SIMON FRASER UNIVERSITY
Faculty of Business Administration

BUS 419 04-1
MIDTERM EXAM

Rules for Submitting Midterm 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 multiple parts, e.g., a) and b), answer all parts. Violations will be subject to deductions. Assignment is due at the start of class one week from the date it is handed out (week 9).

Do any 3 of 4 Questions; be sure to answer all parts of the question. (Total length 3 pages)

1. a) Explain the arbitrage underlying the covered interest parity theorem. What assumptions are being made about both the execution of the arbitrage and the underlying securities?

b) For Fri. Feb. 27, 2004 the closing values for spot, 1 month, 3 month, 6 month, one year and two year forward rates for the Canadian dollar (per US dollar) were $1.3362, 1.3376, 1.3401, 1.3424, 1.3483 and $1.3526 respectively. What "risk-free" true yield interest rate (bond equivalent yield) on Canadian dollar instruments would be consistent with the interest-rate-parity theorem for each of these values would be if the one, three and six month US ***discount*** rates were: 1.00%, 1.03% and 1.07% and the one year and two year (true yield) bond yields were 1.23% and 1.82%?

c) What factors determine the profitability of: a golden turtle trade; a butterfly in heating oil; a tailed spread in crude oil? What trading strategy is most applicable to trading the TED spread?

2. a) Will CIP hold for all types of money market instruments? Which money market security will produce the smallest deviations from the covered interest parity conditions? Why? What institutional characteristics of bankers' acceptances, commercial paper and treasury bills would make it difficult for CIP transactions to be instantaneously executed in those markets? Be as complete as possible in explaining your answer.

b) Assume that you are convinced that the spread between the implied carry return in gold futures will widen relative to the return implied in silver futures. How would you design a trade to profit on your predictive ability in this case?

c) How is the solution to the optimal hedge ratio for a mean-variance objective function affected if the commodity being hedged is undetermined at the time the hedge is "put on", e.g., a wheat farmer hedging the output for a crop with an uncertain yield per acre which has just been planted.

3. a) Assuming a mean-variance objective function, derive an expression for the optimal speculative position size. What happens to this position as the sensitivity to risk diminishes? Based on this, what can you conclude about the equilibrium in a market dominated by risk-neutral speculators? Hint: Are forward prices unbiased predictors of future spot prices? Derive a "closed-form" expression for the risk-minimizing hedge ratio. In what sense is this ratio an optimal hedge ratio?

b) Explain in detail the appropriate hedging strategies for the following:

i) In April, a bank wants to "lock-in" today's interest rate on a $110 million issue of 2-month negotiable CD's due to take place in three weeks.
ii) A US pension fund manager expects Canadian interest rates to fall, precipitating a significant downward adjustment in the Canadian dollar. The fund manager wants to protect against US dollar capital losses on its Canadian common stock holdings.
iii) In June, an oil refinery wants to "lock-in" today's processing margin on a current purchase of 50,000 bbls. of crude oil that will be refined into unleaded gasoline and heating oil using a 2:1 (3:2:1) crack ratio.

4. a) Outline relevant issues to be addressed in developing a risk management philosophy for a gold mining company with operations in Australia, Indonesia and Canada. Your answer can assume that the company is considering a range commodity derivatives strategies to support potential hedging activities.

b) Derive the profit profile for a spread trade with equal position sizes. What factors determine the profitability of this trade? Derive the profit profile for a tailed spread and explain how this trade is different from a trade with one-to-one position sizes. Does your answer depend on the commodity under consideration? Derive the profit profile for a currency tandem and explain how the profitability of this trade differs from a one-to-one currency spread.