02-Credit Risk Measurement and Management

单项选择题

1.Under the contingent claim approach to the firm's capital structure, which of the following statements is true? Assume the amount of senior debt, subordinated debt, and equity is represented as F, U, and S, respectively.

A.The value of\nsubordinated debt is less than the value of senior debt.

B.Subordinated\ndebt can be represented by a long call with exercise price of F and short call\nw

C.Subordinated\ndebt behaves more like equity in distress and more like debt when the firm is\nno

D.The value of\nsubordinated debt is always greater than the value of equity.

参考答案：C

【莽学解析】Statements a and d are not necessarily true as therelative amounts of senior and subordinated debt can vary dramatically.Statement b is false. Subordinated debt has priority after senior debt butahead of equity. Therefore, the subordinated claim is between senior debt, F,and total debt, F + U. It follows that the subordinated debt can be modeled bya long call option with strike price = F and a short call with strike price = F+ U (not U). Statement c is correct. During financial distress, the equity valueis relatively small, and the subordinated debt claim behaves more like equityas it is closer to receiving "residual" cash flows. Similarly, when the firmvalue is relatively high, the subordinated debt claim behaves more like traditionaldebt.

2.Harrison Michaels, FRM, an analyst at Hudson Risk Analytics, is discussing the default sensitivities of equity, mezzanine, and senior tranches and makes the following statements. Which of the following statements is(are) most likely correct? I. Default sensitivities are largest close to the attachment point between tranches. II. Default sensitivities are computed by shocking the credit default swap (CDS) default curve.

A.I only.

B.II only.

C.Both I and II.

D. Neither I nor\nII.

参考答案：A

【莽学解析】Defaultsensitivities are computed by shocking various hypothetical default probabilities.Default sensitivities are always positive although they will converge to zeroat high default rates for all tranches. Default sensitivities are largest atvalues that create losses close to the attachment points.

3.The rate parameter in the exponential distribution measures the rate at which it takes an event to occur. In the context of waiting for a company to default, the rate parameter is known as the hazard rate and indicates the rate at which default will arrive. Which of the following statements about hazard rates (i.e., default intensity) is correct assuming a constant default intensity of 0.2?

A.1

B.The cumulative\ndefault probability after 3 periods = e-(0.2)3

C.The conditional\ndefault probability after 1 period = 2%.

D.The\nunconditional default probability is memoryless.

参考答案：D

【莽学解析】The cumulative probability of default after three periodsis: 1-e-(0.2)3. The probability of default in the first period = 1-e-(0.2)1 = 18.1%. The default probability in the second period is: 1- e-(0.2)2=33.0% - 18.1% = 14.9%. Thus, the conditional probability of default after oneperiod = 14.9%/(1-18.1%) = 18.2%. It is the conditional default probabilitythat is memoryless.

4.Using the Merton model, calculate the current value of a firm's equity and debt given that the current value of the firm is $100 million, the principal amount due in five years on the zero-coupon bond is $100 million, the annual interest rate is 10%, and the volatility of the firm is 20%.

A.$100 million in\ndebt and $0 in equity.

B.$60.65 million\nin debt and $39.35 million in equity.

C.$58.38 million\nin debt and $41.62 million in equity.

D. $32.59 million\nin debt and $67.41 million in equity.

参考答案：C

【莽学解析】

$$S_t = 100N(d) - (100)(0.6065)N(d - \sigma\sqrt{T-t})$$

$$d = \frac{\ln\left(\frac{100}{(100)(0.6065)}\right)}{(0.20)\sqrt{5-0}} + \frac{1}{2}(0.20)\sqrt{5-0} = \frac{\ln(1.6488)}{0.4472} + \frac{1}{2}(0.4472) = 1.341$$

$$S_t = 100N(1.3418) - (100)(0.6065)N(1.3418 - 0.4472)$$

$$S_t = 100(0.9101) - (60.65)(0.8144)$$

$$S_t = 91.01 - 49.39 = 41.62$$

Therefore,the value of equity of the firm is $41.62 million. Since the value of debt mustbe the difference between the firm's value of $100 million and the value ofequity, the value of debt is $58.38 million.

5.The following scenarios illustrate exposures for two trades with and without the impact of netting. Given the below expected positive exposures (EPE), what is the corresponding netting factor? Assume that the average correlation between exposures is 0.55.

A.0.55.

B. 0.67.

C.0.80.

D.1.25.

Scenario	Trade 1	Trade 2	Witho Nettir
1	20	15	35
2	15	10	25
3	10	−10	10
4	5	−10	5
5	−10	−15	0
EPE	10	5	15

参考答案：C

【莽学解析】

The netting factor is computed as

$$\text{netting factor} = \frac{\sqrt{n + n(n-1)\bar{\rho}}}{n}$$

where:

n = number of exposures

$\bar{\rho}$ = average correlation

$$\text{Netting factor} = \frac{\sqrt{[5 + 5(5-1)0.55]}}{5} = 0.8 \text{ or } 80\%$$

6. Asu Walia is a senior analyst working for a sell side company preparing research reports on the mining sector. Walia noted that one of the companies he follows recently increased risk to the firm's assets, which he expects will benefit equity holders to the detriment of debt holders. Which of the following concepts best describes the scenario in Walia's analysis?

A. Coordination\nfailures.

B. Adverse\nselection.

C. Risk shifting.

D. Principal-agent\nproblem.

参考答案：C

【莽学解析】The scenario described by Walia relates to risk shifting. Risk shifting occurs when risks and rewards are transferred from one group ofmarket participants to another group holding different positions in the firm'scapital structure. In this case, risk to the firm's assets would benefit equityholders to the detriment of debt holders who have fixed returns but increased riskof loss. Coordination failures (collective actionproblems) occur when a group of individuals were to benefit collectively ifthey all took a course of action; however, it would not benefit an individualif she alone took the same course of action. Adverse selection occurs whenparties to a transaction have asymmetric information. Principal-agent problemoccurs when a principal hires an agent for specific duties, where the agent hasmore superior information than the principal.

7. Advanced Pharmaceuticals is considering an investment in a very risky drug therapy treatment. If the investment is successful, Advanced Pharmaceuticals can earn substantial profits. On the other hand, if the therapy treatments create long-term side-effects, the firm will be subject to expensive litigation. How should Advanced Pharmaceuticals structure its investment to minimize its cost of capital?

