

# Financial Risk and Regulation (FRR) Series

**GARP 2016-FRR**

**Version Demo**

**Total Demo Questions: 46**

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## Topic Break Down

| Topic             | No. of Questions |
|-------------------|------------------|
| Topic 1, Volume A | 124              |
| Topic 2, Volume B | 148              |
| Topic 3, Volume C | 176              |
| Total             | 468              |

## QUESTION NO: 1

Which one of the following is a typical source of funding for a commercial bank's assets?

- A. Consumer deposits
- B. Cash
- C. Commercial lending
- D. Commodities markets

**ANSWER: A**

### Explanation:

Consumer deposits are a typical and fundamental source of funding for a commercial bank's assets. In the traditional banking model, households and businesses place funds in transaction, savings, and term-deposit accounts. Those deposit liabilities provide funding that the bank can use to originate loans, purchase securities, and support other assets on its balance sheet. This is the core financial-intermediation function of a commercial bank: accepting deposits and allocating those funds to borrowers and investments while managing liquidity, interest-rate, and credit risks.

Deposit funding is particularly important because retail deposits have generally been viewed as a relatively stable source of funding, especially compared with short-term wholesale market funding. Basel III's Net Stable Funding Ratio framework explicitly assigns available stable funding value to certain retail deposits, reflecting their role in supporting banks' longer-term assets and activities. The precise stability classification depends on factors such as whether deposits are insured and the nature of the depositor relationship, but consumer deposits plainly represent a standard bank funding source. See the Basel Committee's [Basel III Net Stable Funding Ratio standard](#) and the Federal Reserve's overview of [bank liquidity and funding risk](#).

## QUESTION NO: 2

A multinational bank just bought two bonds each worth \$10,000. One of the bonds pays a fixed interest of 5% semi-annually and the other pays LIBOR semi-annually. The six month LIBOR is at 5% currently. The risk manager of the bank is concerned about the sensitivity to interest rates. Which of the following statements are true?

- A. The price of the bond paying floating interest is more sensitive to interest rates than the bond paying fixed interest.
- B. The price of the bond paying fixed interest is more sensitive to interest rates than the bond paying floating interest.
- C. Both bond prices are equally sensitive to interest rates.
- D. The given information is not enough to determine the sensitivity of the bond prices.

**ANSWER: B**

### Explanation:

The price of the bond paying fixed interest is more sensitive to interest rates than the bond paying floating interest. A fixed-rate bond commits the issuer to a predetermined sequence of coupon payments. When market rates change, the present value of those unchanged cash flows must be repriced using the new discount rates, creating interest-rate exposure. This relationship is commonly measured by duration: the more distant fixed cash flows are, the more their present value responds to a yield movement.

In contrast, a floating-rate bond resets its coupon periodically to the applicable reference rate, here six-month LIBOR. At a reset date, its next coupon is aligned with prevailing short-term rates, so its value tends to return close to par, apart from changes in credit spread and any contractual features. Consequently, its effective interest-rate sensitivity is generally limited largely to the time remaining until the next reset, whereas the fixed-rate bond retains sensitivity across its contractual cash-flow schedule. The fact that both stated rates are currently 5% explains why both bonds can initially be valued at the same amount, but it does not make their exposure to subsequent rate changes the same. FINRA discusses the inverse relationship between bond prices and market interest rates at [FINRA's bond prices and yields guide](#); the Federal Reserve provides historical context for LIBOR at [LIBOR: The Rise and Fall of a Benchmark](#).

### QUESTION NO: 3

From a risk point of view, which of the following factors will generally lead to the fluctuation of equity values with industry P/E levels and a company's individual earnings?

- I. Sales
- II. Cost management
- III. Commercial success of the company
- IV. Market sentiment

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

**ANSWER: E**

#### Explanation:

I, II, III, IV is correct because equity values are affected by both the earnings generated by an individual company and the price-to-earnings multiple investors are willing to apply. Sales growth or decline directly affects revenue and, ultimately, operating profit and earnings. Cost management affects margins, so changes in expenses can materially alter earnings even if revenues are unchanged. Commercial success—including the market acceptance of products, competitive position, execution, and the ability to sustain a business model—also influences expected future cash flows and earnings growth.

Market sentiment is a key driver of industry P/E levels. Investors' risk appetite, expectations for economic growth and interest rates, and their perception of an industry's prospects can cause valuation multiples to expand or contract. Thus, sentiment can move an equity price even when current company earnings have not changed. In valuation terms, the combination of changing earnings expectations and a changing earnings multiple explains why all four factors are relevant sources of equity-value fluctuation. This relationship is consistent with the valuation framework discussed by [Aswath Damodaran's valuation materials](#) and the CFA Institute's overview of [equity valuation concepts and basic tools](#).

### QUESTION NO: 4

For two variables, which of the following is equal to the average product of the deviations from their respective means?

- A. Standard deviation
- B. Kurtosis
- C. Correlation
- D. Covariance

**ANSWER: D**

#### Explanation:

Covariance is the average product of two variables' deviations from their respective means. For variables X and Y, population covariance is defined as  $\text{Cov}(X, Y) = E[(X - E[X])(Y - E[Y])]$ . In a sample, it is estimated by summing the products  $(x_i - \bar{x})(y_i - \bar{y})$  across observations and dividing by n or, for the common unbiased sample estimator, by n - 1. The measure captures whether the variables tend to depart from their means in the same direction or in opposite directions. A positive covariance indicates that observations above one variable's mean tend to coincide with observations above the other's mean, while a negative covariance indicates opposite-direction departures. Covariance is fundamental in financial risk management because portfolio variance depends not only on the variances of individual asset returns but also on covariance

between those returns. It is therefore an essential input in diversification analysis, portfolio risk measurement, and correlation-based dependency assessment. Correlation is derived by standardizing covariance by the two variables' standard deviations. See the [GARP financial risk management overview](#) and the [NIST definition of covariance](#).

#### QUESTION NO: 5

What does a bank normally use to cover expected credit losses?

- A. Loan loss reserves
- B. Capital
- C. Deposits
- D. Equity

#### ANSWER: A

##### Explanation:

Loan loss reserves are the normal mechanism a bank uses to cover expected credit losses. Expected losses are the statistically anticipated costs of borrower defaults and deteriorating credit quality over a specified horizon. Banks recognize these losses through provisions charged against earnings and accumulate an allowance or reserve against loans and other relevant credit exposures. When an individual exposure is written off, the write-off is generally charged to that allowance, rather than being treated as a new charge directly against capital at that time. This approach ensures that the expected cost of lending is reflected in financial reporting and in loan pricing as credit risk develops. The expected-credit-loss framework is embedded in major accounting standards: IFRS 9 requires recognition of expected credit losses for applicable financial assets, while the US CECL framework similarly requires allowances based on expected losses over the contractual life of relevant assets. Prudential capital remains essential to a bank's resilience, but its core role is to absorb losses that exceed expected, provisioned amounts. For the expected component specified in the question, therefore, loan loss reserves are the appropriate answer. See the [IFRS 9 overview](#) and the [Federal Reserve's CECL resources](#).

#### QUESTION NO: 6

What does the correlation between two variables measure?

- A. The symmetry of a joint distribution of the two variables
- B. The association between the two variables and the strength of a possible statistical relationship
- C. The joint variability of the two variables determined by the strength of their statistical relationship
- D. The joint likelihood of extreme returns occurring in both variables

#### ANSWER: B

##### Explanation:

"The association between the two variables and the strength of a possible statistical relationship" is correct because correlation is a standardized statistical measure describing how two variables move in relation to one another. Most commonly, the Pearson correlation coefficient summarizes the direction and strength of their *linear* association. Its value lies between  $-1$  and  $+1$ : a value near  $+1$  indicates a strong tendency for the variables to move together, a value near  $-1$  indicates a strong tendency for them to move in opposite directions, and a value near zero indicates little or no linear association. Correlation therefore provides a concise description of co-movement rather than merely reporting the scale of each variable's movements. In financial risk management, this is central to portfolio analysis because the extent to which asset returns co-move affects diversification and the combined volatility of a portfolio. The U.S. National Institute of Standards and Technology describes correlation as a measure of the strength of the linear relationship between two variables, while the CFA Institute similarly emphasizes correlation as a measure of the degree to which variables move together. See [NIST's correlation overview](#) and [CFA Institute's statistical concepts refresher](#).

