

SIMON FRASER UNIVERSITY  
*Faculty of Business Administration*  
**Final Examination**

BUS 492  
Risk Management

10-3

**Rules for Submitting Final Exam:** Answers to questions are to be typed, single spaced, of length 1 page *each* for all questions, 8"x11" standard paper, with 1" margin and type point not less than 12. (This assignment is typed in 12 point.) For questions with a) and b) parts, answer both parts. Violations will be subject to deductions. Assignment is due in my office no later than 7PM on Monday, Dec. 13, 2010.

**DO ALL QUESTIONS:**

**Do all parts of each question; for questions with two parts, 15 pts. for a) and 10 pts. for b)**

1. Compare and contrast the risk management practices from any three of the following examined in the student group presentations: Canadian oil and gas companies; Global and domestic airlines; base metal miners; US investment banks; and, Canadian chartered banks. Be sure to identify and contrast the risk management techniques, risk reporting techniques and the amount and type of derivative usage. In addition, provide an assessment of the risk management strategies and suggest possible avenues for improvement.

2. a) Outline the continuous time derivation of the Black-Scholes option pricing model. What assumptions are being made to derive the results?

b) What is meant by the delta, gamma and theta of: i) a call option; ii) a put option; iii) a riskless hedge portfolio?

3.a) Describe the various forms of portfolio insurance. How would these various forms of portfolio insurance perform in the face of discontinuous movements in equity prices such as the October 1987 market break? Contrast the implications of imposing market circuit breakers versus single stock circuit breakers.

b) A long stock position can be "protected" by buying a put. How can the payoff on this portfolio of a stock and option be replicated using "dynamic hedging" strategies involving portfolios which combine only stock and bond positions? (Hint: Be sure to identify the difference between path dependent and path independent strategies.)

4. a) **Describe** the delta, gamma and theta for a long position in a straddle spread (exercise prices for put and call the same) and a strangle spread (exercise prices different). If both spreads are constructed to be delta neutral and have the same initial value (the  $V$  is the same), then what can be said about the relative gamma and theta of the two spread positions?

b) Contrast the delta, gamma and theta for a long position in a vertical spread with calls and a short position in a vertical spread with puts.