

# DUMPS ARENA

## Operational Risk Manager (ORM) Exam

PRMIA 8010

Version Demo

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**QUESTION NO: 1**

When modeling operational risk using separate distributions for loss frequency and loss severity, which of the following is true?

- A. Loss severity and loss frequency are considered independent
- B. Loss severity and loss frequency distributions are considered as a bivariate model with positive correlation
- C. Loss severity and loss frequency are modeled using the same units of measurement
- D. Loss severity and loss frequency are modeled as conditional probabilities

**ANSWER: A****Explanation:**

When modeling operational loss frequency distribution (which, for example, may be based upon a Poisson distribution) and a loss severity distribution (for example, based upon a lognormal distribution), it is assumed that the frequency of losses and the severity of the losses are completely independent and do not impact each other. Therefore Choice 'a' is correct, and the others are not valid assumptions underlying the operational loss modeling.

Once each of these distributions has been built, a random number is drawn from each to determine a loss scenario. The process is repeated many times as part of a Monte Carlo simulation to get a the loss distribution.

**QUESTION NO: 2**

Which of the following statements is true in respect of a non financial manufacturing firm?

- I. Market risk is not relevant to the manufacturing firm as it does not take proprietary positions
  - II. The firm faces market risks as an externality which it must bear and has no control over
  - III. Market risks can make a comparative assessment of profitability over time difficult
  - IV. Market risks for a manufacturing firm are not directionally biased and do not increase the overall risk of the firm as they net to zero over a long term time horizon
- A. III only
  - B. IV only
  - C. I and II
  - D. III and IV
  - E. Market risk is not relevant to the manufacturing firm as it does not take proprietary positions  
II. The firm faces market risks as an externality which it must bear and has no control over  
III. Market risks can make a comparative assessment of profitability over time difficult  
IV. Market risks for a manufacturing firm are not directionally biased and do not increase the overall risk of the firm as they net to zero over a long term time horizon

**ANSWER: A****Explanation:**

A non-financial firm such as a manufacturing company faces market risks similar to those faced by financial firms, except perhaps for not being exposed to risks from the equity markets. Non financial firms commonly face interest rate risks in respect of their debts, commodity price risks in respect of their inputs and products, and foreign currency risks in respect of their overseas operations. It is therefore not correct to say that the manufacturing firm does not face market risk because it does not take proprietary positions. While decisions on positions may not be actively taken, positions in foreign exchange (eg, through overseas debtors owing foreign currency, or liabilities in foreign currencies to overseas suppliers), commodities (through exposure to the need for raw material and inventory of finished goods) and interest rates (through debt financed, whether at fixed or floating rates) exist and create market risk much in the same way as they would for a proprietary position. Therefore statement I is incorrect.

While the firm faces market risks as an externality (as do financial firms for that matter, though often they seek such exposure to profit from their view on which way the externality will express itself), it is incorrect to say that these risks must be borne. They can be measured and hedged. Therefore statement II is incorrect.

The results of a manufacturing firm will include gains and losses arising from exposure to market risk, and will cloud the true profitability of the business. A firm with significant unhedged overseas sales may show vastly different results across time periods due to the FX gains and losses, making comparative assessment of profitability difficult. Therefore statement III is correct.

Market risks for a manufacturing firm may be directionally biased in terms of exposure, ie there may be a consistent 'long' position in a particular commodity that the firm produces, and a consistent 'short' position in the commodities consumed. In the same way, directional biases may exist in FX or interest rate exposures too. Regardless of the bias, the existence of market risk exposures increase the volatility of the income stream and make the firm more risky, even though the long term expected returns from such exposures is zero (ie, returns may be zero but standard deviation is not). Therefore statement IV is not correct as market risks for non financial firms do increase the overall risk of the firm.

**QUESTION NO: 3**

The probability of default of a security during the first year after issuance is 3%, that during the second and third years is 4%, and during the fourth year is 5%. What is the probability that it would not have defaulted at the end of four years from now?

