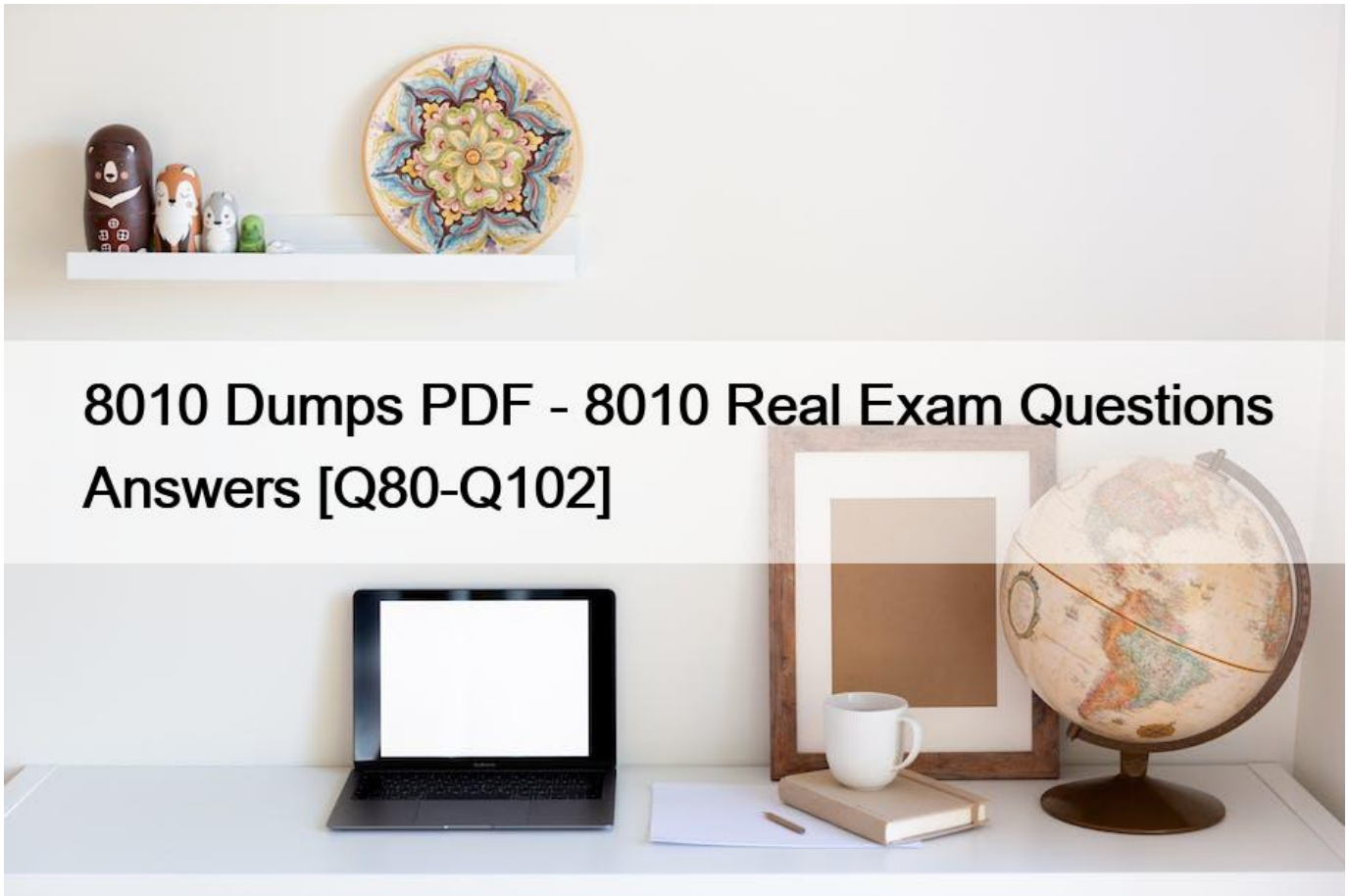


8010 Dumps PDF - 8010 Real Exam Questions Answers [Q80-Q102]



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PRMIA 8010 exam is an excellent opportunity for professionals who are interested in pursuing a career in operational risk management. Operational Risk Manager (ORM) Exam certification can help candidates stand out in a competitive job market, and it can also help them develop the skills and knowledge they need to succeed in their careers. If you are interested in taking the PRMIA 8010 exam, be sure to review the exam syllabus and prepare yourself for the exam by studying the relevant materials.

