Topics for Today

1. The Asset Market Approach to Exchange Rate Determination vs. the Goods Market Approach to Exchange Rate Determination

2. Equilibrium in the FX Market
   - Uncovered Interest Parity (UIP)

3. Comparative Statics
   - Changes in $R, R^*, E^c$

4. Testing UIP
The Goods Market Approach to Ex. Rates

Imports & Exports (per unit time)

$E \Rightarrow$ Price of foreign goods $\uparrow$ for domestic residents
$\Rightarrow M \downarrow$

$E \Rightarrow$ Price of domestic goods $\downarrow$ for foreigners
$\Rightarrow X \uparrow$
Suppose there is an exogenous increase in demand for $M$ (unrelated to $E$).

Demand for $M \uparrow \Rightarrow E \uparrow$

Problem with Goods Mkt. Approach:

- It ignores capital mobility. With international capital mobility, trade does not have to balance each period. Countries can borrow and lend.

- In the short run, it is better to think of exchange rates as equilibrating the supply + demand for asset stocks. (Stocks vs. flows)
Graphical Representation of Equilibrium

\[ R = \text{\$ return on \$-denominated deposit} \]

\[ R^* + \frac{E^0 - E}{E} = \text{Expected \$ return on foreign currency deposit} \]

Pt. A: Equilibrium Ex. Rate

Pt. B: Return higher on \$-denominated deposit

\[ \Rightarrow \text{Everyone tries to buy \$ deposits} \]
\[ \Rightarrow \text{Price of \$ bid up} \]
\[ \Rightarrow \text{\$ appreciates (} E \downarrow \text{)} \]

Pt. C: Expected return higher on for. curr. deposit

\[ \Rightarrow \text{Everyone tries to buy foreign curr. deposits} \]
\[ \Rightarrow \text{Price of foreign curr. bid up} \]
\[ \Rightarrow \text{\$ depreciates (} E \uparrow \text{)} \]
Change in $R$

Suppose $R \uparrow$ (all else equal).
What happens to the equil. $E$?

At $E_1$, $\$ \text{ returns are now higher}$

$\Rightarrow$ Everyone tries to buy $\$

$\Rightarrow$ Price of $\$ \text{ bid up}$ ($E\uparrow$

At $E_2$, the expected depreciation of $\$ \text{ is higher}$ (holding $E^e$ constant), which raises the expected return on for. curr. deposits up to the new higher $R_2$
Change in $R^*$

Suppose $R^* \uparrow$ (all else equal)

What happens to the equil. E?

At E₁, for. curr. returns are now higher

⇒ Everyone tries to buy for. curr.-denominated deposits

⇒ Price of for. curr. bid up (ET)

At E₂, the expected depreciation of $ is lower (holding EE constant), which lowers the expected return on for. curr. deposits back down to $R$₁
Change in $E^e$

Suppose $E^e \uparrow$ (all else equal)

What happens to the equil. $E$?

Note: When the price of an asset is expected to rise in the future, it rises today!

This is a general principle of asset pricing.
Numerical Examples

1.) Suppose $E(c^s) = 1.5$

$E^c = 1.575$

$R^s = 4\%$

What must $R$ be if expected returns are to be equal?

$$R = 0.04 + \frac{1.575 - 1.5}{1.5} = 0.04 + 0.05 = 0.09$$

2.) Now suppose $E^c = 1.485$

How does $R$ change?

$$R = 0.04 + \frac{1.485 - 1.5}{1.5} = 0.04 - 0.01 = 0.03$$
Testing UIP

CIP is consistent with observed data. What about UIP?

How can we test whether UIP is valid?

Problem: $E^c$ is unobserved.

Idea: Assume expectations are "rational" so that forecast errors are random and unpredictable.

Rational Expectations $\Rightarrow$

Expectation of $E_{t+1} = E_{t+1} + \varepsilon_{t+1}$

Check, $R_+ = R_+^* + \frac{E_{t+1} - E_t}{E_t} + \text{random error}$

\varepsilon \text{ post realized depreciation}