

1. A standard synthetic CDO (basket credit default swap) references a portfolio of ten (10) individual corporate names. Assume the following:
  - The total reference notional (basket notional) is X, and the term is Y years
  - The reference notional per individual reference credit name is  $X/10$  (i.e. equal weight per name)
  - The default correlations between the individual reference credit names are all equal to one (1.0)
  - The single-name credit default swap (CDS) spread for each individual reference credit name is 100 basis points, for a term of Y years
  - The assumed recovery rate on default for all individual reference credits is zero in all cases
  - The synthetic CDO comprises two tranches, a 50% junior tranche priced at a spread J, and a 50% senior tranche priced at spread S

All else held constant, if the default correlations between the individual references credit names are reduced from 1.0 to 0.7, what is the effect on the relationship between the junior tranche spread J and the senior tranche spread S?

- I. The relationship remains the same
  - II. S increases relative to J
  - III. J increases relative to S
  - IV. The effect cannot be determined given the data supplied
2. An investor holds a portfolio of USD 100 million. This portfolio consists of A-rated bonds (USD 40 million) and BBB-rated bonds (USD 60 million). Assume that the one-year probabilities of default for A-rated and BBB-rated bonds are 3 and 5 percent, respectively, and that they are independent. If the recovery value for A-rated bonds in the event of default is 70 percent and the recovery value for BBB-rated bonds is 45 percent, what is the one-year expected credit loss from this portfolio?
    - a. USD 1,672,000
    - b. USD 1,842,000
    - c. USD 2,010,000
    - d. USD 2,218,000
  3. The zero coupon bond of an A-rated company maturing in five years is trading at a spread of 1% over the zero-coupon bond of a AAA-rated company maturing at the same time. The spread can be explained by:
    - I. Credit Risk
    - II. Liquidity Risk
    - III. Tax differential
      - a. I only
      - b. I and II only
      - c. I and III only
      - d. I, II, and III

4. Bank A, which is AAA rated, trades a 10-year interest rate swap (semi-annual payments) with Bank B, which is rated A-. Because of Bank B's poor credit rating, Bank A is concerned about the 10-year exposure it is going to run because of the swap deal. Which of the following measures help mitigate Bank A's credit exposure to Bank B?
- I. Negotiate a CSA with Bank B and efficiently manage the collateral management system
  - II. Execute the swap deal as a reset swap wherein the swap will be marked to market every six months
  - III. Execute the swap deal with a break clause in the fifth year
  - IV. Decrease the frequency of coupon payments from semi-annual to annual
- a. I only
  - b. IV only
  - c. I, II, III and IV
  - d. I, II and III
5. Which of the following credit risk models in Basel II attempts to recognize diversification effects through a granularity adjustment?
- a. Standardized approach based on external credit ratings provided by external credit assessment institutions
  - b. Standardized approach based on internal portfolio credit risk model
  - c. Internal Rating Based approach using internal estimate of creditworthiness, subject to regulatory standards
  - d. All of the above

6. Which of the following loans has the lowest credit risk?

<i>Loan</i>	<i>1 Year PD</i>	<i>LGD</i>	<i>Remaining Term</i>
<i>A</i>	<i>1.99%</i>	<i>60%</i>	<i>3</i>
<i>B</i>	<i>0.90%</i>	<i>70%</i>	<i>9</i>
<i>C</i>	<i>1.00%</i>	<i>75%</i>	<i>6</i>
<i>D</i>	<i>0.75%</i>	<i>50%</i>	<i>12</i>

7. Which of the following is **NOT** a limitation of KMV's Estimated Default Frequency (EDF) model?
- a. It is difficult to price sovereign credit risk since asset values and volatility are not directly observable
  - b. EDFs are biased by periods of high or low defaults
  - c. Takes a simplified view of the capital structure of a firm
  - d. The model often fails to explain real world credit spreads
8. The KMV model measures the normalized "distance from default". How is this defined?

