Introduction to Fixed-Income Valuation - 2

Test ID: 7711886

Question #1 of 70

Question ID: 415553

An investor is interested in buying a 4-year, $1,000 face value bond with a 7% coupon and semi-annual payments. The bond is currently priced at $875.60. The first put price is $950 in 2 years. The yield to put is *closest* to:

✗ **A) 8.7%.**

✗ **B)** 10.4%.

✓ **C)** 11.9%.

Explanation

N = 2 × 2 = 4; PV = -875.60; PMT = 70/2 = 35; FV = 950; CPT → I/Y = 5.94 × 2 = 11.88%.

Question #2 of 70

Question ID: 415541

The one-year spot rate is 7.00%. One-year forward rates are 8.15% one year from today, 10.30% two years from today, and 12.00% three years from today.

The value of a 4-year, 11% annual pay, $1,000 per bond is *closest* to:

✗ **A) $1,052.**

✗ **B)** $984.

✓ **C)** $1,060.

Explanation

Spot Rates:
Year 1 = 7%.
Year 2 = $[(1.07)(1.0815)]^{1/2} - 1 = 7.57\%$.
Year 3 = $[(1.07)(1.0815)(1.103)]^{1/3} - 1 = 8.48\%$.
Year 4 = $[(1.07)(1.0815)(1.103)(1.120)]^{1/4} - 1 = 9.35\%$.

Bond Value:
N = 1; FV = 110; I/Y = 7; CPT → PV = 102.80
N = 2; FV = 110; I/Y = 7.57; CPT → PV = 95.06
N = 3; FV = 110; I/Y = 8.48; CPT → PV = 86.17
N = 4; FV = 1,110; I/Y = 9.35; CPT → PV = 776.33

102.80 + 95.06 + 86.17 + 776.33 = 1,060.36

Question #3 of 70

Question ID: 415533

The arbitrage-free bond valuation approach can *best* be described as the:

✓ **A) use of a series of spot interest rates that reflect the current term structure.**

✗ **B)** geometric average of the spot interest rates.

✗ **C)** use of a single discount factor.

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.

Question #4 of 70

Question ID: 415549

Whitetail Company issues 73-day commercial paper that will pay $1,004 at maturity per $1,000 face value. The bond-equivalent yield is *closest to*:

✓ **A) 2.00%.**

✗ **B)** 2.02%.

✗ **C)** 1.97%.

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) × 0.4% = 2.0%.

Question #5 of 70

Question ID: 415573

What is the yield to call on a bond that has an 8% coupon paid annually, $1,000 face value, 10 years to maturity and is first callable in 6 years? The current market price is $1,100. The call price is the face value plus 1-year's interest.

✓ **A) 7.02%.**

✗ **B)** 7.14%.

✗ **C)** 6.00%.

Explanation

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

Question #6 of 70

Question ID: 460691

Which of the following adjustments is *most likely* to be made to the day count convention when calculating corporate bond yield spreads to government bond yields?

✗ **A) Adjust both the corporate and government bond yields to actual months and years.**

✗ **B)** Adjust the government bond yield to actual months and years.

✓ **C)** 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.

Question #7 of 70

Question ID: 434409

If the required margin on a floating rate note is greater than the quoted margin, it is *most likely* that the:

✗ **A) reference rate on the FRN has increased.**

✓ **B)** credit quality of the FRN has decreased.

✗ **C)** bond will be priced above par at the reset date.

Explanation

If the required margin is greater than the quoted margin, the credit quality of the bond must have decreased and the bond will be priced below par at the reset date.

Question #8 of 70

Question ID: 415575

Find the yield to maturity of a 6% coupon bond, priced at $1,115.00. The bond has 10 years to maturity and pays semi-annual coupon payments.

✓ **A) 4.56%.**

✗ **B)** 8.07%.

✗ **C)** 5.87%.

Explanation

N = 10 × 2 = 20; PV = -1,115.00; PMT = 60/2 = 30; FV = 1,000.

Compute I = 2.28 (semiannual) × 2 = 4.56%

Question #9 of 70

Question ID: 415568

A coupon bond which pays interest $100 annually has a par value of $1,000, matures in 5 years, and is selling today at a $72 discount from par value. The yield to maturity on this bond is:

✓ **A) 12.00%.**

✗ **B)** 8.33%.

✗ **C)** 7.00%.

