



PASS PRO Questions

1.

Consider the market environment in which 1-year swaps are yielding 4% and have a duration of approximately 0.95. A 1-year inverse floater with a coupon of 12% - 3-month LIBOR has been just reset and is trading at par. The duration of this inverse floater will be CLOSEST to:

- A. 0.00.
- B. 1.90.
- C. 2.35.
- D. 2.85.

2.

Which of the following securities is likely to experience the greatest fall in price with a rise in interest rates (assuming that all of them have the same maturity and are currently priced to par)?

- A. Zero coupon bond.
- B. Fixed coupon bond (7% coupon).
- C. Floating-rate note (3-month LIBOR)
- D. Inverse floater (14% - 3-month LIBOR).

3.

In a stable flat yield curve environment, the price of a fixed coupon bond trading at a premium will:

- A. fall with time.
- B. rise with time.
- C. not change with time.
- D. first rise and then fall with time.

4.

Consider a 7.75 percent semi-annual coupon bond with a par value of \$100 and four remaining coupons, which is trading at a yield of 8.375 percent. There are 74 days remaining in the current period that has a total of 182 days. The accrued coupon of this bond is CLOSEST to:

- A. 1.59.
- B. 2.29.
- C. 3.18.
- D. 4.57.

5.

A CLO is a:

- A. type of pass-through security.
- B. bond backed by a loan portfolio.
- C. debenture that is guaranteed by a third party.
- D. loan that can individually be traded in the market.

6.

A trader buys a 7-year FRN, which pays interest rate linked to annual LIBOR. If the next LIBOR reset is one month away its duration will be closest to:

- A. 1 month.
- B. 1 year.
- C. 6 years.
- D. 7 years.

7.

Which of the following statements with regard to STRIPS are true?

- I. Interest STRIPS from one bond are fungible with interest STRIPS of other bonds that mature on the same date.
- II. Principal STRIPS from one bond are fungible with principal STRIPS of other bonds that mature on the same date.
- III. Interest on STRIPS is reported as income when the security matures or the investor sells it in the market.
- IV. STRIPS have a lower reinvestment risk than a whole bonds.

- A. I and II.
- B. I and IV.
- C. II and IV.
- D. I, II and III.

8.

What is the single-monthly mortality (SMM) rate for a mortgage-backed security that has an annual prepayment rate (CPR) of 15%?

- A. 1.17%.
- B. 1.35%.
- C. 2.36%.
- D. 2.67%.

9.

A risk manager determines that the annual spot rates for 1, 2, 3 and 4 years are 5 percent, 6 percent, 6.5 percent, and 6.75 percent respectively. Based on this information, the 1-year forward rate two years from now is CLOSEST to:

- A. 6.25%.
- B. 6.50%.

- C. 6.97%.
- D. 7.49%.

10.

As the maturity of a bond rises, its price sensitivity:

- A. falls.
- B. rises.
- C. stays constant.
- D. rises or falls depending on the relative level of coupon.

11.

Which of the following phenomenon is not observed in stock market indices, but is a key factor in modelling yield curves?

- A. Volatility.
- B. Regression.
- C. Random walk.
- D. Mean reversion.

12.

A 15-year 5.45 percent semi-annual coupon bond is selling at a price of \$102. If the bond is callable in seven years at \$100.5, its yield to call is CLOSEST to:

- A. 5.11%.
- B. 5.17%.
- C. 5.28%.
- D. 5.36%.

13.

The issuer of a puttable bond has a:

- A. long position in a non-callable bond and a put option.
- B. short position in a non-callable bond and a put option.
- C. short position in a non-callable bond and a long position in a put option.
- D. long position in a non-callable bond and a short position in a put option.

14.

An analyst observes that the closing price of a stock during a week as \$55, \$43, \$58, \$64, \$69. On the corresponding days the S&P 500 closed at 1,150, 1,100, 1,200, 1,160, 1,190. Based on this data, the covariance of the stock with the market is CLOSEST to:

- A. 45
- B.

108

C. 252

D. 315

15.

A one-year 7.25 percent coupon bond is trading at a price of 98, a two-year 6.1 percent coupon bond is trading at 99, and a three-year 7.55 percent coupon bond is trading at 101. All coupons and rates are given using the annual Actual/Actual convention. Using this information the one-year forward rate two years from now is CLOSEST to:

A. 6.57%.

B. 7.14%.

C. 8.24%.

D. 8.29%.

16.

A risk manager determines that the annual spot rates for 1, 2, 3 and 4 years are 7 percent, 6 percent, 5.5 percent, and 4 percent respectively. Based on this information, the 1-year forward rate two years from now is CLOSEST to:

A. 4.46%.

B. 5.06%.

C. 5.50%.

D. 5.75%.

17.

As the coupon rate of a plain coupon bond is increased, its duration:

A. decreases.

B. increases up to a point and then decreases.

C. increases up to a point and then stays constant.

D. increases indefinitely.

18.

If the yield curve is downward sloping:

A. par coupon yields will be higher than zero coupon rates, which will be higher than forward rates.

B. zero coupon rates will be higher than par coupon yields, which will be higher than forward rates.

C. forward rates will be higher than zero coupon rates, which will be higher than par coupon yields.

D. forward rates will be higher than par coupon yields, which will be higher than zero coupon rates.

19.

Mortgage-backed securities are best analyzed using:

- A. z-spreads.
- B. nominal spreads.
- C. cash flow spreads.
- D. option-adjusted spreads.

20.

The purchase price of a 3-year 9 percent semi-annual coupon bond that is currently yielding 7 percent will be:

- A. 105.11.
- B. 105.25.
- C. 105.33.
- D. 105.45.

21.

Consider a 7.75 percent semi-annual coupon bond with a par value of \$100 and 4 remaining coupons, which is trading at a yield of 8.375 percent. There are 74 days remaining in the current period that has a total of 182 days. The accrued coupon of this bond is CLOSEST to:

- A. 1.59.
- B. 2.29.
- C. 3.18.
- D. 4.57.

22.

In which of the following securities does the coupon income rise when the interest rates fall?

- A. Inverse floater.
- B. Coupon floater.
- C. Dual-index floater.
- D. Deleveraged floater.

23.

Which of the following MBSs offers the highest relative value (assuming equal maturities and credit and liquidity risk)?

- A. The MBS with the largest z-spread.
- B. The MBS with the smallest option cost.
- C. The MBS with the largest nominal spread.
- D. The MBS with the largest option-adjusted spread.

24.

What is the single-monthly mortality (SMM) rate for a mortgage-backed security that has an annual prepayment rate (CPR) of 12%?

- A. 0.95%.
- B. 1.06%.
- C. 1.91%.
- D. 2.11%.

25.

An 8-year 5 percent coupon bond with at par value of 100 is currently trading at a price of 94.65. The price of this bond rises to 96.35 when interest rates fall by 30 basis points and falls to 92.75 when interest rates rise by 30. The effective duration of this bond is CLOSEST to:

- A. 5.99
- B. 6.34
- C. 6.69
- D. 7.04

26.

What is the beta of a well-diversified portfolio?

- A. -1
- B. 0
- C. 1
- D. It is variable.

27.

Given that the dollar yen volatility is 10 percent and dollar peso volatility is 15 percent, and the correlation between dollar yen and dollar peso is -0.1, the best estimate of the yen peso volatility is:

- A. 17.2%.
- B. 18.0%.
- C. 18.2%.
- D. 18.8%.

28.

Which of the following statements are in agreement with Markowitz's theory?

- I. Individual investments have one risk component.
- II. Investors should choose individual investments based on the expected returns and the variance of returns.
- III. Risk of an investment is best measured in terms of the co-movement of its returns with those of a well-diversified portfolio.

IV. Investors maximize one-period utility, with their utility curves demonstrating a diminishing utility of wealth.

- A. I and II.
- B. III and IV.
- C. I, III and IV.
- D. II, III and IV.

29.

Given that the dollar yen volatility is 12 percent, dollar peso volatility is 18 percent, yen peso volatility is 14 percent, the correlation between dollar yen and dollar peso is CLOSEST to:

- A. 0.53.
- B. 0.59.
- C. 0.63.
- D. 0.69.

30.

Most of the trading in the OTC derivatives market takes place in:

- A. equity products.
- B. commodity products.
- C. interest rate products.
- D. foreign exchange products.

31.

What is the value of the European call option given below using the Black-Scholes model?

Spot rate = 120

Strike price = 125

Risk-free rate = 8%

Time to expiration = 0.5 years

$N(d1) = 0.554$

$N(d2) = 0.498$

- A. 1.69.
- B. 4.23.
- C. 6.67.
- D. 11.83.

32.

Which of the following statements are in agreement with Markowitz's theory?

- I. Individual investments have three risk components.
- II. Investors should construct the portfolio based on the expected returns and the variance of returns.

III. Investors should choose individual investments based on their marginal effect on the existing portfolio.

IV. Risk of an investment is best measured in terms of the co-movement of its returns with those of a well-diversified portfolio.

- A. I and II.
- B. III and IV.
- C. I, III and IV.
- D. II, III and IV.

33.

A small hedge fund is running a portfolio with a 5-day VaR of \$3.1 million. Assuming normal conditions what is the best estimate for VaR over a 2-day horizon?

- A. \$1.2 million.
- B. \$2.0 million.
- C. \$2.5 million.
- D. \$3.1 million.

34.

Which of the following statements are in agreement with Markowitz's theory?

I. Individual investments have one risk component.

II. Risk of an investment is best measured in terms of the variance of its returns.

III. Investors should construct the portfolio based on the expected returns and the variance of returns.

IV. Investors maximize one-period utility, with their utility curves demonstrating a diminishing utility of wealth.

- A. I and II.
- B. III and IV.
- C. I, III and IV.
- D. II, III and IV.

35.

The VaR of a portfolio at a 95% confidence level is 18.2. If the confidence level is raised to 99% (assuming a one-tailed normal distribution) the new value of VaR will be closest to:

- A. 12.9.
- B. 18.2.
- C. 21.6.
- D. 25.7.

36.

Which of the following statements are in agreement with Markowitz's theory?

- I. Investors should construct their portfolio based on the expected returns and the variance of returns.
- II. Investors should choose individual investments based on their marginal effect on the existing portfolio.
- III. Investors maximize one-period utility, with their utility curves demonstrating an increasing utility of wealth.
- IV. Risk of an investment is best measured in terms of the co-movement of its returns with those of a well-diversified portfolio.

- A. I and II.
- B. III and IV.
- C. I, II and IV.
- D. II, III and IV.

37.

Which of the following statements are in agreement with Markowitz's theory?

- I. Individual investments have two risk components.
- II. Investors should choose individual investments based on their marginal effect on the existing portfolio.
- III. Investors maximize one-period utility, with their utility curves demonstrating a diminishing utility of wealth.
- IV. Risk of an investment is best measured in terms of the co-movement of its returns with those of a well-diversified portfolio.

- A. I and II.
- B. III and IV.
- C. I, III and IV.
- D. I, II, III and IV.

38.

A small hedge fund is running a portfolio with a 10-day VaR of \$2.5 million. Assuming normal conditions what is the best estimate for VaR over a 5-day horizon?

- A. \$1.3 million.
- B. \$1.8 million.
- C. \$2.1 million.
- D. \$2.5 million.

39.

A trader sells \$80 million worth of gold short for six weeks and buys \$80 million worth of gold for six weeks delivery. This exposes the trader to a:

- A. rise in the price of gold.
- B. fall in the gold borrowing rate.
- C. fall in short-term interest rates.
- D. rise in the volatility of gold price.

40.

What is the beta of a risk-free investment?

- A. -1
- B. 0
- C. 1
- D. None of the above.

41.

Given that the dollar yen volatility is 12 percent, dollar peso volatility is 8 percent, yen peso volatility is 15 percent, the correlation between dollar yen and dollar peso is CLOSEST to:

- A. -0.18.
- B. -0.09.
- C. 0.09.
- D. 0.18.

42.

The forward prices for energy products are:

- A. less volatile for longer maturities.
- B. less volatile for shorter maturities.
- C. more volatile for longer maturities.
- D. unaffected by time to maturity.

43.

Which of the following are valid uses of Value at Risk?

- I. Setting risk limits.
- II. Maximizing returns.
- III. Comparing risk across asset classes.
- IV. Identifying key risk factors in a portfolio.

- A. I and III.
- B. II and IV.
- C. I, III and IV.
- D. II, III and IV.

44.

Given that the dollar yen volatility is 12 percent and dollar peso volatility is 15 percent, and the correlation between dollar yen and dollar peso is 0.25, the best estimate of the yen peso volatility is:

- A. 16.7%.
- B. 19.2%.

C. 21.4%.

D. 23.1%.

45.

Which of the following statements are in agreement with Markowitz's theory?

I. Individual investments have two risk components.

II. Risk of an investment is best measured in terms of the variance of its returns.

III. Investors should construct their portfolio based on the expected returns and the variance of returns.

IV. Investors maximize one-period utility, with their utility curves demonstrating an increasing utility of wealth.

A. I and III.

B. II and IV.

C. I, III and IV.

D. II, III and IV.

46.

Given that the dollar yen volatility is 9 percent and dollar peso volatility is 16 percent, and the correlation between dollar yen and dollar peso is 0.3, the best estimate of the yen peso volatility is:

A. 12.6%.

B. 15.8%.

C. 18.4%.

D. 20.6%.

47.

Which of the following statements are in agreement with Markowitz's theory?

I. Individual investments have three risk components.

II. Risk of an investment is best measured in terms of the variance of its returns.

III. Investors should choose individual investments based on their marginal effect on the existing portfolio.

IV. Investors should construct the portfolio based on the expected returns and the variance of returns.

A. I and II.

B. III and IV.

C. I, III and IV.

D. II, III and IV.

48.

Which of the following statements are in agreement with Markowitz's theory?

I. Investors should choose individual investments based on expected returns and variance of

returns.

II. Investors should construct their portfolio based on the expected returns and the variance of returns.

III. Risk of an investment is best measured in terms of the co-movement of its returns with those of a well-diversified portfolio.

IV. Investors maximize one-period utility, with their utility curves demonstrating a diminishing utility of wealth.

- A. I and II.
- B. III and IV.
- C. I, III and IV.
- D. II, III and IV.

49.

The VaR of a portfolio at a 95% confidence level is 15.2. If the confidence level is raised to 99% (assuming a one-tailed normal distribution) the new value of VaR will be closest to:

- A. 10.8.
- B. 15.2.
- C. 18.1.
- D. 21.5.

50.

Which of the following statements are in agreement with Markowitz's theory?

I. Individual investments have two risk components.

II. Investors should construct the portfolio based on the expected returns and the variance of returns.

III. Investors maximize one-period utility, with their utility curves demonstrating a diminishing utility of wealth.

IV. Risk of an investment is best measured in terms of the co-movement of its returns with those of a well-diversified portfolio.

- A. I and II.
- B. III and IV.
- C. I, III and IV.
- D. I, II, III and IV.

51.

What is the purpose of margin payments associated with futures contracts?

- A. To reduce the maintenance cost for participants.
- B. To reduce the credit risk for participants.
- C. To reduce the market risk for participants.
- D. None of the above.

52.

Which statement is FALSE with regard to value of an option?

- A. It is determined by an option-pricing model.
- B. At expiration, its premium equals intrinsic value.
- C. Before expiration, its premium is the sum of time value and intrinsic value.
- D. Intrinsic value is the difference between the market price and the strike price.

53.

The purpose of vega hedging is to minimize the potential loss due to:

- A. counter-party default risk.
- B. large market movements.
- C. small market movements.
- D. changes in market volatility.

54.

An investor purchased a put option on a stock with an exercise price of \$28 for a premium of \$8. If the current price of the stock is \$22, the intrinsic value of the option is:

- A. -\$2.
- B. \$0.
- C. \$6.
- D. \$14.

55.

