

Midterm II Exam

*Directions: Answer all questions; point totals for each question are given in parentheses. For full credit, you must provide **complete** explanations for your answers.*

1. (15) Answer the following in the context of the financial futures market as discussed in class:
 - (a) A pension fund currently has a negative duration gap. If it wants to minimize its exposure to interest rate risk, what position should it take in the financial futures market.
 - (b) If a bank has a negative funding gap, what position should it take in the financial futures market in order to minimize its exposure to interest rate risk.
 - (c) Explain briefly why hedging in the futures market exchanges price risk for basis risk. Why are participants willing to make this exchange?
2. (20) Suppose Corp. A can borrow long term at a fixed rate of 10% or at a floating rate of 50 bp over LIBOR. Corp B can borrow long term at a fixed rate of 11% and a floating rate of 75 bp over LIBOR. If Corp. A desires a floating rate and Corp. B wants a fixed rate, design an interest rate swap that reduces the borrowing costs of both firms.
3. (16) Define the following:
 - (a) Mortgage pass through bond.
 - (b) Commercial paper.
 - (c) Banker's acceptance.
 - (d) Reverse Repo.
4. (25) Nancy and Bertha are faced with the same type of problem. Both can choose between two career choices: a risky job which has a random income or a safe job that has a certain (i.e. guaranteed) income. Nancy and Bertha receive the same income in the safe job but Nancy's expected level of income is higher than Bertha's in the risky career choice. Suppose that Nancy and Bertha are indifferent between the safe and risky career choices. What do you conclude? Justify your answer graphically.
5. (25) In analyzing the demand for insurance, a model was presented with the following features: Risk averse agents had wealth equal to W but faced the probability of a loss of size x with probability p . Agents could purchase insurance (offered by insurance firms in a perfectly competitive insurance market) with a premium of h and the choice variable was the amount of coverage to buy, denoted y . Agents choose y in order to maximize expected utility. Use that model to answer the following questions:
 - (a) Consider the initial setting in which agents have no insurance. Prove that the slope of the indifference curve evaluated at the no insurance line is different than the ratio of $(1 - p)/p$. What is the implication?
 - (b) Suppose Bob is more risk averse than Jerry. Given the above scenario, what is the prediction for the amount of insurance that Bob purchases relative to that purchased by Jerry?