One of the key benefits of obtaining the PRMIA 8010 certification is the recognition it provides. Operational Risk Manager (ORM) Exam certification is widely recognized within the industry as a mark of excellence in operational risk management. It demonstrates that the individual has the necessary skills and knowledge to effectively manage operational risks within their organization. This can lead to career advancement opportunities, as well as increased credibility and visibility within the industry.

QUESTION 80

The largest 10 losses over a 250 day observation period are as follows. Calculate the expected shortfall at a

98% confidence level:

20m

19m

19m

17m

16m

13m

11m

10m

9m

9m

* 19.5

* 14.3

* 18.2

* 16

Explanation

For a dataset with 250 observations, the top 2% of the losses will be the top 5 observations. Expected shortfall is the average of the losses beyond the VaR threshold. Therefore the correct answer is $(20 + 19 + 19 + 17 +$

$16)/5 = 18.2m$.

Note that Expected Shortfall is also called conditional VaR (cVaR), Expected Tail Loss and Tail average.

QUESTION 81

Economic capital under the Earnings Volatility approach is calculated as:

- * Expected earnings/Specific risk premium for the firm
- * [Expected earnings less Earnings under the worst case scenario at a given confidence level]/Required rate of return for the firm
- * Earnings under the worst case scenario at a given confidence level/Required rate of return for the firm
- * Expected earnings/Required rate of return for the firm

Explanation

The Earnings Volatility approach to calculating economic capital is a top down approach that considers economic capital as being the capital required to make for the worst case fall in earnings, and calculates EC as equal to the worst case decrease in earnings capitalized at the rate of return expected of the firm. The worst case decrease in earnings, or the earnings-at-risk can only be stated at a given confidence level, and is equal to the Expected Earnings less Earnings under the worst case scenario.

QUESTION 82

Which of the following statements is true:

- * Both total expected losses and total unexpected losses are less than the sum of expected and unexpected losses on underlying exposures respectively
- * Total expected losses are equal to the sum of individual underlying exposures while total unexpected losses are greater than the sum of unexpected losses on underlying exposures
- * Total expected losses are equal to the sum of expected losses in the individual underlying exposures while total unexpected losses are less than the sum of unexpected losses on underlying exposures
- * Total expected losses are greater than the sum of individual underlying exposures while total unexpected losses are less than the sum of unexpected losses on underlying exposures

Explanation

Total expected losses which are average and anticipated are equal to the sum of expected losses in the underlying exposures. Total unexpected losses, which are the excess of worst case losses at a certain confidence level over the expected losses, benefit from the diversification effect and are lower than the sum of unexpected losses of the underlying exposures. Therefore Choice c is the correct answer. The other choices are incorrect.

QUESTION 83

Which of the following statements are true:

- I. The three pillars under Basel II are market risk, credit risk and operational risk.
 - II. Basel II is an improvement over Basel I by increasing the risk sensitivity of the minimum capital requirements.
 - III. Basel II encourages disclosure of capital levels and risks
- * III only
 - * I only
 - * I and II
 - * II and III

Explanation

The three pillars under Basel II are minimum capital requirements, supervisory review process and market discipline. Therefore statement I is false. The other two statements are accurate. Therefore Choice d is the correct answer.

QUESTION 84

There are two bonds in a portfolio, each with a market value of \$50m. The probability of default of the two bonds are 0.03 and 0.08 respectively, over a one year horizon. If the default correlation is 25%, what is the one year expected loss on this portfolio?

- * \$1.38m
- * \$11m
- * \$5.26m
- * \$5.5m

Explanation

We will need to calculate the joint probability distribution of the portfolio as follows. Probability of the joint default of both A and B =

$$P(A \text{ defaults} \cap B \text{ defaults}) = (\text{Default Correlation of A\&B}) * \sqrt{P(A)(1 - P(A))P(B)(1 - P(B))} + P(A)P(B)$$
$$= 25\% * \text{SQRT}(0.03 * (1 - 0.03) * 0.08 * (1 - 0.08)) + 0.03 * 0.08 = 0.0140.$$

The marginal probabilities (ie the standalone probabilities of default of the two bonds) are known, and if we can calculate the probability of joint defaults of the two bonds, we can calculate the rest of the entries. We then multiply the probabilities with the expected loss under each scenario and add them up to get the total expected loss.

