

1. Which of the following arguments is false? Key Risk Indicators should:
  - A. Be monitored over time to detect trends
  - B. Be an objective measure of operational risk
  - C. Anticipate operational risks
  - D. Be based upon historical loss data
  
2. A zero-coupon bond with a maturity of 10 years has an annual effective yield of 10%. What is the closest value for its modified duration?
  - A. 10
  - B. 100
  - C. 9
  - D. Insufficient Information
  
3. You have been asked to help communicate to business unit managers some practical considerations in developing key risk indicators (KRIs) and collecting data. Which of the following should not be on your list of talking points?
  - A. KRIs must be continually validated and refined.
  - B. each KRI should be weighted in accordance with its significance, or predictive capabilities
  - C. Select KRIs based on their data availability first and predictive value second.
  - D. KRI definitions will consider the rationale for the risk indicator, description of the measurement criteria, and the sources of data.
  
4. A two-year zero-coupon bond issued by corporate XYZ is currently rated A. One year from now XYZ is expected to remain at A with 85% probability, upgraded to AA with 5% probability, and downgraded to BBB with 10% probability. The risk free rate is flat at 4%. The credit spreads are flat at 40, 80, and 150 basis points for AA, A, and BBB rated issuers, respectively. All rates are compounded annually. Estimate the expected value of the zero-coupon bond one year from now (for USD 100 face amount).
  - A. USD 95.42
  - B. USD 95.33
  - C. USD 92.59
  - D. USD 95.37

5. The rate of change of duration with respect to the underlying yield of a fixed income bond is called:

- A. Convexity
- B. Delta
- C. Theta
- D. DVBP

6. Which of the following would cause a downward- sloping yield curve?

- I. an investor preference for short tem instruments
  - II. An expected decline in interest rates.
  - III. Material credit risk concerns.
  - IV. An expected increase in the inflation rate.
- A. I, II & III
  - B. II & III
  - C. II only
  - D. IV only

7. Given the following portfolio of bonds:

Bond	Price	Par amount held (in USD million)	Modified duration
A	101.43	3	2.36
B	84.89	5	4.13
C	121.87	8	6.27

What is the value of the portfolio's DV01 (Dollar value of 1 basis point)?

- A. 8,584
- B. 8,019
- C. 8,813
- D. 8,294

8. Suppose a 20-year annual coupon bond has a DV01 of 0.14865. Also suppose a 12-year annual coupon bond, which will be used as the hedging instrument, has a DV01 of 0.09764. If the yield beta is 1.10, which of the following statements accurately describes the situation?

- A. The position in the 20-year bond is significantly more volatile than the hedging instrument, and the hedge ratio is 0.72253
- B. The hedging instrument is significantly more volatile than the position in the 20-year bond, and the hedge ratio is 1.67467.
- C. In order to have a perfectly hedged position, for every USD 1 of the 20-year bond, USD 1.67467 of the 12-year bond should be shorted.
- D. In order to have a perfectly hedged position, for every USD 1 of the 20-year bond, USD 0.72253 of the 12-year bond should be shorted.

