

03-Operational Risk and Resiliency

单项选择题

1. You are a risk manager for a hedge fund. You are told that the TED spread increased sharply. Which of the following statements best describes the change in your situation?

- A. An increase in the TED spread indicates that the Federal Reserve will push interest rates up,
- B. An increase in the TED spread indicates a bigger gap between the fed funds rate and Treasury
- C. An increase in the TED spread could indicate greater concerns about bank solvency, so that you
- D. An increase in the TED spread could indicate more willingness of banks to lend since they get

参考答案: C

【莽学解析】Statement a. is not correct because a wider TED spread is consistent with the Fed lowering rates. Statement b. is not correct because the fed funds rate is for collateralized loans, whereas Eurodollar rates are for uncollateralized deposits. Statement d. is incorrect because a wider TED spread means that the cost of bank borrowing goes up, not down. (2)

2. You have been asked to review a memo on how market liquidity is affected by shocks to the financial system. Which of the following observations made in the memo is incorrect?

- A. In periods of acute market stress, market liquidity typically increases in the most liquid markets,
- B. Evaporation of market liquidity is an important factor in determining whether and at what speed financial
- C. Market shocks may not be reflected in marked-to-market portfolio values immediately for portfolios
- D. The impact of a market shock on the liquidity of a specific asset depends on the characteristics of

参考答案: A

【莽学解析】Answer b. is correct, as proved by the events of 2007. Answer c. correctly states that the prices of illiquid assets reflect a delayed reaction to events. Answer d. explains that asset liquidity depends on investor positions, which is correct. An asset that is mainly owned by leveraged investors can experience a sharp swing in prices if the investors are forced to sell. (5)

3. Your CRO asks you to prepare a list of early warning indicators for liquidity problems for your bank. Which of the following are early warning indicators of a potential liquidity problem? I. Rapid asset growth, especially when funded with potentially volatile liabilities II. Growing concentrations in assets or liabilities III. An increase of the weighted average maturity of liabilities IV. Reduction in the frequency of positions approaching or breaching internal or regulatory limits V. Narrowing debt or credit default swap spreads VI. Counterparties that request additional collateral for credit exposures VII. Increasing redemptions of CDs before maturity

- A. I, II, VI, and VII
- B. I, III, V, and VI
- C. II, IV, V, and VII

D. I, V, VI, and VII

参考答案: A

【莽学解析】Statement I is correct; this is the northern rock story. Statement II is also a problem because it means higher probability of either asset or funding risk. Statement III is not a correct answer, because longer liabilities reduce the probability of a near-term funding problem. Statement IV is not a correct answer, because this is market risk. Statement V is not a correct answer, because a problem would arise from widening, not narrowing spreads. Statement VI is correct because collateral demands create a claim on liquidity. Statement VII is correct because this requires cash for repayment. (1)

4. Which of these statements about economic and regulatory capital are valid? I. Regulatory capital seeks soundness and stability in the banking system by ensuring that there is enough capital in the banking system. II. Economic capital is designed to keep a financial institution solvent at a specified confidence level. III. For an individual bank, economic capital is always less than regulatory capital. IV. The determination of economic capital, and its allocation to the various business units, is a strategic decision process that affects the risk/return performance of the business units and the bank as a whole.

A. II and IV only

B. I, II, III, and IV

C. I, II, and IV only

D. I and IV only

参考答案: C

【莽学解析】All the statements are correct, except III, that economic capital must always be less than regulatory capital. This is too broad a statement. The two measures are not necessarily related, even though this is the goal of having more risk-sensitive capital requirements. (2)

5. Tower Bank approaches economic capital and risk aggregation by first estimating the stand-alone economic capital for individual risk factors. In a second step, the bank aggregates risks based on the relative amounts of economic capital allocated to these risks, taking into account the correlations between risk factors. Which of the following variables is not a primary driver of the diversification benefit that accrues from aggregation?

A. The number of risk positions

B. The size of the portfolio

C. The concentration of those risk positions, or their relative weights in a portfolio

D. The correlation between the positions

参考答案: B

【莽学解析】A portfolio is generally more diversified when it has many positions, which are not too large, and with low correlations. Hence answer ACD involve driver of diversification. In contrast, risk measures are homogeneous with the size of the portfolio. Doubling all the positions will double the risk of the portfolio. (1)

6. Consider a bank that wants to have an amount of capital so that it can absorb unexpected losses corresponding to a firm-wide VAR at the 1% level. It measures firm-wide VAR by adding up the VARs for market risk, operational risk, and credit risk. There is a risk that the bank has too little capital because

- A. It does not take into account the correlations among risks.
- B. It ignores risks that are not market, operational, or credit risks.
- C. It mistakenly uses VAR to measure operational risk because operational risks that matter are
- D. It is meaningless to add VARs.

参考答案: B

【莽学解析】VAR can be added across different types of risk, but this will provide a conservative estimate of capital as diversification effects are ignored. So answer a. would be for too much capital. Answer c. is not correct because rare events can be factored into operational VAR. Most likely, the bank may have too little capital for other types of risk than those measured by these three categories. (1)

7. Counterparty A is an American company with manufacturing operations in Indonesia and its main customers in the United States, while counterparty B is an American company that manufactures its goods domestically and exports solely to Indonesia. Which one of the following transactions with either counterparty will be a wrong-way exposure for a bank?