Explanation

PMT = 100
FV = 1,000
N = 5
PV = 1,000 − 72 = 928
compute I = 11.997% or 12.00%

Question #10 of 70

Question ID: 415534

A three-year annual coupon bond has a par value of $1,000 and a coupon rate of 5.5%. The spot rate for year 1 is 5.2%, the spot rate for year two is 5.5%, and the spot rate for year three is 5.7%. The value of the coupon bond is *closest to*:

✓ **A) $995.06.**

✗ **B)** $937.66.

✗ **C)** $1,000.00.

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.

Question #11 of 70

Question ID: 460689

A single yield used to discount all of a bond's cash flows when calculating its price is *most accurately* described as the bond's:

✗ **A) current yield.**

✓ **B)** yield to maturity.

✗ **C)** simple yield.

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.

Question #12 of 70

Question ID: 415510

Consider a bond that pays an annual coupon of 5% and that has three years remaining until maturity. Assume the term structure of interest rates is flat at 6%. If the term structure of interest rates does not change over the next twelve-month interval, the bond's price change (as a percentage of par) will be *closest to:*

✓ **A) 0.84.**

✗ **B)** -0.84.

✗ **C)** 0.00.

Explanation

The bond price change is computed as follows:

Bond Price Change = New Price − Old Price = $(5/1.06 + 105/1.06^2) - (5/1.06 + 5/1.06^2 + 105/1.06^3) = 98.17 - 97.33 = 0.84$.

Question #13 of 70

Question ID: 415586

Sysco Foods has a 10-year bond outstanding with an annual coupon of 6.5%. If the bond is currently priced at $1,089.25, which

of the following is *closest* to the semiannual-bond basis yield?

✗ **A) 5.33%.**

✗ **B)** 5.42%.

✓ **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: $2 \times [(1 + 0.0533)^{0.5} - 1] = 0.0526 = 5.26\%$.

Question #14 of 70

Question ID: 415503

What value would an investor place on a 20-year, 10% annual coupon bond, if the investor required a 10% rate of return?

✓ **A) $1,000.**

✗ **B)** $1,104.

✗ **C)** $920.

Explanation

N = 20; I/Y = 10; PMT= 100; FV = 1,000; CPT → PV = 1,000

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Question ID: 471003

The six-month spot rate is 8% and the 1 year spot rate is 9%, both stated on a semiannual bond basis. The implied six-month rate six months from now is *closest to:*

✓ **A) 5%.**

✗ **B)** 4%.

✗ **C)** 6%.

Explanation

$6m6m = [(1 + S_2)^2 / (1 + S_1)^1] - 1 = [(1.045)^2/(1.04)^1] - 1$

$[1.092 / 1.04] - 1 = 0.05$

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Question ID: 415491

A coupon bond that pays interest semi-annually has a par value of $1,000, matures in 5 years, and has a yield to maturity of 10%. What is the value of the bond today if the coupon rate is 8%?

✓ **A) $922.78.**

✗ **B)** $1,144.31.

✗ **C)** $1,221.17.

Explanation

FV = 1,000; N = 10; PMT = 40; I = 5; CPT → PV = 922.78.

Question #17 of 70

Question ID: 415489

Interest rates have fallen over the seven years since a $1,000 par, 10-year bond was issued with a coupon of 7%. What is the present value of this bond if the required rate of return is currently four and one-half percent? (For simplicity, assume annual payments.)

✗ **A) $1,052.17.**

✗ **B)** $1,044.33.

✓ **C)** $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 × 7% = $70	$(1.045)^1$	$ 66.99
2	$1,000 × 7% = $70	$(1.045)^2$	$ 64.10
3	$1,000 × 7% = $70	$(1.045)^3$	$ 61.34
3	$1,000 principal	$(1.045)^3$	$ 876.30
Total Present Value of Cash Flows			**$1,068.73**

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

Question #18 of 70

Question ID: 415527

Which of the following statements regarding zero-coupon bonds and spot interest rates is CORRECT?

✗ **A) Spot interest rates will never vary across the term structure.**

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

✗ **C)** If the yield to maturity on a 2-year zero coupon bond is 6%, then the 2-year spot rate is 3%.

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%.

Question #19 of 70

Question ID: 434415

A disadvantage of G-spreads and I-spreads is that they are theoretically correct only if the spot yield curve is:

✗ **A) downward sloping.**

✓ **B)** flat.

✗ **C)** upward sloping.

