Checkpoint Exam 3 (Portfolio Management)

TOPIC: PORTFOLIO MANAGEMENT - INDEX-BASED EQUITY STRATEGIES

TOTAL POINT VALUE OF THIS QUESTION SET IS 12 POINTS

Ilya Ramlav, CFA, is an equity portfolio manager reviewing the following three statements made by his assistant regarding passively managed equity portfolios:

Statement 1:	Full replication will exactly match the index return.
Statement 2:	The more dimensions used in stratified sampling, the smaller the tracking error.
Statement 3:	Optimization is designed to create portfolios that are mean-variance efficient relative to the benchmark.

In researching index construction methodologies, Ramlav encounters four weighting methods of the stocks chosen for inclusion in the index: equal weighting, fundamental weighting, market-cap weighting, and price weighting. He considers two independent scenarios:

Scenario 1:	There is the belief that stock prices can be overvalued or undervalued at any given point relative to momentum and volatility.
Scenario 2:	There is the desire to mimic an investment strategy of holding an equal number of shares in the portfolio.

Question 1 of 28

Determine whether Statement 1 is correct or incorrect. **Justify** your choice with *one* reason.

Explanation

Statement 1 is incorrect.

Full replication will likely underperform due to transaction costs and management fees.

or

Even full replication may allow some deviation from perfect replication of all holdings and exact index weights.

Scoring key:

Maximum of 3 points. 1 point for selecting incorrect. 2 points for a valid justification.

(Module P1.2, LOS P1.d)

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Determine whether Statement 2 is correct or incorrect. **Justify** your choice with *one* reason.

Explanation

Statement 2 is correct.

Matching more dimensions will likely produce a closer replication of the index.

Scoring key:

Maximum of 3 points. 1 point for selecting correct. 2 points for a valid justification.

(Module P1.2, LOS P1.d)

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Determine whether Statement 3 is correct or incorrect. **Justify** your choice with *one* reason.

Explanation

Statement 3 is incorrect.

Optimization seeks to match only the specified characteristics of the index.

Candidate discussion: One disadvantage of optimization is that it can create portfolios that are not mean-variance efficient relative to the benchmark because variance may not be one of the specified characteristics in the optimization. The solution is to add a constraint that total portfolio variance is equal to the variance of the benchmark.

Scoring key:

Maximum of 3 points. 1 point for selecting incorrect. 2 points for a valid justification.

(Module P1.2, LOS P1.d)

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Determine and **justify** the appropriate weighting method (equal weighting, fundamental weighting, market-cap weighting, or price weighting) for both Scenarios 1 and 2. Provide your responses in a separate paragraph for each scenario.

Explanation

For Scenario 1, *fundamental weighting* allows the portfolio to tilt toward the factors expected to outperform and away from the ones expected to underperform. It is a form of smart beta.

For Scenario 2, *price weighting* replicates holding an equal number of shares in each security.

Scoring key: Maximum of 3 points. 1 point for correctly determining both weighting methods. 2 points for correctly justifying both choices. Partial credit of 1 point for one correct justification.

(Module P1.2, LOS P1.d)

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TOPIC: PORTFOLIO MANAGEMENT - ACTIVE EQUITY INVESTING

TOTAL POINT VALUE OF THIS QUESTION SET IS 12 POINTS

Insight Strategic Management (ISM) is a portfolio management firm specializing in equity investing. ISM uses a variety of equity portfolio approaches, including:

- Long/short portfolio construction approach with a gross exposure of 160 and a net exposure of 100.
- Index futures and option straddles.
- Statistical arbitrage.
- Event-driven strategies, including recent purchases of shares in a Brazilian telecommunications company that is an acquisition target in a share-for-share merger by a U.S.-based company. The merger will likely be closely scrutinized by U.S. regulators.