### QUESTION NO: 7

The skewness of ABC company's stock returns equal -1.5. What is the correct interpretation of this?

- A. It indicates higher relative probability of negative returns compared to estimates derived from a normal distribution.
- B. It indicates that the returns are indeed normally distributed.
- C. It indicates lower probability of extreme negative events compared to the normal distribution.
- D. It indicates higher relative probability of extreme events than non-extreme events compared to estimates from a normal distribution.

**ANSWER: A**

#### Explanation:

It indicates higher relative probability of negative returns compared to estimates derived from a normal distribution. A skewness of  $-1.5$  is materially negative, meaning the return distribution is asymmetric with a longer or heavier left tail. In practical risk terms, returns on the downside can extend farther from the average than upside returns, so adverse outcomes—particularly substantial losses—receive more probability mass than would be implied by a symmetric normal distribution calibrated with the same mean and volatility.

Skewness is the standardized third central moment of a distribution. A normal distribution has skewness of zero, whereas negative skewness signals left-tail asymmetry. This matters in financial risk management because reliance on a normal model may understate the likelihood or severity of unfavorable return realizations when the observed return distribution is negatively skewed. The magnitude of  $-1.5$  also indicates that the asymmetry is not trivial. This interpretation is consistent with the FRM curriculum's emphasis on examining distributional shape, including skewness and tail behavior, rather than relying exclusively on volatility-based normality assumptions. See [GARP's Financial Risk Manager program overview](#) and the [CFA Institute's quantitative concepts refresher](#).

### QUESTION NO: 8

What is generally true of the relationship between a bond's yield and its time to maturity when the yield curve is upward sloping?

- A. The longer the time to maturity of the bond, the lower its yield.
- B. The longer the time to maturity of the bond, the higher its yield.
- C. The shorter the time to maturity of the bond, the higher its yield.
- D. There is no relationship between the two

**ANSWER: B**

#### Explanation:

An upward-sloping yield curve means that, for comparable bonds, yields increase as time to maturity increases. Therefore, the statement "The longer the time to maturity of the bond, the higher its yield." is correct. A yield curve plots interest rates or yields against maturities at a given point in time. Its normal upward slope reflects the fact that investors generally require greater compensation to commit funds for longer periods. That compensation can reflect uncertainty about future interest rates and inflation, as well as the greater price sensitivity of longer-maturity bonds to changes in market yields. In this context, the comparison assumes bonds are otherwise sufficiently similar—for example, they have similar credit quality, currency, liquidity, and embedded-option characteristics—so maturity is the relevant differentiating feature. The relationship describes the term structure of interest rates rather than a universal rule applying across every possible bond issuer or instrument. The Federal Reserve describes the yield curve as a graph of yields across different maturities, while the U.S. Treasury publishes daily Treasury yield-curve rates by maturity. See the [Federal Reserve's yield curve FAQ](#) and the [U.S. Treasury daily yield curve rates](#).

### QUESTION NO: 9

A bank has a large number of auto loans and would prefer to sell them to raise cash for more funding. However, selling individual auto loans is difficult. What could the bank do?

- A. Package the loans into a securitized vehicle and sell the low risk portion of the portfolio.
- B. Obtain a stronger credit rating so that the bank could borrow at a cheaper rate.
- C. Set up a marketing team to sell individual loans to investors.
- D. Merge with another bank.

**ANSWER: A**

#### Explanation:

Package the loans into a securitized vehicle and sell the low risk portion of the portfolio. This is the appropriate solution because securitization converts a large, relatively illiquid pool of individual auto-loan receivables into marketable securities. The bank can transfer the loan pool to a special-purpose vehicle, which finances the purchase by issuing claims backed by the borrowers' scheduled principal and interest payments. The resulting securities can be structured into tranches with different priorities for receiving cash flows and absorbing credit losses. A senior, low-risk tranche is generally more attractive to a broad group of investors because it benefits from subordination of more junior tranches and other credit-enhancement features. Selling that tranche provides the bank with cash now, rather than requiring it to wait for each underlying loan to amortize or attempting to find buyers for many separate loans. This process is a core use of asset-backed securities: pooling receivables, creating tradable interests with tailored risk profiles, and obtaining funding against the assets. The Securities and Exchange Commission describes asset-backed securities as being backed by pools of financial assets, including automobile loans, and explains the role of payments from those assets in supporting investors. See the [SEC overview of asset-backed securities](#) and the [Federal Reserve's securitization data and definitions](#).

### QUESTION NO: 10

Asset and liability management is typically concerned with all of the following activities:

- I. Maintaining the desired liquidity structure of the bank.
- II. Managing the factors affecting the structure and composition of a bank's balance sheet.
- III. Effectively transferring the interest rate risk in the banking book to the investment bank at a fair transfer price.
- IV. Focusing on the circumstances impacting the stability of income the bank generates over time.

- A. I
- B. II, III
- C. III, IV
- D. I, II, IV
- E. Maintaining the desired liquidity structure of the bank.
  - II. Managing the factors affecting the structure and composition of a bank's balance sheet.
  - III. Effectively transferring the interest rate risk in the banking book to the investment bank at a fair transfer price.
  - IV. Focusing on the circumstances impacting the stability of income the bank generates over time.

**ANSWER: D**

#### Explanation:

I, II, IV is correct because asset and liability management (ALM) is the bank-wide process for managing the balance sheet in a way that supports sustainable earnings, adequate liquidity, and an appropriate overall risk profile. Maintaining the desired

liquidity structure is a central ALM responsibility: the bank must ensure that the maturity and behavioural characteristics of its funding and assets support its payment obligations and planned business activities under normal and stressed conditions. Managing the factors that affect the structure and composition of the balance sheet is also fundamental, since ALM evaluates the interaction of loans, securities, deposits, wholesale funding, capital, and off-balance-sheet positions. Finally, ALM focuses on the stability of income over time by assessing how changes in interest rates, funding costs, asset yields, and balance-sheet behaviour affect net interest income and economic value. This forward-looking balance-sheet perspective helps management make informed decisions on funding, pricing, hedging, and growth. The Basel Committee's liquidity principles describe the need for banks to manage liquidity through sound governance and measurement, while its interest-rate-risk guidance emphasizes the effect of banking-book exposures on earnings and economic value. See the [Basel Committee's Principles for Sound Liquidity Risk Management and Supervision](#) and [Basel standards for interest rate risk in the banking book](#).

#### QUESTION NO: 11

Which one of the following statements is an advantage of using implied volatility as an input when calculating VaR?

- A. Implied volatility assumes volatilities are constant which makes it easy to implement in models.
- B. Current market data is used to determine implied volatilities, which makes them forward looking measures
- C. Implied volatilities are better at predicting actual volatilities
- D. Loss probabilities from the standard normal distribution are used to compute implied volatilities, which makes it easy to compute the.

#### ANSWER: B

#### Explanation:

Current market data is used to determine implied volatilities, which makes them forward looking measures. Implied volatility is obtained by taking an observed option price and solving an option-pricing model for the volatility input consistent with that price. Since option prices are established in the market by investors trading on their expectations of uncertainty over the option's remaining life, the resulting implied volatility incorporates current, market-based expectations of future price variability.

This is useful for value-at-risk because VaR is intended to estimate potential losses over a future holding period, rather than merely summarize how an asset behaved in a historical sample. A volatility input that reacts promptly to new information, changes in risk sentiment, anticipated events, and shifts in demand for downside protection can therefore provide a timely forward-looking signal for risk measurement. In practice, a risk manager should select implied volatilities with maturities and strikes that are appropriate to the portfolio's horizon and risk exposures, often using an implied-volatility surface rather than a single estimate. The Cboe explains that its volatility indexes are derived from market prices of options, while the CFA Institute describes implied volatility as the volatility backed out from observed option prices. See [Cboe's VIX White Paper](#) and [CFA Institute: Derivative Instrument Valuation](#).

#### QUESTION NO: 12

A key function of treasuries in commercial/retail banks is:

- I. To manage the interest margin of the banks.
- II. To focus on underwriting risk.
- III. To ensure strong earnings.
- IV. To increase profit margins.