- A. 12.00%
- B. 88.53%
- C. 88.00%
- D. 84.93%

**ANSWER: D****Explanation:**

The probability that the security would not default in the next 4 years is equal to the probability of survival at the end of the four years. In other words,  $= (1 - 3\%) * (1 - 4\%) * (1 - 4\%) * (1 - 5\%) = 84.93\%$ . Choice 'd' is the correct answer.

**QUESTION NO: 4**

If two bonds with identical credit ratings, coupon and maturity but from different issuers trade at different spreads to treasury rates, which of the following is a possible explanation:

- I. The bonds differ in liquidity
  - II. Events have happened that have changed investor perceptions but these are not yet reflected in the ratings
  - III. The bonds carry different market risk
  - IV. The bonds differ in their convexity
- A.** I, II and IV
- B.** II and IV
- C.** I and II
- D.** III and IV
- E.** The bonds differ in liquidity
- II. Events have happened that have changed investor perceptions but these are not yet reflected in the ratings
- III. The bonds carry different market risk
- IV. The bonds differ in their convexity

**ANSWER: C**

**Explanation:**

When two bonds that appear identical in every respect trade at different prices, the difference is often due to differences in liquidity between the two bonds (the less liquid bond will be cheaper and yield higher), and also due to the fact that ratings from the major rating agencies do not generally react to day to day changes in the market. The market's perception of the differences in the two credits will cause a divergence in the prices. This has been an extremely visible phenomenon during the credit crisis of 2007-2009, where fixed income security prices have changed sharply for many securities without any changes in external credit ratings.

Bonds carrying 'different market risk' is meaningless, and so is the difference in convexity (because the calculated convexity would be identical for similar bonds).

Therefore Choice 'c' is the correct answer.

**QUESTION NO: 5**

Which of the following best describes Altman's Z-score

- A.** A calculation of default probabilities
- B.** A regression of probability of survival against a given set of factors
- C.** A numerical computation based upon accounting ratios
- D.** A standardized z based upon the normal distribution

**ANSWER: C**

**Explanation:**

Choice 'c' correctly describes Altman's z-score. All other choices are incorrect.

**QUESTION NO: 6**

Under the KMV Moody's approach to credit risk measurement, how is the distance to default converted to expected default frequencies?

- A. Using a proprietary database based on historical information
- B. Using migration matrices
- C. Using a normal distribution
- D. Using Monte Carlo simulations

**ANSWER: A****Explanation:**

KMV Moody's uses a proprietary database to convert the distance to default to expected default probabilities.

**QUESTION NO: 7**

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

A. 19.5

B. 14.3

C. 18.2

D. 16

**ANSWER: C**

**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 NO: 8**

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

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

**ANSWER: D**

**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 NO: 9**

Altman's Z-score does not consider which of the following ratios:

- A. Market capitalization to debt
- B. Sales to total assets
- C. Net income to total assets
- D. Working capital to total assets

**ANSWER: C**

**Explanation:**

A computation of Altman's Z-score considers the following ratios:

- Working capital to total assets
- Retained earnings to total assets
- EBIT to total assets
- Market cap to debt
- Sales to total assets

It does not consider Net Income to total assets, therefore Choice 'c' is the correct answer. This makes sense as net income is after interest and taxes, both of which are not relevant for considering the cash flows for debt servicing.

**QUESTION NO: 10**

A Bank Holding Company (BHC) is invested in an investment bank and a retail bank. The BHC defaults for certain if either the investment bank or the retail bank defaults. However, the BHC can also default on its own without either the investment bank or the retail bank defaulting. The investment bank and the retail bank's defaults are independent of each other, with a probability of default of 0.05 each. The BHC's probability of default is 0.11.

What is the probability of default of both the BHC and the investment bank? What is the probability of the BHC's default provided both the investment bank and the retail bank survive?

