

QUIZ # 2
14.02 PRINCIPLES OF MACROECONOMICS
SPRING 1998 (4/9/98)

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PART ONE: TRUE/FALSE/UNCERTAIN. (25 Points)

Please explain your answer.

1. Expansionary monetary policy has a larger effect if it is expected to be repeated in the future.

Answer: TRUE. Expectations can play a very important role. For example, expansionary monetary policy (which shifts the current-period LM to the right) will be far more effective if financial markets expect it to continue into the future, leading to lower future interest rates. In that case, the current-period IS will also shift to the right, leading to a greater increase in current output.

2. If the Fed is expected to keep future output constant, then a backloaded deficit reduction package, in which most of spending cut and/or tax increase happen later in the program, will increase the expected future interest rate.

Answer: FALSE. The future contractionary fiscal policy will shift the future IS curve to the left. In order to keep output constant in the future, the Fed must respond with expansionary monetary policy in the future, thus shifting the future LM curve to the right, leading to a lower future interest rate.

3. Since Brazilian interest rates are so much higher than US interest rates, investors should hold Brazilian bonds only.

Answer: FALSE. By the uncovered interest parity condition, investors must be expecting a big depreciation of the Brazilian currency (the real) vis-à-vis the dollar.

4. The effect of a fiscal expansion on the trade balance is much larger for a small country like Belgium than for a large country like the US.

Answer: TRUE. For the smaller country, much of the increase in demand falls on foreign goods, leading to a larger deterioration of the trade position.

5. In times of world-wide recession, policy coordination is easy because everybody stands to benefit from expansionary policies.

Answer: FALSE. While everybody stands to benefit from expansionary policies, every country also has an incentive to wait for other countries' policies to help it get out of its own recession (through the effects of trade).

PART TWO: MEDIUM QUESTION (25 Points)

A Crisis with Fixed Exchange Rates (No Calculator Necessary)

Consider the following simple model describing a small open economy (I have assumed that foreign and domestic prices are constant and equal to one):

$$Y = 220 - 2000i + NX$$

$$NX = 110 - Y + E$$

$$M = 10Y - 2000i$$

$$i = i^* + (\bar{E} - E)/E$$

$$i^* = 0$$

1. Calculate the exchange rate E such that if $\bar{E} = E$, then there will be trade balance.

Answer: If $\bar{E} = E$, then $i = i^* = 0$. Plugging the expression for Y from (1) into (2) you get:

$$NX = 110 - 220 + 2000(0) - NX + E$$

For trade balance, $NX=0$, so that

$$E = 220 - 110 \Rightarrow \bar{E} = \mathbf{E=110}$$
 such that $NX=0$

2. Suppose that this country has instead decided to fix its exchange rate E at 100. Also suppose that the peg is credible for the time being, i.e., that $\bar{E} = E$.

a. Calculate Y and NX .

Answer: $\bar{E} = E$ means that $i = i^* = 0$. Plugging from (2) into (1), and using $E=100$:

$$Y = 220 - 2000(0) + 110 - Y + 100 \Rightarrow$$

$$2Y = 430 \Rightarrow \mathbf{Y = 215}$$

Using (2):

$$NX = 110 - 215 + 100 \Rightarrow \mathbf{NX = -5}$$

b. What is the money supply necessary to maintain this exchange rate?

Answer: Using (3):

$$M = 10(215) - 2000(0) \Rightarrow \mathbf{M = 2150}$$

3. Suppose that after many years, during which the economy was described by your answer to part 2, the peg is no longer credible. While the country is still fixing its

exchange rate at $E=100$, the financial markets have now set their expectations so that $\bar{E}=110$.

a. Can you see any reason why the financial markets expect a depreciation?

Answer: A country cannot run a trade deficit forever. At $\bar{E}=110$, the country will have trade balance.

b. If the country is committed to maintaining the exchange rate at $E=100$, what will happen to the level of output? How about the money supply required to defend the exchange rate? (Hint: what is the domestic interest rate needed to defend the exchange rate?)

Answer: Using the uncovered interest parity condition (4),

$$i = 0 + (110-100)/100 \Rightarrow \mathbf{i=10\%}$$

Now substitute from (2) into (1) to get:

$$\begin{aligned} Y &= 220 - 2000(.1) + 110 - Y + 100 \Rightarrow \\ 2Y &= 220 - 200 + 210 \Rightarrow 2Y = 230 \Rightarrow \mathbf{Y = 115} \end{aligned}$$

Using (3):

$$\begin{aligned} M &= 10(115) - 2000(.1) \Rightarrow \\ M &= 1150 - 200 \Rightarrow \mathbf{M = 950} \end{aligned}$$