LEVEL III SESSION 1--GUIDELINE ANSWERS

QUESTION SET 1: PORTFOLIO MANAGEMENT – ASSET ALLOCATION

1. **A**

LOS: Volume 1, Learning Module 5, *Discuss tax considerations in asset allocation and rebalancing.*

For asset owners subject to taxation, assets qualifying for reduced tax rates and deferred capital gains taxation should be designated to their taxable accounts. In Schwartz's jurisdiction, assets producing interest income are typically less tax-efficient and are subjected to incrementally higher tax rates. The post-tax return volatility is diminished when equities are maintained in a taxable account. Consequently, for optimal tax efficiency, Schwartz's taxable account should prioritize domestic equities centered on dividends and long-term capital gains over high-yield bonds that generate interest income.

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 5, Section 7, Taxes and Portfolio Rebalancing, pp. 327-332, Example 5.

2. **C**

LOS: Volume 1, Learning Module 5, *Discuss the use of short-term shifts in asset allocation.*

Systematic tactical asset allocation (TAA) attempts to capture asset-class-level return anomalies that have been shown to have some predictability and persistence using rules-based, quantitative signals. Trend and value signals are widely used in systematic TAA.

Discretionary TAA is typically used to make qualitative forecasts that can include economic data points like credit spreads and inflation expectations. Discretionary TAA is typically used by investment managers to mitigate or hedge risk in distressed markets while enhancing return in positive return markets using qualitative interpretation of market conditions.

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 5, Section 9, Short-Term Shifts in Asset Allocation, pp. 340-342.

3. **A**

LOS: Volume 1, Learning Module 5, *Identify behavioral biases that arise in asset allocation and recommend methods to overcome them.*

Home bias is a preference for securities listed on the exchanges of one's home country over that for international securities. However, concentrating portfolio exposure in home country securities may result in a less diversified, less efficient portfolio.

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 5, Section 10, Dealing with Behavioral Biases in Asset Allocation, pp. 345-350.

4. **B**

LOS: Volume 1, Learning Module 5, *Discuss tax considerations in asset allocation and rebalancing.*

After-tax portfolio optimization requires adjusting each asset class's expected return and standard deviation of return for expected taxes. The correlation of returns is not affected by taxes and does not require an adjustment when performing after-tax portfolio optimization.

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 5, Section 6, Asset Allocation for the Taxable Investor and After-Tax Portfolio Optimization, pp. 323-326.

QUESTION SET 2: FIXED INCOME

Part A

LOS: Volume 2, Learning Module 4, Section 4, *Describe fixed-income portfolio measures of risk and return as well as correlation characteristics.*

A bond has greater convexity when its cash flows (coupons) are more widely dispersed around the duration point. A zero-coupon bond will have only one cash flow (i.e., at the time of maturity); therefore its dispersion around the duration point is the smallest.

Reference: 2024, Fixed Income, Volume 2, Learning Module 4, Section 4, Fixed-Income Portfolio Measures, p. 250.

Part B

LOS: Volume 2, Learning Module 4, Section 4, *Describe fixed-income portfolio measures of risk and return as well as correlation characteristics.*

In times of increased interest rate volatility, the relationship between bond prices and yields becomes more non-linear relative to a low volatility environment. With positive convexity, the expected return of a bond will be higher than the return of an identical-duration, lower-convexity bond for the same interest rate change.

Reference: 2024, Fixed Income, Volume 2, Learning Module 4, Section 4, Fixed-Income Portfolio Measures, p. 250.

Part C

LOS: Volume 2, Learning Module 4, Section 6, *Describe and interpret a model for fixed-income returns.*

Coupon income 3.5 / 102.3 = 3.42%	Annual coupon payment/current bond price
+ Roll-down return (103.7 – 102.3) / 102.3 = 1.37%	(Ending bond price – Beginning bond price) / Beginning bond price

= Rolling yield of 4.79%

Reference: 2024, Fixed Income, Volume 2, Learning Module 4, Section 6, A Model for Fixed-Income Returns, pp. 261-262.

Part D

LOS: Volume 2, Learning Module 4, Section 6, *Describe and interpret a model for fixed-income returns.*

Rolling Yield (from the previous answer) 4.79%

+/– E(∆Price based on benchmark yield view)	– 1.56% = (−ModDur × Δyield) + [½ × Convexity × (Δyield)^2] = (–4.5 × 0.0035) + (1/2 × 25 × 0.0035^2)	
+/– E(∆Price due to yield spread view)	– 0.90% = (−ModDur × Δspread) + [½ × Convexity × (Δspread)^2] = (–4.5 × 0.002) + (1/2 × 25 × 0.002^2)	
+/– E(Currency G/L)	–1.00%	Given
= Total expected return	1.34%	

Reference: 2024, Fixed Income, Volume 2, Learning Module 4, Section 6, Overview of Fixed-Income Portfolio Management, pp. 261-262.

QUESTION SET 3: FIXED INCOME

1. **A**

LOS: Volume 3, Learning Module 2, Section 2, *Describe risk considerations for spread-based fixed-income portfolios.*

Volume 3, Learning Module 2, Section 2, *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.*

Statement 1 is correct: discounted cash flow, risk premium approach, and the inclusion of fixed income asset classes are three ways to analyze fixed income returns.

Reference: 2024, Fixed Income, L3, Volume 3, Learning Module 2, Section 2, Key Credit and Spread Concepts for Active Management, p. 70.

2. **A**

LOS: Volume 3, Learning Module 2, Section 2, *Describe risk considerations for spread-based fixed-income portfolios.*

Volume 3, Learning Module 2, Section 2, *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 four main building blocks of the required return for fixed income asset classes are default-free risk rate, the term premium, the credit premium, and the liquidity premium. B is incorrect as it is a short-term risk-free rate that is readily observable, not a liquidity premium.

Reference: 2024, Fixed Income, L3, Volume 3, Learning Module 2, Section 2, Key Credit and Spread Concepts for Active Management, p. 72.

3. **B**

LOS: Volume 3, Learning Module 2, Section 2, *Describe risk considerations for spread-based fixed-income portfolios.*

Volume 3, Learning Module 2, Section 2, *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.*

Emerging economies often exhibit weaker monetary discipline than developed economies.

Reference: 2024, Fixed Income, L3, Volume 3, Learning Module 2, Section 2, Key Credit and Spread Concepts for Active Management, p. 78.

4. **B**

LOS: Volume 3, Learning Module 2, Section 2, *Describe risk considerations for spread-based fixed-income portfolios.*

Volume 3, Learning Module 2, Section 2, *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.*

A foreign debt-to-GDP ratio above 50% is generally considered a reason for concern in developing economies and not in emerging markets.

Reference: 2024, Fixed Income, L3, Volume 3, Learning Module 2, Section 2, Key Credit and Spread Concepts for Active Management, p. 79.

QUESTION SET 4: EQUITY INVESTMENTS

1. **C**

LOS: Volume 3, Learning Module 4, *Compare factor-based strategies to market-capitalization-weighted indexing.*

Risk-oriented strategies focus on reducing downside volatility and overall portfolio risk. As such, Index 3 best addresses this issue with its volatility weighting and focus on quality, large-cap, and yield.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 3, Factor-Based Strategies, pp. 190-193.

