

# Risk Management 1

## 46-954

### Homework #2

**Due: Monday, September 18, 2017, 5:30pm**

Do problem 1 (which is worth 80 points) and any four of the five FRM questions, which are worth 5 points for each of the four chosen for a total of 100 points. For the FRM questions, you must offer some short reason for your answer, not just the answer itself.

#### **Problem 1**

Complete the spreadsheet assigned by Gary Lee.

#### **Problem 2 (FRM Exam Question)**

Assume that portfolio daily returns are independent and identically normally distributed. Sam Neil, a new quantitative analyst, has been asked by the portfolio manager to calculate portfolio VaRs over 10, 15, 20, and 25 days. The portfolio manager notices something amiss with Sam's calculations, displayed here. Which one of the following VaRs on this portfolio is inconsistent with the others?

- a)  $\text{VaR}(10\text{-day}) = \text{USD } 316\text{M}$
- b)  $\text{VaR}(15\text{-day}) = \text{USD } 465\text{M}$
- c)  $\text{VaR}(20\text{-day}) = \text{USD } 537\text{M}$
- d)  $\text{VaR}(25\text{-day}) = \text{USD } 600\text{M}$

#### **Problem 3 (FRM Exam Question)**

What is the best definition of tier 1 regulatory capital?

- a) Equity capital, retained earnings, disclosed reserves
- b) Subordinated debt, undisclosed reserves
- c) Equity capital, subordinated debt with a maturity greater than 5 years
- d) Long-term debt, revaluation reserves

#### **Problem 4 (FRM Exam Question)**

Consider a bank balance sheet with (1) common stock of \$600,000,000, (2) unrealized long-term marketable equity securities gain of \$5,000,000, (3) allowance in anticipation of possible credit losses of \$5,000,000, (4) goodwill of \$30,000,000. Based solely on this information, the tier 1 and tier 2 capital numbers are, respectively:

- a) \$595,000,000 and \$45,000,000
- b) \$570,000,000 and \$10,000,000
- c) \$600,000,000 and \$15,000,000
- d) \$630,000,000 and \$20,000,000

**Problem 5(FRM Exam Question)**

A bank subject to the Basel 1 Accord makes a loan of \$100,000,000 to a firm with a risk weight of 50%. What is the basic on-balance-sheet credit risk charge?

- a) \$8,000,000
- b) \$4,000,000
- c) \$2,000,000
- d) \$1,000,000

**Problem 6(FRM Exam Question)**

Which of the following statements about the Basel II capital requirements is false?

- a) It increases the risk sensitivity of minimum capital requirements for internationally active banks.
- b) It addresses only credit risk and market risk.
- c) U.S. insurance companies are not required to comply with Basel II capital requirements.
- d) Banks are not allowed to use their internal models for credit risk in determining the capital requirements for credit risk.