CHAPTER 41
INTRODUCTION TO FIXED-INCOME VALUATION

1. (C) Yes, the bond is undervalued by $64.

Explanation

FV = 1,000; PMT = 37.5; N = 12; I/Y = 3%; CPT PV = -1,074.66

1,074.66 - 1,011 = 64

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

2. (C) over 14%.

Explanation

PMT = 12; N = 10; PV = -88; FV = 100; CPT → I = 14.3

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

3. (B) $952.85.

Explanation

The coupon payment each six months is ($1,000)(0.075 / 2) = $37.50. To value the bond, enter FV = $1,000; PMT = $37.50; N = 10 x 2 = 20; I/Y = 8.2 / 2 = 4.1%; CPT → PV = -952.85.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

4. (A) $891.40.

Explanation

The flat price of the bond is the quoted price, 89.14% of par value, which is $891.40.

(Study Session 13, Module 41.2, LOS 41.d)

Related Material

SchweserNotes - Book 4

5. (A) $838.53.

Explanation

N = 12 x 4 = 48, FV = 1,000, PMT = 50/4 = 12.5, I/Y = 7.0/4 = 1.75;
CPT PV = -838.53.

For Further Reference:

(Study Session 13, Module 41.1, LOS 41.a)
CFA® Program Curriculum, Volume 4, page 518

Related Material

SchweserNotes - Book 4

6. (B) 10.95%.

Explanation

PMT = 60; N = 10; FV = 1,120; PV = -1,110; CPT → I = 5.47546
(5.47546)(2) = 10.95
(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

7. (A) the note's credit quality has improved.

Explanation

The quoted margin of a floating-rate note is the number of basis points added to or subtracted from the note's reference rate to determine its coupon payments.
The required margin or discount margin is the number of basis points above or below the reference rate that would cause the note's price to return to par value at each reset date.
The discount margin may be different from quoted margin if a note's credit quality has changed since issuance. If there is an improvement in credit quality, the discount margin will be less than quoted margin and the note will trade at a premium.
Changes in the reference rate will not impact the relative difference between the discount and quoted margin.
(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

8. (C) decreased.

Explanation

The path that a bond's price follows over its maturity assuming the yield is held constant is known as the constant yield price trajectory. In this case it is being held constant at 8%.
Given the bond is sold at a premium (coupon > YTM), its price will decrease as it moves toward par value.

Price at issuance: N = 10; FV = 1,000; PMT = 100; I = 8; CPT → PV = 1,134
Price after one year: N = 9; FV = 1,000; PMT = 100; I = 8; CPT → PV = 1,125
(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

9. (B) 10.6%.

Explanation

N = 10; PMT = 100; PV = -1,000; FV = 1,100; CPT →I = 10.6.
(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

10. (B) $1,091.

Explanation

This is a present value problem 5 years in the future.
N = 20, PMT = 100, FV = 1000, IN = 9
CPT PV = -1,091.29
The $900 purchase price is not relevant for this problem.
(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

11. (B) higher than 1.5%.

Explanation

The BEY is an add-on yield based on a 365-day year. The discount of 1.5% implies a discount of $1,000 x 1.5% x 150/360 = $6.25.
The current price is therefore $1,000 - $6.25 = $993.75.
This gives a HPR of $6.25 / $993.75 = 0.629%.
BEY = 0.629% x 365/150 = 1.53%.
(Study Session 13, Module 41.3, LOS 41.h)

Related Material

SchweserNotes - Book 4

12. (A) $2,044.

Explanation

Given the shift in interest rates, Bond R has a new value of $1,017
(N = 4; PMT = 70; FV = 1,000; I/Y = 6.50%; CPT → PV = 1,017).
Bond S's new value is $1,027 (N = 7; PMT = 70; FV = 1,000; I/Y = 6.50%; CPT → PV = 1,027).
After the increase in interest rates, the new value of the two-bond portfolio is $2,044 (1,017 + 1,027).
(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

13. (B) 11.62%.

Explanation

N = 40 (2 x 20 years); PMT = 50 (0.10 x 1,000) / 2; PV = -875; FV = 1,000;
CPT → I/Y = 5.811 x 2 (for annual rate) = 11.62%.
(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

14. (C) 8.02%.

Explanation

The forward rate is computed as follows:
One-year forward rate = 1.0652 / 1.05 - 1 = 8.02%
(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

15. (A) $1,092.46.

Explanation

N = 6
PMT = (0.10)(1,000) = 100
1 = 8
FV = 1,000
CPT = ?
PV = 1,092.46
(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

16. (A) 12.0%.

Explanation

$5_y1_y = [(1 + S_6)^6 / (1 + S_5)^5] - 1 = [(1.07)^6/1(1.06)^5] - 1 = [1.5 / 1.338] - 1 = 0.12$
(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

17. (C) 5.37%.

Explanation

The current yield is computed as follows:
Current yield = 5% x 100 / $93.19 = 5.37%
(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

18. (A) yield to maturity.

Explanation

Yield to maturity is the discount rate used to discount each of a bond's cash flows when calculating the bond's price. Current yield is a bond's annual coupon payment divided by its price. Simple yield is a bond's annual coupon payment plus amortization of a discount or minus amortization of a premium.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

19. (B) is added to each spot rate on the government yield curve that will cause the present value of the bond's cash flows to equal its market price.

Explanation

The zero volatility spread (Z-spread) is the interest rate that is added to each zero-coupon bond spot rate that will cause the present value of the risky bond's cash flows to equal its market value. The nominal spread is the spread that is added to the YTM of a similar maturity government bond that will then equal the YTM of the risky bond. The zero volatility spread (Z-spread) is the spread that results when the cost of the call option in percent is added to the option adjusted spread.

(Study Session 13, Module 41.5, LOS 41.k) Related Material

SchweserNotes - Book 4

20. (A) 8%.

