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The IS-LM-BP=0 Model (aka "Mundell-Fleming")
under Floating Rates, with Expected Depreciation

In the IS-LM-BP=0 model (with floating exchange rates) presented earlier, capital flows respond only to the interest differential. However, it is more likely that capital flows respond to something more complicated. One alternative is to let it respond to uncovered interest differentials (i.e., uncovered interest parity does not hold). The general result is the fiscal policy efficacy is even more circumscribed, while monetary policy efficacy is enhanced.

1. The Model

Suppose the capital flow equation:

(1) $KA = \overline{KA} + \kappa(i - i^*)$

is rewritten as:

(1') $KA = \overline{KA} + \kappa(i - i^* - \Delta s^e_{+1})$

Retain the IS, LM schedules as in the previous set of notes, and re-solving the BP=0 schedule.

(2) $Y = \overline{\alpha}[\overline{A} + \overline{EXP} - \overline{IMP} + (n+v)q - bi]$ <IS curve>

(2') $$i = \frac{\overline{A} + \overline{EXP} - \overline{IMP} + (n+v)q}{b} - \left(\frac{1 - c(1-t) + m}{b}\right)Y$$ <IS curve>

(3) $$i = \frac{\mu}{h} - \left(\frac{1}{h}\right)\left(\frac{\overline{M}}{P}\right) + \left(\frac{k}{h}\right)Y$$ <LM curve>

(4) $$i = -\left(1/\kappa\right)[(\overline{EXP} - \overline{IMP} + \overline{KA}) + (n+v)q] + \bar{i}^* + \Delta s^e_{+1} + \left(\frac{m}{\kappa}\right)Y$$ <BP=0 curve>

Notice that the slope of the BP=0 curve is (still) positive (m/κ), and that anything that changes the autonomous components of exports, imports and capital flows will change the position of the schedule. Also note that changes in q will shift the curve. The difference here is that expectations of exchange rate depreciation will also shift the BP=0 schedule in a manner analogous to the foreign interest rates.

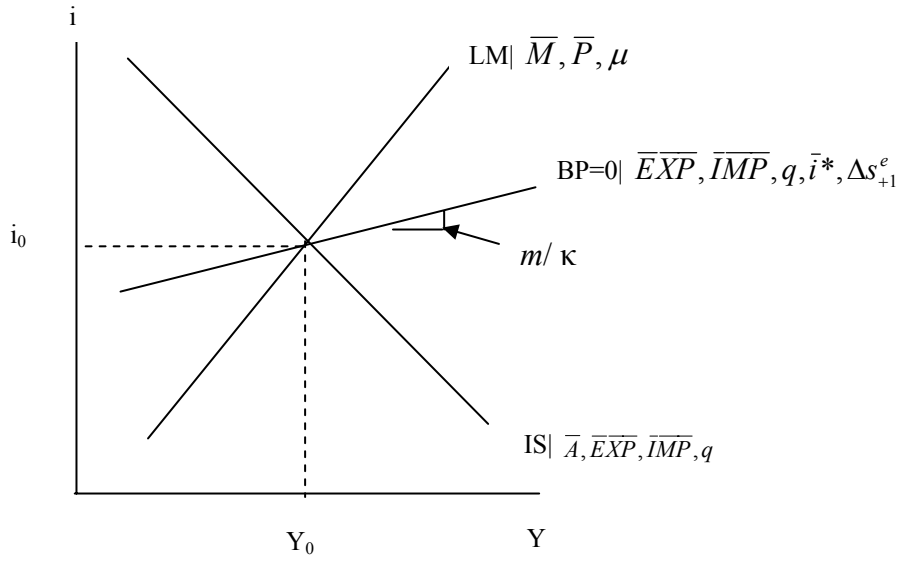

Figure 1: IS-LM-BP=0 in equilibrium

2. Fiscal Policy under Floating Exchange Rates

Shifts in the IS and LM curves occur for the same reasons as before. Consider what happens if one increases government spending.

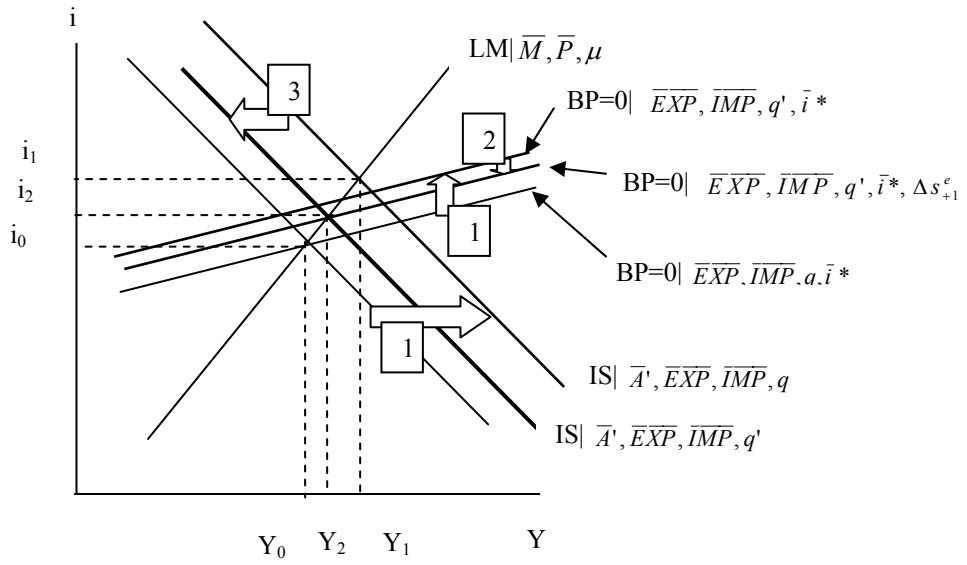

Figure 2: Expansionary fiscal policy under fixed exchange rates, high capital mobility