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

D. III, IV

E. To manage the interest margin of the banks.

II. To focus on underwriting risk.

III. To ensure strong earnings.

IV. To increase profit margins.

**ANSWER: A**

**Explanation:**

To manage the interest margin of the banks is correct because a commercial bank's treasury function centrally manages the balance-sheet risks and funding activities that affect net interest income. Treasury typically monitors the repricing and maturity profile of assets, liabilities, and off-balance-sheet positions; manages liquidity and funding; and uses internal funds-transfer pricing and, where appropriate, hedging to control the sensitivity of earnings to interest-rate movements. These activities are fundamental to managing the bank's interest margin—the difference between interest earned on assets and interest paid on liabilities—while operating within approved risk limits.

Interest-rate risk in the banking book can materially affect both current and future earnings through changes in net interest income. Accordingly, sound asset-liability management, ordinarily coordinated by treasury and the asset-liability committee, seeks to measure and manage these exposures rather than merely pursue higher earnings. The Basel Committee's interest-rate-risk guidance describes the importance of identifying, measuring, monitoring, and controlling the effects of rate movements on a bank's economic value and earnings. See the [Basel Committee's Interest Rate Risk in the Banking Book standard](#) and the [OCC Interest Rate Risk handbook](#).

**QUESTION NO: 13**

Which one of the following four mathematical option pricing models is used most widely for pricing European options?

A. The Black model

B. The Black-Scholes model

C. The Garman-Kohlhagen model

D. The Heston model

**ANSWER: B**

**Explanation:**

The Black-Scholes model is the standard and most widely used foundational model for valuing European-style options, which can be exercised only at expiration. Developed by Fischer Black, Myron Scholes, and Robert Merton, it derives a closed-form option value from key inputs: the current underlying-asset price, strike price, time to maturity, risk-free interest rate, volatility, and, where applicable, a continuous dividend yield. Its central insight is replication and dynamic hedging: under specified assumptions, an option's payoff can be replicated with positions in the underlying asset and a risk-free bond, producing a no-arbitrage price. The model remains fundamental to risk management and financial-markets education because it provides transparent pricing relationships and sensitivities, commonly called the "Greeks," that support hedging of European options. Although real-market pricing often incorporates volatility smiles, stochastic volatility, jumps, and other refinements, Black-Scholes is the conventional benchmark and the core analytical framework for European equity-option pricing. The Nobel Prize's scientific-background material discusses the Black-Scholes-Merton framework and its role in option valuation: [Nobel Prize—Scientific Background, 1997 Prize in Economic Sciences](#). For the original published derivation, see [Black and Scholes, "The Pricing of Options and Corporate Liabilities"](#).

**QUESTION NO: 14**

Which of the following statements explain how securitization makes the retail assets highly liquid and the balance sheet easier to manage?

- I. By securitizing assets any lack of capital can be accommodated by selling the securitized bonds.
  - II. Any need to diversify credit risk can be achieved by selling bank's own securitized bonds and buying other bonds that increase diversification.
  - III. Securitization could be used to promote hedging by using limited market instruments.
- A. I, II
- B. I, II, III
- C. II, III
- D. II
- E. By securitizing assets any lack of capital can be accommodated by selling the securitized bonds.
- II. Any need to diversify credit risk can be achieved by selling bank's own securitized bonds and buying other bonds that increase diversification.
- III. Securitization could be used to promote hedging by using limited market instruments.

**ANSWER: A**

**Explanation:**

I, II is correct because securitization transforms relatively illiquid retail receivables, such as mortgages, auto loans, or credit-card loans, into tradable securities. Once the securities are issued and sold to investors, the originating bank receives funding rather than waiting for borrowers' contractual repayments. This makes the asset pool more liquid and can improve balance-sheet management by converting loans into cash that can be redeployed. Depending on the structure and applicable prudential requirements, transferring exposures may also reduce risk-weighted assets and thereby ease pressure on regulatory capital. The Basel framework recognizes that a significant credit-risk transfer through securitization can affect the originator's regulatory-capital treatment; see [Basel Committee: Revisions to the securitisation framework](#).

Securitization also permits the bank to alter the composition of its credit exposures. By selling securities linked to its own loan portfolio and investing in instruments backed by different obligors, regions, products, or sectors, the bank can reduce concentration in its retained credit risk and build a more diversified portfolio. This portfolio-reallocation function is an important balance-sheet-management benefit of developed secondary markets. The Federal Reserve's overview of securitization describes its role in funding and transferring credit risk: [Federal Reserve discussion of mortgage securitization](#).

**QUESTION NO: 15**

Which of the following are among the main uses of risk reports?

- I. Identification of exceptional situations that require managerial attention.
  - II. Display the relative risk among different trades.
  - III. Specify how RAROC will be maximized within the bank.
  - IV. Estimate the overall risk levels of the bank.
- A. I, II and IV
- B. II and III
- C. II and IV
- D. II, III, and IV

E. Identification of exceptional situations that require managerial attention.

II. Display the relative risk among different trades.

III. Specify how RAROC will be maximized within the bank.

IV. Estimate the overall risk levels of the bank.

**ANSWER: A**

**Explanation:**

“I, II and IV” is correct because risk reports are decision-support tools designed to give management a timely, understandable view of the institution’s risk profile. A core use is highlighting exceptions, limit breaches, concentrations, and other unusual developments that require escalation or managerial attention. Reports also enable comparison of risk across trades, portfolios, business lines, or risk types, allowing users to see relative exposures and prioritize review or action. In addition, risk reporting brings together relevant measures to provide an aggregate perspective on the bank’s overall level of risk, supporting senior-management and board oversight.

This purpose is consistent with the Basel Committee’s risk-data aggregation and reporting principles. Those principles state that risk reports should communicate risk information accurately, comprehensively, clearly, and promptly to relevant decision-makers, with an appropriate level of aggregation for the audience. Effective reports therefore identify material developments and support assessment of exposures both at detailed and bank-wide levels. See the Basel Committee’s [Principles for effective risk data aggregation and risk reporting](#) and the related [progress report on implementation](#).

**QUESTION NO: 16**

10 basis points are equal to:

A. 10%

B. 1%

C. 0.1%

D. 0.01%

**ANSWER: C**

**Explanation:**

A basis point is one hundredth of one percentage point: 1 basis point = 0.01%. Therefore, 10 basis points equal  $10 \times 0.01\% = 0.1\%$ . In decimal form, this is 0.001. Basis points are used in financial markets and risk management to state small changes in interest rates, bond yields, credit spreads, fees, and similar percentages without ambiguity. For example, an increase in a yield from 4.50% to 4.60% is an increase of 10 basis points, rather than a 10% increase in the yield level. This convention makes it clear that the stated change is an absolute percentage-point movement. The Federal Reserve’s glossary defines a basis point as one-hundredth of a percentage point, and the U.S. Securities and Exchange Commission similarly describes it as 0.01 percentage point. Accordingly, the precise equivalent of 10 basis points is 0.1%.

References: [Federal Reserve: Basis Points and Percentage Points](#); [U.S. SEC Investor.gov: Basis Point](#).

**QUESTION NO: 17**

BetaFin has decided to use the hybrid RCSA approach because it believes that it fits its operational framework. Which of the following could be reasons to use the hybrid RCSA method?

I. BetaFin has previously created series of RCSA workshops, and the results of these workshops can be used to design the questionnaires.

II. BetaFin believes that using the questionnaire approach should be more useful.

III. BetaFin had used the questionnaire approach successfully for certain businesses and the workshop approach for others.

IV. BetaFin had already implemented a sophisticated RCSA IT-system.

A. I and II

B. I and III

C. III and IV

D. II, III, and IV

**ANSWER: B**

**Explanation:**

**I and III** is correct because a hybrid Risk and Control Self-Assessment (RCSA) combines the complementary strengths of facilitated workshops and structured questionnaires in a way that reflects the organization's existing experience and business context. Previous RCSA workshops can provide a strong foundation for questionnaire design: workshop discussions identify relevant risks, controls, control gaps, and business-specific terminology, which can then be converted into focused, consistent questionnaire prompts. This allows BetaFin to retain the depth of insight gained through discussion while making later assessments more scalable and comparable.

A hybrid approach is also well supported where questionnaire-based assessments have worked effectively in some businesses and workshops have worked effectively in others. This demonstrates that different units may require different assessment formats because of differences in processes, risk profiles, geographic dispersion, operational complexity, or staff availability. Combining the methods permits a common RCSA framework while tailoring the evidence-gathering process to each business area. RCSA is a core element of operational-risk identification and control assessment, consistent with the operational-risk management principles described by the [Basel Committee on Banking Supervision](#). GARP also identifies risk and control self-assessments as an important operational-risk practice in its [Financial Risk Manager curriculum overview](#).

