Assignment no 3

For seminar Thursday March, 24 2011

A) *Question 3 from Seminar 2*

B) *The mean-variance model of the foreign exchange market*

1) Derive the demand for foreign currency for a risk-averse investor.
2) Discuss how the demand for foreign currency depends on the investor's perception of exchange rate risk.
3) The exchange rate is floating. Derive the solution for the equilibrium exchange rate for given interest rates and given exchange rate expectations.
4) What will be the impact of an increase in the home interest rate on a) home and foreign investors´ demand for foreign currency given the initial exchange rate, b) the equilibrium exchange rate and c) the equilibrium foreign currency holdings of the two groups of investors?
5) In this question you are allowed to simplify by assuming that both the covariances between inflation and depreciation and the expected rate of depreciation are zero. Suppose the perceived level of exchange rate uncertainty increases. What effect will this then have on the exchange rate? How does the effect depend on the interest rate differential?

C) Mundell-Fleming model with fixed exchange rate, see next two pages. If there is not enough time to discuss this, a suggested solution will be posted afterwards.

C) Fixed exchange rates: Some consequences of capital mobility

Enclosed you find a Mundell-Fleming type model for an economy with a fixed exchange rate and imperfect capital mobility. Foreign exchange interventions are not sterilized.

1. Explain briefly what the term "sterilization" means.

2. Draw a diagram that shows how output and the interest rate are determined jointly by the equilibrium conditions for the goods market and the domestic bond market. Explain briefly what is behind the slopes of the curves.

3. Suppose government expenditure G increases. What will be the effects on a) Output, b) The domestic interest rate, c) The foreign exchange reserves, d) The supply of money. What does the degree of capital mobility mean for the size of these effects? A verbal analysis supported by graphs can be sufficient.

4. Suppose the expected future equilibrium exchange rate $\bar{E}$ increases. What will be the effect on a) Output, b) The domestic interest rate, c) The foreign exchange reserves.

5. In the model it is assumed that F_* (the foreign sectors holdings of foreign bonds) is predetermined. How can this be justified?

Mundell-Fleming-type model

$$
\begin{aligned}
Y &= C(Y_p, \rho,) + I(\rho) + G + X(R, Y, Y_*) && (1)\\
Y_p &= Y - \rho_* \frac{EF_*}{P} - T && (2)\\
W_p &= \frac{M_0 + B_0 + EF_{p0}}{P} && (3)\\
\rho &= i - p_e && (4)\\
R &= \frac{EP_*}{P} && (5)\\
r &= i - i_* - e_e && (6)\\
e_e &= \alpha \frac{\bar{E} - E}{E} && (7)\\
\frac{M}{P} &= m(i, Y) && (8)\\
\frac{B}{P} &= W_p - f(r, W_p) - m(i, Y) && (9)\\
\frac{EF_p}{P} &= f(r, W_p) && (10)\\
F_g + F_p &= -F_* && (11)
\end{aligned}
$$

Endogenous:F_g, i, M, Y, Y_d, R, r, ρ, , e_e, W_p, F_p

Exogenous: E, B, G , T P_*, i_* , Y_* , p_e
Predetermined: P, F_*, M_0, B_0, F_{p0}

For symbol definitions, see OEM Ch 3 or pages xii-xiii
X Net exports
Y_p Private disposable income (national income minus taxes)

The model is a somewhat simplified version of the one in OEM Ch 6.2 and 6.3. However, OEM Ch. 3.1 plus knowledge of standard Mundell-Fleming models should help in answering the questions.