Explanation

N = 20, PMT = 90, PV = -1,098.96, FV = 1,000, CPT I/Y

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

21. (A) decreases at a decreasing rate.

Explanation

The relationship between price and yield for an option-free bond is inverse and convex toward the origin. As the yield increases, the price decreases, but at a decreasing rate.

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

22. (A) 9.1% higher

Explanation

Current yield = annual coupon payment/price of the bond

CY = 100/1,100 = 0.0909

The current yield will be between the coupon rate and the yield to maturity. The bond is selling at a premium, so the YTM must be less than the coupon rate, and therefore the current yield is greater than the YTM.
The YTM is calculated as: FV = 1,000; PV = -1,100; N = 40; PMT = 50; CPT → I = 4.46 x 2 = 8.92
(Study Session 13, Module 41.3, LOS 41.g)
Related Material
SchweserNotes - Book 4

23. (B) yields to maturity of other bonds.
Explanation
Matrix pricing is a method for valuing a non-traded or infrequently traded bond based on the yields to maturity of similar bonds that are traded more frequently.
(Study Session 13, Module 41.2, LOS 41.e)
Related Material
SchweserNotes - Book 4

24. (B) equals interest earned from the previous coupon to the sale date.
Explanation
This is a correct definition of accrued interest on bonds.
The other choices are false. Accrued interest is not discounted when calculating the price of the bond. The statement, "covers the part of the next coupon payment not earned by seller," should read, "...not earned by buyer."
(Study Session 13, Module 41.2, LOS 41.d)
Related Material
SchweserNotes - Book 4

25. (B) government spot rate that is specific to its maturity.
Explanation
To calculate a government bond's arbitrage-free value, each cash flow is discounted using the government spot rate that is specific to the maturity of the cash flow.
(Study Session 13, Module 41.2, LOS 41.c)
Related Material
SchweserNotes - Book 4

26. (A) 6.81%
Explanation
$(1 + S_3)^3 = (1 + S_2)^2 (1 + 2y1y)$
$(1 + 2y1y) = (1 + S_3)^3 / (1 + S_2)^2$
$(1 + 2y1y) = (1.0611)^3 / (1.0576)^2 = 1.0681$
$2y1y = 6.81\%$
(Study Session 13, Module 41.4, LOS 41.j)
Related Material
SchweserNotes - Book 4

27. (A) 8.93% 11.02%

Explanation

To calculate the CY and YTC, we first need to calculate the present value of the bond:

FV = 1,000; N = 5 x 2 = 10; PMT = (1000 x 0.0875) / 2 = 43.75;

I/Y = (9.25 / 2) = 4.625; CPT → PV = -980.34 (negative sign because we entered the FV and payment as positive numbers).

Then, CY = (Face value x Coupon) / PV of bond = (1,000 x 0.0875) / 980.34 = **8.93%.**

And the YTC calculation is: FV = 1,025 (price at first call); N = (2 x 2) = 4; PMT = 43.75 (same as above); PV = -980.34 (negative sign because we entered the FV and payment as positive numbers); CPT → IN = 5.5117 (semi-annual rate, need to multiply by 2) = **11.02%.**

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

28. (C) lower than the yield to maturity.

Explanation

The current yield (unlike the YTM) ignores movements toward par value along the constant-yield price trajectory, and therefore will not capture the return attributable to a discount bond's increase in price toward par as maturity approaches.

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

29. (A) $983.

Explanation

The value of the bond is simply the present value of discounted future cash flows, using the appropriate spot rate as the discount rate for each cash flow. The coupon payment of the bond is $40 (0.04 x 1,000). The bond price = 40/(1.02) + 1,040/(1.05)2 = $982.53.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

30. (B) lower.

Explanation

The option-adjusted yield is the yield a bond with an embedded option would have if it were option-free. For a callable bond, the option-adjusted yield is lower than the YTM. This is because the call option may be exercised by the issuer, rather than the bondholder. Bond investors require a higher yield to invest in a callable bond than they would require on an otherwise identical option-free bond.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

31. (B) 6.92%.

Explanation

First determine the current price of the bond:

= 6 / 1.05 + 6 / (1.06)2 + 106 / (1.07)3 = 5.71 + 5.34 + 86.53 = 97.58

Then compute the yield of the bond:

N = 3; PMT = 6; FV = 100; PV = -97.58; CPT —> IN = 6.92%

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

32. (B) discount, and the yield to maturity has increased since purchase.

Explanation

The yield on the bonds has increased, indicating that the value of the bonds has fallen below par. The bonds are therefore trading at a discount. If a bond is selling at a discount, the bond's current price is lower than its par value and the bond's YTM is higher than the coupon rate. Since Logan bought the bonds at par (coupon = YTM = 6%), the YTM has increased.

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

33. (B) 11.52%.

Explanation

To find the YTM, enter PV = -$1,022.50; PMT = $60; N = 14; FV = $1,000;

CPT → I/Y = 5.76%. Now multiply by 2 for the semiannual coupon payments: (5.76)(2) = 11.52%.

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

34. (B) flat.

Explanation

G-spreads and I-spreads are only correct when the spot yield curve is flat (yields are about the same across maturities).

(Study Session 13, Module 41.5, LOS 41.k)

Related Material

SchweserNotes - Book 4

35. (B) $700.

Explanation

Based on the given spot and forward rates, the 4-year spot rate equals [(1.07)(1.0815)(1.103) (1.120)]1/4 - 1 = 9.35%.

Bond value: N = 4; FV = 1,000; I/Y = 9.35; PMT = 0; CPT → PV = -699.40 (Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

36. (B) $1,000.

Explanation

Since yields are projected to be 10% and the coupon rate is 10%, we know that the bond will sell at par value.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

37. (A) 8.0%.

Explanation

Input into your calculator:

N = 5; FV = 1,100; PMT = 100; PV = -1,150; CPT → I/Y = 7.95%.

