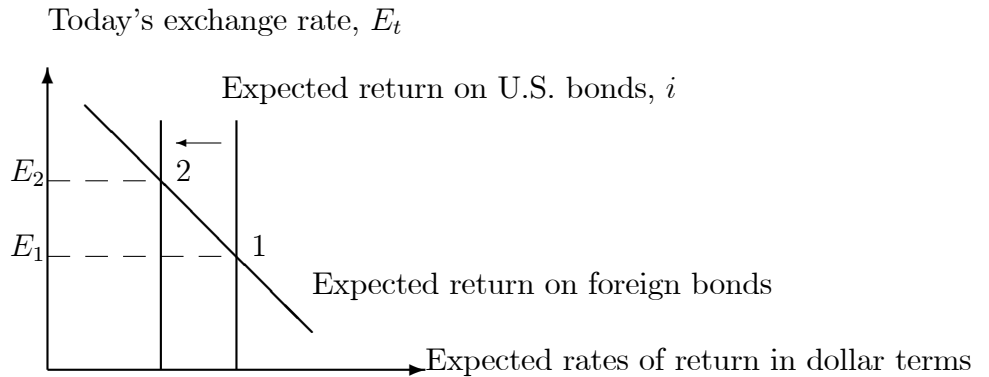
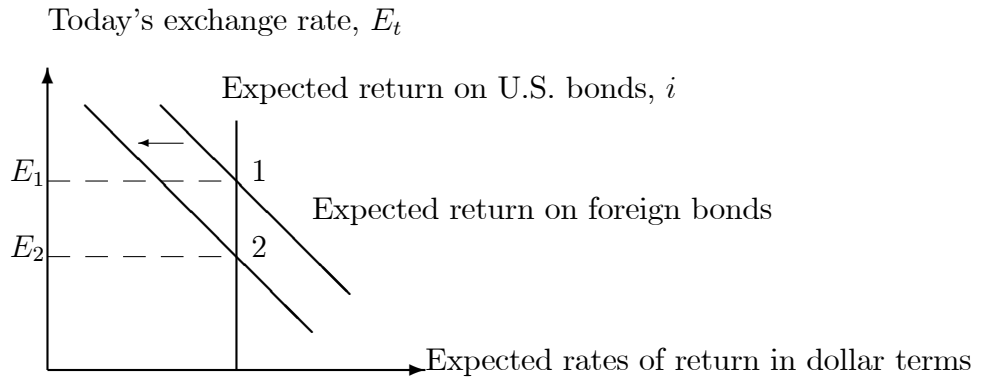


Econ 520 (Spring 2007)  
**Answers to Problems for Chapters 20**  
 Masao Ogaki

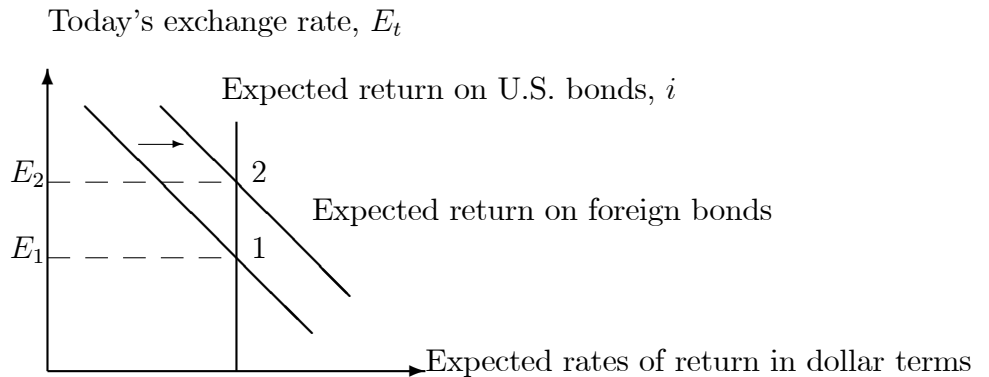
(1) The expected rate of return on U.S. bonds is equal to the domestic interest rate. Hence when the domestic interest falls, the schedule for the expected return on U.S. bonds shifts to the left. The exchange rate rises as in the diagram below. Hence the dollar depreciates.



