



金程教育  
GOLDEN FUTURE

专业·领先·增值

# CFA一级培训项目——绝密攻坚计划

## Economics & Fixed Income



# Economics (1)

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- If the price of complements increases, which of the following is most likely correct?
- A. upward shift of the demand curve
  - B. downward shift of the demand curve
  - C. move along the demand curve

➤ **Solution: B**

The demand curve shows quantity demanded as a function of own price. If the price of complements increases, the quantity of complements decrease, upward shift of the demand curve will occur.

## Economics (2)

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- In the case of a normal goods with a decrease in own price, which of the following statements is most likely true?
- A. Both the substitution and income effects lead to an increase in the quantity purchased.
  - B. The substitution effect leads to an increase in the quantity purchased, while the income effect has no impact.
  - C. The substitution effect leads to an increase in the quantity purchased, while the income effect leads to a decrease.

➤ **Solution: A**

In the case of normal goods, the income and substitution effects are reinforcing, leading to an increase in the amount purchased after a drop in price.

## Economics (3)

- An analyst is concerned about the final auction price of stock A and the highest five prices are listed below:

Price1(\$)	Price2(\$)	Price3(\$)	Price4(\$)	Price5(\$)
20	35	40	50	30

If the reservation price is 35\$, which of the following price is the final bid price for a Vickery auction based on the price orders in the table above?

- A. 40\$
- B. 30\$.
- C. 50\$

## Economics (3)

### ➤ Solution: A

To induce each bidder to reveal their true reservation price, sellers can use the second price sealed bid mechanism (also known as a Vickery auction). In this mechanism, the bids are submitted in sealed envelopes and opened simultaneously. The winning buyer is the one who submitted the highest bid, but the price she pays is not equal to her own bid. She pays a price equal to the second-highest bid. The optimal strategy for any bidder in such an auction is to bid her actual reservation price, so the second price sealed bid auction induces buyers to reveal their true valuation of the item. It is also true that if the bidding increments are small, the second price sealed bid auction will yield the same ultimate price as the ascending price auction.

## Economics (4)

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- Which of the following statement is least likely correct regarding to deadweight loss?
- A. The reduction in consumer and producer surplus due to underproduction is called a deadweight loss.
  - B. The increase in consumer and producer surplus due to overproduction is called a deadweight loss.
  - C. Government interferences, such as price ceilings, price floors, and taxes, result in imbalances between demand and supply.

## Economics (4)

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### ➤ Solution: B

The reduction, not the increase in consumer and producer surplus due to underproduction or overproduction is called a deadweight loss.

We have seen that government interferences, such as price ceilings, price floors, and taxes, result in imbalances between demand and supply. In general, anything else that intervenes in the process of buyers and sellers finding the equilibrium price can cause imbalances as well. C is correct.

## Economics (5)

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- Which of the following statement is most likely correct about economic profit and economic cost?
- A. Economic profit is total revenue after subtracting the opportunity costs.
  - B. Opportunity cost includes explicit cost only.
  - C. Economic profit is highly variable in the short run only.

➤ **Solution: A**

Economic profit = Total revenue - Opportunity costs, A is correct.

Opportunity cost includes both explicit cost and implicit costs, B is wrong.

Economic profit is highly variable in the both short run and long run, C is wrong

## Economics (6)

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- The increase of national debt will most likely:
  - A. crowd out private investment
  - B. increase consumer spending
  - C. decrease the net export

➤ **Solution: A**

Expansionary fiscal policy (national debt) may crowd out private investment, reducing the impact on aggregate demand. It is called crowding-out effect.

## Economics (7)

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- Because of a sharp decline in real estate values, the household sector has increased the fraction of disposable income that it saves. If output and investment spending remain unchanged, which of the following is most likely?
- A. A decrease in the government deficit.
  - B. A decrease in net exports and increased capital inflow.
  - C. An increase in net exports and increased capital outflow.

## Economics (7)

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### ➤ Solution: C

The fundamental relationship among saving, investment, the fiscal balance, and the trade balance is  $S = I + (G - T) + (X - M)$ . Given the levels of output and investment spending, an increase in saving (reduction in consumption) must be offset by either an increase in the fiscal deficit or an increase in net exports.

Increasing the fiscal deficit is not one of the choices, so an increase in net exports and corresponding increase in net capital outflows (increased lending to foreigners and/or increased purchases of assets from foreigners) is the correct response.

