Homework #2: FT Chapters 3 & 4

Econ 160B: International Macroeconomics
Due May 1 in class

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1. Monetary Approach to Exchange Rates

Suppose you learn that the current exchange rate for the Japanese Yen is $1 = 120 yen.

a. If you expect Japanese monetary growth to be a total of 25% larger over the next ten years than US monetary growth, what is your best guess as to the exchange rate ten years from now? What theory underlies your prediction? Explain why we apply this theory here over a long run period, like 10 years, rather than over a short period, say less than a year?
b. If you expect that in addition to the higher money growth rate in Japan above, you also expect the output growth rate to be higher in Japan by 30%. Would you predict that the value of the Japanese yen will appreciate or depreciate relative the dollar (more or fewer dollars per yen).

2. Interest Rate and Purchasing Power Parities

Suppose that the following conditions all hold: uncovered and covered interest rate parity, real interest rate parity, relative and absolute purchasing power parity.
And suppose you have the following information:
- The current nominal interest rate for a 1 year deposit in a Brazilian bank is 20%.
- Inflation is expected to be 10 percentage points higher in Brazil than Argentina over the next year.
- The forward exchange rate between Brazil and Argentina is 1.1 (Brazilian real / Argentinian peso).

For each of the following, compute a value using the information above, or state if there is not enough information given above to do this. Show your work in each case and name which parity conditions you are using.

a. real exchange rate (Brazil/Argentina)
b. expected future spot exchange rate for one year from now (Brazilian real / Argentinian peso)
c. real interest rate in Brazil
d. current spot exchange rate (Brazilian real / Argentinian peso)

3. Permanent Money Shock

Use the FOREX and money market diagrams to answer the following questions. This question considers the relationship between the Indian rupees (INR) and the Chinese yuan (CNY). Let the exchange rate be defined as rupees per yuan $E_{R/C}$. On all graphs, label the initial equilibrium point A.

a. Illustrate how a permanent increase in India's money supply affects the money and FOREX markets. Label your short-run equilibrium point B and your long-run equilibrium point C.
b. Using your analysis from above, state how each of the following variables changes in the short run (increase/decrease/no change): India's interest rate, China's interest rate, $E_{R/C}$, $E^e_{R/C}$, India's price level.
c. Using your analysis from above, state how each of the following variables changes in the long run (increase/decrease/no change relative to their initial values at point A): India's interest rate, China's interest rate, $E_{R/C}$, $E^e_{R/C}$, India's price level.
d. Explain how overshooting applies to the situation analyzed in part a) – d) above. Illustrate how the exchange rate changes over time.

4. Money Demand Shock

Use the FOREX and money market diagrams to answer the following questions. This question considers the relationship between the euro (€) and the U.S. dollar ($). Let the exchange rate be defined as U.S. dollars per euro $E_{\$/€}$. On all graphs, label the initial equilibrium point A. Suppose that with financial innovation in the U.S., real money demand in the U.S. increases, but U.S. money supply remains unchanged.

a. Assume this increase in real money demand is temporary. Using the FOREX/money market diagrams, illustrate how this change affects the money and FOREX markets. Label your short-run equilibrium point B and your long-run equilibrium point C.
b. Assume instead this increase in real money demand is permanent. Using a new diagram, illustrate how this change affects the money and FOREX markets. Label your short-run equilibrium point B and your long-run equilibrium point C.
c. Using time series diagrams, illustrate how each of the following variables changes over time in response to the permanent increase in real money demand: nominal money supply M_{US}, price level P_{US}, real money supply M_{US}/P_{US}, U.S. interest rate $i_{\$}$, and the exchange rate $E_{\$/€}$.