

SOLUTIONS CHAPTER 8

1.a) FALSE. For an equivalent increase in government spending, there will be a smaller increase in output when the economy is open than when it is closed. That is because some of the increased demand will fall on foreign goods.

1.b) UNCERTAIN. On the one hand, a contractionary policy decreases output through two channels in an open economy: it lowers investment directly and it lowers net exports indirectly through a currency appreciation. Only the first effect is present in the closed economy. On the other hand, the multiplier effect is lower in an open economy; this renders the monetary policy less effective as some of the increased demand will fall on foreign goods.

1.c) TRUE. If nothing changes, an increase in the expected exchange rate implies more depreciation of the domestic currency. Now, if both domestic and foreign interest rates remain constant, domestic bonds become unattractive compared foreign ones. To re-establish their attractiveness, the domestic currency must depreciate now, such that the expected rate of depreciation remains unchanged. Put differently, once financial investors expect a lower future value for the domestic currency, they will right away sell domestic bonds in order to buy foreign ones. In the process, the demand for the domestic currency falls and it depreciates.

1.d) TRUE. The expected depreciation of the \$US must be compensated for by a higher interest rate in the US in order to preserve the attractiveness of US bonds. Remember that an expected depreciation means that Japanese investors are paying more for a \$US today than they will get back next year.

1.e) TRUE. The attractiveness of bonds also depends on expectations over the exchange rate. If financial investors expect the yen to appreciate, they might still want to hold Japanese bonds that pay zero interest rate. However, in this case, there is no difference between holding Japanese bonds or holding yens. Since yens are more liquid, there is not much point in holding bonds.

1.f) FALSE. With fixed exchange rate and perfect mobility of (financial) capital, the supply of money must always be adjusted such that the domestic interest rate remains equal to the foreign one, that is, $\frac{M}{P} = YL(i)$, where $i = i^*$. Although this implies that the CB has no control over its monetary policy, it does not mean that it cannot change the money supply. Much to the contrary, it means that it must constantly adjust it so that domestic interest rates are equal to foreign ones. It does imply, however, that it cannot choose its level independently.

2)A currency crisis

2.a) A one-time, unexpected devaluation in a fixed exchange rate regime:

The economy's equilibrium is defined by:

$$Y = C(Y - T) + I(Y, I^*) + G + NX(Y, Y^*, E),$$
$$\frac{M}{P} = YL(i^*).$$

Note that with a fixed exchange rate, we have $E^e = E$, such that $i = i^*$. (See accompanying graphics.) In order to devalue the currency from E to E' , the CB must increase the money supply. Since this is a one-time change, the expected exchange rate increases to $E^{e'}$, thus shifting up the interest-parity curve:

$$i = i^* + \frac{E^e - E}{E}.$$

An increased money supply shifts down the LM curve. A depreciated currency shifts the IS curve to the right as net exports increase (by the Marshall-Lerner condition). In the new equilibrium at A' , output increases. The interest rate must remain the unchanged and equal to the foreign one since the exchange rate is fixed.

2.b) Financial investors expect another future devaluation:

Imagine now that investors don't really believe that there won't be any more devaluations. Indeed, if it helps the economy to do so, the temptation for a government to do it again before the next election may be too high to resist.

In the case where investors are convinced that there will be a future devaluation, the interest rate parity condition tells us that domestic interest rates must be higher than foreign ones. Since investors demand a higher domestic interest rate, they sell their domestic bonds and currency. This puts a downward pressure on bond prices and the currency.

If the CB persists with its fixed exchange rate objective, it will have to compensate by buying bonds, thus increasing the money supply and keeping interest rates equal to foreign ones. It will also have to intervene in the foreign exchange markets in order to buy back the domestic currency, thus compensating for the investors' selling out. Note that the central bank buys back the domestic currency with the use of its foreign currency reserves.

But there is no reason why investors would stop expecting a future devaluation. Hence, they will never be satisfied with domestic interest rates that are equal to foreign ones. They just keep on selling their bonds and domestic currency. In the mean time, the CB is printing more and more money to buy back those bonds and using its foreign currency reserves to preserve the exchange rate. Those reserves being finite, the CB will eventually lose complete control over the currency's exchange rate. Thus the **currency crisis**.

Note that the currency crisis typically occurs much before the CB runs out of foreign currency reserves. This is because once investors anticipate that the CB will run out of foreign currencies, this re-enforces their expectations of a future devaluation, and they demand an even higher interest rate today to compensate. We enter a vicious cycle that unravels very rapidly. Typically, the only way to stop this is to cut the flow of financial capital and try to re-establish investors' confidence, if possible at all.

3) Fixed Exchange rate and monetary policy

a) Since the follower countries must equate their interest rates to that of the leader country, they essentially do not have a monetary policy. The level of their money supply is dictated by the leader country.

b) Indeed, the leader country's interest rate is essentially fixed also. But there is one large difference, which is that it is fixed because of the other countries' following behavior. Hence, the leader country is still free to choose its own interest rate. The follower countries will just have to adapt theirs. As a result, the leader can still pursue its own independent monetary policy.

c) The follower countries will have to increase their interest rates also. This means that their economies will slow down also, which would be a problem if their activity levels were already quite low. If they did nothing, their currency would depreciate relative to that of the leader country.

5) Eliminating a trade deficit under fixed exchange rates

The graphic analysis below shows that this can be achieved by reducing government spending and decreasing the money supply such that interest rates remain constant, thereby keeping the exchange rate fixed.