Explanation

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

Question #20 of 70

Question ID: 434412

Given that the one-year spot rate is 5.76% and the 1.5-year spot rate is 6.11%, assuming semiannual compounding what is the six-month forward rate starting one year from now?

✗ **A) 7.04%.**

✓ **B)** 6.81%.

✗ **C)** 6.97%.

Explanation

The forward rate is computed as follows:

$$\text{Forward rate}_{1,1.5} = 2 \times \left(\frac{\left(1 + \frac{\text{spot rate}_{0,1.5}}{2}\right)^3}{\left(1 + \frac{\text{spot rate}_{0,1}}{2}\right)^2} - 1 \right) = 2 \times \left(\frac{\left(1 + \frac{0.0611}{2}\right)^3}{\left(1 + \frac{0.0576}{2}\right)^2} - 1 \right) = 6.81\%$$

Question #21 of 70

Question ID: 460692

Neuman Company has bonds outstanding with five years to maturity that trade at a spread of +240 basis points above the five-year government bond yield. Neuman also has five-year bonds outstanding that are identical in all respects except that they are convertible into 30 shares of Neuman common stock. At which of the following spreads are the convertible bonds *most likely* to trade?

✗ **A) +270 basis points.**

✗ **B)** +330 basis points.

✓ **C)** +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.

Question #22 of 70

Question ID: 434408

Consider a bond selling for $1,150. This bond has 28 years to maturity, pays a 12% annual coupon, and is callable in 8 years for $1,100. The yield to maturity is *closest to*:

✗ **A) 10.55%.**

✗ **B)** 9.26%.

✓ **C)** 10.34%.

Explanation

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

Question #23 of 70

Question ID: 415519

The price and yield on a bond have:

✓ **A) an inverse relationship.**

✗ **B)** a positive relationship.

✗ **C)** no relationship.

Explanation

Interest rates and a bond's price have an inverse relationship. If interest rates increase the bond price will decrease and if interest rates decrease the bond price will increase.

Question #24 of 70

Question ID: 415514

A zero-coupon bond matures three years from today, has a par value of $1,000 and a yield to maturity of 8.5% (assuming semi-annual compounding). What is the current value of this issue?

✗ **A) $782.91.**

✗ **B)** $78.29.

✓ **C)** $779.01.

Explanation

The value of the bond is computed as follows:

Bond Value = $1,000 / 1.0425^6 = $779.01.
N = 6; I/Y = 4.25; PMT = 0; FV = 1,000; CPT → PV = 779.01.

Question #25 of 70

Question ID: 415567

If a $1,000 bond has a 14% coupon rate and a current price of 950, what is the current market yield?

✗ **A) 15.36%.**

✓ **B)** 14.74%.

✗ **C)** 14.00%.

Explanation

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

140/950 × 100 = 14.74

Question #26 of 70

Question ID: 415566

A 20-year, $1,000 face value, 10% semi-annual coupon bond is selling for $875. The bond's yield to maturity is:

✗ **A) 11.43%.**

✗ **B)** 5.81%.

✓ **C)** 11.62%.

Explanation

N = 40 (2 × 20 years); PMT = 50 (0.10 × 1,000) / 2; PV = -875; FV = 1,000; CPT → I/Y = 5.811 × 2 (for annual rate) = 11.62%.

Question #27 of 70

Question ID: 415521

If a bond sells at a discount and market rates are expected to stay the same until maturity, the price of the bond will:

✗ **A) remain constant until maturity.**

✓ **B)** increase over time, approaching the par value at maturity.

✗ **C)** increase over time, approaching the par value minus the final interest payment at maturity.

Explanation

The bond's price will increase towards the par value over time.

Question #28 of 70

Question ID: 415495

What is the present value of a 7% semiannual-pay bond with a $1,000 face value and 20 years to maturity if similar bonds are now yielding 8.25%?

✗ **A) $1,000.00.**

✓ **B)** $878.56.

✗ **C)** $879.52.

Explanation

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

Compute PV = 878.56.

Question #29 of 70

Question ID: 415601

Suppose that the six-month spot rate is equal to 7% and the two-year spot rate is 6%. The one-and a half-year forward rate starting six months from now has to:

✗ **A) lie between 6% and 7%.**

✓ **B)** be less than 6%.

✗ **C)** be more than 6%.