The IS curve shifts out (arrow [1]). Initially, output is at Y_1 and interest rates at i_1. However, the equilibrium interest rate is greater than that consistent with external equilibrium; this means capital is flowing into the economy at a rate greater than that necessary to offset the trade balance. In the fixed

exchange rate system, this would mean increases in official reserves. However, under the floating exchange rate system, the home currency experiences pressure to appreciate, i.e., q falls.
As q falls, this affects two curves: the IS and the BP=0. Inspect equation (2'); a fall in q reduces the vertical intercept in the IS curve, so the curve shifts in (arrow shift [3]). Now examine equation (4); a fall in q makes the vertical intercept larger, i.e., shifts up the BP=0 curve (arrow shift [1]). ***Note that when capital flows depend upon the uncovered interest differential, and the exchange rate is expected to appreciate, then the BP=0 schedule shifts down (arrow shift [2]).*** These two shifts are depicted in Figure 2. Notice then that equilibrium income falls to Y_2 and interest rates to i_2 (although both of these are higher relative to the initial starting values of Y_0 and i_0).

3. Monetary Policy under Floating Exchange Rates

It is instructive to consider what happens if a monetary expansion is undertaken. Examine the high capital mobility case.

In the figure below, the resulting equilibrium interest rate i_1 is less than required for external equilibrium. As a consequence, there is an incipient balance of payments deficit and the exchange rate depreciates. The resulting increase in net exports means that the required interest rate for external equilibrium falls (the BP=0 curve shifts downward). The increase in net exports means that domestic aggregate demand rises, and the IS curve shifts out. The equilibrium settles at income level Y_2 and interest rate i_2.

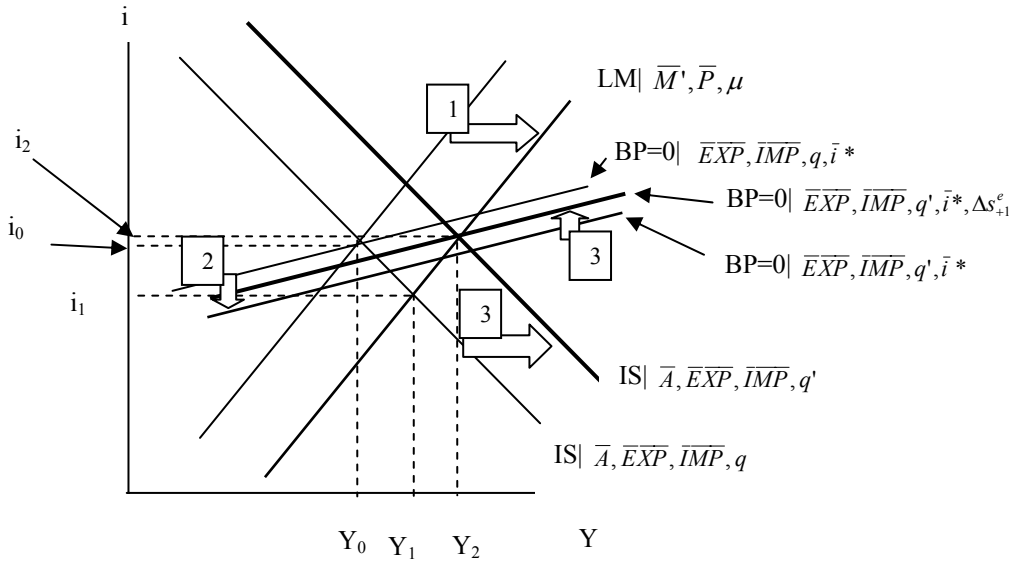

Figure 4: Expansionary monetary policy under floating exchange rates, high capital mobility

Notice that monetary policy is quite powerful. The increase in the money supply shifts out the LM curve (arrow shift [1]) decreases interest rate and hence spurs investment, thereby increasing output. But the lower interest rates also puts negative pressure on the balance of payments, and under a free float, this manifests itself in a depreciation of the home currency (arrow shift [2]). This depreciation

spurs exports and discourages imports, so the expansionary monetary policy "crowds in" net exports (arrow shift [3]). But note that the expected depreciation shifts up the BP=0 line (arrow shift [3]), partially offsetting shift [2], and inducing an even greater exchange rate depreciation. Consequently the outward shift of the IS is even greater than in the case where capital flows depend only on the interest differential.

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