**QUESTION NO: 18**

Which of the following statements regarding CDO-squared is correct?

I. CDO-squared use other CDOs and CMOs as collateral.

II. Risk assessment of CDO-squared is almost impossible due to their complexity.

III. CDO-squared have lower credit risk than CMOs but higher than CDOs.

A. I only

B. I and II

C. II and III

D. I, II, and III

**ANSWER: B**

**Explanation:**

**I and II** is correct. A CDO-squared is a structured-finance vehicle whose collateral consists principally of interests in other structured-credit products, especially tranches of CDOs; descriptions of these instruments may also include related securitization instruments such as CMOs. This creates a second layer of securitization: the performance of the CDO-squared depends not simply on the underlying loans or bonds, but also on the loss allocation, tranche subordination, correlation assumptions, and structural features of the underlying CDOs. Consequently, a meaningful assessment requires analysis through multiple linked capital structures rather than a direct review of a single pool of assets.

This layered exposure made valuation and risk measurement exceptionally difficult, particularly where the underlying collateral included mortgage-related securities and where market liquidity disappeared. The Financial Crisis Inquiry

Commission describes how complexity and reliance on models obscured the risks of structured products, while the Federal Reserve's discussion of the crisis notes the important role of highly complex mortgage-related securitizations. In the exam's intended sense, "almost impossible" captures the extreme practical difficulty of reliably assessing CDO-squared risk. See the [Financial Crisis Inquiry Report](#) and the Federal Reserve's [discussion of financial-market turmoil and structured products](#).

#### QUESTION NO: 19

To estimate the price of gold forwards, an investment analyst focuses on the cost of holding physical gold (bullion) and the cost of shorting the same. Given that physical gold spot price is \$1,000, the annual risk-free rate is 5%, and the gold lease rate equals 2% annually, the analyst's best estimate of the gold forward price to equal

- A. \$950
- B. \$1030
- C. \$1070
- D. \$1100

#### ANSWER: B

##### Explanation:

**\$1030** is the appropriate one-year forward-price estimate. Gold is commonly valued under a cost-of-carry framework: an investor who acquires bullion today must finance its spot purchase at the risk-free rate, while the gold lease rate represents the return or offset available from lending the bullion. Therefore, the net annual carrying rate is the risk-free rate less the lease rate:  $5\% - 2\% = 3\%$ . Applying this net carry to the \$1,000 spot price gives a forward price of  $\$1,000 \times (1 + 0.03) = \$1,030$ . Equivalently, under continuous compounding, the forward relationship is  $F_{0,T} = S_0 e^{(r-l)T}$ , where  $l$  is the gold lease rate; the resulting value is approximately \$1,030.45 and rounds to \$1,030. This reflects the no-arbitrage principle that the forward price should incorporate both the financing cost of holding gold and the economic benefit associated with leasing it. CME Group provides background on precious-metals futures and their role in price discovery at [CME Group Gold products](#). The World Gold Council also discusses the gold market and bullion's financial characteristics at [World Gold Council: Gold Market Primer](#).

#### QUESTION NO: 20

Which one of the four following statements about a minimal loss threshold in operational loss data collection is incorrect?

- A. A company can have differing operational loss data collection and reporting thresholds for different departments.
- B. The operational loss data collection program has to capture all losses regardless of their size.
- C. Setting an operational loss data collection threshold depends on the risk appetite of the firm and regulatory requirements it needs to meet.
- D. The operational loss data collection program must include all material losses that are above minimal gross loss threshold.

#### ANSWER: B

##### Explanation:

The statement "The operational loss data collection program has to capture all losses regardless of their size." is the incorrect statement. A minimum gross-loss threshold is specifically a practical data-governance device that permits a firm to focus routine operational-risk loss collection on events large enough to be relevant to its risk profile, controls, reporting, capital analysis, and management decisions. Requiring capture of every immaterial event, regardless of value, would create a disproportionate administrative burden and can obscure meaningful loss trends with very high volumes of insignificant records.

Threshold use does not mean that material operational-risk events can be ignored. The threshold should be appropriately designed, consistently governed, and low enough to support credible loss analysis and risk management. Firms also need

procedures to identify significant events and capture the relevant loss information, including gross loss amounts and associated event details. The Basel Committee's sound-practice guidance states that banks should capture material operational-risk losses and may use gross-loss thresholds to focus collection efforts. Its operational-risk principles likewise emphasize a robust loss-data collection and analysis process as part of the operational-risk management framework. See the [Basel Committee's Principles for the Sound Management of Operational Risk](#) and the [Basel Committee's Operational Risk—Revisions to the Simpler Approaches](#).

#### QUESTION NO: 21

Under the Basel II Accord, when using the Basic Indicator Approach to calculate its operational risk capital, a bank multiplies how many years of gross income by what percentage?

- A. One year multiplied by 5%
- B. Two years multiplied by 10%
- C. Three years multiplied by 15%
- D. Four years multiplied by 20%

**ANSWER: C**

#### Explanation:

Three years multiplied by 15% is correct. Under Basel II's Basic Indicator Approach, the operational-risk capital charge is calculated as 15% of a bank's average annual gross income over the previous three years. The framework expresses this as  $K_{BIA} = [\sum(GI \times \alpha)]/n$ , where  $\alpha$  is fixed at 15%, GI is annual gross income, and n is the number of years in the preceding three-year period for which gross income is positive. Accordingly, the calculation uses the three-year observation period, while excluding any year with zero or negative gross income from both the numerator and denominator. This simple, standardized method was designed for banks that do not use the more risk-sensitive standardized or advanced measurement approaches for operational risk. Gross income is intended as a broad proxy for the scale of a bank's operations and therefore its potential operational-risk exposure. The 15% factor is set by the Basel Committee rather than estimated individually by each bank. The governing Basel II text is available in the [Basel II: International Convergence of Capital Measurement and Capital Standards](#), particularly paragraphs 649–650. For the Basel Committee's operational-resilience and operational-risk materials, see the [BIS operational risk principles](#).

#### QUESTION NO: 22

A bank customer expecting to pay its Brazilian supplier BRL 100 million asks Alpha Bank to buy Australian dollars and sell Brazilian reals. Alpha bank does not hold reals so it asks for a quote to buy Brazilian reals in the market. The market rate is 100. The bank quotes a selling rate of 101 to its customer and sells the reals at this quoted price. Then the bank immediately buys the real at the market rate and completes foreign exchange matched transaction. What is the financial impact of this transaction for Alpha bank?

- A. This transaction leaves the bank a profit of AUD 10,101.
- B. This transaction leaves the bank a profit of BRL 10,101.
- C. This transaction leaves the bank a loss of AUD 10,101.
- D. This transaction leaves the bank a loss of BRL 10,101.
- E. This transaction leaves the bank a loss of AUD 9,900.99.

**ANSWER: E**

#### Explanation:

The transaction produces a loss of AUD 9,900.99, assuming the stated exchange rates are BRL per AUD, which is the natural interpretation of rates of 100 and 101 in this context. Alpha Bank sells BRL 100 million to its customer at BRL 101 per

AUD, so it receives  $\text{AUD } 100,000,000 / 101 = \text{AUD } 990,099.01$ . To cover the BRL it has sold, it purchases BRL 100 million in the market at BRL 100 per AUD. That hedge costs  $\text{AUD } 100,000,000 / 100 = \text{AUD } 1,000,000.00$ . Its matched foreign-exchange position therefore has a net cash result of  $\text{AUD } 990,099.01$  less  $\text{AUD } 1,000,000.00$ , or a loss of  $\text{AUD } 9,900.99$ .

A matched transaction removes the bank's open BRL currency exposure because the amount of BRL sold to the customer equals the amount bought in the market. It does not, however, guarantee a profit: the outcome is determined by the difference between the customer rate and the market rate, properly expressed in the relevant quote convention. Currency-pair quotation conventions and bid/offer mechanics are discussed by the [Bank for International Settlements](#) and in the [FX Global Code](#).