2. **A**

LOS: Volume 3, Learning Module 4, *Compare factor-based strategies to market-capitalization-weighted indexing.*

Diversification-oriented strategies include equally weighted indices. With its equal weighting across index constituents, single-stock risk is greatly reduced in Index 1 over the other approaches.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 3, Factor-Based Strategies, pp. 190-193.

3. **A**

LOS: Volume 3, Learning Module 4, *Compare factor-based strategies to market-capitalization-weighted indexing.*

Jones appears to be a small-cap value investor. Index 1 is consistent with his focus on small size, value orientation, and income.

Index 2 and Index 3 are both large-cap growth oriented.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 3, Factor-Based Strategies, pp. 190-193.

4. **C**

LOS: Volume 3, Learning Module 4, *Compare factor-based strategies to market-capitalization-weighted indexing.*

Smith is sensitive to downside risk and wishes to avoid small-caps. Index 3 is most appropriate with its large-cap focus and relatively high exposure to quality.

Index 1 has a small-cap focus, while Index 2 has lower quality, size, and yield exposures than Index 3.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 3, Factor-Based Strategies, pp. 190-193.

QUESTION SET 5: DERIVATIVES

1. **B**

LOS: Volume 2, Learning Module 1, *Compare the effect of buying a call on a short underlying position with the effect of selling a put on a short underlying position.*

If AUD is appreciating against the USD, then more USD is required to buy AUD in the future. Hence, LeBlanc would reduce the risk by buying an AUD option. Buying AUD in the AUD/USD currency pair requires selling USD. There are two ways to sell USD in an AUD/USD pair using options:

1. Sell a call option of AUD/USD currency pair, or
2. Buy a put option of AUD/USD currency pair

Option Strategy 1:
A long position in AUD/USD call option is buying USD, the base currency, and selling AUD. This will not hedge LeBlanc's position.

Option Strategy 2:
A long position in AUD/USD put option is selling USD, the base currency and buying AUD. This is the appropriate hedge for LeBlanc's position.

OptionStrategy 3:
A long position in USD/AUD put option is selling AUD and buying USD. This will not hedge LeBlanc's position.

Reference: 2024, Derivatives, L3, Volume 2, Learning Module 1, Section 6, Risk Reduction Using Covered Calls and Protective Puts, p. 30, Example 5.

2. **A**

LOS: Volume 2, Learning Module 1, *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 long straddle option strategy is implemented by buying an at-the-money (ATM) call and buying an at-the-money (ATM) put for the AUD/USD currency pair.

Current AUD/USD spot rate is 1.48.

Cost of ATM call option (i.e., $1.48 AUD/USD strike) is $0.0210.
Cost of ATM put option (i.e., $1.48 AUD/USD strike) is $0.0125.

= $0.0210 + $0.0125 = $0.0335

Cost of straddle option strategy = $0.0335 × 100,000 = $3,350

Number of contracts required = Notional Amount/Contract Size

= 3,500,000/100,000 = 35

Total cost of the hedge = Cost per Contract × Number of Contracts

= $3,350 × 35 = $117,250

Reference: 2024, Derivatives, L3, Volume 2, Learning Module 1, Section 8, Straddle, pp. 40-43.

3. **C**

LOS: Volume 2, Learning Module 1, *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.*

Per Recommendation 1, a collar option strategy is implemented by buying at-the-money put option and selling out-of-the-money call option.

Collar Option = Buy an ATM put and sell an out-of-the-money (OTM) call

Premium paid for ATM put option (i.e., $25 strike) is $2.67.
Premium received for OTM call option (i.e., $30 strike) is $0.53.

Total cost of each collar option = $2.67 – 0.53 = $2.14

Breakeven price of the collar option = $25.12 – $2.14 = $22.98

Percentage change to breakeven = $2.14/$25.12 = 8.52%

Reference: 2024, Derivatives, L3, Volume 2, Learning Module 1, Section 7, Spreads and Combinations, pp. 35-36.

4. **B**

LOS: Volume 2, Learning Module 1, *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.*

Collar Option strategy = Buy an ATM put and sell an OTM call = $2.67 – 0.53 = $2.14

Cost per collar option contract = $2.14 × 100 = $214

Cost to hedge half of NAIC holdings = $214 × (10,000/100) = $21,400

Bear put option = Buy an ATM put and sell an OTM put = $2.67 – 0.31 = $2.36

Cost per bear put option contract = $2.36 × 100 = $236

Cost to hedge half of NAIC holdings = $236 × (10,000/100) = $23,600

Total premium paid = $45,000

The total cost to hedge 20,000 shares of NAIC is $45,000.

Reference: 2024, Derivatives, L3, Volume 2, Learning Module 1, Section 8, Straddle, pp. 41-44.

QUESTION SET 6: PORTFOLIO MANAGEMENT – INSTITUTIONAL

Part A

LOS: Volume 5, Learning Module 1, *Discuss the stakeholders in the portfolio, the liabilities, the investment time horizons, and the liquidity needs of different types of institutional investors.*

The spending policy is sufficient.

The investable base after payment of the start up's initial capital is:

Investable base = $24,000,000 – $1,000,000 = $23,000,000.

AMLAIC's total funding requirement of $1,800,000 is reduced by external funds, with expected value at the middle of the confidence interval:

Expected (external funds) = ($1,400,000 + $400,000) / 2 = $900,000.

Relative to the investable base, the outlay requirement is:

Required outlay = ($1,800,000 – $900,000) / $23,000,000 = 3.91%.

The required outlay for AMLAIC is less than the spending policy, so the spending policy is sufficient.

Reference: 2024, Institutional Investors, L3, Volume 5, Learning Module 1, Section 12, University Endowments: Other Considerations, pp. 47-50.

Part B

LOS: Volume 5, Learning Module 1*, Discuss the stakeholders in the portfolio, the liabilities, the investment time horizons, and the liquidity needs of different types of institutional investors*

Characteristics favoring increased risk tolerance:

- ESUE has significant capacity for fundraising in relation to spending policy.
- ESUE supports a small percentage of the university's operating budget.
- State funding can make up for possible short-term endowment support shortfalls.

Note: ESU's access to debt markets does NOT favor increased risk tolerance for the endowment since the authority to issue debt is limited to supporting capital improvements, not operating costs.

Reference: 2024, Institutional Investors, L3, Volume 5, Learning Module 1, Section 12, University Endowments: Other Considerations, pp. 47-50, EORQ 11.

Part C

LOS: Volume 5, Learning Module 1, *Discuss investment policy of institutional investors.*

Only three of the following characteristics/differences need be cited for credit.

Characteristic: Use of alternatives
Difference: Endowment model has high alternative exposure; current approach has none.

Characteristic: Active management
Difference: Endowment model has significant active management; current approach is entirely passive.

Characteristic: Outsourcing
Difference: Endowment model uses external managers; current approach is internally managed.

Characteristic: Cost
Difference: Endowment model is more expensive in terms of management fees and costs.

Characteristic: Skill (or experience) requirements
Difference: Endowment model requires skill/experience in sourcing alternative investments that is not present in the current approach.

