

## Portfolio Construction - Questions

Farat Asset Management (FAM) offers a global array of active and passive management styles. For larger investors, FAM offers various funds with a large number of constituents, including some relatively illiquid ones. Four of those funds are described in Figure 1. Over time, there has been substantial variation in returns, variances, and correlations between securities.

### Description of Funds

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Fund Name	Fund Description
Archie	Passive investment in one large developed market
Baxter	Passive investment in frontier and emerging markets
Carlie	Passive investment in global developed markets
Dunes	An active global portfolio covering all geographic sectors

Hanna Sole is a portfolio manager with FAM and collects the following notes on the funds in **Figure 1**.

- Note 1: Archie is constructed using a full replication process, defined as a 99% match to the index.
- Note 2: Baxter is constructed using a stratified sampling process.
- Note 3: Carlie is constructed using an optimization process.
- Note 4: Dunes uses aggressive shareholder engagement strategies.
- Note 5: All funds charge a single management fee that covers all costs to investors in that fund.

Sole is also interested in the degree of security-specific risk diversification within FAM's portfolios. She asks the portfolio managers for the Herfindahl-Hirschman Index (HHI) for each of three portfolios. Each portfolio uses some form of market cap or free float weighting. The HHI results are shown in **Figure 2**.

### HHI Calculations

- Portfolio 1 0.0321
- Portfolio 2 0.0027
- Portfolio 3 0.0015

One of Sole's clients is a large endowment portfolio that uses multiple managers and strategies. The board of trustees for the endowment relies on Sole and FAM for advice on manager and strategy allocation. The board asks Sole to evaluate the performance of one of their managers. To do so, Sole first collects the data in **Figure 3**.

### Manager and Benchmark Data

Sector	Sector Return	Weight by Sector	
		Manager Allocation	Benchmark Allocation
Industrials	-1.3%	35%	25%
Finance	4.4%	20%	25%
Consumer	4.4%	30%	25%
Energy	4.5%	15%	25%

The board also asks Sole for advice regarding three new passive index managers they are considering and provides the data in **Figure 4**. All three managers use the same benchmark index.

### New Managers

	Manager 1	Manager 2	Manager 3	Benchmark
Management fee	0.75%	4%	3%	
Cash allocation	3%	0%	2%	

At her next meeting with the board, Sole discusses the results of her analysis. As the meeting is breaking up, one of the newest board members approaches her and asks about a new index manager he has heard of. The manager describes his process as focused on dividends, P/E, and a size factor. The board member says, "This sounds like an active manager and not a passive index manager." Sole promises to look into it before their next meeting.

### Question 1 of 12

Which of the funds in **Figure 1** *most likely* charges the lowest management fee?

- A) Archie.
- B) Baxter.
- C) Carlie.

### Question 2 of 12

Which of the following statements *least accurately* describes the situation with Dunes?

- A) There is a greater risk of insider trading.
- B) There is a greater focus on long-term goals.
- C) There is a greater potential for conflicts of interest.

### Question 3 of 12

Based on the data regarding the HHI calculations, which of the following is *most likely* correct?

- A) Portfolio 3 holds more than 668 stocks.
- B) Portfolio 1 has the equivalent of 64 stocks.
- C) Portfolio 3 has more nonsystematic risk than Portfolio 2.

### Question 4 of 12

Based on the data for the HHI calculations in Figure 2 and assuming Portfolio 2 is equally weighted, the number stocks in Portfolio 2 is closest to:

- A) <370.
- B) 370.
- C) >370.

Suzanne Harlan has a large, well-diversified stock and bond portfolio. She wants to try some alternative investments and has contracted with Laurence Philips, principal of Philips Finance, to help assemble a new portfolio.

Before agreeing to make recommendations for Harlan, Philips wants to determine whether she is a good candidate for alternative investments. He gives her a standard questionnaire that asks open-ended questions of all potential clients. Here are some of Harlan's comments:

- "I'm interested in higher returns. I'm not afraid of risk, and I'm investing this money for the benefit of my eventual heirs."
- "I pay several million dollars in taxes every year, and I want any additional investments to be consistent with my tax situation."
- "While I expect risk on an individual investment basis, I'd like to further diversify my portfolio and reduce overall risk."
- "I pay a lot of attention to expense and return data from my investments and track their performance closely."
- "I'm 65 years old and in excellent health."

After reading Harlan's responses and learning that she is a fairly sophisticated investor, Philips agrees to take her on as a client. Harlan has a lot of experience with investments and has some ideas for where she'd like to invest. She brings Philips the following ideas:

- "I have a colleague in the timber business who says the furniture market is booming, and demand should increase in the year ahead. I'm interested in increasing my exposure to real assets, but I'm unsure how they will impact the risk profile of my overall portfolio."
- "Hedge funds are earning excellent returns, and I expect them to continue doing so. However, other investors have told me that the difficulty lies in assessing the quality of the funds, because they are not well regulated. So, I'm interested in purchasing a fund-of-funds (FoF), so I can diversify my risk while potentially sharing in some outsized returns."
- "I already own public equity securities, but I'm also interested in private equity securities. I've been informed that both public and private companies face similar risk factors."
- "My neighbors founded Kelly Tool and Equipment, a machine-tool business, 20 years ago. I have contacts in the manufacturing business overseas who would be interested in acquiring Kelly's assets. My contacts in Asia are willing to pay about 60% of the book value for the assets, and my neighbors are willing to sell me the company for about 50% of the book value of its assets."

