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25 THE TERM STRUCTURE AND INTEREST RATE DYNAMICS

1. It is now January 1, 20x7. The one-year spot rate now is exactly equal to the one-year forward rate for a loan in one year as of January 1, 20x6. The current forward price of $1 par, zero-coupon bond for delivery on January 1, 20x8 will most likely be:
   (A) higher than it was on January 1, 20x6.
   (B) lower than it was on January 1, 20x6.
   (C) the same as it was on January 1, 20x6.

2. Credit risk in the banking system is most accurately captured by the:
   (A) 10-year swap spread.
   (B) I-spread.
   (C) TED spread.

3. To jump start a sluggish economy could most likely lead to a:
   (A) bearish flattening.
   (B) bearish steepening.
   (C) bullish steepening.

4. Jorgen Welsher, CFA obtains the following quotes for zero coupon government bonds all with a par value of $100.

Type of Price	Delivery (years)	Maturity (years)	Price
Spot	0	3	$91.51
Forward	2	3	$94.55
Spot	0	2	$92.45

   Welsher can earn arbitrage profits by:
   (A) buying the 2-year bond in the spot market, going short the forward contract and selling the 3-year bond in the spot market.
   (B) selling the 2-year bond in the spot market, going short the forward contract and buying the 3-year bond in the spot market.
   (C) buying the 2-year bond in the spot market, going long the forward contract and selling the 3-year bond in the spot market.

5. According to the pure expectations theory, which of the following statements is most accurate? Forward rates:
   (A) always overestimate future spot rates.
   (B) exclusively represent expected future spot rates.
   (C) are biased estimates of market expectations.

6. If the liquidity preference hypothesis is true, what shape should the term structure curve have in a period where interest rates are expected to be constant?
   (A) Flat.
   (B) Upward sloping.
   (C) Downward sloping.

7. Use the following spot rate curve to answer this question:

Maturity	1	2	3
Spot rates	5%	5.5%	6%

   The price of a 1-year $1 par, zero-coupon bond to be issued in two years is closest to:
   (A) $0.8396
   (B) $0.9434
   (C) $0.9345

8. The swap spread will increase with:
   (A) a deterioration in one party's credit.
   (B) an increase in the credit spread embedded in the reference.
   (C) the variability to interest rates

9. The benchmark bond being assessed by Holly is most likely:
   (A) undervalued by $3.69.
   (B) overvalued by $2.90.
   (C) overvalued by $3.75.

10. The comment made by Ross is most likely:
   (A) inaccurate with respect to the statement about spot rates, forward rates, and yields.
   (B) inaccurate with respect to the statement about rolling down the yield curve.
   (C) inaccurate in both respects.

11. Smith's comments about interest rates in Happyland most likely supports which theory of the term structure of interest rates?
    (A) Liquidity preference theory.
    (B) Segmented markets theory.
    (C) Local expectations theory.

12. The most appropriate measure for Alex Allan to assess bond price sensitivity is:
    (A) key rate duration.
    (B) effective duration.
    (C) Macaulay duration.

13. An analyst has a list of key rate durations for a portfolio of bonds. If only one interest rate on the yield curve changes, the effect on the value of the bond portfolio will be the change of that rate multiplied by the:
    (A) median of the key rate durations.
    (B) key rate duration associated with the maturity of the rate that changed.
    (C) weighted average of the key rate durations.

14. Rising inflation when the economy is expanding could most likely lead to a:
    (A) bearish steepening.
    (B) bullish steepening.
    (C) bearish flattening.

15. 7.5%, 15-year, annual pay option-free Xeleon Corp bond trades at a market price of $95.72 per $100 par. The government spot rate curve is flat at 5%.
    Suppose that the Xeleon bond was callable in 10 years at par and an analyst computed the Z-spread on the bond ignoring the embedded option. Relative to the Z-spread on an option-free bond, the calculated Z-spread will most likely be:
    (A) lower.
    (B) the same.
    (C) higher.

16. Volatility in long-term rates is most likely related to uncertainty about:
    (A) fiscal policy.
    (B) central bank actions.
    (C) the real economy and inflation.

17. For an interest rate swap, the swap spread is the difference between the:
    (A) swap rate and the corresponding Treasury rate.
    (B) fixed rate and the floating rate in a given period.
    (C) average fixed rate and the average floating rate over the life of the contract.

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18. Z-spread is most accurately described as the constant spread that is:
    (A) added to the zero volatility binomial tree such that an option-free bond is correctly valued.
    (B) equal to the difference between a bond's yield and the yield on a government bond.
    (C) added to the spot rate curve to generate discount rates for each of the bond's cash flows such that the present value of the cash flows is exactly equal to the market price of the bond.