A large Savings and Loans firm has a mortgage portfolio funded by short-term deposits. Which of the following risks does it face?

- A. Vega risk.
- B. Delta risk.
- C. Gamma risk.
- D. All of the above

56.

What rate should be used to calculate the unwind value of a swap in which we are paying fixed?

- A. Bid swap rate.
- B. Offer swap rate.
- C. Mid swap rate.
- D. Insufficient information

57.

The current spot price of gold is \$300/oz and the price of 180-day gold futures contract

(nominal amount of 100 oz) is \$315. If 180-day Treasury bills are trading at yields of 3.79% - 3.82% and storage and delivery costs are ignored, what is the potential arbitrage profit per contract?

- A. \$924.
- B. \$929.
- C. \$934.
- D. \$939.

58.

A trader buys one wheat contract (underlying = 5,000 bushels) at a price of \$3.05 per bushel. The initial margin on the contract is \$4,500 and the maintenance margin is \$3,750. At what price will the trader receive a maintenance margin call?

- A. \$2.30.
- B. \$2.90.
- C. \$3.20.
- D. \$3.80.

59.

Assuming the same strike and maturity, what is the correct relationship between the delta of a European call and a European put on a stock with the same exercise price?

- A. Delta of Call - Delta of Put = 0.
- B. Delta of Put - Delta of Call = 0.
- C. Delta of Call - Delta of Put = 1.
- D. Delta of Put - Delta of Call = 1.

60.

A large developing country is planning to start agricultural commodities futures soon. The finance secretary has read in a newspaper that Warren Buffet has gone on record saying that derivatives increase risk in the financial system. The finance secretary is worried that allowing futures trading will lead to financial instability. As a qualified risk manager, the government has asked your opinion. Which of the following would be the most appropriate response?

- A. We are in favor of futures exchanges. Commodities futures allow the producers / consumers to eliminate the unwanted risk of price instability. They can plan their resources better. Proper care must be taken to manage all the trading, settlement and credit risk. The current international best practices are sufficient for this purpose.
- B. We are in favor of futures exchanges. An exchange will draw speculators to the market, leading to a growth in volume, leading to the creation of jobs in trading, middle office, back office and settlement desks, The economy will prosper.
- C. 1
- D. We are not in favor of futures exchange. The producers will lose money, if they sell low. The consumers will lose money if they buy high. It does not serve any economic purpose. After all, a successful investor like Warren Buffet cannot be wrong.

61.

We buy an SPX put (multiplier=\$250) at 1,250 for a premium of 20 points. The S&P500 closes at 1,235 on the settlement day. What is our profit/loss from this trade?

- A. \$0
- B. \$500
- C. -\$1,250
- D. -\$3,750

62.

Which of the following call options is MOST LIKELY to lose its value at the fastest rate?

- A. An at the money option close to expiration.
- B. An out of the money option close to expiration.
- C. An at the money option far away from expiration.
- D. An out of the money option far away from expiration.

63.

Forward exchange rate = $\exp((r - rf) \times \text{time}) \times \text{Spot rate}$. Your assistant is claiming the risk of a forward will come from two sources, domestic and foreign interest rates, in addition to spot. Do you agree?

- A. Yes.
- B. No.
- C. Insufficient Information.
- D. Depends on internal policy of the bank.

64.

Garman-Kohlhagen model was originally developed for the valuation of options on:

- A. futures.
- B. currencies.
- C. dividend paying stocks.
- D. non-dividend paying stocks.

65.

The current spot price of gold is \$325/oz and the price of 90-day gold futures contract (nominal amount of 100 oz) is \$315. If 90-day Treasury bills are trading at yields of 3.55% - 3.58% and storage and delivery costs are ignored, what is the potential arbitrage profit per contract?

- A. \$1,266
- B. \$1,286
- C. \$1,334
- D. \$1,344

66.

A trader buys one wheat contract (underlying = 5,000 bushels) at a price of \$2.25 per bushel. The initial margin on the contract is \$4,750 and the maintenance margin is \$3,750. At what price will the trader receive a maintenance margin call?

- A. \$1.50.
- B. \$2.05.
- C. \$2.45.
- D. \$3.00.

67.

As an in-the-money option approaches expiration, the rate of decay of its value:

- A. rises.
- B. falls.
- C. stays constant.
- D. becomes volatile.

68.

A trader buys one wheat contract (underlying = 5,000 bushels) at a price of \$1.89 per bushel. The initial margin on the contract is \$4,800 and the maintenance margin is \$3,200. At what price will the trader receive a maintenance margin call?

- A. \$1.25.
- B. \$1.57.
- C. \$2.21.
- D. \$2.53.

69.

Which of the following terms represents the probability of exercise when valuing a call option using the Black-Scholes model?

- A. $N(d_1)$.
- B. $N(d_2)$.
- C. $N(-d_1)$.
- D. $N(-d_2)$.

70.

The current spot price of gold is \$325/oz and the price of 90-day gold futures contract (nominal amount of 100 oz) is \$329. If 90-day Treasury bills are trading at yields of 3.75% - 3.78% and storage and delivery costs are ignored, what is the maximum theoretically correct price for the futures contract?

- A. 325.5.
- B. 326.2.

C. 327.6.

D. 328.

71.

Which of the following statements are TRUE with regard to a 3-year Bermuda put option?

I. A lower bound on its price is the price of a 3-year European put option.

II. A lower bound on its price is the price of a 3-year American put option.

III. It is likely to outperform both European and American put options as the price of the underlying rises.

A. I only.

B. II only.

C. II and III.

D. III only.

72.

A non-dividend paying asset is selling at \$85 and 6-month call options on the asset with a strike price of \$75 are selling at \$18. If the risk-free rate is 6% percent, the price of 6-month put options with the same strike price should be CLOSEST to:

A. \$6.

B. \$26.

C. \$10.

D. \$30.

73.

Which of the following options have a delta close to one?

A. Put Option. Days to expiry 2. Exercise 100. Spot 175.

B. Call Option. Days to expiry 2. Exercise 100. Spot 175.

C. Put Option. Days to expiry 365. Exercise 100. Spot 100.

D. Call Option. Days to expiry 365. Exercise 100. Spot 100.

74.

An investor purchased a put option on a stock with an exercise price of \$28 for a premium of \$3. If the current price of the stock is \$22, the intrinsic value of the option is:

A. \$0.

B. \$3.

C. \$6.

D. \$9.

75.

What is the purpose of margin payments associated with futures contracts?

- A. To reduce the maintenance cost for participants.
- B. To reduce the credit risk for participants.
- C. To reduce the market risk for participants.
- D. None of the above.

76.

The additional factor that needs to be introduced to the original Black-Scholes formulation to be able to price FX options is:

- A. correlation.
- B. foreign exchange volatility.
- C. interest rate in domestic markets.
- D. interest rate in foreign money markets.

77.

The interest rate for a 1-year period is 5% and the rate for a 2-year period is 6%. Assuming continuous compounding, what is the forward rate for the period from the end of the first year to the second year?

- A. 6.9991%.
- B. 7.0000%.
- C. 7.0009%.
- D. 8.0000%.

78.

Corporates normally use FRAs to:

- A. lock-in the cost of borrowing in the future.
- B. lock-in the cost of lending in the future.
- C. hedge future currency exposures.
- D. create future currency exposures.

79.

The term contango is used to describe a market in which:

- A. forward prices are above spot prices.
- B. forward prices are below spot prices.
- C. spot prices and forward prices are at the same level.
- D. none of the above.

80.

Which of the following actions would be most profitable when a trader expects a sharp rise in interest rates?

- A. sell a payer swaption.
- B. buy a payer swaption.
- C. sell a receiver swaption.
- D. buy a receiver swaption.

81.

When is the contract rate of the FRA fixed?

- A. On the trade date.
- B. On the value date.
- C. On the rate-fixing date.
- D. On the settlement date.

82.

Issuers generally issue convertible bonds with a call to:

- A. manage their duration.
- B. make their valuation easier.
- C. force conversion if in-the-money.
- D. protect against corporate predators.

83.

Consider a convertible bond that is trading at a conversion premium of 20 percent. If the value of the underlying stock rises by 25 percent, the value of the bond will:

- A. rise by less than 25%.
- B. rise by 25%.
- C. rise by more than 25%.
- D. remain unchanged.

84.

Assume an investor has a position in a currency swap. He receives euro in exchange for paying yen. What are the conditions for the swap to be in-the-money?

- I. the value of yen falls.
- II. the value of yen rises.
- III. the euro interest rate falls.
- IV. the euro interest rate rises.

- A. I and III.
- B. I and IV.
- C. II and III.

D. II and IV.

85.

The option-adjusted duration of a convertible bond will be close to the duration of a straight bond, which is similar in all other respects, when the:

- A. stock price is extremely low.
- B. stock price is extremely high.
- C. interest rates are extremely low.
- D. interest rate volatility is extremely high.

86.

Assume an investor has a position in a currency swap. He receives euro in exchange for paying dollar. What are the conditions for the swap to be in-the-money?

- I. Value of euro falls.
- II. Dollar interest rate falls.
- III. Value of euro rises.
- IV. Dollar interest rate rises.

- A. I and II.
- B. I and IV.
- C. II and III.
- D. III and IV.

87.

What is the market conversion price for the convertible bond given below?

Par value: \$100
Annual coupon rate: 7.5%
Conversion ratio: 6
Market price: 102.5
Straight value: 96.5

Underlying stock characteristics
Current market price: \$8 per share
Dividend yield: 2.5%

- A. \$14.48
- B. \$15.18
- C. \$16.78
- D. \$17.08

88.

Which of the following markets is the FRA rate most closely related to?

- A. LIBOR.
- B. Loan rates.

- C. FX forwards.
- D. Eurodollar futures.

89.

Which of the following statements is TRUE?

- A. The presence of speculators destabilizes the commodity markets.
- B. The presence of hedgers destabilizes the commodity markets.
- C. Speculators inject liquidity in the commodity markets.
- D. Hedgers have no pre-existing commodity positions.

90.

Which of the following statements is TRUE regarding the buyer of a FRA?

- A. It pays fixed rate.
- B. It receives floating rate.
- C. It gains from a rise in interest rates.
- D. All of the above.

91.

Long-dated forward contracts on short-term deposits:

- A. imply lower prices than Eurodollar futures contracts for the same maturity.
- B. imply higher prices than Eurodollar futures contracts for the same maturity.
- C. imply the same prices as Eurodollar futures contracts for the same maturity.
- D. may imply higher or lower prices than Eurodollar futures contracts for the same maturity.

92.

You are given the following specification of the currency swap:

notional principal \$10m euro 10.5m

swap coupon 7.2% 6.8%

current market yield 4.2% 3.6%

There are two payments left in the swap (the first one in a year) and the current exchange rate is \$0.95/euro. Calculate the dollar value of the swap for the euro payer.

- A. - 16 299 \$.
- B. - 17 344 \$.
- C. - 19 344 \$.
- D. - 21 283 \$.

93.

Which of the following statements about a floor is TRUE?

- A. A floor is a put option and protects against a fall in interest rates.
- B. A floor is a call option and protects against a fall in interest rates.
- C. A floor is a put option and protects against a rise in interest rates.
- D. A floor is a call option and protects against a rise in interest rates.

94.

The buyer of a payer swaption has:

- I. a position that will rise in value with rise in interest rates.
- II. a position that will fall in value with rise in interest rates.
- III. the right to enter into a pay fixed and receive floating swap.
- IV. the right to enter into a pay floating and receive fixed swap.

- A. I and III.
- B. I and IV.
- C. II and III.
- D. II and IV.

95.

The option-adjusted duration of a convertible bond will be close to the duration of a straight bond, which is similar in all other respects, when the:

- A. interest rates are extremely low.
- B. interest rate volatility is extremely high.
- C. stock price is extremely low.
- D. stock price is extremely high.

96.

An options trader is making market in stock index options. He is using the famous Black Scholes model to price his options. A closer inspection of the model reveals that his model does not have any provision for dividends. The trader claims that dividends do not matter, as he is on both sides of the market, he is buying/writing both call/put options. He also claims that Modigliani-Miller theorem states that dividends do not matter in stock valuation. Is the trader correct?

- A. Cannot comment; it depends on individual banks internal policy.
- B. Yes, he is correct; in the long run, all the errors of mispricing will cancel out each other.
- C. No, he is incorrect; we are pricing options and the price of individual options depends on the dividend model.
- D. Yes, he is correct; Modigliani Miller prove that dividends do not matter in stock valuation, so, logically, they should not enter option pricing.

97.

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- A. imply lower rates than Eurodollar futures contracts for the same maturity.

- B. imply higher rates than Eurodollar futures contracts for the same maturity.
- C. imply the rates as Eurodollar futures contracts for the same maturity.
- D. may imply higher or lower rates than Eurodollar futures contracts for the same maturity.

98.

Which of the following statements is TRUE regarding the seller of a FRA?

- A. It pays fixed rate.
- B. It receives floating rate.
- C. It gains from a fall in interest rates.
- D. None of the above.

99.

The term "backwardation" is used to describe a market in which:

- A. forward prices are above spot prices.
- B. forward prices are below spot prices.
- C. spot prices and forward prices are at the same level.
- D. none of the above.

100.

Which of the following constitutes an advantage of swaps over physical capital markets transactions in hedging existing exposures?

- A. Low transaction costs.
- B. Off-balance sheet nature.
- C. Ease of transaction.
- D. All of the above.

101. Which of the following statement is NOT true in context of the currency crises in emerging markets?

- A. Usually the countries experiencing currency crisis try to impose capital controls.
- B. A large depreciation in one currency usually forces depreciation in other currencies in the same region causing contagion effect.
- C. The currency crisis in emerging economies not only affects the currency risks but also has ramifications on market risk, liquidity risk, and credit risk.
- D. None of the above.

102.

You have recently taken charge of risk management at the emerging market desk of a large bank. You will pay special attention to:

- A. market risk.
- B. fiduciary risk.

- C. model risk and volatility risk.
- D. political risks and liquidity risk.

103. Which of the following statement is NOT correct in relation to emerging markets?

- A. Some emerging markets have lengthy settlement process.
- B. Some markets have under-developed stock-market regulation.
- C. Some markets have under-capitalized market making network.
- D. The level of stock price manipulation and insider trading is lower in emerging markets than in developed markets.

104. Which of the following statement is TRUE?

- I. Corporate holding structures in some emerging markets are opaque.
- II. Many emerging markets suffer from "Insufficient Corporate Disclosures".
- III. No emerging market relies on paper-based settlement of transactions.

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

105. Which of the following statements are TRUE?

- I. The Central Banking system in many emerging economies do not have sufficient experience in handling the volatility that comes with the free market economy.
- II. The Central Banks in many emerging economies do have a system of clear and timely communication with the markets, about its views on the various issues.
- III. The history of some emerging economies to introduce capital controls during crisis, adds a significant amount of uncertainty on the actual holding period for investments in those currencies.

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

106. Which of the following cannot be attributed as a reason for a currency crisis in emerging markets?

- A. High fiscal deficits.
- B. Very high domestic savings rate.
- C. High dependence on primary goods exports.
- D. The desire of the political class to maintain the currency at overvalued levels

107. Which of the following statement is NOT true in context of the currency crises in emerging markets?

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- A. market risk.
- B. fiduciary risk.
- C. model risk and volatility risk.
- D. political risks and liquidity risk.

109. Which of the following is NOT an important factor in assessing the incremental risks of investing in emerging markets?

- I. Market liquidity.
- II. Political stability.
- III. Stability of current low correlations with the developed markets.

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

110. Which of the following cannot be attributed as a reason for a currency crisis in emerging markets?

- A. High fiscal deficits.
- B. Very high domestic savings rate.
- C. High dependence on primary goods exports.
- D. The desire of the political class to maintain the currency at overvalued levels

111. Which of the following statement is TRUE in relation to the causes for growth in the investments in the emerging economies?

