

Problem Set 5
(Due Nov 22)

Question 1: J Curve and Growth

You will find the US balance of payments data on the Bureau of Economic Analysis website (www.bea.gov).

Go to International → Balance of payments → Interactive tables → International transactions

Look up the value of the trade balance (net of income payments) for the the following quarters: 2002 – III, 2002 – IV, 2003 – I, 2003 – II.

Next, go the Federal Reserve website. Go to "<http://www.federalreserve.gov/releases/h10/hist/>" where you will find historical data for exchange rates. Calculate by how much the dollar has depreciated over this period (you can just report the overall depreciation since september 2003).

1. Draw a graph in which you indicate the size of the current account deficit over time. Describe how you can explain the movement in the US current account deficit over the past 4 quarters in terms of the J curve.
2. The growth rate of the US economy has a role in explaining the widening of the trade deficit. Why?
3. Once the J curve effect has disappeared what do you expect to happen to the trade balance? What does your prediction depend on?

Question 2: Exchange Rates

Take the Nov 14 issue of the New York Times, Wall Street Journal, Financial Times or your favorite newspaper and go to the Business section. You will find a section on daily exchange rates. List the exchange rates for euro, yen and pound with respect to the US dollar and the exchange rate for the pound with respect to the euro. According to the current exchange rates and assuming there are no transportation costs:

1. How many dollars would a pair of 100-euro shoes cost in the US?
2. How many yen does a 300-dollar bicycle cost in Japan?
3. How many pounds do you obtain if you swap 200 euros at the bank (disregard commissions)?
4. How many euros would I have to pay to buy a 150-dollar dress?

Question 3: Arbitrageurs

1. The price of gold is currently \$500 per ounce. The forward price to delivery in one year is \$700. An arbitrageur can borrow money at 10% p.y. What should the arbitrageur do? Assume that the cost of storing gold is zero.

2. A trader enters into a short forward contract (he has to sell) on 100 million yen. The forward exchange rate is \$0.008. How much does the trader gain or lose if the exchange rate at the end of the contract is (i)\$0.0074; (ii)\$0.0091 per yen ?

Question 4: Uncovered Interest Parity

1. In class, we derived the UIP in nominal terms. Now, consider the real interest rate, given by:

$$1 + r_t = \frac{(1 + i)}{(1 + \pi_t^e)}$$

where π_t^e is the expected inflation rate. Derive the uncovered interest parity condition in real terms, i.e. a relation between domestic and foreign real interest rate and the real exchange rate.

Consider the following:

	Nominal Interest Rate (%)	Expected Inflation Rate (%)	Initial Price Level
USA	5.0	3.0	1.0
Germany	8.0	4.0	1.0

And the nominal exchange rate (US\$ per Euro) is 0.7.

2. If the real UIP holds, what is the expected nominal exchange rate?
3. What is the current real exchange rate?
4. What is the expected rate of nominal appreciation of the dollar? And what is the expected rate of real appreciation of the dollar?
5. Suppose now that the expected inflation rate in Germany is $x\%$. What is the expected rate of real appreciation of the dollar? Can you set $x\%$ so that the real appreciation is zero in that case?
6. What can you conclude about the implications for future real exchange rates of a given nominal interest rate differential?