




Question #1 of 18

Question ID: 1552141

Sometimes, managers will use a total return swap (TRS) to replicate bond index exposure. Which of the following statements is *most correct* relative to TRS implementation?

- A) **TRSs can be customized to capture movements in a specific sector of the bond market.** 
- B) Total return swaps are long-term solutions, which eliminates reinvestment risk. 
- C) Regulation enhancements have made swaps more cost effective to implement. 

Explanation

Total return swaps are short-term solutions. This fact introduces rollover (reinvestment) risk as a new TRS will need to be found to meet the investors indexing needs. Regulation rarely makes anything more cost efficient. Recent changes have required swap dealers to hold more capital when engaged in swap contracts. This increases their cost of doing business which is passed along to investors through less favorable swap terms. Total return swaps can be customized to include the broader bond market or a granular sector of interest. A sector-focused swap will be more costly than a broader market swap.

(Module 10.5, LOS 10.h)

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Question ID: 1552090

The defined benefit pension plan of a U.S. company has a negative basis point value (BPV) duration gap of \$435,620. The plan manager has discretion to hedge 25% to 75% of the duration gap, with a 50% hedge considered the default position. To implement the hedge, she is considering the use of a receive-fixed interest rate swap with a BPV of 0.0775 per \$100 of notional principal. If the manager expects interest rates to increase, she should enter a receive-fixed swap with a notional principal that is *closest* to:

- A) \$421.6 million. 
- B) **\$281.0 million.** 
- C) \$140.5 million. 

Explanation

If interest rates are expected to rise, the manager is most likely to minimize the duration of the plan assets (i.e., use a 25% hedge).

$$\text{NP for a 100\% hedge} = 435,620 / (0.0775 / 100) = 562,090,322.6$$

$$\text{NP for a 25\% hedge} = 562,090,322.6 \times 0.25 = 140,522,580.7$$

The required notional principal on the receive-fixed swap is \$140,522,581 for a 25% hedge.

(Module 10.1, LOS 10.e)

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Question ID: 1552059

Which of the following statements is *most accurate* with respect to Macaulay duration?

- A) Macaulay duration is a weighted average time calculation that measures interest rate risk exposure. ✓
- B) **The weights used to calculate Macaulay duration are essentially the percentage each cash flow holds of total expected cash flows.** ✗
- C) Macaulay duration balances reinvestment risk and cash flow risk. ✗

Explanation

Macaulay duration is the weighted average time until the cash flows of an instrument are received. The weights in this calculation are the percentage of the *present value* of each cash flow relative to the total present value of all cash flows. Macaulay duration balances price risk and reinvestment risk.

(Module 10.1, LOS 10.b)

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Question ID: 1552082

A defined benefit plan has 3.48 billion in projected benefit obligations (PBO) with an effective duration of 12.75. The plan assets are invested in 40% equities and in 60% bonds because the company is somewhat risk averse. Total plan assets are \$3.71 billion, and the effective duration of the fixed income holdings is 7.2. You are planning to use Treasury futures to hedge portfolio risk. The CTD bond has a BPV of 131.783 and a conversion factor of 0.85. How many futures contracts do you need in order to hedge 100% of the expected duration gap?

- A) Buy 11,389 contracts. ✗

B) Buy 18,281 contracts.



C) Buy 21,727 contracts.



Explanation

The BPV of the liabilities (BPVL) is \$4.437 million ($3.48 \text{ billion} \times 12.75 \times 0.0001$). The BPV of the assets (BPVA) is \$1.60272 million ($3.71 \text{ billion} \times 60\% \times 7.2 \times 0.0001$). This leaves a duration gap of \$2.83428 million ($\$4.437 \text{ million} - \1.60272 million). The BPV of the futures contract (BPVF) is 155.039 ($131.783 / 0.85$). Therefore, the number of contracts to buy for a 100% hedge is 18,281 ($[\$4,437,000 - \$1,602,720] / 155.039$).

(Module 10.1, LOS 10.e)

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Question ID: 1552100

A U.S. investor owns a bond portfolio with a market value of \$5 million and modified duration of 4.5. He would like to increase the duration of his portfolio to 6.0 using U.S. Treasury note futures. If each futures contract has a price value of a basis point (PVBP) of \$93, to adjust portfolio duration, the investor should *most* appropriately:

A) buy 8 futures contracts.



B) buy 806 futures contracts.



C) sell 806 futures contracts.



Explanation

additional PVBP required = $\$5 \text{ million} \times (6.0 - 4.5) \times 0.0001 = \750

number of futures contracts required = $\$750 / \$93 = 8.06$

Because the investor wants to increase portfolio duration, he should buy eight futures contracts.

