Seminar 4. Question B. Sketch of answer

1) Exogenous: S_*, Y_*, P_*, M, F_S, σ, T, π_e, $\bar{E}$

Predtermined: M_0, B_0, F_{r0}, F_*, P

Endogenous: E, F_r, Y, i, ε_e, S, Y_p, W_r, τ, R

2) Keywords are expected returns, risk and risk aversion, expectations that differ between investors. Expand on these.

3) With appropriate substitutions from the other equations, the equilibrium condition for the FX-market can be written

(i) $$F_S = -\frac{P}{E}\,\phi\left(i - i_* + \varepsilon\,\frac{E-\bar{E}}{\bar{E}}\,,\ \frac{M_0 + B_0 + EF_{r0}}{P}\right) - F_*$$

Differentiating (i) with respect to i and E:

$$0 = \left[-\frac{P}{E}\,\phi'_r\right] di + \left[\frac{P}{E^2}\,\phi(\tau, W_r) - \frac{P}{E}\,\phi'_r\,\varepsilon\,\frac{1}{\bar{E}} - \frac{P}{E}\,\phi_w\,\frac{F_{r0}}{P}\right] dE$$

Calculate the derivatives for $\phi(\tau, W_r) = \frac{EF_{r0}}{P}$ and $E = \bar{E}$ and multiply with E/P on both sides

$$0 = -\phi_r\,di + \left[\frac{EF_{r0}}{P}\cdot\frac{1}{E} - \phi'_r\,\varepsilon\,\frac{1}{E} - \phi_w\,\frac{EF_{r0}}{P}\,\frac{1}{E}\right] dE$$

Solve

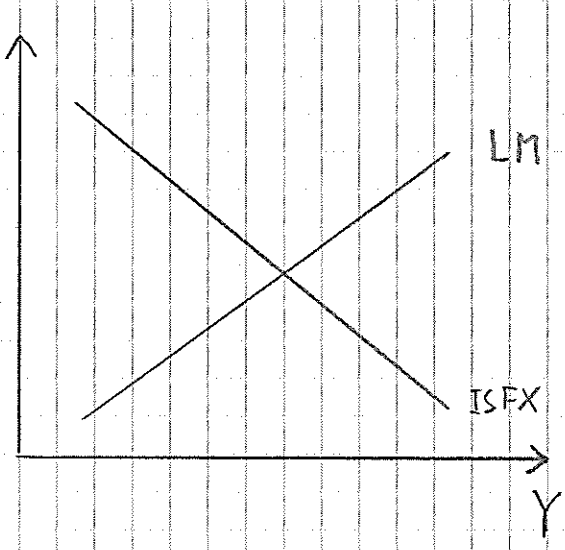
(ii) $$\frac{dE/E}{di} = \frac{-\phi'_r}{\underbrace{(1-\phi_w)\,EF_{r0}/P}_{+} \quad \underbrace{-\phi'_r\,\varepsilon}_{+}} < 0$$

Discuss signs, relate to answer to q. 2.

Degree of capital mobility is measured by $|f_r'|$.

$|f_r'| \uparrow \rightarrow \left|\frac{dE/E}{di}\right| \uparrow$

4)



ISFX represents the combinations of i and Y that are compatible with joint (short-run) equilibrium in the goods market and the foreign exchange market. Defined by:

$$(o)\quad Y = C\left(Y - S^* \frac{EF_{*}}{P} - T, \frac{M_o + B_o + EF_{no}}{P}, i - r_e, S^*\right) + G + X\left(\frac{EP_*}{P}, Y, Y_*\right)$$

$$(oo)\quad F_S = -\frac{P}{E} f\left(i - i_* + S^{e}\frac{E-E}{E}, \frac{M_o + B_o + EF_{no}}{P}\right) - F_*$$

LM combinations of i and Y compatible with equilibrium in the money market.

Slopes:

IS: $i\uparrow$ reduces demand directly in (o) an indirectly because $E\downarrow$ as follows from (oo). (Some ambiguity in the latter effect if $F_* > 0$).

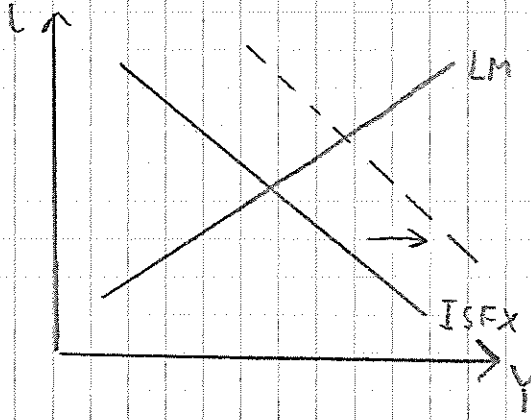
LM: $Y\uparrow$ leads to increased money demand which raises the interest rate when M is given. (eq. (8))

5) $i_* \uparrow$

The LM-curve is unaffected.

Does ξ_* increase too, or is it constant, which requires that p_{*e} goes up together with i_*?

If ξ_* constant, i_* affects only FX-equation (00), where $i_* \uparrow \rightarrow E \uparrow$, and ISFX shifts to the right.



$i_* \Rightarrow i \uparrow, Y \uparrow$

Increase in ξ_* shifts ISFX in opposite direction.
Net effect ambiguous then.

Increase in i is less than increase in i_*.

Suppose ξ_* is constant. If $\Delta i = \Delta i_*$, then E is constant. But then aggregate demand must be lower than before. But if Y were lower there would be no reason for i to increase.
If ξ_* increases too, that means an even lower increase in i (or possibly a decline).

Comparison to question A.

In A the short run effect is also that i increases, but less than the increase in i_*. That it increases we can infer from that Y goes up. This raises money demand and hence $i \uparrow$. That $\Delta i < \Delta i_*$ follows from that $\dot{E}/E < 0$ along the saddle-path to the new equilibrium and UIP: $i = i_* + \dot{E}/E$.

Hence, qualitatively we get the same result, unless ς_* increases and has a sufficiently strong effect to make i and Y decline.

(Mechanisms and quantitative effects are/can be different).

6) For simplicity focus on case where ς_* is constant.

Three possible policies:

a) Sterilized intervention: Sell foreign currency, buy domestic bonds. $F_g \downarrow$.

b) Reduce M by selling domestic bonds

c) Unsterilized intervention: Sell foreign currency. $F_g \downarrow, M \downarrow$

a) Shifts the ISFX curve back to where it was before.
Effect of i_* is isolated to foreign exchange market.

Problem: Intervention may have to be large if capital mobility is strong.

b) Shifts LM-curve upwards until $\Delta i = \Delta i_*$.

Side effect: Output is reduced relative to what it was before the shift.

c) This is the same as combining a) and b) in equal amounts. The ISFX-curve shifts back, but not all the way. The LM-curve shifts upward but less than needed to make $\Delta i = \Delta i_*$.

Side effects on other variables are smaller.