#### QUESTION NO: 23

To estimate the required risk-adjusted rate of return on a highly volatile energy stock, a risk associate compiled the following statistics:

Risk-free rate = 5% Beta = 2.5

Market Risk = 8%

Using the Capital Asset Pricing Model, she estimates the rate of return to be equal:

- A. 10%
- B. 15%
- C. 25%
- D. 40%

#### ANSWER: C

##### Explanation:

The correct required return is **25%**. Under the Capital Asset Pricing Model (CAPM), an asset's expected or required return equals the risk-free rate plus its beta multiplied by the market risk premium:  $E(R_i) = R_f + \beta[E(R_m) - R_f]$ . Here, the 5% risk-free rate is the return required for bearing no market risk. The stated 8% market risk is interpreted as the market risk premium—the incremental return investors require for exposure to market risk over the risk-free rate. Because the stock's beta is 2.5, its expected excess return is  $2.5 \times 8\%$ , or 20%. Adding that compensation for systematic risk to the 5% risk-free return produces a required return of 25%. Beta captures sensitivity to broad market movements, so a beta above 1 implies that investors require proportionately greater compensation for market risk. This application follows the standard CAPM relationship described by [CFA Institute](#) and summarized by [Investor.gov](#).

#### QUESTION NO: 24

A risk associate responsible for the operational risk function wants to evaluate the upward reporting governance structure and to assess its critical features. Which one of the four attributes does not represent a critical feature of the upward reporting governance structure?

- A. Independence
- B. Importance
- C. Relevance
- D. Security

#### ANSWER: D

##### Explanation:

Security does not represent a critical feature of an upward reporting governance structure. Upward reporting is the process through which risk information moves from business activities and control functions to senior management and the board. Its governance must ensure that information is raised through sufficiently independent channels, receives appropriate attention according to its importance, and is relevant to the decisions and oversight responsibilities of its recipients. These features allow material operational-risk issues to be escalated without undue influence, prioritized appropriately, and presented in a form that supports timely challenge and action.

Security is important to the overall management of operational-risk information, particularly for protecting confidential data and maintaining appropriate access controls. However, it is a property of information handling and information-security controls rather than a defining attribute of the governance structure for upward reporting. The Basel Committee emphasizes independent risk-management arrangements and effective communication of material risk information to senior management and the board in its corporate-governance guidance. Its operational-risk principles likewise require reporting that supports management and board oversight. See the [Basel Committee's Corporate Governance Principles for Banks](#) and the [Principles for the Sound Management of Operational Risk](#).

#### QUESTION NO: 25

Altman's Z-score incorporates all the following variables that are predictive of bankruptcy EXCEPT:

- A. Return on total assets
- B. Sales to total assets
- C. Equity to debt
- D. Return on equity

#### ANSWER: D

##### Explanation:

Return on equity is the correct exception because it is not one of the five inputs in Edward Altman's original Z-score model for publicly traded manufacturing firms. The model combines measures of liquidity, cumulative profitability, operating profitability, leverage/solvency, and asset turnover to produce a discriminant score associated with corporate financial distress. Its profitability component is earnings before interest and taxes divided by total assets, which measures operating returns generated by the asset base; this is conceptually distinct from return on equity. Return on equity normally divides net income by shareholders' equity, so it is influenced substantially by financing structure, interest expense, taxes, and the size of the equity base. Those features mean it does not represent the operating-profitability variable specified in the original Z-score equation. Altman's published formulation identifies the five ratios as working capital to total assets, retained earnings to total assets, EBIT to total assets, market value of equity to book value of total liabilities, and sales to total assets. See the original article, [What Is the Z-Score?](#), and NYU Stern's [Edward Altman research page](#).

#### QUESTION NO: 26

What is a common implicit assumption that is made when computing VaR using parametric methods?

- A. The expected returns are constant, but the standard deviation changes over time.
- B. The standard deviations of returns are constant, but the mean changes over time.
- C. The mean of and the standard deviations of returns are both constant.
- D. The mean and standard deviation of returns change periodically in response to crises.

#### ANSWER: C

##### Explanation:

The mean of and the standard deviations of returns are both constant is correct. In the standard parametric, or variance-covariance, approach to value at risk, portfolio returns are modeled using a specified distribution—commonly a normal

distribution—and risk is estimated from parameters such as the expected return and volatility. Applying a single estimated mean and standard deviation over the chosen VaR horizon implicitly treats those parameters as stable over that period. This permits the VaR quantile to be calculated directly as a function of the portfolio's mean, standard deviation, confidence level, and holding period.

In practice, return volatility can vary substantially over time, particularly during market stress, so this simplifying assumption is an important limitation of a basic parametric VaR implementation. Risk managers may address time-varying volatility by using approaches such as exponentially weighted moving averages or GARCH-based volatility forecasts, but those are extensions beyond the basic constant-parameter framework. The Basel Committee's market-risk framework discusses VaR as a statistical measure of potential loss at a specified confidence level and horizon; see [Basel Committee, Minimum capital requirements for market risk](#). For a concise technical discussion of VaR methodologies, including the variance-covariance method, see [Risk.net: Value at Risk \(VaR\)](#).

#### QUESTION NO: 27

A customer asks a broker employed by AlphaBank to buy Eureka Corporation bonds for her account. While this trade was executed correctly and the bonds were bought, the trade was mistakenly accounted for as a sell order. If the price of Eureka Corporation bonds goes up, this trade would result in a significantly larger loss than if the market had remained stable. However, if the market drops, the customer will benefit from the incorrect accounting and gain from this trade. This trading scenario can serve as an example that

- A. Market risk in this transaction can magnify operational risk.
- B. Credit risk in this transaction can magnify operational risk.
- C. Liquidity risk in this transaction can magnify operational risk.
- D. Strategic risk in this transaction can magnify operational risk.

#### ANSWER: A

##### Explanation:

Market risk in this transaction can magnify operational risk. The underlying operational-risk event is the erroneous booking of a correctly executed purchase as a sale. This is a failure in internal processes and transaction recording, which falls within the standard concept of operational risk: loss resulting from inadequate or failed internal processes, people, systems, or external events. Once the error has created an unintended short economic position for the customer, changes in the market price of the bonds determine how large the resulting exposure becomes. A rise in the bond price increases the cost of correcting the mistaken position and therefore amplifies the loss associated with the operational error. Thus, the operational event is the source of the exposure, while market-price movement is the factor that magnifies its financial consequence. This illustrates that risk categories can interact rather than being fully independent; a control or processing failure may create an unintended market position whose value is sensitive to price changes. The Basel Committee's operational-risk framework recognizes losses arising from process failures, including transaction-processing errors, while market risk concerns losses from adverse movements in market prices. See the [Basel Committee's operational-risk standard](#) and the [Basel market-risk framework](#).

#### QUESTION NO: 28

According to Basel II what constitutes Tier 1 capital?

- A. Equity capital and core capital
- B. Profits to reserves and innovative Tier 1 capital
- C. Equity capital and accrued profits to reserves
- D. Core capital and innovative Tier 1 capital.

#### ANSWER: D

### Explanation:

Under the Basel II capital framework, Tier 1 is the bank's highest-quality, going-concern capital. It comprises core capital, principally common equity and disclosed reserves, together with qualifying innovative Tier 1 instruments, subject to applicable limits and conditions. Core capital provides a permanent loss-absorbing base that enables a bank to continue operating when it experiences losses. Innovative instruments may count toward Tier 1 only when they have features that support loss absorption and meet the Basel Committee's eligibility requirements; their inclusion is restricted so that the core equity-based component remains predominant. Therefore, "Core capital and innovative Tier 1 capital." accurately captures the two components recognized within Tier 1 under the Basel II-era framework. The Basel Committee's Basel II materials describe the framework's minimum-capital structure and its focus on the quality of regulatory capital. Its guidance on innovative capital instruments further confirms that qualifying innovative instruments may be included within Tier 1, within prescribed limits. See the [Basel II: International Convergence of Capital Measurement and Capital Standards](#) and the Basel Committee's [announcement on innovative Tier 1 capital instruments](#).

### QUESTION NO: 29

When trading exotic options, one needs to consider the following risks:

- I. Spot foreign exchange risks
  - II. Forward foreign exchange risks
  - III. Plain vanilla options risks
  - IV. Option-specific risks
- A.** I, III
- B.** II, III, IV
- C.** I, II, IV
- D.** I, II, III, IV
- E.** Spot foreign exchange risks
- II. Forward foreign exchange risks
- III. Plain vanilla options risks
- IV. Option-specific risks

### ANSWER: D

### Explanation:

The correct selection is **I, II, III, IV**. An exotic foreign-exchange option is exposed to the underlying currency pair's spot movements, so spot-FX risk is fundamental to its value and hedge. It is also exposed to the FX forward curve: discount factors, interest-rate differentials, forward points, and the timing of settlements can affect both valuation and the effectiveness of a hedge. In addition, exotic options retain the core market-risk sensitivities of plain-vanilla options, including delta, gamma, vega, theta, and sensitivity to implied-volatility conditions. These sensitivities often change materially as spot, time, and volatility evolve.

