Problem Set 4: Interest Parity; Money Market; Money, Prices and Exchange Rates in the Short and Long Run

1. Consider a £10000 deposit in a London bank in a year when the interest rate on pounds is 10 percent and the \$/£ exchange rate moves from \$1.50 per pound to \$1.38 per pound.
    a. Calculate the dollar rate of return on the £10000 deposit in the London bank
    b. What is the real rate of return if inflation was 10 percent in the US over that year?
2. Suppose that the dollar interest rate and the pound sterling interest rate are the same at 5 percent per year.
    a. What is the relationship between the current equilibrium \$/£ exchange rate and its expected future level?
    b. Suppose that the \$/£ exchange rate remains constant at \$1.52 per pound whilst interest rates in Britain rise to 10% per year. If US interest rates remain unchanged, what is the new equilibrium \$/£ exchange rate? Does the dollar appreciate or depreciate?
3. Suppose that traders in asset markets suddenly learn that the interest rate on dollars will decline in the near future. Use diagrams to determine the effect on the *current* dollar/euro exchange rate assuming that current interest rates on dollar and euro deposits do not change.
4. Suppose that the one year forward \$/€ exchange rate is \$1.26 per euro and the spot exchange rate is \$1.20 per euro.
    a. Is the forward rate on euros at a premium or discount?
    b. What is the amount of the forward premium/discount on euros?
    c. What is the difference between the interest rate on one-year dollar deposits and that on one year euro deposits?
    d. What is the forward premium/discount on dollars?
5. Suppose that there is a reduction in aggregate real money demand (i.e. a negative shift in the aggregate real money demand function). Trace the short-run and long-run effects on the exchange rate, interest rate and price level.

6. The velocity of money, V, is defined as the ratio of real GNP to real money holdings, $V = \frac{Y}{(M/P)}$. Using the idea that in equilibrium, real money supply equals real money demand, derive an expression for velocity that depends on interest rates and income.
    a. How does velocity respond to a change in interest rates and income? (Hint: The effect of output changes on V depends on the income elasticity of money demand, which economists believe to be less than one.)
    b. What is the relationship between velocity and the exchange rate?
7. What is the short run effect on the exchange rate of an increase in domestic real GNP given expectations about future exchange rates?
8. Suppose that due to growing worries about a recession ahead, the Fed decides to cut interest rates. What are the effects of such an action in the money market and the foreign exchange market?