Question #1 of 10

Question ID: 1552081

A portfolio has a laddered benchmark and a duration of 8. You are the portfolio manager and you are considering the following possible strategies:

- **Ladder.** Replicate the benchmark with an equal distribution of bonds with durations ranging from 1 to 16 (for a combined duration of 8). The ladder option has convexity of 25.6 and a yield of 4.72%.
- **Barbell.** This option invests 50% in bonds with a duration of 2 and 50% in bonds with a duration of 14 (for a combined duration of 8). The barbell option has convexity of 29.1 and yield of 4.27%.
- **Bullet.** Invest 100% in bonds with a duration of 8, convexity of 21.2, and a yield of 4.92%.

You are expecting a steepening of the yield curve in which the short end of the curve declines by 75 bps, the long end increases by 75 bps, and the intermediate-duration portion remains static. Which portfolio should you pick?

A) Pick the ladder portfolio.

B) Pick the bullet portfolio.

C) Pick the barbell portfolio.

Explanation

The steepening described is effectively a pivot. The increase in the long end of the curve will create a large decline in bond prices. The decrease in the short end will create an increase in prices that does not fully offset the loss on the longer-duration bonds. For this reason, a ladder and a barbell will both experience a net loss. The bullet strategy is estimated to experience no loss because it is concentrated on an intermediate-duration portion of the yield curve that does not move during the pivot described.

(Module 10.1, LOS 10.d)

Question #2 of 10

Question ID: 1552089

SafetyRite, Inc., has offered a defined benefit pension plan to its workforce since its formation. At its most recent valuation, plan assets exceeded plan liabilities by 10%. The basis point value (BPV) of the PBO and plan assets are $1,712,950 and $279,980, respectively. The plan manager is considering the use of a receive-fixed interest rate swap with a BPV of 0.0893 per $100 of notional principal to manage the interest rate risk arising from the duration gap. If the plan manager uses a hedging ratio of 100%, the appropriate notional principal for the receive-fixed swap is *closest* to:

A) $1,604.7 million.

B) $1.6047 million.

C) $160.47 million.

Explanation

duration gap = BPV of PBO − BPV of plan assets = $1,712,950 − $279,980 = $1,432,970

NP = 1,432,970 / (0.0893 / 100) = 1,604,669,653

The required notional principal on the receive-fixed swap is $1,604,669,653 to fully hedge the duration gap.

(Module 10.1, LOS 10.e)

Question #3 of 10

Question ID: 1587662

Amy Leslie currently has 40% of her overall portfolio invested in a diversified fixed-coupon bond portfolio with an average duration of eight years. The remainder of her portfolio is evenly spread across both large- and small-cap stocks that are balanced globally across many sectors and countries, primarily through diversified ETFs. Leslie primarily wants to reduce the overall risk of her portfolio and keep up with inflation until she retires in 16 years.

Leslie is a professional photographer and has a limited understanding of the financial markets. During a recent meeting with her financial advisor, Leslie was informed of some changes that she should consider making to her portfolio. Her advisor identified that the correlation coefficient of Leslie's current bond portfolio with her equity holdings is –.05. Also, the correlation coefficient between her equity holdings and an ETF consisting of inflation-linked bonds is .23. Finally, the approximate correlation coefficient between Leslie's current fixed-income portfolio and the proposed inflation-linked ETF is relatively high at .55.

Her advisor recommends that Leslie should diversify her current fixed-coupon bond holdings by adding inflation-linked bonds to her portfolio.

The following action Leslie would take, considering her primary goal is to reduce her portfolio risk and to keep up with inflation until she retires, is *most likely*:

A) reduce her current bond holdings by 25% and purchase small-cap emerging market stocks with the proceeds. ✗

B) rebalance 25% of her fixed-income holdings into inflation-linked bonds. ✓

C) **ignore the recommendation because her portfolio is already properly diversified.** ✗

Explanation

Rebalancing 25% of her fixed-income holdings into inflation-linked bonds to an already diversified portfolio of bonds and stocks generally results in superior risk-adjusted real portfolio returns. Leslie can also lower the overall risk of her portfolio by adding inflation-linked bonds to her portfolio. The correlation between nominal fixed-coupon bonds and inflation-linked bonds is .55, which is less than 1.0. Adding the inflation-linked bonds helps to meet Leslie's requirement to keep up with inflation.

Increasing the percentage of the portfolio in emerging markets stocks will not reduce the overall portfolio risk as Leslie has requested.

Based on Leslie's primary goal, she should follow her advisor's advice and add inflation-linked bonds to her portfolio.

(Module 9.1, LOS 9.a)

Question #4 of 10

Question ID: 1552030

Forced liquidation of a leveraged fixed-income portfolio may be required when the portfolio's value:

A) rises, decreasing the ratio of borrowed funds relative to the portfolio's equity and decreasing the portfolio's leverage. ✗

B) falls, decreasing the ratio of borrowed funds relative to the portfolio's equity and increasing the portfolio's leverage. ✗

C) **falls, increasing the ratio of borrowed funds to the portfolio's equity and increasing the portfolio's leverage.** ✓

Explanation

When the leveraged portfolio's value falls, V_E will decrease and V_B/V_E (which measures the use of leverage) will increase.

This may induce lenders to demand repayment of the portfolio's borrowed funds, leading to forced liquidation of the portfolio's assets, potentially at unattractive prices.