- I. Larger emerging economies have low correlations with the developed markets.
- II. Emerging economies have higher growth rates, as compared to the developed markets.
- III. The regular crisis is a good opportunity to buy large quantities of assets at throwaway prices.

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

112. Which of the following is the main difference between the Factor Analysis and the Principal

Component Analysis (PCA) methods?

- A. The factors in the factor analysis method emerge from the statistical techniques, while the components in PCA need to be defined by the user.
- B. The factors in the factor analysis need to be defined by the user, while the components in PCA emerge from the statistical techniques.
- C. Factor analysis is suitable for fixed income returns, while PCA is suitable for equity market returns.
- D. None of the above.

113. Which of the following statements are TRUE?

- A. The principle component analysis requires assumption that the returns are log-normal.
- B. The principle component analysis requires assumption that the returns are normally distributed.
- C. The principle component analysis requires assumption that the returns are log-normal with stochastic volatility.
- D. The principle component analysis does not require any assumption about the distribution of the returns.

114.

Which of the following organization is allowed the least amount of financial leverage?

- A. Hedge fund.
- B. Mutual fund.
- C. Commercial bank.
- D. Investment bank.

115. Factor analysis requires:

- A. the assumption that returns are log-normal.
- B. the assumption that returns are normally distributed.
- C. the assumption that returns are log-normal with stochastic volatility.
- D. no assumption with regard to the distribution of the returns.

116. Consider a hedged portfolio of options, with delta, gamma and vega risks adequately hedged. You are considering using PCA to generate risk factors for this portfolio. Which of the following difficulties, specific to PCA, will you face?

- A. The returns of the hedged portfolios are not log-normal, reducing the value of PCA.
- B. The returns of the hedged portfolios follow Poisson Distribution, reducing the value of PCA.
- C. The elegance of the PCA is lost because the first few components may not explain any significant amount of the variation.
- D. The returns of the hedged portfolios follow Poisson-Gamma Distribution, reducing the value of PCA.

117. Consider a hedged portfolio of options, in which the delta, gamma and vega risks are adequately hedged. You are considering Factor Analysis to analyze the risk factors of the

portfolio. Assuming that the pricing and hedging model is sufficiently robust, which of the following factors should be given the highest prominence (highest weight in factor loadings)?

- A. Interest rates.
- B. Volatility of the underlying.
- C. Spot price of the underlying.
- D. It is difficult to predict which factor will find prominence

118. Which of the following is NOT a criticism of duration as a risk measure?

- A. Duration is not an additive measure of risk.
- B. Duration is not a good measure of the risk of a MBS.
- C. Duration fails to account for differing volatilities associated with differing maturities.
- D. All of the above.

119. Which of the following is not a risk measure of financial securities and portfolios?

- A. Delta.
- B. Beta.
- C. Alpha.
- D. Duration.

120. You have conducted Factor Analysis of the returns of a diversified portfolio on six pre-defined factors. You find that the residual term is quite large. Which of the following conclusions are valid?

- I. Large residual term may make the factor analysis inappropriate for risk analysis.
- II. Large residual terms are always to be expected in the returns of large diversified portfolio.
- III. The choice of factors may not be appropriate. We need to carefully re-define the factors and carry out the factor analysis again.

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

121.

Which of the following companies will be most exposed to interest rates?

- A. Bank.
- B. Engineering.
- C. Pharmaceutical.
- D. Insufficient information.

122.

Which of the following best describes the asset liability mix of a typical retail bank?

- A. Duration of assets is equal to duration of liabilities.
- B. Duration of assets is less than duration of liabilities.
- C. Asset and liability durations depend on interest rates.
- D. Duration of assets is more than duration of liabilities.

123. Which of the following would not be a reason for using Delta to measure the risk of an options portfolio?

- A. The need to improve the accuracy of the risk measure.
- B. A large number of positions across strikes and maturities.
- C. Scarcity of computational resources.
- D. All of the above.

124. Consider a hedged portfolio of options, with delta, gamma and vega risks adequately hedged. You have run a factor analysis test on the returns of this portfolio. You find that the prominent risk factors are: (i) Spot Price, (ii) Volatility of the spot price (iii) Interest rates (in order of the factor loadings). Which of the following conclusions will be valid?

- A. This is a natural outcome, as the option portfolio is naturally most affected by the changes in the spot price of the underlying.
- B. The volatility of the spot price should have gained prominence over the spot price. We need to check the data for accuracy.
- C. The hedging process may have a model risk, leading to imperfect or ineffective hedging.
- D. None of the above.

125.

A large S & L has a mortgage portfolio funded by short term deposits. Which of the following risks does it face?

- A. Vega risk.
- B. Delta risk.
- C. Gamma risk.
- D. All of the above.

126.

Which of the following items in the financial statements of an airline would be most affected by interest rates?

- A. Leases.
- B. Employee wages.
- C. Passenger numbers.
- D. Marketing expenses.

127.

Which of the following best describes the commodity position of a mining firm which owns and operates gold mines?

- A. Long gold.
- B. Long gold futures.
- C. Short gold futures.
- D. Long gold options.

128. Which of the following statements are TRUE?

- A. Eigenvalues can be interpreted as the contribution of ith component to the total risk.
- B. Eigenvalues refer to the variance of ith principal component.
- C. The square root of eigenvalues gives the volatility for each component.
- D. All of the above.

129.

A trader executes a \$420 million 5-year pay fixed swap with one client and a \$385 million 10-year receive fixed swap with another client shortly afterwards. Assuming that the 5-year rate is 4.15 percent and 10-year rate is 5.38 percent and that all contracts are transacted at par, how can the trader hedge his net delta position?

- A. Buy 4,227 Eurodollar contracts.
- B. Sell 4,227 Eurodollar contracts.
- C. Buy 7,185 Eurodollar contracts.
- D. Sell 7,185 Eurodollar contracts.

130.

Which of the following approaches to VAR can be used to measure model risk?

- A. Delta normal.
- B. Stress testing.
- C. Historical simulation.
- D. Structured Monte Carlo.

131.

What are the main drawbacks of the delta-normal VaR method?

- I. Subject to model risk.
- II. Depends on past data.
- III. May underestimate VaR.
- IV. Doesn't account for nonlinear ties.

- A. I and II.
- B. III and IV.
- C. I, III and IV.
- D. II, III and IV.

132.

Which of the following is the correct interpretation of a \$1 million overnight VaR at a 95% level?

- A. We can expect to lose \$1 million in 5 out of next 100 days.
- B. We can expect to lose \$1 million in 95 out of next 100 days.
- C. We can expect to lose at least \$1 million in 95 out of next 100 days.
- D. We can expect to lose at most \$1 million in 95 out of next 100 days.

133.

A trading firm uses an exponentially weighted moving average (EWMA) with lambda of 0.9 to model the daily volatility of a security. The current estimate of daily volatility using this model is 1.5 percent. The closing price of the security was \$20 yesterday and \$18 today. What is the updated estimate of volatility?

- A. 0.30%.
- B. 0.65%.
- C. 3.62%.
- D. 5.21%.

134.

A portfolio consists of equal quantities of two stocks. Which of the following values of correlation between these two stocks will lead to the highest diversification benefit?

- A. 0.00.
- B. 0.25.
- C. 0.50.
- D. 0.75.

135.

Given the covariance matrix shown on the right, the four elements in the upper left hand corner of X, x_{11} , x_{12} , x_{21} , x_{22} , are respectively:

$$\Sigma = XX' = \begin{bmatrix} 0.18\% & 0.10\% & 0.05\% \\ 0.10\% & 0.18\% & 0.10\% \\ 0.05\% & 0.10\% & 0.18\% \end{bmatrix}$$

- A. 4.2%, 0%, 3.5%, 2%.
- B. 4.2%, 2.4%, 0%, 3.5%.
- C. 4.2%, 0%, 1.2%, 3.5%.
- D. 4.2%, 2.4%, 2%, 3.5%.

assume that the above matrix can be decomposed using Cholesky factorization as

$$\Sigma = XX'$$

where X is lower triangular.

136.

It is difficult to compare the VaR of one bank with that of its peers due to:

- A. market volatility.
- B.

terms of presentation.

- C. differences in calculation methods.
- D. differences in the quality of data.

137.

Risk managers perform stress testing to:

- I. run a reality check on the VaR estimate.
- II. determine the absolute minima for portfolio returns.
- III. analyze the impact of market prices and rate on the portfolio.
- IV. analyze the value of the portfolio under improbable market scenarios.

- A. I and III.
- B. II and IV.
- C. I, III and IV.
- D. II, III and IV.

138.

If portfolio with a VaR of 200 is combined with a portfolio with a VaR of 500, the VaR of the combination could be:

- I. less than 200.
- II. less than 500.
- III. more than 200.
- IV. more than 500.

- A. I and II.
- B. III and IV.
- C. I, II and IV.
- D. II, III and IV.

139.

Given the covariance matrix shown on the right, the four elements in the upper left hand corner of X, x_{11} , x_{12} , x_{21} , x_{22} , are respectively:

$$\Sigma = XX' = \begin{bmatrix} 0.36\% & 0.10\% & 0.06\% \\ 0.10\% & 0.25\% & 0.09\% \\ 0.06\% & 0.09\% & 0.12\% \end{bmatrix}$$

- A. 6%, 0%, 2.9%, 1.6%.
- B. 6%, 0%, 1%, 4.7%.
- C. 6%, 1.7%, 1.6%, 2.9%.
- D. 6%, 1.7%, 0%, 4.7%.

assume that the above matrix can be decomposed using Cholesky factorization as

$$\Sigma = XX'$$

where X is lower triangular.

140.

A stock has an annual expected return of 16% and annual volatility of 18%. What is the 95%

VaR of this stock over one quarter?

- A. -15.50%.
- B. -10.85%
- C. -16.25%.
- D. -18.00%.

141.

Given the covariance matrix shown on the right, the four elements in the upper left hand corner of X , x_{11} , x_{12} , x_{21} , x_{22} , are respectively:

$$\Sigma = XX' = \begin{bmatrix} 0.66\% & 0.04\% & 0.06\% \\ 0.04\% & 0.15\% & 0.08\% \\ 0.06\% & 0.08\% & 0.09\% \end{bmatrix}$$

- A. 8.1%, 0%, 2.1%, 2%.
- B. 8.1%, 0.5%, 0%, 3.8%.
- C. 8.1%, 0%, 0.7%, 3.8%.
- D. 8.1%, 0%, 2%, 2.1%.

assume that the above matrix can be decomposed using Cholesky factorization as

$$\Sigma = XX'$$

where X is lower triangular.

142.

The element of risk in a stock that cannot be diversified away is called:

- A. model risk.
- B. market risk.
- C. specific risk.
- D. elemental risk.

143.

Which of the following methodologies is least effective for estimating the VaR due to embedded options?

- A. Delta gamma.
- B. Variance covariance.
- C. Historical simulation.
- D. Monte Carlo simulation.

144.

The delta normal method is best described as:

- A. analytical.
- B. stochastic.
- C. non-linear.

D. deterministic.

145.

Which of the following is NOT an approach to estimate the VAR?

- A. GARCH.
- B. Parametric.
- C. Simulation.
- D. Delta-Normal.

146.

Your trader is running long positions in zero coupon bonds (ZCB), hedged with Eurodollar futures (EDF). The correlation in ZCB and EDF is high. Both the positions have positive convexities. For this reason, the trader gains from convexities in both legs of the hedge. What are the two main risks to this position?

- I. The yields may rise.
- II. The ZCB and EDF correlation may fall.
- III. The volatility of the market may turn out to be lower than expected.
- IV. The market may be more volatile for both instruments, but the correlation may not fall.

- A. I and III.
- B. I and IV.
- C. II and III.
- D. II and IV.

147.

Which one of the following risk approaches measures the expected value of the loss when it exceeds VaR?

- A. expected tail loss.
- B. expected shortfall.
- C. tail conditional expectation.
- D. all of the above.

148.

The delta normal method is best described as:

- A. analytical.
- B. non-linear.
- C. stochastic.
- D. deterministic.

149.

You are computing The VAR for a portfolio invested in major currencies. You need to predict the

variance and correlation in these currencies. Which of the following would you choose?

- A. GARCH (1,1) estimation.
- B. Exponential Average estimation.
- C. Implied data from options prices.
- D. MA (moving average) estimation.

150.

The VaR of a portfolio at a 95% confidence level is 18.2. If the confidence level is raised to 99% (assuming a one-tailed normal distribution) the new value of VaR will be closest to:

- A. 12.9.
- B. 18.2.
- C. 21.6.
- D. 25.7.

151.

What is a decay factor used by RiskMetrics for daily data in the EWMA model?

- A. 0.90.
- B. 0.94.
- C. 0.95.
- D. 0.97.

152.

A bank has two divisions that currently have VaRs of 200 and 400. The VaR of the bank as a whole will:

- A. be 400.
- B. be 600.
- C. be at least 200.
- D. be at most 600.

153.

A risk manager states that the VAR of the portfolio at 95% confidence interval and 1-day holding period is \$1 million. Which of the following statement is TRUE?

- A. The daily loss on the portfolio will exceed \$1 million 95% of time.
- B. The daily loss on the portfolio will not exceed \$1 million 95% of time.
- C. The maximum loss that the portfolio can incur is \$1 million at any point in time.
- D. 95% of risk managers will agree that the maximum loss on the portfolio will be \$1 million.

154.

A fund manager owns a 85 million USD equity portfolio that has a beta of 1.2 relative to the S&P 500 futures that are trading at 1444. How many contracts does he need to sell to hedge the portfolio? (The multiplier of the S&P 500 is 250).

- A. 196
- B. 283
- C. 536
- D. 539

155.

You are a pension fund manager looking to invest in broad-based equity funds, with best tracking. You have short-listed two index funds tracking the same index. Your risk manager has gathered information on The VAR of the two funds based on full portfolio risk. Fund A has 95% confidence interval 1-day VAR of 0.5%. Fund B has 95% confidence interval 4-day VAR of 0.8%. Which fund should we choose?

- A. Fund A has lower VAR, so we choose Fund A.
- B. Fund B has lower VAR when adjusted for holding period, so we choose B.
- C. The VARs of the two funds are very close, so we are indifferent between the two.
- D. Insufficient information.

156.

An investor who owns a callable bond can hedge the risk of the embedded call option by:

- A. selling payer swaptions.
- B. buying payer swaptions.
- C. selling receiver swaptions.
- D. buying receiver swaptions.

157.

Roger Nelkin, an investment manager, currently manages a diversified portfolio that has a mark-to-market value of \$140,000,000 and a beta of 1.2. Given his recent performance, Roger expects an inflow of another \$50,000,000 into his fund but is concerned that the stock market may rise sharply over the next few weeks forcing him to purchase stock at unreasonably high levels. To cover this exposure, Roger buys 25 S&P 500 futures contracts at a price of 1,400. Each contract is worth 250 times the index. However, over the horizon of this hedge, the futures rise by 50 points but Roger receives only \$10,000,000 in new money. What is the cash flow from the hedged position?

- A. \$236,500.
- B. \$312,500.
- C. \$425,500.
- D. \$565,500.

158.

Corporates should not hedge their market exposures to:

- A. lower the cost of debt.
- B. lower transaction costs.
- C. facilitate optimal investment.
- D. lower the cost of financial distress.

159.

A European firm needs to hedge the purchase Mexican Pesos in 6 months, but peso futures are not liquid. So the firm decides to hedge its exposure by buying future contracts on USD. The standard deviation of pesos against the euros over a 6-month period is 18 percent, while the standard deviation of the USD/EUR futures price over a 6-month period is 10 percent. If the correlation coefficient between pesos and dollars is 0.65 calculate the optimal hedge ratio.

- A. 0.15.
- B. 0.36.
- C. 1.17.
- D. 2.77.

160.

What is the volatility of the hedged portfolio assuming the correlation between the portfolio and hedging instrument is 0.9? The standard deviation of the portfolio is 15% and the standard deviation of the hedging instrument is 12%.