## Economics (8)

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- If the reserve requirement for banks in an economy is 5 percent, how much money could be created with the deposit of an additional £100 into a deposit account?
- A. £500
  - B. £1,900
  - C. £2,000

➤ **Solution: C**

C is correct. To calculate the increase in money from an additional deposit in the banking system, use the following expression:  $\text{new deposit/reserve requirement} = 100/5\% = \text{£}2,000$

## Economics (9)

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- Which of the following statement is most likely related to common market?
- A. allowing free movement of goods and services among members
  - B. allowing free movement of factors of production among members.
  - C. requiring common economic institutions and coordination of economic policies among members

➤ **Solution: B**

B is correct. The common market is the next level of economic integration that incorporates all aspects of the customs union and extends it by allowing free movement of factors of production among members. A is related to customs union. C is related to economic union.

## Economics (10)

- Currently, a consumer is buying both sorbet and gelato each week. Assuming the equilibrium price of gelato is €1 per scoop, and the price of sorbet is €1.25 per scoop, his  $MRS_{GS}$  [marginal rate of substitution of gelato ( $G$ ) for sorbet ( $S$ )] is closest to:
- A. 0.8
  - B. 1.0
  - C. 1.5

➤ **Solution: A**

The condition for consumer equilibrium is  $MRS_{GS} = P_G/P_S$ . Because  $P_G/P_S = 0.8$ , so  $MRS_{GS} = 0.8$

## Economics (12)

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- Which market structure(s) has the highest pricing power?
  - A. Oligopoly
  - B. Perfect competition
  - C. Monopolistic competition.

- **Solution: A**

Oligopoly is a form of market competition characterized by a small number of sellers, interdependence among competitors, large economies of scale, significant barriers to entry, either similar or differentiated products. Compared to monopolistic competition, an oligopoly market has higher barriers to entry, fewer firms, and, typically, less elastic firm demand curves. Oligopoly has highest pricing power.

## Economics (13)

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- Which of the following is least likely included in the national income?
- A. corporate and government enterprise profits before taxes and interest income
  - B. net export
  - C. interest income

➤ **Solution: B**

National income = compensation of employees (wages and benefits) + corporate and government enterprise profits before taxes + interest income + unincorporated business net income (business owners' incomes) + rent + indirect business taxes - subsidies (taxes and subsidies that are included in final prices).

## Economics (14)

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- If long run aggregate supply has no change, which of the following will result in inflationary gap?
- A. an increase of aggregate demand
  - B. a decrease of aggregate demand
  - C. no change of aggregate demand

➤ **Solution: A**

An Increase in aggregate demand resulting in an inflationary gap if economic statistics (consumer sentiment, factory orders for durable and nondurable goods, etc.) suggest that there is an expansion caused by an increase in aggregate demand.

## Economics (15)

- An individual consumer's monthly demand for downloadable e-book is given by the equation:  $Q=2-0.4P_1$ . The market consists of 1,000 identical consumers with this demand function. Which of the following is most likely the market aggregate demand function?
- A.  $Q=2000-400P_1$
  - B.  $Q=2500-300P_1$
  - C.  $Q=1800-500P_1$

➤ **Solution: A**

Aggregating demand and supply curves: Adding the firms that comprise market supply together, we can get the market supply function. Adding the many individual demand curves, we can get the aggregate market demand.  $Q=1000*(2-0.4P_1)=2000-400P_1$

## Economics (16)

➤ The following data is obtained in the market:

Spot rate on CHF/USD exchange rate	Spot rate on USD/GBP exchange rate
1.3250	1.2050

In the 180-day forward market, the CHF is at a forward premium of 42.5 points to the GBP. Using the cross rate method, the 180-day forward CHF/GBP exchange rate is closest to:

- A. 1.2625
- B. 1.5858
- C. 1.3093

## Economics (16)

### ➤ Solution: B

“the CHF is at a forward premium of 42.5 points to the GBP” indicate that CHF is base currency and GBP is price currency. Because the spot CHF/GBP exchange rate is  $\text{CHF/GBP} = \text{CHF/USD} \times \text{USD/GBP} = 1.3250 \times 1.2050 = 1.5966$

1.5966, the GBP/CHF is  $1/1.5966 (= 0.6263)$ .

The 180-day forward exchange rate on GBP/CHF is  $0.6263 + 0.00425 = 0.6306$ .