(Study Session 13, Module 41.1, LOS 41.g)

Related Material

SchweserNotes - Book 4

38. (B) 7.65%.

Explanation

The current yield is computed as: (Annual Cash Coupon Payment) / (Current Bond Price). The annual coupon is: ($1,000)(0.0775) = $77.50. The current yield is then: ($77.50) / ($1,012.45) = 0.0765 = 7.65%

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

39. (C) $1,091.

Explanation

N = 20; I/Y = 9; PMT = 100 (0.10 x 1,000); FV = 1,000; CPT → PV = 1,091.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

40. (C) 7.02%.

Explanation

N = 6; PV = -1,100.00; PMT = 80; FV = 1,080; Compute IN = 7.02%.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

41. (A) 4.72%.

Explanation

To compute yield to first call, enter: FV = $1,075; N = 2 x 2 = 4; PMT = $66.25; PV = -1,229.50, CPT —> I/Y = 2.36%, annualized as (2.36)(2) = 4.72%.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

42. (B) decreased.

Explanation

The path that a bond's price follows over its maturity assuming the yield is held constant is known as the constant yield price trajectory. In this case it is being held constant at 8%.

Given the bond is sold at a premium (coupon > YTM), its price will decrease as it moves toward par value.

Price at issuance: N = 10; FV = 1,000; PMT = 100; I = 8; CPT → PV = 1,134

Price after one year: N = 9; FV = 1,000; PMT = 100; I = 8; CPT → PV = 1,125

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

43. (B) 6.25%.

Explanation

$S_4 = [(1.06)\ (1.062)\ (1.063)\ (1.065)^{.25} - 1 = 6.25\%$.

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

44. (A) 4,674,802 (B) 4,871,053

Explanation

Present Value:

Since the current interest rate is above the coupon rate the bond will be priced at a discount. FV = $5,000,000; N = 20; PMT = (0.04)(5 million) = $200,000; IN = 4.5; CPT → PV = -$4,674,802

Value in 7 Years:

Since the current interest rate is above the coupon rate the bond will be priced at a discount. FV = $5,000,000; N = 6; PMT = (0.04)(5 million) = $200,000; I/Y = 4.5; CPT → PV = -$4,871,053

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

45. (A) 100.10.

Explanation

This value is computed as follows:

Present Value = 6/1.05 + 6/1.0552 + 106/1.063 = 100.10

The value 95.07 results if the coupon payment at maturity of the bond is neglected.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

46. (A) 14.46%.

Explanation

To compute yield to first put, enter: FV = $1,000; N = 2 x 4 = 8; PMT = $35; PV = -$779.25; CPT → I/Y = 7.23%, annualized as (7.23)(2) = 14.46%.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

47. (B) $9,694.

Explanation

We can calculate the price of the bond by discounting each of the annual payments by theappropriate spot rate and finding the sum of the present values. Price = [1,500/(1.16)] + [11,500/(1.17)2] = $9,694. Or, in keeping with the notion that each cash flow is a separate bond, sum the following transactions on your financial calculator:

N = 1, I/Y=16.0, PMT=0, FV=1,500, CPT PV=1,293

N = 2, I/Y=17.0, PMT=0, FV=11,500, CPT PV = 8,401

Price = 1,293 + 8,401 = $9,694.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

48. (B) $1,196.

Explanation

This problem can be solved most easily using your financial calculator. Using semiannual payments, I = 6/2 = 3%; PMT = 80/2 = $40; N = 15 x 2 = 30; FV = $1,000; CPT → PV = $1,196.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

49. (A) the second coupon can be discounted at 7.0%, and the third coupon plus maturity value can be discounted at 9.2% to find the bond's arbitrage-free value.

Explanation

Spot interest rates can be used to price coupon bonds by taking each individual cash flow and discounting it at the appropriate spot rate for that year's payment. Note that the yield to maturity is the bond's internal rate of return that equates all cash flows to the bond's price. Current spot rates have nothing to do with the bond's yield to maturity.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

50. (A) remain constant.

Explanation

A zero coupon bond will be issued at a discount (yield > coupon). If market rates remain constant, the price will rise toward par value as maturity approaches. The path that the price takes if the yield does not change is known as the constant-yield price trajectory.

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

51. (C) $19.22.

Explanation

The no-arbitrage price of a bond is determined by discounting each of its cash flows at the appropriate spot rate. Any difference between the no-arbitrage price and the market price of a bond represents a potential arbitrage profit.

$$\frac{20}{1.01}+\frac{20}{1.0125^2}+\frac{20}{1.015^3}+\frac{20}{1.02^4}+\frac{1020}{1.03^5}$$

= 19.80 + 19.51 + 19.13 + 18.48 + 879.86 = $956.78

976 — 956.78 = $19.22

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

52. (C) yield to maturity greater than 8.0%.

Explanation

A bond trading at a discount will have a YTM greater than its coupon. The current yield is 8 / 97.55 = 8.2%. True yield is adjusted for payments delayed by weekends and holidays and is equal to or slightly less than the yield on a street convention basis.

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

53. (A) 10.05%.

Explanation

N = 8; PMT = 120; PV = -1,150; FV = 1,100; CPT IN = 10.0554.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

54. (A) Zero-coupon bond yield curve.

Explanation

The spot rate yield curve shows the appropriate rates for discounting single cash flows occurring at different times in the future. Conceptually, these rates are equivalent to yields on zero-coupon bonds. The par bond yield curve shows the YTMs at which bonds of various maturities would trade at par value. Forward rates are expected future short-term rates.

(Study Session 13, Module 41.4, LOS 41.i)

Related Material

SchweserNotes - Book 4

55. (A) $105.22.

Explanation

The clean price is the bond price without the accrued interest so it is equal to the quoted price.

(Study Session 13, Module 41.2, LOS 41.d)

Related Material

SchweserNotes - Book 4

56. (B) 12.1%.

