Topics for Today

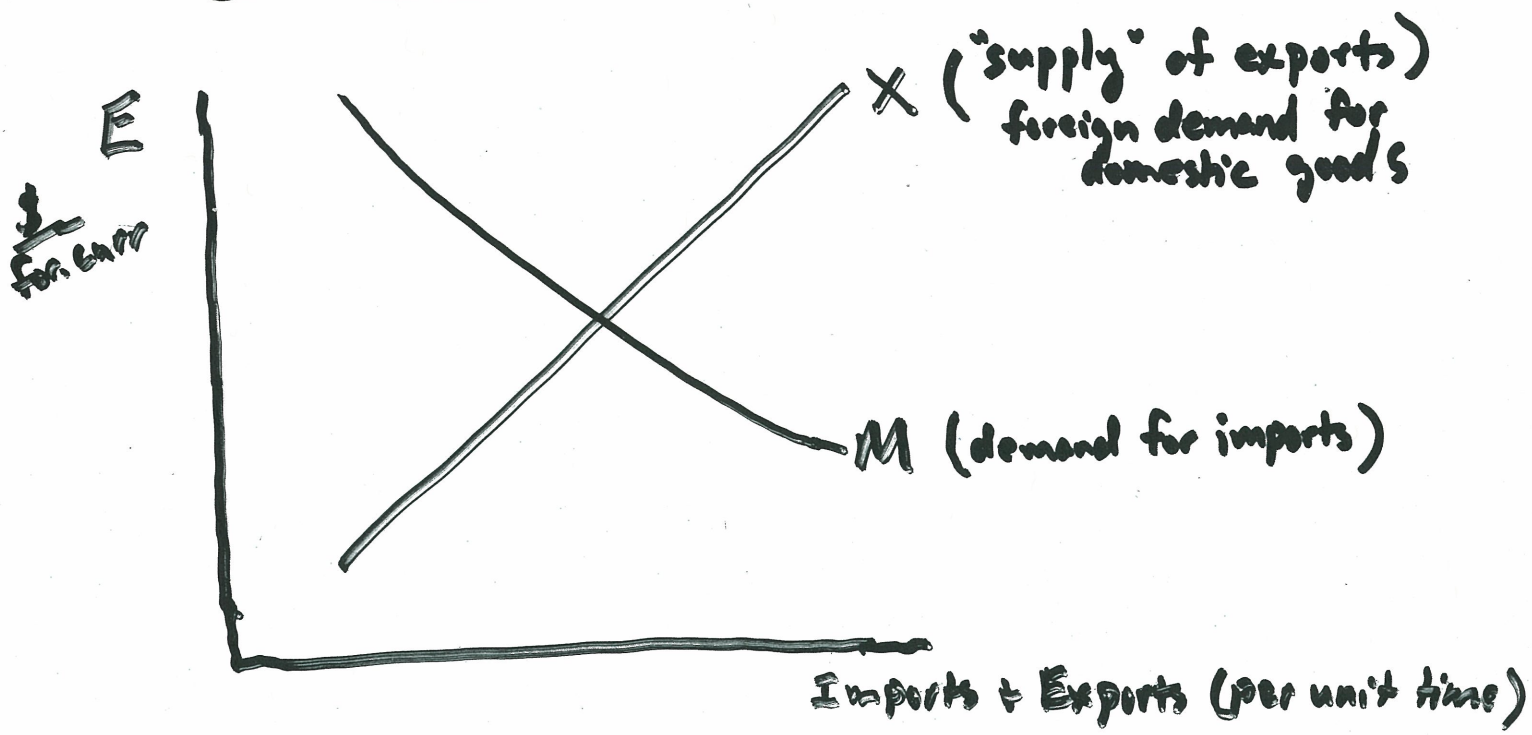
1. The Asset Market Approach to Exchange Rate Determination vs. the Goods Market Approach to Exchange Rate Determination