Reference: 2024, Institutional Investors, L3, Volume 5, Learning Module 1, Section 2, Overview of Investment Policy, pp. 9-12.

QUESTION SET 7: FIXED INCOME

Part A

LOS: Volume 2, Learning Module 5, Section 2, *Describe liability-driven investing.*

In a traditional LDI classification, there are four types of liabilities:

- Type I: with known amount of cash outlay and known timing of cash outlay—a typical example would be a traditional plain-vanilla bond
- Type II: with known amount of cash outlay but unknown timing of cash outlay—a typical example would be a bond with embedded options
- Type III: with uncertain amount of cash outlay but known timing—a typical example would be inflation-protected securities and floating rate notes, and
- Type III: in which both the amount and the timing of cash outlay are uncertain—a typical example is a casualty or property insurance instrument.

Reference: 2024, Fixed Income, Volume 2, Learning Module 5, Section 2, Liability-Driven Investing, p. 289.

Part B

LOS: Volume 2, Learning Module 5, Section 3, *Evaluate strategies for managing a single liability.*

Immunization is mainly used to protect an investor from interest rate risk. In the case of a single liability with a known time horizon and cash outlay, immunization can be achieved by matching the Macaulay duration of a bond portfolio to the horizon date of the liability. By doing so, an investor can minimize the risk of falling short of funds when the liability comes due.

Reference: 2024, Fixed Income, Volume 2, Learning Module 5, Section 3, Managing the Interest Rate Risk of a Single Liability, p. 291.

Part C

LOS: Volume 2, Learning Module 5, Section 3, *Evaluate strategies for managing a single liability.*

Hannon ought to advocate for Portfolio X, as it offers a cash flow yield nearly identical to Portfolio Y, but with a duration much more closely aligned to the time horizon of Lee's liability. Despite Portfolio Y's notably higher convexity, it doesn't render it a more suitable option due to the significant duration mismatch.

Reference: 2024, Fixed Income, Volume 2, Learning Module 5, Section 3, Managing the Interest Rate Risk of a Single Liability, p. 303.

Part D

LOS: Volume 2, Learning Module 5, Section 3, *Evaluate strategies for managing a single liability.*

Hannon's statement is correct.

Both duration and convexity measure the sensitivity of a market value of a bond to the changes in interest rates. While duration captures the linear dependence between rates and prices, convexity, being a measure of non-linear dependence, provides an additional precision in estimating how a bond's price reacts to a change in interest rates.

Convexity serves an investor's interests when interest rates either rise or fall. Holding all other factors constant (i.e., yield and duration), as compared to a bond with lower convexity, a bond with higher convexity tends to appreciate more when interest rates decline and depreciates less when interest rates rise.

Reference: 2024, Fixed Income, Volume 2, Learning Module 5, Section 3, Managing the Interest Rate Risk of a Single Liability, p. 295.

QUESTION SET 8: ETHICAL AND PROFESSIONAL STANDARDS

1. **A**

LOS: Volume 6, Learning Module 2, *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.*

Davidson's recap of the regional bank investment's outperformance is not a violation of the Standards. Davidson applied the Mosaic Theory to reach the conclusion that the stock may outperform. Expert networks can be relied upon as part of the research process.

Furthermore, management commentary would not be considered material non-public information, since a TV interview would likely not be considered non-public and commenting on the favorability of the macroeconomic environment would not be considered material.

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 2, Section 15, Standard II (A): Application of the Standard, pp. 64-68.

2. **C**

LOS: Volume 6, Learning Module 2, *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.*

Davidson's table showing the outperformance may be considered a violation of the Standards. Highlighting a short-term period (quarterly) of outperformance that occurred two years ago when the stock has more recently underperformed the benchmark for a longer horizon is an example of presenting out-of-date information. Presenting in a manner that distorts the genuine returns of the strategy is deceptive.

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 2, Section 9, Standard I (C): Application of the Standard, p. 52.

3. **B**

LOS: Volume 6, Learning Module 4, *Explain the ethical and professional responsibilities required by the six General Principles of Conduct of the Asset Manager Code.*

Allocating to both client and management's accounts equally is most likely a violation of the Asset Manager Code of Conduct. Managers must exhibit loyalty

to clients, placing client interests before their own and give priority to investments made on behalf of the client over those that benefit the Manager's own interests.

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 4, Section 2, General Principles of Conduct and Asset Manager Code of Professional Conduct, pp. 277-279.

4. **C**

LOS: Volume 6, Learning Module 5, *Discuss requirements of the GIPS standards with respect to return calculation methodologies, including the treatment of external cash flows, cash and cash equivalents, and expenses and fees.*

The GIPS standards mandate the use of a time-weighted return. An exception would be that a firm may choose to present money-weighted returns if the firm has control over the external cash flows and (1) the portfolios are closed-end, fixed life, or fixed commitment, or (2) illiquid investments are a significant part of the investment strategy.

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 5, Section 3, Time-Weighted Return, pp. 315-320.

QUESTION SET 9: PORTFOLIO MANAGEMENT – PRIVATE WEALTH

Part A

LOS: Volume 4, Learning Module 3, *Prepare the investment objectives section of an IPS for a private client.*

Green's liquidity preferences are:

- Green has a near-term liquidity need to purchase a vacation home.
- Green will begin paying for education expenses of his daughters (amount not specified) next year.
- Green will begin taking income for retirement in five years to maintain his current lifestyle. His salary income at that time will cease.
- Upon his daughters' graduation in approximately five years, Green may be making down payment distributions (amount not specified) for each of his daughters.

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 3, Section 8, Investment Policy Statement, pp. 225-226.

Part B

LOS: Volume 4, Learning Module 3, *Identify and formulate client goals based on client information.*

Green emphasizes the importance of funding his daughters' college education. Yet, he is also would like to purchase a vacation home in the next three months, and he's aware of impending retirement expenses starting in five years. Clients frequently face overlapping goals. While Green's desire for a vacation home and his daughters' education are immediate and short-term, he can't overlook long-term retirement and healthcare expenses. Funds expended in the short-term may endanger long-term goals.

Wealth managers are positioned to guide their clients in prioritizing and realizing their goals.

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 3, Section 1, Client Goals, p. 211.

Part C

LOS: Volume 4, Learning Module 3, *Discuss ethical and compliance considerations in advising private clients.*

A conflict of interest could arise as Green's entire estate, less the $100,000 payments ($200,000 total) to his two daughters will go to the Green Giving Charity, which Yates manages. Yates might be inclined to invest more aggressively with Green's assets to potentially increase the net funds coming to the charity upon Green's passing. Disclosure to the client would be the best course of action.

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 3, Section 13, Ethical and Compliance Considerations in Private Wealth Management, p. 246.

Part D

LOS: Volume 4, Learning Module 3, *Contrast private client and institutional client investment concerns.*

- Liquidity concerns: Green has stated liquidity needs with a vacation home, college expenses, and possible down payments for his daughters in addition to retirement income. Alternative investments can have long lockup periods, making the funds unavailable for upcoming liquidity needs.
- Scale: In general, personal investors tend to have smaller portfolios, which can result in a concentrated asset class, leaving an imbalanced portfolio.
- Time horizon**:** Green is about five years from retirement, and alternative investments can have longer time horizons and may be inappropriate for a shorter timeframe.