Explanation

YTC: N = 10; PV = -895; PMT = 80 / 2 = 40; FV = 1080; CPT → I/Y = 6.035 x 2 = 12.07%.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

57. (B) 14.97%.

Explanation

PMT = 110, N= 3, FV = 1,100, PV = 975

Compute I = 14.97

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

58. (C) 5.68%.

Explanation

The annual-pay yield is computed as follows:

Annual-pay yield = $[(1 + 0.056 / 2)^2 - 1 = 5.68\%$

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

59. (C) 10%.

Explanation

Implied 1-year forward rate in four years = $\frac{(1+S_5)^5}{(1+S_4)^4} - 1 = \frac{1.08^5}{1.075^4} - 1 = \frac{1.4693}{1.3355} - 1$

= 0.1002 or 10.02%. Alternatively, 5 x 8% - 4 x 7.5% = 10%.

For Further Reference:

(Study Session 13, Module 41.4, LOS 41.j)

CFA® Program Curriculum, Volume 4, page 550

Related Material

SchweserNotes - Book 4

60. (A) 6.87.

Explanation

n = 4(2) = 8; PMT = 80/2 = 40; PV = -1,100; FV = 1,080

Compute YTC = 3.435(2) = 6.87%

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

61. (C) 8.9%.

Explanation

First determine the price paid for the bond:>

N = 5 x 2 = 10; I/Y = 8.20 / 2 = 4.10; PMT = 7.95 / 2 = 3.975; FV = 100; CPT PV = -98.99

Then use this value and the call price and date to determine the yield to call:
N = 3 x 2 = 6; PMT = 7.95 / 2 = 3.975; PV = -98.99; FV = 102;
CPT I/Y = 4.4686 x 2 = 8.937%
(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

62. (B) 9.04%

Explanation

$\sqrt{\frac{(1.07)^4}{(1.05)^2}} - 1 = 0.0904$, or $\frac{(4\times7)-(2\times5)}{2} = 9$ as an approximation.

For Further Reference:

(Study Session 13, Module 41.4, LOS 41.j)
CFA® Program Curriculum, Volume 4, page 550

Related Material

SchweserNotes - Book 4

63. (B) $1,079.

Explanation

In 6 years, there will be 14 years (20 - 6), or 14 x 2 = 28 semi-annual periods remaining of the bond's life So, N = (20 - 6)(2) = 28; PMT = (1,000 x 0.10) / 2 = 50; I/Y = 9/2 = 4.5; FV = 1,000; CPT → PV = 1,079.

Note: Calculate the PV (we are interested in the PV 6 years from now), not the FV.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

64. (B) 11.72%.

Explanation

4y1y = $\frac{(1.055)^5}{(1.04)^4} - 1 = 0.1172$

Note: 5(5.5) - 4(4) = 11.5%.

For Further Reference:

(Study Session 13, Module 41.4, LOS 41.j)
CFA® Program Curriculum, Volume 4, page 550

Related Material

SchweserNotes - Book 4

65. (C) $1,081.00.

Explanation

The full price is equal to the flat or clean price plus interest accrued from the last coupon date. Here, the flat price is 1,000 x 104.75%, or 1,000 x 1.0475 = 1,047.50. Thus, the full price = 1,047.50 + 33.50 = 1,081.00.

(Study Session 13, Module 41.2, LOS 41.d)

Related Material

SchweserNotes - Book 4

66. (A) **Bond Y will have a higher zero-volatility spread than Bond X.**

Explanation

Bond Y will have the higher Z-spread due to the call option embedded in the bond. This option benefits the issuer, and investors will demand a higher yield to compensate for this feature. The option-adjusted spread removes the value of the option from the spread calculation, and would always be less than the Z-spread for a callable bond. Since Bond X is noncallable, the Z-spread and the OAS will be the same.

(Study Session 13, Module 41.5, LOS 41.k)

Related Material

SchweserNotes - Book 4

67. (C) **forward rate two years from today is 13.7%.**

Explanation

The equation for the three-year spot rate, S_3, is $(1 + S_1)(1 + {}_1y_1)(1 + {}_2y_1) = (1 + S_3)^3$.

Also, $(1 + S_1)(1 + {}_1y_1) = (1 + S_2)^2$.

So, $(1 + {}_2y_1) = (1 + S_3)^3 / (1 + S_2)^2$, computed as: $(1 + 0.121)^3 / (1 + 0.113)^2 = 1.137$.

Thus, 2y1y = 0.137, or 13.7%.

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

68. (A) **4.5%.**

Explanation

$(1.04^5 / 1.032^2)^{1/3} - 1 = 4.5\%$.

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

69. (B) **10%.**

Explanation

N = 40; PMT = 45; PV = -914.20; FV = 1,000; CPT -+ IN = 5%

YTM = 5% x 2 = 10%

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

70. (A) $5,743,874.

Explanation

Since current interest rates are lower than the coupon rate the bond will be issued at a premium.

FV = $5,000,000; N = 20; I/Y=3; PMT=(0.04)($5,000,000) = $200,000.

Compute PV = $-5,743,874

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

71. (A) add-on yield based on a 365-day year

Explanation

This bond has no cash flows for the first five years.

(Study Session 13, Module 41.3, LOS 41.h)

Related Material

SchweserNotes - Book 4

72. (A) $814.

Explanation

This bond has no cash flows for the first five years. It then has a $100 cash flow for years 6 through 10. Additionally, the accrued interest ($500) that wasn't paid in the first five years would have to be paid at the end, along with the principal. A financial calculator using the CF/NPV worksheet can handle this type of problem. The required inputs are $CF_0 = 0$, $CF_1 = 0$, $F_1 = 5$, $CF_2 = 100$, $F_2 = 4$, $CF_3 = 1{,}600$, $F_3 = 1$, NPV, I = 10%, CPT = 813.69. Note that CF3 is made up of the principal ($1,000) plus the remaining $100 coupon plus the accrued interest ($500) that was not paid during the first five years of the bond's life.