Explanation

The following relationship has to hold:

$(1 + \text{spot rate}_{0,0.5}/2)^1 * (1 + \text{forward rate}_{0.5,2}/2)^3 = (1 + \text{spot rate}_{0,2}/2)^4$. For this relationship to hold the forward rate has to be less than 6%.

Question #30 of 70

Question ID: 442253

A $1,000 par value, 10% annual coupon bond with 15 years to maturity is priced at $951. The bond's yield to maturity is:

✗ **A) less than its current yield.**

✓ **B)** greater than its current yield.

✗ **C)** equal to its current yield.

Explanation

The bond's YTM is:
N = 15; PMT = 100; PV = −951; FV = 1,000; CPT I/Y = 10.67%

Current Yield = annual coupon payment / bond price

CY = 100 / $951 = 0.1051 or 10.51%

Question #31 of 70

Question ID: 415490

Assume a city issues a $5 million bond to build a new arena. The bond pays 8% semiannual interest and will mature in 10 years. Current interest rates are 9%. What is the present value of this bond and what will the bond's value be in seven years from today?

	Present Value	Value in 7 Years from Today
✓ **A)**	**4,674,802**	**4,871,053**
✗ **B)**	4,674,802	4,931,276
✗ **C)**	5,339,758	4,871,053

Explanation

Present Value:
Since the current interest rate is above the coupon rate the bond will be issued at a discount. FV = $5,000,000; N = 20; PMT = (0.04)(5 million) = $200,000; I/Y = 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 issued 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

Question #32 of 70

Question ID: 415585

What is the annual-pay yield for a bond with a semiannual-bond basis yield of 5.6%?

✓ **A) 5.68%.**

✗ **B)** 5.52%.

✗ **C)** 5.60%.

Explanation

The annual-pay yield is computed as follows:

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

Question #33 of 70

Question ID: 415529

Assume the following corporate spot yield curve.

> One-year rate: 5%
> Two-year rate: 6%
> Three-year rate: 7%

If a 3-year annual-pay corporate bond has a coupon of 6%, its yield to maturity is *closest* to:

✗ **A) 6.08%.**

✓ **B)** 6.92%.

✗ **C)** 7.00%.

Explanation

First determine the current price of the corporate 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 → I/Y = 6.92%

Question #34 of 70

Question ID: 415507

Assume a city issues a $5 million bond to build a hockey rink. The bond pays 8% semiannual interest and will mature in 10 years. Current interest rates are 6%. What is the present value of this bond?

✓ **A) $5,743,874.**

✗ **B)** $3,363,478.

✗ **C)** $5,000,000.

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

Question #35 of 70

Question ID: 415561

Calculate the current yield and the yield-to-first call on a bond with the following characteristics:

- 5 years to maturity
- $1,000 face value
- 8.75% semi-annual coupon
- Priced to yield 9.25%
- Callable at $1,025 in two years

		Current Yield	Yield-to-Call
✓	**A)**	**8.93%**	**11.02%**
✗	**B)**	8.93%	5.51%
✗	**C)**	9.83%	19.80%

Explanation

To calculate the CY and YTC, we first need to calculate the present value of the bond: FV = 1,000; N = 5 × 2 = 10; PMT = (1000 × 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 × Coupon) / PV of bond = (1,000 × 0.0875) / 980.34 = **8.93%**.

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

Question #36 of 70

Question ID: 415498

What is the value of a 10-year, semi-annual, 8% coupon bond with a $1,000 face value if similar bonds are now yielding 10%?

- ✓ **A) $875.38.**
- ✗ **B)** $1,000.00.
- ✗ **C)** $1,373.87.

Explanation

Using the financial calculator: N = 10 × 2 = 20; PMT = $80/2 = $40; I/Y = 10/2 = 5%; FV = $1,000; Compute the bond's value PV = $875.38.

Question #37 of 70

Question ID: 415506

What is the present value of a three-year security that pays a fixed annual coupon of 6% using a discount rate of 7%?

- ✗ **A) 92.48.**
- ✓ **B)** 97.38.
- ✗ **C)** 100.00.

Explanation

This value is computed as follows:

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

The value 92.48 results if the coupon payment at maturity of the bond is neglected. The coupon rate and the discount rate are not equal so 100.00 cannot be the correct answer.

Question #38 of 70

Question ID: 434414

Given that the two-year spot rate is 5.89% and the one-year forward rate one-year from now is 6.05%, assuming annual compounding what is the one year spot rate?