(2) The expected return on foreign bonds falls when the foreign interest rate falls at each level of today's exchange rate. Hence the schedule for the expected return on foreign bonds shifts to the left. The exchange rate falls as in the diagram below. Hence the dollar appreciates.



(3) The expected return on foreign bonds increase when the dollar is expected to depreciate in the next year. Hence the schedule for the expected return on foreign bonds shifts to the right. The exchange rate rises as in the diagram below. Hence the dollar depreciates.



(4.a) Figure 1 is for the U.S. money market. Originally, the economy is at point 1 at  $t - 1$ , and the interest rate is  $i_1$ . The money supply decreases and the money supply curve shifts to the left at  $t$ . The economy moves to point

2, and the interest rate rises to  $i_2$  at  $t$ . Then at  $t + 1$ , the price level falls because real money balances are constant in the long run due to long-run money neutrality. As the price level falls, the demand curve shifts to the left. The shift stops when the interest falls back to the original level because the real interest rate (which is equal to the nominal interest rate in this case without inflation) does not change in the long run due to long-run money neutrality. The economy moves to point 3, and the interest rate falls back to  $i_1$  at  $t + 1$ .

U.S. interest Rate,  $i^D$

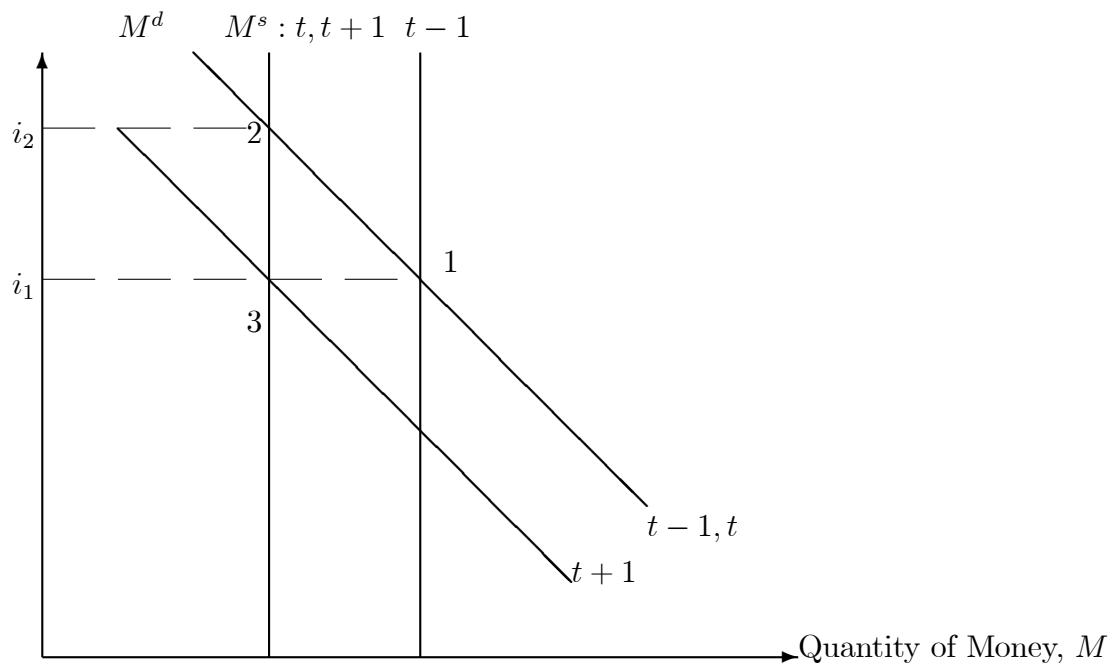