- A. 2.7%.
- B. 2.9%.
- C. 6.6%.
- D. 13.5%.

161.

When a fixed income trader hedges his portfolio of securities and contracts using a duration-based hedging scheme, he assumes that:

- I. durations will not change.
- II. interest rates will move in small steps.
- III. yield curve will move in parallel shifts.
- IV. yield curve will rotate about a central pivot point.

- A. I and IV.
- B. II and III.
- C. I, II and III.
- D. II, III and IV.

162.

A Japanese firm that has issued dual currency bonds with a yen principal and euro coupons can hedge its foreign currency exposure by:

- A. buying German government bond futures.

- B. buying Japanese government bond futures.
- C. entering into a receive yen - pay euro currency swap.
- D. entering into a pay yen - receive euro currency swap.

163.

A trader hedges an underlying position with a hedging instrument that has a correlation of one with the underlying position. The trader's position will be exposed to basis risk if:

- A. the maturity of the hedging instrument is not same as that of the underlying position.
- B. the volatility of the hedging instrument is lower than that of the underlying position.
- C. the volatility of the hedging instrument is higher than that of the underlying position.
- D. none of the above.

164.

When a fixed income trader hedges his portfolio of securities and contracts using a duration-based hedging scheme, he assumes that:

- I. interest rates will move as predicted.
- II. interest rates volatility will not change.
- III. the yield curve will move in parallel shifts.
- IV. interest rates will move in large discrete steps.

- A. I and IV.
- B. II and III.
- C. I, III and IV.
- D. II, III and IV.

165.

A firm wishes to hedge its exposure to fuel and inputs using commodity futures. Its input costs have a volatility of 40 percent and the futures have a volatility of 25 percent. If the correlation between the two is 0.6, the optimal hedge ratio is:

- A. 0.38.
- B. 0.96.
- C. 1.04.
- D. 1.60.

166.

When a fixed income trader hedges his portfolio of securities and contracts using a duration-based hedging scheme, he assumes that:

- I. interest rates will not change.
- II. interest rates will move in small steps.
- III. yield curve will move in parallel shifts.
- IV. the yield curve will rotate about a central pivot point.

- A. I and IV.

- B. II and III.
- C. I, III and IV.
- D. II, III and IV.

167.

Consider two assets, A and B, with volatilities of 20% and 30% respectively. A 1:1 portfolio of the two assets has a volatility of 25%. What is the correlation?

- A. 0.
- B. 1.
- C. -1.
- D. None of the above.

168.

John Doe, CFA, believes that he has found an arbitrage opportunity in the gold market based on the information that is shown below.

Spot price for gold = \$285/oz.

Price for gold futures expiring in 1 year = \$290.

Annual risk-free interest rate = 4.00%

What is the arbitrage profit ignoring transaction and storage costs?

- A. 0.00.
- B. 6.40.
- C. 8.21.
- D. 9.95.

169.

Your portfolio has long/short positions in two asset classes. Historically these asset classes have shown very high correlation and low variability in correlations. Both the long and short positions have very strong positive convexity. There is no optionality involved. You have been advised to use stress testing to estimate accurate risk on the book. Do you agree?

- A. Yes.
- B. No: Simulation VAR is more suitable
- C. No: Delta normal method is more suitable.
- D. No opinion

170.

A trader executes a \$200 million 5-year pay fixed swap with one client and a \$100 million 10-year receive fixed swap with another client shortly afterwards. Assuming that the 5-year rate is 4.75 percent and 10-year rate is 5.15 percent and that all contracts are transacted at par, how can the trader hedge his net delta position?

- A. Sell 424 Eurodollar contracts.
- B. Buy 424 Eurodollar contracts.

- C. Sell 6,552 Eurodollar contracts.
- D. Buy 6,552 Eurodollar contracts.

171.

You are analyzing the risk management system of an asset manager. The asset manager's objective is to follow S&P 500. The portfolio does not have any options. Which of the following is best suited to measure this risk?

- A. Absolute VAR using historical simulation.
- B. Absolute VAR using delta normal approach.
- C. Tracking error VAR using delta normal approach.
- D. Tracking error VAR using Structured Monte Carlo approach.

172.

In order to hedge a long position on \$100m worth of one-year US Treasury Bills, a trader would have to sell:

- A. 100 T-bill futures.
- B. 200 T-bill futures.
- C. 400 T-bill futures.
- D. 800 T-bill futures.

173.

Consider two assets, A and B, with volatilities of 20% and 30% respectively. A 1:1 portfolio of the two assets has a volatility of 18%. What is the correlation?

- A. 0.
- B. 1.
- C. -1.
- D. None of the above.

174.

A firm wishes to hedge its exposure to fuel and inputs using commodity futures. Its input costs have a volatility of 45 percent and the futures have a volatility of 55 percent. If the correlation between the two is 0.45 the optimal hedge ratio is:

- A. 0.37.
- B. 0.55.
- C. 0.82.
- D. 1.82.

175.

Two assets have equal volatility. If the correlation between the two is +0.5, which of the following portfolio will result in the lowest volatility?

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

176.

When a fixed income trader hedges his portfolio of securities and contracts using a duration-based hedging scheme, he assumes that:

- I. interest rates will not change.
- II. interest rates will move in small steps.
- III. interest rates volatility will not change.
- IV. yield curve will move in parallel shifts.

- A. I and IV.
- B. II and III.
- C. I, III and IV.
- D. II, III and IV.

177.

Approximately how many 3-month LIBOR Eurodollar Futures contracts would a trader need to hedge a short 30m position in one-year US Treasury Bills?

- A. Long 60.
- B. Short 60.
- C. Long 120.
- D. Short 120.

178.

A fund manager owns a 40 million USD equity portfolio that has a beta of 1.4 relative to the S&P 500 futures that are trading at 1,260. How many contracts does he need to sell to hedge the portfolio? (The multiplier of the S&P 500 is 250).

- A. 91.
- B. 127.
- C. 178.
- D. 5,625.

179.

During a period of international crisis, the benefits of international diversification tend to:

- A. increase.
- B. decrease.
- C. become unstable.
- D. remain unaffected.

180.

The downfall of Long Term Capital Management (LTCM) in 1999 is largely blamed on:

- A. corporate fraud.
- B. extreme leverage.
- C. derivatives mispricing.
- D. lack of risk management.

181. Which of the following does NOT indicate a stressed situation?

- A. The broad market indices have shown falls of over 25% in last few trading sessions.
- B. The assets that are supposed to move together (A-rated bonds and US Treasuries) suddenly start to move in opposite directions.
- C. The markets, which previously showed no or little correlations, suddenly start moving in same direction.
- D. None of the above.

182. Which of the following statements are TRUE?

- A. VAR fails to tell us what losses to expect once the VAR threshold is breached.
- B. VAR gives an estimate of maximum loss at the given confidence interval.
- C. VAR is the minimum loss for the (1-confidence interval)% worst cases.
- D. All of the above.

183.

Extreme market moves tend to:

- A. stabilize correlations among assets.
- B. destabilize correlations among assets.
- C. increase correlations among assets.
- D. decrease correlations among assets.

184.

Catastrophic losses usually result from:

- A. inappropriate use of data.
- B. inaccuracies in input data.
- C. inadequacies in the organizational structure.
- D. insufficient degree of accuracy in calculations.

185.

You are working out likely risk of the portfolio. You are using the stress testing method. Which of the following information is NOT essential?

- A. Security pricing model.
- B. Correlations among asset classes.
- C. Data on the current holding pattern of the portfolio.
- D. Typical worst-case market movements in the recent past.

186.

During a period of adverse market conditions, portfolio VaR tends to:

- A. disappear.
- B. rise.
- C. fall.
- D. remain constant.

187.

VAR measures of market risk are supplemented by stress testing because:

- A. VAR does not give a dollar value of the loss.
- B. VAR does not give an accurate value of the loss.
- C. Stress testing can evaluate loss due to low probability events.
- D. Stress testing can give the maximum loss for 100 percent confidence level.

188.

Under which of the following conditions is stress testing better suited than the simulation approach to VAR?

- A. You have a full model of security and instrument pricing ready with you.
- B. Your study shows that the volatility of the volatility is too high for the markets in which you operate.
- C. You have sufficient data to estimate the stochastic behavior of underlying markets with good degree of confidence.
- D. Your study shows that the correlations in the instruments you trade move from high positive to high negative levels.

189.

For which of the following portfolios is the stress testing approach to VAR most appropriate?

- A. A portfolio with many sources of risks.
- B. A portfolio with exposure to stocks and currencies.
- C. The worst outcomes of the portfolio are obtained within 1 standard deviation in the market.
- D. The worst outcomes of the portfolio are obtained in the tails of the distribution of market returns.

190.

Which of the following securities has the highest liquidity?

- A. Junk bonds.
- B. Medium-term notes.
- C. On the run treasuries.
- D. AA+ corporate bonds.

191.

Which of the following instruments have the potential to increase liquidity costs?

- A. Forwards.
- B. Call options.
- C. Barrier options.
- D. All of the above.

192.

Balance sheet liquidity risk can be alleviated best by:

- A. investing cash in marketable securities.
- B. hedging net interest rate risk with futures.
- C. hedging net interest rate risk with options.
- D. creating a cash reserve account for meeting unexpected liabilities.

193.

An illiquid investment is one that:

- A. only trades on an exchange.
- B. does not trade on any exchange.
- C. cannot be bought and sold easily.
- D. only trades during specified hours.

194.

Balance sheet liquidity refers to the ability to:

- A. meet debt covenants.
- B. raise debt without moving the market.
- C. meet financial obligations as they arise.
- D. merge with or acquire other firms at short notice.

195.

Balance sheet liquidity risk can be alleviated best by:

- A. hedging net interest rate risk with futures.

- B. hedging net interest rate risk with options.
- C. creating a cash reserve account for meeting unexpected liabilities.
- D. investing cash in marketable securities.

196. Which of the following statements are TRUE?

- A. Impact cost is measured, for a given size of a transaction, as the difference between the mid-price prevailing at the moment when the institution first announced its intention to trade.
- B. The writer of down-and-out call barrier may actually encourage the option writer to pay high impact costs when the price is just above the barrier and force the price through the barrier to get rid of the option.
- C. Both of the above.
- D. None of the above.

197.

Your firm does market direction neutral arbitrage in the spread between US Treasuries and Argentina bonds. Your trader plans to buy default swaps on Argentina. Then he wants to increase the size of position to \$1,500 million. As a risk manager, apart from basis risk, your main concern will be that:

- A. US yields would fly up too soon.
- B. liquidity in US Treasuries will dry up.
- C. liquidity in Argentina bonds will dry up.
- D. CDS writer may go bankrupt, leaving you uncovered.

198.

Which one the following restrictions are primarily to manage liquidity risk in a bond desk?

- A. Restrictions on the maximum VAR.
- B. Restrictions on the minimum credit rating.
- C. Restrictions on the maximum portfolio duration.
- D. Restrictions on the ratio of holdings to market volume.

199.

The lack of liquidity is MOST likely to:

- A. reduce price volatility.
- B. widen bid offer spreads.
- C. lead to a sharp fall in prices.
- D. lead to a sharp rise in prices.

200. Which of the following markets have the highest potential transaction liquidity risks?

- A. SP500 Futures.
- B. JPY-USD Spot.

- C. EUR-USD Spot.
- D. Spot electricity market.

201.

A bank is holding a large amount of cash due to liquidity concerns regarding the health of the banking system. Which one of the following hedges could provide an alternative to this protection?

- A. Interest rate collar.
- B. Zero coupon swap.
- C. In-the-money call option.
- D. None of the above.

202. A company is facing a constant tax regime. Does it make sense for the company to hedge its risks? Ignore other factors such as bankruptcy costs etc.

- A. YES - it is always better to hedge risks, irrespective of the tax regime.
- B. YES - hedging will increase shareholder value in a constant tax regime.
- C. NO - hedging will reduce shareholder value in a constant tax regime.
- D. The company is indifferent to hedging in constant tax regime, as far as shareholder value is concerned.

203.

A firm that has only fixed rate liabilities can protect itself from high interest rates by

- A. Buying a cap.
- B. Buying a floor.
- C. Receiving on a swap.
- D. None of the above.

204. Under which of the following tax regimes do shareholders benefit by undertaking a hedge?

- A. Constant.
- B. Regressive.
- C. Progressive.
- D. Depends on the situation of each company.

205. Which of the following statements are TRUE for the Efficient Market Hypothesis (or can be derived it)?

- A. All valuable information is incorporated in prices quickly once it becomes public.
- B. The expected cost of acquiring non-public information would equal the expected profits from the use of that information.
- C. The marginal cost of hedging should equal the marginal benefits from hedging.
- D. All of the above.

206.

A firm has a debt of USD 100 million fixed at 6%. If new market rate for this debt is 5% the firm should:

- A. By a cap.
- B. Swap into floating.
- C. Stay fixed (i.e. do nothing).
- D. Insufficient information.

207.

A treasurer neutralizes the delta of a fixed-rate bond issue with 3 years to maturity by selling futures contracts. What is wrong with this hedge?

- A. Gamma of the loan.
- B. Vega of the futures contract.
- C. Basis between cash and futures.
- D. None of the above.

208. Which of the following methods can be used to measure corporate "Cash-Flow at Risk"?

- I. Delta Normal.
- II. Historical Simulation.
- III. Monte Carlo Simulation.

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

209. Which of the following is FALSE?

- I. If the shareholders have no avenue for diversification of the portfolio, the company should hedge its risks.
- II. If the shareholders have no avenue for diversification of the portfolio, the company should NOT hedge its risks.
- III. If the shareholders have an avenue for diversification, then other stakeholders also do not mind if the company does not hedge its risks.

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

210. A company is facing a regressive tax regime. Does it make sense for the company to hedge its risks? Ignore other factors such as bankruptcy costs etc.

- A. YES - it is always better to hedge risks, irrespective of the tax regime.
- B. YES - hedging will increase shareholder value in a regressive tax regime.

- C. NO - hedging will reduce shareholder value in a regressive tax regime.
- D. Depends on the situation of each company.

211.

A treasurer neutralizes the delta of a long fixed-rate bond position with 3 years to maturity by selling futures contracts. What is the main source of remaining market risk?

- A. Gamma of the loan.
- B. Vega of the futures contract.
- C. Basis between cash and futures.
- D. Basis between LIBOR and 3 year rates.

212. Which of the following are a part of bankruptcy costs?

- I. Reorganization costs.
- II. Lack of operational freedom.
- III. Reputation loss for controlling shareholders.

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

213.

An investor purchasing foreign entities can hedge itself with

- A. FX spot contract.
- B. FX swap contracts.
- C. FX option contracts.
- D. None of the above.

214. Which of the following statements are FALSE?

- A. Shareholders can diversify the exchange risk away by holding diversified portfolios. They would not be unduly worried about the currency exposure of any single company in their portfolio.
- B. If any hedge exists, where the benefits outweigh the costs, traders would immediately milk it by doing arbitrage trading and the window of opportunity would quickly close.
- C. If a business does not hedge its risks, the stakeholders other than shareholders (e.g. employees, creditors) might be worried that the company may go bust, and require a risk-premium for dealing with this company.
- D. None of the above.

215.

An investor is bullish on the management of Golden Mining Co. but not its main product i.e. gold. What is the best strategy for this investor?

- A. Buy Golden Mining shares and sell gold futures.
- B. Sell Golden Mining shares and buy gold futures.
- C. Buy Golden Mining shares and sell shares in another gold mining firm.
- D. Sell Golden Mining shares and buy shares in another gold mining firm.

216.

LongHorizons bank has a large long term loan portfolio funded with short term retail deposits. Which of the following strategies would be most suitable if this bank suddenly wants to reverse its interest rate strategy?