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 3, Section 1, Introduction, p. 204.

QUESTION SET 10: DERIVATIVES

Part A

LOS: Volume 2, Learning Module 3, *Compare active currency trading strategies based on economic fundamentals, technical analysis, carry-trade, and volatility trading.*

Strategy 3 yields the highest return. The carry trade is implemented by borrowing in low-yield currencies and investing in high-yield currencies. In this case, borrow in USD and invest in emerging market currencies.

Carry Trade Return = Return in Emerging Markets – Return in USD (borrowing rate 5.25%)

Country	Annual Yield	Carry Trade Return
India	9.50%	4.25%
Mexico	10.25%	5.00%
Turkey	8.75%	3.50%

One Year Exchange Rate Return = [(Forward Rate – Spot Rate) / Spot Rate] × 100%

Currency Pair	Spot Rate	One-Year Forward Rate	One-Year Exchange Rate Return
INR/USD	83.36	85.65	2.75%
MXN/USD	17.15	17.52	2.16%
TRY/USD	23.46	23.34	–0.51%

USD appreciated in the INR/USD and MXN/USD pair, whereas USD depreciated in the TRY/USD currency pair.

Example: Borrow $10,000 in USD and invest in each of these emerging countries.

Country	India	Mexico	Turkey
Spot Rate	83.36	17.15	23.46
Convert $10,000 USD using spot exchange rate	833,600	171,500	234,600
Annual Yield	9.50%	10.25%	8.75%
Return in One Year = Initial Amount × (1 + Annual Yield)	912,792	189,079	255,128
One-Year Forward Rate	85.65	17.52	23.34
Convert back to USD using forward rate	$10,657	$10,792	$10,931
USD interest at 5.25% borrowing rate	$525	$525	$525
Total Return = Final Amount – Initial Amount – Interest	$132	$267	$406

Based on the calculations, the total return including the carry trade return and exchange rate return is highest for TRY/USD currency pair.

Reference: 2024, Derivatives, L3, Volume 2, Learning Module 3, Section 7, Economic Fundamentals, Technical Analysis and the Carry Trade, pp. 170-171.

Part B

LOS: Volume 2, Learning Module 3, *Describe how forward contracts and FX (foreign exchange) swaps are used to adjust hedge ratios.*

One month ago, the value of SIGF assets in CAD are 500 million.

Today, the value of SIGF assets in CAD is 520 million.

The foreign investment in terms of Canadian dollars increased by CAD 20 million; hence Schwinn must increase the size of the hedge by selling another CAD 20 million in addition to the CAD 500 million initially sold a month ago.

To sell another CAD 20 million forward today, Schwinn will have to buy USD, in the base currency CAD/USD quote. Therefore, the offer side of the market must be used.

1.3352 + (191/10,000) = 1.3543

Reference: 2024, Derivatives, L3, Volume 2, Learning Module 3, Section 9, Forward Contracts, FX Swaps, and Currency Options, pp. 178-179, Example 5.

Part C

LOS: Volume 2, Learning Module 3, *Describe how forward contracts and FX (foreign exchange) swaps are used to adjust hedge ratios.*

Statement 1 is incorrect.

To establish the initial hedge one month ago, Schwinn must have sold the Canadian dollar (CAD) forward against the USD as it is long CAD. Selling CAD against USD requires buying USD, the base currency in the CAD/USD quote. Therefore, the offer side of the market must be used.

This means the all-in rate used one month ago would have been

1.3371 + (175/10,000) = 1.3546

Statement 2 is correct.

To implement the hedge, Schwinn must sell CAD against the USD, which means buying USD, the base currency in CAD/USD quote.

The base currency is in contango, meaning the base currency is trading at a forward premium. Buying the base currency USD at a forward premium and having to settle the forward contract by selling the USD spot at a lower price will result in a negative roll yield.

Buying high and selling low will result in a negative roll yield.

Moreover, the USD has depreciated against the CAD, because the CAD/USD spot rate decreased between one month ago and now, which will also add to the negative roll yield.

To earn a positive roll-yield, the base currency should be sold at a forward premium or bought at a forward discount.

Reference: 2024, Derivatives, L3, Volume 2, Learning Module 3, Section 9, Forward Contracts, FX Swaps, and Currency Options, pp. 178-179, Example 5.

QUESTION SET 11: PORTFOLIO MANAGEMENT – PRIVATE WEALTH

Part A

LOS: Volume 4, Learning Module 4, *Compare taxation of income, wealth, and wealth transfers.*

Statement 1 is true. While many topics should be considered in the context of wealth management, Cuomo is correct stating capital gains and income taxes are the most directly involved with clients' investment portfolios.

Statement 2 is false. An active strategy can be inefficient from a tax standpoint; however, by placing the strategy in a tax-exempt or tax-deferred account, a client can participate in the strategy without incurring an immediate tax liability for short-term gains.

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 4, Section 2, Components of Return and Tax Status of the Account, Statement 1, pp. 274-277.

Part B

LOS: Volume 4, Learning Module 4, *Analyze the impact of taxes on capital accumulation and decumulation in taxable, tax-exempt, and tax-deferred accounts.*

Client's investments:

Brokerage	Return	After Tax Return	Tax Efficiency Ratio
Large Cap Equity Manager	8.0%	6.0%	75.00%
Int. Developed Manager	12.0%	8.0%	66.67%
Taxable Bond Account	4.0%	2.5%	62.50%

The taxable bond account is the least tax efficient investment based upon the tax efficiency ratio.

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 4, Section 4, Measuring Tax Efficiency with After-Tax Returns, p. 290.

Part C

LOS: Volume 4, Learning Module 4, *Describe strategies for managing concentrated positions in privately owned businesses and real estate.*

The exchange fund is the most appropriate strategy.

Equity monetization would be inappropriate given that derivatives and option contracts are prohibited.

Charitable remainder trust is not appropriate as there are no expressed philanthropic goals.

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 4, Section 10, Strategies for Managing Concentrated Positions in Public Equities, pp. 313-319.

Part D

LOS: Volume 4, Learning Module 4, *Describe strategies for managing concentrated positions in privately owned businesses and real estate.*

	Outright Sale	**Exchange Fund**
Market Value	$2,000,000	$2,000,000
Cost Basis	$ 100,000	$ 100,000
Capital Gain	$1,900,000	–
Tax on Sale (25%)	$ 475,000	–
Amount to Invest	$1,525,000	$2,000,000
Market Value After 8 Years (8% return)	$2,822,669	$3,701,860
Tax Basis	$1,525,000	$ 100,000
Capital Gain	$1,297,669	$3,601,860
Tax on Sale (25%)	$ 324,417	$ 900,465
Final Value	$2,498,251	$2,801,395
Difference	$ 303,144	

Reference: 2024, Private Wealth Management, L3, Volume 4, Learning Module 4, Section 10, Strategies for Managing Concentrated Positions in Public Equities, pp. 313-319.

2024, Private Wealth Management, L3, Volume 4, Learning Module 4, Section 10, Strategies for Managing Concentrated Positions in Public Equities, p. 318, Exhibit 15.

