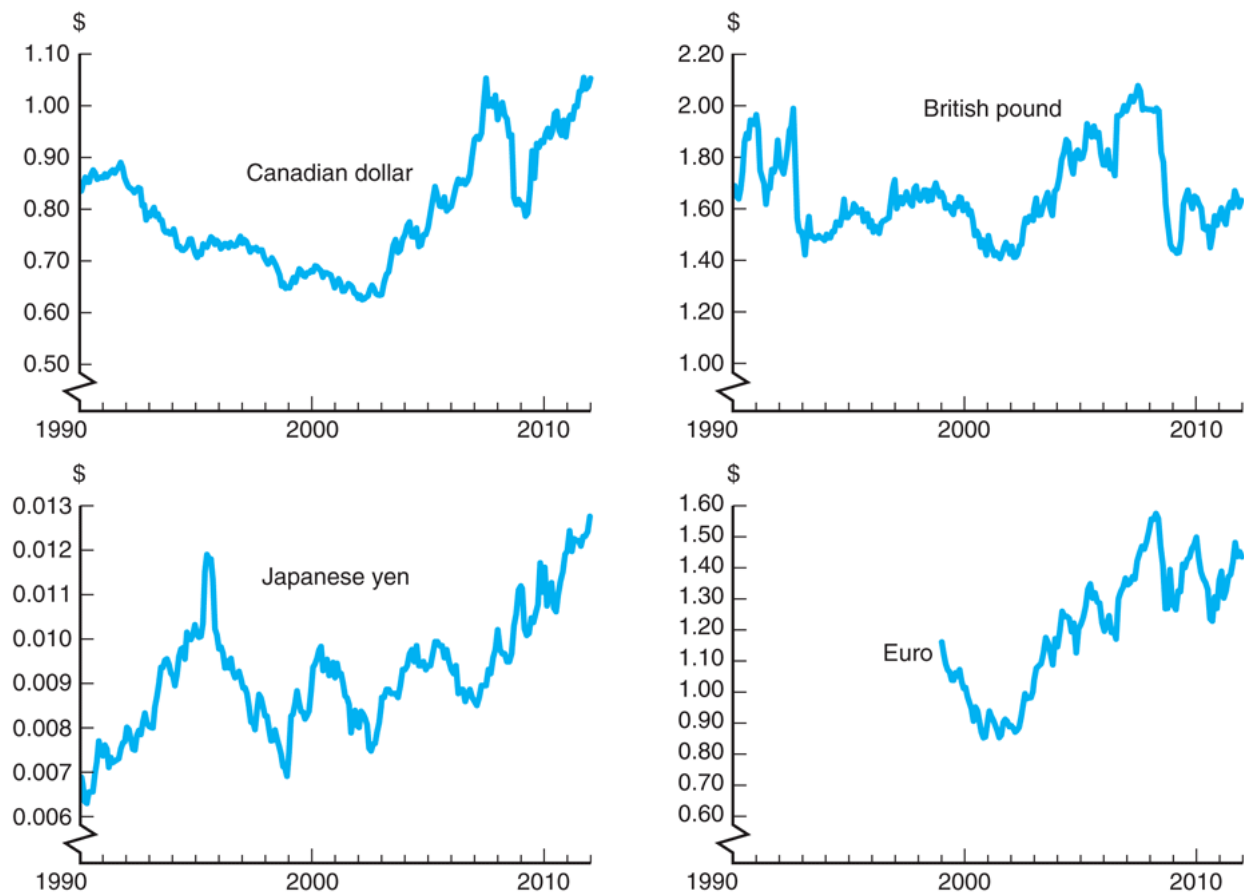


Chapter 18 – The Foreign Exchange Market

Exchange rate – A price of one country's currency in terms of another

Note: All exchange rates have reciprocals. Below is USD prices of various foreign currencies over time.