A. Ring-fence the\ninvestment so a special purpose entity (SPE) can issue debt at lower costs.

B. Ring-fence the\ninvestment into a SPE so the parent company can increase transparency.

C. Securitize the\ninvestment due to its predictable cash flows.

D. Sell the\ninvestment in a true sale, increasing adverse selection.

参考答案：B

【莽学解析】By ring-fencing the risky investment into its own SPE, theparent company can issue debt at favorable terms because its remaining assetsare more transparent. The SPE would contain a risky investment and wouldincrease the costs to issue debt on its own. The nature of the investment doesnot have predictable cash flows like mortgages or auto loans. Placing the investmentin a SPE with a true sale would legally separate the venture from the parent. Thiswould increase transparency, decreasing adverse selection.

8. Harris Smith, CFO of XYZ Bank Corp, is considering a $500 million loan securitization. He has enlisted a well-respected structuring agent to help decide on the most beneficial structure. XYZ is a $100 billion regional bank with a moderately strong balance sheet. Its current credit rating on unsecured debt is BBB. It recently issued a secured bond issue with a credit rating of A after ring-fencing certain assets. XYZ desires to minimize the cost of funds and achieve AAA credit rating on the senior tranche of the new securitization. After reviewing the financials of XYZ and forecasting future economic conditions, the structure has recommended an arbitrage CDO with the following loss distributions: Equity tranche: 0-30%. Junior tranche: 30-50% Smith should use which of the following CDO structures?

A. Arbitrage CDO\nwith $25 million equity trance.

B. Arbitrage CDO\nwith $150 million equity tranche.

C. Balance sheet\nCDO with $25 million equity tranche.

D. Balance sheet\nCDO with $150 million equity tranche.

参考答案：C

【莽学解析】SinceXYZ wants to securitize loans it originated, this fits the profile of a balancesheet CDO. Also, the suggested loss distribution likely has too large of anequity tranche. Hence, the smaller equity tranche of $25 million, whichrepresents 5% of the issue, is more appropriate to still retain AAA rating ofsenior tranche.

9.Which of the following statements regarding subprime mortgages is true? I. Senior tranches receive the highest return due to overcollateralization. II. Corporate bonds and subprime pools with the same credit rating will exhibit the same variation in losses.

A.I only.

B. II only.

C.Both I and II.

D.Neither I nor\nII.

参考答案：D

【莽学解析】Senior tranches receive the lowest return because oftheir seniority in the capital structure and any enhancements. Corporate bondsand subprime pools may have the same credit rating, but the ABS structure willexhibit larger variation in losses.

10.The single-factor model is used to examine the impact of varying default correlations based on a credit position's beta. Each individual firm or credit, i, has a beta correlation, βi, with the market, m. Which of the following statements most accurately describes the implication of using a specific value m for the market parameter in the single-factor model?

A.The conditional\nprobability of default will be greater than the unconditional probability of

B.The\nunconditional standard deviation is less than the conditional standard deviation.

C.Individual\nidiosyncratic shocks, εi, are positively correlated to other firms' shocks.

D.Individual asset returns, aj, are independent from other firms' shocks and returns.

参考答案：D

【莽学解析】Important implication of the single-factor model is thatindividual asset returns, αi, and idiosyncratic shocks, εi are independent from other firms' shocks and returns.

11.At the beginning of the year, a firm bought an AA-rated corporate bond at USD 110 per USD 100 face value. Using market data, the risk manager estimates the following year-end values for the bond based on interest rate simulations informed by the economics team:

In addition, the risk manager estimates the 1-year transition probabilities on the AA-rated corporate bond:

Rating	Year-end Bond Value (USD per USD 100 face valu
AAA	112
AA	109
A	105
BBB	101
BB	92
B	83
CCC	73
Default	50

Rating	Probability of State
AAA	3.00%
AA	85.00%
A	7.00%
BBB	4.00%
BB	0.35%
B	0.25%
CCC	0.15%
Default	0.25%

What is the 1-year 95% credit VaR per USD 100 of face value closest to?

A. USD 9

B. USD 18

C. USD 30

D. 1

参考答案：A

【莽学解析】The 95% credit VaR corresponds to the unexpected loss atthe 95th percentile minus the expected loss, or the expected future value atthe 95% loss percentile minus the current value. Using the probabilities in thegiven ratings transition matrix, the 95% percentile

corresponds to a downgradeto BBB, at which the value of the bond would be estimated at 101. Since cashflows for the bond are not provided, we cannot derive the precise expected andunexpected losses, but the credit VaR (the difference) is easily derived bysubtracting the estimated value given a BBB rating from the current value. 95%credit VaR = 110 - 101 = 9.

12.Jesse Porter, FRM, is examining the difference between risk-neutral and real-world default probabilities. Specifically, Porter is concerned about which method to use for hedging. To help explain the difference between the two probabilities, his colleague, Bob Evans, constructs a hypothetical example with the following information: • Market price of bond = 90 • Liquidity premium = 2% • Credit risk premium = 3% • Recovery rate = 0% • Risk-free rate = 1 % • Risk-neutral default probability = 10% Based on the data provided, what is the real-world default probability, and which default probability (risk-neutral or real-world) should be used for hedging purposes?

A.

	Real-world default probability	Hedging
a.	5%	Risk-neutral
b.	5%	Real-world
c.	4%	Real-world
d.	4%	Risk-neutral

B.无

C.无

D.无

参考答案：A

【莽学解析】Risk-neutral default probability=real-world defaultprobability + credit risk premium + liquidity premium10% = real-world default probability + 3% + 2%Real-world default probability = 10% - 5% = 5%Risk-neutral default probabilities are usefulfor hedging considerations while real-world default probabilities are usefulfor quantitative risk assessment.

13.Assume that Smithson Inc. sells an asset to Libco Inc. and receives a debt claim for $100 million to be paid in five years. The claim from Libco is Smithson's only liability claim. The price per share of equity for Libco is $16.10. Since there are five million shares of equity outstanding, the total equity value of the firm is $80.5 million. Call options on the equity of Libco with an exercise price of $10 and an expiration of one year are currently trading at $9.09. Which of the following statements accurately describes the value of Smithson Inc.?

A.The value of Smithson' s equity can\nbe valued as a put option on firm value with an expiration of fi

B.The value of Smithson's debt can\nbe valued as the discounted value of the debt's principal, less th

C.The value of the call option on\nSmithson's equity can be used to estimate the volatility of firm va

D. When the actual value of the firm is\nhigh, the value of the equity of the firm is more volatile tha

参考答案：B

【莽学解析】Statement b is true. Statement a isincorrect because equity is valued as a call option. Statement c is incorrectbecause for the levered firm, the option on equity is a call-on-call compoundoption and cannot be valued using the Black-Scholes-Merton Option pricingmodel. Statement d is incorrect because when the value of the firm is low, the valueof the equity of the firm is more volatile than when the value of the firm ishigh.

