SIMON FRASER UNIVERSITY
Department of Economics

Econ 345 | Prof. Kasa
International Finance | Fall 2017

PROBLEM SET 1
(Solutions)

1. (25 points). Suppose the 12-month forward price of the British pound in terms of dollars is 1.5 dollars per pound. Suppose the spot price of of the pound in terms of dollars is 1.45. Next, suppose that currently the annual interest rate on dollar deposits is 3%, while the interest rate on a comparable pound deposit 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.

   Covered Interest Parity implies

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

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

$$\frac{F}{E}(1+R^*) = \frac{1.5}{1.45}1.02 \approx 1.055 > 1+R = 1.03$$

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

2. (25 points). Recently, the Canadian dollar has appreciated against the US dollar. Use our model of simultaneous equilibrium in the foreign exchange and domestic asset markets to provide three reasons why this might have happened. Be sure to distinguish between Canadian and US economic developments. Also, illustrate your answers using a graph.

   What additional evidence would you look at to figure out which is the most likely explanation?

   Let's consider Canada the domestic country and USA the foreign country. A key observation is that a C$ appreciation can be caused by either a change in Canada or a change in the USA. Let's consider some Canadian possibilities first

   Canada

   (a) *Rapid growth in Canada, which increases Y, which shifts out M^d, which raises R, which then causes E to fall in the FX graph.*

   (b) *Contractionary monetary policy in Canada, which causes M^s to shift left, which causes R to rise, which then causes E to fall in the FX graph.*

(c) *A reduction in Canadian inflation, which causes the* <u>*nominal*</u> *interest rate in Canada to fall, which then causes E to fall.*

Note, the first two assume the <u>*real*</u> *exchange rate changes, the last one assumes only the nominal exchange rate changes. To distinguish between (1) and (2) you could look at what happens to output, since they have opposite predictions about that. Of course, the last one could happen with no change in output. You could just look at the inflation rate.*

Now let's consider some USA possibilities

<u>USA</u>

(a) *Slow growth in USA, which reduces Y^*, which shifts in USA M^d, which lowers R^*, which then causes E to fall in Canada's FX graph.*

(b) *Expansionary monetary policy in USA, which causes USA M^s to shift out, which causes R^* to fall, which then causes E to fall in Canada's FX graph.*

(c) *An increase in USA inflation, which causes the* <u>*nominal*</u> *interest rate in USA to rise, which then causes E to fall.*

Obviously, these aren't the only possibilities. Please give credit for other correct answers. For full credit they should illustrate their answers with the graph that has the FX market equilibrium on the top, and the domestic money market graph in the bottom.