- A. A five-year plain-vanilla IDR/USD cross-currency swap between the bank and counterparty A where the
- B. A five-year plain-vanilla IDR/USD currency option sold by the bank to counterparty A for it to buy
- C. A five-year plain-vanilla IDR/USD cross-currency swap between the bank and counterparty B where the
- D. A five-year plain-vanilla IDR/USD currency option bought by the bank from counterparty B for the bank

参考答案: C

【莽学解析】This is an example of a wrong-way exposure, where a gain on the instrument for the bank is associated with a higher PD for its counterparty. If the IDR depreciates, company A will make a profit because its costs will go down in dollars. Conversely for company B, because its dollar revenues will decrease. Under c., the company pays USD and receives IDR. This transaction will create a loss if the IDR depreciates. In this situation, company B will lose money as well on its exports. Hence, this is a wrong-way trade. (5)

8. Your bank calculates a one-day 95% VAR for market risk, a one-year 99% VAR for operational risk, and a one-year 99% VAR for credit risk. The measures are \$100 million, \$500 million, and \$1 billion, respectively. Operational risk is defined to include all risks that are not market risks and credit risks, and these three categories are mutually uncorrelated. The market risk VAR assumes normally distributed returns, and the bank expects to be successful to keep its market risk VAR at that level for the whole year. Your boss wants your best estimate of a firm-wide VAR at the 1% level. Among the following choices, your best estimate is:

- A. \$1.7 billion
- B. \$1.94 billion
- C. \$2.50 billion
- D. It is impossible to aggregate risks with different distributions having only this information

参考答案: C

【莽学解析】

$$\text{VAR}_{\text{MKT}} = \$100 \times \left(\frac{2.326}{1.645} \right) \sqrt{252} = \$2,245.$$

$$\text{VAR} = \sqrt{\$2,245^2 + \$500^2 + \$1,000^2} = \$2,458.$$

9. Which of the following is not a proper practice of risk management and control for a financial institution with assets in excess of \$100 million?

- A. A firm's sole mechanism to monitor the implementation of the control policies defined by the board
- B. A subcommittee of the board is responsible for the approval of risk limits, risk management policies
- C. Senior management is responsible for the day-to-day oversight of the firm's activities, implementing
- D. Senior management is responsible for establishing written documentation about control procedures at

参考答案: A

【莽学解析】Control policies also need to be verified by an internal audit function. (0)

10. The following is not a problem of having one employee perform trading functions and back-office functions.

- A. The employee gets paid more because she performs two functions.
- B. The employee can hide trading mistakes when processing the trades.
- C. The employee can hide the size of her book.
- D. The employee's firm may not know its true exposure.

参考答案: A

【莽学解析】Answers b., c., and d. all can lead to a situation where the trader loses money and hides the losses. Answer a. is not a problem. (0)

11. The CEO of a regional bank understands that failing to anticipate cash flow needs is one of the most serious errors that a firm can make and demands that a good liquidity-at-risk (LaR) measurement system be an essential part of the bank's risk management framework. Which of the following statements concerning LaR is correct?

- A. Reducing the basis risk through hedging decreases LaR.
- B. Hedging using futures has the same impact on LaR as hedging using long option positions.
- C. For a hedged portfolio, the LaR can differ significantly from the VaR.
- D. A firm's LaR tends to decrease as its credit quality declines.

参考答案: C

【莽学解析】The LaR can differ substantially from the VaR in a hedged portfolio, and in different situations can be larger or smaller than the VaR. For example, consider a portfolio where futures contracts are used to hedge. While the hedge can reduce the VaR of the portfolio, the LaR can be larger than the VaR as the futures contracts create an exposure to margin calls. 莽学教育官网 www.mangxuejy.com 版权所有

and the potential for cash outflows. Alternatively, in situations where the hedging instruments do not result in potential cash outflows over the measurement period (e.g. a portfolio of European options which do not expire during the period), the LaR can be smaller than the VaR. (1)

12. Nordlandia is a country with a developed economy maintaining its own currency, the Nordlandian crown (NLC), and whose most important export is domestically produced oil and natural gas. In a recent stress test of Nordlandia's banking system, several scenarios were considered. Which of the following is most consistent with being part of a coherent scenario?

- A. An increase in domestic inflation and appreciation of the NLC
- B. A significant increase in crude oil prices and a decrease in the Nordlandian housing price index
- C. A drop in crude oil prices and appreciation of the NLC
- D. A sustained decrease in natural gas prices and a decrease in the Nordlandian stock index

参考答案: D

【莽学解析】A scenario is coherent when a change in one factor influences other factors in a logical manner. In this case, choice d is a coherent scenario since the Nordlandian economy depends heavily on exports of oil and natural gas, so therefore a sustained decrease in natural gas prices should lead to a decrease in stock prices as the domestic economy weakens. In stress testing banks, it is often challenging to develop scenarios where all factors behave coherently. (1)

13. The CFO at a bank is preparing a report to the board of directors on its compliance with Basel requirements. The bank's average capital and total exposure for the most recent quarter is as follows:

Using the Basel III framework, which of the following is the best estimate of the bank's current leverage ratio?

- A. 2.94%
- B. 3.70%
- C. 4.68%
- D. 5.08%

参考答案: B

【莽学解析】For Basel III purposes, the leverage ratio is $\text{Tier 1 Capital} / \text{Total Exposure} = 136 / 3,678 = 3.70\%$. (1)

14. In the latest guidelines for computing capital for incremental risk in the trading book, the incremental risk charge (IRC) addresses a number of perceived shortcomings in the 99%/10-day VAR framework. Which of the following statements about the IRC are correct? I. For all IRC-covered positions, the IRC model must measure losses due to default and migration over a one-year horizon at a 99% confidence level. II. A bank can incorporate into its IRC model any securitization positions that hedge underlying credit instruments held in the trading account. III. A bank must calculate the IRC measure at least weekly, or more frequently as directed by its supervisor. IV. The incremental risk capital charge is the maximum of (1) the average of the IRC measures over 12 weeks and (2) the most recent IRC measure. In the latest guidelines for computing capital for incremental risk in the trading book, the incremental risk charge

REGULATORY CAPITAL

Total Common Equity Tier 1 Capital

Additional Tier 1 Capital

Prior to regulatory adjustments

Regulatory adjustments

Total Tier 1 Capital

Tier 2 Capital

Prior to regulatory adjustments

Regulatory adjustments

Total Capital

Total Average Exposure

(IRC) addresses a number of perceived shortcomings in the 99 %/10-day VAR framework. Which of the following statements about the IRC are correct? I. For all IRC-covered positions, the IRC model must measure losses due to default and migration over a one-year horizon at a 99% confidence level. II. A bank can incorporate into its IRC model any securitization positions that hedge underlying credit instruments held in the trading account. III. A bank must calculate the IRC measure at least weekly, or more frequently as directed by its supervisor. IV. The incremental risk capital charge is the maximum of (1) the average of the IRC measures over 12 weeks and (2) the most recent IRC measure.