14. Terminal cash flow information for senior, junior, and equity tranches are provided as follows. • The original loan pool included 100 loans with $1 million par value each and a fixed coupon of 8%. • The number of surviving loans is 92. • The par for the senior and junior tranches is 80% and 15%, respectively. The equity investors contributed the remaining 5%. • There were two defaults with recovery rates of 40% recovered at the end of the period. • The value of the trust account at the beginning of the period was $10 million earning 4% annually. • The pool will terminate at the end of the fourth year. The mezzanine and equity tranche cash flows are closest to which of the following amounts?

A.

	Mezzanine cash flow	Equity cash flow
a.	$15,000,000	$0
b.	$16,000,000	$0
c.	$15,000,000	$15,500,000
d.	$16,000,000	$15,500,000

B. 无

C. 无

D. 无

参考答案：C

【莽学解析】Steps to calculate terminal cash flows are as follows. 1. Total size ofcollateral pool at origination: 100 x $1,000,000=$100,000,000 2. Senior tranche= $80,000,000 Junior tranche= $15,000,000 Equity tranche = $5,000,000 3. Interest fromloans: 92 x 8% x $1,000,000 = $7,360,000 4. Redemption atpar: 92 x $1,000,000 = $92,000,000 5. Recovery infinal year: 2 x 40%x $1,000,000 = $800,000 6. Value ofovercollateralization at end of final year: $10,000,000 x 1.04 = $10,400,000 7. Total availableto satisfy all claims = $110,560,000 8. Senior claim=$80,000,000 < $110,560,000. Seniorclaim is satisfied without impairment. 9. Junior claim= $15,000,000< $110,560,000 - $80,000,000, so junior claim is satisfied. 10. Equity claim= $110,560,000 - $80,000,000 -$15,000,000 = $15,560,000.

15. Suppose a risk manager compares the potential future exposures (PFEs) for two cross-currency swaps that have the same maturity. If one of the swaps pays a higher interest rate and the other swap receives a higher interest rate payment, which of the following statements best describes the risk exposures for the swaps?

A.The swap paying\nthe higher interest rate has less exposure.
B.The swap paying\nthe higher interest rate has a lower expected gain on the notional value at t
C.Over the long\nterm, the interest rate drift dominates the implied volatility measure causing
D.Over the long\nterm, the implied volatility dominates the interest rate drift parameter\ncausin
参考答案：C
【莽学解析】The swap paying the higher interest rate has a greaterexposure than the reverse swap due to the fact that it has a significantlyhigher gain on the notional value at the maturity of the swaps. In addition,over the long term, the interest rate drift dominates the implied volatilitymeasure. This causes the PFE for theswap receiving the higher interest rate to remain relatively flat.

16.In the context of waiting for a company to default, the rate parameter, λ,in the exponential distribution function is known as the hazard rate. This parameter indicates the rare at which company defaults will arrive. Given a hazard rate of 0.12, what is the conditional default probability given survival until time 2?
A.0.2134.
B.0.8869.
C.0.1131.
D. 0.1003.
参考答案：C
【莽学解析】Givena hazard rate of 0.12, the cumulative PD at time 1 would be: 1-e-0.12(1) =0.1131. Thus, the survival probability would equal: 1 - 0.1131 = 0.8869. The cumulativePD at time 2 would be: 1-e-0.12(2) = 0.2134. Thus, the PD from time1 to time 2 equals: 0.2134 - 0.1131 = 0.1003. The conditional PD given survivaluntil time 2 is computed as PD (from time 1 to time 2) / survival probabilityat time 1 = 0.1003 / 0.8869 = 0.1131.

17.Large bank uses the KMV model to measure credit risk exposure. The bank has exposure to Company X. Company X’s firm value, expected firm value, beta, and outstanding debt are shown below. What is the distance to default and the default point for Company X? Current firm value 4,000 Expected firm value 5,000 Std. dev. expected firm value 500 Company X Beta 1.4 Debt 1: Short-term 1,300 Debt 2: Long-term 1,800
A.
B.无
C.无
D.无
参考答案：C
【莽学解析】Since the ratio of long-term-liabilities-to-short-term-liabilitiesis less than 1.5, the following equation for default point (i.e., default threshold)will apply: Default Point = short-term liabilities + 0.5 x long-term liabilities Default Point = 1,300 + 0.5 x 1,800 = $2,200 The distance to default is then equal to: DD = (5,000 - 2,200) / 500 = 5.6

	Default Point	Distance to Defa
a.	2,200	3.8
b.	3,100	5.6
c.	2,200	5.6
d.	3,100	3.8

18. Which of the following statements about a cash collateralized debt obligations (CDO) special purpose vehicle (SPV) is true?
A. In a synthetic CDO, the SPV invests in the actual\nsecurities that are used to generate payment to t
B. In a cash CDO, the SPV invests in the actual securities\nthat are used to generate payment to the tr
C. In a synthetic CDO, the SPV does not invest in the actual\nsecurities that are used to generate paym
D. In a cash CDO, the SPV does not invest in the actual\nsecurities that are used to generate payment t
参考答案：B
【莽学解析】Acash collateralized debt obligation’s (CDO) special purpose vehicle (SPV) invests inthe actual securities that are used to generate payment to the tranches. Asynthetic CDO’s SPV does not invest in the actual securities that are used togenerate payment to the tranches. Instead they invest in a default swap and arisk-free bond.

19. Suppose a firm has two debt issues outstanding. One is a senior debt issue that matures in three years with a principal amount of $100 million. The other is a subordinate debt issue that also matures in three years with a principal amount of $50 million. The annual interest rate is 5%, and the volatility of the firm value is estimated to be 15%. If interest rates decline in the Merton model, then which of the following is true?
A. \nIf the firm is experiencing financial distress (low firm value), then\nthe value of senior deb
B. \nIf the firm is not experiencing financial distress (high firm value),\nthen the value of senio
C. \nIf the firm is experiencing financial distress (low firm value), then\nthe value of senior deb
D. \nIf the firm is not experiencing financial distress (high firm value),\nthen the value of senio
参考答案：A
【莽学解析】When firms with subordinate debt areexperiencing financial distress (low firm values), changes in the value ofsubordinate debt will react to changes in the model parameters

in the same wayas equity. Since equity is valued as a call option in the Merton model, a declinein interest rates will reduce the value of equity (and subordinate debt). When firmswith subordinate debt are not experiencing financial distress (high firm values),changes in the value of subordinate debt will react to changes in the modelparameters in the same way as senior debt. Since senior debt is valued as thedifference in firm value less equity valued as a call option in the Morton model,a decline in interest rates will increase the value of senior debt andsubordinate debt.