The calculations are shown below. The expected loss is \$5.5m, and therefore the correct answer is Choice 'd';.

Probabilities

	A defaults	A survives	Total
B defaults	0.01397	0.06603	0.08
B survives	0.01603	0.90397	0.92
Total	0.03	0.97	1

Loss in \$m

	A defaults	A survives
B defaults	100.0000	50.0000
B survives	50.0000	0.0000

**Expected loss in each scenario (\$m)
(multiply the probability with the loss)**

	A defaults	A survives
B defaults	1.3970	3.3015
B survives	0.8015	0.0000
Total expected loss = \$	5.5000 m	

QUESTION 85

The standalone economic capital estimates for the three business units of a bank are \$100, \$200 and \$150 respectively. What is the combined economic capital for the bank, assuming the risks of the three business units are perfectly correlated?

- * 450
- * 269
- * 21
- * 72500

Explanation

Since the business units are perfectly correlated, we can get the combined EC as equal to the sum of the individual EC estimates. Therefore Choice 'a'; is the correct answer.

QUESTION 86

What would be the correct order of steps to addressing data quality problems in an organization?

- * Assess the current state, design the future state, determine gaps and the actions required to be implemented to eliminate the gaps
- * Articulate goals, do a 'strategy-fit' analysis and plan for action
- * Design the future state, perform a gap analysis, analyze the current state and implement the future state
- * Call in external consultants

Explanation

The correct answer is choice 'a';

The correct order of steps to addressing data quality problems in an organization would include:

1. Assessing the current state
2. Designing the future state, and
3. Planning and implementation which would include identifying the gaps between the current and the desired future state, and implementation to address the gaps.

Therefore Choice **a** is the correct answer.

Choice **c** is incorrect because a gap analysis cannot be performed without understanding the **as-is** (which results from understanding the current state).

Choice **b** is non-sensical, and Choice **d** is a flippant option (though often used in real life situations by management as an easy (and ineffective) way to escape accountability for difficult problems)

QUESTION 87

The 99% 10-day VaR for a bank is \$200mm. The average VaR for the past 60 days is \$250mm, and the bank specific regulatory multiplier is 3. What is the bank's basic VaR based market risk capital charge?

- * \$250mm
- * \$200mm
- * \$750mm
- * \$600mm

Explanation

The current Basel rules for the basic VaR based charge for market risk capital set market risk capital requirements as the maximum of the following two amounts:

1. 99%/10-day VaR,
2. Regulatory Multiplier x Average 99%/10-day VaR of the past 60 days

The **regulatory multiplier** is a number between 3 and 4 (inclusive) calculated based on the number of 1% VaR exceedances in the previous 250 days, as determined by backtesting.

If the number of exceedances is ≤ 4 , then the regulatory multiplier is 3.

If the number of exceedances is between 5 and 9, then the multiplier = $3 + 0.2 \cdot (N - 4)$, where N is the number of exceedances.

If the number of exceedances is ≥ 10 , then the multiplier is 4.

So you can see that in most normal situations the risk capital requirement will be dictated by the multiplier and the prior 60-day average VaR, because the product of these two will almost often be greater than the current

99% VaR.

The correct answer therefore is $= \max(200\text{mm}, 3 \cdot 250\text{mm}) = \750mm .

Interestingly, also note that a 99% VaR should statistically be exceeded 1% * 250 days = 2.5 times, which means if the bank's VaR model is performing as it should, it will still need to use a reg multiplier of 3.

QUESTION 88

Which of the following is the most important problem to solve for fitting a severity distribution for operational risk capital:

- * The risk functional's minimization should lead to a good estimate of the 0.999 quantile
- * Determine plausible scenarios to fill the data gaps in the internal and external loss data
- * Empirical loss data needs to be extended to the ranges below the reporting threshold and above large value losses
- * The fit obtained should reduce the combination of the fitting and approximation errors to a minimum

Explanation

Ultimately, the objective of the operational risk severity estimation exercise is to calculate the 99.9th percentile loss over a one year horizon; and everything else we do with data, collecting loss information, modeling, curve fitting etc revolves around this objective. If we cannot estimate the 99.9th percentile loss accurately, then not much else matters. Therefore Choice A is the correct answer.