The forward CHF/GBP is  $1/0.6306 (= 1.5858)$

## Economics (17)

- Which one of the following is thought to be a lagging indicator for the US economy?
- A. Average bank prime lending rate
  - B. Industrial Production Index
  - C. real M2

➤ **Solution: A**

Real M2 is a leading economic indicator.

Industrial Production Index is a coincident economic indicator.

Average bank prime lending rate is a lagging economic indicator: the turning points that are usually later to overall economy.

Average bank prime lending rate	Because this is a bank administered rate, it tends to lag other rates that move either before cyclical turns or with them.
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## Economics (18)

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- Which of the following statement is least likely the role of the central bank?
- A. Borrower of last resort.
  - B. Sole supervisor of banks.
  - C. Supplier of the currency.

➤ **Solution: A**

The role of central bank: sole supplier of currency, banker to the government and other banks, lender of last resort, supervise banks, holder of gold and foreign exchange reserves, conductor of monetary policy.

# Economics (19)

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- Respect to dollarization, which of the following statement is most likely correct?
- A. Dollarization is a monetary regime where the citizens of a country officially or unofficially use a US dollar as legal tender for conducting transactions.
  - B. Dollarization is a monetary regime which can also have a fixed central parity with crawling bands.
  - C. Dollarization is a monetary regime based on an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate,

# Economics (19)

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## ➤ Solution: A

Dollarization is a situation where the citizens of a country officially or unofficially use a foreign country's currency as legal tender for conducting transactions. B is the definition of fixed parity with crawling bands. C is the definition of currency board system.

## Economics (20)

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- When economy is weakened, which policy can the government use to improve the economic situation in Maynard Keynes Theory?
- A. monetary policy
  - B. fiscal policy
  - C. none

➤ **Solution: B**

Keynes advocated government intervention in the form of fiscal policy. While he accepted the possibility that markets would reach the equilibrium envisioned by Neoclassical and Austrian economists over the long run, he famously quipped that “in the long run, we are all dead;” that is, the human suffering is excessive while waiting for all shocks to be absorbed and for the economy to return to equilibrium.

## Economics (21)

- Suppose Mexico exports vegetables to Brazil and imports flashlights used for mining from Brazil. The output per worker per day in each country is as follows:

	Flashlights	Vegetables
Mexico	20	60
Brazil	40	80
Colombia	20	70

- Which country has a comparative advantage in the production of vegetables?
- A. Brazil
  - B. Mexico
  - C. Colombia

# Economics (21)

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## ➤ Solution: C

The opportunity cost of a vegetables in Colombia is 0.286 unit of Flashlights ( $20 \div 70$ ). The opportunity cost of a vegetables in Brazil is 0.5 unit of Flashlights ( $40 \div 80$ ). The opportunity cost of a vegetables in Mexico is 0.33 unit of Flashlights ( $20 \div 60$ ). Colombia has a lowest opportunity cost and has a comparative advantage in the production of vegetables.

## Economics (22)

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- In the balance of payments accounts, which of the following statements about unilateral transfers is most likely true?
- A. Unilateral transfers include international direct investments in another nation's businesses
  - B. Unilateral transfers include international transactions of securities with maturities of less than one year
  - C. Unilateral transfers include International gifts and grants

➤ **Solution: C**

Unilateral transfers are one-way transfers of assets, such as money received from those working abroad and direct foreign aid, not international direct investments and international transactions of securities

## Fixed Income (1)

- The bonds of Whakatane and Co. are priced for settlement on 15 July 2014 and have the following features.

Par value	\$100.00
Annual coupon rate	8%
Coupon payment frequency	Semiannual
Coupon payment dates	15 May and 15 November
Maturity date	15 November 2017
Day count convention	Actual/Actual
Annual yield to maturity	5.5%

- On the basis of this information, the difference between the full and flat prices is closest to
- A. 0.917.
  - B. 2.667.
  - C. 1.333.

# Fixed Income (1)

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## ➤ Solution: C

The difference between the full and flat prices is the accrued interest, which is computed as follows. Based on the Actual/Actual day convention, the number of days between the coupon periods is 183 days. Also, using the Actual/Actual day count convention, the number of days between 15 May 2014 and 15 July 2014 is 16 days remaining in May + 30 days in June + 15 days in July = 61 days. Accrued interest (per \$100 par value) =  $(61/183)(8.00/2) = 1.333$ .