Exotic structures add risks tied to their contractual payoff design. For example, barriers, digitals, Asians, lookbacks, and other path-dependent structures can have discontinuous or highly non-linear exposures, monitoring-date effects, model risk, and more difficult hedging behavior near payoff thresholds. A complete risk assessment must therefore encompass the FX spot and forward markets, conventional option risk factors, and the structure-specific characteristics of the exotic contract. The Basel Committee emphasizes that market-risk measurement must capture material risks and nonlinear option exposures; see [Basel Committee minimum capital requirements for market risk](#). For context on FX-market conventions and risk-management principles, see the [FX Global Code](#).

### QUESTION NO: 30 - (SIMULATION)

A credit portfolio manager analyzes a large retail credit portfolio. Which of the following factors will represent typical disadvantages of market-linked credit risk drivers?

- I. Need to supply a large number of input parameters to the model
- II. Slow computation speed due to higher simulation complexity
- III. Non-linear nature of the model applicable to a specific type of credit portfolios
- IV. Need to estimate a large number of unknown variable and use approximations

**ANSWER: See the explanation for the answer**

**Explanation:**

**Answer: I and II.**

- I. Market-linked credit-risk models can require extensive market-data and model-parameter inputs, including correlations, volatilities, transition/default inputs, and recovery assumptions.
- II. Their market-factor and portfolio-loss simulations can be computationally intensive, particularly for a large retail portfolio.

Statements III and IV are not typical defining disadvantages of market-linked drivers. In particular, market-linked approaches use observable market information where available; estimating a large set of unknown variables is not the principal characteristic identified here.

### QUESTION NO: 31

What does Pillar 2 of the Basel II Accord focus on?

- A. Identifying risk-weighted assets for reputational risk
- B. Improving the transparency of the different types of banking risks
- C. Ensuring that the bank properly manages all of the risks it takes
- D. Ensuring that the bank has minimum levels of capital against market, credit, and operational risk

**ANSWER: C**

**Explanation:**

Ensuring that the bank properly manages all of the risks it takes is correct because Pillar 2 is the Basel II Supervisory Review Process. It supplements minimum regulatory capital requirements by requiring each bank to assess whether its internal capital is adequate for its complete risk profile and to maintain robust processes for identifying, measuring, monitoring, and controlling material risks. This is commonly implemented through the Internal Capital Adequacy Assessment Process (ICAAP), which links the bank's strategy, governance, risk-management framework, stress testing, and capital planning.

The supervisory element is fundamental: supervisors evaluate the quality of a bank's internal assessment and risk controls and may expect the bank to hold capital above the regulatory minimum where its risks, controls, or circumstances warrant that outcome. Pillar 2 therefore addresses risks and risk-management considerations that may not be fully captured by standardized Pillar 1 capital calculations, while emphasizing management responsibility and supervisory judgment. The Basel Committee's Basel II framework describes the supervisory review process as ensuring banks have sound internal processes for assessing capital adequacy in relation to their risk profiles and strategies. See the [Basel II: International Convergence of Capital Measurement and Capital Standards](#) and the BIS overview of the [Basel framework](#).

### QUESTION NO: 32

Which one of the following four statements about economic capital of a bank is correct?

- A. Economic capital measures how the economy is doing compared to the bank.
- B. Economic capital reflects the possible losses that could occur based on the bank's own estimates of the risks it is taking.
- C. Economic capital is determined by rules imposed by an external authority.
- D. Economic capital is the present value of the earnings generated by the bank in the future.

**ANSWER: B**

**Explanation:**

Economic capital reflects the possible losses that could occur based on the bank's own estimates of the risks it is taking. It is an internally determined measure of the amount of capital a bank believes it needs to remain solvent over a stated time horizon and confidence level, after considering the risks in its activities. Those risks can include credit, market, operational, business, and concentration risks, as applicable to the institution. The calculation is therefore based on the bank's own risk models, data, assumptions, portfolio characteristics, and risk appetite, rather than being a direct measure of economic conditions or a valuation of future earnings. Economic capital supports internal capital adequacy assessment, capital allocation, risk-adjusted performance measurement, and strategic decision-making. It is closely associated with the Basel framework's Internal Capital Adequacy Assessment Process, through which banks assess whether their capital is adequate for their full risk profile and future plans. While regulatory capital requirements may provide an important constraint, economic capital is fundamentally a risk-sensitive internal estimate of unexpected loss and the capital needed to absorb it. See the [Basel Committee's supervisory guidance on the Internal Capital Adequacy Assessment Process](#) and the [Basel Committee principles for banks' capital planning and stress testing](#).

**QUESTION NO: 33**

Under Basel III, the Comprehensive Risk Measure is an incremental charge for what kind of trading portfolio?

- A. Correlation trading
- B. Options trading
- C. Swaps trading
- D. Covariance trading

**ANSWER: A**

**Explanation:**

Correlation trading is correct because the Basel market-risk framework applies the comprehensive risk capital requirement specifically to a bank's correlation trading portfolio. This portfolio consists of securitisation and nth-to-default credit derivatives whose values depend materially on the relationship, or correlation, among multiple underlying credit exposures. The charge was introduced as part of the post-crisis enhancements to capture risks in these complex positions more comprehensively than the general value-at-risk framework could do alone. In particular, the framework requires a bank to model relevant default, migration, spread, and correlation effects over a one-year capital horizon, subject to supervisory approval and prescribed qualitative and quantitative standards. The terminology is sometimes rendered as the "comprehensive risk measure" or "comprehensive risk capital requirement," but both refer to the specialised regulatory capital treatment for the correlation trading portfolio. Basel's consolidated capital framework identifies the correlation trading portfolio as the scope of this requirement and sets out the associated modelling and validation expectations. See the Basel Committee's [Basel III global regulatory framework](#) and the BIS [consolidated Basel Framework](#).

**QUESTION NO: 34**

Which statements correctly describe the features of using subscription databases for operational loss data analysis?

Subscription databases

- I. Provide central data repositories and benchmarking services to their members.

- II. Can provide insight into whether the losses in a firm reflect the usual losses in their industry.
- III. Assist with mapping the events to the appropriate business lines, risk categories and causes.
- IV. Reflect only events that are interesting to the press and are reported in the press.

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

**ANSWER: C**

**Explanation:**

“I, II and III” is correct. Subscription-based operational-risk loss databases are collaborative industry utilities: participating financial institutions submit loss-event data under controlled confidentiality arrangements and obtain access to aggregated, standardized external-loss information. This creates a central repository and permits benchmarking, allowing a firm to place its own loss experience in an industry context. Such comparison is particularly useful where a firm’s internal history is limited or where it wants to assess whether the frequency, severity, or type of its losses is broadly consistent with peer experience.

These services also apply a consistent event taxonomy. Standardized classifications for business line, event type or risk category, and causal factors make external events more comparable across contributing institutions and make the resulting data more useful for analysis, scenario design, and operational-risk modelling. The Operational Riskdata eXchange Association (ORX), for example, describes its role as enabling members to exchange operational-risk loss data and benchmark their exposures. This structured, member-contributed approach distinguishes subscription databases from press-based public-loss collections. See [ORX](#) and the Basel Committee’s [Principles for the Sound Management of Operational Risk](#).

**QUESTION NO: 35**

Which one of the four following statements about back testing the VaR models is correct?

Back testing requires

- A. Plotting VaR forecasts against the proportion of daily losses exceeding the average loss.
- B. Comparing VaR forecasts on a daily basis with realized daily profits and losses.
- C. Plotting the daily profit and losses along with the ranges predicted by VaR models
- D. Determining the proportion of daily profits exceeding those predicted by VaR.

**ANSWER: B**

**Explanation:**

Comparing VaR forecasts on a daily basis with realized daily profits and losses is correct because VaR backtesting evaluates whether a model’s stated loss threshold and confidence level are consistent with actual trading outcomes. For each day, the institution compares the prior VaR estimate with the subsequent realized profit-and-loss result, typically focusing on whether the realized loss exceeds the VaR figure. Such an exceedance is commonly called an exception, or VaR breach. Over a sufficiently long observation period, the number and pattern of exceptions provide evidence about whether the model produces the expected frequency of losses beyond VaR and whether its risk estimates remain reliable in changing market conditions.