For Further Reference:

(Study Session 13, Module 41.1, LOS 41.a)

CFA® Program Curriculum, Volume 4, page 518

Related Material

SchweserNotes - Book 4

73. (A) 10.34%.

Explanation

N = 28; PMT = 120; PV = -1,150; FV = 1,000; CPT I/Y = 10.3432.

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

74. (A) $1,068.72

Explanation

Each of the remaining cash flows on the bond is discounted at the annual rate of 4.5%.

Period	Payment	Discount	PV
1	$1,000 x 7% = $70	$(1.045)_1$	$66.99
2	$1,000 x 7% = $70	$(1.045)_2$	$64.10
3	$1,000 x 7% = $70	$(1.045)_3$	$61.34
3	$1,000 principal	$(1.045)_3$	$876.30
Total Present Value Of Cash for PV =			**$1,068.73**

The present value can also be determined with a financial calculator. N – 3, I = 4.5%, MT = $1,000 × 7%, FV = $1,000. Solve for PV = $1,068.724

(Study Se ssion 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

75. (A) $966.

Explanation

We can calculate the price of the bond by discounting each of the annual payments by the appropriate spot rate and finding the sum of the present values. Bond price = [60 / (1.05)] + [1,060 / (1.08)2] = $966.

Or, in keeping with the notion that each cash flow is a separate bond, sum the following transactions on your financial calculator:

N = 1; I/Y = 5.0; PMT = 0; FV = 60; CPT → PV = 57.14

N = 2; I/Y = 8.0; PMT = 0; FV = 1,060; CPT → PV = 908.78 '

Price = 57.14 + 908.78 = $966.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

76. (C) 7.82%.

Explanation

N = 6; PMT = 50; FV = 1,030; PV = -1,081.11; CPT → I = 3.91054

3.91054 x 2 = 7.82

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

77. (B) 14.74%.

Explanation

(0.14)(1,000) = $140 coupon

140/950 x 100 = 14.74

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

78. (C) greater than 5.2%.

Explanation

This bond is priced at a discount to par value because its 4% coupon is less than its 5.2% yield to maturity. As the bond gets closer to maturity, the discount will amortize toward par value, which means its price will increase if its yield remains unchanged. For its price to remain unchanged, its yield would have to increase.

Price with 10 years to maturity:

N = 10; IN = 5.2; PMT = 40; FV = 1,000; CPT PV = -908.23

Yield with 8 years to maturity:

N = 8; PMT = 40; FV = 1,000; PV = -908.23; CPT I/Y = 5.446%

For Further Reference:

(Study Session 13, Module 41.1, LOS 41.b)

CFA® Program Curriculum, Volume 4, page 523

Related Material

SchweserNotes - Book 4

79. (B) 6.57%.

Explanation

The four-year spot rate is computed as follows:

Four-year spot rate = $[(1+0.06)(1+0.065)(1+0.068)(1+0.07)^{1/4} - 1 = 6.57\%$

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

80. (B) Price appreciation creates all of the zero-coupon bond's return.

Explanation

Zero-coupon bonds are quite special. Because zero-coupon bonds have no coupons (all of the bond's return comes from price appreciation), investors have no uncertainty about the rate at which coupons will be invested. Spot rates are defined as interest rates used to discount a single cash flow to be received in the future. If the yield to maturity on a 2-year zero is 6%, we can say that the 2-year spot rate is 6%.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

81. (C) 4.556%.

Explanation

N = 10 x 2 = 20; PV = -111.5; PMT = 6 / 2 = 3; FV = 100.

Compute I/Y = 2.2777 (semiannual) x 2 = 4.5554%.

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

82. (B) 6.11%.

Explanation

N = 40; PV = -300; FV = 1,000; CPT → I = 3.055 x 2 = 6.11.

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

83. (B) the option cost is 75 basis points.

Explanation

The option cost is the difference between the zero volatility spread and the OAS, or 150 - 75 = 75 bp. With a flat yield curve, the G-spread and zero volatility spread will be the same.

For Further Reference:

(Study Session 13, Module 41.5, LOS 41.k)

CFA® Program Curriculum, Volume 4, page 558

Related Material

SchweserNotes - Book 4

84. (B) 3.8%.

Explanation

Interpolating: 3.2% + [(4 - 3) / (6 - 3)] x (5.0% - 3.2%) = 3.8%

(Study Session 13, Module 41.2, LOS 41.e)

Related Material

SchweserNotes - Book 4

85. (C) 97.38.

Explanation

This value is computed as follows:

Present Value = $6/1.07 + 6/1.07^2 + 106/1.07^3 = 97.38$

I/Y = 7; FV = 100; N = 3; PMT = 6; CPT —> PV = $97.38

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

86. (A) $912.

Explanation

We can calculate the price of the bond by discounting each of the annual payments by the appropriate spot rate and finding the sum of the present values. Price = [90 / (1.06)] + [90 / (1.12)2] + [1,090 / (1.13)3] = 912. Or, in keeping with the notion that each cash flow is a separate bond, sum the following transactions on your financial calculator:

N = 1; I/Y = 6.0; PMT = 0; FV = 90; CPT → PV = 84.91

N = 2; I/Y = 12.0; PMT = 0; FV = 90; CPT→ PV = 71.75

N = 3; I/Y = 13.0; PMT = 0; FV = 1,090; CPT → PV = 755.42

Price = 84.91 + 71.75 + 755.42 = $912.08.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

87. (A) $775.

Explanation

The semiannual coupon payment is $1,000 x (0.12 / 2) = $60.

FV = 1,000; PMT = 60; N = 15 x 2 = 30; I/Y = 16 / 2 = 8; CPT → PV = -774.84

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

88. (B) $97.47.

