

Econ 330 – Money and Banking

Problem Set 2

Due: Tuesday, June 20

Question 1

- (i) Suppose that you make a 5-year deposit of \$1000 at Best Interest Bank, being offered an interest of 10% per year. How much money will you have at maturity (i.e., after 5 years)? What would be the real value of the deposit if the inflation rate is 5% per year?
- (ii) At the same time, you borrow \$1000 from The Loanshark Inc., through a simple loan with maturity in 3 years and an interest rate of 12%. How much money will you have to pay back at maturity?
- (iii) The reference interest rate in the economy is 8%. Calculate the present value of your deposit and of your loan and check if you are at a loss or not from this combined transaction.

Hint: to calculate the sums at maturity, use the interest rates specified in the financial instrument. To calculate the present values in part (iii), use the (nominal) end values you calculated in the previous parts and the economy-wide interest rate of 8%. Then compare the present value of the deposit to the present value of the loan to determine whether you would lose or gain from the combined deposit-loan transaction.

Question 2

Calculate as many as possible (and relevant) of the current yield, discount yield, yield to maturity, and one-year rate of return, for the following bonds with a face value $F = \$1,000$:

- (i) discount bond, maturity in 1 year, price $P = \$950$
- (ii) a coupon bond with a coupon rate of 5%, maturity in 5 years, and price $P_1 = \$975$ (assume that the price next year is $P_2 = \$985$).

- (iii) a consol with a coupon rate of 5% and a price $P_1 = \$900$ (assume that the price next year is $P_2 = \$925$)

Question 3

Describe (graphically and with a short explanation) what happens to the equilibrium interest rate when:

- (i) inflation is expected to fall
- (ii) the stock market crashes
- (iii) government deficit goes up
- (iv) money supply increases

Question 4

Suppose the one-year interest rates for the next 5 years are 5%, 6%, 6%, 5%, and 6%. Calculate the interest rates for the following bonds:

- (i) a three-year bond
- (ii) a two-year bond bought next year
- (iii) a five-year bond