its forward P/E being consistent with its sector P/E suggests that it is not undervalued or overvalued relative to its sector. This makes Company 1 the most appropriate candidate for an income strategy.

Reference: “Active Equity Investing: Strategies,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 2, Section 3 “Bottom-Up Strategies”

Part C

LOS: *analyze bottom-up strategies, including their rationale and associated processes*

Company 3 has a forward P/E of only 3, which is low in absolute terms and far below its sector average. This makes Company 3 the most appropriate candidate for a deep value strategy, as long as unique company factors do not remove it from consideration. This company’s situation and outlook should be closely researched and monitored.

Reference: “Active Equity Investing: Strategies,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 2, Section 3 “Bottom-Up Strategies”

Part D

LOS: *analyze bottom-up strategies, including their rationale and associated processes*

Company 4 has the lowest P/E-to-growth (PEG) ratio of the four companies, excluding Company 3 with its negative growth outlook, indicating a favorable valuation relative to expected growth. This makes Company 4 the most appropriate candidate for a GARP strategy.

Reference: “**Active Equity Investing: Strategies**,” 2025, L3, Portfolio Management Pathway, Volume 1, Learning Module 2, Section 3 “Bottom-Up Strategies”

QUESTION SET 5: DERIVATIVES AND RISK MANAGEMENT

1. **A**

LOS: *demonstrate the use of derivatives in asset allocation, rebalancing, and inferring market expectations*

Acme Generators' original allocation and target allocation details are presented below.

	Original Allocation	Original Portfolio	Target Allocation	Target Portfolio	Difference
Equity portfolio	65%	\$130,000,000	50%	\$100,000,000	(\$30,000,000)
Bond portfolio	35%	\$70,000,000	50%	\$100,000,000	\$30,000,000

To synthetically rebalance \$30 million into the bond portfolio with a modified duration of 5.85 using bond index futures contracts, Acme Generators will need to buy:

$$\text{BPVHR} = \{(\text{BPV}_T - \text{BPV}_P) / \text{BPV}_{\text{CTD}}\} \times \text{Conversion Factor}$$

where:

BPVHR = hedge ratio

BPV_T = target basis point value = 5.85

BPV_P = cash basis point value = 0

BPV_{CTD} = cheapest-to-deliver bond's basis point value = \$99.72

$$\text{BPV}_T = \text{MDUR}_T \times 0.01\% \times \text{MV}_P$$

$$= 5.85 \times 0.0001 \times \$30,000,000 = \$17,550$$

$$\text{BPVHR} = \{(\text{BPV}_T - \text{BPV}_P) / \text{BPV}_{\text{CTD}}\} \times \text{Conversion Factor}$$

$$= \{(\$17,550 - 0) / \$99.72\} \times 0.9546$$

$$= 168 \text{ contracts}$$

Acme Generators should buy 168 bond index futures contracts to achieve the desired allocation.

Reference: "Swaps, Forwards, and Futures Strategies," 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 2, Section 8 "Using Derivatives in Asset Allocation"

2.

B

LOS: *demonstrate the use of derivatives in asset allocation, rebalancing, and inferring market expectations*

Acme Generators' original allocation and target allocation details are presented below.

	Original Allocation	Original Portfolio	Target Allocation	Target Portfolio	Difference
Equity portfolio	65%	\$130,000,000	50%	\$100,000,000	(\$30,000,000)
Bond portfolio	35%	\$70,000,000	50%	\$100,000,000	\$30,000,000

To synthetically rebalance \$30 million out of the equity portfolio with a beta of 1.21 using equity index futures contracts, Acme Generators will need to sell:

$$N_f = \{(\beta_T - \beta_S) / \beta_f\} \times \{S / F\}$$

where:

N_f = number of equity index futures contracts

β_T = target beta (0)

β_S = stock beta (1.20)

β_f = futures beta (1.0)

S = market value of equity position (\$30,000,000)

F = value of futures contract = $f_s \times m$

f_s = equity index futures contract price (12,500)

m = multiplier (\$10)

$$N_f = \{(0 - 1.20) / 1.0\} \times \{\$30,000,000 / (12,500 \times \$10)\} = 288 \text{ contracts}$$

Acme Generators should sell 288 equity index futures contracts to achieve the desired allocation.