20.Consider the following scenarios regarding parties analyzing the potential use of collateralized debt obligations (CDOs). • Half-Pass Investments structures a deal to add value by repackaging bonds into tranches. Half-Pass plans to capture for equity investors the spread between relatively high yielding assets and lower yielding liabilities. • Piaffe First Bank recently acquired Pirouette Financial. Adding Pirouette's portfolio of loans will result in Piaffe's not being in compliance with internal asset composition targets because its concentration of subprime loans will be too high. • Canter Consulting has been asked to advise a U.S. commercial bank on way to reduce the risk-based capital requirement for the commercial loan portfolio. Currently, the bank must reserve 100% capital against the loan balances. • Renvers Holdings plans to put together a CDO that it believes can generate a profit from the spread between the return on the collateral and the funding costs. Which of the choices below most accurately reflects the motivations for the parties in the above scenarios?

A.

	Arbitrage-driven CDO	Balance-sheet-driven CD
a.	Piaffe and Canter	Half-Pass and Renvers
b.	Piaffe and Renvers	Half-Pass and Canter
c.	Half-Pass and Renvers	Piaffe and Canter
d.	Half-Pass and Canter	Piaffe and Renvers

B.无

C.无

D.无

参考答案：C

【莽学解析】BothHalf-Pass and Renvers are in situations in which there is a motivation tocreate an arbitrage-driven CDO, where the motivation is to generate anarbitrage return on the spread between return on the collateral and fundingcosts. Piaffe and Canter are both in situations that lend themselves to abalance-sheet-driven CDO, where the motivation is to remove assets (and theassociated funding) from the balance sheet.

21.A firm has entered into a USD 20 million total return swap on the NASDAQ 100 Index as the index payer with ABC. Corporation, which will pay 1-year LIBOR +2.5%. The contract will last 1 year, and cash flows will be exchanged annually. Suppose the NASDAQ 100 Index is currently at 2,900 and LIBOR is 1.25%. The firm conducts a stress test on this total return swap using the following scenario: NASDAQ 100 in 1 year: 3,625 LIBOR in 1 year: 0.50% For this scenario, what is the firm's net cash flow in year 1?

A. A net cash outflow of USD 4.40 million.
B. A net cash outflow of USD 4.25 million.
C. A new cash outflow of USD 4.25 million.
D. A new cash outflow of USD 4.40 million.
参考答案：B
【莽学解析】The NASDAQ will increase 25%, or (3625/2900)-1, over thenext year, so the index payer will pay USD 5 million (0.25*20million) to ABCcorp. Since ABC Corp's payments depend on today's LIBOR, it will pay 3.75%(1.25%+2.5%)or USD 0.75 million (0.0375*20million). So the firm's net cash flow would be0.75 million-5 million=-USD 4.25 million.

22. The exhibit below presents a summary of bilateral mark-to-market (MtM) trades for three counterparties. If netting agreement exist between all pairs of counterparties shown, what is the correct order of net exposure per counterparty, from highest to lowest?

MtM Trades for Four Counterparties (USD Million)

		Opposing
		B
Counterparty A	Trades with positive MtM	10
	Trades with negative MtM	-10
		A
Counterparty B	Trades with positive MtM	10
	Trades with negative MtM	-10
		A
Counterparty C	Trades with positive MtM	0
	Trades with negative MtM	-10

A. A-B-C
B. A-C-B
C. C-A-B
D. C-B-A
参考答案：B
【莽学解析】One must properly net the positive and negative tradesper counterparty for all three counterparties shown. The properly nettedamounts are:For counterparty A: exposure to B=USD 0, exposure toC=USD 10 for a sum of USD 10;For counterparty B: exposure to A=USD 0, exposure toC=USD 0 for a sum of USD 0;For counterparty C: exposure to A=USD 0, exposure toB=USD 5 for a sum of USD 5;Therefore, the correct sequence is as shown above.

23. An underlying exposure with an effective annual price volatility of 6% is collateralized by

a 10-year U.S. Treasury note with an effective pricevolatility of 8%. The correlation between the exposure on the U.S. Treasury note is zero. Changes in the value of the overall position (exposureplus collateral) are calculated for a 10-day horizon at a 95% confidence interval (assume a year of 250 days). Which of the following would oneexpect to observe from this analysis?

A. The presence of collateral increases the current exposure and increase the Vvlatility of the exposure between remargining periods.

B. The presence of collateral increases the current exposure, but decreases the volatility of the exposure between remargining periods.

C. The presence of collateral decreases the current exposure, but increases the voltility of the exposure between remargining periods.

D. The presence of collateral decreases the current exposure and decreases the volatility of the exposure between remargining periods.

参考答案：C

【莽学解析】Worse case change for the value of the collateral is: -1.65*8%*(10/250)^0.5=-2.64% The overall volatility of the position: (0.06^2+0.08^2)^0.5=10%Thus the worst case change in the value of this position (exposure + collateral) is:-1.65*10%*(10/250)^0.5=-3.3%Thus, the collateral mitigates the exposure today while increasing the volatility of the position in the future.

24. Edward Art, a CFO of Bank of Mitsubishi, has recently proposed to increase the bank's liquidity by securitizing existing credit card receivables. Edward's proposed securitization includes tranches with multiple internal credit enhancements as shown in Exhibit 1 below. The total value of collateral for the structure is USD 680 million, the lockout period is two years, and the subordinated tranche B bond class is the first loss piece:

Exhibit 1. Proposed ABS Structure

Bond Class	Par Value
Senior tranche	USD 270 million
Junior tranche A	USD 230 million
Junior tranche B	USD 80 million
Subordinated tranche A	USD 60 million
Subordinated tranche B	USD 40 million
Total	**USD 680 million**

At the end of the fourteenth month after the securities were issued, the underlying credit card accounts have prepaid USD 30 million in principal in addition to regularly scheduled principal and interest payments. What is the amount of the prepaid principal paid out to the holders of the junior tranche A bond class?

A.USD 0 million
B.USD 30 million
C.USD 120 million
D.USD 230 million
参考答案：A
【莽学解析】a is correct. The securities have a two-year lockoutperiod; all principal prepayments within the first two years will be used tofund new loans. No security tranche will receive principal prepayments untilafter the 24-month lockout period. Credit card prepayments are usually justrolled into new loans (not repaid to bondholders).