LEVEL III SESSION 2--GUIDELINE ANSWERS

QUESTION SET 1: PORTFOLIO MANAGEMENT – PERFORMANCE EVALUATION

1. **A**

LOS: Level 3, Volume 5, Learning Module 3, *Explain the following components of portfolio evaluation and their interrelationships: performance measurement, performance attribution, and performance appraisal*.

Only Statement 1 is correct. Statement 2 is a continuation of what performance attribution is and is therefore not related to performance appraisal. Performance appraisal reviews the quality of the performance and attempts to distinguish between manager skill and luck.

Reference: 2024, Portfolio Performance Evaluation, Level 3, Volume 5, Learning Module 3, Section 2, Performance Evaluation and Attribution, p. 193.

2. **A**

LOS: Level 3, Volume 5, Learning Module 3, *Interpret the sources of portfolio returns using a specified attribution approach.*

The column not shown in Exhibit 1 is the interaction effect.

The difference between the portfolio return of 2.0% and the benchmark return of 1.1% is 90 bps. The allocation and selection effects sum to 30 bps. We can conclude that the interaction effect is positive.

B is incorrect. The allocation effect is positive, and the selection effect is negative.

C is incorrect because return attribution is about determining the sources of performance between allocation, selection, and interaction effects and not strictly one effect (in this case to allocation) to the benchmark return.

Reference: 2024, Portfolio Performance Evaluation, Level 3, Volume 5, Learning Module 3, Section 3, Equity Return Attribution, pp. 201-204, Exhibit 3.

3. **C**

LOS: Level 3, Volume 5, Learning Module 3, *Contrast return attribution and risk attribution; contrast macro and micro return attribution*.

LOS: Level 3, Volume 5, Learning Module 3, *Describe returns-based, holdings-based, and transaction-based performance evaluation.*

Both statements by Irvin are correct.

Statement 3 is correct. The Latin American Pension Fund is considered the asset owner, and its tactical decision to invest in equities and to hire Dominica Asset Management is considered macro attribution.

Statement 4 is correct. Holdings-based attribution fails to capture the impact of any transactions made during the measurement period and may not reconcile to the actual portfolio return. Holdings-based analysis is most appropriate for investment strategies with little turnover.

Reference: 2024, Portfolio Performance Evaluation, Level 3, Volume 5, Learning Module 3, Section 2, Performance Evaluation and Attribution, p. 195.

4. **B**

LOS: Level 3, Volume 5, Learning Module 3, *Calculate and interpret the Sortino ratio, the appraisal ratio, upside/downside capture ratios, maximum drawdown, and drawdown duration.*

The equation for the Sortino ratio is shown below from p. 241.

$$\widehat{SR_D} = \frac{r_p - r_T}{\widehat{\sigma_D}}$$

The numerator is the average portfolio return, which, based on the data provided in Exhibit 2, is 2.75%. The target return provided in the question is 2.0%. The difference then becomes (2.75% – 2.00%) = (0.75%).

The denominator is the target semi-standard deviation given by the following formula:

$$\sigma_D = \left[\frac{\sum_{t=1}^{N} min(r_t - r_T, 0)^2}{N}\right]^{\frac{1}{2}}$$

Sortino ratio denominator calculation

Target Return (r_T)	2%	
Year	Rate of Return	$\min(r_t - r_T, 0)^2$
1	2.0%	0
2	–2.0%	0.0016
3	–1.0%	0.0009
4	12.0%	0
Average	2.75%	
N	4	0.0025 Sum

Target Semi-Standard Deviation:
$(0.0025/4)^{1/2} = 0.025$

Sortino ratio: $0.30 = (0.0075/0.025)$

Reference: 2024, Portfolio Performance Evaluation, Level 3, Volume 5, Learning Module 3, Section 10, Performance Appraisal: Risk-Based Measures, pp. 240-241, Exhibit 16.

QUESTION SET 2: PORTFOLIO MANAGEMENT – ASSET ALLOCATION

1. **B**

LOS: Volume 1, Learning Module 3, *Formulate an economic balance sheet for a client and interpret its implications for asset allocation.*

Jain's economic net worth is closest to $1,830,000. An economic balance sheet includes conventional assets and liabilities as well as extended assets and liabilities that are relevant in making asset allocation decisions. The economic balance sheet for Jain is shown below.

Assets		Liabilities and Economic Net Worth	
Equity	$1,200,000	Mortgage Debt	$125,000
Fixed Income	$225,000	Children's Education	$300,000
Real Estate	$800,000	Present Value of Consumption	$900,000
Human Capital	$930,000	–	–
Total Economic Assets	$3,155,000	Total Economic Liabilities	$1,325,000
		Economic Net Worth	$1,830,000

Economic Net Worth
= Total Economic Assets – Total Economic Liabilities
= $3,155,000 – $1,325,000
= $1,830,000

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 3, Section 3, The Economic Balance Sheet and Asset Allocation, p. 148, Example 3.

2. **C**

LOS: Volume 1, Learning Module 3, *Compare the investment objectives of asset-only, liability-relative, and goals-based asset allocation approaches.*

A liability-relative asset allocation approach is used to model legal and quasi-legal liabilities. It is typically used by banks, insurers, and defined benefit pension plans. It is least appropriate for individual investors.

Asset-only and goals-based asset allocations are typically used for individual investors.

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 3, Section 4, Approaches to Asset Allocation, p. 151, Exhibit 5.

3. **C**

LOS: Volume 1, Learning Module 4, *Describe and evaluate heuristic and other approaches to asset allocation.*

The endowment model emphasizes large allocations to alternative investments, including equity-oriented investments driven by active investment management (e.g., private equities). Since Jain would prefer passively managed investments with minimal exposure to alternative investments, the endowment model would be the least appropriate heuristic-based approach to asset allocation.

Both 1/*N* rule and 60/40 stock/bond heuristic-based approaches are appropriate options for Batista to consider for Jain.

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 4, Section 19, Heuristics and Other Approaches to Asset Allocation, pp. 271-274.

4. **A**

LOS: Volume 1, Learning Module 4, *Recommend and justify an asset allocation using mean–variance optimization.*

The risk aversion coefficient (λ) for Stoneham is 4.

The utility of each asset allocation is calculated as follows:

Asset Allocation A:
$U_m = 9.0\% - 0.005(4)(11.0\%)^2 = 6.58\%$

Asset Allocation B:
$U_m = 8.0\% - 0.005(4)(10.0\%)^2 = 6.00\%$

Asset Allocation C:
$U_m = 7.0\% - 0.005(4)(4.0\%)^2 = 6.50\%$

Therefore, the preferred strategic allocation is Asset Allocation A, which generates the highest utility given Stoneham's risk aversion level.

Reference: 2024, Asset Allocation, L3, Volume 1, Learning Module 4, Section 2, Asset-Only Asset Allocations and Mean–Variance Optimization, pp. 198-205, Example 1.