A. I and II

B. III and IV

C. I, II, and III

D. II, III, and IV

参考答案: B

【莽学解析】Statement I. is incorrect because the confidence level is 99.9%. Statement II. Is incorrect because securitizations are subject to the banking book capital requirements. The others two statements are correct. (2)

15. All the following are operational risk loss events, except:

A. An individual shows up at a branch presenting a check written by a customer for an amount

sub

B. A bank, acting as a trustee for a loan pool, receives less than the projected funds due to
C. delayed repayment of certain loans.

D. During an adverse market movement, the computer network system becomes overwhelmed, and only
参考答案: B

【莽学解析】Statement a. represents external fraud, which is included in operational risk.
Statement c. represents a systems failure. Statement d. is a failure in internal processes. (1)

16. Randy Bartell has collected operational loss data to calibrate frequency and severity distributions. Generally, he regards all data points as a sample from an underlying distribution and therefore gives each data point the same weight or probability in the statistical analysis. However, external loss data is inherently biased. Which of the following is not typically associated with external data?

A. Data capture bias

B. Scale bias

C. Truncation bias

D. Survivorship bias

参考答案: D

【莽学解析】Internal data certainly has a problem of survivorship bias because a bank where employees compute the operational risk distribution is still alive. This precludes a history of large, deadly losses. (1)

17. Which of the following statements are valid about hedging operational risk? I. A primary disadvantage of insurance as an operational risk management tool is the limitation of policy coverage. II. If an operational risk hedge works properly, a firm will avoid damage to its reputation from a high-severity operational risk event. III. While all insurance contracts suffer from the problem of moral hazard, deductibles help reduce this problem. IV. Catastrophe (cat) bonds allow a firm to hedge operational risks associated with natural disasters.

A. I, III, and IV only

B. I, II, and IV only

C. II and III only

D. III and IV only

参考答案: A

【莽学解析】All the statements are valid, except for II. Even if a firm implements a hedge or purchases insurance, the news of a large operational loss will still damage its reputation. (3)

18. The following statements concern differences between market and operational risk VAR models. Which of the following statements is false?

A. Market risk models are primarily driven by historical data, whereas operational risk models are

B. Market risk models typically define VAR as a specific quantile of the loss distribution, whereas

C. Backtesting is generally a more useful form of validation for market risk models than for operational

D. The time horizon over which VAR is evaluated differs between market and operational risk models.

参考答案: B

【莽学解析】Statement a. is true because operational risk models often rely heavily on scenario analysis. Backtesting is more difficult for operational risk models, so c. is true. VAR is usually evaluated over shorter horizons, so d. is true. Statement b. is false because both market and operational risk models use a quantile of the distribution. (3)

19. Which of the following statements about its methodology for calculating an operational risk capital charge in Basel II is correct?

- A. Basic indicator approach is suitable for institutions with a sophisticated operational risk profile.
- B. Under the standardized approach, capital requirement is measured for each of the business line.
- C. Advanced measurement approaches will not allow an institution to adopt its own method of assessment
- D. AMA is less risk-sensitive than the standardized approach.

参考答案: B

【莽学解析】The BI approach is suitable for banks with basic risk profiles, so answer a. is incorrect. The AMA approach is an internal model, so answer c. is incorrect. The AMA is more risk-sensitive than the SI approach, so answer d. is incorrect. (1)

20. In a market crash the following are usually true? I. Fixed-income portfolios hedged with short Treasury bonds and futures lose less than those hedged with interest rate swaps given equivalent durations. II. Bid-offer spreads widen because of lower liquidity. III. The spreads between off-the-run bonds and benchmark issues widen.

- A. I, II, and III
- B. II and III
- C. I and III
- D. None of the above

参考答案: B

【莽学解析】In a crash, bid offer spreads widen, as do liquidity spreads. Answer I. is incorrect because Treasuries usually rally more than swaps, which lead to greater losses for a portfolio short Treasuries than swaps. (1)

21. You are a manager of a renowned hedge fund and are analyzing a 1,000 share position in an undervalued but illiquid stock BNA, which has a current stock price of USD 72 (expressed as the midpoint of the current bid-ask spread.) Daily return for BNA has an estimated volatility of 1.24%. The average bid-ask spread is USD 0.16. Assuming returns of BNA are normally distributed, what is the estimated liquidity-adjusted daily 95% VaR, using the constant spread approach?

- A. USD 1,389
- B. USD 1,468
- C. USD 1,549
- D. USD 1,629

参考答案: C

【莽学解析】The constant spread approach adds half of the bid-ask spread (as a percent) to the VaR calculation: Daily 95% VaR = $72,000 * (1.645 * 0.0124) = \text{USD } 1469$ Liquidity cost =

$$72,000 \times (0.5 \times 0.16 / 72) = 80L\text{VaR} = \text{VaR} + \text{LC} = 1549(0)$$

22. In march 2009, the Basel Committee published the consultative document “Guidelines for computing capital for Incremental risk in the trading book”. The incremental risk charge (IRC) defined in that document aims to complement additional standards being applied to the value-at-risk modeling framework which address a number of perceived shortcomings in the 99%/10-day VaR framework. Which of the following statements about the IRC is/are correct? I. For all IRC-covered positions, a bank’s IRC model must measure losses due to default and migration over a one-year capital horizon at a 99% confidence level. II. A bank must calculate the IRC measure at least weekly, or more frequently as directed by its supervisor.