✗ **A) 5.67%.**

✓ **B)** 5.73%.

✗ **C)** 5.91%.

Explanation

The spot rate is computed as follows:

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

Question #39 of 70

Question ID: 415599

If the current two-year spot rate is 6% while the one-year forward rate for one year is 5%, what is the current spot rate for one year?

✗ **A) 5.5%.**

✗ **B)** 5.0%.

✓ **C)** 7.0%.

Explanation

$(1 + 1_y1_y)(1 + s_1) = (1 + s_2)^2$

$(1 + 0.05)(1 + s_1) = (1 + 0.06)^2$

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

$1 + s_1 = 1.1236 / 1.05$

$1 + s_1 = 1.0701$

$s_1 = 0.07$ or 7%

Question #40 of 70

Question ID: 415551

A 6-year annual interest coupon bond was purchased one year ago. The coupon rate is 10% and par value is $1,000. At the time the bond was bought, the yield to maturity (YTM) was 8%. If the bond is sold after receiving the first interest payment and the bond's yield to maturity had changed to 7%, the annual total rate of return on holding the bond for that year would have been:

✗ **A) 7.00%.**

✗ **B)** 8.00%.

✓ **C)** 11.95%.

Explanation

Price 1 year ago N = 6, PMT = 100, FV = 1,000, I = 8, Compute PV = 1,092

Price now N = 5, PMT = 100, FV = 1,000, I = 7, Compute PV = 1,123

% Return = (1,123.00 + 100 − 1,092.46)/1,092.46 x 100 = 11.95%

Question #41 of 70

Question ID: 415488

Which of the following statements regarding zero-coupon bonds and spot interest rates is *most* accurate?

✓ **A) A coupon bond can be viewed as a collection of zero-coupon bonds.**

✗ **B)** Price appreciation creates only some of the zero-coupon bond's return.

✗ **C)** Spot interest rates will never vary across time.

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.

Question #42 of 70

Question ID: 415552

An investor purchased a 10-year zero-coupon bond with a yield to maturity of 10% and a par value of $1,000. What would her rate of return be at the end of the year if she sells the bond? Assume the yield to maturity on the bond is 9% at the time it is sold and annual compounding periods are used.

✗ **A) 15.00%.**

✗ **B)** 16.00%.

✓ **C)** 19.42%.

Explanation

Purchase price: I = 10; N = 10; PMT = 0; FV = 1,000; CPT → PV = 385.54

Selling price: I = 9; N = 9; PMT = 0; FV = 1,000; CPT → PV = 460.43

% Return = (460.43 − 385.54) / 385.54 × 100 = 19.42%

Question #43 of 70

Question ID: 415494

Given a required yield to maturity of 6%, what is the intrinsic value of a semi-annual pay coupon bond with an 8% coupon and 15 years remaining until maturity?

✓ **A) $1,196.**

✗ **B)** $1,202.

✗ **C)** $1,095.

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 × 2 = 30; FV = $1,000; CPT → PV = $1,196.

Question #44 of 70

Question ID: 415523

If market rates do not change, as time passes the price of a zero-coupon bond will:

✓ **A) approach par.**

✗ **B)** approach the purchase price.

✗ **C)** approach zero.

Explanation

A bond's value may differ substantially from it's maturity value prior to maturity. But as maturity draws nearer the bond's value converges to it's maturity value. This statement is true for regular bonds as well as zero-coupon bonds.

Question #45 of 70

Question ID: 415531

A 2-year option-free bond (par value of $1,000) has an annual coupon of 6%. An investor determines that the spot rate of year 1 is 5% and the year 2 spot rate is 8%. Using the arbitrage-free valuation approach, the bond price is *closest* to:

✗ **A) $1,039.**

✗ **B)** $992.

✓ **C)** $966.

Explanation

The arbitrage free valuation approach is the process of valuing a fixed income instrument as a portfolio of zero coupon bonds. 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.

Question #46 of 70

Question ID: 415584

Suppose that IBM has a $1,000 par value bond outstanding with a 12% semiannual coupon that is currently trading at 102.25 with seven years to maturity. Which of the following is *closest* to the yield to maturity (YTM) on the bond?

✗ **A) 11.21%.**

✓ **B)** 11.52%.

✗ **C)** 11.91%.

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%.

