

OPTIONAL PROBLEMS FOR CHAPTER 6 - 7

1. An economy is characterized by the following behavioral relations:

$$\text{Investment: } I = 25 (.5 - i)$$

$$\text{Consumption: } C = 20 + .5(Y-T)$$

$$\text{Money demand: } M = Y(.5 - i)$$

Policy parameters are initially set at $G = 20$, $T = 20$, $M = 32$.

- (a) Derive the IS curve
- (b) Derive the LM curve
- (c) Find equilibrium Y and i .
- (d) Derive and show graphically the effects of an increase in G from 20 to 25.
- (e) Derive and show graphically the effects of an increase in M from 32 to 34.

2. Suppose that the interest rate for the next year is 5 percent, that for the year after is 7 percent, and the rate for the year after that is 6 percent. Also imagine that there is a bond with a face value of \$100, which will pay 8 percent of that value in interest for the next three years; along with the final interest payment, three years from now, will come repayment of the principal of \$100.

- (a) How much will the bond sell for?
- (b) What will be the yield to maturity on the bond?
- (c) Suppose that changes in market conditions lead people to expect that interest rates in the future will be lower - that next year they will be 6.5 percent, not 7, and the year after that 5.5 percent. How does the bond price and the yield change?

3. Return to the model of question 1, but with a small change in assumption: now suppose that investment depends on the real, not the nominal interest rate, and that the nominal interest rate cannot go below zero (money demand become infinite at that point).

- (a) Suppose that prices are expected to be stable, and that the original equilibrium holds; then for some reason people come to expect 5 percent inflation. How does the equilibrium change?
- (b) Again suppose that prices are assumed to be stable; now assume that full employment requires $Y = 90$. Can this be achieved with a monetary expansion?
- (c) Explain how the answer to (b) relates to the idea of a “liquidity trap”, as described in your supplementary readings.