25.A bank has booked a loan with total commitment of USD 50,000 of which 80% is currently outstanding. The default probability of the loan is assumed to be 2% for the next year and loss given default (LGD) is estimated at 50%. The standard deviation of LGD is 40% and the standard deviation of the default event indicator is 7%. Drawdown on default is assumed to be 60%. The expected losses for the bank are:
A.USD 380
B.USD 420
C.USD 460
D.USD 500
参考答案：C
【莽学解析】Standard deviation of LGD = 0.4, Standard deviation ofthe default event indicator = .07Adjusted Exposure (AE) = Outstanding + (Commitment - Outstanding) * Draw Down on default AE = (0.8*50,000) + [50,000-(0.8*50,000)]*0.6 = 46,000Expected Loss = AE*default probability*LGD =46,000*.02*0.5 = 460

26.You have been asked by the Chief Risk Officer of your bank to determine how much should be set aside as a loan-loss reserve for a 1-year horizon on a USD 100 million line of credit that has been extended to a large corporate borrower. Of the original balance, USD 20 million has already been drawn and due to deteriorating economic conditions the bank is concerned that the borrower might find itself in a liquidity crisis causing it to draw on the remaining commitment and default. Given the following information from the bank’s internal credit risk models, what is an appropriate loan loss reserve to cover this eventually? 1-year default probability = 0.35% Drawdown given default = 80% Loss given default = 60%
A.USD 210,000
B.USD 176,400
C.USD 140,000
D.USD 117,600
参考答案：B
【莽学解析】The risky position of asset value at the horizon isOutstanding + (Commitment - Outstanding)*Drawdown Given Default = USD 20,000,000+ (USD 100,000,000 - USD 20,000,000)*0.80 = USD 84,000,000. This is theadjusted exposure at default (AE). The expected loss EL = AE*EDF*LGD, or84,000,000*0.0035*0.6 = USD 176,400. This is the amount that the bank shouldset aside as a loss reserve.

27.Credit risk is a function of the probability of default, exposure at default, and loss given default. Assuming that the individual exposures at default with a counterparty are fixed, which

of the following statements is correct?

A.The probability of default can be mitigated by\ncollateral and exposure at default can be mitigated

B.The probability of default can be mitigated by netting\nand exposure at default can be mitigated by

C.Loss given default can be mitigated by collateral and\nexposure at default can be mitigated by netti

D.Loss given default can be mitigated by netting and\nexposure at default can be mitigated by collater

参考答案：C

【莽学解析】a is incorrect. Probability of default depends on creditevents which can't be controlled by collateral because credit events depend onability to pay and willingness to pay. Both of them are independent tocollateral.a is incorrect. Probability of default depends on creditevents which can't be controlled by collateral because credit events depend onability to pay and willingness to pay. Both of them are independent tocollateral.b is incorrect. Probability of default depends on creditevents which can't be controlled by netting because credit events depend onability to pay and willingness to pay. Both of them are independent to netting.Collateral can't reduce exposure at default. However, it can be claimed laterso that collateral reduce loss given default.c is correct. Collateral can be claimed to reduce lossgiven default. Netting reduces the settlement amount if the counterparty is indefault so that netting reduces exposure at default.d is incorrect. Collateral can't reduce exposure at default.However, it can be claimed later so that collateral reduce loss given default.

28.Lin Ping is valuing a 1-year credit default swap (CDS) contract which will pay the buyer 75% of the face value of a bond issued by Xiao Corp, immediately after a default by Xiao. To purchase this CDS, the buyer will pay the CDS spread, which is a percentage of the face value, once at the end of the year. Lin estimates that the risk-neutral default probability for Xiao is 5% per year. The risk-free rate is 3% per year. Assuming defaults can only occur halfway through the year and that the accrued premium is paid immediately after a default, what is the estimate for the CDS spread?

A.380 basis points

B.385 basis points

C.390 basis points

D.400 basis points

参考答案：C

【莽学解析】

29.You are the risk manager at Vision, a small fixed-income hedge fund that specializes in bank debt. Vision's strategy uilizes both relative valueand long-only trades using credit default swaps (CDS) and bonds. One of the new traders has the positions described in the table below:

π = probability of default during year 1 = 5%
C = contingent payment in case of default = 75%
d_t = discount factor = $e^{-0.03 \times 1}$ for 1-year and $e^{-0.03 \times 0.5}$ for half a year = 0.97044 and 0.98511
s = CDS spread (to be solved)

The premium leg, which includes the spread payment and accrual, is:

$s*(0.5d_{0.5}*\pi + d_t(1-\pi)$ = s*(0.02463+0.92192) = s*0.94655

The payoff leg is:

$C*(d_{0.5})*\pi$ = 0.03694

Solving for the spread: s*0.94655 = 0.03694 → s = 0.03902 or a spread of 390 basis points.

Bank	Position	C
SBU	Long USD 10 million CDS	A
Stanos	Long USD 5 million bond	B
CAB	Short USD 10 million CDS	A

Some of Vision's newest clients are restricted from withdrawing their funds for three years. You are currently evaluating the impact of variousdefault scenarios to estimate future asset liquidity. You have estimated that the marginal probility of default of the Stanos bond is 5% in Year 1,10% in Year 2, and 15% in Year 3. What is the probability that the bond makes coupon payments for 3 years and then default at the end of Year3?

A.小于13%

B.15%

C.27%

D.73%

参考答案：A

【莽学解析】

$$P(\text{Default at end of year 3}) = (1\text{-MP}_{\text{year 1 default}}) * (1 - \text{MP}_{\text{year 2 default}})$$

$$= (1- 0.05) * (1 - 0.10) * 0.15 = 0.1283 \text{ or } 12.83\%.$$

30.Local Company, a frequent user of swaps, often enters into transactions with Global Bank, a major provider of swaps. Recently, Global Bank was downgraded from a rating of AA+ to a rating of A, while Local Company was downgraded from a rating of A to a rating of A-. During this

time, the credit spread for Global Bank has increased from 20 bps to 150 bps, while the credit spread for Local Company has increased from 130 bps to 170 bps. Which of the following is the most likely action that the counterparties will request on their credit value adjustment (CVA)?
A.The credit qualities of the counterparties have\nmigrated, but not significantly enough to justify a
B.Global Bank requests an increase in the CVA charge it\nreceives.
C.Local Company requests a reduction in the CVA charge\nit pays.
D.CVA is no longer a relevant factor, and the\ncounterparties should migrate to using other mitigants
参考答案：C
【莽学解析】Because Local Bank has a lower credit rating than GlobalBank, it would typically pay a CVA charge to Global Bank which would be afunction of the relative credit spread between the two banks. After thedowngrades of both Global Bank and Local Bank, the credit spread between thetwo banks narrowed from 110 bps initially to only 20 bps after the downgrades.Therefore, with the spread much lower between the two banks, Local Bank wouldbe in a position to request a reduction in the CVA charge that it pays.