Question #47 of 70

Question ID: 415546

To determine the full price of a corporate bond, a dealer is *most likely* to calculate accrued interest based on:

✗ **A) 30-day months and 365-day years.**

✗ **B)** Actual day counts.

✓ **C)** 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.

Question #48 of 70

Question ID: 460687

An investor who is calculating the arbitrage-free value of a government security should discount each cash flow using the:

✗ **A) government note yield that is specific to its maturity.**

✗ **B)** risk-free rate.

✓ **C)** 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.

Question #49 of 70

Question ID: 415596

The one-year spot rate is 6% and the one-year forward rates starting in one, two and three years respectively are 6.5%, 6.8% and 7%. What is the four-year spot rate?

✗ **A) 6.58%.**

✗ **B)** 6.51%.

✓ **C)** 6.57%.

Explanation

The four-year spot rate is computed as follows:

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

Question #50 of 70

Question ID: 434413

Given that the one-year spot rate is 6.05% and the two-year spot rate is 7.32%, assuming annual compounding what is the one-year forward rate starting one year from now?

✗ **A) 8.34%.**

✗ **B)** 7.87%.

✓ **C)** 8.61%.

Explanation

The forward rate is computed as follows:

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

Question #51 of 70

Question ID: 415509

An investor buys a 20-year, 10% semi-annual bond for $900. She wants to sell the bond in 6 years when she estimates yields will be 10%. What is the estimate of the future price?

✓ **A) $1,000.**

✗ **B)** $1,079.

✗ **C)** $946.

Explanation

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

Question #52 of 70

Question ID: 415590

A spot rate curve is *most accurately* described as yields to maturity for:

✗ **A) government bonds.**

✓ **B)** zero-coupon bonds.

✗ **C)** money market securities.

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.

Question #53 of 70

Question ID: 415604

A Treasury bond due in one-year has a yield of 8.5%. A Treasury bond due in 5 years has a yield of 9.3%. A bond issued by General Motors due in 5 years has a yield of 9.9%. A bond issued by Exxon due in one year has a yield of 9.4%. The yield spreads on the bonds issued by Exxon and General Motors are:

	Exxon	General Motors
✓ **A)**	**0.9%**	**0.6%**
✗ **B)**	0.1%	1.4%
✗ **C)**	0.1%	0.6%

Explanation

9.4 − 8.5 = 0.9

9.9 − 9.3 = 0.6

Question #54 of 70

Question ID: 434406

An analyst wants to estimate the yield to maturity on a non-traded 4-year, annual pay bond rated A. Among actively traded bonds with the same rating, 3-year bonds are yielding 3.2% and 6-year bonds are yielding 5.0%. Using matrix pricing the analyst should estimate a YTM for the non-traded bond that is *closest* to:

✗ **A) 3.6%.**

✗ **B)** 4.1%.

✓ **C)** 3.8%.

Explanation

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

Question #55 of 70

Question ID: 415603

The 3-year spot rate is 10%, and the 4-year spot rate is 10.5%. What is the 1-year forward rate 3 years from now?

✗ **A) 11.0%.**

✓ **B)** 12.0%.

✗ **C)** 10.0%.

Explanation

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

Question #56 of 70

Question ID: 415504

A bond with a face value of $1,000 pays a semi-annual coupon of $60. It has 15 years to maturity and a yield to maturity of 16% per year. What is the value of the bond?

✓ **A) $774.84.**

✗ **B)** $697.71.

✗ **C)** $832.88.

Explanation

FV = 1,000; PMT = 60; N = 30; I = 8; CPT → PV = 774.84

Question #57 of 70

Question ID: 415517

A new-issue, 15-year, $1,000 face value 6.75% semi-annual coupon bond is priced at $1,075. Which of the following describes the bond and the relationship of the bond's market yield to the coupon?

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

✗ **B)** Premium bond, required market yield is greater than 6.75%.

✗ **C)** Discount bond, required market yield is greater 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
Premium	Market Yield < Coupon	Price > Par
Par	Market Yield = Coupon	Price = Par
Discount	Market Yield > Coupon	Price < Par

Question #58 of 70

Question ID: 415569

A 12% coupon bond with semiannual payments is callable in 5 years. The call price is $1,120. If the bond is selling today for $1,110, what is the yield-to-call?

✗ **A) 11.25%.**

✗ **B)** 10.25%.

✓ **C)** 10.95%.