Reference: “Swaps, Forwards, and Futures Strategies,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 2, Section 8 “Using Derivatives in Asset Allocation”

3.

B

LOS: *demonstrate how equity swaps, forwards, and futures can be used to modify a portfolio's risk and return*

On the first settlement date, Beryl Hedge Fund will:

1. receive the agreed-upon floating interest rate; and
2. pay any gains on the QQQ position or receive any negative returns on the QQQ position.

Notional amount of the swap = 40% of \$500 million = \$200 million

The floating interest rate that Beryl Hedge Fund will receive is $4.50\% - 0.50\% = 4.00\%$. The payment received by Beryl Hedge Fund on the floating leg is:

$$= \$200 \text{ million} \times 4.00\% \times 180 / 360 = \$4,000,000$$

The portfolio value at the first settlement date is \$480 million, which means the six-month equity return was:

$$= (480 - 500) / 500 = -4\%$$

The portfolio value decreased by 4% by the first settlement date, so Beryl Hedge Fund will receive 4% of the equity swap's notional value:

$$= \$200 \text{ million} \times 4\% = \$8 \text{ million} = \$8,000,000$$

The net amount received by Beryl Hedge Fund at the first settlement date is:

$$= \$4,000,000 + \$8,000,000 = \$12,000,000$$

Reference: “Swaps, Forwards, and Futures Strategies,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 2, Section 4 “Managing Equity Risk”

4.

B

LOS: *demonstrate how interest rate swaps, forwards, and futures can be used to modify a portfolio's risk and return*

Gem Insurance will try to maximize the difference between the amount received from settling the futures contract and the cost of acquiring the cheapest-to-deliver bond for delivery under the contract.

The cost of acquiring the bond consists of the market price and the accrued interest, which are both reflected in the dirty price. Hence the cost of acquiring the bond is:

$$\text{Bond purchase value} = (\text{Dirty price} / 100) \times \text{Contract size}$$

The principal invoice amount received to deliver each bond is calculated as:

$$= (\text{Futures settlement price} / 100) \times \text{Conversion factor} \times \text{Contract size}$$

	Bond A	Bond B	Bond C
Cash dirty price	131.25	134.50	138.75
Bond purchase value	131,250	134,500	138,750
Futures settlement price	135.74	135.74	135.74
Conversion factor	0.8925	0.9375	0.9525
Contract size	100,000	100,000	100,000
Amount received in futures contract	121,147.95	127,256.25	129,292.35
Amount received less bond purchase value	(10,102.05)	(7,243.75)	(9,457.65)

Based on the calculations in the table, the cheapest-to-deliver bond is Bond B, since the loss on delivering Bond B is less than the loss incurred with Bond A or Bond C.

Reference: “Swaps, Forwards, and Futures Strategies,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 2, Section 2 “Managing Interest Rate Risk with Forwards and Futures”

QUESTION SET 6: PERFORMANCE MEASUREMENT

Part A

LOS: *explain requirements of the GIPS® standards with respect to presentation and reporting*

