
PRACTICE EXAM 2

1. Monte Carlo simulation and the historical method are two means of calculating VAR. Which of the following describes a disadvantage (or disadvantages) of the Monte Carlo method compared to the historical method of calculating VAR? The Monte Carlo method:
- I. takes advantage of the normal distribution.
 - II. incorporates flexibility in modeling price paths.
 - III. uses large amounts of computing power.
- a. I only.
 - b. I and II.
 - c. II and III.
 - d. III only.

2. Given the following information, which of the following amounts is closest to $d(1.0)$, the discount factor for the first year?

	Bond A	Bond B	Bond C
Bond maturity in years	0.5	1	2
Coupon	6.00%	12.00%	9.00%
Price	101.182	102.341	99.573

- a. 0.9099.
 - b. 0.9138.
 - c. 0.9655.
 - d. 0.9823.
3. Other risk management tools besides VAR could be used by practitioners such as exposure limits, stop-loss limits, and notional limits. Which of the following statements regarding such tools is(are) incorrect?
- I. Exposure limits may be aggregated across assets.
 - II. Stop-loss limits may be aggregated across assets.
 - III. Notional limits may be aggregated across assets.
- a. I only.
 - b. II only.
 - c. I and III.
 - d. II and III.

4. Arthur Harrow is a pharmaceuticals analyst at Dominion Asset Management (Dominion). His supervisor directs him to prepare separate research reports on Miracle Drug Company (Miracle) and Wonder Drug Company (Wonder). Harrow's former college roommate and close friend is the president of Miracle. Harrow owns 2,000 shares of Wonder, which currently sells for \$25 a share. Harrow's supervisor is unaware of these facts. According to the GARP Code of Conduct, which of the following actions, if any, is Harrow required to take if he writes the research reports?
- Harrow must disclose to Dominion both his relationship with the president of Miracle and his ownership of shares in Wonder.
 - Harrow must disclose to Dominion his relationship with the president of Miracle but not his ownership of shares in Wonder.
 - Harrow must disclose to Dominion his ownership of shares in Wonder but not his relationship with the president of Miracle.
 - Harrow need not disclose to Dominion either his relationship with the president of Miracle or his ownership of shares in Wonder.
5. Gloria Brown, FRM, calculated the intrinsic value of RTN Company and expects the stock to generate a 25% annual return over the foreseeable future. However, Brown is concerned that her price forecast may be too high. She conducted a hypothesis test and concluded that at a 5% significance level, the null hypothesis can be rejected that RTN Company's investment return would be equal to or less than 25% per year. The one-tailed test utilized a z -test. Indicate the meaning of the significance level chosen by Brown and state the correct rejection region.
- | <u>Significance level</u> | <u>Rejection region</u> |
|---|-------------------------|
| a. Brown will reject a true null hypothesis 5% of the time. | $z > 1.645$ |
| b. Brown will reject a false null hypothesis 95% of the time. | $z < -1.645$ |
| c. Brown will reject a true null hypothesis 5% of the time. | $z < -1.645$ |
| d. Brown will reject a false null hypothesis 95% of the time. | $z > 1.645$ |
6. John Bone is a junior bond analyst for XYZ investments. He is examining both investment grade bonds and speculative grade bonds. In particular, he is looking for bonds located below the separation between these two bond classifications. Which of the following bonds would be classified as a speculative grade bond?
- FHLMC discount note.
 - ACC rail bond rated Baa.
 - OMC Corp. MTN rated BB.
 - Traveler's floating-rate note rated Aa.

PRACTICE EXAM 1 ANSWERS

1. c The historical simulation method may not recognize changes in volatility and correlations from structural changes. (See Book 1, Topic 20)
2. c The dirty price of the bond is calculated as $N = 10$; $I/Y = 2.5$; $PMT = 30$; $FV = 1,000$; $CPT \rightarrow PV = 1,043.76$. Adjusting the PV for the fact that there are only 90 days until the receipt of the first coupon gives $\$1,043.76 \times (1.025)^{90/180} = \$1,056.73$. Clean price = dirty price – accrued interest = $\$1,056.73 - \$30(90 / 180) = \$1,041.73$. (See Book 2, Topic 27)
3. b Gamma (not theta) represents the expected change in delta for a change in the value of the underlying. In-the-money options are more sensitive to changes in rates (rho is higher) than out-of-the-money options. (See Book 3, Topic 42)
4. a Assuming no default risk, the domestic return is 7.35%. The return on the UK investments, however, is equal to the amount invested today, $(USD\$2,000,000) / (USD1.62/GBP) = GBP1,234,568$, which turns into $GBP1,234,568 \times 1.08 = GBP1,333,333$ one year from now. Since the forward contract guarantees the exchange rate in the future, this translates into $GBP1,333,333 \times USD1.5200 / GBP = USD2,026,666$. This is a dollar return to the bank of $USD2,026,666 / USD2,000,000 - 1 = 1.33\%$. Hence, the weighted average return to the bank's investments is $(0.5)(7.35\%) + (0.5)(1.33\%) = 4.34\%$. Since the cost of funds for the bank is 5.5%, the net interest margin for the bank is $4.34 - 5.50 = -1.16\%$. (See Book 2, Topic 33)
5. d All of the statements are correct except choice d: the value of the firm's equity should be the present value of its expected free cash flows (not net income). (See Book 1, Topic 2)
6. d With a known variance, the 95% confidence interval is constructed as $\bar{x} \pm 1.96 \frac{\sigma}{\sqrt{n}}$. So you know that $33.23 = 30 + 1.96 \frac{\sigma}{\sqrt{100}}$. Solving for σ provides 16.48. (See Book 1, Topic 13)
7. d A 6% rate compounded annually is approximately equivalent to a 5.8269% rate (rounded to four decimal places) compounded continuously.
 $\ln(1 + 0.06) = 0.058268908$
Using put-call parity: $p = c + Xe^{-rT} - S_0 = 4.10 + 27.50e^{-0.058269} - 25 = \5.04 . (See Book 2, Topic 29)