- A. Securitize the loans.
- B. Swap loans into floating rate.
- C. Sell the loans in secondary market.
- D. Issue fixed coupon bonds to pay off deposits.

217. Which of the following statements are TRUE?

- I. Efficient Market Hypothesis tells us that there is no economic value in hedging.
- II. The expected cost of acquiring non-public information would always be lower than the expected profits from use of that information.
- III. The firm's cost of capital depends on the risks that cannot be diversified away by the market and not on the total risks faced by the firm.

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

218. Which of the following statements are TRUE?

- A. It is possible to find out the possible nature of exposures to various risk factors by studying the historical data. However, for multi-business companies, this regression must be run for each business separately to get the idea of the risk profile of each business.
- B. It is possible to find out the possible nature of exposures to various risk factors by studying the historical data; hence a company-wide regression would give an idea of net hedging needs of the company, after adjusting for the inter-business natural hedging.
- C. Both of the above.
- D. None of the above.

219.

A large S & L has a mortgage portfolio funded by short term deposits. How can it best hedge its exposure?

- A. Buy FRAs.
- B. Buy payer swaptions.
- C. Enter into payer swaps.
- D. None of the above.

PASS PRO Solutions

1. Correct answer: C

Every unit of this inverse floater is effectively composed from a long position on three par fixed coupon bonds (with a coupon rate of 5%) and a short position on two FRNs linked to LIBOR. The long position will have a negative duration of $0.95 \times 3 = 2.85$, while the short position will have a positive duration of $0.25 \times 2 = 0.5$. Therefore, the net duration of the inverse floater will be approximately $2.85 - 0.5 = 2.35$.

Study Session: 2 - RA: 1

2. Correct answer: D

The duration of the inverse floater will be almost twice as much as that of the fixed coupon bond, therefore its price will fall the most. The zero coupon bond will have the next highest duration, followed by the fixed coupon bond. The floating-rate note will have the lowest (almost negligible) duration.

Study Session: 2 - RA: 1

3. Correct answer: A

In a stable flat yield curve environment, the price of a premium bond will fall, reaching par value at maturity.

Study Session: 2 - RA: 1

4. Correct answer: B

Step 1. Calculate $w = 74 / 182 = 0.41$. The accrued coupon = coupon $\times (1 - w) = 100 \times 3.875\% \times (1 - 0.41) = \2.286

Study Session: 2 - RA: 1

5. Correct answer: B

A CLO, or collateralized loan obligation, is a bond issued with a loan portfolio as the collateral.

Study Session: 2 - RA: 1

6. Correct answer: A

The duration of an FRN is close to the period remaining to the next LIBOR reset.

Study Session: 2 - RA: 1

7. Correct answer: B

Interest STRIPS from one bond are fungible with interest STRIPS of other bonds that mature on the same date, but the principal STRIPS are not. Interest on STRIPS is reported as income as it accrues, irrespective of when the security matures or is sold by the investor. STRIPS are essentially zero coupon bonds, and therefore unlike whole bonds, they have no reinvestment risk, i.e. the risk that the investor may not be able to invest the coupons at a high enough rate until the maturity of the bond.

Study Session: 2 - RA: 1

8. Correct answer: B

$(1 - CPR) = (1 - SMM)^{12}$. Therefore, $SMM = 1 - (1 - CPR)^{(1/12)} = 1 - (1 - CPR)^{(1/12)} = 1.35\%$.

Study Session: 2 - RA: 1

9. Correct answer: D

The 1-year forward rate two years from now = $(1 + 3\text{-year spot rate})^3 / (1 + 2\text{-year spot rate})^2 - 1 = (1 + 6.5\%)^3 / (1 + 6\%)^2 - 1 = 7.49\%$.

Study Session: 2 - RA: 1

10. Correct answer: B

As the maturity of the bond rises, its duration gets longer and therefore its price sensitivity increases.

Study Session: 2 - RA: 1

11. Correct answer: D

Both stock prices and interest rates are driven by stochastic phenomenon (random walk). However, interest rates display a tendency to be pulled back to some long-run average level.

Study Session: 2 - RA: 1

12. Correct answer: B

The yield to call is calculated assuming that the bond will be called in seven years' time. Thus $N = 7 \times 2 = 14$, $PMT = 5.45/2 = 2.725$, $PV = 102$, $FV = 100.5$ (the call price). Solving for $I\%/yr$ we get 2.583%, which annualizes to 5.166%.

Study Session: 2 - RA: 1

13. Correct answer: B

The callable bond has an embedded call option that allows the investor to sell the bond back to the issuer at a pre-determined price. Therefore the issuer is short the bond and a put option on the bond.

Study Session: 2 - RA: 1

14. Correct answer: C

Step 1. Calculate the mean stock price = $(55 + 43 + 58 + 64 + 69) / 5 = 57.8$.

Step 2. Calculate the mean S&P level = $(1,150 + 1,100 + 1,200 + 1,160 + 1,190) / 5 = 1,160$.

Step 3. The covariance between the stock and S&P = $[(55 - 57.8)(1150 - 1160) + (43 - 57.8)(1100 - 1160) + (58 - 57.8)(1200 - 1160) + (64 - 57.8)(1160 - 1160) + (69 - 57.8)(1190 - 1160)] / 5 = 252$.

Study Session: 2 - RA: 1

15. Correct answer: D

Step 1. Calculate the one-year spot rate. $s_1 = (107.25 / 98) - 1 = 9.439\%$

Step 2. Calculate the two-year spot rate: $6.1 / (1 + 9.439\%)^1 + 106.1 / (1 + s_2)^2 = 99$, which implies that $s_2 = \{106.1 / [99 - 6.1 / (1 + 9.439\%)^1]\}^{(1/2)} - 1 = 6.567\%$

Step 3. Calculate the three-year spot rate: $7.55 / (1 + 9.439\%)^1 + 7.55 / (1 + 6.567\%)^2 + 107.55 / (1 + s_3)^3 = 101$, which implies that $s_3 = \{107.55 / [101 - 7.55 / (1 + 9.439\%)^1 - 7.55 / (1 + 6.567\%)^2]\}^{(1/3)} - 1 = 7.138\%$

Using these rates the one-year forward rate two years from now = $(1 + 7.138\%)^3 / (1 + 6.567\%)^2 - 1 = 8.29\%$.

Study Session: 2 - RA: 1

16. Correct answer: A

The 1-year forward rate two years from now = $(1 + 3\text{-year spot rate})^3 / (1 + 2\text{-year spot rate})^2 - 1 = (1 + 5.5\%)^3 / (1 + 6\%)^2 - 1 = 4.46\%$.

Study Session: 2 - RA: 1

17. Correct answer: A

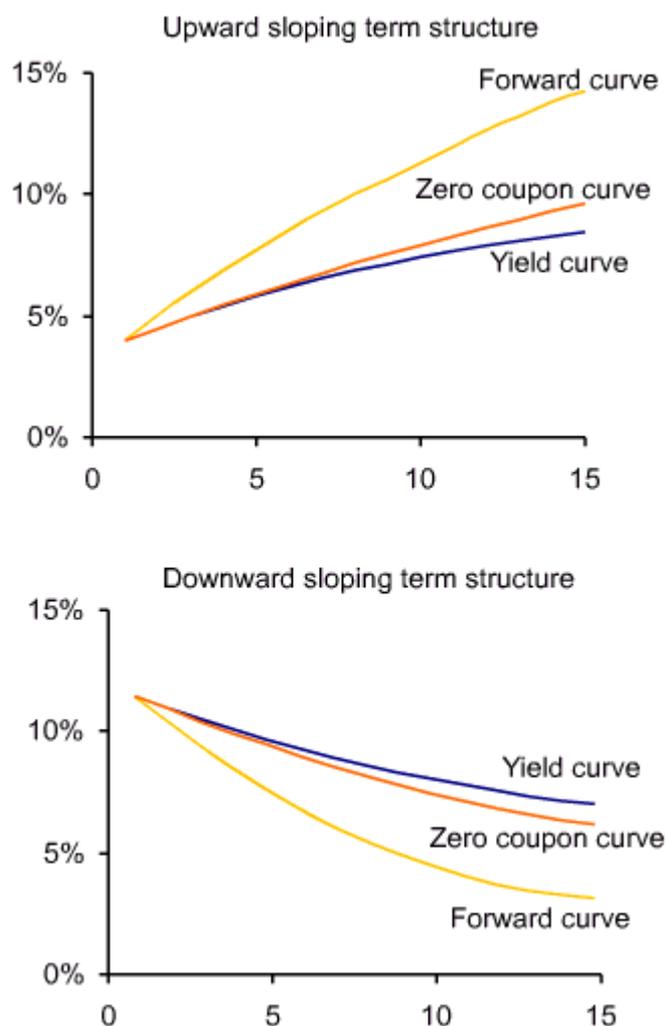
As the coupon rate of a plain coupon bond is increased, its duration gradually falls to the level of an annuity (an annuity is effectively a coupon bond with an infinite coupon rate).

Study Session: 2 - RA: 1

18. Correct answer: A

Par coupon yields are weighted averages of the zero coupon rates, so in a downward sloping term structure they will be higher than the zero coupon rates for the same term to maturity. The forward rates are equivalent to the zero coupon rates plus the slope of the zero coupon curve, thus they will be lower than the zero coupon rates in an upward sloping term structure.

Study Session: 2 - RA: 1



19. Correct answer: D

Option-adjusted spreads are best for analyzing MBSs as they strip out the value of the prepayment option.

Study Session: 2 - RA: 1

20. Correct answer: C

Using a bond calculator, $N = 6$, $PMT = 4.5$, $I\%/yr = 3.5$, $FV = 100$. Solving for PV we get 105.33.

Study Session: 2 - RA: 1

21. Correct answer: B

Step 1. Calculate $w = 74 / 182 = 0.41$. The accrued coupon = coupon $\times (1 - w) = 100 \times 3.875\% \times (1 - 0.41) = \2.286 .

Study Session: 2 - RA: 1

22. Correct answer: A

The coupon of an inverse floater is defined as a constant amount minus a reference rate ($k - \text{LIBOR}$). Therefore, this coupon amount rises when the reference interest rates falls.

Study Session: 2 - RA: 1

23. Correct answer: D

In the absence of further information the MBS with the largest option-adjusted spread should offer the best relative value. The option-adjusted spread gives the yield from the cash flows of the MBS minus the cost of the embedded optionality. Thus it is a good measure for comparing different MBSs and comparing MBSs with straight bonds without any optionality.

Study Session: 2 - RA: 1

24. Correct answer: B

$(1 - CPR) = (1 - SMM)^{12}$. Therefore, $SMM = 1 - (1 - CPR)^{(1/12)} = 1 - (1 - CPR)^{(1/12)} = 1.06\%$.

Study Session: 2 - RA: 1

25. Correct answer: B

Effective duration = $(\text{Price if yield declines} - \text{Price if yield rises}) / (2 \times \text{Initial price} \times \text{Change in yield}) = (96.35 - 92.75) / (2 \times 94.65 \times 0.003) = 6.34$.

Study Session: 2 - RA: 1

26. Correct answer: D

It is possible to construct a well-diversified portfolio with any level of beta, e.g. by choosing the market portfolio and leveraging it up or down.

Study Session: 2 - RA: 2

27. Correct answer: D

Here we use the expression that: $(\text{Vol}_{A/B})^2 = (\text{Vol}_A)^2 + (\text{Vol}_B)^2 - 2 \times \text{Correlation} \times (\text{Vol}_A) \times (\text{Vol}_B)$.

Therefore, yen/peso volatility = $(0.1^2 + 0.15^2 - 2 \times -0.1 \times 0.1 \times 0.15)^{0.5} = 18.8\%$.

Study Session: 2 - RA: 2

28. Correct answer: B

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

29. Correct answer: C

Here we use the expression that: $(Vol_{A/B})^2 = (Vol_A)^2 + (Vol_B)^2 - 2 \times Correlation \times (Vol_A) \times (Vol_B)$.

$$\text{Yen peso correlation} = -(0.14^2 - 0.12^2 - 0.18^2) / 2 / 0.12 / 0.18 = 0.63$$

Study Session: 2 - RA: 2

30. Correct answer: C

Interest rate derivatives (swaps, options and FRAs) account for most of the trading in the OTC derivatives market.

Study Session: 2 - RA: 2

31. Correct answer: C

Using the Black-Scholes model, the value of a call option = Spot price $\times N(d1)$ - Strike price $\times \exp(-\text{Risk-free rate} \times \text{Time to expiration}) \times N(d2) = 120 \times 0.554 - 125 \times \exp(-0.08 \times 0.5) \times 0.498 = 6.671$.

Study Session: 2 - RA: 2

32. Correct answer: D

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

33. Correct answer: B

$$2\text{-day VaR} = 5\text{-day VaR} \times (2 / 5)^{0.5} = \$3.1 \text{ million} \times 0.4^{0.5} = \$2 \text{ million.}$$

Study Session: 2 - RA: 2

34. Correct answer: B

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

35. Correct answer: D

95% confidence level requires a volatility multiple (alpha) of 1.65 while 99% confidence level requires a multiple of 2.33. Since VaR is directly proportional to this multiple, the 99% confidence level VaR = $18.2 \times 2.33 / 1.65 = 25.7$

Study Session: 2 - RA: 2

36. Correct answer: C

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

37. Correct answer: D

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

38. Correct answer: B

5-day VaR = 10-day VaR $\times (5 / 10)^{0.5} = \$2.5 \text{ million} \times 0.5^{0.5} = \$1.8 \text{ million}.$

Study Session: 2 - RA: 2

39. Correct answer: B

The trader is hedged against the spot price of gold and its volatility, and is effectively borrowing gold and lending cash for a fixed term of six months. So the trader will lose if the gold borrowing rate falls and the short-term interest rates rise.

Study Session: 2 - RA: 2

40. Correct answer: B

CAPM assigns a beta of zero for risk free investments and one for the market portfolio. Knowing

the returns from these investments, the expected return from any other investment in the market can be calculated as:

Expected return = Risk-free rate x Beta x (Market return - Risk-free rate).

Study Session: 2 - RA: 2

41. Correct answer: B

Here we use the expression that: $(Vol_{A/B})^2 = (Vol_A)^2 + (Vol_B)^2 - 2 \times Correlation \times (Vol_A) \times (Vol_B)$.

Yen peso correlation = $-(0.15^2 - 0.12^2 - 0.08^2) / 2 / 0.12 / 0.08 = -0.09$.

Study Session: 2 - RA: 2

42. Correct answer: A

The forward prices for energy products are substantially less volatile for longer maturities.

Study Session: 2 - RA: 2

43. Correct answer: C

VaR was originally developed as a framework for setting risk limits for traders and portfolio managers. Its use has been extended to the identification of risk factors and to compare risks across asset classes.

However, the VaR is not a figure that is calculated using a single universally accepted procedure. Therefore, it cannot be used to measure individual performance relative to peers. It can however be used to compare a portfolio manager versus an index as both calculations can be performed using the same methodology.

Study Session: 2 - RA: 2

44. Correct answer: A

Here we use the expression that: $(Vol_{A/B})^2 = (Vol_A)^2 + (Vol_B)^2 - 2 \times Correlation \times (Vol_A) \times (Vol_B)$.

Therefore, yen/peso volatility = $(0.12^2 + 0.15^2 - 2 \times 0.25 \times 0.12 \times 0.15)^{0.5} = 16.7\%$.

Study Session: 2 - RA: 2

45. Correct answer: A

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

46. Correct answer: B

Here we use the expression that: $(\text{Vol}_{A/B})^2 = (\text{Vol}_A)^2 + (\text{Vol}_B)^2 - 2 \times \text{Correlation} \times (\text{Vol}_A) \times (\text{Vol}_B)$.

Yen peso volatility = $(0.09^2 + 0.16^2 - 2 \times 0.3 \times 0.09 \times 0.16)^{0.5} = 15.8\%$.