Harlan then tells Philips that it is imperative that the returns of any investments he recommends be in some way comparable to a benchmark.

Philips is not excited about the commodity idea and does not like FoFs. However, he does know several managers of individual hedge funds that might interest Harlan. He talks her out of the FoF idea and suggests she put her money into the Stillman Fund, which is run by one of his college friends. Fund manager Mark Stillman concentrates on spinoffs, generally buying the spunoff company and shorting the parent company.

### Question 5 of 12

Which pair of Harlan's proposed investments represent the *best* choice for Harlan's goal of increasing return and of diversification in her portfolio? Consider each goal separately.

	<u>Net Returns</u>	<u>Diversification</u>
A)	Private equity	Hedge funds
B)	Real assets	Hedge funds
C)	Private equity	Kelly Tool and Equipment

### Question 6 of 12

Based on her investment suggestions and survey answers, Harlan is *least* concerned with:

- A) inflation.
- B) liquidity.
- C) volatility.

### Question 7 of 12

Which of Harlan's responses is *most likely* to make Philips consider her a bad candidate for alternative investments?

- A) "I'm 65 years old and in excellent health."
- B) "I pay a lot of attention to expense and return data from my investments and track their performance closely."
- C) "I pay several million dollars in taxes every year, and I want any additional investments to be consistent with my tax situation."

### Question 8 of 12

How should Philips respond to Harlan regarding her statement about benchmarks?

- A)** Published alternative investment indices can be used as a valid benchmark.
- B)** The performance of an alternative investment strategy can be evaluated against a benchmark.
- C)** Instead of using a benchmark, it is better to assess an alternative investment in terms of its return, risk, income, and safety.

Rob Baker, an investment manager at Welker Auto Parts (Welker), is responsible for managing his company's defined benefit pension plan. The plan has been underfunded for several months, and Baker is meeting today with Gary Thompson, the company's CFO, to discuss possible ways to erase this liability funding shortfall.

During the meeting, Baker and Thompson make four comments:

- Comment 1: Baker proposes that the plan should increase the value of its pension assets by investing in riskier securities. Currently, the plan invests most of its funds in investment-grade corporate bonds and large-cap equities. Baker is confident that investments in small-cap equities will help bring the fund back to fully funded status.
- Comment 2: Thompson is not confident that shifting to riskier securities will guarantee an increase in pension asset values and points to the company's high debt ratio as an indication of a need to take a more risk-averse stance.
- Comment 3: Baker notifies Thompson of the high correlation of pension asset returns with the firm's operations and states that the high correlation increases the ability to take risk by increasing predictability and diversification.
- Comment 4: Thompson disagrees, suggesting that a firm's high ratio of active to retired lives diminishes the ability to take on more risk.

Baker and Thompson then turn to a list of additional discussion items:

- Item 1: Add an option to the plan that will allow participants to retire five years earlier than currently permitted at a 15% reduction in the value of the benefit payout.
- Item 2: Freeze the plan. All new employees will participate in a new defined contribution plan in which they can select from a list of investment alternatives that will range from more conservative to more aggressive than the defined benefit plan.

Each item is independent and is to be considered in isolation, as if it is adopted and no other changes are made.

### Question 9 of 12

Regarding Baker's Comment 1 and Thompson's Comment 2, which of the following *best* describes the appropriateness of their views?

- |    | <u>Baker</u>  | <u>Thompson</u> |
|----|---------------|-----------------|
| A) | Inappropriate | Appropriate     |
| B) | Appropriate   | Inappropriate   |
| C) | Inappropriate | Inappropriate   |

### Question 10 of 12

Regarding Baker's Comment 3 and Thompson's Comment 4, which of the following *most likely* describes their accuracy?

- |    | <u>Baker</u> | <u>Thompson</u> |
|----|--------------|-----------------|
| A) | Incorrect    | Correct         |
| B) | Correct      | Incorrect       |
| C) | Incorrect    | Incorrect       |

### Question 11 of 12

If Item 1 is adopted, what is the *most likely* immediate effect on the plan's liquidity needs and surplus?

- |    | <u>Liquidity needs</u> | <u>Surplus</u> |
|----|------------------------|----------------|
| A) | Increase               | Increase       |
| B) | Increase               | Decrease       |
| C) | Decrease               | No change      |

### Question 12 of 12

Assuming Item 2 is adopted and most plan participants choose more aggressive assets than those in the pension plan portfolio, the risk for the sponsor (Welker) will *most likely*:

- A) increase.
- B) decrease.
- C) be unchanged.