

ECON 1550: International Finance

Exchange Rates and the Foreign Exchange Market: An Asset Approach

A model of exchange rate determination

Exogenous variables

Variable	Description
R	Domestic interest rate
R^*	Foreign interest rate
E^e	Expected exchange rate

Endogenous variables

Variable	Description	Equation	Type of equation
E	Exchange rate	$R = R^* + \frac{E^e - E}{E}$	Equilibrium condition

A model of exchange rate determination

- Two investment opportunities
 - Domestic bond with return $R_{\$}$ in Dollars
 - Foreign bond with return R^* in Euros
- To be indifferent between the two investments, the **uncovered interest parity condition** must hold:

$$(\text{UIP}): R_{\$} = R^* + \frac{E_{\$/\text{EUR}}^e}{E_{\$/\text{EUR}}} - 1$$

Exchange Rates

Bonds

Realized vs Expected Returns

Expected Returns of Foreign Bond

Approximations

Uncovered Interest Parity

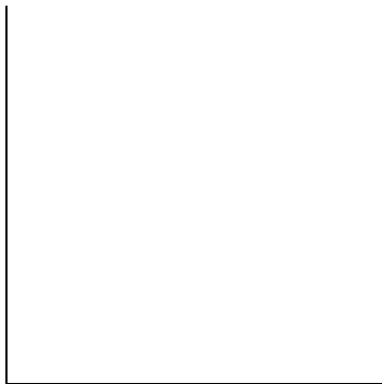
- For both strategies to have the same expected return

$$1 + R_{\$} = \frac{E_{\$/\text{EUR}}^e}{E_{\$/\text{EUR}}} (1 + R^*)$$

- Approximating

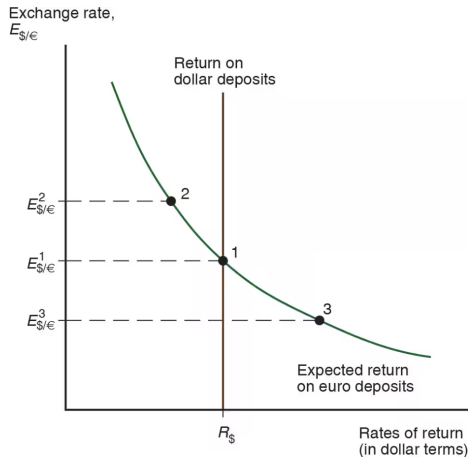
$$R_{\$} = R^* + \frac{E_{\$/\text{EUR}}^e}{E_{\$/\text{EUR}}} - 1$$

Equilibrium in Foreign Exchange Market



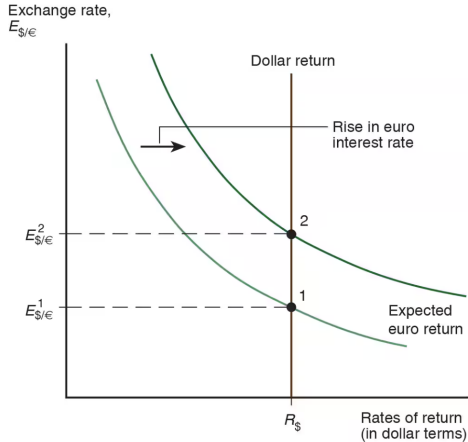
$$\text{UIP: } R_{\$} = R^{*} + \frac{E_{\$/\text{EUR}}^e}{E_{\$/\text{EUR}}} - 1$$

Equilibrium in Foreign Exchange Market



$$\text{UIP: } R_{\$} = R^{*} + \frac{E_{\$/\text{EUR}}^e}{E_{\$/\text{EUR}}} - 1$$

Shocks: Rise in Euro Interest Rate



The carry trade

- Borrowing at “low” rate R and lending at “high” rate R^* is a **carry trade**

$$\begin{array}{l} \text{expected return} \\ \text{on carry trade} \end{array} = R^* + \left(\frac{E^e}{E} - 1 \right) - R + \text{risk premium}$$

- Risk: Future exchange rate is not known when we start the carry trade, E^e can be different from the realized future exchange rate