## Fixed Income (2)

- A bond has an annual modified duration of 7.020 and annual convexity of 65.180. If the bond's yield-to-maturity decreases by 25 basis points, the expected percentage price change is closest:
- A. 1.73%
  - B. 1.76%
  - C. 1.78%

➤ **Solution: C**

$$\begin{aligned}\% \Delta PV_{\text{Full}} &\approx (-\text{MD} \times \Delta \text{Yield}) + 1/2 \times \text{Convexity} \times (\Delta \text{Yield})^2 \\ &= (-7.020) \times (-0.0025) + 0.5 \times 65.180 \times (-0.0025)^2 = 1.78\%\end{aligned}$$

## Fixed Income (3)

- A Canadian pension fund manager seeks to measure the sensitivity of her pension liabilities to market interest rate changes. The manager determines the present value of the liabilities under three interest rate scenarios: a base rate of 7%, a 100 basis point increase in rates up to 8%, and a 100 basis point drop in rates down to 6%. The results of the manager's analysis are presented below:

Interest rate assumption	Present value of liabilities
6%	CAD 510.1 million
7%	CAD 455.4 million
8%	CAD 373.6 million

- The effective duration of the pension fund's liabilities is *closest to*
- A. 1.49.
  - B. 14.99.
  - C. 29.97.

➤ **Solution: B**

$$\text{effective duration} = \frac{510.1 - 373.6}{2 * 0.01 * 455.4} = 14.99$$

## Fixed Income (4)

- A bond manager discovers that if the bond price increases by 8%, the market rate decreases by 150bp. Now, if the bond price decreases by 8%, the market rate will increase by:
  - A. 150bps
  - B. larger than 150bps
  - C. smaller than 150bps

- **Solution: B**

Convexity makes a bond rise faster and fall slower. In other words, if a bond price changes with the same percentage magnitude but different orientation, the downward way needs more interest change, which shows below.

## Fixed Income (5)

- When the investor's investment horizon is larger than the Macaulay duration of the bond she owns:
  - A. The investor is hedged against interest rate risk.
  - B. Reinvestment risk dominates, and the investor is at risk of lower rates.
  - C. Market price risk dominates, and the investor is at risk of higher rates.

### ➤ **Solution: B**

The investor is hedged against interest rate risk if the duration gap is zero; that is, the investor's investment horizon is equal to the bond's Macaulay duration. The investor is at risk of lower rates only if the duration gap is negative; that is, the investor's investment horizon is greater than the bond's Macaulay duration. In this case, coupon reinvestment risk dominates market price risk.

## Fixed Income (6)

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- Which of the following type of bond issued by a company is closest to the rating of the company?
- A. Senior unsecured debt
  - B. Junior unsecured debt
  - C. Subordinated debt

➤ **Solution: A**

Issuer credit rating: address an obligor's overall creditworthiness – its ability and willingness to make timely payments of interest and principal on its debt. Issuer credit rating usually applies to its senior unsecured debt.

## Fixed Income (7)

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- An analyst needs to assign a value to an illiquid four-year, 4.5% annual coupon payment corporate bond. The analyst identifies two corporate bonds that have similar credit quality: One is a three-year, 5.50% annual coupon payment bond priced at 107.500 per 100 of par value, and the other is a five-year, 4.50% annual coupon payment bond priced at 104.750 per 100 of par value. Using matrix pricing, the estimated price of the illiquid bond per 100 of par value is closest to:
- A. 103.895.
  - B. 104.991.
  - C. 106.125.

## Fixed Income (7)

### ➤ Solution: B

B is correct. The first step is to determine the yields-to-maturity on the observed bonds. The required yield on the three-year, 5.50% bond priced at 107.500 is 2.856%.

$$107.500 = 5.50/(1+r)^1 + 5.50/(1+r)^2 + 105.50/(1+r)^3, r = 0.02856$$

The required yield on the five-year, 4.50% bond priced at 104.750 is 3.449%.

$$104.750 = 4.50/(1+r)^1 + 4.50/(1+r)^2 + 4.50/(1+r)^3 + 4.50/(1+r)^4 + 104.50/(1+r)^5, r = 0.03449$$

The estimated market discount rate for a four-year bond having the same credit quality is the average of two required yields:

$$0.02856 + 0.034492 = 0.031525$$

Given an estimated yield-to-maturity of 3.1525%, the estimated price of the illiquid four-year, 4.50% annual coupon payment corporate bond is 104.991 per 100 of par value.

$$4.50/(1.031525)^1 + 4.50/(1.031525)^2 + 4.50/(1.031525)^3 + 104.50/(1.031525)^4 = 104.991$$