(Module 10.1, LOS 10.e)

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Question ID: 1552163

A fixed income analyst makes the following statements relating to the construction of laddered bond portfolios.

Statement 1: The use of fixed-maturity corporate bond ETFs in the construction of a laddered portfolio is likely to improve portfolio liquidity as opposed to buying individual bonds in the market.

Statement 2: As an alternative to a laddered portfolio constructed with corporate bonds, investors should consider bond mutual funds because these funds may offer cost benefits and greater diversification of credit risk.

Which of the analyst's statements are correct?

A) Statement 2 only.



B) Statement 1 only.



C) Both Statement 1 and Statement 2.



Explanation

Trading in ETFs is likely to be more liquid compared to buying and selling individual bonds.

Bond mutual funds may offer cost benefits and greater diversification of credit risk than a laddered portfolio constructed of a relatively small number of corporate bonds.

(Module 10.5, LOS 10.h)

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Question ID: 1552078

Compared to a barbell portfolio with the same duration and cash flow yield, a laddered portfolio is *most likely* to display:

A) higher convexity.



B) outperformance in the event of a large, parallel shift in the yield curve.



C) lower cash flow reinvestment risk.



Explanation

Laddered portfolios have relatively high convexities, yet a laddered portfolio will have a lower convexity than a barbell portfolio with the same duration and cash flow yield.

A laddered portfolio's diversification of cash flows will give rise to lower cash flow reinvestment risk than a barbell portfolio.

A laddered portfolio, with its relatively lower convexity, will underperform a barbell portfolio when there is a large, parallel shift in the yield curve.

(Module 10.1, LOS 10.d)

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Question ID: 1552086

Selected information relating to the defined benefit pension plan of a U.S. company are shown as follows:

Projected benefit obligation (PBO)	\$1.25 billion
Effective duration of PBO	8.9
Market value of plan assets	\$1.31 billion
Asset mix of plan assets	60% equity/30% bonds/10% alternatives
Modified duration of bonds in plan assets	6.1

The pension plan has:

A) a positive money duration gap of \$313,400.



B) a negative money duration gap of \$872,770.



C) a negative money duration gap of \$313,400.



Explanation

$$\text{BPV of PBO} = \$1.25 \text{ billion} \times 8.9 \times 0.0001 = \$1,112,500$$

The modified duration of equities and alternatives is assumed to be zero.

$$\text{BPV of plan assets} = \$1.31 \text{ billion} \times 0.3 \times 6.1 \times 0.0001 = \$239,730$$

$$\text{money duration gap} = \$239,730 - \$1,112,500 = -\$872,770$$

(Module 10.1, LOS 10.e)

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Question ID: 1552164

A wealth manager purchases equal positions in fixed maturity corporate bond ETFs to create a ladder portfolio that approximately replicates holding the individual bonds.

The advantages of purchasing the ETFs over the purchase of the individual bonds *most likely* include:

A) lower cost and greater liquidity.



B) greater liquidity only.



C) lower cost only.

**Explanation**

The advantages of purchasing the ETFs over the purchase of individual bonds include lower cost and greater liquidity. The actual bonds often involve a substantially higher cost of acquisition than the ETFs. As well, in the event of a liquidation, the ETFs have greater liquidity than the bonds. It would probably take less time to redeem the ETFs than it would take to sell the bonds and the ETFs are likely to be redeemed at a more favorable price than the bonds.

(Module 10.5, LOS 10.h)

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Question ID: 1552077

Compared to a bullet portfolio with the same duration and cash flow yield, a ladder portfolio is *most likely* to display:

A) lower cash flow reinvestment risk.



B) outperformance in the event of a large, parallel shift in the yield curve.



C) lower convexity.

**Explanation**

A ladder portfolio, with its dispersion of cash flows, will have a higher convexity than a bullet portfolio with the same duration and cash flow yield.

A ladder portfolio's dispersed cash flows will give rise to higher cash flow reinvestment risk than a bullet portfolio.

A ladder portfolio, with its higher convexity, will outperform a bullet portfolio when there is a large, parallel shift in the yield curve.

(Module 10.1, LOS 10.d)

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Question ID: 1552130

A fixed income analyst makes the following statements relating to the construction of a bond portfolio that is intended to track a domestic bond market index.

- Statement 1: The key rate durations of the tracking portfolio and the index should be closely matched to minimize tracking error arising from nonparallel yield curve shifts.
- Statement 2: The present value of distribution of cash flows methodology can be used to minimize tracking error due to yield curve risk.

