

**THE UNIVERSITY OF ILLINOIS AT CHICAGO
ECON 339: MONETARY THEORY AND POLICY
SPRING 2001**

Prof. George Karras

Your name: _____

Your SSN: _____

Homework 1

1. [5 points] (a) In January 2001 you buy a \$1000 face value bond with 10% annual coupon rate and 3-year maturity (January 2004). If the yield to maturity is 10%, what is the price you paid? (b) What will be the bond's price in January 2002 if the yield does not change? (c) In January 2003? (Calculate the answers; don't use properties from the book or the notes.) (d) Now suppose the yield to maturity (the interest rate) increases to 20% in 2001, shortly after you bought the bond. What will be the bond's price in January 2002? Are you better-off? (e) If the interest rate stays at 20%, what will be the price in January 2003? Show your calculations.

2. [5 points] Consider the following information on stock returns:

| Event | Probability | Returns | |
|-------------------------------------|-------------|---------|------|
| | | IBM | Sony |
| US in recovery, Japan in recovery | 1/4 | 15% | 10% |
| US in recovery, Japan in recession | 1/4 | 15% | 8% |
| US in recession, Japan in recovery | 1/4 | 5% | 10% |
| US in recession, Japan in recession | 1/4 | 5% | 8% |

(a) Calculate the expected returns and risks (standard deviations) of IBM and Sony. Which one is riskier? What is the risk premium? (b) What is the expected return and risk of a portfolio that consists of 50% IBM and 50% Sony?