14.54 International Economics
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Problem Set 5
(Due Nov 28)

Question 1: **Current Account and financial account data**

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

1. To get the data for this part just click on the link "International Transactions". For the last quarter of 2002 look up the current account data and the financial account data. Find and report the values for imports and exports of goods and services and explain what the income components measure. Find and report the values for financial inflows and financial outflows and explain how the balance on the current account relates to the balance on the financial account.
2. To get the data for this part click on the grey dot next to the link "International transactions" and find the values of annual exports and imports of goods and services (excluding income payments) for the years 1970-2002. Now go to a different section of the BEA website to get GDP data. Go to Domestic → Gross Domestic Product → Current-dollar and "real" GDP. You can find GDP in current dollars for years 1970-2002. Now divide Imports and Exports and the difference between Exports and Imports by the corresponding GDP. Now plot these three percentages in a graph that has time on the horizontal axis and the three measures on the vertical axes. Excel is a very easy tool to build this graph.

   Comment on how the major movements in the trade balance have been determined by movements in exports or imports.

Question 2: **Exchange Rates**

Take the Nov 16 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 borrowmoney 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?