Foreign exchange market: the financial market where exchange rates are determined

- An over-the counter (OTC) market
- Conducted by dealers (mostly banks)
- Trades typically involve exchange of deposit accounts in excess of 1 million in value

Spot transaction: immediate (two-day) exchange of bank deposits

The exchange rate for the spot transaction is the spot exchange rate

Forward transaction: the exchange of bank deposits at some specified future date

The exchange rate for the forward transaction is the forward exchange rate

Changes in a Currency's value

Consider USD price measured in foreign currency

$E(T)$ = Foreign currency per USD in period T

- USD appreciation in period T $\rightarrow E(T)$ increases
- USD depreciation in period T $\rightarrow E(T)$ decreases

USD Appreciation – US goods more expensive for foreigners and foreign goods cheaper for US citizens

USD depreciation – US goods cheaper for foreigners and foreign goods more expensive for US citizens

Two country assumption

For simplicity, assume that the world is divided into two countries: Home country (HC), and foreign country (FC). Note: sometimes use HC and ROW

Following Mishkin page 483 footnote 2, denote HC exchange rate for period T by

$E(T)$ = Number of ROW currency units received in exchange for each HC currency unit in period T

An increase in $E(T)$ is a strengthening (appreciation) of HC currency, a decrease in $E(T)$ is a weakening (depreciation) of HC currency.

Nominal exchange rate for HC in period T
 $E(T)$ = FC currency per unit of HC currency

Real exchange rate (RER) for HC in period T
 $\epsilon(T) = E(T) \times [P(T)/P^*(T)]$

where

$P(T)$ = period-T price level in HC

P^* is the period-T price level in FC.

Real exchange rate corrects for HC/FC prices.

Note: $E(T) \times P(T)$ = period T price of a unit of HC production measured in terms of FC currency (eg. Yen price of a bushel of US wheat)

P^* = period T price of a unit of FC production measured in FC currency (eg. Yen price of a bushel of Japanese wheat)

$\epsilon(T)$ = period T price of HC production measured in terms of FC production (eg. J wheat bushels per US wheat bushel)

Real exchange rates move over time

- real appreciation = an increase in the real exchange rate
- real depreciation = an decrease in the real exchange rate

Example: Suppose the US produced one good, a Cadillac Seville Luxury Sedan and the UK produced one good, a Jaguar S-type Luxury Sedan

⇒ If the price of a Cadillac in the US = \$40,000,

⇒ If the price of a Jaguar in the UK = £30,000,

⇒ The RER between the US and the UK would be

Why do real exchange rates matter?

From Bilateral to Multilateral Exchange rates

U.S. Merchandise Trade, 2003

	Trade ratio	RER
Canada	25%	0.7
Mexico	15%	0.5
Europe	30%	0.9
Asia	30%	1.1

Multilateral RER

- RER between several countries: measures the average price of US goods relative to the average price of goods of the trading partners of the US
- Weigh the country by the US share of trade with each country

To construct the multilateral RER, we first calculate the RER for each trading partner, then weigh each RER by the fraction of total trade.

U.S. Multilateral Real Exchange Rate =

Law of one price

If two countries produce an identical good, and transportation and trade barrier costs are very low, the price of the good should be the same in all countries no matter where it is produced.

How are exchange rates determined?

Theory of Purchasing Power Parity: exchange rates between any two currencies will adjust to reflect changes in the price levels of the two countries.

Suppose in a two country economy, traders in the HC and FC

- produce the same bundle of goods and services
- have no barriers to trade (transaction costs, tariffs)
- are perfectly informed about the availability of goods and services in both the HC and FC

Then PPP asserts that the price of HC production measured in FC currency should equal the price of FC production measured in FC currency

Arbitrage Opportunity is an opportunity to make profits FOR SURE by taking advantage of a price difference between two or more markets