Explanation

The bond price is computed as follows:

Bond price = (5 / 1.0478) + (5 / 1.0556^2) + (105 / 1.0598^3) = $97.47

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

89. (A) $170.

Explanation

Using the 10% yield to maturity, the price of the bond originally is $754.22:

N = 10; I/Y = 10; PMT = 60; FV = 1000; CPT PV = $754.22

Using the 14% yield to maturity, the price of the bond changes to $582.71:

N= 10; I/Y = 14; PMT = 60; FV = 1000; CPT PV = $582.71

Therefore, the price is expected to change from $754.22 to $582.71, a decrease of $171.51.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

90. (C) 7.0%.

Explanation

$(1 + 1_y 1_y)\ 0(1 + S_1) = (1 + S_2)^2$

$(1 + 0.05)\ (1 + S_1) = (1 + 0.06)^2$

$(1 + s_1) = (1.06)^2 / (1 + 0.05)$

$1 + s_1 = 1.1236 / 1.05$

$1 + s_1 = 1.0701$

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

91. (B) lower.

Explanation

A premium bond sells at more than face value, thus as time passes the bond value will converge upon the face value.

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

92. (C) 0.84.

Explanation

The bond price change is computed as follows:

Bond Price Change = New Price - Old Price

$= (5/1.06 + 105/1.06^2) - (5/1.06 + 5/1.06^2 + 105/1.06^3)$

$= 98.17 - 97.33$

$= 0.84.$

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

93. (C) below par at issuance, but above par three months later.

Explanation

A bond issued at a yield higher than its coupon will be priced below par, or at a discount. Three months later, the yield has declined to 4.2% and the bond will trade at a premium to par, reflecting the fact that the coupon is now higher than the yield.

For Further Reference:

(Study Session 13, Module 41.1, LOS 41.b)

CFA® Program Curriculum, Volume 4, page 523

Related Material

SchweserNotes - Book 4

94. (B) $103.17.

Explanation

The bond price is computed as follows:

Bond price = 6/1.055 + (102.50 + 6)/1.055^2= $103.17

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

95. (C) 5.26%.

Explanation

First, find the annual yield to maturity of the bond as: FV = $1,000; PMT = $65; N = 10; PV = -1,089.25; CPT -+ I/Y = 5.33%. Then, find the semiannual-bond basis yield as: 2 x $[(1 + 0.0533)^{0.5} - 1] = 0.0526 = 5.26\%$.

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

96. (A) is less than the zero-volatility spread.

Explanation

For a callable bond, the OAS is less than the zero-volatility spread because of the extra yield required to compensate the bondholder for the call option.

For Further Reference:

(Study Session 13, Module 41.5, LOS 41.k)

CFA® Program Curriculum, Volume 4, page 558

Related Material

SchweserNotes - Book 4

97. (B) is traded at a market price of less than $1,000.

Explanation

A bonds price/value has an inverse relationship with interest rates. Since interest rates are increasing (from 8% when issued to 10% now) the bond will be selling at a discount. This happens so an investor will be able to purchase the bond and still earn the same yield that the market currently offers.

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

98. (B) 5.73%.

Explanation

The spot rate is computed as follows:

$$\text{Spot rate}_{0,1} = \frac{(1+\text{spot rate}_{0,2})^2}{(1+\text{forward rate}_{1,2})^1} - 1 = \frac{(1+0.0589)^2}{(1+0.0605)^1} - 1 = 5.73\%$$

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

99. (C) $995.06.

Explanation

You need the find the present value of each cash flow using the spot rate that coincides with each cash flow.

The present value of cash flow 1 is: FV = $55; PMT = 0; I/Y = 5.2%; N = 1; CPT → PV = -$52.28.

The present value of cash flow 2 is: FV = $55; PMT = 0; I/Y = 5.5%; N = 2; CPT → PV = -$49.42.

The present value of cash flow 3 is: FV = $1,055; PMT = 0; I/Y = 5.7%; N = 3; CPT → PV = -$893.36.

The most you pay for the bond is the sum of:

$52.28 + $49.42 + $893.36 = $995.06.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

100. (C) 7.5%.

Explanation

The equivalent add-on return the investor earns for the 146-day holding period is $1,000 / $971 - 1 = 0.0299 = 2.99%.

The bond-equivalent yield is (365/146) x 2.99% = 7.47%.

(Study Session 13, Module 41.1, LOS 41.h)

Related Material

SchweserNotes - Book 4

101. (B) $107.31.

Explanation

Price at 8% is N = 60, FV = $1,000, I = 4%, PMT = $32.50, CPT PV = $830.32; price at 7% is N = 60, FV = $1,000, I = 3.5%, PMT = $32.50, CPT PV = $937.64. Change in price is $937.64 – $830.32 = $107.31.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

102. (A) 10.93%.

Explanation

N = 40, PMT = 50, PV = -925, FV = 1,000, CPT IN = 5.4653 x 2 = 10.9305. (Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

103. (C) 7.4%.

Explanation

We are given N, FV, and PMT, but to calculate the yield to maturity I/Y we also need the bond's current price (PV). We can use the given current yield to determine the price:

Because current yield = annual interest / price, we can state:

Price = annual interest / current yield

= $60 /0.07%

= $857.143

Therefore: N = 20; FV = 1,000; PMT = 60; PV = -857.143;

CPT → I/Y = 7.3896%

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

104. (B) YTC, since YTC is less than YTM.

Explanation

The bond is trading at a premium, and if the bond is called at par that premium would be amortized over a shorter period, resulting in a lower return. The lower return is the more conservative number, so the YTC should be used. You could use your financial calculator to solve for YTC assuming 10 semiannual coupon payments of $35 (FV = 1,000; PMT = 35; PV = -1,065; N = 10;

solve for i = 2.75; x 2 to get annual YTC = 5.5%). Calculation of YTM would use the same inputs except N = 20, to get YTM = 6.12%

For Further Reference:

(Study Session 13, Module 41.3, LOS 41.g)

CFA® Program Curriculum, Volume 4, page 539

Related Material

SchweserNotes - Book 4

105. (B) yield-to-maturity on a 10-year coupon bond.

