Professor Christiano
362, Winter 2003

Final Exam

IMPORTANT: read the following notes

- You may not use calculators, notes, or aids of any kind.
- Note the points each question is worth and plan your time accordingly. The total number of points possible is 100, and the number of points per question is indicated in parentheses.
- Explain your answers carefully in clear English. We are particularly interested in whether you understand the underlying economic intuition. Supplement what you say with liberal use of diagrams. Use the diagrams to prove or illustrate what you say.
- Sometimes, a question asks you how the economy responds to a particular shock. The expected format for an answer is: (i) show, in a convincing way, how the shock being discussed shifts the various curves; (ii) explain, using assumptions about disequilibrium dynamics, how the economy moves from one equilibrium to another one in the short and long run; (iii) review what you’ve shown in plain, intuitive terms.
- Write neatly and label all diagrams. We cannot give you credit if we cannot read your answer.
Following are the equations of the model we developed in class:

\[
\text{Money Market Clearing : } \frac{M}{P} = L(R,Y)
\]

\[
\text{Uncovered Interest Parity : } R = R_0 + \frac{E^e}{E} E + \rho \left( \frac{B^d}{B} \right)
\]

\[
\text{Goods Market Clearing : } Y = C(Y, T) + I(R) + G + CA(q, Y, T)
\]

In the ‘standard model’, \( \rho = 0 \) and \( I \) is just a constant, not a function of \( R \). In the ‘interest sensitive model’, \( I \) is a decreasing function of \( R \).

1. (25) Following are several scenarios. In each case, list three shocks that could account for what is happening. Select one of these shocks and work through very carefully how that shock affects the economy. Prove that your answer is correct by graphically manipulating the model, and also explain in more intuitive terms. Always be clear about what are the endogenous and exogenous variables, and whether you are talking about the short- or the long-run.

   (a) The exchange starts to depreciate, output is increasing and the current account is increasing.

   (b) The exchange rate appreciates, output increases and the current account is decreasing.

2. (25) Suppose private agents start to raise prices on the expectation that the monetary authority will implement a permanent increase in the money supply in the future.

   (a) Suppose the monetary authority in fact keeps the money stock constant forever, despite the rise in \( P \) in the short run. Describe the short and long run consequences of this inaction. In particular, show what happens in the short and long run to the price level, output, interest rate, exchange rate and current account. Prove your results using graphs in the case of the short run and by reference to the equations of the model in the case of the long run. Supplement the discussion with intuition. If the response of the economy is ambiguous given our model, explain why.
(b) Suppose the monetary authority is particularly averse to a drop in economic output. Explain why the monetary authority might not be happy with the scenario that would occur if it holds the money supply fixed. How might the monetary authority be tempted to react? Support your argument with geometric proofs using the equations of the model.

(c) Using the results in the previous two parts of this question, explain how expectations that the money supply will increase in the future can be self-fulfilling.

3. (15) Suppose the economy is in a fixed exchange rate regime. Suppose that people think there is a 50 percent chance that in the next week there will be a 10 percent depreciation of the currency.

(a) Why does a defense of the exchange rate regime require raising the domestic rate of interest, and by how much does it have to be increased? Explain carefully.

(b) Suppose the monetary authority cares about the level of output in the economy. What is the cost of a defense to the monetary authority if the standard version of the model is true? What if the interest sensitive version of the model is true? Explain carefully, and use graphs.

4. (15) Explain how a ‘bad banking system’ might make raising the interest rate costly. Explain carefully why it is that a country with a bad banking system is vulnerable to a currency crisis. In light of these considerations, present a reason why a legislature might be in favor of a fixed exchange rate regime. Present a reason why a legislature might not want a fixed exchange rate regime.

5. (20) It is said that under a fixed exchange rate regime, the monetary authority loses control over monetary policy.

(a) Explain carefully why this is so.

(b) Explain why it is that if the risk premium term, \( \rho \), is an increasing function of its argument, the central bank could expand the economy and adhere to the fixed exchange rate regime at the same
time. Explain in detail how the central bank could do this. Prove your results geometrically. Supplement the proofs with an intuitive discussion.

(c) Criticize the scenario discussed in (b) above.