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

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

4. Testing UIP

The Goods Market Approach to Ex. Rates



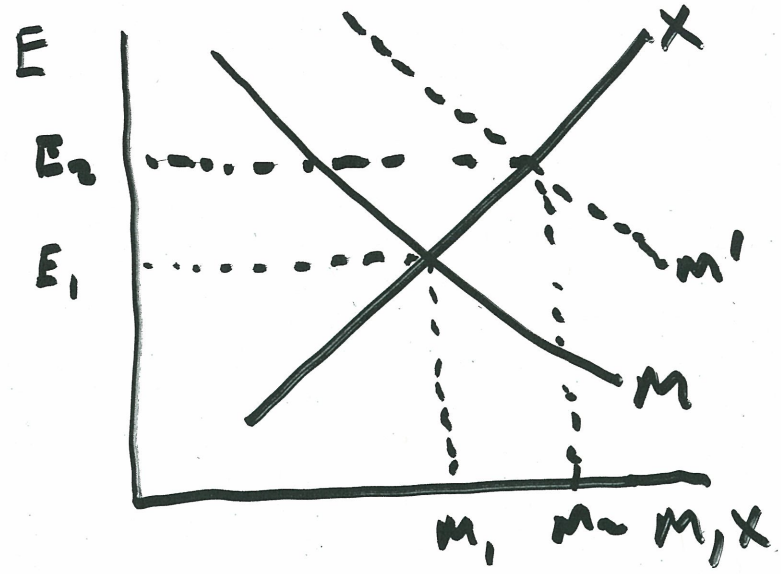
E↑ ⟹ Price of foreign goods ↑ for domestic residents

⟹ M↓

E↑ ⟹ Price of domestic goods ↓ for foreigners

⟹ X↑

Suppose there is an exogenous increase in demand for M (unrelated to E).

