Department of Economics Spring 2005
University of California, Berkeley Econ 182

INTERNATIONAL MONETARY ECONOMICS
Problem Set II

Due in class on Thursday, March 3.
To be handed directly to your GSI.

1. Suppose that on January 1, the dollar exchange rate with the yen is 1/120 $/Y. Over the year, the Japanese inflation rate is 5%, and the US inflation rate is 10%. If the exchange rate at the end of the year is 1$=130Y, does the yen appear to be overvalued, undervalued, or at the PPP level? Explain. What if Japanese inflation were 10% and the US inflation rate were 5% over the year, instead? Explain why your answer changes.

2. In the short run model with sticky prices, a permanent reduction in the money supply raises the nominal interest rate and appreciates the currency. What happens to the expected real interest rate? Explain why the subsequent path of the real exchange rate satisfies the real interest parity condition.

3. Discuss the following statement: When a change in a country's nominal interest rate is caused by a rise in the expected real interest rate, the domestic currency appreciates. When the change is caused by a rise in expected inflation, the currency depreciates.

4. Productivity growth has slowed in the United States relative to other countries. This has implications for the real exchange rate as well as for the long-run nominal exchange rate. *(Hint: The effect of a change in productivity is analogous to the discussion in Chapter 15 on the effect of a fall in relative output supply on exchange rates.)*

a. What happens to the United States' real exchange rate if the U.S. has a one-time decrease in productivity relative to that of another country? What happens to its nominal exchange rate?

b. How does the effect on the nominal exchange rate differ if, instead of a one-time drop in productivity, U.S. productivity relative to that of another country continues to decline for a very long time?

5. Nominal interest rates are quoted at a variety of maturities, corresponding to different lengths of loans. For example, in late 2004 the U.S. government could take out ten-year loans at an annual interest rate of a bit over 4 percent, whereas the annual rate it paid on loans of only three months' duration was a bit under 2 percent. (An annualized interest rate of 2 percent on a three-month loan means that if you borrow a dollar, you repay \$1.005 = \$1 + (3/12) H \$0.02 at the end of three months.) Typically, though not always, long-term interest rates are above short-term rates, as in the preceding examples from 2004. In terms of the Fisher effect, what would that pattern say about expected inflation and/or the expected future real interest rate?

6. Continuing with the preceding problem, we can define short and long-term *real* rates of interest. In all cases the relevant real interest rate (annualized, that is, expressed in percent per year) is the annualized nominal interest rate at the maturity in question, less the annualized expected inflation rate over the period of the loan. Recall the evidence that relative PPP seems to hold better over long horizons than short. In that case, will international real interest differentials be larger at short than at long maturities? Explain your reasoning.

7. Why might it be that relative PPP holds more closely in the long run than the short run? (Think about how international trading firms might react to large and persistent cross-border price differences.)

8. (Based on Chapter 16.) Consider the following economy.

Output = Y
C = 6000 + 0.8(Y – T) = consumption spending
T = 0.25Y = net income taxes
I = 1800 = investment
G = 1600 = government spending
EX = $1000 + 450(\frac{EP^*}{P})$ = exports
IM = 0.10(Y – T) = imports
NFP = 0 = net international factor payments

Derive the expression for the DD curve, where output is a function of the real exchange rate, $\frac{EP^*}{P}$. If $\frac{EP^*}{P}$ = 2, what is the equilibrium level of output?