31.Determine at what point in the future a derivatives portfolio will reach its maximum potential exposure. All the derivatives are on one underlying, which is assumed to move in a stochastic fashion (variance in the underling’s value increases linearly with time passage). The derivatives portfolio’s sensitivity to the underlying is expected to drop off as (T t)2, where T is the time from today until the last contract in the portfolio rolls off, and t is the time from today.
A.T\/5
B.T\/3
C.T\/2
D.None of the above
参考答案：A
【莽学解析】Taking now the variance instead of the volatility, wehave σ2 = k(T t)4 × t ,where k is aconstant. Differentiating with respect to t, setting the derivative to zero, wehave t = T / 5.

32.A Mexican retailer buys its goods from global suppliers. The contracts are priced in U.S. dollars. The retailer sells its goods to Mexican consumers and receives pesos from the sales. The firm enters a currency swap in which they will pay dollars and receive Brazilian real. They use Monte Carlo simulation to model their potential future exposure (PFE) to the real. Which of the following is most consistent with the retailer’s circumstances?
A.The retailer has wrong-way exposure in the swap and should use a lognormal distribution to model t
B.The retailer has right-way exposure in the swap and should use a distribution that allows for jump
C.The retailer has right-way exposure in the swap and should use a lognormal distribution to model t
D.The retailer has wrong-way exposure in the swap and should use a distribution that allows for jump
参考答案：D

【莽学解析】The retailer has wrong-way exposure in the swap. They are paying dollars in their underlying business and paying dollars in the swap. If the dollar increases in value, their losses increase in both their business and the swap (i.e., the swap increases their expected losses). The retailer should use a distribution that allows for jumps to model the PFE to the real because emerging country currencies are subject to extreme volatility. A lognormal distribution would be used for major currencies, so choices A and C are incorrect.

33. Suppose there is a $1,000,000 portfolio with n = 50 credits that each has a default probability of π =0.02 percent and a zero recovery rate, the default correlation is 0. In addition, each credit is equally weighted and has a terminal value of $20,000 if there is no default. The number of defaults is binomially distributed with parameters of n = 50 and π = 0.02, and the 95th percentile of the number of defaults based on this distribution is 3. What is the credit VaR at the 95% confidence level based on these parameters?

A. $30,000

B. $40,000

C. $50,000

D. $60,000

参考答案：B

【莽学解析】The expected loss is $20,000 ($1,000,000×0.02). If there are three defaults, the credit loss is $60,000 (3×$20,000). The credit VaR at the 95% confidence level is $40,000 (calculated by taking thecredit loss of $60,000 and subtracting the expected loss of $20,000).

34. Bigger bank has two assets outstanding. The features of the loans are summarized in the table below. Assuming a correlation of 0.2 between the assets, what is the value of ULP?

	Asset A	Asset B
COM	$6,000,000	$4,000,000
OS	$4,000,000	$2,000,000
UGD	55.00%	80.00%
EDF	2.00%	1.00%
LGD	50.00%	40.00%
σ_{EDF}	2.00%	5.00%
σ_{LGD}	25.00%	20.00%

A. Less than $100,000

B. Between $100,000 and $200,000

C. Between $200,000 and $300,000

D. Greater than $300,000

参考答案：C

【莽学解析】

The calculations below describe the steps to compute the unexpected loss of a portfolio.

Step 1: Compute AE for both assets.

$$\begin{aligned} AE_A &= OS + (COM - OS) \times UGD \\ &= \$4{,}000{,}000 + (\$2{,}000{,}000 \times 0.55) \\ &= \$5{,}100{,}000 \end{aligned}$$

$$\begin{aligned} AE_B &= OS + (COM - OS) \times UGD \\ &= \$2{,}000{,}000 + (\$2{,}000{,}000 \times 0.8) \\ &= \$3{,}600{,}000 \end{aligned}$$

Step 2: Compute UL for both assets.

$$UL = AE \times \sqrt{EDF \times \sigma^2_{LGD} + LGD^2 \times \sigma^2_{EDF}}$$

$$UL_A = \$5{,}100{,}000 \times \sqrt{0.02 \times 0.25^2 + 0.5^2 \times 0.02^2} = \$187{,}386$$

$$UL_B = \$3{,}600{,}000 \times \sqrt{0.01 \times 0.2^2 + 0.4^2 \times 0.05^2} = \$101{,}823$$

Step 3: Compute UL_P.

$$UL_P = \sqrt{(187{,}386)^2 + (101{,}823)^2 + (2)(0.2)(187{,}386)(101{,}823)} = \$230{,}46$$

35. You are evaluating the credit risk in a portfolio comprised of Loan A and Loan B. In particular, you are interested in the risk contribution of each of the loans to the unexpected loss of the portfolio. Given the information in the table below, and assuming that the correlation of default between Loan A and Loan B is 20%, what is the risk contribution of Loan A to the risk of the portfolio?

	Adjusted Exposure	Expected Default Frequency	Volatility of Expecte Default Frequency
Loan A	USD 3,000,000	1.50%	7.00%
Loan B	USD 2,000,000	3.50%	12.00%

A. USD 39,587

B. USD 62,184

C. USD 96,794

D. USD 120,285

参考答案：B

【莽学解析】

$$RC_A = (UL_A^2 + p \times UL_A \times UL_B)/UL_p$$

$$UL = AE \times sqrt\,(\,EDF \times VAR_{LGD} + LGD^2 \times VAR_{EDF}).\ Therefore:$$

$$UL_A = 3{,}000{,}000 \times sqrt\,(1.5\% \times 20\%^2 + 30\%^2 \times 7\%^2\,) = 96{,}793.59$$

$$UL_B = 2{,}000{,}000 \times sqrt\,(3.5\% \times 30\%^2 + 45\%^2 \times 12\%^2) = 155{,}769.06$$

$$UL_P = sqrt(96793.59^2 + 155{,}769.06^2 + 2 \times 20\% \times 96{,}793.59 \times 155{,}769.06) =$$

$$RC_A = (96{,}793.59^2 + 20\% \times 96{,}793.59 \times 155{,}769.06) \,/\, 199{,}158.17 = 62{,}184$$

36. An analyst is using Moody's KMV model to estimate the distance to default of a large public firm, Shoos Inc., a firm that designs, manufactures and sells athletic shoes. The firm's capital structure consists of USD 40 million in short-term debt, USD 20 million in long-term debt, and there are one million shares of stock currently trading at USD 10 per share. The asset volatility is 20% per year. What is the normalized distance to default for Shoos Inc.?