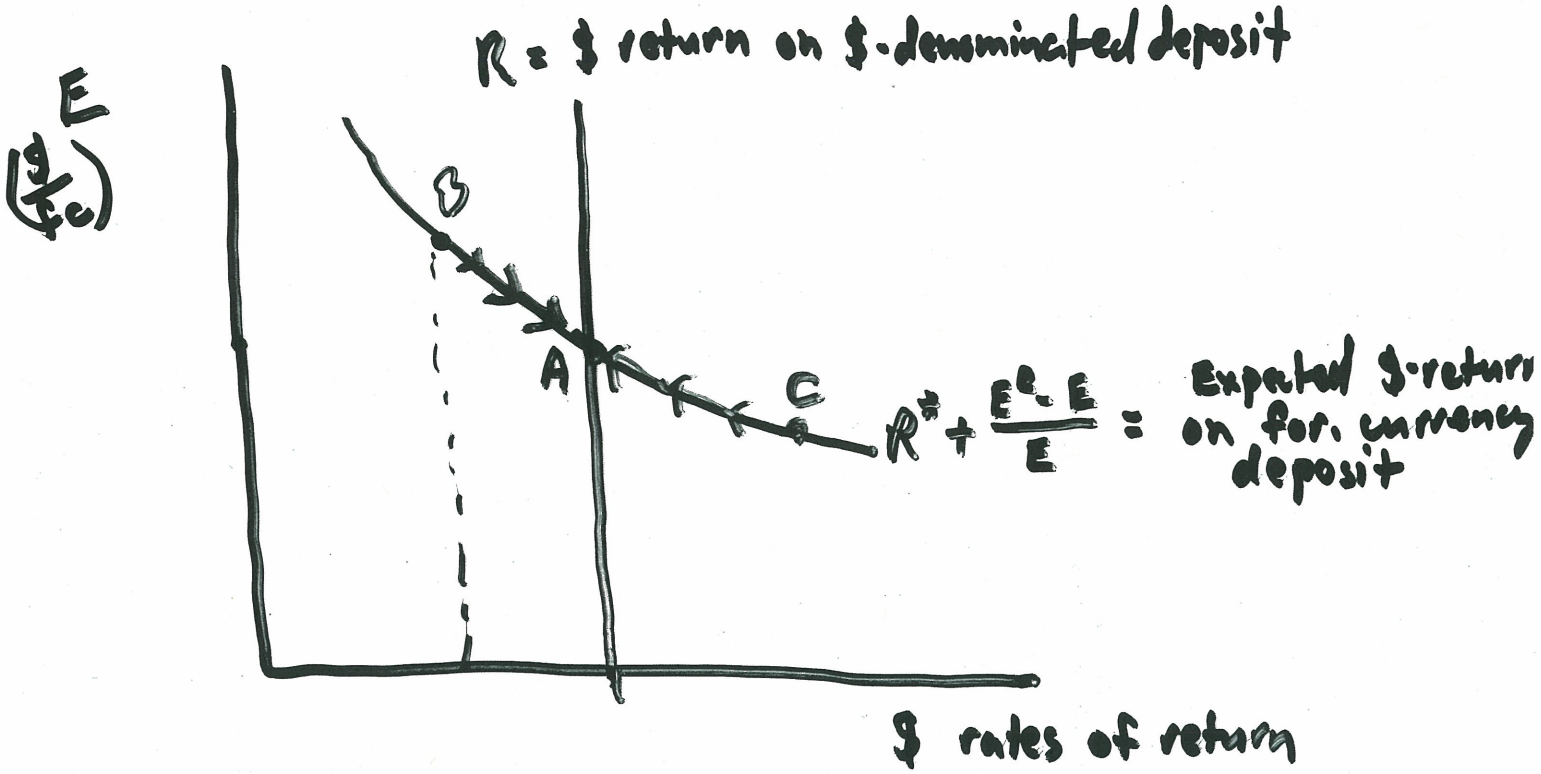


Demand for M↑ ⇒ E↑

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



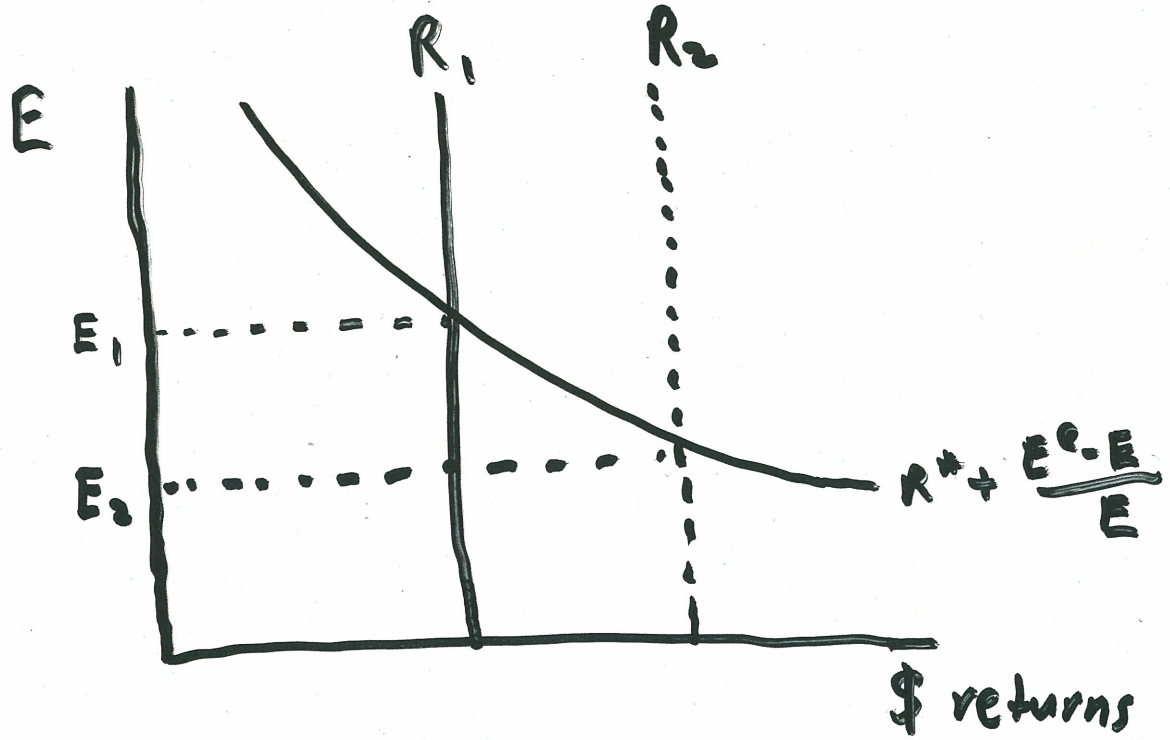
Pt A: Equilibrium Ex. Rate

Pt. B: Return higher on $-denominated deposit
⇒ Everyone tries to buy $ deposits
⇒ Price of $ bid-up
⇒ $ appreciates (E↓)

Pt. C: Expected return higher on for. curr. deposit