Deficiency	Justification
The definition of the firm is missing	The footnote discloses only that Sonesta Advisers is a subsidiary of Sonesta LLC and is related to the point below regarding the composite asset values.
Composite asset values are missing	The presentation is missing the amount of assets in this composite. The report should include the amount of assets in the composite and either the percentage of the total firm assets represented by the composite or the amount of total firm assets at the end of each period.
Only nine years of performance data are shown	Exhibit 1 presents only nine years of performance data. GIPS standards require that at least five years of GIPS-compliant performance be shown (less if the firm or the composite has been in existence for a shorter period) and that subsequent years be added to the GIPS performance record until ten years of results have been presented. Therefore, the firm needs to add one more year to be in compliance.
Management fee is not properly disclosed	Sonesta did not disclose the fee schedule that it is charging to its clients.
Internal dispersion is missing for 2017, 2018, and 2019	The internal dispersion for the years ended 31 December 2017, 2018, and 2019 are missing. If the composite contains five or fewer accounts (portfolios) for the full year, a measure of dispersion is not required. Therefore, the presentation for 2015 and 2016 is appropriate; however, it is not for 2017, 2018, and 2019.
Complete list of composites disclosure is missing	A disclosure stating that “a complete list and description of Sonesta’s composites is available upon request” is missing.
Definition of the composite is missing	The composite description is missing. Firms must disclose the composite description.
The benchmark may be misspecified	While the composite is a fixed income fund, there are no indications in the footnotes that it is invested solely in sustainable investments.
Disclosure on how investments are valued is missing	The required disclosure (for example, “Policies for valuing investments and calculating performance”) is missing.

Note that the answers provided above may not be a complete list of the non-GIPS-compliant statements or disclosures in the report.

Reference: “Overview of the Global Investment Performance Standards,” 2025, L3, Core, Performance Measurement, Volume 3, Learning Module 3, Section 8 “Presentation and Reporting Requirements for Composites”

Part B

LOS: *discuss the purpose, scope, and process of verification*

Deficiency
Verification must be done firm-wide. The verification disclosure is only for the Fixed Income Fund.
The verification statement is limited to one specific period, 2023. Verification must be done for all periods shown in Exhibit 1, not just for one specific period.
A firm cannot claim that a single composite is “in compliance.”

Reference: “Overview of the Global Investment Performance Standards,” 2025, L3, Core, Performance Measurement, Volume 3, Learning Module 3, Section 9 “Verification”

QUESTION SET 7: PORTFOLIO MANAGEMENT

1. **B**

LOS: *discuss inputs to the selection of a trading strategy*

Statement 2 is correct. Alpha decay is erosion in short-term alpha that takes place after the investment decision is made. For higher rates of alpha decay, portfolio managers may be better off trading the order faster, which would increase the market impact cost.

Statement 1 is incorrect. A trader is exposed to *higher* execution risk when an order for a security with a wide bid–ask spread is executed over a longer time period.

Execution risk—the risk of adverse price movement during the trading horizon due to a change in the fundamental value of the security—arises as time passes and occurs even if the order is not traded. Trading faster (greater trade urgency) results in lower execution risk because the order is executed over a shorter period of time, which decreases the time the trade is exposed to price volatility and changing market conditions. Trading slower (lower trade urgency) results in higher execution risk because the order is executed over a longer period of time, which increases the time the trade is exposed to price volatility and changing market conditions.

Statement 3 is incorrect. Traders seeking to minimize information leakage will likely trade *less* on exchanges; instead, they often attempt to hide their trading activity and make greater use of dark pool venues with a mix of market and limit orders.

Reference: “Trade Strategy and Execution,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 7, Section 3 “Trading Strategies and Strategy Selection”

2. **A**

LOS: *explain how trade costs are measured and determine the cost of a trade*

Delay cost is the adverse price movement associated with not submitting the order to the market in a timely manner. Delay cost is calculated as:

$$\begin{aligned}\text{Delay cost} &= \text{Number of shares executed} \times (\text{Arrival price} - \text{Decision price}) \\ &= 46,000 \times (\$246.50 - \$245.10) = \$64,400\end{aligned}$$

Reference: “Trade Strategy and Execution,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 7, Section 8 “Trade Cost Measurement”

3. **C**
LOS: *evaluate the execution of a trade*

$$\begin{aligned}\text{Arrival cost} &= \text{Side} \times [(\text{Average price} - \text{Arrival price}) / \text{Arrival price}] \times 10,000 \text{ bps} \\ &= +1 \times [(\$249.75 - \$246.50) / \$246.50] \times 10,000 \text{ bps} \\ &= 131.85 \text{ bps} \approx 132 \text{ bps}\end{aligned}$$

Reference: “Trade Strategy and Execution,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 7, Section 8 “Trade Cost Measurement”