19. An active bond portfolio manager would most appropriately buy bonds when expected spot rates are:
    (A) equal to current forward rates.
    (B) greater than current forward rates.
    (C) less than current forward rates.

20. The active bond portfolio management strategy of rolling down the yield curve is most consistent with:
    (A) pure expectations theory.
    (B) segmented markets theory.
    (C) liquidity preference theory.

21. According to the liquidity theory, how are forward rates interpreted? Forward rates are:
    (A) equal to futures rates.
    (B) expected future spot rates.
    (C) expected future spot rate plus a rate exposure premium.

22. The price of a five-year zero coupon bond is \$0.7835 for \$1 par and the price of a two-year zero-coupon bond is \$0.9426 for \$1 par. The three-year forward rate two years from now is closest to:
    (A) 6.36%
    (B) 4.87%
    (C) 5.54%

23. Prices of zero-coupon, \$1 par bonds is shown below:

Maturity (years)	Price
1	\$0.9615
2	\$0.9070
3	\$0.8396
4	\$0.7629

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The default risk of these bonds is similar to the default risk of surveyed banks based on which the swap rate is determined.

Government yield curve is given below:

Maturity (years)	Price
1	3.05%
2	4.10%
3	5.25$
4	6.45%

The three-year swap spread is closest to:

(A) 67 bps.

(B) 78 bps.

(C) 110 bps.

24. Volatility in short-term rates is most likely related to uncertainty about:

(A) the real economy.

(B) monetary policy.

(C) inflation.

25. Which one of the following actions is most consistent with the strategy of riding an upward sloping the yield curve? Buying bonds with a maturity:

(A) longer than the investor's horizon.

(B) equal to the investor's horizon.

(C) shorter than the investor's horizon.

26. Assume that the interest rates in the future are not expected to differ from current spot rates. In such a case, the liquidity premium theory of the term structure of interest rates projects that the shape of the yield curve will be:

(A) downward sloping.

(B) upward sloping.

(C) variable.

27. The least important factor explaining the changes in the shape of the yield curve is:

(A) Steepness

(B) Level

(C) Curvature

28. Which of the following statements are most accurate?
    (A) Volatility of short-term and long-term rates is typically equal.
    (B) Long-term rates are typically more volatile than short-term rates.
    (C) Short-term rates are typically more volatile than long-term rates.

29. Compared to a yield curve based on government bonds, swap rate curves are:
    (A) more comparable across countries and have a smaller number of yields at various maturities.
    (B) more comparable across countries and have a greater number of yields at various maturities.
    (C) less comparable across countries and have a greater number of yields at various maturities.

30. When the yield curve is downward sloping, the TED spread is most likely to be:
    (A) negative.
    (B) positive.
    (C) zero.

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31. 7.5%, 15-year, annual pay option-free Xeleon Corp bond trades at a market price of $95.72 per $100 par. The government spot rate curve is flat at 5%.
    The Z-spread on Xeleon Corp bond is closest to:
    (A) 300 bps
    (B) 250 bps
    (C) 325 bps

32. Which of the following is NOT a reason why market participants prefer the swap rate curve over a government bond yield curve? The swap market:
    (A) is free of government regulation.
    (B) it is not affected by technical factors.
    (C) reflects sovereign credit risk.

33. Suppose that the short-term and long-term rates decrease by 75bps while the intermediate-term rates decrease by 30bps. The movement in yield curve is best described as involving changes in the:
    (A) level only.
    (B) curvature only.
    (C) level and curvature.

34. Which theory explains the shape of the yield curve by considering the relative demands for various maturities?
    (A) The liquidity premium theory.
    (B) The pure expectations theory.
    (C) The segmentation theory.

35. Which of the following most accurately explains the "break-even-rate" interpretation of forward rates? The forward rate is the rate that will make an investor indifferent between investing:
    (A) investing at the spot or forward interest rate.
    (B) for the full investment horizon, or for part of it, and then rolling over the proceeds for the balance of the investment horizon at the forward rate.
    (C) now or at a forward time.

36. If the spot curve is upward sloping, the forward curve is most likely to be:
    (A) steeper than the spot curve and above the spot curve.
    (B) parallel to the spot curve and above the spot curve.
    (C) parallel to the spot curve and below the spot curve.

37. During the recent credit crises in the country of Maltovia, several money market funds reported large losses. Subsequently, the Maltovian regulatory body imposed strict restrictions on maturity of securities that money market funds could invest in. The reaction of Maltovian regulatory body was most likely based on a belief in:
    (A) preferred habitat theory
    (B) market segmentation theory.
    (C) local expectations theory.