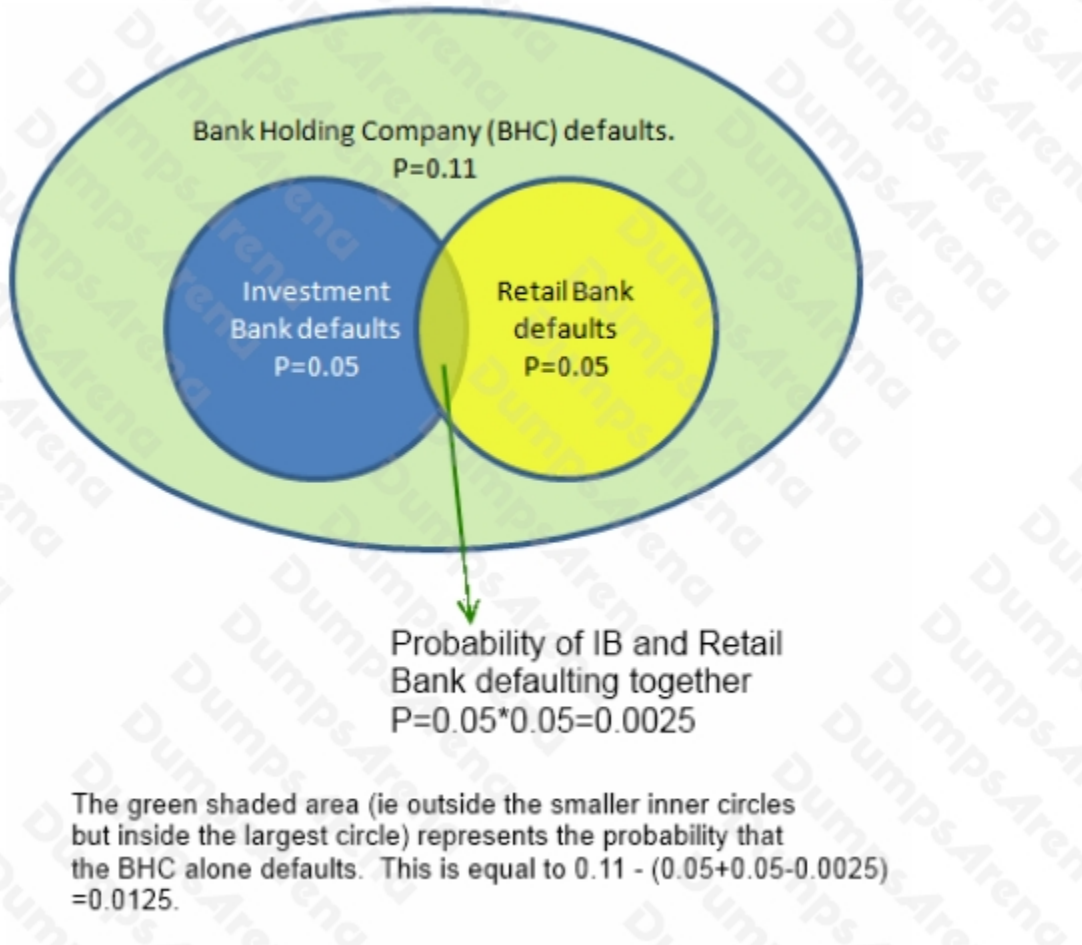
- A.** 0.0475 and 0.10
- B.** 0.11 and 0
- C.** 0.08 and 0.0475
- D.** 0.05 and 0.0125

**ANSWER: D****Explanation:**

Since the BHC always fails when the investment bank fails, the joint probability of default of the two is merely the probability of the investment bank failing, ie 0.05.

The probability of just the BHC failing, given that both the investment bank and the retail bank have survived will be equal to  $0.11 - (0.05 + 0.05 - 0.05 * 0.05) = 0.0125$ . (The easiest way to understand this would be to consider a venn diagram, where the area under the largest circle is 0.11, and there are two intersecting circles inside this larger circle, each with an area of 0.05 and their intersection accounting for  $0.05 * 0.05$ . We need to calculate the area outside of the two smaller circles, but within the larger circle representing the BHC).

Refer diagram below, please excuse the awful colors.