4. **C**
LOS: *explain how trade costs are measured and determine the cost of a trade*

$$\text{Implementation shortfall (IS)} = \text{Execution cost} + \text{Opportunity cost} + \text{Fees}$$

$$\text{Execution cost} = \sum s_j p_j - \sum s_j p_d$$

where:

s_j = number of shares executed in the j th trade

p_j = transaction price of the j th trade

p_d = decision price

$$= [(-11,500 \times \$121.80) + (-2,500 \times \$120.50) + (-3,000 \times \$120.20)] - (-17,000 \times \$122.60)$$

$$= (-\$1,400,700) + (-\$301,250) + (-\$360,600) + \$2,084,200$$

$$= \$21,650$$

$$\text{Opportunity cost} = (S - \sum s_j)(p_n - p_d)$$

where:

S = total shares in order

s_j = number of shares executed in the j th trade

p_n = current price

p_d = decision price

$$= [-20,000 - (-17,000)] \times (\$118.00 - \$122.60)$$

$$= \$13,800$$

$$\text{Fees} = \$0$$

$$IS = \$21,650 + \$13,800 + \$0 = \$35,450$$

Reference: “**Trade Strategy and Execution**,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 7, Section 8 “Trade Cost Measurement”

QUESTION SET 8: PORTFOLIO CONSTRUCTION

Part A

LOS: *discuss roles of fixed-income securities in portfolios and how fixed-income mandates may be classified*

Scotia Fund appears to be using a pure indexing approach. The fund's duration and government sector weight both closely match the benchmark and management fees are low. However, as often is the case with pure indexing, management fees have pushed the return below that of the benchmark.

Reference: “Overview of Fixed-Income Portfolio Management,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 2, Section 2 “Roles of Fixed-Income Securities in Portfolios”

Part B

LOS: *discuss the use of leverage, alternative methods for leveraging, and risks that leverage creates in fixed-income portfolios*

The leveraged return is computed as follows:

$$\text{Leveraged return} = \text{Portfolio return} / \text{Portfolio equity} = [r_I \times (V_E + V_B) - (V_B \times r_B)] / V_E$$

where:

r_I = return on invested funds

V_E = value of the portfolio's equity

V_B = borrowed funds

r_B = borrowing rate

$$\text{Leveraged return} = [0.0926 \times (\$95.85 + \$63.90) - (\$63.90 \times 0.0552)] / \$95.85 = 11.75\%$$

Reference: “Overview of Fixed-Income Portfolio Management,” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 2, Section 6 “Leverage”

Part C

LOS: *discuss roles of fixed-income securities in portfolios and how fixed-income mandates may be classified*

James should implement a contingent immunization strategy. This strategy can be used when the endowment's assets are higher than the present value of the future liabilities that need to be funded. As long as this surplus does not erode, the endowment may continue to use this strategy to both immunize its future liabilities and attempt to earn excess returns through active management of the surplus.

Reference: “**Overview of Fixed-Income Portfolio Management,**” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 2, Section 2 “Roles of Fixed-Income Securities in Portfolios”

Part D

LOS: *describe construction, benefits, limitations, and risk-return characteristics of a laddered bond portfolio*

Potential benefits of using ETFs to construct a laddered strategy for a portion of the CU endowment’s bond portfolio are as follows:

- Low cost to manage
- Liquidity
- Diversification of default risk
- Lower transaction costs

Reference: “**Overview of Fixed-Income Portfolio Management,**” 2025, L3, Core, Portfolio Construction, Volume 2, Learning Module 2, Section 10 “Laddered Portfolios”

QUESTION SET 9: PORTFOLIO MANAGEMENT

1. **B**
LOS: *formulate a portfolio positioning strategy given forward interest rates and an interest rate view that coincides with the market view*

Riding the yield curve is a trading strategy that involves buying a longer-term bond and selling it before it matures to profit from the declining yield that occurs over the life of a bond. The strategy hinges on a reasonably static and upward sloping yield curve.

The US market is more suited for this strategy because its yield curve is steeper.