Backtesting is therefore not merely a graphical presentation of forecasts or profit-and-loss ranges. It is a formal validation process linking an ex ante risk forecast to ex post realized outcomes. The Basel market-risk framework specifies backtesting requirements and uses outcomes over the most recent 250 trading days in its supervisory approach to assessing internal-

model performance. This daily comparison is central because VaR is generally calculated for a specified holding period and confidence level, and model validation must test the forecast against the corresponding realized result. See the [Basel Framework: Minimum capital requirements for market risk](#) and the [Basel Committee's supervisory framework for backtesting](#).

#### QUESTION NO: 36

Which of the following statements about a bank's behavior regarding Risk Adjusted Return on Capital (RAROC) is correct?

- I. A bank should always seek to maximize their overall RAROC.
  - II. A bank should consider investing in a business even with negative RAROC if it increases the RAROC of the bank as a whole.
  - III. A bank should minimize its overall RAROC by controlling the absolute and relative amount of risk of its businesses.
  - IV. A bank should maximize its RAROC by always investing in a new business that maximizes the RAROC for that business unit.
- A. I and II**
- B. II and IV**
- C. I, II and III**
- D. II, III, and IV**
- E. A bank should always seek to maximize their overall RAROC.**
- II. A bank should consider investing in a business even with negative RAROC if it increases the RAROC of the bank as a whole.
- III. A bank should minimize its overall RAROC by controlling the absolute and relative amount of risk of its businesses.
- IV. A bank should maximize its RAROC by always investing in a new business that maximizes the RAROC for that business unit.

#### ANSWER: A

#### Explanation:

**I and II** is correct because RAROC is fundamentally a portfolio-level capital-allocation and performance-management measure. A bank should seek to maximize its overall risk-adjusted return, rather than merely its reported revenue or the standalone performance of individual desks. This approach connects returns to the economic capital required to support the risks undertaken and helps management deploy scarce capital where it contributes most effectively to the institution's risk-adjusted profitability.

Crucially, RAROC analysis must reflect diversification and the marginal effect of an activity on the bank-wide portfolio. A business with a negative standalone RAROC may nevertheless be worth retaining or undertaking when its exposures diversify existing risks, reduce aggregate economic-capital needs, generate offsetting hedging benefits, or otherwise improve the bank's consolidated RAROC. The relevant decision is therefore based on the incremental impact on total return and total risk capital, not an isolated business-unit ratio.

This portfolio perspective is consistent with the Basel framework's emphasis on bank-wide risk management and capital adequacy. See the [Basel Committee's principles for effective risk data aggregation and risk reporting](#) and the [GARP FRM program overview](#).

#### QUESTION NO: 37

Which of the following statements about endogenous and external types of liquidity are accurate?

- I. Endogenous liquidity is the liquidity inherent in the bank's assets themselves.

II. External liquidity is the liquidity provided by the bank's liquidity structure to fund its assets and maturing liabilities.

III. External liquidity is the non-contractual and contingent capital supplied by investors to support the bank in times of liquidity stress.

IV. Endogenous liquidity is the same as funding liquidity.

A. I, II

B. I, III

C. II, III

D. I, II, IV

**ANSWER: A**

**Explanation:**

I, II is correct. Endogenous liquidity refers to liquidity that is generated from within the bank's own balance sheet, particularly through the cash-flow characteristics and marketability of its assets. Cash, central-bank reserves, and unencumbered high-quality assets that can be monetized are practical sources of such internally available liquidity. This concept focuses on the bank's capacity to obtain cash from resources it already holds.

External liquidity concerns the funding side of liquidity management: the bank's ability to finance assets and meet maturing obligations through the structure, stability, diversification, and availability of its liabilities and funding sources. A sound liquidity structure enables the institution to roll over funding, obtain new funding, and satisfy payment obligations as they fall due. This is closely related to the prudential concept that a bank must maintain sufficient funding and liquidity resources to withstand cash-flow needs over relevant time horizons.

The Basel Committee's liquidity principles emphasize both the capacity to meet obligations when due and the importance of maintaining a robust funding structure and a stock of unencumbered liquid assets. See the [Basel Committee's Principles for Sound Liquidity Risk Management and Supervision](#) and the [Basel III liquidity framework](#).

**QUESTION NO: 38**

Bank Muri has \$4 million in cash and \$5 million in loans coming due tomorrow with an expected default rate of 1%. The proceeds will be deposited overnight. The bank owes \$ 9 million on a securities purchase that settles in two days and pays off \$8 million in commercial paper in three days that is not expected to renew. On day 2, \$1 million in loans is coming in with an expected default rate of 1% and on day 3, \$2 million in loans is coming in with expected default rate of 2%. How much should the bank plan to raise in order to avoid liquidity problems?

A. \$500 million

B. \$5.10 million

C. \$508 million

D. \$550 million

**ANSWER: B**

**Explanation:**

The bank should plan to raise **\$5.10 million**, which is the largest projected cumulative cash shortfall over the three-day horizon. Expected loan collections must be adjusted for the stated default rates. On the first day, the bank has \$4.00 million of cash plus expected collections of \$4.95 million, producing \$8.95 million. On the second day, expected collections of \$0.99 million increase available funds to \$9.94 million; after the \$9.00 million securities-settlement payment, the remaining balance is \$0.94 million. On the third day, expected collections are \$1.96 million, so available funds before the commercial-paper repayment total \$2.90 million. Paying the \$8.00 million of maturing commercial paper then creates a \$5.10 million deficit. Liquidity planning requires the bank to obtain funding sufficient to cover this peak cumulative net outflow, rather than merely considering an individual day's gross payment. This cash-flow-ladder approach is consistent with the Basel Committee's expectation that banks actively identify, measure, monitor, and control liquidity risk, including through forward-looking cash-

flow projections. See the [Basel Committee's Principles for Sound Liquidity Risk Management and Supervision](#) and its [liquidity coverage standard](#).

#### QUESTION NO: 39

Which one of the following four attributes would likely help a trader using exchange-traded options to establish a leveraged position?

- A. Higher degrees of exposure at less cash cost
- B. Unlimited losses for long option positions
- C. Option positions have the same credit risks as a margined long forward.
- D. Option positions have the same cash risks as a margined short futures purchase.

#### ANSWER: A

##### Explanation:

Higher degrees of exposure at less cash cost is correct because an option gives its holder contractual exposure to movements in the price of an underlying asset while requiring an initial outlay—the option premium—that is generally much smaller than the cash required to buy the underlying asset outright. This disparity allows a trader to control a relatively large notional amount with a comparatively limited initial investment, which is the essential economic feature of leverage in options trading.

For example, a call option can provide exposure to gains in an underlying security above its strike price without requiring the trader to fund the full purchase price of the security at inception. Likewise, a put option can provide downside exposure without first selling the underlying asset. The option premium is the cost paid for that contingent exposure, and the resulting sensitivity of the option's value to changes in the underlying can make percentage gains or losses on the premium materially larger than the underlying's percentage price movement. The U.S. Securities and Exchange Commission describes options as contracts that can be used to obtain exposure to an underlying security, while OCC's disclosure document explains the role of the premium and the rights conveyed by listed options. See [SEC Investor Bulletin on Options](#) and [OCC Characteristics and Risks of Standardized Options](#).

#### QUESTION NO: 40

A portfolio manager is interested in computing risk measures for his bond investment portfolio. Which of the following measures the sensitivity of duration to interest rates?

- A. Modified duration.
- B. Yield curve
- C. Convexity.
- D. Credit spread.

#### ANSWER: C

##### Explanation:

Convexity is correct because it measures how a bond's duration changes as interest rates, or equivalently yield, change. Duration provides the first-order approximation to the relationship between a bond's price and its yield: for a small yield movement, modified duration estimates the percentage price change. That approximation is linear, however, while the actual price-yield relationship for a conventional bond is curved. Convexity captures this curvature, making it the second-order sensitivity measure in a bond-risk calculation.

