

Lecture Notes for Chapter 8

International Financial Markets and Institutions

Chapter 8

Portfolio theories of exchange rate behaviour I

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Road Map

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Part A Currency markets

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8.1 Overview

- Would like to have a portfolio based theory of the exchange rate that works!
- Theories we shall look at before even attempting to derive a portfolio based theory:
 - UIP—Uncovered Interest Rate Parity
 - Balance of Payments Theory of the Exchange Rate
 - Monetary Theory of the Exchange Rate

8.2 Uncovered interest parity

- Different from CIP! Do not get them mixed up.
- The key idea is that government debt from the home country should have the same rate of return as government debt from a foreign country, once both rates of return have been converted into a common currency.
- Value of home country government debt in HC at time t is P_t .
- Value of foreign country government debt in FC at time t is P_t^* .
- Gross rate of return on home country government debt in HC is

$$1 + r_{t,t+1} = \frac{P_{t+1}}{P_t},$$

where $r_{t,t+1}$ is the HC riskless rate.

- Gross rate of return on foreign country government debt in FC is

$$1 + r_{t,t+1}^* = \frac{P_{t+1}^*}{P_t^*}$$

where $r_{t,t+1}^*$ is the FC riskless rate.

- Gross rate of return on foreign country government debt in HC is

$$\frac{P_{t+1}^* \tilde{S}_{t+1}}{P_t^* S_t} = (1 + r_{t,t+1}^*)(1 + \tilde{s}_{t,t+1}),$$

where $\tilde{s}_{t,t+1}$ net percentage change in the spot rate.

- You should asking the following question now: why are we using the risky spot rate at date $t + 1$ to convert time $t + 1$ foreign country debt value from FC to HC. Why not use the forward rate?

- We seem to be assuming that the future spot rate is equal to the current forward!
- Gross rate of return on the foreign country government debt in HC should be the same as the gross rate of return on the home country government debt, if
- Both debt instruments are riskfree for residents in those countries
- The liquidity of the instruments is the same
- The debt is of the same maturity
- If that is true, then

$$(1 + r_{t,t+1}^*)(1 + \tilde{s}_{t,t+1}) = 1 + r_{t,t+1}$$

- Now,

$$(1 + r_{t,t+1}^*)(1 + \tilde{s}_{t,t+1}) \approx 1 + r_{t,t+1}^* + \tilde{s}_{t,t+1},$$

which gives us UIP in its usual form:

$$\tilde{s}_{t,t+1} = r_{t,t+1} - r_{t,t+1}^*$$

- The approximation is pretty good so drop the approximation symbol.
- Empirically UIP does not do well for short maturity debt. It does better for long maturity debt.
- Exercise: What happens if we are sensible and use the forward rate $F_{t,t+1}$ to convert P_{t+1}^* from FC to HC?

8.3 Balance of Payments and the Exchange Rate

- Aim: to explain why exchange rates and prices do not conform with PPP theory, i.e. why the real exchange rate $S_t P_t^* / P_t$ is not equal to one.
- Starting point: Keynesian view that goods prices are sticky
 - Price indices (P_t^* and P_t) adjust slowly whereas exchange rates (S_t) adjust quickly
- Want to relate current account balance and capital account to exchange rates

- Domestic current account balance

$$B_C = B_C \left(S \frac{P^*}{P}, Y, Y^* \right) \quad (8.1)$$

- If the price of home goods in HC, P_t , goes up, exports become more valuable—increasing the current account
- If the price of foreign goods in HC, $P_t^* S_t$, rises, imports becomes more expensive—decreasing the current account
- So, the balance of the current account falls as the real exchange rate goes up
- If home output rises, home consumers have more income and they use that to buy more imports—decreasing the current account

- If foreign output rises, foreign consumers have more to spend and so home exports will rise—increasing the current account

- Domestic capital account balance

$$B_K = B_K(r, r^*, S) \quad (8.2)$$

- An increase in the HC interest rate attracts foreign investment, increasing the capital account balance
- An increase in the FC interest rate, leads to funds flowing into the foreign country, decreasing the domestic capital account balance
- From UIP,

$$\tilde{s}_{t,t+1} = r_{t,t+1} - r_{t,t+1}^*$$

we can see that if the nominal spot exchange rate rises, the spread between the HC and FC interest rates rises. More funds will flow into the home country, increasing the the domestic capital account balance.

8.3.1 Adjustment under fixed exchange rates

Changes in P and P^* will be reflected in the reserves—the exchange rate is fixed.

- The increase in reserves is given by

$$\begin{aligned}\Delta R &= B_C + B_K \\ &= B_C \left(S \frac{P^*}{P}, Y, Y^* \right) + B_K (r, r^*, S)\end{aligned}$$

- If P increases, B_C increases, so reserves increase
- If P^* increases, B_C falls, so reserves drop
- An increase in Y leads to a drop in B_C , so reserves drop

- An increase in Y^* leads to an increase in B_C , so reserves rise
- What happens if demand for HC is greater than the supply? The exchange rate is fixed, so the central bank must either increase the supply of HC to meet demand or decrease the HC interest rate, to reduce demand for HC.