Professor Christiano
C-06, Fall 1999

Midterm

IMPORTANT: read the following notes

- You may not use calculators, notes, books, 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.

- Explain your answers carefully in clear English. Back up what you say with liberal use of diagrams and state clearly any assumptions you use.

- Write neatly and label all diagrams. We cannot give you credit if we cannot read your answer.

1. (15) Under what assumptions would we expect assets all over the world to have the same expected rate of return? Explain carefully why this implies:

$$\text{UIP: } R = R_f + \frac{E^e - E}{E},$$

where E is the domestic currency price of foreign currency, R_f is the foreign currency denominated rate of interest and R is the domestic rate of interest. The UIP makes some assumptions about international financial traders that are unlikely to be true. What are these assumptions?

2. (10) We have typically made the assumption that the demand for money is given by:

$$PL(R, Y),$$

where L is decreasing in its first argument and increasing in its second argument, which is total output.

   (a) Explain the economic rationale for this theory of money demand. That is, why is money demand increasing in P and Y, and decreasing in R?

   (b) For there to be equilibrium in the money market, money demand and money supply, M, must be equal:

   $$\text{Money Market: } M = PL(R, Y).$$

   Explain how the US central bank brings about an increase in the US money supply. What does this do in the short run, when P and Y are fixed?

3. (15) A country's current account is referred to as its net saving.

   (a) Show how a country's current account can be constructed from data on GNP, consumption, investment and government spending data.

   (b) Explain what is happening to the flow of goods across a country's borders when the current account is negative. What is happening to the capital account?

(c) Under what conditions is a current account deficit bad? Give an example, drawn from world history, of a case where a negative current account was probably bad. Give an example where it was probably a good thing.

4. (30) Suppose the Bank of Japan (the Japanese Central Bank) purchases US dollars with Yen, and then converts those dollars into US government securities.

(a) Suppose the purchase arrangement stipulates that the deal will be reversed after a short period of time. Describe the short and long-run impact of the operation on the Japanese: exchange rate (i.e., discuss E and E^e), interest rate, money supply, price level, and inflation rate. State clearly any assumptions you make, and prove the conclusions you reach using graphs and/or algebra. Also give an informal, journalistic description of what happens.

(b) Suppose that the purchase arrangement is not expected to be reversed. How does that change the impact of the foreign exchange operation. In which case is the immediate exchange rate effect bigger, the one in which the foreign exchange operation is expected to be reversed or the one in which it is not expected to be reversed?

(c) A foreign exchange operation is said to be *sterilized* if the Japanese Central Bank simultaneously sells Japanese government securities to absorb the increase in Yen in the hands of the public generated by a purchase of foreign exchange. What is the consequence of a sterilized foreign exchange operation?

5. (30) Consider the long-term consequences of a permanent *decrease* in the rate of growth of money from π to $\pi - \Delta$, where $\Delta > 0$. State clearly your assumptions and your model.

Explain carefully the impact on the price level, inflation, the interest rate, the exchange rate and the rate of depreciation of the exchange rate. Do this carefully, referring both to the equations and the graphs of the model that you use. When you know the precise quantitative magnitude of the impact on a variable, say what it is and explain clearly why you know what it is. If you do not have enough information, say

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what it is that you are missing. Be sure and point out which variables jump at the time of the change in the money growth rate and which variables do not jump.