

Suggested Solutions to Problem Set 4

1. Persistent balance of payments deficits result in a pressure to devalue the currency and, by doing so, raise the dollar value of official reserves (foreign bonds held by the central bank). To keep exchange rates fixed, the balance of payments deficit must be financed by official reserve transactions. This leads to a decline in foreign bonds held by the central bank, such that reserves will be less than 1600. This decrease in the asset side of the balance sheet of the central bank results in a decline in the liability side, i.e., the money supply (central bank sells foreign assets for money). This, in turn, leads to an increase in interest rates and a decrease in output.

Another way to think about this is the following: a balance of payments deficit means the economy as a whole is purchasing more goods, services, and assets from the world than it is selling to the world. This excess demand for foreign currency tends to push down (devalue) the domestic currency. Since the central bank is pegging the exchange rate, it must buy domestic currency by selling out of its foreign reserve holdings. The money supply consequently falls (this is a contractionary open market operation), and interest rates rise.

If there is a recession, it is more difficult to have high interest rates, since to fight a recession; policymakers want to decrease interest rates to increase investment and stimulate the economy.

2. If the central bank decides to sterilize, it will purchase domestic assets as it loses foreign reserves such that the money supply is unchanged. So, the domestic assets will be greater than 2400. There will be no change in interest rates and output since the money supply is unchanged.

3. This scenario fits some balance of payments crises, such as Mexico in 1994 and Russia in 2000. The government might run fiscal policy inconsistent with keeping a peg, leading to a balance of payments crisis. The central bank monetizes government debt, but this leads to a money supply growth rate greater than 0, and this is associated with a decline in foreign reserves of the central banks, until they are exhausted and the peg is abandoned.

However, this is not what causes all balance-of-payments crises. For example, the ERM crisis of 1992 is better explained by the high costs of defending the peg resulting in lack of confidence in the central bank's commitment to the peg. The East Asian crisis of 1997 can be better understood by the bad shape of the financial sector, which had important currency mismatches between assets and liabilities.

4. This phrase indicates that there is a good possibility that Venezuela might default on its government foreign debt. Why? Given that the current account is in deficit and the private capital account balance is relatively low, the balance-of-payments identity implies that official reserves settlements must make up the deficit. Currently, Venezuela appears to have plenty of foreign reserves (as stated in the excerpt). However, once these are gone (which can happen pretty quickly), then the current account deficit must be ameliorated to ensure that the balance of payments identity is maintained. The government could accomplish this by slashing spending significantly, allowing the government budget to go into surplus. However, this would likely be extremely unpopular. If the government failed to take action to reduce spending, the balance could be maintained by failing to make payments on foreign debt (i.e., the government defaults).

The government's set of choices is implicitly constrained by its adherence to a crawling peg (a slowly moving fixed exchange rate). If it were willing to give up on the fixed exchange rate, then it could employ monetary policy to stimulate the economy (and conceivably pay for government spending). Further, the currency would devalue, making foreign imports more expensive, ameliorating the current account deficit. The decision to float would buy Venezuela some time to get its governmental affairs in order, and conceivably renegotiate its foreign debt. It eventually must address the underlying fiscal imbalances to avoid default on its foreign debt.

5. For part (a), it is safe to say that the Fed's signaling of its inclination to ease monetary policy affects exchange expectations, E^e . Using a simple diagram of the foreign exchange market, any upward shift in the demand for foreign currency assets causes the dollar to fall. This makes sense, and the statement is very reasonable.

As for (b), it is certainly true that if the DD-AA model properly described the US economy today, then any temporary fiscal expansion should drive up the dollar and leave output relatively unchanged (the US output is by most measures close to full capacity, which means the fiscal expansion will generate inflationary pressures). But if, like question 6 of PS 3, national wealth is further eroded because of the large current account deficit, and if a temporary fiscal expansion causes expectations of a dollar depreciation due to the increase in the budget deficit, then the statement becomes harder to justify. The DD-AA model would then be an inappropriate tool for analyzing the real-world situation with the US economy today. In fact, we can be certain in today's world that increased US fiscal expenditures would cause E^e , and hence E , to rise.

6. Assuming the exchange rate of the home against the foreign currency can fluctuate within a plus or minus 1 percent band, the difference between the home and foreign per annum nominal interest rate on one-year can never exceed the maximum exchange rate change of 2 percent (from the bottom of the band to its upper limit). But an exchange rate change of 2 percent over six months is a change of 4 percent on an annual basis. Thus, the home-foreign interest rate differentials on instruments maturing in six months could

be as high as 4 percent per year. Similarly, a 2 percent change over three months allows an annual interest rate differential of $4 \times 2\% = 8\%$ per year. We could go on and find the maximum interest rate differential for instruments with maturity of one month ($12 \times 2\% = 24\%$) and one day ($360 \times 2\% = 720\%$!!!!!). This shows that narrow bands allow substantial independence to set interest rates the shorter the maturity of the security under consideration. For long maturity securities, on the other hand, there is very little scope for independence: for example, for 10-year securities, the + or - 1% band would allow a home-foreign interest rate differential of only $2\%/10 = 0.2\%$.