Example: PPP and Arbitrage

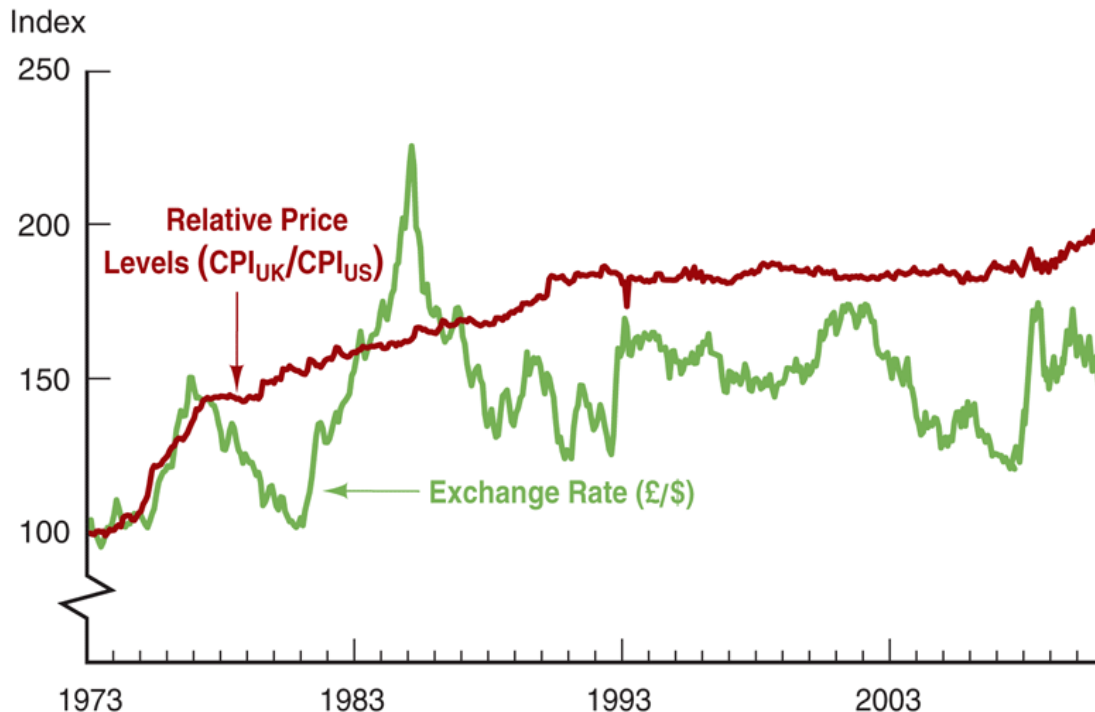
-Suppose US and Japan both produce the same type of wheat and no trade barriers exist between the US and Japan

$P = 2$ USD per bushel of wheat

$P^* = 4$ yen per bushel of wheat

$E =$ Yen per USD (nominal exchange rate)

**Figure 2 Purchasing Power Parity, United States/United Kingdom, 1973–2011
(Index: March 1973 = 100.)**



Why the PPP Theory cannot fully explain exchange rates

Factors that affect exchange rates in the long run

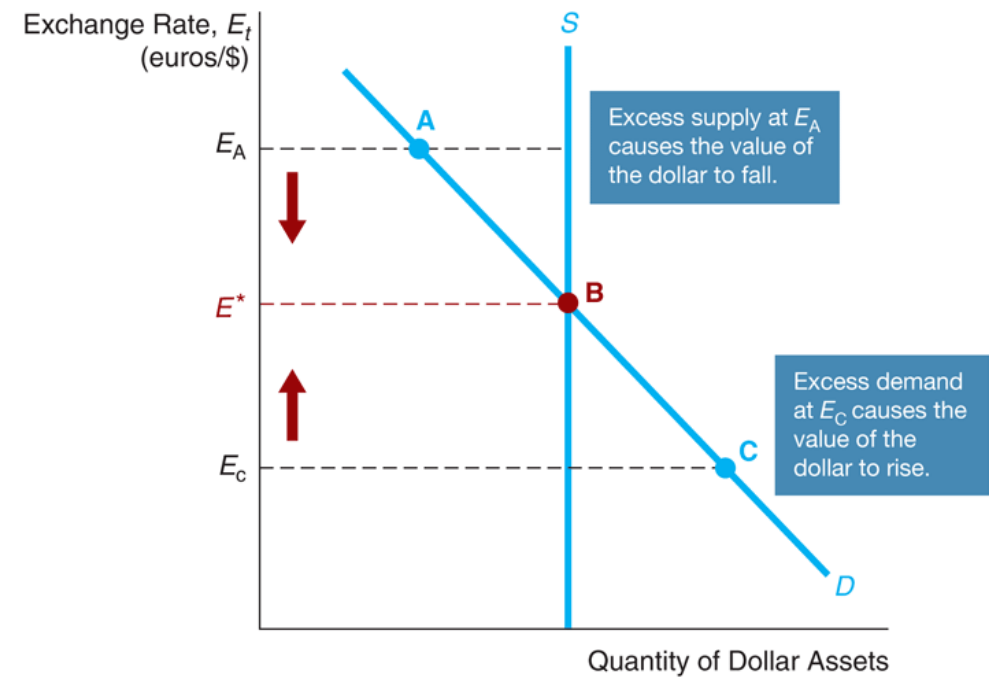
- Relative Price Levels
- Trade Barriers
- Preferences for Domestic versus Foreign goods
- Productivity

Exchange rate determination in the short run

- ➔ An exchange rate is the price of domestic assets in terms of foreign assets
- ➔ US foreign exchange rate market transactions are well over 25 times greater in value than US export and import transactions. The exchange rate E is thus viewed as the relative price of CURRENCY determined by demand and supply conditions in the foreign exchange market.