⇒ Everyone tries to buy for. curr. deposits
⇒ Price of for. curr. bid-up
⇒ $ depreciates (E↑)

Change in R

Suppose R↑ (all else equal)
What happens to the equil. E?

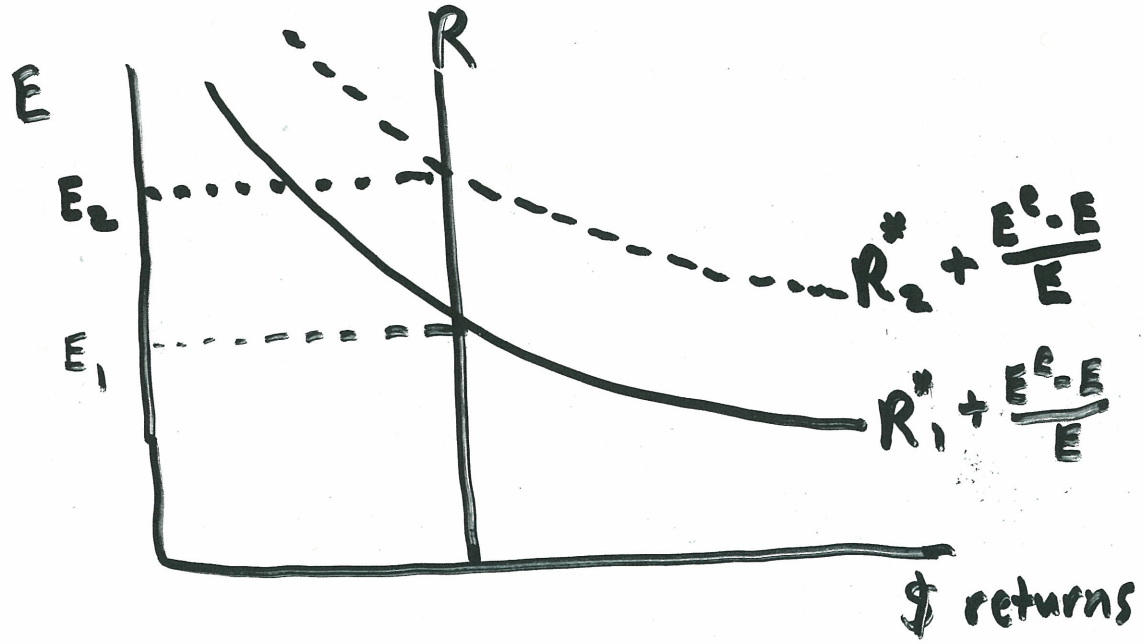


At E_1 $ returns are now higher
⇒ Everyone tries to buy $
⇒ Price of $ bid up (E↓)

At E_2, the expected depreciation of $ 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 ?

