

Professor Christiano
C-11, Winter 1999

Second Midterm

IMPORTANT: read the following notes

- You may not use calculators, notes, or aids of any kind.
- Please feel free to ask the proctor questions if the wording of a question is unclear.
- A total of 100 points is possible, with the distribution by question indicated in parentheses.
- Indicate on your blue book which TA section you are in.
- Explain your answers carefully in clear English. Supplement what you say with liberal use of diagrams.
- Write neatly and label all diagrams. We cannot give you credit if we cannot read your answer.

1. (10) What is an asset price bubble? Explain briefly why central bankers worry about them.
2. (35) Consider the following expression for net exports, expressed in terms of domestic goods:

$$NX(Y^*, Y, \varepsilon) = X(Y^*, \varepsilon) - \varepsilon Q(Y, \varepsilon),$$

where Y^* denotes foreign income, Y denotes domestic income, X denotes exports of domestic goods, and Q denotes imports of foreign goods. Also, ε denotes the real exchange rate

$$\varepsilon = \frac{EP^*}{P},$$

where E is the nominal exchange rate and P^* and P denote the foreign and domestic price level, respectively.

- (a) Explain why ε is the ratio of the price of the foreign good to the price of the domestic good, where both prices are expressed in the same units.
 - (b) The impact of Y^* and ε on X is positive; the impact of Y on Q is positive; and the impact of ε on Q is negative. Explain why this makes sense.
 - (c) Explain why ε appears in front of Q in the net export expression.
 - (d) Why is it that, without further restrictions, the impact of an increase in ε on NX is ambiguous?
3. (55) Consider the Mundell-Fleming model:

$$\begin{aligned} C^d &= c_0 + c_1(Y - T), \quad 0 < c_1 < 1. \\ I^d &= \bar{I} - bi \\ M^d &= PYL(i) \\ L(i) &= \bar{L} - c_2i \\ G^d &= \bar{G} \end{aligned}$$

$$\begin{aligned}
T &= \bar{T} \\
M^s &= \bar{M} \\
Z(Y, Y^*, \varepsilon, i) &= C^d + I^d + G^d + NX(Y^*, Y, \varepsilon) \\
i - i^* &= \frac{E^e - E}{E},
\end{aligned}$$

where \bar{T} , \bar{G} , \bar{L} , \bar{M} , P , P^* , Y^* , c_2 , \bar{I} , b , c_0 , c_1 , i^* , E^e are exogenous, and ε and NX are defined in the previous question. Also, the exchange rate, E , the domestic interest rate, i , domestic output, Y , consumption, C , investment, I , and net exports, NX , are endogenous.

- (a) (25) Suppose the government reduces the money supply.
- i. Explain carefully, the impact of this on the endogenous variables.
 - ii. Explain why the impact on net exports is ambiguous.
 - iii. Now consider including an ‘accelerator effect on investment’, i.e., I^d is a function of both i and Y . Why might output have an impact on I^d , independent of the value of i ?
 - iv. Suppose the accelerator effect on investment is so strong that the impact on net exports of the monetary contraction is unambiguous. Does the monetary contraction drive net exports up or down? Explain.
- (b) (15) Suppose the government reduces taxes.
- i. Explain carefully and in detail, the impact on the endogenous variables.
 - ii. Explain why the impact on net exports is unambiguous.
- (c) (15) The US government is concerned about the impact of a low Asian Y^* on the US economy.
- i. Show carefully, making use of the Keynesian Cross diagram, how the shift in Y^* makes the IS curve shift.
 - ii. Explain carefully and in detail, the impact of this on the endogenous variables.
 - iii. Explain why the impact on net exports is ambiguous.