Minimizing the combination of fitting and approximation errors is one of the things we do with a view to better estimating the operational loss distribution. Likewise, empirical loss data generally is range bound because corporations do not require employees to log losses less than an threshold, and high value losses are generally rare. This problem is addressed by extrapolating both large and small losses, something that impacts the performance of our model. Likewise, one of the objectives of scenario analysis is to fill data gaps by generating plausible scenarios. Yet while all these are real issues to address, the primary problem we are trying to solve is estimating the 0.999th quantile.

QUESTION 89

Which of the following statements are true:

I. Capital adequacy implies the ability of a firm to remain a going concern II. Regulatory capital and economic capital are identical as they target the same objectives III. The role of economic capital is to provide a buffer against expected losses IV. Conservative estimates of economic capital are based upon a confidence level of 100%

- * I and III
- * I, III and IV
- * III
- * I

Explanation

Statement I is true; capital adequacy indeed is a reference to the ability of the firm to stay a going concern.

(Going concern is an accounting term that means the ability of the firm to continue in business without the stress of liquidation.) Statement II is not true because even though the stated objective of regulatory capital requirements is similar to the purposes for which economic capital is calculated, regulatory capital calculations are based upon a large number of ad-hoc estimates and parameters that are hard-coded into regulation, while economic capital is generally calculated for internal purposes and uses an institution's own estimates and models. They are rarely identical.

Statement II is not true as the purpose of economic capital is to provide a buffer against unexpected losses.

Expected losses are covered by the P&L (or credit reserves), and not capital.

Statement IV is incorrect as even though economic capital may be calculated at very high confidence levels, that is never 100% which would require running a risk-free business, which would mean there are no profits either. The level of confidence is set at a level which is an acceptable balance between the interests of the equity providers and the debt holders.

QUESTION 90

Which loss event type is the failure to timely deliver collateral classified as under the Basel II framework?

- * Clients, products and business practices
- * External fraud
- * Information security
- * Execution, Delivery & Process Management

Explanation

Refer to the detailed loss event type classification under Basel II (see Annex 9 of the accord). You should know the exact names of all loss event types, and examples of each.

QUESTION 91

A bank extends a loan of \$1m to a home buyer to buy a house currently worth \$1.5m, with the house serving as the collateral. The volatility of returns (assumed normally distributed) on house prices in that neighborhood is assessed at 10% annually. The expected probability of default of the home buyer is 5%.

What is the probability that the bank will recover less than the principal advanced on this loan; assuming the probability of the home buyer's default is independent of the value of the house?

- * More than 1%
- * Less than 1%
- * More than 5%
- * 0

Explanation

The bank will not be able to recover the principal advanced on this loan if both the home buyer defaults, and the house value falls to less than \$1m, ie the price moves adversely by more than \$500k, which is

$-\$500k/\$150k = -3.33$. (Note that 150k is the 1 year volatility in dollars, ie $\$1.5m * 10\%$).

The probability of both these things happening together is just the product of the two probabilities, one of which we know to be 5%. The other is also certainly a small number, and intuitively it is clear that the probability of both the things happening together will be less than 1%.

For a more precise answer, we can calculate the probability of the house price falling by 3.33 standard deviations by calculating the area under the standard normal curve to the left of -3.33. This indeed is a very small number (actually equal to $NORMSINV(-3.33)=0.00043$), which when multiplied by the probability of default of the home buyer at 5% is certainly going to be less than 1%. Therefore Choice b is the correct answer.

QUESTION 92

Which of the following statements are true:

I. A transition matrix is the probability of a security migrating from one rating class to another during its lifetime.

II. Marginal default probabilities refer to probabilities of default in a particular period, given survival at the beginning of that period.

III. Marginal default probabilities will always be greater than the corresponding cumulative default probability.

IV. Loss given default is generally greater when recovery rates are low.

* I and III

* I, III and IV

* II and IV

* I and IV

Explanation

Statement I is incorrect. A transition matrix expresses the probabilities of moving to a given set of ratings at the end of a period (usually one year) conditional upon a given rating at the beginning of the period. It does not make a reference to an individual security and certainly not to the probability of migrating to other ratings during its entire lifetime.

Statement II is correct. Marginal default probabilities are the probability of default in a given year, conditional upon survival at the beginning of that year.