Figure 1: U.S. Money Market

Figure 2 is the expected return diagram. The U.s. economy is originally

at point 1 at  $t - 1$ . At  $t$ , the U.S. interest rate rises as in Figure 1, and the schedule for the expected return on U.S. bonds shifts to the right. Because of expected price fall, the Purchasing Power Parity means that the U.S. dollar will appreciate in the long-run. Because of this fall in the expected exchange rate, the schedule for the expected return on European bonds shifts to the left. The U.S. economy moves to point 2. The dollar appreciates from  $E_1$  to  $E_2$ . Then at  $t + 1$ , the U.S. interest falls back to the original level as in Figure 1, and the schedule for the expected return on U.S. bonds shifts to the left. The U.S. economy moves to point 3. The dollar depreciates from  $E_2$  to  $E_3$  from  $t$  to  $t + 1$ . Comparing with  $t - 1$ , the dollar appreciated from  $E_1$  to  $E_2$ .

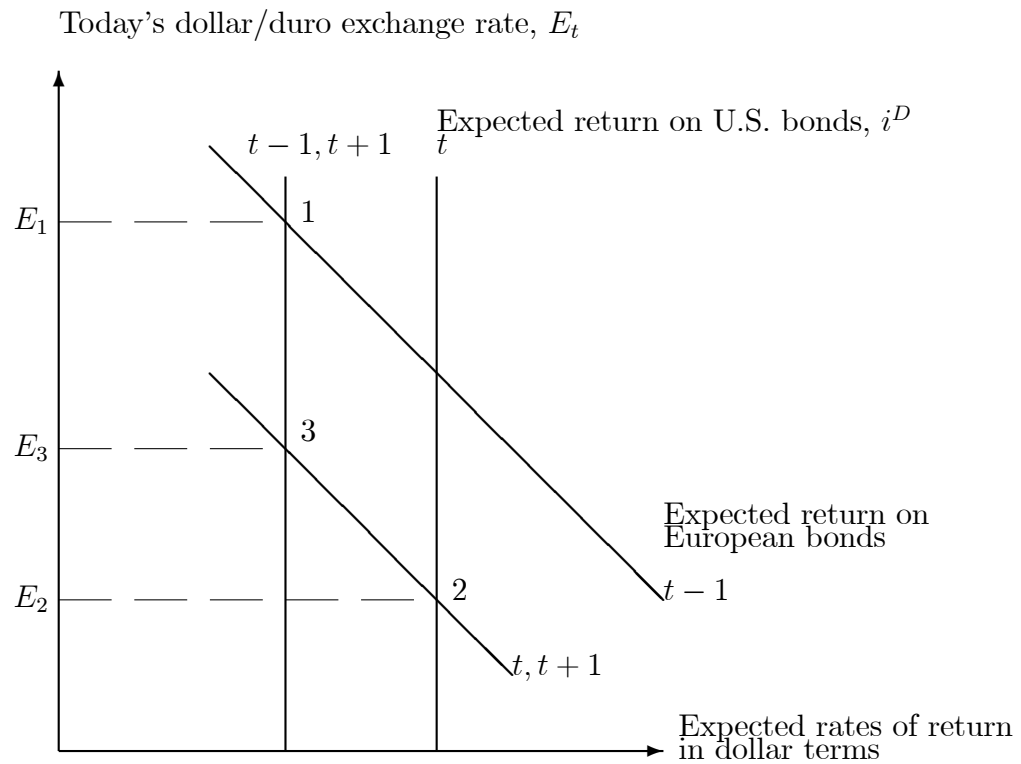


Figure 2: The Expected Return Diagram

(4.b)

Time paths of U.S. economic variables are given in Figures 3-6. After the money supply decreases at  $t$  in Figure 3, the interest rate (in Figure 4), price level (in Figure 5), exchange rate (in Figure 6) move as shown. As indicated in Figure 6 by the initial jump from  $E_1$  to  $E_2$ , the exchange rate overshoots at  $t$  before settling down to its long run PPP level,  $E_3$ .

