SIMON FRASER UNIVERSITY
Department of Economics

Econ 345
International Finance

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PROBLEM SET 1
(Solutions)

1. (25 points). Suppose the 12-month forward price of the US dollar in terms of the Indian rupee is 90 rupees per dollar. Suppose the spot price of the dollar in terms of rupees is 86. Next, suppose that currently the annual interest rate on dollar deposits is 3%, while the interest rate on a comparable rupee deposit is 6%. 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.

   Covered Interest Parity implies

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

   The right-hand side is the rupee return on a rupee investment, while the left-hand side is the (covered) rupee return on a dollar investment. Substituting in the given information, we get

$$\frac{F}{E}(1+R^*) = \frac{90}{86}1.03 = 1.078 > 1+R = 1.06$$

   Hence, even though the rupee interest rate is higher, the covered rate of return from investing in the dollar is higher than the return from investing in rupees. You can make arbitrage profits by borrowing rupee, then buying dollars spot, investing in dollars, and then simultaneously selling the (known) amount of future dollars forward. You will have more than enough rupee to pay back your rupee loan. Your profits are only limited by by how many rupee you can borrow! In practice, this would be implemented with a swap contract.

2. (25 points). Read the article entitled "Fear-of-China Syndrome", by Paul Krugman, which is posted on the class webpage.

   (a) According to Krugman, why did the increase in fiscal deficits following the Global Financial Crisis of 2008 not produce an increase in current account deficits?

   At the beginning of the course we discussed the 'Twin Deficits Hypothesis'. From national income accounting we know

$$\text{Fiscal Deficit} = \text{Current Acct Deficit} + \text{Private Saving} - \text{Investment} \quad (1)$$

This says that if the government deficit increases, and if private saving and investment don't change, then necessarily the current account deficit will increase too. Basically, the government is borrowing the money from foreigners. However, Krugman notes that following the Financial Crisis, private saving did not stay constant. It increased. Households were having to 'deleverage' following the collapse of the housing bubble. As a result, increased government borrowing was financed by domestic residents, not foreigners.

(b) According to Krugman, should the USA worry about China not continuing to buy US Treasury bills? Why or why not?

If China suddenly stops buying US treasuries then US interest rates would rise. Less demand for US bonds lowers their prices and raises their yields. Normally, higher interest rates would be expected to cause currency appreciation (remember our FX equilibrium graph), but now there is effectively a 'risk premium' on US assets and the UIP line shifts up and the dollar depreciates (thinking of the USA as the domestic economy). We will talk about risk premia after the midterm. Dollar depreciation is bad for China for at least a couple of reason. First, it makes Chinese goods more expensive for Americans, and so Chinese exports would decline. Second, since China holds a large stockpile of dollar assets, a dollar depreciation produces a capital loss on China's net foreign asset position. Although the Chinese central bank could prevent appreciation of its own currency against the dollar (eg, by expanding monetary policy), it cannot do anything to prevent the decline of the dollar against other countries currencies. The US economy might even benefit on net if the investment depressing effect of higher interest rates is offset by the improvement in net exports. A threat that makes the person (or country) receiving the threat better off is not likely to be very credible.