Statement III is incorrect. Cumulative probabilities of default will always be greater than the marginal probabilities of default; except in year 1 when they will be equal.

Statement IV is correct. $LGD = 1 - \text{Recovery Rate}$, therefore a low recovery rate implies higher LGD.

QUESTION 93

Which of the following is a measure of the level of capital that an institution needs to hold in order to maintain a desired credit rating?

* Shareholders' equity

* Economic capital

* Regulatory capital

* Book value

Explanation

Economic capital is a measure of the level of capital needed to maintain a desired credit rating. Regulatory capital is the amount of capital required to be held by regulation, and this may be quite different from economic capital. Book value is an accounting measure reflecting the assets minus liabilities as measured per accounting rules, this is often expressed per share.

Shareholders' equity is a narrow term which is the amount of capital attributable to the shareholders and includes paid up capital and reserves but not long term debt or other non-equity funding.

Therefore Choice 'b' is the correct answer.

QUESTION 94

Which of the following formulae describes CVA (Credit Valuation Adjustment)? All acronyms have their usual meanings (LGD=Loss Given Default, ENE=Expected Negative Exposure, EE=Expected Exposure, PD=Probability of Default, EPE=Expected Positive Exposure, PFE=Potential Future Exposure)

* $LGD * ENE * PD$

* $LGD * EPE * PD$

* $LGD * EE * PD$

* $LGD * PFE * PD$

Explanation

The correct definition of CVA is $LGD * EPE * PD$. All other answers are incorrect.

CVA reflects the adjustment for counterparty default on derivative and other trading book transactions. This reflects the credit charge, that needs to be reduced from the expected value of the transaction to determine its true value. It is calculated as a product of the loss given default, the probability of default and the average weighted exposure of future EPEs across the time horizon for the transaction.

The future exposures need to be discounted to the present, and occasionally the equations for CVA will state that explicitly. Similarly, in some more advanced dynamic models the correlation between EPE and PD is also accounted for. The conceptual ideal though remains the same: $CVA=LGD * EPE * PD$.

QUESTION 95

Which of the following describes rating transition matrices published by credit rating firms:

- * Expected ex-ante frequencies of migration from one credit rating to another over a one year period
- * Probabilities of default for each credit rating class
- * Probabilities of ratings transition from one rating to another for a given set of issuers
- * Realized frequencies of migration from one credit rating to another over a one year period

Explanation

Transition matrices are used for building distributions of the value of credit portfolios, and are the realized frequencies of migration from one credit rating to another over a period, generally one year. Therefore Choice

‘d’ is the correct answer.

Since they represent an actually observed set of values, they are not probabilities nor are they forward looking ex-ante estimates, though they are often used as proxies for probabilities. Choice ‘a’ and Choice ‘c’ are not correct. They include more than information on just defaults, therefore Choice ‘b’ is not correct.

QUESTION 96

Under the internal ratings based approach for risk weighted assets, for which of the following parameters must each institution make internal estimates (as opposed to relying upon values determined by a national supervisor):

- * Probability of default
- * Effective maturity
- * Loss given default
- * Exposure at default

Explanation

Regardless of the approach being followed by a bank (ie, whether foundation IRB or advanced IRB), it must make its own estimates for the probability of default. Banks following the foundation IRB approach may use values set by the supervisor for the other three parameters, though those following the advanced IRB approach may use their own estimates for all four inputs. (This is also the difference between advanced IRB and the foundation IRB approaches.) Therefore Choice ‘a’ is the correct answer.

Also note the four difference elements that go as inputs to the internal ratings based approach in the choices provided.

QUESTION 97

A bank holds a portfolio of corporate bonds. Corporate bond spreads widen, resulting in a loss of value for the portfolio. This loss arises due to:

- * Liquidity risk
- * Credit risk
- * Market risk
- * Counterparty risk

Explanation

The difference between the yields on corporate bonds and the risk free rate is called the corporate bond spread.

Widening of the spread means that corporate bonds yield more, and their yield curve shifts upwards, driving down bond prices. The increase in the spread is a consequence of the market risk from holding these interest rate instruments, which is a part of market risk. If the reduction in the value of the portfolio were to be caused by a change in the credit rating of the bonds held, it would have been a loss arising due to credit risk.

Counterparty risk and liquidity risk are not relevant for this question. Therefore Choice C is the correct answer.

