ASSIGNMENT #5
Due Thursday December 1st
(at the beginning of the class)

Show all calculations for full credit.

1. Real exchange rate problem.

Let P be the GDP deflator in Switzerland and P* the GDP deflator in Great Britain.

Suppose P = 1.5 and P* = 1

a. Calculate the real exchange rate (RER Switzerland/Britain) for each of the following SF/pound nominal exchange rates (E):

i. \[ E_{SF/£} = 2.37 \]
   \[ \text{RER} = \quad \ ]

ii. \[ E_{SF/£} = 2.25 \]
   \[ \text{RER} = \quad \ ]

b. What happens to the real exchange rate (as defined above) from i. to ii.?
   
   appreciates OR depreciates


c. What happens to the price of British goods in terms of Swiss goods from i. to ii.?
   
   increases OR decreases


d. If the price level in Great Britain increases faster than the price level in Switzerland, what happens to the real exchange rate above (assume no change in the nominal exchange rate)?
   
   appreciates OR depreciates

2. Trade weighted exchange rate

Use the bilateral exchange rate data between the Yen and the Euro and between the dollar and the Euro in 2 consecutive years (11/6/2004 and 11/6/2005) to calculate the trade weighted or multilateral exchange rate for the Euro in these 2 years. Set the first year
(11/6/2004) as the base year i.e. set the multilateral exchange rate for this year as 100. Assume that, in this period, Japan and the US are the Euro area countries only trade partners: in the first year the share of trade of the EU with Japan is 30% and in the second year 35%.

Fill the table below (cf. chapter 18 slide 15) to show how you construct the trade weighted index.

<table>
<thead>
<tr>
<th>ER</th>
<th>(E_0)</th>
<th>Index</th>
<th>Weight</th>
<th>(E_t)</th>
<th>Index</th>
<th>Weight</th>
</tr>
</thead>
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**TWI**

Use the bilateral exchange rate data from the Economist: download the file named ERData-Assignment#5 from the course Web page. This file will give or allow you to calculate bilateral exchange rates data now and a year ago for the US dollar, the Euro and the yen. (You will need to calculate the bilateral exchange rate between some of the currencies to answer the question.)

Has the Euro **appreciated** or **depreciated** overall in these 2 years?

3. **Uncovered interest arbitrage problem.**

Assume that interest rate in Canada is 10% i.e. \(i^* = 0.1\), the nominal exchange rate between the US and the Canadian dollar \(E\) is US$0.7 / Can$, while the expected exchange rate in a year \(E_{t+1}\) is US$0.6682 / Can$.

a. Is the Canadian dollar expected **to appreciate** or **to depreciate**

with respect to the US dollar?

b. Calculate the expected return of US$1 invested in Canada (do not use the approximation).
c. Use the above results and the equation describing the **uncovered interest parity condition** to determine the US interest rate corresponding to interest parity.


d. Now suppose that the US interest rate changes from the parity level just calculated to 4% (i.e. \( i = 0.04 \)), in which direction will capital flow?

   From the US to Canada  OR  From Canada to the US


e. Calculate (in # of Canadian dollars) an investor’s annual return on a Can$1000 investment (i.e. the Can$ return he will receive by investing in the most profitable alternative - US or Can$).

### 4. Balance of payments problem

Assume that Cascadia’s exports are 200 C$ (C$ is Cascadia’s currency unit) and its imports are 240 C$. Cascadia gave 40 C$ as aid to a neighboring country, Sierra. Cascadia also received 30 C$ worth of royalties for its software used abroad. Capital inflows into Cascadia including investments by foreigners were 300 C$ while Cascadia bought 260 C$ worth of foreign stocks in Oregami. Finally an unknown amount of pot was smuggled out of Cascadia into neighboring Oregami but the laundered payments were accounted for in Cascadia’s capital accounts. (All these names corresponds to fictitious sovereign nations)

Set up Cascadia’s balance of payments below:

<table>
<thead>
<tr>
<th>Credit (+)</th>
<th>Debit (-)</th>
<th>Balance</th>
</tr>
</thead>
</table>

**Current Accounts**
Capital Accounts

| credit (+) | debit (-) | balance |

i. Calculate Cascadia's balance of trade (show sign) and specify surplus or deficit.

ii. Calculate Cascadia's current account balance (show sign) and specify surplus or deficit.

iii. Calculate Cascadia's capital account balance (show sign) and specify surplus or deficit.

iv. Calculate the statistical discrepancy (specify sign).

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1 Name financial accounts in the actual Balance of Payments