A. 0.714

B. 1.430

C. 2.240

D. 5.000

参考答案：B

【莽学解析】

$$DD = \frac{A - K}{A\sigma_A}$$

where: "K" (floor) is defined as the value of all short term liabilities (one year A σ A and under) plus one half of the book value of all long term debt: 40 million + 0.5×20 million = 50 million. 'A" is the value of assets: Market value of equity (1 million shares×10/share = 10 million) plus the book value of all debt (60 million) = 70 million. Thus A σ A = 20% × 70 million = 14 million. DD = (70 million - 50 million) / 14 million = 1.429 standard deviations

37. Suppose a firm has two debt issues outstanding. One is a senior debt issue that matures in three years with a principal amount of $100 million. The other is a subordinate debt issue that also matures in three years with a principal amount of $50 million. The annual interest rate is

5%, and the volatility of the firm value is estimated to be 15%. If interest rates decline in the Merton model, then which of the following is true?

A. If the firm is experiencing financial distress (low firm value), then the value of senior debt wil

B. If the firm is not experiencing financial distress (high firm value), then the value of senior deb

C. If the firm is experiencing financial distress (low firm value), then the value of senior debt and

D. If the firm is not experiencing financial distress (high firm value), then the value of senior deb

参考答案：A

【莽学解析】When firms with subordinate debt are experiencingfinancial distress (low firm values), changes in the value of subordinate debtwill react to changes in the model parameters in the same way as equity. Sinceequity is valued as a call option in the Merton model, a decline in interestrates will reduce the value of equity (and subordinate debt). When firms withsubordinate debt are not experiencing financial distress (high firm values),changes in the value of subordinate debt will react to changes in the modelparameters in the same way as senior debt. Since senior debt is valued as thedifference in firm value less equity valued as a call option in the Mertonmodel, a decline in interest rates will increase the value of senior debt andsubordinate debt.

38. Suppose XYZ Corp. has two bonds paying semiannually according to the following table. The recovery rate for each in the event of default is 50%. For simplicity, assume that each bond will default only at the end of a coupon period. The market-implied risk-neutral probability of default for XYZ Corp. is:

Remaining Maturity	Coupon(30/360)	Price
6 months	8%	99
1 year	9%	100

A. Greater in the first six-month period than in the second

B. Equal between the two coupon periods

C. Greater in the second six-month period than in the first

D. Cannot be determined from the information provided

参考答案：A

【莽学解析】First, we compute the current yield on the six-monthbond, which is selling at a discount. We solve for y such that 99 = 104/(1 + y /2) and find y = 10.10%. Thus, the yield spread for the first bond is 10.1 5.5 = 4.6%. The second bond is at par, so the yield is y = 9%. The spread for the second bond is 9 6 = 3%. The default rate for thefirst period must be greater. The recovery rate is the same for the twoperiods, so it does not matter for this problem

39. Consider a 1-year maturity zero-coupon bond with a face value of USD 1,000,000 and a 0%

recovery rate issued by Company A. The bond is currently trading at 80% of face value. Assuming the excess spread only captures credit risk and that the risk-free rate is 5% per annum, the risk-neutral 1-year probability of default on Company A is closest to which of the following?

A. 2%

B. 14%

C. 16%

D. 20%

参考答案：C

【莽学解析】

$$1+r=(1-\pi)*(1+y)+\pi R$$

$$1+r=(1-\pi)*(1+y)=(1-\pi)*(FV/MV)$$

Where MV = market value and FV = face value. Inputting the data into this equation yield π = 1 - (800,000*1.05)/1,000,000 =0.16.

40. An analyst has noted that the default frequency in the pharmaceutical industry has been constant at 8% for an extended period of time. Based on this information, which of the following statements is most likely correct for a randomly selected firm following a Bernoulli distribution? I. The cumulative probability that a randomly selected firm in the pharmaceutical industry will default is constant. II. The probability that the firm survives for the next 6 years without default is approximately 60%.

A. I only

B. II only

C. Both I and II

D. Neither I nor II

参考答案：B

【莽学解析】Statement I is false because the cumulative probabilityof default increases (i.e., even the highest rated companies will eventuallyfail over a long enough period). Statement II is true since the probability thefirm survives over the next 6 years without default is: (1-0.08)6=60.6%

41. A collateralized mortgage obligation (CMO) has the characteristics below. Which of the following are most accurate regarding its credit enhancement?

I. There is overcollateralization. II. The investors gain credit enhancement through the excess spread.

A. I only.

B. II only.

C. Both I and II.

D. Neither I nor II.

Return on assets	8.75%
Senior tranche	$400,000,000
Subordinated tranche A	$120,000,000
Subordinated tranche B	$50,000,000
Value of collateral	$600,000,000
Interest paid on liabilities of SPE	7.50%
Fees and expenses	0.60%

参考答案：C

【莽学解析】The total value of the tranches is: $400 + $120 + $50 = $570 million. The value of the collateral is $600 million, so the CMO is over collateralized by $30 million.The net excess spread is 8.75%-7.50%- 0.60% = 0.65%, so there is positive excess spread. This provides credit enhancement for the CMO investors.

42.A hedge fund is considering taking positions in various tranches of a collateralized debt obligation (CDO). The fund’s chief economist predicts that the default probability will decrease significantly and that the default correlation will increase. Based on this prediction, which of the following is a good strategy to pursue?

A.Buy the senior tranche and buy the equity tranche.

B.Buy the senior tranche and sell the equity tranche.

C.Sell the senior tranche and sell equity tranche.

D.Sell the senior tranche and buy the equity tranche.

参考答案：D

【莽学解析】The decrease in probability of default would increase thevalue of the equity tranche. Also, a default of equity tranche would increasethe probability of default of the senior tranche, due to increased correlation,reducing its value. Thus, it is better to go long the equity tranche and shortthe senior tranche

43.A standard synthetic CDO references a portfolio of 10 corporate names. Assume the following. The total reference notional is X, and the term is Y years. The reference notional per individual reference credit name is X/10. The default correlations between the individual credit names are all equal to one. The single-name CDS spread for each individual name is 100 bp, 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 constant, if the default correlations between the individual reference 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?

A.The relationship remains the same

B.S increases relative to J

C.J increases relative to S

D. The effect cannot be determined given the data supplied

参考答案：C

【莽学解析】If the correlation is one, all names will default at thesame time, and the junior and senior tranche will be equally affected. Hence, their spread should be 100bp, which is the same as for the collateral. Withlower correlations, the losses will be absorbed first by the junior tranche. Therefore, the spread on the junior tranche should be higher, which is offsetby a lower spread for the senior tranches.