QUESTION SET 3: ALTERNATIVE INVESTMENTS

Part A

LOS: Volume 4, Learning Module 1, *Discuss investment characteristics, strategy implementation, and role in a portfolio of equity-related hedge fund strategies.*

Equity market-neutral (EMN) hedge fund strategies take opposite (i.e., long and short) positions in similar or related equities that have divergent valuations, and they also attempt to maintain a near net zero portfolio exposure to the market. EMN managers neutralize market risk by constructing their portfolios such that the expected portfolio beta is approximately equal to zero. In general, EMN managers tend to be more advantageous for portfolio allocation during non-trending or bearish markets, as their returns are often more stable and less volatile compared to many other hedge strategy sectors. Over time, this conservative and constrained approach typically results in less-volatile overall returns than those of managers who accept beta exposure.

Reference: 2024, Alternative Investments, L3, Volume 4, Learning Module 1, Section 4, Equity Strategies: Equity Market Neutral, pp. 16 & 18, EORQ 17.

Part B

LOS: Volume 4, Learning Module 1, *Discuss investment characteristics, strategy implementation, and role in a portfolio of equity-related hedge fund strategies.*

Bradford should take a long position in FED and a short position in USP with equal beta-weighted exposures. Bradford should purchase $2 million of FED shares. Assuming historical betas as indicative of realized betas going forward, obtaining an equal beta-weighted exposure to USP would require Bradford to short sell [$2 million × (0.89 / 1.05)] $1.695 million of USP shares. (Note that this smaller position compensates for USP's higher beta.)

Reference: 2024, Alternative Investments, L3, Volume 4, Learning Module 1, Section 4, Equity Strategies: Equity Market Neutral, p. 19, Example 3.

Part C

LOS: Volume 4, Learning Module 1, *Discuss investment characteristics, strategy implementation, and role in a portfolio of equity-related hedge fund strategies.*

Volume 4, Learning Module 1, *Discuss investment characteristics, strategy implementation, and role in a portfolio of event-driven hedge fund strategies.*

Volume 4, Learning Module 1, *Discuss investment characteristics, strategy implementation, and role in a portfolio of specialist hedge fund strategies.*

Dedicated short selling or short-biased: There is typically sufficient natural volatility that short-selling managers do not need to add much leverage.

Distressed Securities: Because of the inherent volatility and long-biased nature of distressed securities investing, hedge fund managers utilize modest to low levels of leverage, typically with 1.2 to 1.7 times NAV invested, and with some of the nominal leverage from derivatives hedging.

Volatility Trading: The natural convexity of volatility instruments typically means that outsized gains may be earned at times with very little upfront risk. Although notional values appear nominally levered, the asymmetric nature of long optionality is an attractive aspect of this strategy.

Reference: 2024, Alternative Investments, L3, Volume 4, Learning Module 1, Section 3, Equity Strategies: Dedicated Short Selling and Short-Biased, p. 14.

2024, Alternative Investments, L3, Volume 4, Learning Module 1, Section 4, Equity Strategies: Equity Market Neutral, pp. 16-20.

2024, Alternative Investments, L3, Volume 4, Learning Module 1, Section 6, Event-Driven Strategies: Distressed Securities, p. 26.

2024, Alternative Investments, L3, Volume 4, Learning Module 1, Section 11, Specialist Strategies, p. 48.

QUESTION SET 4: FIXED INCOME

1. **C**

LOS: Volume 2, Learning Module 4, Section 2, *Discuss roles of fixed-income securities in portfolios and how fixed-income mandates may be classified.*

Both comments are correct. Fixed income does provide diversification benefits when added to a portfolio composition due to its low (or negative) correlation with other asset classes.

Reference: 2024, Fixed Income, L3, Volume 2, Learning Module 4, Section 2, Roles of Fixed-Income Securities in Portfolios, p. 240.

2. **C**

LOS: Volume 2, Learning Module 4, Section 2, *Discuss roles of fixed-income securities in portfolios and how fixed-income mandates may be classified.*

Certain fixed income instruments, such as inflation-linked bonds, have the market reference rate, which is adjustable for inflation. This adjustability feature provides an inflation-hedging benefit for investors.

Reference: 2024, Fixed Income, L3, Volume 2, Learning Module 4, Section 2, Roles of Fixed-Income Securities In Portfolios, p. 243.

3. **C**

LOS: Volume 2, Learning Module 4, Section 2, *Discuss roles of fixed-income securities in portfolios and how fixed-income mandates may be classified.*

Regular cash flows can be beneficial for both institutional investors and individuals as individuals can also have future liabilities that need to be matched by regular fixed income cash flows.

Reference: 2024, Fixed Income, Volume 2, Learning Module 4, Section 2, Roles of Fixed-Income Securities In Portfolios, p. 242.

4. **B**

LOS: Volume 2, Learning Module 4, Section 3, *Discuss roles of fixed-income securities in portfolios and how fixed-income mandates may be classified.*

Active management is considered a total return fixed income mandate. The other two answers are liability-based mandates.

Reference: 2024, Fixed Income, Volume 2, Learning Module 4, Section 3, Classifying Fixed Income Mandates, p. 245.

QUESTION SET 5: EQUITY INVESTMENTS

Part A

LOS: Volume 3, Learning Module 4, *Compare the full replication, stratified sampling, and optimization approaches for the construction of passively managed equity portfolios.*

Volume 3, Learning Module 4, *Discuss potential causes of tracking error and methods to control tracking error for passively managed equity portfolios.*

The Large Cap Index is more appropriate for replication.

Portfolios managed to the Large Cap Index are likely to experience lower tracking error and lower trading costs than portfolios managed against the Small Cap Index.

With an average portfolio size of $200 million, large cap portfolios are more capable of implementing full replication index investing in this highly liquid segment than the small cap portfolios in the smaller, less liquid segment. As the number of securities held by the portfolios increases, tracking error decreases. This is important as the large cap clients are highly sensitive to tracking error. Investors in the small cap segment are less sensitive to tracking error. Moreover, the higher management fees imposed on the small cap portfolios will tend to result in a higher tracking error.

The larger average portfolio size in the more liquid large cap index is also likely to result in lower trading costs than portfolios managed to the small cap index due to the higher cost of liquidity and lower market depth of the small cap segment.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 6, Passive Portfolio Construction, pp. 202-203.

2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 7, Tracking Error Management, pp. 207-208.

Part B

LOS: Volume 3, Learning Module 4, *Compare the full replication, stratified sampling, and optimization approaches for the construction of passively managed equity portfolios.*

For portfolios managed against the Large Cap Index, stratified sampling may be appropriate only for the bottom quartile of the index due to its lower trading liquidity. Because of the clients' higher sensitivity to tracking error and the index's greater liquidity, the top 3 quartiles might be fully replicated.

For the small cap portfolios managed against the Small Cap Index, stratified sampling is most likely appropriate for all quartiles of the index due to average portfolio size and the

lower trading liquidity for all quartiles. The lower sensitivity of these clients to tracking error would tend to support this application.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 6, Passive Portfolio Construction, pp. 203-205.

Part C

LOS: Volume 3, Learning Module 4, *Discuss considerations in choosing a benchmark for a passively managed equity portfolio.*

To limit stock migration problems and to mitigate trading costs, the portfolio manager could use:

- Buffering—establishing ranges around the breakpoints that define whether a stock belongs in either the small cap or the large cap index. This would allow index constituents to temporarily exceed the defining breakpoint without requiring index reconstitution. Buffering makes index transitions a more gradual and orderly process.