Explanation

PMT = 60; N = 10; FV = 1,120; PV = 1,110; CPT → I = 5.47546

(5.47546)(2) = 10.95

Question #59 of 70

Question ID: 415505

An investor purchased a 6-year annual interest coupon bond one year ago. The coupon rate of interest was 10% and par value was $1,000. At the time she purchased the bond, the yield to maturity was 8%. The amount paid for this bond one year ago was:

✗ **A) $1,198.07.**

✓ **B)** $1,092.46.

✗ **C)** $1,125.53.

Explanation

N = 6
PMT = (0.10)(1,000) = 100
I = 8
FV = 1,000
CPT = ?
PV = 1,092.46

Question #60 of 70

Question ID: 436852

If yield to maturity and risk factors remain constant over the remainder of a coupon bond's life, and the bond is trading at a discount today, it will have a:

✓ **A) positive current yield, only.**

✗ **B)** negative current yield and a capital gain.

✗ **C)** positive current yield and a capital gain.

Explanation

A coupon bond will have a positive current yield. It will not have a capital gain because its price will increase toward par along its constant-yield price trajectory as long as its YTM remains constant.

Question #61 of 70

Question ID: 415524

A year ago a company issued a bond with a face value of $1,000 with an 8% coupon. Now the prevailing market yield is 10%. What happens to the bond? The bond:

✓ **A) is traded at a market price of less than $1,000.**

✗ **B)** price is not affected by the change in market yield, and will continue to trade at $1,000.

✗ **C)** is traded at a market price higher 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.

Question #62 of 70

Question ID: 415576

A 20 year, 8% semi-annual coupon, $1,000 par value bond is selling for $1,100. The bond is callable in 4 years at $1,080. What is the bond's yield to call?

✗ **A) 8.13.**

✗ **B)** 7.21.

✓ **C)** 6.87.

Explanation

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

Compute YTC = 3.435(2) = 6.87%

Question #63 of 70

Question ID: 415532

A 3-year option-free bond (par value of $1,000) has an annual coupon of 9%. An investor determines that the spot rate of year 1 is 6%, the year 2 spot rate is 12%, and the year 3 spot rate is 13%. Using the arbitrage-free valuation approach, the bond price is *closest* to:

✗ **A) $968.**

✗ **B)** $1,080.

✓ **C)** $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.

Question #64 of 70

Question ID: 415547

An analyst using matrix pricing will estimate the value of a bond based on:

✗ **A) a probability model for default risk.**

✗ **B)** the issuer's cost of capital from all sources.

✓ **C)** 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.

Question #65 of 70

Question ID: 415492

What value would an investor place on a 20-year, 10% annual coupon bond, if the investor required an 11% rate of return?

✓ **A) $920.**

✗ **B)** $1,035

✗ **C)** $879.

Explanation

N = 20, I/Y = 11, PMT = 100, FV = 1,000, CPT PV

Question #66 of 70

Question ID: 434407

Consider a bond selling for $1,150. This bond has 28 years to maturity, pays a 12% annual coupon, and is callable in 8 years for $1,100. The yield to call is *closest to*:

✓ **A) 10.05%.**

✗ **B)** 10.55%.

✗ **C)** 9.25%.

Explanation

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

Question #67 of 70

Question ID: 442252

What is the yield to maturity (YTM) on a semiannual-bond basis of a 20-year, U.S. zero-coupon bond selling for $300?

✓ **A) 6.11%.**

✗ **B)** 7.20%.

✗ **C)** 3.06%.

Explanation

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

Question #68 of 70

Question ID: 485807

Matrix pricing is used primarily for pricing bonds that:

✗ **A) differ from their benchmark bond's maturity.**

✓ **B)** have low liquidity.

✗ **C)** differ from their benchmark bond's credit rating.

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.

Question #69 of 70

Question ID: 415559

A 20-year, 9% annual coupon bond selling for $1,098.96 offers a yield of:

✗ **A) 9%.**

✗ **B)** 10%.

✓ **C)** 8%.

Explanation

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

Question #70 of 70

Question ID: 415558

A 10% coupon bond, annual payments, maturing in 10 years, is expected to make all coupon payments, but to pay only 50% of par value at maturity. What is the expected yield on this bond if the bond is purchased for $975?

✓ **A) 6.68%.**

✗ **B)** 10.68%.

✗ **C)** 8.68%.

Explanation

PMT = 100; N = 10; FV = 500; PV = -975; CPT → I = 6.68