**QUESTION NO: 11**

Which of the following statements are true?

- I. Retail Risk Based Pricing involves using borrower specific data to arrive at both credit adjudication and pricing decisions
  - II. An integrated 'Risk Information Management Environment' includes two elements - people and processes
  - III. A Logical Data Model (LDM) lays down the relationships between data elements that an organization stores
  - IV. Reference Data and Metadata refer to the same thing
- A.** II and IV
- B.** I and III
- C.** I, II and III
- D.** All of the above
- E.** Retail Risk Based Pricing involves using borrower specific data to arrive at both credit adjudication and pricing decisions  
II. An integrated 'Risk Information Management Environment' includes two elements - people and processes

- III. A Logical Data Model (LDM) lays down the relationships between data elements that an organization stores  
IV. Reference Data and Metadata refer to the same thing

**ANSWER: B**

**Explanation:**

Statement I is correct. Retail Risk Based Pricing (RRBP) involves the use of borrower specific data (such as FICO scores, average balances etc) to arrive at credit decisions. These 'retail' credit decisions may include decisions on whether to grant a line of credit, a mortgage, issue a credit card, or any of the various other retail activities a bank may be dealing with. At the same time, this data can also be used to price the product, in addition to providing a yes or no credit decision so that risky borrowers are charged more than less risky borrowers.

Statement II is not correct, because an integrated Risk Information Management Environment includes three elements - people, processes and technology (and not just people and processes).

Statement III is correct. An LDM is a blue print of an organization's data, and describes the relationships between the various data elements.

Statement IV is not correct because reference data and metadata are not the same thing. Reference data refers to relatively static data, such as customer name (while actual transactions may not be so static). Metadata refers to data about data, and is stored in a data dictionary.

Therefore Choice 'b' is the correct answer and the rest are incorrect.

**QUESTION NO: 12**

Which of the following is not a credit event under ISDA definitions?

- A. Restructuring
- B. Obligation accelerations
- C. Rating downgrade
- D. Failure to pay

**ANSWER: C**

**Explanation:**

According to ISDA, a credit event is an event linked to the deteriorating credit worthiness of an underlying reference entity in a credit derivative. The occurrence of a credit event usually triggers full or partial termination of the transaction and a payment from protection seller to protection buyer. Credit events include

- bankruptcy,
- failure to pay,
- restructuring,
- obligation acceleration,
- obligation default and

- repudiation/moratorium.

A rating downgrade is not a credit event.

**QUESTION NO: 13**

When considering a request for a loan from a retail customer, which of the following factors is relevant for a bank to consider:

- A. The other retail loans in its portfolio
- B. The credit worthiness of the retail customer
- C. The contribution this new loan would bring to total portfolio risk
- D. All of the above

**ANSWER: D****Explanation:**

The credit worthiness of the retail customer is certainly a factor for the bank to consider as it will need to price the loan to cover the expectation of default. At the same time, it will need to look at other loans in its portfolio as to avoid unacceptable concentration risk. A corollary of the same theme is that the bank will need to take a portfolio view of the loan request and consider its contribution to total portfolio risk. Therefore all the choices are appropriate considerations for the bank and Choice 'd' is the correct answer.

**QUESTION NO: 14**

Which of the following is not an approach proposed by the Basel II framework to compute operational risk capital?

- A. Basic indicator approach
- B. Factor based approach
- C. Standardized approach
- D. Advanced measurement approach

**ANSWER: B****Explanation:**

Basel II proposes three approaches to compute operational risk capital - the basic indicator approach (BIA), the standardized approach (SIA) and the advanced measurement approach (AMA). There is no operational risk approach called the factor based approach.

**QUESTION NO: 15**

An error by a third party service provider results in a loss to a client that the bank has to make up. Such as loss would be categorized per Basel II operational risk categories as:

- A. Execution delivery and process management
- B. Outsourcing loss
- C. Business disruption and process failure
- D. Abnormal loss

**ANSWER: A**

**Explanation:**

Choice 'a' is the correct answer. 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.