QUESTION 98

For a bank using the advanced measurement approach to measuring operational risk, which of the following brings the greatest model risk to its estimates:

- * Choice of an incorrect distribution for loss event frequencies
- * Insufficient number of simulations when building the loss distribution
- * Choice of incorrect parameters for loss severity distributions
- * Aggregation risk, from selecting an incorrect value of estimated correlations between different operational risk estimates

Explanation

The greatest model risk when calculating operational risk capital comes from incorrect assumptions about correlations between different operational risks for which standalone risk calculations have been made.

Generally, the correlation can be expected to be positive, and would therefore vary between 0 and 1. These two values determine the bounds between which the total operational risk capital would lie, and these bounds are generally quite far apart. Therefore the total value of the operational risk capital is very sensitive to the value chosen for the correlation, and this is the source of the biggest model risk under the AMA.

QUESTION 99

If F be the face value of a firm's debt, V the value of its assets and E the market value of equity, then according to the option pricing approach a default on debt occurs when:

- * $F > V$
- * $V < E$
- * $F < V$
- * $F > E > V$

Explanation

According to the option pricing approach developed by Merton, the shareholders of a firm have a put on the assets of the firm where the strike price is equal to the face value of the firm's debt. This is just a more complicated way of saying that the debt holders are entitled to all the assets of the firm if these assets are insufficient to pay off the debts, and because of limited liability of the shareholders of a corporation this part payment will fully extinguish the debt.

A firm will default on its debt if the value of the assets falls below the face value of the debt. Therefore Choice

‘a’ is the correct answer. All other choices are incorrect.

(There are two ways to consider this sort of optionality, and I have mentioned only one for this question:

1. The equity holders can sell the assets of the firm to the debt holders at a price equal to the face value of the debt, ie a put. (ie they can extinguish their liability to the debt holders in full by handing them the assets of the firm, effectively selling them the assets at the value of the debt)
2. The equity holders have a long position in a call option where they can keep the assets of the firm by paying a price equal to the face value of the debt (ie, they can pay off the debt holders and keep the assets) For this question, perspective 1 applies but you should be aware of the second one too as a question may reference that view point.)

QUESTION 100

A corporate bond has a cumulative probability of default equal to 20% in the first year, and 45% in the second year. What is the monthly marginal probability of default for the bond in the second year, conditional on there being no default in the first year?

- * 3.07%
- * 2.60%
- * 15.00%
- * 31.25%

Explanation

Note that marginal probabilities of default are the probabilities for default for a given period, conditional on survival till the end of the previous period. Cumulative probabilities of default are probabilities of default by a point in time, regardless of when the default occurs. If the marginal probabilities of default for periods 1, 2… n are $p_1, p_2…p_n$, then cumulative probability of default can be calculated as $C_n = 1 - (1 - p_1)(1 - p_2)…(1 - p_n)$.

For this question, we can calculate the marginal probability of default for year 2 by solving the equation $[1 - (1 - 20\%)(1 - P_2) = 45\%]$ for P_2 . Solving, we get the marginal probability of default during year 2 as 31.25%.

Since this is the annual marginal probability of default, we will need to convert it to a monthly number, which we can do by solving the following equation where M_1 is the monthly marginal probability of default.

$$1 - 31.25\% = (1 - M_1)^{12}, \text{ implying } M_1 = 3.07\%$$

QUESTION 101

A cumulative accuracy plot:

- * is a measure of the correctness of VaR calculations
- * measures the accuracy of credit risk estimates
- * measures accuracy of default probabilities observed empirically
- * measures rating accuracy

Explanation

A cumulative accuracy plot measures the accuracy of credit ratings assigned by rating agencies by considering the relative rankings of obligors according to the ratings given. Choice ‘d’ is the correct answer.

QUESTION 102

Which of the following is not a tool available to financial institutions for managing credit risk:

- * Collateral
- * Cumulative accuracy plot
- * Third party guarantees
- * Credit derivatives

Explanation

Collateral, limits to avoid credit exposure concentrations, termination rights based upon credit ratings, third party guarantees and credit derivatives are all tools or instruments that financial institutions use to manage their credit risk. A cumulative accuracy plot measures the accuracy of ratings, and is not a tool for managing credit risk. Therefore Choice 'b' represents the correct answer.

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