Reference: “Yield Curve Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 5, Section 3 “Yield Curve Strategies”

2. **B**
LOS: *formulate a portfolio positioning strategy based upon expected changes in interest rate volatility*

Buying convexity means increasing portfolio convexity. The portfolio benefits from higher convexity when there are large changes in interest rates. The cost of higher convexity is lower yield.

Increasing convexity can be done by buying calls, puts, or puttable bonds, or by reducing exposure to MBS and callable bonds.

Reference: “Yield Curve Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 5, Section 3 “Yield Curve Strategies”

3. **B**
LOS: *discuss the advantages and disadvantages of credit spread measures for spread-based fixed-income portfolios, and explain why option-adjusted spread is considered the most appropriate measure*

The G-spread of the 7-year corporate bond is the difference between the bond YTM of 4.30% and a linear interpolation of the 5-year and 10-year government bond YTM of 2.65% and 3.70%, respectively.

Linearly interpolated 7-year YTM = $2.65\% + \frac{2}{5} \times (3.70\% - 2.65\%) = 3.07\%$

G-spread = $4.30\% - 3.07\% = 1.23\%$

Reference: “Fixed-Income Active Management: Credit Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 6, Section 2 “Key Credit and Spread Concepts for Active Management”

4. **A**

LOS: *discuss the advantages and disadvantages of credit spread measures for spread-based fixed-income portfolios, and explain why option-adjusted spread is considered the most appropriate measure*

The I-spread (interpolated spread) of the 7-year corporate bond is the difference between the bond YTM of 4.30% and a linear interpolation of the 5-year and 10-year swap rates.

5-year swap rate = 5-year government YTM + 5-year swap spread = 2.65% + 0.23% = 2.88%

10-year swap rate = 10-year government YTM + 10-year swap spread = 3.70% + 0.47% = 4.17%

Interpolated 7-year swap rate = 2.88% + $2/5 \times (4.17\% - 2.88\%)$ = 3.40%

I-spread = 4.30% – 3.40% = 0.90%

Reference: “Fixed-Income Active Management: Credit Strategies,” 2025, L3, Portfolio Management Pathway, Volume 2, Learning Module 6, Section 2 “Key Credit and Spread Concepts for Active Management”

QUESTION SET 10: DERIVATIVES AND RISK MANAGEMENT

Part A

LOS: *compare active currency trading strategies based on economic fundamentals, technical analysis, carry-trade, and volatility trading*

The carry trade is a strategy that involves borrowing in low-yield currencies and investing in high-yield currencies.

Borrow in USD at 2.211%

Invest in China at 5.667%

$$\text{Profit} = 5.667\% - 2.211\% = 3.456\%$$

The risks involved in a carry trade include:

- High-yielding currencies are typically from high-risk countries.
- In times of global financial crisis, there is a rapid movement from high-risk currencies to low-risk currencies, resulting in the unwinding of carry trades.
- Large-scale losses can be incurred quickly due to the large amount of leverage involved in a carry trade.

Reference: “**Currency Management: An Introduction**,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 3, Section 7
“Economic Fundamentals, Technical Analysis, and the Carry Trade”

Part B

LOS: *describe trading strategies used to reduce hedging costs and modify the risk–return characteristics of a foreign-currency portfolio*

A bull call spread involves buying an ITM call and writing a deeper OTM call to gain income from premium. Both options have the same maturity.

Premium paid to buy BRL/USD \$5.00 strike call = –\$1.95

Premium received to write BRL/USD \$6.00 strike call = \$1.50

$$\text{Net premium paid per bull call spread contract} = \$1.95 - \$1.50 = \$0.45$$

$$\begin{aligned} \text{Maximum gain} &= \text{Difference between call strike prices} - \text{Net premium paid} \\ &= (\$6.00 - \$5.00) - \$0.45 = \$0.55 \end{aligned}$$

$$\text{Breakeven price} = \text{Lower strike price} + \text{Net premium paid} = \$5.00 + \$0.45 = \$5.45$$

Reference: “**Currency Management: An Introduction**,” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 3, Section 10
“Currency Management Strategies”

Part C

LOS: *describe how forward contracts and FX (foreign exchange) swaps are used to adjust hedge ratios*

Statement 3 is correct. The base currency is the USD, so an investor would profit from a depreciation in the USD by purchasing a put option on the CNY/USD exchange rate.