- Packeting—splitting stock positions between the two indexes until the constituent clearly moves from one index to the other. This policy tends to smooth the transition by keeping portfolio turnover and trading costs low.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 4, Section 1, Indexes as a Basis for Investment, pp. 179-180.

QUESTION SET 6: EQUITY INVESTMENTS

Part A

LOS: Volume 3, Learning Module 3, *Describe the types of income and costs associated with owning and managing an equity portfolio and their potential effects on portfolio performance.*

Implicit costs incurred by Winters are:

- Bid-Offer Spread: Winters would buy at the offer price and could only sell immediately at the bid price. Winters will have to cover this spread before beginning to earn a positive return. The small cap segment in which Winters invests is typically characterized by larger bid-asked spreads because of its lower liquidity.

- Market Impact (also called price impact): As Winters makes large buys and sells in thinly traded securities, her trading activity will likely shift the bid-offer spread higher in the case of stock purchases or lower in the case of stock sales. Because of the time-sensitive nature of Winters' information with respect to stock purchases and the fact that she sells entire positions all at once, she has a high demand for liquidity.

    - Delay Costs (also called slippage): As Winters attempts to establish stock positions based on time-sensitive information, she may be unable to complete the size of the desired transaction before the market becomes aware of the same information through other means or because she encounters liquidity constraints. Once the unique value of Winters' information is compromised or market volume diminishes, her informational and trading edge is eliminated.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 3, Section 4, Costs Associated with Owning and Managing an Equity Portfolio, p. 163.

Part B

LOS: Volume 3, Learning Module 3, *Describe the types of income and costs associated with owning and managing an equity portfolio and their potential effects on portfolio performance.*

Volume 3, Learning Module 4, Section 8, *Explain sources of return and risk to a passively managed equity portfolio.*

Winters may engage in:

- Securities lending—receiving a fee income for lending securities to others and generating further income from reinvested collateral

Risks include:
- Credit quality of the borrower (credit risk)
- Value of the posted collateral (market risk)
- Timely delivery of borrowed shares by the borrower (operational and liquidity risk)

- Option-writing strategies—writing covered calls on portfolio holdings or cash-covered puts. While this could negate the underlying thesis that Winters is implementing, done selectively it may generate additional income.

  Risks include:
  - Credit quality of counterparties for non–exchange-traded options (credit risk)
  - Alteration of the risk profile of the underlying portfolio (market risk)
  - Limited upside potential of stock appreciation with covered calls in a rising market (market risk)
  - Exacerbated downside risk of stock declines with cash-covered puts in a declining market (market risk)

A dividend capture strategy would likely not be appropriate for Winters as small capitalization stocks generally pay little or no dividends. Further, Winters' approach is to take significant positions in mispriced securities and hold them until their value is realized. This approach is not conducive to the rapid "buy and sell" activity that dividend capture requires.

Reference: 2024, Equity Investments, L3, Volume 3, Learning Module 3, Section 3, Income Associated with Owning and Managing an Equity Portfolio, pp. 160-161.

2024, Equity Investments, L3, Volume 3, Learning Module 3, Section 8, Sources of Return and Risk in Passive Equity Portfolios, pp. 211-212.

QUESTION SET 7: ECONOMICS

1. **C**

LOS: Volume 1, Learning Module 1, *Discuss the role of, and a framework for, capital market expectations in the portfolio management process.*

Snow primarily focuses on asset classes with large, liquid markets, for which there are ample data available. Emerging market venture capital is most likely illiquid with limited data available when compared to the other two selections, US large cap equities and US government instruments.

Reference: 2024, Economics, L3, Volume 1, Learning Module 1, Section 1, Introduction & Framework for Developing Capital Market Expectations, pp. 4-8.

2. **A**

LOS: Volume 1, Learning Module 1, *Discuss challenges in developing capital market forecasts.*

Changes in technological, political, legal, and regulatory environments; disruptions such as wars and other calamities; and changes in policy stances can all alter risk-return relationships. Such shifts are known as changes in regime. The statistical problem of nonstationarity occurs when different parts of a data series reflect different underlying statistical properties, regime shifts exist within the data.

By preferring asset classes with long periods of returns data and not emphasizing a specific period within that return series, Snow is trying to minimize the potential impact of nonstationarity in her CME process.

Reference: 2024, Economics, L3, Volume 1, Learning Module 1, Section 2, Challenges in Forecasting, pp. 8-18.

3. **C**

LOS: Volume 1, Learning Module 1, *Compare major approaches to economic forecasting.*

The leading indicator-based approach focuses primarily on identifying turning points.

One of the weaknesses of the econometric models approach is that it rarely forecasts turning points well. Identifying turning points is neither a strength nor a weakness of the checklist approach.

Reference: 2024, Economics, L3, Volume 1, Learning Module 1, Section 5, Approaches to Economic Forecasting, pp. 25-29.

4. **A**

LOS: Volume 1, Learning Module 1, *Discuss how business cycles affect short- and long-term expectations.*

The US economy is in a period of above-trend accelerating inflation. GDP growth is above trend but decelerating. The strong inflationary environment is having an impact on GDP, leading to the central bank aiming on a "soft landing." These factors define the late expansion phase of a business cycle.

Reference: 2024, Economics, L3, Volume 1, Learning Module 1, Section 6, Business Cycle Analysis, Phases of the Business Cycle and Market Expectations and the Business Cycle, pp. 29-34.

QUESTION SET 8: PORTFOLIO MANAGEMENT – TRADING

Part A

LOS: Volume 5, Learning Module 2, *Discuss inputs to the selection of a trading strategy.*

Recommendation 2 is most appropriate.

In a favorably trending market, buying in a falling market or selling in a rising market, portfolio managers are better off trading at a slower pace to execute at more favorable prices expected later in the trading horizon. Favorable price movements decrease trading costs.

In an adversely trending market, for example, buying in a rising market or selling in a falling market, portfolio managers may trade at an accelerated rate if less favorable prices are expected later in the trading horizon. Because of this, adverse price movements tend to increase trading costs.

Recommendation 1 is incorrect.

Breaking the sizable order into smaller segments and trading at a slower pace (reduced trade urgency) elevates the execution risk. This is because spreading the order over an extended duration increases its exposure to price fluctuations and shifting market dynamics.

Execution risk is the risk of adverse price movement during the trading horizon due to a change in the fundamental value of the security as time passes and occurs even if the order is not traded. Trading at a faster pace (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.

Reference: 2024, Trade Strategy and Execution, L3, Volume 5, Learning Module 2, Section 3, Trading Strategies and Strategy Selection, pp. 125 & 128.

Part B

LOS: Volume 5, Learning Module 2, *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:

Delay cost = No. of executed shares × (Arrival Price – Price when decision was made)

$= (\Sigma s_j) \times p_o - (\Sigma s_j) \times p_d$ where Σs_j is the number of shares traded

p_o is the arrival price
p_d is the price when the decision was made

= 8,000 × ($1,773.25 – $1,750.50) = 8,000 × $22.75

= $182,000

Reference: 2024, Trade Strategy and Execution, L3, Volume 5, Learning Module 2, Section 8, Trade Cost Measurement, pp. 151-152.