Which of the analyst's statements are correct?

- A) Statement 1 only.** 
- B) Both Statement 1 and Statement 2.** 
- C) Statement 2 is only.** 

Explanation

While matching effective durations minimizes tracking error due to parallel yield curve shifts, matching key rate durations minimizes tracking error arising from nonparallel yield curve shifts.



The present value of distribution of cash flows methodology can be used to match the yield curve risk of the index and minimize tracking error. This approach seeks to approximate and match the yield curve risk of an index over discrete time periods referred to as cash flow vertices.

(Module 10.5, LOS 10.g)

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Question ID: 1552169

Which of the following fixed income indexes is the *most* appropriate benchmark for a large private foundation with a long-term investment horizon?

- A) U.S. 10+ Year Investment-Grade Corporate Bond Index with an effective duration of 14.9 years.** 
- B) U.S. Aggregate Bond Index with an effective duration of 5.7 years.** 

C) U.S. Corporate High Yield Bond Index with an effective duration of 4.8 years.



Explanation

As the investor has a long-term horizon, the most appropriate index would be the U.S. 10+ Year Investment-Grade Corporate Bond Index because it has the longest duration of the three indexes.

(Module 10.5, LOS 10.i)

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Question ID: 1552129

Isabelle Oben, a portfolio manager at Transatlantic Investment Managers, is meeting with Charlotte Kwok, an ultra-high-net-worth client. The client is interested in building a portfolio that tracks the Bloomberg Barclays Asian Pacific Aggregate Index by matching the primary risk factors of the index in a cost-effective manner. Which of the following portfolio strategies is Oben *most likely* to recommend to her client?

A) Full replication.



B) Enhanced indexing.



C) Active management.



Explanation

Enhanced indexing uses a relatively small number of securities to match the primary risk factors of the underlying index. Enhanced indexing is generally more cost-effective than pure indexing.

Active management is used to attempt to outperform the benchmark index.

(Module 10.5, LOS 10.g)

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Question ID: 1552167

The Bloomberg Barclays U.S. Long Treasury Index measures U.S. dollar-denominated, fixed-rate nominal debt issued by the U.S. Treasury with 10 years or more to maturity. This index is *most likely* to be:

A) affected by changing issuer composition.



B) relatively stable as a benchmark.



C) a static portfolio of bonds.



Explanation

This index only consists of U.S. Treasury bonds, and thus, there will be no changes in issuer composition. It is frequently rebalanced so that it is composed of U.S. Treasuries with maturities of at least 10 years.

(Module 10.5, LOS 10.i)

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Question ID: 1552138

The full replication approach to mimicking a well-diversified fixed income index is *most likely* to involve:

A) high portfolio turnover to enhance portfolio returns.



B) regular rebalancing to match changes in index composition.



C) detailed risk factor analysis.



Explanation

The full replication requires the purchase of bonds in the same proportion as the index. As such, it does not require detailed risk factor analysis.

Full replication is a passive bond management approach that aims to mimic index returns.

A passively managed portfolio using full replication is usually rebalanced monthly to match changes in index composition.

(Module 10.5, LOS 10.g)

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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 fixed-maturity corporate bond ETFs.



B) Laddered corporate bond portfolio.



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)

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Question ID: 1552137

Kirsten Smith is a fund manager with Balco Fixed Income Consulting and specializes in sector and quality enhanced indexing. Smith is expecting significant spread widening and is altering her allocation between Treasuries and corporates.

Smith would execute the following trading strategy:

A) Smith would increase her allocation to AAA corporate bonds.



B) Smith would decrease her allocation to Treasuries over corporates.



C) Smith would increase her allocation to Treasuries over corporates.



Explanation

Smith would increase her allocation to Treasuries over corporate bonds when significant spread widening is anticipated. Smith would increase her allocation to corporates over Treasuries if she expected significant spread narrowing.

(Module 10.5, LOS 10.g)

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Question ID: 1587691

Regarding liability-driven investing, which of the following statements is *most correct* relative to Type I liabilities?

A) Effective duration is required to model risk exposure.



B) Modified duration is adequate to model risk exposure.



C) The amount of the payments is known, but the timing of the payments is uncertain.



Explanation

Type I liabilities have known payments and known timing. It is Type II liabilities that include known payments and unknown timing. Simple duration (Macaulay or modified) is adequate for modeling Type I risk exposures. Types II, III, and IV require effective maturity to better capture movements in the yield curve.

(Module 10.1, LOS 10.a)