38. With respect to local expectations theory, which of the following statements is most consistent with market evidence?
    (A) Short-term holding period return of long-maturity bonds and the short-term holding period return of short-maturity bonds is the same.
    (B) Short-term holding period return of long-maturity bonds exceeds the short-term holding period returns of short-maturity bonds.
    (C) Short-term holding period return of short-maturity bonds exceeds the short-term holding period returns of long-maturity bonds.

39. Given annual spot interest rates for 1 year, 2 years, 3 years, 4 years, and 5 years, the maximum number of forward rates that can be derived is closest to:
    (A) 5
    (B) 8
    (C) 10

40. A portfolio manager who believed in the liquidity premium theory would expect:
    (A) long-term securities to offer higher returns than short-term securities.
    (B) long-term rates to be higher than investors' expectations of future rates, because of the liquidity premium.
    (C) short-term rates to be lower than investors' expectations of short-term rates, because of the liquidity premium.

41. Investors may rotating money out of risky investments and into relatively safe investments during a financial crisis would most likely lead to which of the following?
    (A) Bullish flattening.
    (B) Bearish flattening.
    (C) Bearish steepening.

42. The following are some of the current par rates:

Year	Par rate
1	5.00%
2	6.00%
3	7.00%

Using bootstrapping, the 3-year spot rate is closest to:
    (A) 6.67%
    (B) 7.09%
    (C) 6.93%

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43. Don McGuire, fixed income specialist at MCB bank makes the following statement: "In the very short-term, the expected rate of return from investing in any bond, including risky bonds, is the risk-free rate of return".
    McGuire's statement is most consistent with:
    (A) liquidity preference theory.
    (B) local expectations theory.
    (C) unbiased expectations theory.

44. Independence Bank is a small retail bank that specializes in demand deposits and invests in CMO tranches. For the purpose of valuation of Independence Bank's assets and liabilities, the most appropriate reference yield curve would be:
    (A) swap rate curve.
    (B) government spot curve.
    (C) MRR-OIS curve.

45. A swap spread is the difference between:
    (A) MRR and the fixed rate on the swap.
    (B) the fixed-rate and floating-rate payment rates at the inception of the swap.
    (C) the fixed rate on an interest rate swap and the rate on a Treasury bond of maturity equal to that of the swap.

46. Suppose the government spot rate curve is flat at 3%. An active manager is planning on purchasing a five-year government bond at par. The realized return on this bond will most likely be:
    (A) 3% if the bond is held to maturity regardless of the shape of the yield curve.
    (B) 3% if the bond is held to maturity provided that the yield curve remains flat at 3%.
    (C) more than 3% if the bond is held to maturity while the yield curve remains flat but decreases below 3%.

47. Assuming the pure expectations theory is correct, an upward sloping yield curve implies:
    (A) interest rates are expected to decline in the future.
    (B) interest rates are expected to increase in the future.
    (C) longer-term bonds are riskier than short-term bonds.

48. If an active bond portfolio manager believes future spot rates will be lower than indicated by today's forward rates, then she will most likely:
    (A) be indifferent because her holding period return will be unaffected.
    (B) purchase bonds because the market is discounting future cash flows at "too high" of a discount rate.
    (C) sell bonds because the market appears to be discounting future cash flows at "too high" of a discount rate.

49. Jim Malone, CIO of Sigma bond fund had a successful track record of investing in investment grade bonds. Recently though, Sigma has been lagging its peers because Malone refuses to reduce the duration of the portfolio by purchasing short-term bonds for the fund. Malone's actions are most consistent with:
    (A) Preferred habitat theory.
    (B) Liquidity preference theory.
    (C) Segmented markets theory.

50. Jon Smithson is a bond trader at Zezen Bank. The spot rate curve is currently flat. Smithson expects that the curve will become upward sloping in the next year. Based on this expectation, the least appropriate active strategy for Smithson would be to:
    (A) increase the duration of the portfolio.
    (B) sell all the long-term bonds in the portfolio and reinvest the proceeds in shorter-maturity bonds.
    (C) reduce the duration of the portfolio.

51. The following are some of the current par rates:

Year	Par rate
1	1.00%
2	2.00%
3	3.00%
4	4.00%
5	5.00%

Using bootstrapping, the 2-year spot rate is closest to:

(A) 2.01%
(B) 1.50%
(C) 2.25%

52. The liquidity theory of the term structure of interest rates is a variation of the pure expectations theory that explains why:

(A) the yield curve usually slopes upward.
(B) the yield curve usually slopes downward.
(C) duration is an imprecise measure.

53. A 2-year $1,000 par, 5% (semi-annual pay) Mexa-corp bond has a Z-spread of 45bps. Using the following spot curve, compute the invoice price of the bond.

