

Answers to Questions from Chapter 14

(1) A reduction in real money demand has the same effects as an increase in the nominal money supply. In Figure 14.1, the reduction in money demand is depicted as a backward shift in the money demand schedule from L_1 to L_2 . The immediate effect of this is a depreciation of the exchange rate from E_1 to E_2 , if the reduction in money demand is temporary, or a depreciation to E_3 if the reduction is permanent. The larger impact effect of a permanent reduction in money demand arises because this change also affects the future exchange rate expected in the foreign exchange market. In the long run, the price level rises to bring the real money supply into line with real money demand, leaving all relative prices, output, and the nominal interest rate the same and depreciating the domestic currency in proportion to the fall in real money demand. The long-run level of real balances is $(M/P)_2$, a level where the interest rate in the long-run equals its initial value. The dynamics of adjustment to a permanent reduction in money demand are from the initial Point 1 in the diagram, where the exchange rate is E_1 , immediately to Point 2, where the exchange rate is E_3 and then, as the price level rises over time, to the new long-run position at Point 3, with an exchange rate of E_4 .

Figure 14-1.

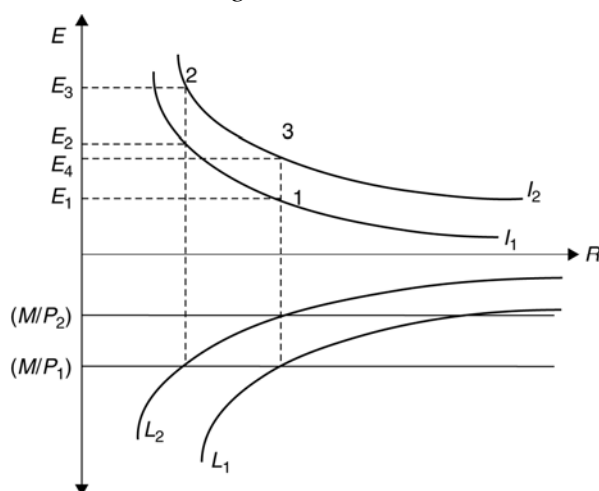
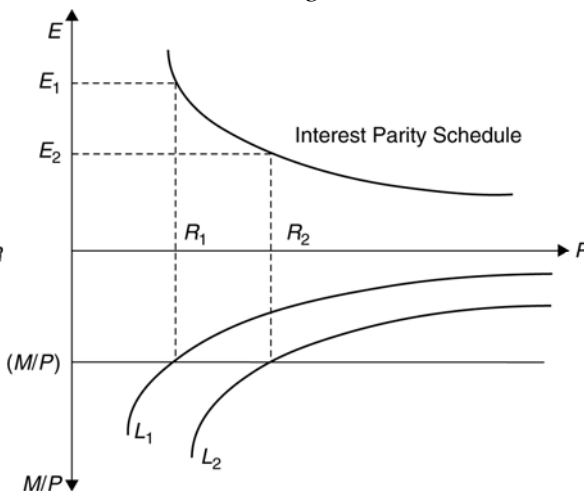


Figure 14-2



(4) An increase in domestic real GNP increases the demand for money at any nominal interest rate. This is reflected in Figure 14.2 as an outward shift in the money demand function from L_1 to L_2 . The effect of this is to raise domestic interest rates from R_1 to R_2 and to cause an appreciation of the domestic currency from E_1 to E_2 .

(7) The interest rate at the beginning and at the end of this experiment are equal. The ratio of money to prices (the level of real balances) must be higher when full employment is restored than in the initial state where there is unemployment: the money-market equilibrium condition can be satisfied only with a higher level of real balances if GNP is higher. Thus, the price level rises, but by less than twice its original level. If the interest rate were initially below its long-run level, the final result will be one with higher GNP and higher interest rates. Here, the final level

of real balances may be higher or lower than the initial level, and we cannot unambiguously state whether the price level has more than doubled, less than doubled, or exactly doubled.

(10) If an increase in the money supply raises real output in the short run, then the fall in the interest rate will be reduced by an outward shift of the money demand curve caused by the temporarily higher transactions demand for money. In Figure 14.3, the increase in the money supply line from (M_1/P) to (M_2/P) is coupled with a shift out in the money demand schedule from L_1 to L_2 . The interest rate falls from its initial value of R_1 to R_2 , rather than to the lower level R_3 , because of the increase in output and the resulting outward shift in the money demand schedule. Because the interest rate does not fall as much when output rises, the exchange rate depreciates by less: from its initial value of E_1 to E_2 , rather than to E_3 , in the diagram. In both cases we see the exchange rate appreciate back some to E_4 in the long run. The difference is the overshoot is much smaller if there is a temporary increase in Y . Note, the fact that the increase in Y is temporary means that we still move to the same IP curve, as LR prices will still shift the same amount when Y returns to normal, and we still have the same size M increase in both cases. A permanent increase in Y would involve a smaller expected price increase and a smaller shift in the IP curve.

Undershooting occurs if the new short-run exchange rate is initially below its new long-run level. This happens only if the interest rate rises when the money supply rises—that is if GDP goes up so much that R does not fall, but increases. This is unlikely because the reason we tend to think that an increase in M may boost output is because of the effect of lowering interest rates, so we generally don't think that the Y response can be so great as to increase R .

Figure 14-3