Statement 1 is incorrect. Technical analysis is not driven by underlying economic factors, but instead takes historical price data into consideration to project future exchange rate movements.

Statement 2 is incorrect. Expansionary monetary policy in India should contribute to lower real interest rates, leading the INR to depreciate.

Reference: “**Currency Management: An Introduction,**” 2025, L3, Core, Derivatives and Risk Management, Volume 4, Learning Module 3, Section 9 “Forward Contracts, FX Swaps, and Currency Options”

QUESTION SET 11: ASSET ALLOCATION

1. **C**

LOS: *discuss approaches to setting expectations for equity investment market returns*

C is correct because the Grinold–Kroner model is a restatement of the Gordon growth model that takes explicit account of share repurchases and provides a means for analysts to incorporate expectations of valuation levels through the P/E ratio. The expected return under the Grinold–Kroner model can be divided into three components, as follows:

$$\begin{aligned}\text{Expected income return} &= \text{Dividend yield} - \text{Change in shares outstanding} \\ &= 2.50\% - (-0.50\%) = 3.00\%\end{aligned}$$

(Note that net share repurchases implies a decrease in shares outstanding.)

$$\begin{aligned}\text{Expected nominal earnings growth return} &= \text{Real earnings growth rate} + \text{Inflation} \\ &= 3.00\% + 2.50\% \\ &= 5.50\%\end{aligned}$$

$$\text{Expected repricing return} = \text{Rate of P/E ratio expansion} = 0.25\%$$

$$\text{Expected return for equities} = 3.00\% + 5.50\% + 0.25\% = 8.75\%$$

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 5 “Forecasting Equity Returns”

2. **C**

LOS: *explain how economic and competitive factors can affect expectations for real estate investment markets and sector returns*

C is correct because the expected return for real estate over a finite horizon can be calculated as:

$$\begin{aligned}E(R_e) &= \text{Current cap rate} + \text{Net operating income (NOI) growth rate} - \% \Delta \text{Cap rate} \\ &= 4.6\% + (2.0\% + 2.5\%) - [(4.5\% - 4.6\%) / 4.6\%] \\ &= 4.6\% + 4.5\% - (-2.2\%) \\ &= 11.3\%\end{aligned}$$

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 6 “Forecasting Real Estate Returns”

3.

C

LOS: *discuss major approaches to forecasting exchange rates*

C is correct because purchasing power parity (PPP) is a poor predictor of exchange rates over short to intermediate horizons but is a better guide to currency movements over progressively longer, multi-year horizons.

PPP is based on the notion that the prices of goods and services should change at the same rate regardless of currency denomination. Thus, the expected percentage change in the exchange rate should be equal to the difference in expected inflation rates.

The mechanism underlying PPP is a quasi-arbitrage. Free and competitive trade should force alignment of the prices of similar products after conversion to a common currency. This is a very powerful force. It works, but it is slow and incomplete.

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 7 “Forecasting Exchange Rates”

4.

B

LOS: *discuss methods of forecasting volatility*

Statement 2 is incorrect because the ARCH methodology can be extended to multiple assets, and thus can be used to estimate a variance–covariance (VCV) matrix.

Statement 1 and Statement 3 are correct because financial asset returns tend to exhibit volatility clustering, evidenced by periods of high and low volatility. A class of models known collectively as ARCH models can be used to address these time-varying volatilities. The key idea in the ARCH methodology is to model variance as a linear time-series process in which the current volatility depends on its own recent history or recent shocks. The shocks to volatility arise from unexpectedly large or small returns.

Reference: “**Capital Market Expectations, Part 2: Forecasting Asset Class Returns,**” 2025, L3, Core, Asset Allocation, Volume 1, Learning Module 2, Section 8 “Forecasting Volatility”