

Foundations of Risk Management - Answers

Question 1

Two institutional investors are engaging in a swap transaction as counterparties. At the end of the swap tenor, the counterparty in the losing position refuses to pay and fulfill its obligations. Which of the following types of credit risk describes the situation?

- A) Bankruptcy risk.
- B) Default risk.
- C) Downgrade risk.
- D) **Settlement risk.** ✓

Explanation

On a settlement date, one of the counterparties is in a net loss ("losing") position and the other is in a net gain ("winning") position. Settlement risk refers to the losing party simply refusing to pay and fulfill its obligations. Settlement risk is distinct from default risk because the latter refers specifically to the nonpayment of interest and/or principal on a loan by the borrower to the lender.

(Module 1.2, LO 1.e)

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Question 2

A risk management consultant is considering the feasibility of hedging several risk exposures at Firm XYZ. Regarding the advantages and disadvantages of hedging risk exposures in practice, which of the following outcomes is least likely to result from the firm's hedging activities?

- A) Lower cost of equity capital.
- B) Operational stability.
- C) Lower cost of debt capital.
- D) **Lower compliance costs. ✓**

Explanation

Hedging activities incur compliance costs related to disclosure and accounting.

(Module 2.1, LO 2.c)

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Question 3

The board of directors of a firm must always consider best practices in both corporate governance and risk management. Which of the following activities is a best practice in corporate governance?

- A) The board sets up an ethics committee.
- B) The board introduces a Chief Risk Officer. ✓**
- C) The board approves all major transactions.
- D) The board focuses on the firm's economic performance over its accounting performance.

Explanation

The board should consider the introduction of a Chief Risk Officer (CRO). The CRO is a member of management and has the objective of linking the corporate governance duties to the firm's risk management objectives. As a result, the introduction of a CRO is a best practice in corporate governance.

Setting up an ethics committee to require all staff to adhere to the firm's high ethical standards is a best practice in risk management. Providing approval on all major transactions after ensuring the transactions are within the established risk appetite and consistent with the firm's overall business strategy is a best practice in risk management. Demanding substance (economic performance) over form (accounting performance) is a best practice in risk management.

(Module 3.1, LO 3.b)

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Question 4

A quantitative analyst has regressed the returns of Woodrose PLC against those of the FTSE 100 in a simple linear regression. The covariance between the stock and the index is 0.065. The Woodrose return is estimated to be 18.60% and the FTSE 100 market risk premium (MRP) is computed as 9.90%. The volatility of the market is estimated to be 19%. The analyst is most likely to have estimated which of the following regression equations?

- A) $E(R_{\text{Stock}}) = 0.0078 + 1.80 \times \text{MRP}$. ✓
- B) $E(R_{\text{Stock}}) = 0.02 + 1.60 \times \text{MRP}$.
- C) $E(R_{\text{Stock}}) = 0.02 + 1.80 \times \text{MRP}$.
- D) $E(R_{\text{Stock}}) = 0.0078 + 1.60 \times \text{MRP}$.

Explanation

$$\text{beta} = \text{covariance} / \text{variance of market} = 0.065 / 0.19^2 = 1.80$$

$$E(R_{\text{Stock}}) = \text{alpha} + \text{beta} \times \text{market risk premium}$$

$$18.60\% = \text{alpha} + 1.80 \times 9.90\%$$

$$\text{alpha} = 0.78\%$$

(Module 5.2, LO 5.e)

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Question 5

An analyst has estimated that the returns for an asset, conditional on the performance of the overall economy, are as follows:

Return	Probability	Economic Growth
5%	20%	Poor
10%	40%	Average
14%	40%	Good

Also, the conditional expected returns on the market portfolio are as follows:

Return	Probability	Economic Growth
2%	20%	Poor
10%	40%	Average
15%	40%	Good

According to the CAPM, if the risk-free rate is 5% and the risky asset has a beta of 1.1, with respect to the market portfolio, the analyst should:

- A) sell (or sell short) the risky asset because its expected return is less than the equilibrium expected return on the market portfolio.
- B) buy the risky asset because the analyst expects the return on it to be higher than its required return in equilibrium.
- C) **sell (or sell short) the risky asset because its expected return is not sufficient to compensate for its systematic risk. ✓**
- D) buy the risky asset because the analyst expects the return to be lower than its required return in equilibrium.

