SIMON FRASER UNIVERSITY
Faculty of Business Administration
Final Examination

BUS 419 10-1
Advanced Derivative Securities

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 Apr. 21, 2010

DO THREE of FOUR QUESTIONS (Do all parts of each question)

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 are the limitations of applying the model to actual options prices (being sure to identify what amendments have to be made to the Black-Scholes formula to, say, incorporate dividend paying stocks or permit a different distributional assumption for stock prices)?

3. a) 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.)
b) 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?

4a) What is meant by the delta, gamma and theta of a call option?
b) **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?