- A. Statement I only
- B. Statement II only
- C. Both statements are correct
- D. Both statements are incorrect

参考答案: B

【莽学解析】I is incorrect. Specifically, for all IRC-covered positions, a bank’s IRC model must measure losses due to default and migration at the 99.9% confidence interval over a capital horizon of one year, taking into account the liquidity horizons applicable to individual trading positions or sets of positions. II is correct. A bank must calculate the IRC measure at least weekly, or more frequently as directed by its supervisor. (1)

23. The Basel Committee recommends that banks use a set of early warning indicators in order to identify emerging risks and potential vulnerabilities in its liquidity position, which of the following are not early warning indicators of a potential liquidity problem? i. Rapid asset growth ii. Negative publicity iii. Credit rating downgrade iv. Increased asset diversification

- A. ii and iii
- B. iv only
- C. i and iv
- D. i, ii and iv

参考答案: B

【莽学解析】Rapid asset growth, negative publicity and credit rating downgrade are all early warnings of a potential liquidity problem. Increased asset diversification is not an early warning indicator of liquidity. (0)

24. Using approved approaches. Barlop Bank has calculated the following values: Risk-weighted assets for credit risk, RWAc: USD 47 million Market risk capital requirement, CRm: USD 3.2 million Operational risk capital requirement. CRo: USD 2.8 million Assuming Tier 3 capital is USD 0, in which scenario below does Barlop Bank meet the Basel II minimum capital requirement?

- A.
- B. 无
- C. 无
- D. 无

参考答案: B

【莽学解析】The total risk-weighted assets are: $RW\text{At} = RW\text{Ac} + 12.5 \times (CR\text{m} - CR\text{o}) = 47 + 12.5 \times (3.2 + 2.8) = \text{USD } 122 \text{ million}$ Eligible regulatory capital is: $RC = \text{Tier } 1 + \text{Tier } 2 -$

(all figures in USD million)

	Tier 1 Capital	Tier 2 Capital	Deductions
a.	6.8	3.2	0.4
b.	6.2	4.8	0.8
c.	6.2	8.4	2.8
d.	4.8	6.2	0.0

Deductions In addition, Tier 2 capital must be less than or equal to Tier 1 capital. Minimum capital requirement is: $RC / RWAt \geq 8\%$ In this case, $RC \geq 0.08 \times 122 = 9.76$ $RC = 6.8 + \min(3.2, 6.8) - 0.4 = 9.6$ (Fails to meet the minimum capital requirement) $RC = 6.2 + \min(4.8, 6.2) - 0.8 = 10.2$ (Meets the minimum capital requirement) $RC = 6.2 + \min(8.4, 6.2) - 2.8 = 9.6$ (Fails to meet the minimum capital requirement) $RC = 4.8 + \min(6.2, 4.8) - 0.0 = 9.6$ (Fails to meet the minimum capital requirement) (1)

25. Based on "Supervisory Guidance for Assessing Banks' Financial Instrument Fair Value Practices" issued by the Basel Committee, which of the following factors should be considered in determining whether the sources of fair values are reliable and relevant? i. Frequency and availability of prices/ quotes ii. Maturity of the market iii. Agreement of values with those generated by internal models iv. Number of independent sources that produce the prices/ quotes

- A. i and ii only
- B. iii and iv only
- C. i, ii and iii only
- D. I, ii and iv only

参考答案: D

【莽学解析】Agreement with internally generated values is not necessary or relevant. The other three factors should be considered in determining the reliability and relevancy of the sources of fair values. (0)

26. Major Investments is an asset management firm with USD 25 billion under management. It owns 20% of the stock of a company. Major Investments' risk manager is concerned that, in the event the entire position needs to be sold, its size would affect the market price. His estimate of the price elasticity of demands is -0.5. What is the increase in Major Investments' Value-at-Risk estimate for this position if a liquidity adjustment is made?

- A. 4%
- B. 10%
- C. 15%
- D. 20%

参考答案: B

【莽学解析】

$$\frac{LVaR}{VaR} = 1 - \frac{\Delta P}{P} = 1 - \eta \frac{\Delta N}{N}$$

The ratio of LVaR to VaR depends on the elasticity of demand η and the size of the trade, relative to the size of the market. ($\Delta N/N$) We are given; $dN/N = 0.2$ and that the price elasticity is -0.5 . Thus $dP/P = \text{elasticity} * dN/N = -0.1$ Therefore $LVaR/VaR = 1 - dP/P = 1 + 0.1 = 1.1$ The liquidity adjustment increases the VaR, by 10%. (1)

27. Bank A, a large international bank, engages in trading with counterparties throughout the world. Recently, it has started to pay more attention to wrong-way risk in its trading book. Which one of the following four scenarios would serve as an example of wrong-way risk from Bank A's perspective?

- A. Bank A has a large exposure to Bank B's equity, and Bank B offers to sell put options with long maturity
- B. Bank A enters into a medium-term repurchase agreement with Bank B using several different types of
- C. Bank A actively manages its credit portfolio using credit default swaps, and decides to sell long-term
- D. Bank A enters into a forward rate agreement with Bank B to deliver at LIBOR + 2.5%

参考答案: A

【莽学解析】According to Section 101 of Basel III, a bank is exposed to "specific wrong-way risk" if future exposure to a specific counterparty is highly correlated with the counterparty's probability of default. For example, a company writing put options on its own stock creates wrong-way exposures for the buyer that is specific to the counterparty. (1)

28. The Chief Risk Officer of your bank has put you in charge of operational risk management. As a first step, you collect internal data to estimate the frequency and severity of operational-risk-related losses. The table below summarizes your findings:

Frequency Distribution

Number of Occurrences	Probability
0	0.6
1	0.3
2	0.1

Based on this information, what is your estimate of the expected loss due to operational risk?

A. USD 20,000

- B. USD 70, 250
C. USD 130, 600
D. USD 140, 500

参考答案: B

【莽学解析】The expected loss can be calculated by multiplying the expected frequency and the expected severity. Expected frequency is equal to: $(0 * 0.6) + (1 * 0.3) + (2 * 0.1) = 0.5$, Expected severity is equal to: $(1000 * 0.5) + (100,000 * 0.4) + (1,000,000 * 0.1) = 140,500$. The expected loss is therefore: $0.5 * 140,500 = 70,250$ (2)

29. In recent years, large dealer banks financed significant fractions of their assets using short-term, often overnight, repurchase (repo) agreements in which creditors held bank securities as collateral against default losses. The table below shows the quarter-end financing of four broker-dealer banks. All values are in USD billions:

	Bank A	Bank B	Bank C
Financial instruments owned	823	629	723
Pledged as collateral	272	289	389

In the event that repo creditors become nervous about a bank's solvency, which bank is least vulnerable to a liquidity crisis?