## Fixed Income (8)

	key rate duration in year1	key rate duration in year2	key rate duration year3
Bond <sub>1=portfolio</sub>	0	6	0
Bond <sub>2</sub>	1	2	7

- Based on the table above, if the modified durations are the same, which bond's convexity is larger?
- A. bond<sub>1</sub>
  - B. bond<sub>2</sub>
  - C. the same

## Fixed Income (8)

➤ **Solution: B**

$$\text{Convexity} = \frac{\Delta P^2}{\Delta y^2} \times \frac{1}{P} = \frac{\sigma^2 + D_{\text{Macaulay}} \times (D_{\text{Macaulay}} + 1)}{(1 + y)^2}$$

$$\rightarrow \frac{\Delta P^2}{\Delta y^2} \times \frac{1}{P} = \frac{\sigma^2 + D_{\text{Macaulay}} \times (D_{\text{Macaulay}} + 1)}{(1 + y)^2}$$

- Barbell bond 's(the bond portfolio with maturities more dispersed) convexity is larger than bullet bond(the bond portfolio with maturities less dispersed) .

## Fixed Income (9)

- The Macaulay duration of a bond is 2.48 and the periodic market yield is 8%. What is the modified duration of this bond?
- A. 2.296
  - B. 2.678
  - C. 2.296

➤ **Solution: A**

A bond's modified duration can be calculated from its Macaulay duration. The formula for modified duration 
$$\text{Modified duration} = \frac{\text{Macaulay duration}}{1 + \text{Periodic market yield}}$$

In this case, the modified duration is equal to  $2.48 / (1 + 8\%) = 2.296$

## Fixed Income (10)

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- Which of the following is internal enhancement?
  - A. Corporate guarantees
  - B. Letter of credit
  - C. Excess servicing spread funds

- **Solution: C**

Internal enhancement includes cash reserve funds (from issuance proceeds), excess servicing spread funds, over collateralization, a senior/ subordinated structure.

## Fixed Income (11)

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- Which of the following bond is most likely beneficial to the bondholders in the respect of risk?
- A. Puttable bond.
  - B. Callable bond.
  - C. None.

➤ **Solution: A**

A put feature is beneficial to the bondholders. If interest rates rise, the bondholders can sell the bond back to the issuer and get cash.

The price of a puttable bond will typically be higher than the price of an otherwise similar non-puttable bond.

A callable bond is beneficial to the bond issuers. If interest rates fall, issuer can retire the bond paying high coupon rate, and replace it with lower coupon bonds.

## Fixed Income (12)

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- Which of the following factors has the largest impact on the price of a sovereign debt?
- A. Issuance region
  - B. Issuance country
  - C. Issuance currency

➤ **Solution: B**

Issuance country has the largest impact on the price of a sovereign debt, credit risk is the most important factor to consider.

## Fixed Income (13)

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- A T-bond is held to maturity with a realized return of 4.2%. If the market interest rate for the bond has decreased to 4.1% when issued, the YTM of the bond will be:
- A. higher than 4.2%
  - B. lower than 4.2%
  - C. the same as 4.2%

➤ **Solution: A**

If the market YTM for the bond, our assumed reinvestment rate, decreases, a bond investor will earn a rate of return that is lower than the YTM at bond purchase when the bond is held to maturity.

## Fixed Income (14)

- Which of the following is correct regarding to the change of Macaulay duration as time passes and immediately after coupon payment?

Time passage      Coupon payment

- |             |          |
|-------------|----------|
| A. Decrease | Increase |
| B. Increase | Decrease |
| C. Decrease | Decrease |

- **Solution: A**

As time passes during the coupon period, the Macaulay duration declines smoothly and then jumps upward after the coupon is paid.

## Fixed Income (15)

- An analyst is concerned about the essence of the pass-through rate. Which of the following statement is least likely correct?
- A. Pass-through rate is the investor's return of the mortgage pass-through security.
  - B. Pass-through rate is a net coupon rate.
  - C. Pass-through rate is mortgage rate on the underlying pool of mortgages only.

➤ **Solution: C**

Pass-through rate: mortgage pass-through security's coupon rate

Pass-through rate(net interest or net coupon)=mortgage rate on the underlying pool of mortgages -servicing and other fees, not mortgage rate on the underlying pool of mortgages only.