Part C

LOS: Volume 5, Learning Module 2, *Explain how trade costs are measured and determine the cost of a trade.*

Implementation Shortfall (IS) = Execution Cost + Opportunity Cost + Fees

1. Execution Cost = $\Sigma s_j \times p_j - \Sigma\, s_j \times p_d$ where s_j is the shares traded at time = j
P_j is the price at time = j
p_d is the price when the decision was made

= [(45,000 × $22.13) + (10,000 × $22.27) + (25,000 × $22.35) + (5,000 × $22.43) + (5,000 × $22.48)] – (90,000 × $22.12)

= $2,001,850 – $1,990,800 = $11,050

2. Opportunity Cost = $(S - \Sigma s_j)(p_n - p_d)$ where S is the original order size
p_n is the current price
p_d is the price when the decision was made

= (100,000 – 90,000) × ($22.56 – $22.12)
= $4,400

3. Commission is $0.05 per unit = 90,000 × $0.05 = $4,500

No other fees are indicated.

IS = $11,050 + $4,400 + $4,500 = $19,950

The implementation shortfall is expressed in basis points as follows:

Implementation shortfall (bps) = [Implementation shortfall ($) / (Total shares × P_d)] × 10,000 bps

= [$19,950 / (100,000 × $22.12)] × 10,000 bps

= 90.2 bps

Reference: 2024, Trade Strategy and Execution, L3, Volume 5, Learning Module 2, Section 8, Trade Cost Measurement, pp. 150-151.

QUESTION SET 9: PORTFOLIO MANAGEMENT – MANAGER SELECTION

1. **C**

LOS: Volume 5, Learning Module 4, *Describe the components of a manager selection process, including due diligence.*

Statement 3 is correct. A continued pattern of these Type II errors would suggest a flawed manager vetting process.

Both Statement 1 and Statement 2 are incorrect. The IPS and the reasons for the manager search largely determine the universe of managers considered and the benchmark against which they are compared. The use of third-party categorization as a starting point could pose a risk in that the provider's definition [of a manager universe] may differ from the desired portfolio role.

Operational due diligence is included in the qualitative analysis of an asset manager, but it is only one component of the manager selection process, which begins with a definition of the manager universe followed by quantitative and qualitative analyses.

Reference: 2024, Investment Manager Selection, L3, Volume 5, Learning Module 4, Section 2, A Framework for Investment Manager Search and Selection, pp. 270-273.

2. **C**

LOS: Volume 5, Learning Module 4, *Contrast Type I and Type II errors in hiring and continuation decisions.*

Only C is The *smaller* the difference in sample size and distribution mean and the wider the dispersion of the distributions, the smaller the expected cost of the Type I or Type II error.

Reference: 2024, Investment Manager Selection, L3, Volume 5, Learning Module 4, Section 3, Type I and Type II Errors in Manager Selection, pp. 273-275.

3. **B**

LOS: Volume 5, Learning Module 4, *Describe uses of returns-based and holdings-based style analysis in investment manager selection.*

Statement 5 is correct. The disadvantage is that RBSA [returns-based style analysis] is an imprecise tool. Although the additional computational effort required is not onerous, accuracy may be compromised, because RBSA effectively attributes performance to an unchanging average portfolio during the period. This attribution limits the ability to identify the impact of dynamic investment decisions and may distort the decomposition across sources of added

value. Furthermore, the portfolio being analyzed might not reflect the current or future portfolio exposures.

By this same logic, Statement 4 would be incorrect as portfolios with illiquid holdings (e.g., private equity, venture capital) would likely contain outdated prices, thereby understating the portfolio's true risk exposure.

Reference: 2024, Investment Manager Selection, L3, Volume V, Learning Module 4, Section 4, Quantitative Elements of Manager Search and Selection, pp. 276-279.

4. **B**

LOS: Volume 5, Learning Module 4, *Describe uses of the upside capture ratio, downside capture ratio, maximum drawdown, drawdown duration, and up/down capture in evaluating managers.*

Twimbly's observation in Opinion 2 is incorrect. Active share indicates the degree to which a manager's portfolio weights differ from those of the benchmark constituents. It is not, in and of itself, a catch-all metric for a manager's risk management policies; the assessment involves numerous factors.

Reference: 2024, Investment Manager Selection, L3, Volume 5, Learning Module 4, Section 5, Capture Ratios and Drawdowns in Manager Evaluation, pp. 279-283.

QUESTION SET 10: ETHICAL AND PROFESSIONAL STANDARDS

1. **B**

LOS: Volume 6, Learning Module 2, *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.*

Trading beyond the parameters set in the investment policy statement breaches the Standards. While enhanced access to research may benefit the firm and its various strategies, it doesn't negate the responsibility to meet the specific needs of the client(s).

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 2, Section 20, Standard III (A): Application of the Standard, pp. 81-82.

2. **A**

LOS: Volume 6, Learning Module 2, *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.*

The establishment of the new client relationship would not be considered a solicitation of a former client, as the client was the one who initiated the contact. Therefore, it is not a violation of the Standards.

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 2, Section 35, Standard IV(A): Application of the Standard, pp. 113-118.

3. **B**

LOS: Volume 6, Learning Module 2, *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.*

Joining the board of the manufacturing client would be a violation of the Standards, since serving as a director, even if unpaid, is a conflict of interest between that and Richmond’s duties as director of research.

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 2, Section 53, Standard VI(A): Application of the Standard, pp. 158-161.

4. **A**

LOS: Volume 6, Learning Module 4, *Explain the ethical and professional responsibilities required by the six General Principles of Conduct of the Asset Manager Code.*

If the fund's mandate allows for the use of the strategy and specific instruments being utilized, then Cranston would not be in violation of the Asset Manager Code of Conduct.

Reference: 2024, Ethical and Professional Standards, L3, Volume 6, Learning Module 4, Section 2, General Principles of Conduct and Asset Management Code of Professional Conduct, pp. 277-280.

QUESTION SET 11: GIPS

Part A

LOS: Level 3, Volume 6, Learning Module 5, *Explain requirements of the GIPS® standards with respect to presentation and reporting.*

Provide any three deficiencies to the GIPS report for full credit. The answers provided below may not be a complete list of the deficiencies for the report.

Deficiencies	Support
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 net assets in this composite. The report should include the amount of net 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 must be shown (less if the firm or the composite has been in existence for a shorter period) and that the GIPS compliance record must then be added each year 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 and 2018	The internal dispersion for the years ended 31 December 2017 and 31 December 2018 is 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 and 2018.
Complete list of composites disclosure is missing	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 disclosure required (for example, "Policies for valuing investments and calculating performance") is missing.

Reference: 2024, Ethical and Professional Standards, Level 3, Volume 6, Learning Module 5, Section 8, Presentation and Reporting Requirements for Composites, pp. 333-339.

Part B

LOS: Level 3, Volume 6, Learning Module 5, *Discuss the purpose, scope, and process of verification.*

Deficiencies
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 is for entire composite life and not just for one specific period.
A firm cannot claim that a single composite is "in compliance."

Reference: 2024, Ethical and Professional Standards, Level 3, Volume 6, Learning Module 5, Section 9, Verification, pp. 339-342.

NOTE: Addendums to this practice exam will be posted at www.cfaboston.org