Explanation

The analyst's forecast of the expected return on the risky asset is $5(0.2) + 10(0.4) + 14(0.4) = 10.6\%$. The expected/equilibrium return on the market portfolio is $2(0.2) + 10(0.4) + 15(0.4) = 10.4\%$.

The CAPM equilibrium expected return (required return in equilibrium) on the risky asset is $5 + 1.1(10.4 - 5) = 10.94\%$. Because the analyst's forecast return on the risky asset is less than its required return in equilibrium, the asset is overpriced and the analyst would sell if he owned it and possibly sell it short.

(Module 5.2, LO 5.e)

Related Material

Question 6

Chrome Fund has an expected return of 12%. Nickel Fund is expected to provide an excess return of 8%. Standard deviations of returns are 5% for Chrome Fund and 4% for Nickel Fund. The risk-free rate is 2%. Based on the Sharpe ratio, a rational investor should:

- A) prefer Chrome Fund to Nickel Fund.
- B) prefer Nickel Fund to Chrome Fund.
- C) **be indifferent between Chrome Fund and Nickel Fund. ✓**
- D) not invest in either Chrome Fund or Nickel Fund.

Explanation

Excess return for Chrome is $12\% - 2\% = 10\%$. Chrome's Sharpe ratio is $10\% / 5\% = 2.0$. Excess return for Nickel is given as 8%. Nickel's Sharpe ratio is $8\% / 4\% = 2.0$. An investor should be indifferent between these two funds because they provide the same expected excess return per unit of risk.

(Module 5.3, LO 5.g)

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Question 7

A portfolio manager employs a two-factor APT model to calculate expected returns for Portfolio P. The two factors are percentage changes in GDP and changes in the term structure of interest rates, defined as the difference between yields in 30-year Treasury bonds and 1-year Treasury bills. Assume the following data:

Risk-free rate = 4%

GDP factor beta = 2.00

Term structure factor beta = 0.50

GDP risk premium = 6%

Term structure risk premium = 5%

Using the two-factor APT model for Portfolio P, which of the following expected returns is correct?

- A) 8.5%.
- B) 12.5%.
- C) 14.5%.
- D) **18.5%. ✓**

Explanation

$$E(R_p) = 0.04 + 2(0.06) + 0.5(0.05) = 0.185 = 18.5\%$$

(Module 6.2, LO 6.e)

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Question 8

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

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

Explanation

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

(Module 7.2, LO 7.d)

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Question 9

The cases of Metallgesellschaft Refining and Marketing (MGRM) in 1991 and Long-Term Capital Management (LTCM) in 1998 are similar in that their failures were:

- A) **due to an extreme lack of liquidity.** ✓
- B) not related to market movements.
- C) the result of misleading positions.
- D) the result of misspecifying duration.

Explanation

MGRM in 1991 and LTCM in 1998 are examples of cases where extreme illiquidity led to failure.

(Module 9.2, LO 9.a)

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Question 10

A financial risk analyst at Offshore Investments is preparing a purchase recommendation for Burch Corporation. According to the GARP Code of Conduct, which of the following statements about disclosure of conflicts is most correct? The analyst would have to disclose:

- A) that his wife owns 2,000 shares of Burch Corporation.
- B) that Offshore is an over-the-counter market maker for Burch Corporation's stock.
- C) that he has a material beneficial ownership of Burch Corporation through a family trust.
- D) all of these items. ✓**

Explanation

According to Standard 2.2, GARP Members shall make full and fair disclosure of all matters that could reasonably be expected to impair independence and objectivity or interfere with respective duties to their employer, clients, and prospective clients.

(Module 11.1, LO 11.a)

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