## Fixed Income (16)

- Assume a \$1,000,000 par value, semiannual coupon U.S. Treasury note with two years to maturity and a coupon rate of 10 percent. Using the following Treasury spot rates and ignoring accrued interest and transactions costs, the arbitrage-free value of the Treasury note is closest to:

Assume a \$1,000,000 par value, semiannual coupon U.S. Treasury note with two years to maturity and a coupon rate of 10 percent. Using the following Treasury spot rates and ignoring accrued interest and transactions costs, the arbitrage-free value of the Treasury note is closest to: Maturity	Spot Rate (%)
Six months	6.00
Twelve months	7.50
Eighteen months	9.00
Twenty-four months	10.00

## Fixed Income (16)

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- A. \$846,210.
- B. \$1,000,000.
- C. \$1,002,647.

➤ **Solution: C**

Note that the four cash flows are, in percent of par terms, 5, 5, 5, and 105. Adjust the spot rates for semiannual compounding. Solve  $(5 / 1.03) + (5 / (1.0375)^2) + (5 / (1.045)^3) + (105 / (1.05)^4) = 100.2647$  percent of par. As par is \$1,000,000, the correct answer is \$1,002,647.

## Fixed Income (17)

- The following information is obtained in the market:

	Bond1	Bond2
Modified duration	2	5
$\Delta\%P$	0.5	0.5

Based on the table above, the term structure of yield volatility is most likely:

- A. upward
- B. downward
- C. Flatten

➤ **Solution: B**

Approximate modified duration =  $\Delta\%P/\Delta y$

$$\Delta y_1 = 0.5/2 = 0.25 \quad \Delta y_2 = 0.5/5 = 0.1$$

The shape of the term structure of yield volatility will be downward. Shorter-term bond may have more price volatility than a longer bond with a greater duration because of the greater yield volatility of the shorter-term yield.

## Fixed Income (18)

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- The yield spread of a specific bond relative to the standard swap rate in that currency with same tenor is most likely:
  - A. I-spread.
  - B. Z-spread.
  - C. G-spread.

➤ **Solution: A**

The I-spread, or interpolated spread, is the yield spread of a specific bond over the standard swap rate in that currency of the same tenor. The yield spread in basis points over an actual or interpolated government bond is known as the G-spread. The Z-spread (zero-volatility spread) is the constant spread such that is added to each spot rate such that the present value of the cash flows matches the price of the bond.

## Fixed Income (19)

- A analyst is concerned about the calculation of the expected loss. Based on information in the table below, what is expected loss?

default probability	loss severity given default
0.2	200 million

- A. 40 million
- B. 20 million
- C. 30 million

- **Solution: A**

Expected loss = Default probability \* Loss severity given default =  $0.2 * 200 \text{ m} = 40 \text{ m}$

## Fixed Income (20)

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- A South African company issues bonds denominated in dollars that are sold to investors in the U.S. These bonds can be best described as:
  - A. Eurobonds.
  - B. Global bonds.
  - C. Foreign bonds.

➤ **Solution: A**

Bonds sold in a country and denominated in that country's currency by an entity from another country are referred as foreign bonds.

B is incorrect because global bonds are bonds issued in the Eurobond market and at least one domestic country simultaneously.

## Fixed Income (21)

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- Based on the practice of notching by the rating agencies, a subordinated bond from a company with an issuer rating of BB would likely carry what rating?
  - A. B+
  - B. BB
  - C. BBB

- **Solution: A**

The subordinated bond would have its rating notched lower than the company's BB rating, probably by two notches, reflecting the higher weight given to loss severity for below-investment-grade credits.

## Fixed Income (22)

- The present value of a \$1,000 par value, zero-coupon bond with a three-year maturity assuming an annual discount rate of 6 percent compounded semiannually is closest to:
- A. \$837.48.
  - B. \$839.62.
  - C. \$943.40.

➤ **Solution: A**

The present value of the bond = Maturity value /  $(1 + i)^{\text{Year to maturity} \times 2}$

Where:  $i = \text{semiannual discount rate} = 6\% / 2 = 3\%$

$$PV = \$1,000 / (1.03)^6 = \$837.48$$

## Fixed Income (23)

- All rates are annual rates stated for a periodicity of one (effective annual rates).

Time period	Forward rate
0y1y	0.80%
1y1y	1.12%
2y1y	3.94%
3y1y	3.28%
4y1y	3.14%

The 3-year implied spot rate is closest to:

- A. 1.18%
- B. 1.94%
- C. 2.28%

- **Solution: B**

$$(1.0080 * 1.0112 * 1.0394) = (1 + Z_3)^3$$

$$Z_3 = 1.944\%$$