- A. Bank A
B. Bank B
C. Bank C
D. Bank D

参考答案: A

【莽学解析】A liquidity crisis could materialize if repo creditors become nervous about a bank's solvency and choose not to renew their positions. If enough creditors choose not to renew, the bank could likely be unable to raise sufficient cash by other means on such short notice, thereby precipitating a crisis. However, this vulnerability is directly related to the proportion of assets a bank has pledged as collateral. Bank A is least vulnerable since it has the least dependence on short-term repo financing (i.e. the lowest percentage of its assets out of the four banks is pledged as collateral: $272/823$, or 33%). (0)

30. In calculating its risk-adjusted return on capital, your bank uses a capital charge of 2.50% for revolving credit facilities with a loan equivalent factor of 0.35 assigned to the undrawn portion. Recently, you have become concerned that the protective covenants embedded in these loans are weak and may not prevent customers from drawing on the facilities during times of stress. As such, you have recommended doubling the loan equivalent factor to 0.70. This recommendation has met with resistance from the loan origination team, and senior management has asked you to quantify the impact of your recommendation. For a typical facility that has an

original principal of USD 1 billion and is 30% drawn, how much additional economic capital would have to be allocated if you increase the loan equivalent factor from 0.35 to 0.70?

- A. USD 3.50 million
- B. USD 6.13 million
- C. USD 8.75 million
- D. USD 13.63 million

参考答案: B

【莽学解析】The required economic capital to support a loan in theRAROC model can be calculated using the following formula:Required Capital= [BDBAWN + (BUNDBAWN *LEF)]*CFwhere LEF represents the loan equivalent factor and CFrepresents the capital factor. Therefore, the initial required economic capital iscalculated as follows: [(1 billion * 0.3) + (1 billion * 0.7 * 0.35)] * 2.5% =USD 13.625 million, and the required capital if the change is implementedwould be: [(1 billion * 0.3)+ (1 billion * 0.7 * 0.70)] * 2.5% = USD 19.75 million. Hence the additional required economic capital would be19.75 - 13.625 or 6.13 million. (0)

31. Grayson Ballentine, an analyst with Platinum Consultants, is analyzing the economic effects of buying stock with borrowed funds for a high net worth individual client. Assume that the client has \$200 cash invested (i.e., no borrowed funds) and then uses the cash to purchase stock. The client then decides to use 50% borrowed funds to purchase stock on margin. After the margin transaction, the total assets on the full economic balance sheet and the leverage ratio are closest to:

A.

	<u>Total Assets</u>	<u>Leverage Ratio</u>
a.	\$200	1.0
b.	\$300	1.5
c.	\$300	2.0
d.	\$400	2.0

B. 无

C. 无

D. 无

参考答案: B

【莽学解析】

<i>Asset</i>		<i>Liabilities and Equity</i>	
Cash	\$200	Debt	\$0
Stock	\$0	Equity	\$200
Total assets	\$200	TL and OE	\$200

<i>Asset</i>		<i>Liabilities and Equity</i>	
		Margin loan	\$100
Stock	\$200	Equity	\$100
Total assets	\$200	TL and OE	\$200

<i>Asset</i>		<i>Liabilities and Equity</i>	
Cash	\$100	Margin loan	\$100
Stock	\$200	Equity	\$200
Total assets	\$300	TL and OE	\$300

Thus, the leverage ratio has increased to 1.5 (i.e., \$300 / \$200). (6)

32. As a result of the new Basel standards, every bank must now calculate explicit capital charges to cover operational risk using one of three approaches: the basic indicator approach (BIA), the standardized approach (SA), and the advanced measurement approach (AMA). How many of the following statements are true with respect to these operational risk approaches? I. In practice the AMA is the most stringent approach for operational risk. II. The most popular method to satisfy the AMA is the loss distribution approach. III. The AMA allows a bank to build its own operational risk model and measurement system comparable to market risk standards. IV. BIA is widely used in insurance and actuarial science.

- A. One.
- B. Two.
- C. Three.
- D. Four.

参考答案: B

【莽学解析】Statement I is incorrect. AMA is the most flexible method. Statement II is correct. The most popular method to satisfy the AMA is the loss distribution approach (LDA). Statement III is correct. The AMA method allows a bank to build its own operational risk model and measurement system that is comparable to market risk standards. Statement IV is incorrect. LDA is widely used in insurance and actuarial science. (1)

33. Compare the capital requirements of Bank A and Bank B based on the following equal-sized portfolios.

Bank A
 25% OECD sovereign debt
 75% non-OECD sovereign debt

Bank B
 50% OECD sovereign debt
 50% non-OECD sovereign debt

The credit risk capital requirement of Bank A will be greater than the credit risk capital requirement of Bank B under the:

- A. standardized\approach of Basel I.
- B. standardized\approach of Basel II.
- C. IRB foundation\approach of Basel II.
- D. advanced\measurement approach of Basel II.

参考答案: A

【莽学解析】Under Basel I, OECD risk weights were always less than non-OECD risk weights, but this is not the case under Basel II. Bank A has more non-OECD debt, so it will have a higher capital requirement under Basel I. Choices c and d depend on external and internal ratings, respectively, which are unknown. (0)

34. Alan Walters is a risk manager at OneFirst Bank. He has recently been asked to prepare a risk management report for his bank's board of directors. The board members are planning to utilize this report to make critical risk management decisions regarding relevant bank risks. Walters ensures the board that the report will be accurate and complete by covering all material risk areas within the organization. He also points out that the report will contain meaningful information that will be applicable to all employees and easily understood at all levels of the organization. Walters plans on distributing the risk management report to all relevant parties while ensuring confidentiality. Which of the following effective risk data aggregation and risk reporting principles set forth by the Basel Committee on Banking Supervision did Walters most likely violate?