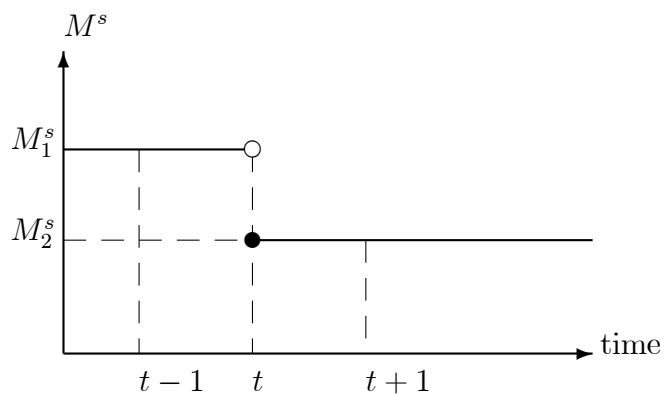


Figure 3: U.S. Money Supply,  $M^s$

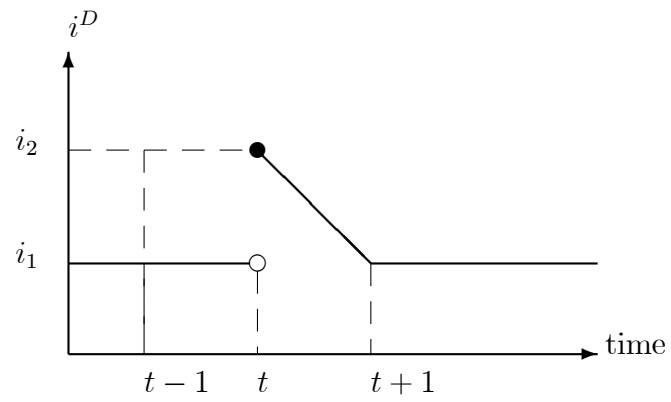


Figure 4: Dollar interest rate,  $i^D$

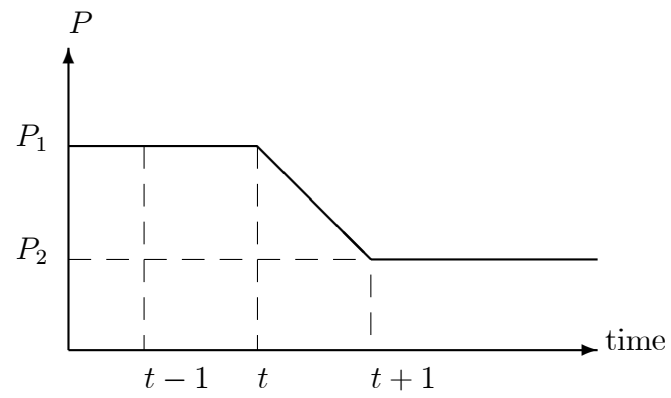


Figure 5: U.S. price level,  $P$

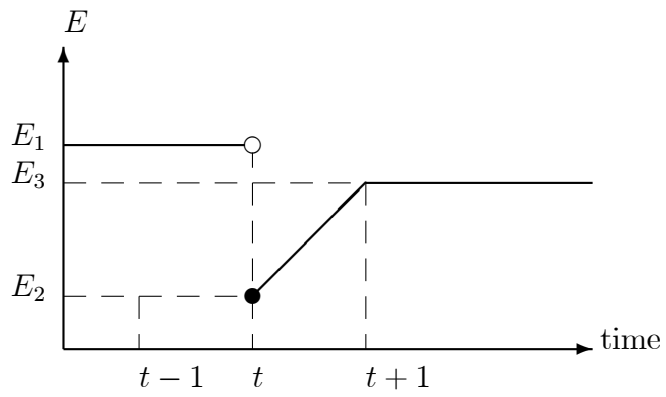


Figure 6: Dollar/euro exchange rate,  $E$