Supply curve for domestic assets

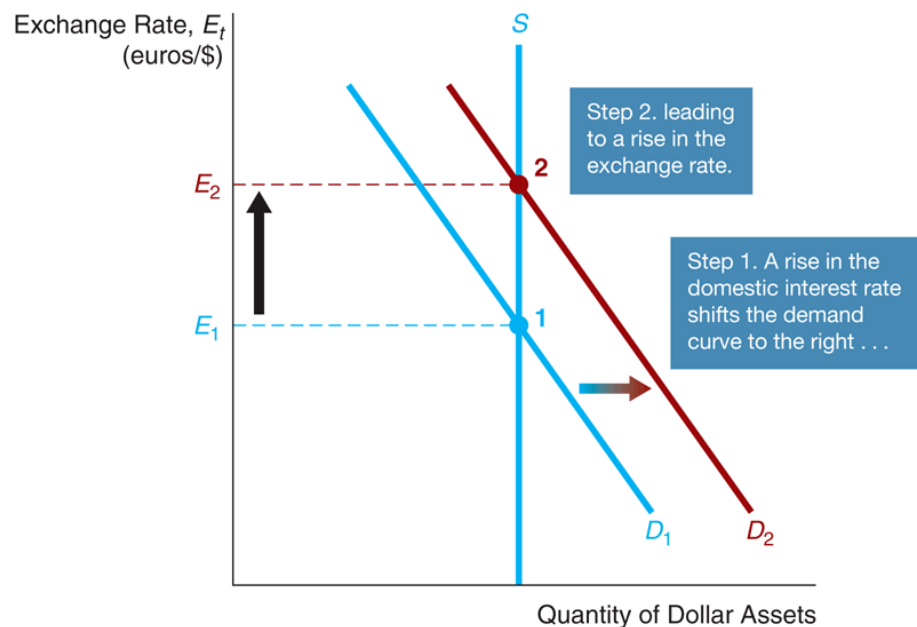
Demand curve for domestic assets



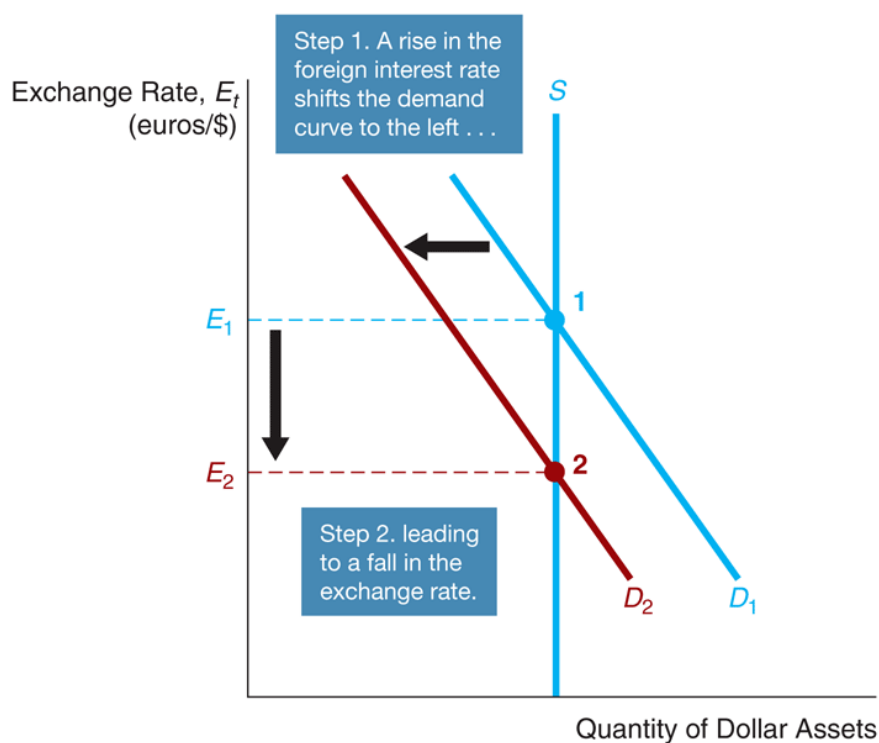
Explaining changes in exchange rates

- **Shifts in the demand for domestic assets**

- Domestic interest rate



- Foreign interest rate



– Expected future exchange rate