- A. Principle 7-Accuracy.
- B. Principle 8-Comprehensiveness.
- C. Principle 9-Clarity and Usefulness.
- D. Principle 11-Distribution.

参考答案: C

【莽学解析】Principle 9 requires that reports be tailored to the end user (e.g., the board, senior managers, and risk committee members) and should assist them with sound risk management and decision making. Walters suggested that the report would not be tailored to the board because the report was going to be applicable to all employees and easily understood at all levels of the organization. Principle 7 requires that risk reports should be accurate and precise. Board members should be able to use the reports to make critical decisions about bank risks. Principle 8 requires that reports should contain position and risk exposure information for all relevant risks. Principle 11 requires that reports should be disseminated in a timely fashion while maintaining confidentiality where required. (51)

35. Ki Dean, FRM, is a consultant for U.S.-based McGregor Bank. Dean attended a meeting where a Senior Vice President made the following statements about the Basel II Accord. I. By switching from the standardized approach to the foundation IRB approach, our risk weightings for a majority of the bank's assets are lower, which could reduce our capital requirements by as much as 15% next year. II. Under the IRB advanced approach, we generate all the estimates used in the models. III. Pillar 2 concerns external monitoring and supervisory review. How many of the statements are correct?

- A. None.

- B. One.
- C. Two.
- D. Three.

参考答案: B

【莽学解析】 Only Statement II is correct. Statement I is incorrect. There is a transition period whereby the capital requirement under IRB cannot be less than 90% of the capital requirement the previous year and 80% in the second year. Statement III is also incorrect. Pillar 2 concerns supervisory review; Pillar 3 concerns market discipline, including external review. (1)

36. Model risk is the risk associated with trying to capture an observed phenomenon using a financial model. Models, by their very construction, are flawed instruments and cannot possibly capture the full scope of factors necessary to explain the dynamic relationships we observe. It is better to ask oneself what is wrong with the model rather than glossing over potential errors in construction. Important sources of model risk include incorrect model specifications, incorrect model application, implementation risk, incorrect calibration, programming errors, and data problems. Which of the following statements is correct regarding sources of model risk?

- A. An example of incorrect model application would be if a model assumes a binomial distribution
- B. Multiple users of the capital asset pricing model (CAPM) may incorporate different measures of
- C. Use of outdated model input parameters measured with error or based on inappropriate sample
- D. Using the standard bond valuation model to value mortgage-backed securities is an example of incorrect model application

参考答案: D

【莽学解析】 The following model risks are represented by choices a through c: incorrect model specification, implementation risk, and calibration error. Choice d is correct. (2)

37. Given the information below, what is the liquidity-adjusted VaR at the 95% confidence level? Current stock

price			\$200	Stock price standard
deviation	3.0%	Bid-ask spread		
mean			1.0%	Bid-ask spread standard
deviation	0.5%	Spread confidence parameter		1.96

- A. \$11.73.
- B. \$11.88.
- C. \$13.59.
- D. \$13.74.

参考答案: B

【莽学解析】 The liquidity-adjusted VaR is the sum of two components. The first component is the VaR, which is the stock price times the z-score times the stock price standard deviation: $\$200 \times 0.03 \times 1.65 = \9.90 . The second component adjusts for liquidity risk and is half the stock price times a bid-ask spread component: $0.5 \times [\$200 \times (0.01 + 1.96 \times 0.005)] = \1.98 . Note that we use a critical z-score of 1.96 when calculating the liquidity risk component. The

liquidity-adjusted VaR is thus: $\$9.90 + \$1.98 = \$11.88$. The incorrect liquidity-adjusted VaR answers use the incorrect critical z-scores. (3)

38. A trader observes a quote for Stock ZZZ, and the midpoint of its current best bid and best ask price is CAD 35. ZZZ has an estimated daily return volatility of 0.25% and average bid-ask spread of CAD 0.1. Assuming the returns of ZZZ are normally distributed, what is closest to the estimated liquidity-adjusted, 1-day 95% VaR, using the constant spread approach on a 10,000 share position?

- A. CAD 1,000
- B. CAD 2,000
- C. CAD 3,000
- D. CAD 4,000

参考答案: B

【莽学解析】The daily 95% VaR = $35 \times 10,000 \times (1.645 \times 0.0025) = \text{CAD } 1,440$. The constant spread approach adds half of the bid-ask spread (as a percent) to the VaR calculation, using the following formula: Liquidity Cost (LC) = $1/2 (\text{spread} \times p)$, where spread is equal to the actual spread divided by the midpoint and p is the value of the position. Therefore, the liquidity cost (LC) = $350,000 \times (0.5 \times 0.1 / 35) = \text{CAD } 500$. Liquidity-adjusted VaR (LVaR) = VaR + LC = CAD 1,940. (2)

39. The risk management department at Southern Essex Bank is trying to assess the impact of the capital conservation and countercyclical buffers defined in the Basel III framework. They consider a scenario in which the bank's capital and risk-weighted assets are as shown in the table below (all value are in EUR million):

Risk-weighted assets	3,110
Common equity Tier 1 (CET1) capital	230
Additional Tier 1 capital	34
Total Tier 1 capital	264
Tier 2 capital	81
Tier 3 capital	-
Total capital	345

Assuming that all Basel III phase-ins have occurred and that the bank's required countercyclical buffer is 0.75%, which of the capital ratios does the bank satisfy?

- A. The CET 1 capital ratio only.
- B. The CET 1 capital ratio plus the capital conservation buffer only.
- C. The CET 1 capital ratio plus the capital conservation buffer and the countercyclical buffer.
- D. 1

参考答案: B

【莽学解析】The bank has CET1 capital ratio of $(230 / 3110)$ or 7.4%. This ratio meets the 4.5% minimum and the additional 2.5% capital conservation buffer but not the additional

countercyclical buffer of 0.75% (4.5%+2.5%+0.75=7.75%). (4)

40. As a risk manager of Bank ABC, John is asked to calculate the market risk capital charge of the bank's trading portfolio under the internal models approach using the information given in the table below. Assuming the return of the bank's trading portfolio is normally distributed, what is the market risk capital charge of the trading portfolio?