Maturity	0.50	1.00	1.50	2.00
Spot rates	4.50%	5%	5.25%	5.5%

(A) $993.45
(B) $982.65
(C) $956.32

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54. A bond portfolio has the following key rate durations:

D_2 = 0.50; D_5 = 2.70 and D_{15} = 7.23

Suppose that the change in yield curve results in changes in the following par rates:

p_1 = +50bps; p_2 = +100bps; p_5 = +25 bps; p_{10} = -75bps; p_{15} = -100bps.

The change in the value of the portfolio will be closest to:

(A) 4.75%
(B) 6.06%
(C) -2.80%

55. Which of the following most accurately explains the "locked-in-rate" interpretation of forward rates? The forward rate allows an investor to lock in:

(A) a coupon rate for some future period.
(B) a coupon rate for the current period.
(C) an interest rate for some future period.

56. If the 2-year spot rate is 4% and 1-year spot rate is 7%, the one year forward rate one year from now is closest to:
    (A) 3%
    (B) 2%
    (C) 1%

57. According to the pure expectations theory, how are forward rates interpreted? Forward rates are:
    (A) expected future spot rates if the risk premium is equal to zero.
    (B) expected future spot rates.
    (C) equal to futures rates.

58. Under the liquidity preference theory, expected future spot rates will most likely be:
    (A) Less than the current forward rate.
    (B) More than the current forward rate.
    (C) Equal to the current forward rate.

59. Based on Forecast 1, what is the most appropriate expected change in the shape of the yield curve?
    (A) A bullish steepening.
    (B) A bearish steepening.
    (C) A bearish flattening.

60. What would be the most appropriate duration-neutral strategy based on information presented in Forecast 2?
    (A) Rotate into a barbell strategy.
    (B) Rotate into a long-maturity bullet portfolio.
    (C) Rotate into a short-maturity bullet portfolio.

61. Based on her first comment about bond spreads, Eden is most likely tracking which spread?
    (A) TED spread.
    (B) MRR-OIS spread.
    (C) Z-spread.

62. Eden's second comment about bond spreads is most likely:
    (A) correct.
    (B) incorrect, because a narrowing spread indicates a reduction in risk in the banking system.
    (C) incorrect, because the spread does not give a specific indication about risk in the banking system.

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63. Use the following spot rate curve to answer this question:

Maturity	1	2	3
Spot rates	5%	5.5%	6%

The 1-year forward rate in one year [f(1,1)] and the 1-year forward rate in two years [f(2,1)] is closest to:

	f(1,1)	f(2,1)
(A)	4%	4.89%
(B)	5.25%	5.75%
(C)	6%	7%

64. What are the implications for the shape of the yield curve according to the liquidity theory? The yield curve:

(A) may have any shape.

(B) is always flat.

(C) must be upward sloping.

65. Government spot rate curve is given below:

Maturity (years)	Rate
1	3.05%
2	4.10%
3	5.25%
4	6.45%

The swap fixed rate for a period of 2 years is closest to:

(A) 4.98%

(B) 4.75%

(C) 4.08%

66. Joe McBath makes the following two statements:

Statement 1: The swap rate curve indicates credit spread over government bond yield.

Statement 2: The swap rate curve indicates the premium for time value of money at different maturities.

Joseph is most likely correct with regard to:

(A) Both statements.

(B) Statement 2 but not statement 1.

(C) Statement 1 but not statement 2.

67. What adjustment must be made to the key rate durations to measure the risk of a steepening of an already upward sloping yield curve?
    (A) Decrease the key rates at the short end of the yield curve.
    (B) Increase the key rates at the short end of the yield curve.
    (C) Increase all key rates by the same amount.

68. Which of the following best describes key rate duration? Key rate duration is determined by:
    (A) changing the yield of a specific maturity.
    (B) changing the curvature of the entire yield curve.
    (C) shifting the whole yield curve in a parallel manner.

69. Which one of the following is least likely a reason to use the swap rate curve?
    (A) The swap market is not regulated by any government.
    (B) Swap rates reflect credit risk of commercial banks and not government.
    (C) Swap rates are less volatile than government bond yields.

70. Evaluate Walsh's comments regarding the method used to estimate the expected increase in interest rate volatility and the term structure of interest rates.
    (A) Walsh is correct with respect to both interest rate volatility and term structure.
    (B) Walsh is correct only with respect to interest rate volatility.
    (C) Walsh is incorrect with respect to both interest rate volatility and term structure.

71. Which of the following best evaluates Terry's justification for using the swap curve as the benchmark for the Atlantic Fund? Terry's justification is:
    (A) incorrect because there are different levels of credit risk in the swap curves of different countries.
    (B) incorrect because there are actually more maturity points to construct the swap curve.
    (C) correct.