

SIMON FRASER UNIVERSITY
Department of Economics

Econ 345
International Finance

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Spring 2014

PROBLEM SET 1
(Solutions)

1. (10 points). The current account deficit and the government budget deficits are often described as being “twin deficits”. Why is this? Using National Income Accounting, explain under what circumstances an increase in the government budget deficit will cause an increase in the current account deficit.

From the National Income Accounting identity we have

$$Y = C + I + G + CA$$

where Y is GNP and CA is the current account surplus. Subtracting T from both sides and defining $S_p = Y - C - T$ as private saving and $S_g = T - G$ as government saving, we have

$$S_p + S_g = I + CA$$

That is, total national saving, $S_p + S_g$ will be used to either finance domestic investment or be lent to foreigners. If we define the government budget deficit as $GD = -S_g$ and the current account deficit as $CAD = -CA$ we can rearrange the above identity to get

$$GD = CAD + S_p - I$$

That is, a government budget deficit must be financed by either borrowing from foreigners or by having the domestic private sector save more than it invests, so it can then lend to the government. Notice that if domestic saving and investment do not change, then changes in the government budget deficit lead to one-for-one changes in the current account deficit. This is why people sometimes refer to them as the ‘twin deficits’. However, if the GD increases because of a tax cut, then there might be reasons for private saving to change (remember Ricardian equivalence?).

2. (10 points). Suppose the 12-month forward price of the yen in terms of C\$ is 0.0106 C\$ per yen. Suppose the spot price of the yen in terms of C\$ is 0.01. Next, suppose that currently the annual interest rate in Canada is 4%, while the annual interest rate in Japan is 2%. There are no transactions costs. Is there an arbitrage opportunity here? If so, explain exactly how you would take advantage of this situation to make riskless profits.

According to Covered Interest Parity, the following must be true

$$1 + R = (1 + R^*) \frac{F}{S}$$

The left-hand side is the domestic currency return on a domestic currency investment. The right-hand side is the domestic currency return on a (covered) foreign currency investment. That is, the known amount of foreign currency investment receipts (remember we are considering nominally riskless

securities) is sold now at the forward exchange rate. Substituting in the above data we get (viewing Canada as the domestic country)

$$1.04 < 1.02 \frac{.0106}{.01}$$

Hence, even though the interest rate in Canada is higher, the covered rate of return from investing in Japan is higher. To make riskless profits you should do the following:

- (a) Borrow as many Canadian dollars as you can.
- (b) Convert them to Japanese yen.
- (c) Invest the yen at the Japanese interest rate.
- (d) At the same time, sell the yen for Canadian dollars at the current forward rate.

From the above calculation, you will receive more C\$ from the forward sale of yen than you owe on your C\$ loan. The difference is pure arbitrage profit.

3. (15 points). Read the article entitled “China, New Financial Superpower” by Brad Setser, which is posted on the course webpage. According to this article, will China’s currency become the new international reserve currency? Why or why not? How does the current situation in China compare to the cases of the UK in the 1800s, and the USA in the 1900s?

Historically, the currency of the world’s dominant creditor nation became the world’s ‘reserve currency’ (ie, it was used as an international medium of exchange, store of wealth, and unit of account (many international transactions are invoiced in that currency)). This was true of the British pound in the 1800s and the US dollar in the 1900s. China is now the world’s dominant creditor nation, so according to historical precedent, China’s currency should eventually become the world’s reserve currency. However, in his article, Setser points to three key differences between the current situation in China and the previous cases of the UK and US. First, China is still a relatively poor country. In contrast, the UK and US were not only the dominant creditors, but were also the richest countries at the time. Second, most of China’s international lending is controlled by the government, and is funneled through the Bank of China. In contrast, most of the UK and US lending was undertaken by private investors. Third, China is very unusual in that it lends in the borrower’s currency (mostly US dollars). In contrast, Britain lent pounds and the US lent dollars. This exposes China to a lot of exchange rate/US inflation risk. China is well aware of this risk, and would like to lend in its own currency, but this would require it to relax its current capital controls. Most people think that the RMB will not become an international currency until China removes most of its capital controls. Interestingly, during the past couple of years it has begun to do this. Let’s see what happens ...

4. (15 points). A recent article in a Canadian newspaper argued that Bank of Canada policy is causing the Canadian dollar to depreciate. (It has depreciated by about 10% during the past few months). Explain how the Bank of Canada could do this. Illustrate your answer with a graph that depicts simultaneous equilibrium in the foreign exchange and domestic asset markets. Why might the Bank of Canada want to do this?

This is straight from the notes/book. See Lecture Slides 3A (pages 11-12) or Figure 15-6 in the textbook.