9. Albert Henri is the fixed income manager of a large Canadian pension fund. The present value of the pension fund's portfolio of assets is CAD 4 billion while the expected present value of the fund's liabilities is CAD 5 billion. The respective modified durations are 8.254 and 6.825 years. The fund currently has an actuarial deficit (assets < liabilities) and Albert must avoid widening this gap. There are currently two scenarios for the yield curve: the first scenario is an upward shift of 25 bps, with the second scenario a downward shift of 25 bps. The most liquid interest rate futures contract has a present value of CAD 68,336 and a duration of 2.1468 years. Analyzing both scenarios separately, what should Albert Henry do to avoid widening the pension fund gap? Choose the best option. First Scenario Second Scenario
- A. St3: Buy 7,559 contracts. Do nothing.
  - B. St4: Do nothing. Do nothing.
  - C. St2: Do nothing. Sell 7,559 contracts.
  - D. St1: Do nothing. Buy 7,559 contracts.
10. According to the pure expectations hypothesis, which of the following statement is correct concerning the expectations of market participants in an upward sloping yield curve environment?
- A. Interest rates will decrease and the yield curve will flatten.
  - B. Interest rates will decrease and the yield curve will steepen.
  - C. Interest rates will increase and the yield curve will flatten.
  - D. Interest rates will increase and the yield curve will steepen.
11. Consider a 20-year annual coupon bond having a DV01 of 0.16243. A portfolio manager wants to hedge this position using a 10-year annual coupon bond that has a DV01 of 0.14131. If the relative change in yield levels between these two instruments captured by the yield beta is 0.87, which of the following more accurately describes the hedging strategy?
- A. Shorting USD 0.7569 of par of the 10-year bond for every \$1 par of the 20-year bond
  - B. Shorting the equivalent amount of par value of the 10-year bond for every USD 1 par
  - C. No combination of the two bonds will constitute a perfect hedge because the
  - D. The 10-year bond is more sensitive to interest rate changes than the 20-year bond.
12. When the maturity of a plain coupon bond increases, its duration increases
- A. Indefinitely and regularly
  - B. Up to a certain level
  - C. Indefinitely and progressively
  - D. In a way dependent on the bond being priced above or below par

13. The option-adjusted duration of a callable bond will be close to the duration of a similar noncallable bond when the
- St1: Bond trades above the call price.
  - St2: Bond has a high volatility.
  - St3: Bond trades much lower than the call price.
  - St4: Bond trades above parity.
14. A manager wants to swap a bond for a bond with the same price but higher duration. Which of the following bond characteristics would be associated with a higher duration?
- A higher coupon rate
  - More frequent coupon payments
  - A longer term to maturity
  - A lower yield
- II, III and IV Incorrect
  - III and IV Correct
  - I, II and III Incorrect
  - I and II Incorrect
15. Consider a 2-year, 6% semi-annual coupon bond currently yielding 5.2% on a bond equivalent basis. If the Macaulay Duration of the bond is 1.92 years, its Modified Duration is closest to:
- 1.87 years
  - 1.97 years
  - 1.78 years
  - 2.04 years
16. All other things being equal, which of the following would you expect to increase the yield-to-maturity (YTM) of a corporate bond ?
- An increase in the risk-free interest rate
  - An increase in the company's business risk
  - An increase in the company's leverage ratio
- III only
  - I and III only
  - I, II and III
  - I and II only

17. Which of the following statements are true?

- I. The convexity of a 10-year zero-coupon bond is higher than the convexity of a 10-year, 6% bond.
- II. The convexity of a 10-year zero-coupon bond is higher than the convexity of a 6% bond with a duration of 10 years.
- III. Convexity grows proportionately with the maturity of the bond.
- IV. Convexity is always positive for all types of bonds.
- V. Convexity is always positive for “straight” bonds.

- A. I only
- B. I and II only
- C. I and V only
- D. II, III, and V only

18. With LIBOR at 4%, a manager wants to increase the duration of his portfolio. Which of the following securities should he acquire to increase the duration of his portfolio the most?

- A. A 10-year reverse floater that pays 8% - LIBOR, payable annually
- B. A 10-year reverse floater that pays 12% - 2×LIBOR, payable annually
- C. A 10-year floater that pays LIBOR, payable annually
- D. A 10-year fixed rate bond carrying a coupon of 4% payable annually

19. Consider the following bonds:

Bond No.	Maturity (yrs)	Coupon Rate	Frequency	Yield (ABB)
1	10	6.0%	1	6.0%
2	10	6.0%	2	6.0%
3	10	0.0%	1	6.0%
4	10	6.0%	1	5.0%
5	9	6.0%	1	6.0%

How would you rank the bonds from the shortest to longest duration?

- A. 5-2-1-4-3
- B. 1-2-3-4-5
- C. 5-4-3-1-2
- D. 2-4-5-1-3

20. A U.S. Treasury bill selling for \$97,569 with 100 days to maturity and a face value of \$100,000 should be quoted on a bank discount basis at?
- A. 8.75%
  - B. 8.87%
  - C. 8.97%
  - D. 9.09%