
14.02 Principles of Macroeconomics

Fall 2005

Quiz 3

Thursday, December 8, 2005
7:30 PM – 9 PM

Please, answer the following questions. Write your answers directly on the quiz. You can achieve a total of 100 points. There are 6 short questions, worth 5 points each; followed by 2 long questions (both weighted 35/100 points). You should read all of the questions first. There is a blank page attached at the end of the quiz to be used for scratch paper.

Good Luck!

NAME: _____

MIT ID NUMBER: _____

TA: _____

CLASS TIME: _____

EMAIL: _____

(Table is for corrector use only)

	1	2	Total
Short Questions			
Question 1			
Question 2			
Total			

Short Questions (30/100 points)

Please state whether the following statements are TRUE or FALSE with a short explanation (3 or 4 lines). Each question counts 5/100 points.

1. An increase in taxes today always leads to a decrease in consumption today.

2. The fact that Japan has a current account surplus implies that part of Japanese saving is used to finance investment in other countries.

3. If imports are only a function of the real exchange rate (e.g. $IM = 100\varepsilon^2$), then the goods market multiplier is the same in an open economy as in a closed economy.

4. Given that the Japanese nominal interest rate is close to 0% and that the nominal interest rate in the US is about 4%, American investors will never want to hold Japanese bonds.

5. Assume that the uncovered interest parity condition holds. Then, under a fixed exchange rate regime, investment unambiguously increases in the short-run as a consequence of a fiscal expansion. This statement is false under a flexible exchange rate regime.

6. Assume that the uncovered interest parity condition holds. Then, in a country that has a fixed exchange rate, the Central Bank just has to keep the domestic interest rate equal to the foreign interest rate.

Long Question I (35/100 points)

Open Economy IS-LM

Consider the following model of an open economy:

$$C = 250 + 0.5(Y - T)$$

$$I = 100 + 0.2Y - 2000r$$

$$IM = 0.1Y\varepsilon + 30\varepsilon^2$$

$$X = 0.01Y^* - 70\varepsilon$$

$$T = 200$$

$$G = 200$$

$$Y^* = 15000$$

$$M^s = 800$$

$$M^d = PY - 4000i$$

$$i^* = 5\%$$

where r is the real rate of interest, ε the real exchange rate, and the other variables have the usual meaning. Suppose that $P = P^* = 1$ and that there is no inflation $\pi^* = \pi = 0$. Assume that the country has a **fixed** exchange rate regime.

1) Compute the equilibrium (Y, i, E, TB) . (10 points)

- 2) Assume that government spending G increases by 100. What does the Central Bank have to do in order to maintain the fixed exchange rate? Compute. (10 points)
- 3) Assume that $G=200$ again. The government would like to balance trade ($TB=0$) while leaving the output level you found in part 1) unchanged. What should it do? Compute the right mix of fiscal policy and exchange rate policy. Assume that when the government announces a change in the value of the fixed exchange rate from \bar{E} to \bar{E}' , both \bar{E}_t and \bar{E}_{t+1}^e change instantaneously to \bar{E}' . (10 points)

- 4) Describe with a graph and **explain in words** the dynamics over time of net exports once the mixed policy you suggested in part 3) is implemented. Label the axes of the graph. (Hint: J-curve). (5 points)

Long Question II (35/100 points) Open Economy AS/AD

Consider the following open economy at time t :

$$C_t = 540 + 0.4(Y_t - T_t)$$

$$I_t = 200 + 0.2Y_t - 2500r_t$$

$$IM_t = 0.1Y_t \varepsilon_t + 20\varepsilon_t^2$$

$$X_t = 0.036Y_t^* - 80\varepsilon_t$$

$$T_t = 100$$

$$G_t = 100$$

$$Y^* = 10000$$

$$M_t^s = 1300$$

$$M_t^d = P_t Y_t - 5000i_t$$

$W_t = P_t^e (z - 2u_t)$ where $z = 1$ is a parameter that represents the workers' bargaining power and u is the unemployment rate.

The following is the price setting relation

$$P_t = (1 + \mu)W_t \text{ where } \mu = 0.25 \text{ is the markup.}$$

The production function of the economy is constant: $Y_t = N_t$ for any t

The labor force is constant at $L = 2000$.

Assume that the country has a **flexible** exchange rate regime.

1) Derive the AS relation at t. (5 points)

2) Derive the AD relation at t. Express Y as a function of P_{t+1}^e , P_t , and ε_t . Assume $P^*=1$ and use the approximation $i_t = r_t + \pi_{t+1}^e$ (10 points)

- 3) Assume that in the medium run trade is balanced and that $g_m = 0.068$, so that the Aggregate Demand relation becomes $g_y = g_m - \pi$ (in the medium run there is a positive constant growth rate of the nominal money stock). Compute the medium run equilibrium values for output (Y), the nominal interest rate (i), inflation (π) and the real exchange rate (ε). If the economy has reached its medium run equilibrium at t , what is the value of the equilibrium price level at t (P_t)? What is the value of the equilibrium nominal exchange rate at t (E_t)? (10 points)

- 4) Assume that P^* is equal to 1 and constant. Assume perfect capital mobility. What is the medium run foreign real interest rate r^* ? Compute and explain. (10 points)