- a.  $(\text{Expected Assets} - \text{Weighted Debt}) / (\text{Volatility of assets})$
  - b.  $\text{Equity} / (\text{Volatility of equity})$
  - c. Probability of stock price falling below a threshold
  - d.  $\text{Leverage} \times \text{Stock Price Volatility}$
9. Which of the following would **NOT** generally decrease credit risk?
- a. Entering into an interest-rate swap with a counterparty
  - b. Signing a legally-binding netting agreement covering a portfolio of OTC derivative trades with a counterparty
  - c. Clearing an existing trade through a clearing house
  - d. Purchasing a credit derivative from a AAA-rated institution that pays USD 5 million if a bond defaults
10. Economic capital calculations for credit risk assume a recovery rate (defined as 1-loss rate). Recovery rates are dependent on the business model of the underlying counterparty and its asset volatility in value and size. Under normal anticipated circumstances which of the following types of companies will have the highest recovery rate?
- a. An internet merchant of designer clothes
  - b. A hedge fund
  - c. An asset intensive manufacturing company
  - d. A commodities trader
11. Which of these transactions will **NOT** result in a credit loss for Bank A in the event of default before maturity by Bank A's counterparty?
- I. Bank A buys an ATM (at-the-money) call option on the USD/CHF and the CHF subsequently depreciates against the USD.
  - II. Bank A buys an interest rate cap and interest rates are below the cap level.
  - III. Bank A goes long AUD through an OTC forward contract on the AUD/YEN and the AUD subsequently appreciates against the YEN.
  - IV. Bank A receives fixed in an interest rate swap and interest rates have risen.
    - a. II & III.
    - b. II & IV.
    - c. I, II & III.
    - d. I, III & IV.
12. Consider a risky zero-coupon bond maturing in one year. At that time the issuer owes USD 100 million. The issuer has no other debt and the bond can be priced using Merton's model. The bond is the only asset of a bank. Which of the following statements is correct?

- a. The amount of risk capital required for this bond by the bank necessarily increases if the volatility of the assets of the issuer increases
- b. The amount of risk capital required for this bond exhibits a hump shape - it first increases with asset volatility and then falls
- c. The shape of the relation between the amount of risk capital and asset volatility cannot be determined without knowing the bank's RAROC hurdle rate
- d. The shape of the relation between the amount of risk capital and asset volatility cannot be determined without knowing the confidence level at which the bank's credit-VaR is calculated
13. A portfolio consists of 17 uncorrelated bonds, each rated B. The 1-year marginal default probability of each bond is 5.93%. Assuming an even spread of default probability over the year for each of the bonds, what is the probability of exactly 2 bonds defaulting in the first month?
- a. 0.0325%                      b. 0.325%                      c. 0.024%                      d. 0.24%
14. Which of the following is not considered a traditional mechanism used by banks in mitigating credit risk?
- a. Netting
- b. Credit quality migration
- c. Embedded put options
- d. Collateralization
15. A firm has purchased a one-year European credit spread option with a USD 100 million notional for a 30 basis point premium. The security underlying the option contract is the 4% (semi-annual-pay) 5-year bond issued by IBM Corporation. The option is struck at 188 basis points. The 5-year Treasury yield is currently at 2.2%. Assume that Treasury yields remain constant over the horizon and that the required spread on IBM bonds widens from 180 basis points to 200 basis points. What is the net payout to the buyer of the credit spread option?
- a. USD -437,000                      b. USD 0                      c. USD 137,000                      d. USD 437,000
16. Given the following ratings transition matrix, calculate the two-period cumulative probability of default for a 'B' credit.

Rating at beginning of period	Rating at End of period			
	A	B	C	Default
A	0.95	0.05	0.00	0.00
B	0.03	0.90	0.05	0.02
C	0.01	0.10	0.75	0.14
Default	0.00	0.00	0.00	1.00

- a. 2.0%                      b. 2.5%                      c. 4.0%                      d. 4.5%