Explanation

A 10-year spot rate is the yield-to-maturity on a 10-year zero-coupon security, and is the appropriate discount rate for the year 10 cash flow for a 20-year (or any maturity greater than or equal to 10 years) bond. Spot rates are used to value bonds and to ensure that bond prices eliminate any possibility for arbitrage resulting from buying a coupon security, stripping it of its coupons and principal payment, and reselling the strips as separate zero-coupon securities. The yield to maturity on a 10-year bond is the (complex) average of the spot rates for all its cash flows.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

106. (C) $23.06.

Explanation

With YTM = 10.45% (I/Y = 5.225), PMT = 40, N = 24, FV = 1,000, PV = $834.61. With YTM = 10.07% (I/Y = 5.035), PV = $857.67, an increase of $23.06.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

107. (B) 13.8%.

Explanation

FV = 1,000, PMT = 100, N = 10, PV = -800; Compute I/Y = 13.8

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

108. (A) A coupon bond can be viewed as a collection of zero-coupon bonds.

Explanation

Zero-coupon bonds are quite special. Because zero-coupon bonds have no coupons (all of the bond's return comes from price appreciation), investors have no uncertainty about the rate at which coupons will be invested. Spot rates are defined as interest rates used to discount a single cash flow to be received in the future. Any bond can be viewed as the sum of the present value of its individual cash flows where each of those cash flows are discounted at the appropriate zero-coupon bond spot rate.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

109. (B) 12%.

Explanation

The YTM can be calculated using money values or percent-of par values.

Using percent of par: N = 5; FV = 100; PMT = 10; PV = -92.8; CPT I/Y = 11.9972.

Using money values: N = 5; FV = 1,000; PMT = 100; PV = -928; CPT I/Y = 11.9972.

(Study Session 13, Module 41.3, LOS 41.f)

Related Material

SchweserNotes - Book 4

110. (B) $934.96.

Explanation

N = 20, I = 9/2 = 4.5, PMT = 80/2 = 40, FV = 1,000, compute PV = $934.96

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

111. (B) $390.

Explanation

Because the yield is quoted on a semiannual-bond basis, we must divide the yield by 2 to get the bond's 6-month holding period yield, and multiply the number of years by 2 to get the number of semiannual periods to maturity.

I/Y = 9.6 / 2 = 4.8; FV = 1,000; N = 10 x 2 = 20; PMT = 0; CPT → PV = -391.54 (Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

112. (A) issuers.

Explanation

Yield curves are typically constructed for bonds of the same or similar issuers, such as a government bond yield curve or AA rated corporate bond yield curve.

(Study Session 13, Module 41.4, LOS 41.)

Related Material

SchweserNotes - Book 4

113. (B) use of a series of spot interest rates that reflect the current term structure.

Explanation

The use of multiple discount rates (i.e., a series of spot rates that reflect the current term structure) will result in more accurate bond pricing and in so doing,

will eliminate any meaningful arbitrage opportunities. That is why the use of a series of spot rates to discount bond cash flows is considered to be an arbitrage-free valuation procedure.

(Study Session 13, Module 41.2, LOS 41.c)

Related Material

SchweserNotes - Book 4

114. (C) swap rates.

Explanation

Spreads relative to swap rates are referred to as Interpolated or I-spreads.

(Study Session 13, Module 41.5, LOS 41.k)

Related Material

SchweserNotes - Book 4

115. (A) 30-day months and 360-day years.

Explanation

Accrued interest for corporate bonds is typically calculated using the 30/360 method. For government bonds, accrued interest is typically calculated using the actual/actual method.

(Study Session 13, Module 41.2, LOS 41.d)

116. (B) $101,698.

Explanation

N = 13 x 4 = 52; FV = 100,000; PMT = 1,800; I/Y = 7 / 4 = 1.75; CPT → PV = 101,698.

For Further Reference:

(Study Session 13, Module 41.1, LOS 41.a)

CFA® Program Curriculum, Volume 4, page 518

Related Material

SchweserNotes - Book 4

117. (B) 2.00%.

Explanation

The add-on yield for the 73-day holding period is $1,004 / $1,000 - 1 = 0.4%. The bond-equivalent yield, which is an add-on yield based on a 365-day year, is (365 / 73) x 0.4% = 2.0%.

(Study Session 13, Module 41.3, LOS 41.h)

Related Material

SchweserNotes - Book 4

118. (C) 12.0%.

Explanation

$[(1 + S_4)^4 / (1 + S_3)^3] - 1 = 12.01\ \% = 12\%$.

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

119. (C) zero-coupon bonds.

Explanation

A spot rate curve illustrates the yields for single payments to be made in various future periods, including short-term and long-term periods.

(Study Session 13, Module 41.4, LOS 41.i)

Related Material

SchweserNotes - Book 4

120. (C) 7.80% 15.82%

Explanation

To calculate the CY and YTC, we first need to calculate the present value of the bond: FV = 1,000, N = 14 = 7 x 2, PMT = 35 = (1000 x 0.07)/2, I/Y = 4.5 (9 / 2), Compute PV = -897.77 (negative sign because we entered the FV and payment as positive numbers).

Then, CY = (Face value x Coupon) / PV of bond = (1,000 x 0.07) / 897.77 = 7.80%.

And finally, YTC calculation: FV = 1,060 (price at first call), N = 4 (2 x 2), PMT = 35 (same as above), PV = -897.77 (negative sign because we entered the FV and payment as positive numbers), Compute I/Y = 7.91 (semi-annual rate, need to multiply by 2) = 15.82%.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

121. (C) 9.5%. 0.6%

Explanation

9.4 – 8.5 = 0.9

9.9 –9.3 = 0.6

Related Material

SchweserNotes - Book 4

122. (A) 10.65%.