(Module 9.3, LOS 9.e)

Question #5 of 10

Question ID: 1552068

Which of the following is a correct statement relative to immunizing multiple liabilities under duration matching?

A) The initial present value of assets (PVA) can be less than the initial present value of liabilities (PVL) as long as a pure immunization approach is followed. ✗

B) **The convexity of the assets should slightly exceed the convexity of the liabilities.** ✓

C) The basis point value of the assets should exceed the basis point value of the liabilities. ✗

Explanation

In order for multiple liabilities to be effectively immunized, the convexity of the assets should slightly exceed the convexity of the liabilities. It is also advised that the basis point value of the assets should match the basis point value of the liabilities and that the initial PVA meets or exceeds the PVL.

(Module 10.1, LOS 10.c)

Question #6 of 10

Question ID: 1587694

A bank has both Type II and Type III liabilities. The bank uses modified duration to model its Type II liabilities and effective duration to model its Type III liabilities. Which of the following statements regarding modeling the bank's liabilities is *most accurate*?

A) The bank adequately models both its Type II and Type III liabilities.

B) The bank adequately models only its Type II liabilities.

C) The bank adequately models only its Type III liabilities.

Explanation

Modified duration is a simple duration formula that is only adequate to model Type I liabilities, which have known future amounts at known payout dates.

The three other liability types (Type II, III, and IV) are more complex and have uncertain payout amounts and/or uncertain payout dates, and they require effective duration for modeling. Effective duration can accommodate various yield curve shapes and shifts in the yield curve, and the bank should be using effective duration to model both its Type II and Type III liabilities. Therefore, the bank is adequately monitoring only its Type III liabilities.

(Module 10.1, LOS 10.a)

Question #7 of 10

Question ID: 1587680

An institutional portfolio manager is attempting to determine the expected return of a bond portfolio. The bonds in the portfolio are mostly option free. The manager also expects a moderate change in interest rates but is unsure of the direction. Which of the following statements is correct?

A) The easiest portion of the expected return to compute is the rolldown return.

B) Convexity is likely to be an important consideration.

C) The computation of yield income is based on actual amounts. ✓

Explanation

Yield income is calculated as the annual coupon amount divided by the current bond price. Both the numerator and denominator are actual amounts as opposed to projections.

The rolldown return is slightly more complicated to compute because it depends on the curve-fitting technique used.

Given that most of the bonds in the portfolio are option free and the change in yield is only expected to be moderate (as opposed to being very large), the convexity effect will be small and will not be an important consideration.

(Module 9.2, LOS 9.d)

Question #8 of 10

Question ID: 1552162

An investor is looking for a fixed-income investment. She states that may need to suddenly liquidate her investment and requires a quick sale at the best possible price. Which type of fixed-income investment is least suitable for the investor?

A) Laddered corporate bond portfolio. ✓

B) Laddered fixed-maturity corporate bond ETFs. ✗

C) Fixed-income mutual fund. ✗

Explanation

The investor states a clear requirement for liquidity. In that regard, the mutual funds and ETFs are more liquid than the actual bonds, which makes the bond portfolio the least suitable investment.

The mutual funds and ETFs will most provide for a much quicker redemption compared to the time it would take to sell the bonds. As well, the mutual funds and ETFs would likely be able to do so with the least price concessions.

(Module 10.5, LOS 10.h)

Question #9 of 10

Question ID: 1587683

Nick Johnsen manages a well-diversified portfolio of government and corporate bonds. He is considering the use of interest rate swaps and structured financial instruments to leverage his portfolio's returns. If Johnsen expects interest rates to rise over the next five years, which of the following positions is *most likely* to benefit from his interest rate expectations?

A) Long position in an inverse floating-rate note.

B) Fixed-rate payer in an interest rate swap.

C) Fixed-rate receiver in an interest rate swap.

Explanation

A fixed-rate payer/floating-rate receiver in an interest rate swap would benefit from rising interest rates, as the fixed-rate side of the swap would decrease in value, while the floating-rate payments would increase.

A long position in an inverse floating-rate note would benefit from a decline in interest rates, as would the fixed-rate receiver in an interest rate swap.

(Module 9.3, LOS 9.e)

Question #10 of 10

Question ID: 1552055

Caitlin Randolph is a fixed income consultant for a large endowment that has a $15 million single liability that is due in 8 years. The Board of Directors for the endowment has requested that Caitlin immunize the payment and it is not possible to use zero-coupon bonds in this situation. The Board is requesting Caitlin to consider two portfolios of government securities for consideration that were selected by the endowment's investment committee.

The consultant is instructed to initially select the portfolio that will minimize the risk of the portfolio over the 8 year period.

	Portfolio 1	Portfolio 2
Yield of Portfolio	4.0%	4.2%
Macaulay duration	7.99	8.02
Convexity	94.16	123.57

Indicate the portfolio that Caitlin should recommend:

A) Portfolio 1.

B) Portfolio 2.

C) Neither Portfolio 1 or 2.

Explanation

Caitlin should select portfolio 1. There is a minimal yield difference, 4.2% vs 4% for the two portfolios and both portfolios have durations approximately equal to 8 years. Since the yield and duration differences are minimal, Caitlin should select the portfolio that has the lowest convexity. By selecting Portfolio 1, Caitlin is minimizing the structural risk of the immunization strategy from non-parallel and twisting changes in the yield curve.

(Module 10.1, LOS 10.b)