Exam #2 (with Solutions)

Explain why you agree, disagree, or partially with each of the following questions. The credit you earn will depend 100% on the EXPLANATION you provide. Each question is worth 12.5 points.

1. STATEMENT: Suppose there is an increase demand for German goods by U.S. consumers. According to the foreign exchange model in Chp. 2, all else equal, this will lead to appreciation of the euro relative to the U.S. dollar. [Note: in your explanation, make your argument using the model, e.g., it certainly would help to use a graph (in which you should, among other things, label the axes correctly).]

SOLUTION: AGREE. Recalling that the demand for euros is a derived demand, the increase in demand for German goods by U.S. consumers will shift the demand curve for euros to right (the horizontal axis of the graph in which this demand and supply curves for euros measures the quantity of euros, and the vertical axis measures the dollar-per-euro exchange rate). With the upward-sloping supply curve of euros fixed, this will lead to an increase in the equilibrium dollar-per-euro exchange rate, i.e., a euro will be worth more dollars, means that the euro appreciates relative to the dollar. Note: see Figure 2-7 in the text.

2. STATEMENT: All else equal, an increase in the demand for U.S. goods by German consumers will lead to an increase in the quantity supplied of euros in the foreign exchange market. [Note: in your explanation, make your argument using the model, e.g., it certainly would help to use a graph (in which you should, among other things, label the axes correctly).]

SOLUTION: AGREE. Recall that the supply of a domestic currency is driven by the underlying demand for foreign currency. In this case, an increase in the demand for U.S. goods by German consumers will lead to an increased demand for the dollar. As German consumers purchase more dollars, they exchange euros for dollars and thus increase the quantity of euros supplied at the given exchange rate, which implies that the supply curve of euros shifts to the right (once again, the horizontal axis of the graph in which this demand and supply curves for euros measures the quantity of euros, and the vertical axis measures the dollar-per-euro exchange rate). Note: see the discussion under “Change in Supply” on p. 56.

3. STATEMENT: Suppose that, in October 2004, the U.K. CPI was 107.5 and the U.S. CPI was 114.3. Then, according to the theory of absolute PPP, the U.S.-dollar-per-British-pound exchange rate should be 0.9405 dollars per British pound.

SOLUTION: DISAGREE. Letting \( S \) = the dollar-per-pound exchange rate, \( CPI \) = U.S. CPI, and \( CPI^* \) = U.K. CPI, the theory of absolute PPP implies that:

\[ S = \frac{CPI}{CPI^*}. \]

So, since \( CPI = 114.3 \) and \( CPI^* = 107.5 \), the theory of absolute PPP implies that the dollar-per-pound exchange rate should be:

\[ S = \frac{114.3}{107.5} = 1.0633. \]

4. STATEMENT: Consider the following data:

(a) January 1999, the spot exchange rate for the euro was 0.90 euros per U.S. dollar.
In January 1999, the euro-wide CPI was 105.3 and the U.S. CPI was 108.0. 
In July 2000, the euro-wide CPI was 108.8 and the U.S. CPI was 113.3.

Then, according to the theory of relative PPP, the predicted value for the euro for July 2000 is 0.95 euros per U.S. dollar.

SOLUTION: DISAGREE. Letting $S$ = euro-per-dollar exchange rate, according to relative PPP:

$$\% \Delta S = \pi - \pi^*,$$

where $\pi$ and $\pi^*$ are, respectively, the euro-wide and U.S. inflation rates (i.e., the percentage change in the respective CPI measures). Since $\pi = 100 \times \frac{108.8 - 105.3}{105.3} = 3.3\%$ and $\pi^* = 100 \times \frac{113.3 - 108.0}{108.0} = 4.9\%$ and, the percentage change in the dollar-per-euro exchange rate implied by relative PPP is:

$$\% \Delta S = 3.3\% - 4.9\% = -1.6\%,$$

i.e., the dollar is expected to depreciate by 1.6% against the euro. So, since the exchange rate was initially 0.90 euros per dollar, the predicted value for the euro is 0.90 $\times$ 0.984 = 0.8856 euros per dollar.

5. STATEMENT: Consider an economy operating under the gold standard. If, in this economy, real GDP growth is positive and the velocity of money is constant, then price stability (in the form of a zero inflation rate), requires a constant growth rate of gold reserves in the economy.

SOLUTION: PARTIALLY AGREE. From the Equation of Exchange, recall that:

$$\% \Delta M + \% \Delta V = \% \Delta P + \% \Delta Q,$$

where $M$ is the money supply, $V$ is the velocity of money, $P$ is the aggregate price level, and $Q$ is the level of real output. If the velocity of money is constant and there is price stability, then $\% \Delta V = \% \Delta P = 0$, which implies that $\% \Delta M = \% \Delta Q$, i.e., the growth rate of the money supply equals the growth rate of real output. Under the gold standard, the growth rate of the money supply is proportional to the growth rate of gold reserves in the economy. So, since (a) $\% \Delta M = \% \Delta Q$ and (b) $\% \Delta Q >$, it follows that we must have $\% \Delta M > 0$, which, under the gold standard, requires positive growth in the level of gold reserves. If the positive growth rate in real output is constant, then the growth rate of gold reserves required is also constant. But if the growth rate in real output is not constant, then the required positive growth rate in the level of gold reserves is also not constant. Note: this question is based on material presented in class and not discussed in Chp. 2 of the text.

6. STATEMENT: The United States economy entered the gold standard exchange-rate system through the Bretton Woods agreement.

SOLUTION: DISAGREE. The Bretton Woods agreement set up, effectively, a “dollar standard” after World War II. The gold standard period was over by the start of World War II.

7. STATEMENT: Suppose the U.S. and U.K. are operating under the gold standard. If the gold parity rate for the (a) British pound is 4.3 pounds per troy ounce of gold and (b) U.S. dollar is $19.553 dollars per troy ounce of gold, the exchange rate between the two currencies is 0.2199 U.S. dollars per British pound.

SOLUTION: DISAGREE. Given these two gold parity rates, the exchange rate between the two currencies is 19.553/4.3 = 4.547 U.S. dollars per British pound.

8. STATEMENT: A currency board operates just like a central bank. The only difference is that, while a central bank is run by the government of the country in which it is located, a currency board would be run by the IMF.

SOLUTION: DISAGREE. A currency board is like a currency board in only one respect: both are responsible for managing an economy’s money supply. They ways they do this, however, are very different. In particular, in contrast to a central bank, a currency board can not engage in discretionary monetary policy.