Study Session: 2 - RA: 2

47. Correct answer: B

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

48. Correct answer: D

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

49. Correct answer: D

95% confidence level requires a volatility multiple (alpha) of 1.65 while 99% confidence level requires a multiple of 2.33. Since VaR is directly proportional to this multiple, the 99% confidence level VaR = $15.2 \times 2.33 / 1.65 = 21.5$

Study Session: 2 - RA: 2

50. Correct answer: D

Markowitz's theory states that utility-maximizing investors should construct their portfolios based on the expected returns and the variance of returns of the portfolio. However, individual investments should be chosen on the basis of their marginal effect on the portfolio.

In this framework, individual investments have two risk components: market risk and specific (or idiosyncratic) risk. The specific risk can be diversified away by choosing the right selection of investments in the portfolio and investors cannot expect to be compensated for this risk. The market risk is the co-movement (or rather the lack thereof) of the returns of an investment

with those of a well-diversified portfolio. If the investment is more volatile than the market, investors should demand a higher return and vice versa.

Study Session: 2 - RA: 2

51. Correct answer: B

Margin payments ensure that all profits and losses are realised each day and posted as cash/securities by the losing party. This significantly reduces the chances of a credit loss due to default by any losing party.

Study Session: 2 - RA: 3

52. Correct answer: A

Although option-pricing models attempt to estimate the value of options (or to estimate whether they are undervalued/overvalued), they are not by themselves the drivers of option value (which depends on parameters like strike price, spot price, volatility, etc).

Study Session: 2 - RA: 3

53. Correct answer: D

Vega is the sensitivity of a position or portfolio to the volatility of the underlying markets. The purpose of vega hedging is to reduce this risk.

Study Session: 2 - RA: 3

54. Correct answer: C

The intrinsic value of the put option = $\max(0, \text{Exercise price} - \text{Current stock price}) = \max(0, 28 - 22) = \6 .

Study Session: 2 - RA: 3

55. Correct answer: D

Fixed rate mortgages have a large delta along with embedded optionality, which gives rise to a large gamma and vega as well. The short-term deposits on the liability side do not hedge any of these positions.

Study Session: 2 - RA: 3

56. Correct answer: A

To unwind this swap we will need to receive fixed. So we should use the bid rate.

Study Session: 2 - RA: 3

57. Correct answer: C

Forward price of gold = Spot price $\times \exp(\text{Risk-free rate} \times \text{Term of contract})$. Thus the lower limit for forward price = $300 \times \exp(3.79\% \times 180/365) = 305.66$, and the upper limit = $300 \times \exp(3.82\% \times 180/365) = 305.71$.

Since the actual price of gold futures is lower than the lower limit of the theoretically correct price, there is an arbitrage opportunity to sell gold now, invest in T-bills and buy back gold via

futures. The profit from this arbitrage = $(\$305.66/\text{oz} - \$315/\text{oz}) \times 100 \text{ oz} = \934 .

Study Session: 2 - RA: 3

58. Correct answer: B

The trader would have to post a margin of \$4,500 at the outset and would receive a margin call if the value of this margin fell to \$3,750. Thus the margin call would come when the contract lost \$750 (= \$4,500 - \$3,750) of its value. This translates in to a price level = Current price - Dollar loss/Underlying quantity = $\$3.05 - \$750 / 5,000 = \$2.90$.

Study Session: 2 - RA: 3

59. Correct answer: C

We know that a long call plus a short put replicates a forward, therefore the combination would have a delta of one.

Study Session: 2 - RA: 3

60. Correct answer: A

Futures exchanges help the producers and consumers to plan their activity and reduce their operational uncertainty.

Study Session: 2 - RA: 3

61. Correct answer: C

In return for buying this option, we paid a premium of $20 \times \$250 = \$5,000$. As the settlement level is lower than the strike we make $(1,250 - 1,235) \times 250 = \$3,750$. Subtracting the premium from the profit made at settlement, our net loss is \$1,250.

Study Session: 2 - RA: 3

62. Correct answer: A

Out of the money options have much less value than at the money and by expiration the rate of fall of their value becomes close to zero. The rate of fall in the value of at the money options is slow (i.e. theta is low) initially and then picks up as the option approaches expiration.

Note: the high theta (wasting away) of at the money options close to expiration is matched by a high gamma (that compensates the option holder for the volatility of the option price).

Study Session: 2 - RA: 3

63. Correct answer: B

The value of this forward on the settlement date = PV of difference between the domestic and foreign rates, discounted back over the period of the forward.
 = $\exp(-r \times \text{time}) \times \exp((r - r_f) \times \text{time}) \times \text{Spot rate}$
 = $\exp(-r_f \times \text{time}) \times \text{Spot rate}$.

Domestic interest rates do NOT influence the value of the forward.

Study Session: 2 - RA: 3

64. Correct answer: B

Garman-Kohlhagen model was originally developed for the valuation of currency options.

Study Session: 2 - RA: 3

65. Correct answer: B

Forward price of gold = Spot price x exp(Risk-free rate x Term of contract). Thus the lower limit for forward price = $325 \times \exp(3.55\% \times 90/365) = 327.86$, and the upper limit = $325 \times \exp(3.58\% \times 90/365) = 327.88$.

Since the actual price of gold futures is lower than the lower limit of the theoretically correct price, there is an arbitrage opportunity to sell gold now, invest in T-bills and buy back gold via futures. The profit from this arbitrage = $(\$327.86/\text{oz} - \$315/\text{oz}) \times 100 \text{ oz} = \$1,286$.

Study Session: 2 - RA: 3

66. Correct answer: B

The trader would have to post a margin of \$4,750 at the outset and would receive a margin call if the value of this margin fell to \$3,750. Thus the margin call would come when the contract lost \$1,000 (= \$4,750 - \$3,750) of its value. This translates in to a price level = Current price - Dollar loss/Underlying quantity = $\$2.25 - \$1,000 / 5,000 = \$2.05$.

Study Session: 2 - RA: 3

67. Correct answer: A

As an option approaches its expiration, the rate of decay of an option accelerates due to loss of time value.

Study Session: 2 - RA: 3

68. Correct answer: B

The trader would have to post a margin of \$4,800 at the outset and would receive a margin call if the value of this margin fell to \$3,200. Thus the margin call would come when the contract lost \$1,600 (= \$4,800 - \$3,200) of its value. This translates in to a price level = Current price - Dollar loss/Underlying quantity = $\$1.89 - \$1,600 / 5,000 = \$1.57$.

Study Session: 2 - RA: 3

69. Correct answer: B

$N(d_2)$, the multiplier of the strike price in the Black-Scholes model for a call option and represents the probability of exercise of the option.

Study Session: 2 - RA: 3

70. Correct answer: D

Forward price of gold = Spot price x exp(Risk-free rate x Term of contract). Using the upper limit of the T-bill yield the forward price = $325 \times \exp(3.78\% \times 90/365) = 328.04$.

Study Session: 2 - RA: 3

71. Correct answer: A

The Bermuda put option allows multiple opportunities to exercise. Therefore, its price must be higher than that of a European put option (which allows exercise only at maturity) but less than that of American put option (which allows exercise at any point before maturity).

Study Session: 2 - RA: 3

72. Correct answer: A

Using put call parity, Price of the put option = Price of call option - Spot price + Exercise price $\times \exp(-\text{Risk-free rate} \times \text{Term of option}) = \$18 - \$85 + \$75 \times \exp(-6\% \times 0.5) = \5.78 .

Study Session: 2 - RA: 3

73. Correct answer: B

A deep in-the-money option, with short expiry, behaves like the underlying. Hence, the delta is nearly 1.

Study Session: 2 - RA: 3

74. Correct answer: C

The intrinsic value of the put option = $\max(0, \text{Exercise price} - \text{Current stock price}) = \max(0, 28 - 22) = \6

Study Session: 2 - RA: 3

75. Correct answer: B

Margin payments ensure that all profits and losses are realized each day and posted as cash/securities by the losing party. This significantly reduces the chances of a credit loss due to default by any losing party.

Study Session: 2 - RA: 3

76. Correct answer: D

The original Black-Scholes assumes that the asset being bought does not pay any dividends. However, the underlying asset in an FX option, i.e. the foreign currency, does pay a dividend equal to the interest rate in foreign money markets.

Study Session: 2 - RA: 4

77. Correct answer: A

The breakeven 12 x 24 FRA is the one at which: $\exp(\text{Forward rate} \times 1) \times \exp(5 \times 1) = \exp(6 \times 2)$. Taking the log of both sides, $\text{Forward rate} + 5 = 6 \times 2$. Or $\text{Forward rate} = 12 - 5 = 7$.

Study Session: 2 - RA: 4

78. Correct answer: A

Usually, corporates use FRAs to lock-in the cost of borrowing in the future.

Study Session: 2 - RA: 4

79. Correct answer: A

When a market is in contango forward prices are above spot prices.

Study Session: 2 - RA: 4

80. Correct answer: B

A payer swaption gives the holder the right to pay fixed rate and receive floating rate. Selling a receiver swaption would also be a profitable strategy as it would mean receiving a premium but with a sharp rise in interest rates buying a payer swaption should be a better deal.

Study Session: 2 - RA: 4

81. Correct answer: A

The contract rate of the FRA is negotiated by the counter-parties to contract and fixed at the time of trade.

Study Session: 2 - RA: 4

82. Correct answer: C

Issuer generally issue convertible bonds with a call to limit the downside if the share price rises sharply and force their conversion.

Study Session: 2 - RA: 4

83. Correct answer: A

The convertible bond implicitly gives bondholders a call option on the underlying stock. The delta of this option will vary between 0 (when the option is extremely out of the money) and 1 (when the option is extremely in the money). In this case, the bond is trading at a conversion premium of 20% so the delta must be somewhere between zero and one, and hence the price of the convertible bond will rise by less than the price of the underlying stock.

Study Session: 2 - RA: 4

84. Correct answer: A

The swap is similar to a long position in euro denominated bond and a short position in Yen denominated bond.

Thus, decrease in euro interest rate is beneficial to a holder of a long position. Likewise, the decrease in the value of yen makes the yen denominated bond less valuable (what is beneficial for a short position).

Study Session: 2 - RA: 4

85. Correct answer: A

When the stock price is extremely low, the option to convert is likely to have little value, and the convertible bond will trade effectively as a straight bond.

Study Session: 2 - RA: 4

86. Correct answer: D

The swap is similar to a long position in a euro-denominated bond and a short position in dollar-denominated bond.

Thus, an increase in dollar interest rates is beneficial to a holder of a short position. Likewise, the rise in the value of the euro makes the long position in euro denominated bond more valuable.

Study Session: 2 - RA: 4

87. Correct answer: D

Market conversion price is the effective price that we pay for the stock when you buy it via the convertible bond. Market conversion price = market price of convertible bond / conversion ratio = $\$102.5 / 6 = \17.08 .

Study Session: 2 - RA: 4

88. Correct answer: D

Eurodollar futures are short-term interest rate derivative contracts like FRAs. Futures are used for hedging by FRA market makers. Therefore, the futures market and the FRA market are most closely related.

Study Session: 2 - RA: 4

89. Correct answer: C

Although there is some suspicion in the press about the destabilizing affect of speculators, in reality they serve the important function by injecting liquidity into the commodity markets. Without the presence of speculators, the hedgers would not always find someone to take the other side of the bargain and the prices would be much more volatile.

Study Session: 2 - RA: 4

90. Correct answer: D

The buyer of a FRA agrees to pay fixed interest and receive floating interest payments. This contract locks it into a fixed borrowing rate so that it benefits if interest rates rise.

Study Session: 2 - RA: 4

91. Correct answer: B

The underlying asset in both these contracts is a short-term deposit, whose value is strongly negatively correlated to interest rates. Thus the buyer of a Eurodollar futures contract will have negative margin account balances (due to daily mark to market) when interest rates are high and positive margin account balances when interest rates are low. This represents a loss for the buyer and a benefit for the seller, who has positive balances when rates are high and negative balances when funding rates are low.

Therefore, the price of the Eurodollar futures contract must be lower than the unbiased forward price (as implied by a forward contract on the same deposit) to compensate the buyer of the Eurodollar futures.

Study Session: 2 - RA: 4

92. Correct answer: A

The swap is equivalent to long position in dollar denominated bond and short position in euro denominated bond. $(720,000 / 1.042 + 10,720,000 / 1.042^2) - ((714,000 / 1.036 + 11,214,000 / 1.036^2) \times 0.95) = -16,299$.

Study Session: 2 - RA: 4

93. Correct answer: A

A floor is a put option. A floor is in-the-money when the reference rate falls below a strike rate.

Study Session: 2 - RA: 4

94. Correct answer: A

The holder of a payer swaption has the right to enter a swap as a fixed-rate payer and receives a floating rate. This is the same position as being short a bond, i.e. its value will fall with the fall in interest rates.

Study Session: 2 - RA: 4

95. Correct answer: C

When the stock price is extremely low, the option to convert is likely to have little value, and the convertible bond will trade effectively as a straight bond.

Study Session: 2 - RA: 4

96. Correct answer: C

The stock prices adjust downwards everytime a dividend is paid. Hence option prices need to account for the dividends.

Study Session: 2 - RA: 4

97. Correct answer: A

The underlying asset in both these contracts is a short-term deposit, whose value is strongly negatively correlated to interest rates. Thus the buyer of a Eurodollar futures contract will have negative margin account balances (due to daily mark to market) when interest rates are high and positive margin account balances when interest rates are low. This represents a loss for the buyer and a benefit for the seller, who has positive balances when rates are high and negative balances when funding rates are low.

Therefore, the price of the Eurodollar futures contract must be lower (i.e. rate must be higher) than the unbiased forward price (as implied by a forward contract on the same deposit) to compensate the buyer of the Eurodollar futures.

In this case the Forward deposit rate = Eurodollar futures rate - Variance of short-term rates x Time to the start of the contract x Time to the end of the contract / 2.

Study Session: 2 - RA: 4

98. Correct answer: C

The seller of a FRA agrees to receive fixed interest and pay floating interest payments. This is

effectively a fixed deposit rise in value if interest rates fall.

Study Session: 2 - RA: 4

99. Correct answer: B

When a market is in backwardation, forward prices are below spot prices.

Study Session: 2 - RA: 4

100. Correct answer: D

Swaps allow corporate hedgers to adjust their risk profiles far easier and at a lower cost than capital market transactions. Moreover, swaps being used for hedging purposes can be held off balance sheet in most jurisdictions.

Study Session: 2 - RA: 4

101. Correct answer: D

All these statements have been observed to be true. Study Session: 2 - RA: 5

102. Correct answer: D

Political risks and liquidity risk are more important in emerging markets than in G7 markets.

Study Session: 2 - RA: 5

103. Correct answer: D

Given the lax regulation in many emerging markets, the chance of price manipulation is higher. Study Session: 2 - RA: 5

104. Correct answer: A

Some emerging markets have paper-based settlement of transactions. Study Session: 2 - RA: 5

105. Correct answer: D

Each of these above statements is applicable to some emerging economy or other. Study Session: 2 - RA: 5

106. Correct answer: B

A currency crisis can be triggered by heavy dependence on foreign capital. For a given level of investment needs of the economy, a high domestic savings rate reduces the chances of currency crisis. Study Session: 2 - RA: 5

107. Correct answer: D

All these statements have been observed to be true. Study Session: 2 - RA: 5

108. Correct answer: D

Political risks and liquidity risk are more important in emerging markets than in G7 markets.

