
PRACTICE EXAM 1

AFTERNOON SESSION

71. A junior trader was recently assigned to the foreign currency desk at his bank and was told by his supervisor to be aware of volatility smiles for foreign currency options. The junior trader did some research and came up with the following conclusions regarding the volatility behavior of foreign currency options. Which of the conclusions are true?
- I. Implied volatility for deep in-the-money currency options is higher than it is for at-the-money options.
 - II. Implied volatility for deep out-of-the-money currency options is higher than it is for at-the-money options.
 - III. Currency traders believe there is a greater chance for extreme price movements than predicted by a lognormal distribution.
 - IV. Longer dated options tend to exhibit more of a volatility smile than shorter dated options.
- a. I and III only.
 - b. II and IV only.
 - c. I, II, and III.
 - d. I, III, and IV.
72. Royal Bank has a \$25 million par position in a 5-year, zero-coupon bond that has a market value of \$19,059,948. The modified duration of the bond is closest to:
- a. 4.653 years.
 - b. 4.799 years.
 - c. 4.973 years.
 - d. 4.866 years.
73. In the event of default, the buyer of a credit default swap that specifies a physical delivery will deliver the reference obligation to the seller of the swap and receive:
- a. all payments on a pre-default schedule.
 - b. a single payment equal to the market value of the obligation.
 - c. a single payment equal to the par value of the obligation.
 - d. a similar non-defaulting obligation.
74. An important source of model risk is incorrect model specification. Which of the following is not an example of model specification error?
- a. Assuming data is from a particular distribution when a more accurate distribution is available.
 - b. Omitting an important risk factor from the model.
 - c. Assuming that variables are independent when significant correlations exist.
 - d. Estimating the model using data from an inappropriate sample period.

75. Assume an investor holds a portfolio of bonds as follows:
- \$2,000,000 par value of 10-year bonds with a duration of 6.95 priced at 95.5000.
 - \$3,000,000 par value of 15-year bonds with a duration of 9.77 priced at 88.6275.
 - \$5,000,000 par value of 30-year bonds with a duration of 14.81 priced at 114.8750.

The duration of the portfolio is closest to:

- a. 10.64.
 - b. 12.06.
 - c. 13.28.
 - d. 13.57.
76. Assume that Smithson Inc. sells an asset to Libco Inc. and receives a debt claim for \$100 million to be paid in five years. The claim from Libco is Smithson's only liability claim. The price per share of equity for Libco is \$16.10. Since there are five million shares of equity outstanding, the total equity value of the firm is \$80.5 million. Call options on the equity of Libco with an exercise price of \$10 and an expiration of one year are currently trading at \$9.09. Which of the following statements accurately describe the value of Smithson Inc.?
- I. The value of Smithson's equity can be valued as a put option on firm value with an expiration of five years and exercise price of \$100 million.
 - II. The value of Smithson's debt can be valued as the discounted value of the debt's principal, less the value of a put written on the value of the firm, with an exercise price equal to the principal amount and expiration equal to the time to maturity on the debt.
 - III. The value of the call option on Smithson's equity can be used to estimate the volatility of firm value using the Black-Scholes-Merton option pricing model.
 - IV. When the actual value of the firm is high, the value of the equity of the firm is more volatile than when the value of the firm is low.
- a. II only.
 - b. I, II, and IV.
 - c. I, III, and IV.
 - d. I and II only.
77. Assume that the current 1-year forward exchange rate is 1.200 USD per EUR. An American bank pays a 2.4% annual interest rate on a 1-year deposit and a 4.0% annual interest rate on a 3-year USD deposit. A European bank pays a 1.5% annual interest rate for a 1-year deposit and a 2.0% annual interest rate for a 3-year EUR deposit. The forward exchange rate in USD per EUR for exchange three years from today is closest to:
- a. 1.224.
 - b. 1.249.
 - c. 1.261.
 - d. 1.296.

PRACTICE EXAM 2

MORNING SESSION ANSWERS

1. a Borrowers with defaults, bankruptcies, and judgments are often issued subprime mortgages. Tranches with lower than expected credit ratings need to decrease the size of the senior tranche to achieve the higher rating. Credit ratings are designed to stay stable during up and down housing markets. Hybrids face significant default at the time of the first interest rate reset. (See Book 3, Topic 55)
2. a The probability of rescheduling sovereign debt is positively related to the debt-service ratio, the import ratio, the variance of export revenue, and the domestic money supply growth. (See Book 3, Topic 40)
3. d Statement II is incorrect because Basel I requires risk weightings to focus on credit risk only. Statement III is incorrect because we need inputs more than just probability of default (PD) to calculate risk-weighted assets and capital requirements using the IRB approach—foundation or advanced. Statements I and IV are correct. Minimum capital requirements = $8\% \times (0.30 \times 200 \times 0 + 0.20 \times 200 \times 0.25 + 0.25 \times 200 \times 0.30 + 0.15 \times 200 \times 0.60 + 0.03 \times 200 \times 1 + 0.07 \times 200 \times 1.50) = \5.6 million. (See Book 4, Topic 69)
4. b According to the cash-and-carry formula, the futures price should be:
$$1,010e^{(0.0275-0.01)0.25} = \$1,014.43.$$

Hence, the futures is overvalued, indicating it should be sold and the index be purchased for a risk-free profit of $\$1,020 - \$1,014.43 = \$5.57$. (See Book 2, Topic 13)
5. b When the corporate structure is used, the SPE buys the assets and issues claims directly against the assets. When the trust structure is used, the SPE buys the assets and transfers the assets to another SPE for a beneficial interest. Claims are issued against the purchasing SPE and so the claims are indirect. (See Book 3, Topic 54)
6. a “Lazy banking” is the result of the senior debtholders having control and rights which lead to a low priority being placed on subordinate debtholders’ interests, and it increases the probability of default. (See Book 3, Topic 43)
7. d All of the listed items should be considered in the due diligence process for selecting a fund of hedge funds manager. The three primary categories for analysis in the due diligence process are the manager’s investment process (database of managers), business model, and quality and depth of resources. (See Book 5, Topic 81)
8. d A trade assignment refers to a counterparty assigning their responsibilities under a trade agreement to a third party. It is recommended that parties do not assign or accept assignments of transactions without the prior approval of all three parties. Assignments that have prior consent should seek to use electronic platforms for trading. Note that the use of automated trading and straight-through processing (STP) is an important way to reduce risk and is a major theme of the CRMPG II report. (See Book 4, Topic 70)