Absolute PPP and the Expected Exchange Rate

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The foreign exchange market is in equilibrium if Uncovered Interest Rate Parity (UIP) holds. That is, if

$$R = R^* + \frac{\Delta^e E}{E} \tag{1}$$

is satisfied. For the upper part of our (forex market-money market) diagram, we split this relationship into two parts ("making two out of one"). We rewrite it as

$$\textit{Exp Return} \ = R$$

for domestic assets (a vertical line in an *E-Exp Return* diagram), and

$$\textit{Exp Return} \ = R^* + \left(\frac{E^e}{E} - 1\right) \tag{2}$$

for foreign assets (a downward sloping curve in an *E-Exp Return* diagram).

As we say, Absolute Purchasing Power Parity (Abs. PPP) always holds in the long run. That is,.the real exchange rate equals to one, $Q = 1$, in the long run. Then we know that at least

$$E^e = Q^e \cdot \frac{P^e}{P^{*,e}} = \frac{P^e}{P^{*,e}} \tag{3}$$

must hold–which is a long-run relationship. [1]

Now suppose everybody in our economy expects the domestic price level to rise from P_{today} to $P_{tomorrow}$ ($P_{tomorrow} > P_{today}$). The reason may be a one-time increase in the money supply, for example. If prices are *flexible* everybody expects the price increase to take place within a logical second. If prices are *sticky*, however, everybody expects this to happen slowly and gradually. What does that mean for the position of our curves in the diagram?

In either case, only the the expected return for foreign assets will be affected. And, irrespective of whether prices are sticky or flexible, it will be affected in exactly the same way. Why? Surprising as it may seem at first, it follows from our construction of the diagram immediately.

[1] If prices are not sticky but fully flexible, then Abs. PPP is satisfied even in the short run:

$$E = Q \cdot \frac{P}{P^*} = \frac{P}{P^*}.$$

If prices are sticky, however, Abs. PPP will break down in the short run.

- Changes in the *spot* exchange rate E *never* change the *position* of a curve in our diagram. Changes in E result in movements along curves, but never shift a curve because E is on one of the axes. The diagram solves these changes in E automatically and by itself, so to say. We don't even need to wonder whether and how Abs. PPP may affect the spot exchange rate E, we just wait for what the diagram will tell us.

- Changes in the *expected* exchange rate E^e *will* change the position of a curve, however. The reason is that E^e is on none of the axes. We need to see how it plays into our forex equilibrium. Only relationship 2 is affected: $\textit{Exp Return} = R^* + \left(\frac{E^e}{E} - 1\right)$. In what way? Well, for any given spot exchange rate E, an increae in the expected exchange rate E^e makes the *Exp. Return* higher. Therefore, the curve shifts out to the east in our forex diagram.

All this finally results in a change of the spot exchange rate, E. Reading it off the diagram, we see that E must be higher now than before because the expected foreign return curve has shifted. In this sense, we have "squeezed" the effect on today's spot exchange rate into the model. But we were justified to do so. Expectations matter in general, and so they do here. From two basic assumptions, UIP and Abs. PPP, we have derived what happens to the spot exchange rate E today. Since E is on one of the diagram's axes, we let the diagram tell us how exactly E.is affected.

Whether prices are flexible or sticky, does not matter for E^e and the shift in the expected foreign return curve. It does matter for the spot exchange rate E, however, because the domestic interest rate R behaves differently under sticky prices.