ISM also uses external managers for their specific investment styles. It recently examined the holdings of one of its long-only portfolios actively managed by Ruby Ascal and compiled the holdings for two consecutive nonoverlapping three-year periods. The Morningstar Style Boxes for the two periods for Ascal's portfolio are provided in Exhibits 1 and 2. Ascal's investment mandate is diversified exposure with a growth tilt.

Exhibit 1: Morningstar Style Box for Ascal—2012 to 2014

	Value	Blend	Growth
Large-cap	20	30	40
Mid-cap	2	3	5
Small-cap	0	0	0

Exhibit 2: Morningstar Style Box for Ascal—2015 to 2017

	Value	Blend	Growth
Large-cap	45	30	20
Mid-cap	1	2	2
Small-cap	0	0	0

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ISM's investment in the Brazilian telecommunications company following its merger announcement is an example of:

A) an event-driven strategy using risk arbitrage. ✓

B) statistical arbitrage using pairs trading.

C) statistical arbitrage using market microstructure.

Explanation

Event-driven strategies focus on market inefficiencies that result from "events" like the proposed acquisition of the Brazilian company. Assuming the stock price of the target firm is undervalued (i.e. its market price underestimates the likelihood of the merger being completed) the manager buys the target Brazilian shares and shorts the acquirer's U.S. shares.

A pairs trade also takes long and short positions in two similar stocks, but the motivation is to profit from relative mispricing between the two stocks that have historically been highly correlated. Pairs trading is not tied specifically to merger events. Market microstructure-based investing seeks to benefit from extremely short-lived (few milliseconds) temporary mispricings that result from demand-supply order imbalances.

(Module P2.3, LOS P2.f)

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ISM is concerned that Ascal has deviated from her initial investment style. Based on Exhibits 1 and 2, is ISM's concern supported by the holdings-based style analysis?

A) No, because Ascal continues to invest primarily in large-cap securities.

B) Yes, because Ascal's mid-cap allocation has declined significantly.

C) **Yes, because Ascal moved from a growth- to a value-oriented style. ✓**

Explanation

Ascal's mandate is diversified with a growth tilt. The style boxes cover two consecutive time periods and show that the initial overweighting of growth to value of 40% versus 20% has shifted to overweight value at 45% versus growth at 20%. There are no other significant changes indicated by the exhibits. There is a shift and it is away from the growth tilt mandate.

(Module P2.2, LOS P2.d)

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Assume ISM uses a benchmark index for its portfolio, which has a beta close to 1 for the market factor and a negative sensitivity to the size factor. This would *most likely* indicate a:

A) Small-cap bias.

B) Mid-cap bias.

C) **Large-cap bias. ✓**

Explanation

Historically, small-cap stocks have tended to outperform large-cap stocks and earn a return premium. Hence, a positive sensitivity to size indicates a tilt toward small-cap stocks. In contrast, ISM's negative sensitivity indicates a tilt to large cap. That is the definitive issue here. In addition, large-cap stocks tend to have betas closer to the overall market beta of 1.0, as does ISM's benchmark.

(Module P1.1, LOS P1.a)

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Based on the gross and net exposures of ISM's portfolio, ISM *most likely* uses:

A) Net short portfolio construction.

B) Market neutral portfolio construction.

C) **Long extension portfolio construction. ✓**

Explanation

ISM's gross exposure of 160 and net of 100 were given in the case facts. The net 100 means that ISM has the same net market exposure as a long-only portfolio, 100% long. ISM cannot be market neutral as that requires offsetting long and short positions for net 0% market exposure. They cannot be net short as the short positions would have to exceed the long positions and the net would be negative (indicating the portfolio would be expected to profit if the market declines).

The 160% gross is the sum of the absolute short and long positions. To reach 100% net they must be using a 130/30 long extension approach; investing 130% of initial capital in long positions, financed by shorting 30% of initial capital: 130 + 30 = 160 gross and 130 − 30 = 100 net.

(Module P3.5, LOS P3.g)

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