VaR (95%, 1-day) of last trading day	USD 84,582
Average VaR (95%, 1-day) for last 60 trading days	USD 134,594
Multiplication Factor	2

- A. USD 84,582
- B. USD 134,594
- C. USD 189,737
- D. USD 222,893

参考答案: D

【莽学解析】Market Risk Capital Charge =

$\text{MAX}(40,000 \times \text{SQRT}(10) / 1.65 \times 2.326, 2 \times 25,000 \times \text{SQRT}(10) / 1.65 \times 2.326) = 222,893$ Candidate is required to convert the VaR (95%, 1-day) to a 95% 10-day VaR. (2)

41. Several steps are involved in developing the loss distribution approach (LDA), including derivation of frequency and severity distributions, estimation of the tail distribution, modeling correlations, and incorporation of insurance. Which of the following statements about LDA modeling is incorrect?

- A. To select the appropriate distribution of the frequency of losses (Poisson distribution, binomial distribution)
- B. Extrapolation of observed losses, in order to develop a more complete severity distribution (of losses)
- C. To build an LDA model that includes adequate representation in the tail, both internal and external data sources are required
- D. The LDA typically allows for the risk reducing effect of insurance by lowering the severity of losses

参考答案: A

【莽学解析】Statement a is incorrect. Selection of the appropriate distribution is done by applying a goodness-of-fit test, such as chi-squared test. The chosen distribution will most closely fit the hypothetical distribution. Statement b is correct. Extrapolation could lead to the inclusion of severe hypothetical losses, thus the overestimation of the needed capital charge. Statement c is correct. To develop distributions for various threshold levels and the respective weights, internal as well as external data sources are required. Statement d is correct. Loss severity is reduced because insurance indemnifies the insured (institution) above the deductible level; however, no one has control over frequency of unintentional losses. (2)

42. A firm has determined that the risk-adjusted return on capital (RAROC) for a particular project is 14%. To evaluate whether the firm should accept the project, an analyst determines

that the firm's beta is 1.3, the expected market return is 13%, and the risk-free interest rate is 5.5%. If the analyst uses the adjusted RAROC (ARAROC) methodology to make an accept/reject decision, should the project be accepted?

- A.No, because the computed ARAROC is approximately 1 % less than the market risk premium.
- B.No, because the RAROC is 1.25% less than the return predicted by the CAPM.
- C.Yes, because the computed ARAROC is approximately 1 % more than the market risk premium.
- D.Yes, because the ARAROC is approximately 4% more than the return predicted by the CAPM.

参考答案: A

【莽学解析】

$$ARAROC = \frac{(RAROC - R_F)}{\beta_E} = \frac{0.14 - 0.055}{1.3} = 0.06538$$

43.A bank issues a \$200,000,000 loan with the following characteristics: • Loan pays a fixed annual interest rate of 8.5%. • The interest expense associated with the loan is 6.0%. • The operating cost to the bank's commercial lending division is \$1,600,000. • Economic capital required to support the loan is \$16 million, which is invested in T-bills paying a rate of 2.8%. • The expected loss for the loan is 15 basis points per year. What is the risk-adjusted return on capital (RAROC) for this loan?

- A. 2.50%.
- B. 6.25%.
- C. 18.28%.
- D. 22.18%.

参考答案: D

【莽学解析】

$$RAROC = \frac{\text{revenues} - (\text{expected loss}) - \text{expenses} + (\text{return on economic capital}) \pm (\text{transfer price})}{\text{economic capital}}$$

$$RAROC = \frac{17,000,000 - 300,000 - 13,600,000 + 448,000 \pm 0}{16,000,000} = 22.175\%$$

44.The balance sheet for Pierce Bankholdings as of December 31, 2013, included the following items: • Preferred stock (cumulative): \$200,000. • Common stock: \$1,800,000. • Retained earnings: \$16,000,000. • Unrealized gains on long-term equity holdings: \$75,000. Based only on this information, estimate the Tier 1 and Tier 2 capital of Pierce Bankholdings as of 12/31/13.

A.

	<u>Tier 1</u>	<u>Tier 2</u>
a.	\$1,800,000	\$200,000
b.	\$1,800,000	\$275,000
c.	\$17,800,000	\$200,000
d.	\$17,800,000	\$275,000

B. 无

C. 无

D. 无

参考答案: D

【莽学解析】Tier1 capital includes common stock and retained earnings, but not cumulative preferred stock. Tier 2 capital would include the cumulative preferred, as well as the unrealized gains on long term investments. (2)

45.. Suppose a bank loan has the following characteristics: • Gross revenues are \$1.3 million. • Interest expense is \$0.3 million. • The return on the \$5million economic capital invested in T-bills is \$100,000. • The firm beta is 1.5. • The unexpected loss for the loan is estimated at \$500,000. • The adjusted RAROC is equal to 8%. What is the worst-case loss for this loan?

A. \$1.6 million.

B. \$2.3 million.

C. \$0.9 million.

D. \$0.75 million.

参考答案: C

【莽学解析】First, determine RAROC as follows:
$$RAROC = BE * ARAROC + RF$$
The RF is calculated as the return from economic capital, which is: $\$100,000 / \$5,000,000 = 2\%$
$$RAROC = 1.5 \times 0.08 + 0.02$$
$$RAROC = 14\%$$
Second, determine the expected loss for the loan as follows:
$$EL = - (RAROC \times EC - revenues + expenses - return on EC)$$
$$EL = - (0.14 \times \$5M - \$1.3M + \$0.3M - \$0.1M) = \$400,000$$
Finally, compute the worst-case loss as the sum of expected and unexpected loss:
$$worst-case\ loss = expected\ loss + unexpected\ loss$$
$$worst-case\ loss = \$400,000 + \$500,000$$
$$worst-case\ loss = \$0.9M(4)$$

46. Becky has been researching the application of the LDA (loss distribution approach) by banks to quantify risk and estimate capital charge under the Basel II Accord. She shares with you her insights about this methodology in the following statement: "The LDA models losses with respect to both frequency and severity with the goal of determining the appropriate level of capital. This approach requires a variety of assumptions concerning the distribution of frequency and severity, and the parameters and correlations. The analysis should incorporate data from both the institution being analyzed and external Sources. Ultimately, the assumptions of the model should be tested with scenarios, stress tests, and back-testing." She is, however, unsure about certain dimensions of the purposes and structure of the LDA and needs your feedback. Which of the following statements regarding the LDA is correct?