Study Session: 2 - RA: 5

109. Correct answer: D

All these factors are important for assessing emerging market risks. Study Session: 2 - RA: 5

110. Correct answer: B

A currency crisis can be triggered by heavy dependence on foreign capital. For a given level of investment needs of the economy, a high domestic savings rate reduces the chances of currency crisis. Study Session: 2 - RA: 5

111. Correct answer: A

It is risky to buy when the crisis is underway. Also, the trading volumes do not improve for sometime after the crisis ends. Study Session: 2 - RA: 5

112. Correct answer: B

The major difference between the factor analysis and the PCA techniques is: the user defines the factors in factor analysis, while in the PCA the statistical techniques "create" the components of the returns. Study Session: 2 - RA: 6

113. Correct answer: D

The factor analysis does not require any assumption about the distribution of the returns. The ways in which the results of this technique are used determine the requirement of assumption about the distribution of returns. Study Session: 2 - RA: 6

114. Correct answer: B

Mutual funds are usually not allowed to borrow any funds. As a result their assets are equal to the funds invested by their customers (which implies a leverage of one).

Study Session: 2 - RA: 6

115. Correct answer: D

The factor analysis does not require any assumption about the distribution of the returns. The ways in which the results of this technique are used determine the requirement of assumption about the distribution of returns. Study Session: 2 - RA: 6

116. Correct answer: C

Since this is a hedged portfolio, the first few risk components may not explain a sufficient amount of variation, requiring the user to select a large number of the components. This will increase the complexities of the calculations. Study Session: 2 - RA: 6

117. Correct answer: A

Since the portfolio is hedged for the changes in the spot price and the changes in the volatility, interest rates should be given the highest risk weights for this analysis. Study Session: 2 - RA: 6

118. Correct answer: A

Duration is indeed an additive measure and this is a strong point in its favor for qualifying as a risk measure. The other two choices are the shortcomings of a duration measure. Study Session: 2 - RA: 6

119. Correct answer: C

All of these measures except alpha can be used a proxy for the underlying risk. Alpha is a measure of excess return of a stock or a portfolio (over what is justified by its level of risk). Study Session: 2 - RA: 6

120. Correct answer: B

If the factors are defined carefully the factor analysis will have small residual term. Study Session: 2 - RA: 6

121. Correct answer: D

It is not possible to comment on interest rate exposure without actually studying the balance sheet of the firm. Although the bank is a likely candidate; it could have hedged its exposures, while an engineering company might have undertaken a large exposure in the derivatives market.

Study Session: 2 - RA: 6

122. Correct answer: D

A large portion of the liabilities of a typical retail bank consist of demand deposits and other short term deposits. Whilst its assets consist of longer loans and bonds.

Study Session: 2 - RA: 6

123. Correct answer: A

When the risk manager produces a summary measure of risk, such as delta, they are willing to sacrifice some accuracy to reduce the complexity of a large portfolio and/or to save on the computational resources. Hence, a risk measure such as delta does not improve the accuracy of the risk measure. Study Session: 2 - RA: 6

124. Correct answer: C

If the hedging were to be precise, the portfolio would not have shown any significant sensitivity to spot price. However, the portfolio is highly sensitive to spot price. This leads us to conclude that the hedging is imperfect or ineffective. Study Session: 2 - RA: 6

125. Correct answer: D

Fixed rate mortgages have a large Delta along with embedded optionality which gives rise to a large Gamma and Vega as well. The short term deposits on the liability side do not hedge any of this positions.

Study Session: 2 - RA: 6

126. Correct answer: A

Financial leases used to purchase aircraft is the single largest interest rates sensitive item in the balance sheet of a typical airline.

Study Session: 2 - RA: 6

127. Correct answer: D

Above a threshold level (determined by operating costs) value of this firm is directly proportional to the price of gold; and below it the value is zero. This profile matches the payoff from owning gold options.

Study Session: 2 - RA: 6

128. Correct answer: D

Eigenvalues refer to the variance of i th principal component. It can be interpreted as the contribution of i th component to the total risk. Study Session: 2 - RA: 6

129. Correct answer: B

Given the rates of 4.15% and 5.38%, the dollar durations of the 5-year and 10-year par swaps are approximately 4.433 and 7.581. The trader has a short position on the first swap and a long position on the second swap.

First swap DVBP = \$420 million \times 4.433 \times 0.0001 = \$186,186.

Second swap DVBP = -\$385 million \times 7.581 \times 0.0001 = -\$291,868.5.

Net DVBP position = 186,186 + -291,868.5 = -105,682.5.

Thus the trader has a net long position on interest rates (-ve duration is long and +ve duration is short), and needs to sell the futures. The DVBP on a Eurodollar future is \$25. Therefore, the number of contracts that need to be sold are 105,682.5 / 25 = 4,227.

Study Session: 2 - RA: 7

130. Correct answer: D

SMC has the flexibility to work with different market and pricing models. Hence model risk can be measured.

Study Session: 2 - RA: 7

131. Correct answer: B

The main drawbacks of the delta-normal VaR approach are:

it does not account for nonlinearities,

it may also not account for large negative observations when it relies on normal distribution (need to correct for "fat tails").

These problems may cause the VaR to be underestimated.

The main advantage of the delta-normal approach is its simplicity of calculation, implementation and communication.

Study Session: 2 - RA: 7

132. Correct answer: D

Overnight 95% level VaR means that we can expect to lose at the most \$1 million on 95 days out of a 100, and on the remaining 5 days out of a 100 lose at least \$1 million.

Study Session: 2 - RA: 7

133. Correct answer: C

Step 1. Current return = $\ln(18/20) = -10.536\%$.

Step 2. Using an EWMA model, the updated volatility is given as:

$$V[t] = \{\lambda \times V[t-1]^2 + (1 - \lambda) \times \text{current return}^2\}^{0.5}$$

$$= \{0.9 \times 0.015^2 + (1 - 0.9) \times (-0.10536)^2\}^{0.5} = 3.623\%$$

Study Session: 2 - RA: 7

134. Correct answer: A

The lower the correlation, the higher the diversification benefit.

Study Session: 2 - RA: 7

135. Correct answer: B

The formulation for the Cholesky decomposition for a 3x3 matrix is shown on the right. By comparing the product matrix we work through the following steps

$x_{11}^2 = 0.0018$, so $x_{11} = 0.042$.

$x_{11} * x_{12} = 0.001$, so $x_{12} = 0.024$.

$x_{21} = 0$ (since this is an upper triangular matrix)

$x_{12}^2 + x_{22}^2 = 0.0018$, so $x_{22} = 0.035$.

The remaining elements are shown in the resulting matrix on the right.

Study Session: 2 - RA: 7

$$\begin{bmatrix} x_{11} & 0 & 0 \\ x_{12} & x_{22} & 0 \\ x_{13} & x_{23} & x_{33} \end{bmatrix} \begin{bmatrix} x_{11} & x_{12} & x_{13} \\ 0 & x_{22} & x_{23} \\ 0 & 0 & x_{33} \end{bmatrix}$$

$$\begin{bmatrix} x_{11} & x_{11}x_{12} & x_{11}x_{13} \\ x_{11}x_{12} & x_{11}^2 + x_{22}^2 & x_{12}x_{13} + x_{22}x_{23} \\ x_{11}x_{13} & x_{12}x_{13} + x_{22}x_{23} & x_{13}^2 + x_{23}^2 + x_{33}^2 \end{bmatrix}$$

$$= \Sigma = XX' = \begin{bmatrix} 0.18\% & 0.10\% & 0.05\% \\ 0.10\% & 0.18\% & 0.10\% \\ 0.05\% & 0.10\% & 0.18\% \end{bmatrix}$$

Solving for the elements we get,

$$X = \begin{bmatrix} 4.2\% & 2.4\% & 1.2\% \\ 0 & 3.5\% & 2.0\% \\ 0 & 0 & 3.5\% \end{bmatrix}$$

136. Correct answer: C

There are several methods of calculating VaR and each of these requires several assumptions that may vary from one firm to another. This makes it difficult to compare VaR estimates across banks.

Study Session: 2 - RA: 7

137. Correct answer: A

Stress testing provides a useful reality check for the VaR estimate. It involves calculating the value of the portfolio under extreme, but probable, market scenarios.

Study Session: 2 - RA: 7

138. Correct answer: D

The VaR of the combined portfolio can range from 300 (=500-200) to 700 (=500+200)

depending on the correlation between the portfolios.

Study Session: 2 - RA: 7

139. Correct answer: D

The formulation for the Cholesky decomposition for a 3x3 matrix is shown on the right. By comparing the product matrix we work through the following steps

$x_{11}^2 = 0.0036$, so $x_{11} = 0.06$.
 $x_{11} * x_{12} = 0.001$, so $x_{12} = 0.017$.
 $x_{21} = 0$ (since this is an upper triangular matrix)
 $x_{12}^2 + x_{22}^2 = 0.0025$, so $x_{22} = 0.047$.

The remaining elements are shown in the resulting matrix on the right.

Study Session: 2 - RA: 7

$$\begin{bmatrix} x_{11} & 0 & 0 \\ x_{12} & x_{22} & 0 \\ x_{13} & x_{23} & x_{33} \end{bmatrix} \begin{bmatrix} x_{11} & x_{12} & x_{13} \\ 0 & x_{22} & x_{23} \\ 0 & 0 & x_{33} \end{bmatrix}$$

$$\begin{bmatrix} x_{11} & x_{11}x_{12} & x_{11}x_{13} \\ x_{11}x_{12} & x_{11}^2 + x_{22}^2 & x_{11}x_{13} + x_{22}x_{23} \\ x_{11}x_{13} & x_{11}x_{23} + x_{22}x_{23} & x_{11}^2 + x_{23}^2 + x_{33}^2 \end{bmatrix}$$

$$= \Sigma = XX' = \begin{bmatrix} 0.36\% & 0.10\% & 0.06\% \\ 0.10\% & 0.25\% & 0.09\% \\ 0.06\% & 0.09\% & 0.12\% \end{bmatrix}$$

Solving for the elements we get,

$$X = \begin{bmatrix} 6.0\% & 1.7\% & 1.0\% \\ 0 & 4.7\% & 1.6\% \\ 0 & 0 & 2.9\% \end{bmatrix}$$

140. Correct answer: B

$VaR = \text{Annual expected return} \times \text{Time period} - \text{Alpha} \times \text{Volatility} \times (\text{Time period})^{0.5} = 16\% \times 0.25 - 1.65 \times 18\% \times 0.25^{0.5} = 4\% - 14.85\% = -10.85\%$

Study Session: 2 - RA: 7

141. Correct answer: B

The formulation for the Cholesky decomposition for a 3x3 matrix is shown on the right. By comparing the product matrix we work through the following steps

$x_{11}^2 = 0.0066$, so $x_{11} = 0.081$.
 $x_{11} * x_{12} = 0.0004$, so $x_{12} = 0.005$.
 $x_{21} = 0$ (since this is an upper triangular matrix)
 $x_{12}^2 + x_{22}^2 = 0.0015$, so $x_{22} = 0.038$.

The remaining elements are shown in

the resulting matrix on the right.

Study Session: 2 - RA: 7

$$\begin{bmatrix} X_{11} & 0 & 0 \\ X_{12} & X_{22} & 0 \\ X_{13} & X_{23} & X_{33} \end{bmatrix} \begin{bmatrix} X_{11} & X_{12} & X_{13} \\ 0 & X_{22} & X_{23} \\ 0 & 0 & X_{33} \end{bmatrix}$$

$$\begin{bmatrix} X_{11} & X_{11}X_{12} & X_{11}X_{13} \\ X_{11}X_{12} & X_{11}^2 + X_{22}^2 & X_{12}X_{13} + X_{22}X_{23} \\ X_{11}X_{13} & X_{12}X_{13} + X_{22}X_{23} & X_{13}^2 + X_{23}^2 + X_{33}^2 \end{bmatrix}$$

$$= \Sigma = XX' = \begin{bmatrix} 0.66\% & 0.04\% & 0.06\% \\ 0.04\% & 0.15\% & 0.08\% \\ 0.06\% & 0.08\% & 0.09\% \end{bmatrix}$$

Solving for the elements we get,

$$X = \begin{bmatrix} 8.1\% & 0.5\% & 0.7\% \\ 0 & 3.8\% & 2.0\% \\ 0 & 0 & 2.1\% \end{bmatrix}$$

142. Correct answer: B

The undiversifiable part of risk is called market risk and the diversifiable part is called specific risk.

Study Session: 2 - RA: 7

143. Correct answer: B

Variance covariance is based on the assumption that risks are linear with respect to the underlying prices, which is clearly not the case with options. Delta gamma method partially corrects for this error by including the gamma (convexity due to optionality), while the simulation approaches involve full valuation and hence include the risks due to optionality.

Study Session: 2 - RA: 7

144. Correct answer: A

The delta normal expresses VaR as a closed form solution / function of underlying parameters (volatilities and correlation). Therefore, it best described as an analytical (or parametric) method for the estimation of linear VaR (i.e. it only accounts for the first order sensitivity of the value of a portfolio to the underlying).

Study Session: 2 - RA: 7

145. Correct answer: A

GARCH is a method to predict volatility.

Study Session: 2 - RA: 7

146. Correct answer: C

In order to benefit from long convexity in a hedged position, you want to be in a very volatile market, with stable correlations. If any of the two conditions are not met, your expected profits will not be achieved.

Study Session: 2 - RA: 7

147. Correct answer: D

All of the above are alternative names for the measure of the expected value of the loss when it exceeds VaR.

Study Session: 2 - RA: 7

148. Correct answer: A

The delta normal expresses VaR as a closed form solution/ function of underlying parameters (volatilities and correlation). Therefore, it best described as an analytical (or parametric) method for the estimation of linear VaR (i.e. it only accounts for the first order sensitivity of the value of a portfolio to the underlying).

Study Session: 2 - RA: 7

149. Correct answer: C

Implied data from options prices is the most forward-looking estimation of vols and correlations.

Study Session: 2 - RA: 7

150. Correct answer: D

A 95% confidence level requires a volatility multiple (alpha) of 1.65 while 99% confidence level requires a multiple of 2.33. Since VaR is directly proportional to this multiple, the 99% confidence level VaR = $18.2 \times 2.33 / 1.65 = 25.7$

Study Session: 2 - RA: 7

151. Correct answer: B

RiskMetrics in the EWMA model uses 0.94 as a decay factor for daily data and 0.97 for monthly data. The decay factor represents the weights used for previous observations and it is always less than one.

Study Session: 2 - RA: 7

152. Correct answer: D

The VaR of the combined portfolio is the sum of the individual VaRs minus any diversification benefits, i.e. equal to or less than 600.

Note: if the diversification benefits are large enough, the VaR could even be lower than 200.

Study Session: 2 - RA: 7

153. Correct answer: B

This is standard definition of VAR, reworded slightly.

Study Session: 2 - RA: 7

154. Correct answer: B

The number of contracts required = Beta x Value of portfolio / (Futures multiple x Futures price) = $1.2 \times 85 \text{ million} / (1,444 \times 250) = 282.5$

Study Session: 2 - RA: 8

155. Correct answer: D

The given information relates to absolute VAR. We need to compare tracking error VAR, so the information given is insufficient.

Study Session: 2 - RA: 8

156. Correct answer: D

The holder of callable bonds is short a call option, so it will have to buy a swaption to hedge this position. It needs to buy a receiver option that will help it to fix the rate of reinvesting the proceeds in case the bonds are called.

Note: from an interest rate perspective, the short call option creates a short position on the underlying bond and a owning a receiver swaption neutralizes this with a long position on bonds.

Study Session: 2 - RA: 8

157. Correct answer: B

The cash flow from the hedged position is simply equal to the change in the futures position = Number of contracts x Value per point x Point change in futures level = $25 \times \$250 \times 50 = \$312,500$.

Study Session: 2 - RA: 8

158. Correct answer: B

Hedging creates transaction costs, so reducing transaction costs cannot be one of the objectives of hedging.