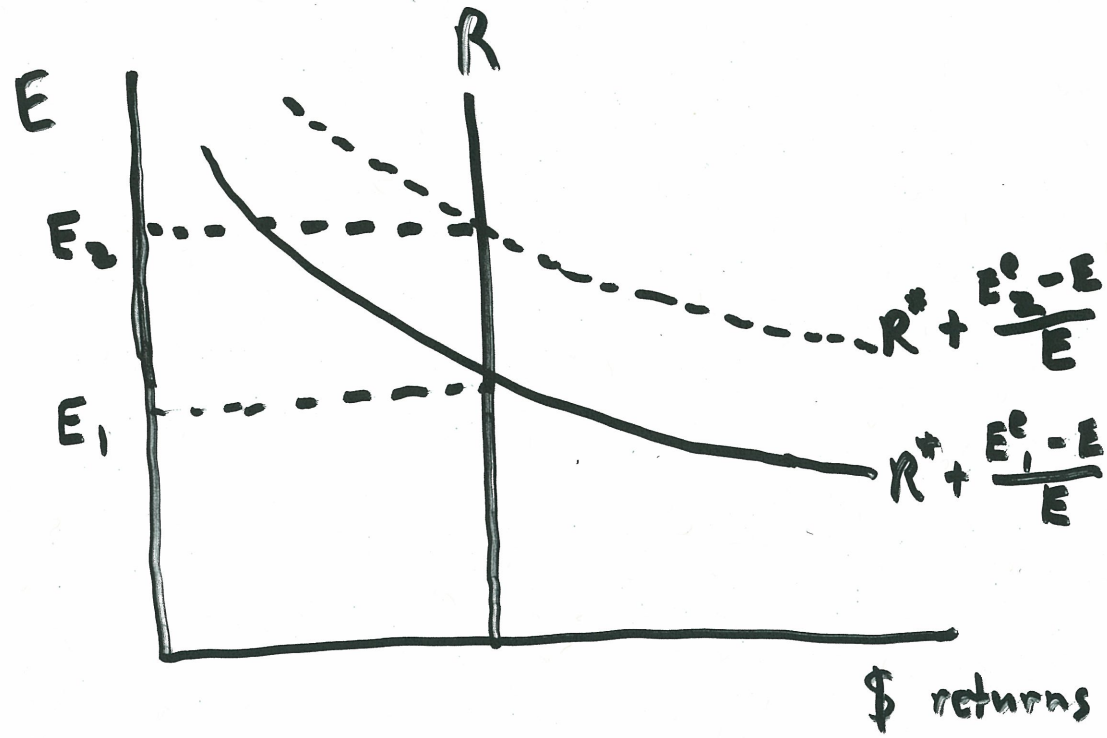


At E_1 for. curr. returns are now higher
$\Rightarrow$ Everyone tries to buy for. curr.-denominated deposits
$\Rightarrow$ Price of for. curr. bid up ($E \uparrow$)

At E_2, the expected depreciation of $ is lower (holding E^e constant), which ~~raises~~ 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 $E\left(\frac{e\$}{\$}\right) = 1.5$

$E^e = 1.575$

$R^*_{us} = 4\%$

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

$$R = .04 + \frac{1.575 - 1.5}{1.5} = .04 + .05 = .09$$

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

How does R change?

$$R = .04 + \frac{1.485 - 1.5}{1.5} = .04 - .01 = .03$$

Testing UIP

CIP is consistent with observed data.

What about UIP?

How can we test whether UIP is valid?

Problem: E^e is unobserved.

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

Rational Expectations $\Rightarrow$

$$\text{Expectation of } E_{t+1} = E_{t+1} + \underbrace{\varepsilon_{t+1}}_{\text{forecast error}}$$

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

$\frac{E_{t+1} - E_t}{E_t}$: ex post realized depreciation