44. King Motors Acceptance Corporation (KMAC), the finance arm of King Motors, issues an auto-loan asset-backed security that consists of a senior tranche, denoted Tranche A in the amount of $50 million and an interest payment of 5 percent, and two subordinated tranches, denoted Tranches X and Z respectively, each with a face amount of $35 million. Tranche X pays investors annual interest at a rate of 6.5 percent while Tranche Z pays investors annual interest at a rate of 7.5 percent. Which of the following methods of credit support would NOT affect the credit quality of subordinated Tranche X?

A. The total amount of the auto loans that make up the asset-backed issue is $125 million.

B. The weighted average interest rate on the auto loans making up the pool is 6.4 percent.

C. Any defaults on the part of King Motor’s customers will be first absorbed by Tranche Z.

D. KMAC has a reserve in the amount of $10 million that will remain on KMAC’s balance sheet.

参考答案：D

【莽学解析】An investor’s claim when purchasing an ABS is solely withthe ABS and no longer with the originator. The fact that KMAC has $10 millionset aside means nothing for the ABS issue if it remains on KMAC’s balance sheetand is not part of the ABS issue. The other answer choices all describe formsof credit support that will support at least Tranches X and A, if not all 3tranches. By having Tranche Z be subordinate to Tranche X, Tranche X hasadditional support. Also, loans of $125 million are used to back asset-backedsecurities worth ($50 + $35 + $35) = $120 million, which means the issue, isover-collateralized. The weighted average interest rate paid on the securitiesis approximately 6.2%. If the weighted average interest rate on the loans thatmake up the pool is 6.4%, that means there is an excess spread between theloans and securities that also provides support for the entire issue.

45. Gamma industries inc. issues an inverse floater with a face value of USD 50.000.000 that pays a semiannual coupon of 11.50% minus LIBRO. Gamma industries intends to execute an arbitrage strategy and earn a profit by selling the notes. Using the proceeds to purchase a bond with a fixed semiannual coupon rate of 6.75% a year, and then hedge the risk by entering into an appropriate swap. Gamma industries receive a quote from a swap dealer with a fixed rate of 5.75% and a floating rate of LIBOR. What would be the most appropriate type of swap of Gamma industries, Inc., to enter into to hedge its risk?

A. Pay-fixed, receive-fixed swap

B. Pay-floating, receive-fixed swap

C. Pay-fixed, receive-floating swap

D. The risk cannot be hedged with a swap

参考答案：B

【莽学解析】Short inverse floater: -11.5% +LIBOR Long a bond: +6.75%Net profit: -4.75% +LIBORThe swap in the market: 5.75% - LIBOR, so the LIBOR inthe market is overpriced.

46.A bank holds USD 60 million worth of 10-year 6 5% coupon bonds that are trading at a clean price of USD 101.82. The bank is worried by theexposure due to these bonds but cannot unwind the position for fear of upsetting the client. Therefore, it purchases a total return swap (TRS) in which it receives annual LIBOR + 100 bps in return for the mark-to market return on the bond. For the first year, the LIBOR sets at 6.25%, and by the end of the year the clean price of the bonds is at USD 99.35. The net receipt/payment for the bank in the total return swap will be to:

A.Receive USD 1.98 million

B.Receive USD 2 23 million

C.Pay USD 2.23 million

D.Pay USD 1.98 million

参考答案：A

【莽学解析】

$$7.25\% \times 60\text{m} - \frac{99.35 - 101.82}{101.82} \times 60m - 6.5\% \times \frac{60 \times 100}{101.82}$$

47.A six-year CDS on a AA-rated issuer is offered at 150bp with semiannual payments while the yield on a six-year annual coupon bond of this issuer is 8%. There is no counterparty risk on the CDS. The annualized LIBOR rate paid every six months is 4.6% for all maturities. Which strategy would exploit the arbitrage opportunity? How much would your return exceed LIBOR?

A.Buy the bond and the CDS with a risk-free gain of\n1.9%.

B.Buy the bond and the CDS with a risk-free gain of\n0.32%.

C.Short the bond and sell CDS protection with a\nrisk-free gain of 4.97%.

D.There is no arbitrage opportunity as any apparent\nrisk-free profit is necessarily compensation for

参考答案：A

【莽学解析】Because LIBOR is flat, the fixed-coupon yield is also4.6%, creating a spread of 800 - 460 = 340bp on thebond. Going long the bond and short credit via buying the CDS yields an annual profit of340 - 150 = 190bp.

48.A diversified portfolio of OTC derivatives with a single counterparty currently has a net mark-to-market value of USD 20,000,000(the sum of the value of all positive-value positions minus the value of all negative-value positions) and a gross absolute mark-to-market value of USD 80,000,000. Assuming there are no netting agreements in place with the counterparty, determine the current credit exposure to the counterparty.

A.Less than or equal to USD 19,000,000

B.Greater than USD 19,000,000 but less than or equal to\nUSD 40,000,000

C.Greater than USD 40,000,000 but less than USD\n60,000,000

D.Greater than USD 60,000,000

参考答案：C

【莽学解析】Define X and Y asthe absolute values of the positive and negative positions. The

net value is X Y = 20 million. The absolute gross value is X + Y = 80. Solving, we get X =50 million. This is the positive part of the positions, or exposure.

49.BNP Paribas has just entered into a plain-vanilla interest-rate swap as a pay-fixed counterparty. Credit Agricole is the receive-fixed counterparty in the same swap. The forward spot curve is upward-sloping. If LIBOR starts trending down and the forward spot curve flattens, the credit risk from the swap will:

A.Increase only for BNP Paribas

B.Increase only for Credit Agricole

C.Decrease for both BNP Paribas and Credit Agricole

D.Increase for both BNP Paribas and Credit Agricole

参考答案：B

【莽学解析】With an upward-sloping term structure, the fixed payerhas greater credit exposure. He receives less initially, but receives morelately. This back-loading of payments increases credit exposure. Conversely, ifthe forward curve flattens, the fixed payer (i.e., BNP Paribas) has less creditexposure. Credit Agricole must have greater credit exposure. Alternatively, ifLIBOR drifts down, BNP will have to pay more, and its counterparty will havegreater credit exposure.

50.Which one of the following deals would have the greatest credit exposure for a $1,000,000 deal size (assume the counterparty in each deal is an AAA-rated bank and has no settlement risk)?

A.Pay fixed in an Australian dollar (AUD) interest rate swap for one year.

B.Sell USD against AUD in a one-year forward foreign exchange contract.

C.Sell a one-year AUD cap.

D.Purchase a one-year certificate of deposit.

参考答案：D

【莽学解析】The CD has the whole notional at risk. Otherwise, thenext greatest exposure is for the forward currency contract and the interestrate swap. The short cap position has no exposure if the premium has beencollected. Note that the question eliminates settlement risk for the forwardcontract.