A. The LDA is the accepted method in the Basel II Accord for determining the operational risk regulatory

- B.To model an operational risk loss distribution, every data point in the business line/event type matrix is given an equal weight except for split losses, old losses, and external losses and scenarios.
- C.To model an operational risk loss distribution, distributions from both event frequency and loss severity are needed.
- D.The LDA ensures that losses would be perfectly correlated in order to estimate the overall operational risk capital.

参考答案: A

【莽学解析】Statement a is correct. Firms can use the LDA model, the accepted method, for estimating regulatory capital. However, firms can use this approach for calculating the economic capital as well. Statement b is incorrect. Every data point in the business line/event type matrix is given an equal weight except for split losses, old losses, and external losses and scenarios. Statement c is incorrect. To model an operational risk loss distribution, distributions from both event frequency and loss severity are needed. Statement d is incorrect. The LDA approach ensures that losses would not be perfectly correlated.

(1)

47.The table below gives information on a \$200 million loan portfolio of the Third Premier Bank regarding its allocations to the six obligors and associated risk weightings. (Risk weightings were assigned based on each exposure. The split of the total loan [allocations] among various obligors had no impact on credit ratings.) The bank uses the standardized approach for maintaining capital of at least 8% of total risk-weighted assets.

Obligors	Allocations %	Risk Weighting %
France sovereign debt (OECD)	30	0
Thailand sovereign debt (Non-OECD)	20	25
AAA rated corporate debt	25	30
AA rated corporate debt	15	60
Corporate debt-no external rating	3	100
Past due loan	7	150

Which of the following statements is correct?

- A.Under Basel I, OECD sovereign exposures are considered most risky (with 0% risk weighting).
- B.Under Basel II, the risk weightings focus on credit risk only whereas under Basel I, risk weightings focus on credit risk and operational risk.
- C.Capital requirements for the bank can be estimated using the IRB method if we are given the probability of default.
- D.Actual calculations for computing the capital requirements (using any method of estimation) are not required under the standardized approach.

参考答案: D

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【莽学解析】Statement a is incorrect because OECD sovereign exposures are considered least risky. Statement b is incorrect because Basle I requires risk weightings to focus on credit risk only. Statement c is incorrect because we need inputs more than just probability of default (PD) to calculate risk-weighted assets and capital requirements using the IRB approach—foundation or advanced. Statement d is correct. Minimum capital requirements = $8\% \times (0.30 \times 200 \times 0 + 0.20 \times 200 \times 0.25 + 0.25 \times 200 \times 0.30 + 0.15 \times 200 \times 0.60 + 0.03 \times 200 \times 1 + 0.07 \times 200 \times 1.50) = \5.6 million .
(1)

48. Basel II/III contains capital rules for the banking industry, while Solvency II looks at the regulatory framework and quantifiable risks in the insurance industry. Comparing Solvency II and Basel II/III, which statement best characterizes the Basel II/III approach?

- A. Basel II/III does not try to achieve safety for the entire company, but rather focuses on asset-specific
- B. Basel II/III requires a more holistic perspective than Solvency II.
- C. Basel II/III does not take in consideration pro-cyclical effects.
- D. The goal of Basel II/III is to operate under no supervisory authority.

参考答案: A

【莽学解析】Due to the nature of the banking industry, Basel II/III is more focused on systemic risk as opposed to trying to achieve a safety level for the whole company. However, it does focus on three risk classes, which are all asset-specific (market risk, credit risk, and operational risk). The goal of Basel II/III is to operate above capital requirements under Pillar 1.
(2)

49. Large Bank is attempting to transition to the new Basel III standards. Specifically, they are wondering if their liquidity and funding ratios meet the updated requirements as specified by the Basel Committee. Given the following information, what is the bank's current liquidity coverage ratio?

- High-quality liquid assets \$300
- Marketable securities \$125
- Required amount of stable funding \$250
- Cash inflows over the next 30 days \$214
- Net cash outflows over the next 30 days \$285
- Long-term economic capital \$500
- Available amount of stable funding \$255

- A. 95%.
- B. 105%.
- C. 125%.
- D. 140%.

参考答案: B

【莽学解析】The 30-day liquidity coverage ratio (LCR) is equal to the stock of high-quality liquid assets divided by the net cash outflow over a 30-day period. Under Basel III, this ratio must equal or exceed 100%. Large Bank's liquidity coverage ratio = $\$300 / \$285 = 1.053 = 105.3\%$.
(1)

50. Risk aggregation is one of the challenging areas within the economic capital implementation framework. Risk aggregation involves identifying the individual risk types and making certain choices in aggregating those risk types. Classification by risk types (market, credit, operational, and business) may be approximate and prone to error. For example, the definitions of risk types may differ across banks or within a given bank, which complicates the aggregation process. Most banks begin by aggregating risk into silos by risk-type across the entire bank.

Other banks prefer using business unit silos, while others combine both approaches. Which of the following statements regarding risk aggregation is correct?

- A. Combining two portfolios, for risk aggregation across different portfolios or business units
- B. A simple summation method of risk aggregation adds together individual capital components, Δ
- C. A variance-covariance matrix risk aggregation method summarizes the interdependencies across
- D. A full modeling/simulation method of risk aggregation combines marginal probability distributions

参考答案: C

【莽学解析】The variance-covariance matrix summarizes the interdependencies across risk types and provides a flexible framework for recognizing diversification benefits. (3)

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