SIMON FRASER UNIVERSITY
Faculty of Business Administration

BUS 419 05-1
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 of the Thursday class it is handed out.

Do all 3 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, and one year forward rates for the Canadian dollar (per US dollar) were $1.3362, 1.3376, 1.3401, 1.3424, and 1.3483. What "risk-free" true yield interest rate (bond equivalent yield) on Canadian dollar instruments would be consistent with the interest-rate-parity theorem if the one, three and six month US ***discount*** rates were: 1.00%, 1.03% and 1.07% and the one year (true yield) bond yield was 1.23%?

c) 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.

2.a) 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.

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) What factors determine the profitability of: a silver turtle trade; a butterfly in Eurodollars; a tailed spread in Tbonds?

3. a) Assuming a mean-variance expected utility 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?

b) Derive a "closed-form" expression for the risk-minimizing hedge ratio. In what sense is this ratio an optimal hedge ratio? What are the implications of having the allowing the parameters of the conditional and unconditional distributions to differ?

c) Derive the solution to the optimal hedge ratio for a mean-variance objective function assuming the size of the spot position is fixed. How is the solution 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.