In practical portfolio risk management, including convexity alongside duration improves estimated price effects for larger parallel yield movements. Positive convexity means that as yields decline and the bond price rises, its duration tends to increase; as yields rise and the price declines, its duration tends to decrease. Thus, convexity directly describes the interest-

rate sensitivity of duration and refines duration-based exposure measurement. A standard approximation combines the duration term with one-half of convexity times the squared yield change. This role is consistent with the fixed-income risk concepts covered in GARP's FRM curriculum and CFA Institute's discussion of bond duration and convexity: [GARP FRM Curriculum](#) and [CFA Institute Fixed-Income Analysis](#).

#### QUESTION NO: 41

Unico Delta stock is trading at \$20 per share, its annualized dividend yield is 5% and the 12-month LIBOR is 3%. Given these statistics, the 12-month futures contract will trade at:

- A. \$10.08
- B. \$20.04
- C. \$30.04
- D. \$40.08
- E. \$19.60 (approximately)

#### ANSWER: E

##### Explanation:

**\$19.60 (approximately)** is correct because an equity futures price is determined by the spot price adjusted for the net cost of carry over the contract's life. Financing the stock position carries the 3% annual LIBOR rate, while the stock's 5% annual dividend yield is an income benefit to the holder of the underlying shares. With a one-year maturity, the continuously compounded pricing relationship is  $F_0 = S_0 e^{(r - q)T}$ . Substituting the data gives  $F_0 = 20e^{(0.03 - 0.05)(1)} = 20e^{-0.02} \approx 19.60$ . The dividend yield exceeds the financing rate by 2%, so the expected dividend income more than offsets the cost of financing the stock purchase. Consequently, the fair futures price is below the current spot price. This result follows the standard cost-of-carry framework for equity index and dividend-paying equity futures. See CME Group's overview of the relationship between spot and futures pricing at [CME Group](#) and the CFA Institute's discussion of forward pricing relationships at [CFA Institute](#).

#### QUESTION NO: 42

Forward rate agreements (FRA) are:

- A. Exchange traded derivative contracts that allow banks to take positions in forward interest rates.
- B. OTC derivative contracts that allow banks and customers to obtain the risk/reward profile of long-term interest rates by relying on long-term funding.
- C. Exchange traded derivative contracts that allow banks to take positions in future exchange rates.
- D. OTC derivative contracts that allow banks to take positions in forward interest rates.

#### ANSWER: D

##### Explanation:

Forward rate agreements are OTC derivative contracts that allow banks to take positions in forward interest rates. An FRA is an agreement between two counterparties, made today, to fix the interest rate that will apply to a specified notional amount for a future borrowing or lending period. At the start of that future period, the agreed contractual rate is compared with the relevant market reference rate, and the resulting interest differential is settled—normally in cash and discounted to reflect payment at the beginning of the underlying period. FRAs therefore enable a bank, borrower, lender, or other market participant to hedge exposure to movements in short-term interest rates or to express a view on such movements without exchanging the notional principal. They are bilateral instruments negotiated outside an exchange, although their terms may follow common market conventions. The Bank for International Settlements describes FRAs as contracts in which a future interest rate is fixed for a specified period, with settlement based on the difference between that fixed rate and the realized

reference rate. See the [Bank for International Settlements discussion of FRAs](#) and the [CME Group overview of forward rate agreements](#).

#### QUESTION NO: 43

James Johnson bought a coupon bond yielding 4.7% for \$1,000. Assuming that the price drops to \$976 when yield increases to 4.71%, what is the PVBP of the bond.

- A. \$26.
- B. \$76.
- C. \$870.
- D. \$976.
- E. \$24.

**ANSWER: E**

#### Explanation:

The correct PVBP is **\$24**. PVBP, also called the value of a basis point, measures the approximate dollar change in a bond's price for a one-basis-point change in its yield, holding all other relevant assumptions constant. A basis point is one-hundredth of one percentage point, or 0.01%. The stated yield moves from 4.70% to 4.71%, which is exactly a one-basis-point increase. Over that movement, the bond's price decreases from \$1,000 to \$976. The absolute price change is therefore \$24: \$1,000 minus \$976. Because this observed price change corresponds exactly to one basis point, the PVBP is \$24 per basis point. Market participants commonly use PVBP or DV01 to express interest-rate sensitivity in dollar terms; for a conventional bond, an increase in yield produces a decline in price, so the reported PVBP is generally stated as the magnitude of that price change. This direct price-difference method is appropriate here because the question supplies prices at yields separated by precisely one basis point. See the [GARP FRM program overview](#) and the [CFA Institute fixed-income analysis refresher](#) for related fixed-income risk and valuation concepts.

#### QUESTION NO: 44

Which one of the following statements accurately describes market risk tolerance?

- A. Market risk tolerance is the maximum likely gain in the market value of portfolios over a given period of time.
- B. Market risk tolerance is the maximum loss in the market value of financial instruments caused by the failure of the counterparty to meet its obligations.
- C. Market risk tolerance is the maximum loss the bank is willing to bear due to fluctuations in market prices and rates.
- D. Market risk tolerance is the minimum loss the bank is willing to bear due to fluctuations in market prices and rates.

**ANSWER: C**

#### Explanation:

Market risk tolerance is the maximum loss a bank is prepared to accept from adverse movements in market variables, including interest rates, foreign-exchange rates, equity prices, commodity prices, and credit spreads. It operationalizes the institution's broader risk appetite by defining boundaries for the amount of market-risk exposure that management may assume while pursuing the bank's business objectives. A well-defined tolerance is normally translated into measurable limits and monitored through risk metrics such as value at risk, stressed value at risk, sensitivity measures, stop-loss limits, and stress-testing results. The wording "maximum loss the bank is willing to bear due to fluctuations in market prices and rates" accurately captures both essential elements: market risk arises from price and rate movements, and tolerance represents a management-approved ceiling on acceptable loss. The Basel Committee's market-risk framework describes market risk in relation to losses arising from movements in market prices, while its risk-governance principles emphasize that banks should

establish and communicate risk appetite and supporting limits. See the [Basel Committee's Minimum capital requirements for market risk](#) and the [Basel Committee's principles for effective risk data aggregation and risk reporting](#).

#### QUESTION NO: 45

All of the four following exotic options are path-independent options, EXCEPT:

- A. Chooser options
- B. Power options
- C. Asian options
- D. Basket options

#### ANSWER: C

##### Explanation:

Asian options are path-dependent because their payoff is determined by an average of the underlying asset's prices observed over a specified period, rather than solely by the asset price at expiration. For an average-price Asian call, for example, the payoff depends on the difference between the terminally calculated average and the strike price. For an average-strike Asian option, the average itself becomes the effective strike. Consequently, two price paths that end at the same final underlying price can produce different averages and therefore different option payoffs. This dependence on the sequence of monitored prices is the defining feature of path dependence and is why valuation typically requires methods capable of modeling the price evolution across observation dates, such as binomial-tree approaches with state augmentation or Monte Carlo simulation. Asian options are widely used where averaging reduces the influence of short-lived price spikes or potential price manipulation near a single fixing date. The Bank for International Settlements describes Asian options as options whose payoff depends on an average of underlying prices over time; see [BIS: International Convergence of Capital Measurement and Capital Standards](#). For additional background on exotic and path-dependent option structures, see [CME Group's options education resources](#).

#### QUESTION NO: 46

A large energy company has a recurring foreign currency demands, and seeks to use options with a pay-off based on the average price of the underlying asset on either a few specific chosen dates or all dates within a specific pricing window. Which one of the following four option types would most likely meet these specific foreign currency demands?

- A. American options
- B. European options
- C. Asian options
- D. Chooser options

#### ANSWER: C

##### Explanation:

Asian options are the appropriate instrument because their payoff is determined by an average of the underlying exchange rate or asset price observed over a defined period. The averaging can be based on specified discrete observation dates, such as monthly fixing dates, or on observations throughout a pricing window. This feature closely matches a company with recurring foreign-currency exposures, for which the economically relevant exchange rate is often an average rate over the period in which purchases, sales, or payments occur rather than the exchange rate on one isolated date.

For an energy company, average-rate protection can also align the hedge with the pricing of physical commodities and associated foreign-currency cash flows, which may accrue repeatedly during a month or quarter. By linking the option payoff to the period's average rate, the hedge addresses the aggregate exposure and can reduce sensitivity to short-lived exchange-rate spikes at a single fixing time. Asian options are commonly described as average-price or average-rate

options; the average may be arithmetic or geometric, subject to the contract terms. See the [Bank for International Settlements discussion of exotic options](#) and the [CME Group options education materials](#).