Explanation

FV = 1,000; N = 4; PMT = 12; CPT > PV = 939.25.

Current yield = coupon / current price

100/ 939.25 x 100 = 10.65

(Study Session 13, Module 41.3, LOS 41. g)

Related Material

SchweserNotes - Book 4

123. (C) greater than its current yield.

Explanation

The bond's YTM is:

N = 15; PMT = 100; PV = -951; FV = 1,000; CPT IN = 10.67%

Current Yield = annual coupon payment / bond price

CY = 100 / $951 = 0.1051 or 10.51%

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

124. (B) the value of a long-term bond is more sensitive to interest rate changes than the value of a short-term bond.

Explanation

Long-term, low-coupon bonds are more sensitive than short-term and high-coupon bonds. Prices are more sensitive to rate decreases than to rate increases (duration rises as yields fall).

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

125. (B) 5%.

Explanation

6m6m/2 = $[(1 + S_2/2)^2 / (1 + S_1/2)^1] - 1 = [(1.0225)^2/(1.02)^1] - 1$

[1.0455 / 1.02] - 1 = 0.025

6m6m = 0.025 x 2 = 0.05

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

126. (A) lowest of all possible yields to call.

Explanation

Yield to worst involves the calculation of yield to call for every possible call date, and determining which of these results in the lowest expected return.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

127. (C) the bond has a zero-volatility spread greater than 75 basis points.

Explanation

For a bond with an embedded call option, the OAS is less than its zero-volatility spread by the option cost. Therefore, the zero-volatility spread is greater than the OAS for callable bonds. If the embedded call option has any value to the issuer, a callable bond with an OAS of 75 basis points will have a Z-spread that is greater than 75 basis points.

Because the OAS represents the bond's spread to the spot yield curve excluding the effect of the embedded option, it does not include any compensation for the volatility risk related to the option. The implied cost of an embedded option is the difference between the bond's zero-volatility spread (not the nominal spread) and its OAS.

For Further Reference:

(Study Session 13, Module 41.5, LOS 41.k)

CFA® Program Curriculum, Volume 4, page 558

Related Material

SchweserNotes - Book 4

128. (A) $779.01.

Explanation

Bond Value = $1,000 / 1.0425^6 = $779.01.

N = 6; I/Y = 4.25; PMT = 0; FV = 1,000; CPT —+ PV = 779.01.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

129. (B) 11.9%.

Explanation

N = 2 x 2 = 4; PV = -875.60; PMT = 70/2 = 35; FV = 950;

CPT → I/Y = 5.94 x 2 = 11.88%.

Related Material

SchweserNotes - Book 4

130. (A) **Premium bond, required market yield is less than 6.75%.**

Explanation

When the issue price is greater than par, the bond is selling at a premium. We also know that the current market required rate is less than the coupon rate of 6.75%, because the bond is selling at a premium.

For the examination, remember the following relationships:

Type of Bond	Market Yield to Coupon	Price to Par Price
Premium	Market Yield < Coupon	Price > Par
Par	Market Yield = Coupon	Price = Par
Discount	Market Yield < Coupon	Price < Par

(Study Session 13, Module 41.1, LOS 41.b)

Related Material

SchweserNotes - Book 4

131. (C) **$879.**

Explanation

The price of a bond is equal to the present value of future cash flows discounted at the yield to maturity.

N = 20 x 2 = 40; I/Y = 8.25/2 = 4.125; PMT = 70/2 = 35; FV = 1,000;

Compute PV = 878.56.

Note that the yield to call cannot be used here to calculate the bond value, because the call date is not given.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

132. (B) **$875.38.**

Explanation

Using the financial calculator: N = 10 x 2 = 20; PMT = $80 / 2 = $40;

I/Y = 10 / 2 = 5%; FV = 1,000;

Compute the bond's value PV = 875.38.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

133.(B) $1,075.82.

Explanation

FV = 1,000

N = 5

I = 10

PMT = 120

CPT = ?

PV = 1,075.82.

(Study Session 13, Module 41.1, LOS 41.a)

Related Material

SchweserNotes - Book 4

134. (C) 8.61%.

Explanation

The forward rate is computed as follows:

$$\text{Forward rate}_{1,2} = \frac{\left(1+\text{spotrate}_{0,2}\right)^2}{\left(1+\text{forwardrate}_{1,2}\right)^1} - 1 = \frac{(1+0.0732)^2}{(1+0.0605)^1} - 1 = 8.61\%$$

(Study Session 13, Module 41.4, LOS 41.j)

Related Material

SchweserNotes - Book 4

135. (C) have low liquidity.

Explanation

For bonds that do not trade or trade infrequently, matrix pricing uses the yields on similar issues that do trade to estimate the required yield on the illiquid bonds.

(Study Session 13, Module 41.2, LOS 41.e)

Related Material

SchweserNotes - Book 4

136. (A) Adjust the corporate bond yield to actual months and years.

Explanation

Corporate bond yields are typically based on a 30/360 day count. When calculating spreads, corporate yields are often restated to the actual/actual basis typically used to state government bond yields.

(Study Session 13, Module 41.3, LOS 41.g)

Related Material

SchweserNotes - Book 4

137. (A) +210 basis points.

Explanation

Because a conversion option is favorable for the bondholder, the convertible bonds should trade at a lower spread than otherwise identical non-convertible bonds.

(Study Session 13, Module 41.5, LOS 41.k)

Related Material

SchweserNotes - Book 4

138. (B) equal to the market price of the bond.

Explanation

The value of a bond calculated using appropriate spot rates is its no-arbitrage value. If no arbitrage opportunities are present, this value is equal to the market price of a bond.

For Further Reference:

(Study Session 13, Module 41.2, LOS 41.c)

CFA® Program Curriculum, Volume 4, page 527

Related Material

SchweserNotes - Book 4