Study Session: 2 - RA: 8

159. Correct answer: C

Optimal hedge ratio = Volatility of pesos / Volatility of dollars x Correlation = $18\% / 10\% \times 0.65 = 1.17$

Study Session: 2 - RA: 8

160. Correct answer: C

The volatility of the hedged portfolio can be computed with the formula:

$$\begin{aligned}\text{Hedged portfolio volatility} &= \text{Portfolio volatility} \times (1 - R^2)^{0.5} \\ &= 0.15 \times (1 - 0.9^2)^{0.5} \\ &= 0.15 \times 0.44 = 0.066 = 6.6\%.\end{aligned}$$

The volatility of the hedged portfolio would equal that of the original portfolio when the correlation between the two is 0 (no hedging benefits).

Study Session: 2 - RA: 8

161. Correct answer: C

Duration hedging relies on interest rates changing by small amounts. Large jumps in interest rates require hedging the gamma of the portfolio and changes in volatility require hedging the vega.

Duration hedging also assumes that the duration of the securities and contracts will not change (this is reasonable if the interest rate changes are small). Also, since the underlying securities and the hedges may have different durations, this scheme also relies on the yield curve moving in parallel shifts (rather than twisting and turning).

Study Session: 2 - RA: 8

162. Correct answer: D

The pay yen - receive euro currency swap will convert the euro coupons into yen coupons.

Study Session: 2 - RA: 8

163. Correct answer: A

Since the correlation is one, the hedge can be adjusted to account for the differences in volatility. However, a mismatch of maturities will still create a basis risk.

Study Session: 2 - RA: 8

164. Correct answer: B

Duration hedging relies on interest rates changing by small amounts. Large jumps in interest rates require hedging the gamma of the portfolio and changes in volatility require hedging the vega.

Duration hedging also assumes that the duration of the securities and contracts will not change (this is reasonable if the interest rate changes are small). Also, since the underlying securities and the hedges may have different durations, this scheme also relies on the yield curve moving in parallel shifts (rather than twisting and turning).

Study Session: 2 - RA: 8

165. Correct answer: B

$$\text{Optimal hedge ratio} = \text{Spot volatility} \times \text{Correlation} / \text{Futures volatility} = 40\% \times 0.6 / 25\% = 0.96.$$

Study Session: 2 - RA: 8

166. Correct answer: B

Duration hedging relies on interest rates changing by small amounts. Large jumps in interest rates require hedging the gamma of the portfolio and changes in volatility require hedging the vega.

Duration hedging also assumes that the duration of the securities and contracts will not change (this is reasonable if the interest rate changes are small). Also, since the underlying securities and the hedges may have different durations, this scheme also relies on the yield curve moving in parallel shifts (rather than twisting and turning).

Study Session: 2 - RA: 8

167. Correct answer: B

Variance portfolio = $(w_A \times \text{vol}_A)^2 + (w_B \times \text{vol}_B)^2 + 2 \times w_A \times w_B \times \text{correlation} \times \text{vol}_A \times \text{vol}_B$.
Portfolio Variance is $25\%^2$. $w_A = w_B = .5$, input vol_A and vol_B and solve for correlation.

Note: The portfolio volatility is a simple arithmetic weighted average of the two asset's volatility. By default, the correlation is 1, you need not solve the equation.

Study Session: 2 - RA: 8

168. Correct answer: B

The no-arbitrage condition requires that: $F = S \times (1 + C)$. In this case, the futures price (F) is \$290. But the spot price (S) plus the cost of carry ($S \times C$) is \$296.40 [= $\$285 \times (1 + 4\%)$].

To exploit this arbitrage the trader would:

Buy gold futures at \$290
Short sell gold in the spot market at \$285.00
Deposit the proceeds for one year to earn \$11.40.
Thus the net profit = $\$285 + \$11.40 - \$290 = \6.40 .

Study Session: 2 - RA: 8

169. Correct answer: B

Stress testing ignores correlations and will lead to overestimation of risk. Delta Normal will ignore positive convexity and will also lead to overestimation. Simulation VAR can account for correlation risk and convexity in an explicit manner and would be most accurate in this situation.

Study Session: 2 - RA: 8

170. Correct answer: B

Given the rates of 4.75% and 5.15%, the dollar durations of the 5-year and 10-year par swaps are approximately 4.36 and 7.66. Therefore, the trader has the following DVBP positions
First swap DVBP = $\$200 \text{ million} \times 4.36 \times 0.0001 = \$87,200$.
Second swap DVBP = $\$100 \text{ million} \times 7.66 \times 0.0001 = \$-76,600$.
Net DVBP position = $87,200 + -76,600 = 10,600$.

Since the trader has a short position, he needs to buy the futures. The DVBP or a Eurodollar future is \$25. Therefore the number of contracts required = $10,600 / 25 = 424$.

Study Session: 2 - RA: 8

171. Correct answer: C

First, we need to compute tracking error VAR only. Second, for simple portfolios delta normal approach is sufficient.

Study Session: 2 - RA: 8

172. Correct answer: C

Each T-bill future has a notional amount of \$1 million and a term of 3-months. To hedge one-year US Treasury Bills, a trader would have to sell 100 contracts for each of the four quarters remaining for the maturity of the T-bills being held.

Study Session: 2 - RA: 8

173. Correct answer: A

Variance of portfolio = $(w_A \times \text{vol}_A)^2 + (w_B \times \text{vol}_B)^2 + 2 \times w_A \times w_B \times \text{correlation} \times \text{vol}_A \times \text{vol}_B$. Portfolio Variance is $18\%^2$. $w_A = w_B = .5$, input vol_A and vol_B and solve for correlation.

Note: the portfolio volatility is lower than the lowest of the two assets' volatility, so the second choice can be ruled out.

Study Session: 2 - RA: 8

174. Correct answer: A

Optimal hedge ratio = Spot volatility x Correlation / Futures volatility = $45\% \times 0.45 / 55\% = 0.37$.

Study Session: 2 - RA: 8

175. Correct answer: A

Variance of portfolio = $(w_A \times \text{vol}_A)^2 + (w_B \times \text{vol}_B)^2 + 2 \times w_A \times w_B \times \text{correlation} \times \text{vol}_A \times \text{vol}_B$. This equation will have the lowest value at $w_A = w_B$, when $\text{vol}_A = \text{vol}_B$ for any correlation.

Study Session: 2 - RA: 8

176. Correct answer: D

Duration hedging relies on interest rates changing by small amounts. Large jumps in interest rates require hedging the gamma of the portfolio and changes in volatility require hedging the vega.

Duration hedging also assumes that the duration of the securities and contracts will not change (this is reasonable if the interest rate changes are small). Also, since the underlying securities and the hedges may have different durations, this scheme also relies on the yield curve moving in parallel shifts (rather than twisting and turning).

Study Session: 2 - RA: 8

177. Correct answer: C

Without the hedge, a 1 bp (0.01%) fall in interest rates would cause the value of the Treasury

Bill (with a nominal value of \$30m) to increase by \$3,000. Since the trader is short, he would end up losing \$3,000 ($= 30m \times 0.0001 \times 1.0$). Therefore, he needs to construct a hedge that earns him \$3,000 for a 1 bp fall in interest rates, i.e. he needs to go long the futures.

Since the value of a basis point on the 3-month LIBOR Eurodollar Futures contract is \$25, the trader needs to buy $= \$3,000 / \$25 = 120$ contracts.

Study Session: 2 - RA: 8

178. Correct answer: C

The number of contracts required $= \text{Beta} \times \text{Value of portfolio} / (\text{Futures multiple} \times \text{Futures price}) = 1.4 \times 40 \text{ million} / (1,260 \times 250) = 177.8$

Study Session: 2 - RA: 8

179. Correct answer: B

During a period of international crisis, the financial markets tend to drop and recover together, i.e. correlations rise.

Study Session: 2 - RA: 9

180. Correct answer: B

LTCM was a classic example of a meltdown caused by excess leverage. This was a hedge fund that in some cases had taken a leverage of 100 to 1 to arbitrage what it saw as market anomalies in securities pricing. It actually employed a lot of experts, including Nobel Laureates, and used very sophisticated risk management tools. However, on the occasion that the some market anomalies did not correct themselves the fund collapsed with losses higher than its equity.

Study Session: 2 - RA: 9

181. Correct answer: D

All of these indicate a stress situation in the market. Study Session: 2 - RA: 9

182. Correct answer: D

Since the VAR is the minimum loss in the worst case, it fails to tell us what losses to expect once the VAR threshold is breached. This is reason a VAR system should be supported by a Stress Testing system. Stress Testing allows the user to the expected losses in worst cases. Study Session: 2 - RA: 9

183. Correct answer: C

Extreme market movements tend to increases the correlation between assets, e.g. all stocks tend to rise together in major bull runs and fall together during stock market crashes.

Study Session: 2 - RA: 9

184. Correct answer: C

Catastrophic losses mostly occur due to a general inadequacy of the organizational structure rather than any flaws in data or calculations.

Study Session: 2 - RA: 9

185. Correct answer: B

Stress testing ignores correlations among assets. Hence it is not required.

Study Session: 2 - RA: 9

186. Correct answer: B

During adverse market environments, the correlations between asset types and markets tend to increase. This decreases the diversification benefits in the portfolio and increases the VaR.

Study Session: 2 - RA: 9

187. Correct answer: C

VAR does give a dollar value of the loss and is often more accurate than stress testing. However, the value of stress testing lies in the evaluation of scenarios which are likely to occur rarely. For example, if we already measure the 99% VAR, stress testing can help to estimate the loss that is likely to occur for the scenarios that occur less than 1% of the time.

Study Session: 2 - RA: 9

188. Correct answer: D

If the correlations are unstable, it is better to ignore them and employ stress testing.

Study Session: 2 - RA: 9

189. Correct answer: D

Stress testing involves moving the market variables far away from current levels and seeing the impact. If the maximum losses occur when markets are stable, this approach will fail to show satisfactory results.

Study Session: 2 - RA: 9

190. Correct answer: C

In the order of decreasing liquidity: on the run treasuries, AA+ corporate bonds, junk bonds, medium-term notes (MTNs).

Study Session: 2 - RA: 10

191. Correct answer: C

The delta of barrier options moves wildly around the barrier, requiring the need to trade in large quantities. Also, the traders have "incentive" to trigger knockout barriers, leading to attempts to move markets at an "illiquid" time of the day.

Study Session: 2 - RA: 10

192. Correct answer: A

Balance sheet liquidity refers to the ability to meet financial obligations as they arise, and can be best managed by investing cash in securities that can be liquidated easily when the need for

cash arises.

Futures and options are useful for managing market risk, while a cash reserve is merely an accounting entry and does nothing to alleviate liquidity risk.

Study Session: 2 - RA: 10

193. Correct answer: C

The best definition of an illiquid investment is that it is not traded actively, i.e. does not have a lot of active buyers and sellers in the market. Hence trying to buy or sell such an investment can be difficult and can lead to significant shifts in the underlying price.

Study Session: 2 - RA: 10

194. Correct answer: C

Balance sheet liquidity refers to the ability to meet cash needs with the available cash, marketable securities and existing credit lines, i.e. the ability to avoid running out of cash.

Study Session: 2 - RA: 10

195. Correct answer: D

Balance sheet liquidity refers to the ability to meet financial obligations as they arise, and can be best managed by investing cash in securities that can be liquidated easily when the cash is required.

Futures and options are useful for managing market risk, while a cash reserve is merely an accounting entry and does nothing to alleviate liquidity risk.

Study Session: 2 - RA: 10

196. Correct answer: C

The first choice is definition of impact costs. The second choice represents the fact that the delta of this option falls to zero once barrier is crossed, requiring the writer of the option to sell below the barrier. Some option writers may start selling when the price is just above the barrier, hoping that their aggressive selling will trigger the barrier. This is one of the few instances where a party is happy to pay for the liquidity. Study Session: 2 - RA: 10

197. Correct answer: C

Liquidity risk is the most prominent form of risk when emerging markets securities are involved.

Study Session: 2 - RA: 10

198. Correct answer: D

Minimum credit rating refers to credit risk, while VAR and portfolio duration refer to interest rate risk.

Study Session: 2 - RA: 10

199. Correct answer: B

The lack of liquidity is most likely to widen bid offer spreads. It may also depress prices and

increase volatility, but this is less dependable.

Study Session: 2 - RA: 10

200. Correct answer: D

Since it is difficult to store electricity and also to increase production at short notice, any small increases in demand may result in large temporary spikes in the spot electricity prices. This happens because at short-term full capacity there are no offers above the current offer. Study Session: 2 - RA: 10

201. Correct answer: D

All of these contracts are interest rate products and are unsuitable for hedging the liquidity risk faced by the bank. A possible hedge for this risk could be an open line of credit from other banks.

Study Session: 2 - RA: 11

202. Correct answer: D

In constant tax regime, the income is taxed at a constant rate, irrespective of the level of income. Hence it does not matter if the company hedges the risks or not. We are ignoring the transaction costs involved in hedging. If we consider the transaction costs, then the company should not hedge. Study Session: 2 - RA: 11

203. Correct answer: D

With fixed rate liabilities the firm has nothing to fear from rising rates.

Study Session: 2 - RA: 11

204. Correct answer: C

Under progressive taxes, the higher income is taxed at higher rates; thus, it makes sense to reduce the volatility of the income (while keeping the mean somewhat constant), reducing the chances of attracting higher tax rates. Study Session: 2 - RA: 11

205. Correct answer: D

The rational profit maximizing behavior of the economic agents should ensure that all of these statements are true. Otherwise, we have arbitrage opportunities. Study Session: 2 - RA: 11

206. Correct answer: D

It is not possible to advise this firm without further information about its asset and liabilities and its view on the future course of the markets.

Study Session: 2 - RA: 11

207. Correct answer: D

Hedging a short bond position requires that the treasurer buy futures.

Study Session: 2 - RA: 11

208. Correct answer: D

All these methods can be alternatively used to measure corporate Cash-Flow at Risk.Study Session: 2 - RA: 11

209. Correct answer: C

If a business does not hedge its risks, the other stakeholders (employees, creditors) might get worried that the company may go bust, and require a risk-premium for dealing with this company.Study Session: 2 - RA: 11

210. Correct answer: C

In a regressive tax regime, it is good to have volatility in earnings, as the higher income is taxed at lower rates. Hence it does not make sense to hedge the risks.Study Session: 2 - RA: 11

211. Correct answer: D

Hedging a 3 year position with futures carries the risk that the long term rates may move differently from the short term rates (LIBOR) that the futures track. Gamma is also a source of risk but it is relatively smaller than the basis risk.

Study Session: 2 - RA: 11

212. Correct answer: D

All of the above are potential costs of bankruptcy.Study Session: 2 - RA: 11

213. Correct answer: B

An FX swap would provide the investor with foreign currency to buy the expertise and simultaneously lock the rate at which it could repatriate the returns.

Study Session: 2 - RA: 11

214. Correct answer: D

All of these statements are TRUE.Study Session: 2 - RA: 11

215. Correct answer: A

Buying shares in Golden Mining and selling the gold future creates pure exposure to its management. (Selling shares in another mining firm instead of futures creates short position on that firm's management)

Study Session: 2 - RA: 11

216. Correct answer: B

Swapping the loans is probably the quickest and cheapest method of hedging this banks risk. The other alternatives require capital markets operations and are likely to be lengthy; expensive and impractical.

Study Session: 2 - RA: 11

217. Correct answer: B

It is not possible to state that the cost of acquiring non-public information would always be lower than the expected profits from use of that information. If this were true, all insider trades

must have resulted in profits. Study Session: 2 - RA: 11

218. Correct answer: C

Both statements, although seemingly contradictory, suggest two separate and valid approaches to running regressions for analysis of historical data. If we want to know the risk factors for each business, we need to look at disaggregated data. This gives us idea of how to manage that business. However, in order to hedge the risks, we need to account for natural hedges present in the current portfolio of businesses. Hence, the second approach is also required. Study Session: 2 - RA: 11

219. Correct answer: B

The mortgages give this S & L a long position on interest rates and a short position on volatility. These positions can be best hedged by buying payer swaptions, which have exactly opposite positions.

Study Session: 2 - RA: 11

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