

Chapter 31 – Open Economy Macroeconomics

Basic Concepts

***In this chapter,
look for the answers to these questions:***

- How are international flows of goods and assets related?
- What's the difference between the real and nominal exchange rate?
- What is “purchasing-power parity,” and how does it explain nominal exchange rates?

Introduction

- One of the Ten Principles of Economics from Chapter 1:
Trade can make everyone better off.
- This chapter introduces basic concepts of international macroeconomics:
 - The trade balance (trade deficits, surpluses)
 - International flows of assets
 - Exchange rates

Closed vs. Open Economies

- A **closed economy** does not interact with other economies in the world.
- An **open economy** interacts freely with other economies around the world.

The Flow of Goods & Services

- **Exports:**
domestically-produced g&s sold abroad
- **Imports:**
foreign-produced g&s sold domestically
- **Net exports (NX)**, aka the **trade balance**
= value of exports – value of imports

ACTIVE LEARNING 1

Variables that affect NX

What do you think would happen to U.S. net exports if:

- A.** Canada experiences a recession (falling incomes, rising unemployment)
- B.** U.S. consumers decide to be patriotic and buy more products “Made in the U.S.A.”
- C.** Prices of goods produced in Mexico rise faster than prices of goods produced in the U.S.

Variables that Influence Net Exports

- Consumers' preferences for foreign and domestic goods
- Prices of goods at home and abroad
- Incomes of consumers at home and abroad
- The exchange rates at which foreign currency trades for domestic currency
- Transportation costs
- Govt policies

Trade Surpluses & Deficits

NX measures the imbalance in a country's trade in goods and services.

- **Trade deficit:**
an excess of imports over exports
- **Trade surplus:**
an excess of exports over imports
- **Balanced trade:**
when exports = imports

The Flow of Capital

- **Net capital outflow (NCO):**
domestic residents' purchases of foreign assets
minus
foreigners' purchases of domestic assets
- **NCO** is also called **net foreign investment**.

The Flow of Capital

The flow of capital abroad takes two forms:

- **Foreign direct investment:**

Domestic residents actively manage the foreign investment, e.g., McDonalds opens a fast-food outlet in Moscow.

- **Foreign portfolio investment:**

Domestic residents purchase foreign stocks or bonds, supplying “loanable funds” to a foreign firm.

The Flow of Capital

NCO measures the imbalance in a country's trade in assets:

- When **NCO** > 0 , “capital outflow”
Domestic purchases of foreign assets exceed foreign purchases of domestic assets.
- When **NCO** < 0 , “capital inflow”
Foreign purchases of domestic assets exceed domestic purchases of foreign assets.

Variables that Influence NCO

- Real interest rates paid on foreign assets
- Real interest rates paid on domestic assets
- Perceived risks of holding foreign assets
- Govt policies affecting foreign ownership of domestic assets

The Nominal Exchange Rate

- **Nominal exchange rate:** the rate at which one country's currency trades for another
- We express all exchange rates as foreign currency per unit of domestic currency.
- Some exchange rates as of 20 May 2011, all per US\$

Canadian dollar: 0.97

Euro: 0.71

Japanese yen: 81.67

Mexican peso: 11.65

Appreciation and Depreciation

- **Appreciation** (or “strengthening”):
an increase in the value of a currency
as measured by the amount of foreign currency
it can buy
- **Depreciation** (or “weakening”):
a decrease in the value of a currency
as measured by the amount of foreign currency
it can buy
- Examples: During 2007, the U.S. dollar...
 - depreciated 9.5% against the Euro
 - appreciated 1.5% against the S. Korean Won

The Real Exchange Rate

- **Real exchange rate**: the rate at which the g&s of one country trade for the g&s of another

- Real exchange rate = $\frac{e \times P}{P^*}$

where

P = domestic price

P^* = foreign price (in foreign currency)

e = nominal exchange rate, i.e., foreign currency per unit of domestic currency

Example With One Good

- A Big Mac costs \$2.50 in U.S., 400 yen in Japan
- $e = 120$ yen per \$
- $e \times P =$ price in yen of a U.S. Big Mac
= (120 yen per \$) $\times$ (\$2.50 per Big Mac)
= 300 yen per U.S. Big Mac
- Compute the real exchange rate:

$$\frac{e \times P}{P^*} = \frac{300 \text{ yen per U.S. Big Mac}}{400 \text{ yen per Japanese Big Mac}}$$
$$= 0.75 \text{ Japanese Big Macs per U.S. Big Mac}$$

The Real Exchange Rate With Many Goods

P = U.S. price level, e.g., Consumer Price Index,
measures the price of a basket of goods

P^* = foreign price level

Real exchange rate

$$= (e \times P) / P^*$$

= price of a domestic basket of goods relative to
price of a foreign basket of goods

- If U.S. real exchange rate appreciates,
U.S. goods become more expensive relative to
foreign goods.

The Law of One Price

- **Law of one price**: the notion that a good should sell for the same price in all markets
 - Suppose coffee sells for \$4/pound in Seattle and \$5/pound in Boston, and can be costlessly transported.
 - There is an opportunity for **arbitrage**, making a quick profit by buying coffee in Seattle and selling it in Boston.
 - Such arbitrage drives up the price in Seattle and drives down the price in Boston, until the two prices are equal.

Purchasing-Power Parity (PPP)

- **Purchasing-power parity:**
a theory of exchange rates whereby a unit of any currency should be able to buy the same quantity of goods in all countries
- based on the law of one price
- implies that nominal exchange rates adjust to equalize the price of a basket of goods across countries

Purchasing-Power Parity (PPP)

- Example: The “basket” contains a Big Mac.

P = price of U.S. Big Mac (in dollars)

P^* = price of Japanese Big Mac (in yen)

e = exchange rate, yen per dollar

- According to PPP,

$$e \times P = P^*$$

price of U.S.
Big Mac, in yen

price of Japanese
Big Mac, in yen

- Solve for e :

$$e = \frac{P^*}{P}$$

PPP and Its Implications

- PPP implies that the nominal exchange rate between two countries should equal the ratio of price levels.

$$e = \frac{P^*}{P}$$

- If the two countries have different inflation rates, then ***e*** will change over time:
 - If inflation is higher in Mexico than in the U.S., then ***P*^{*}** rises faster than ***P***, so ***e*** rises—the dollar appreciates against the peso.
 - If inflation is higher in the U.S. than in Japan, then ***P*** rises faster than ***P*^{*}**, so ***e*** falls—the dollar depreciates against the yen.

Limitations of PPP Theory

Two reasons why exchange rates do not always adjust to equalize prices across countries:

- Many goods cannot easily be traded
 - Examples: haircuts, going to the movies
 - Price differences on such goods cannot be arbitrated away
- Foreign, domestic goods not perfect substitutes
 - E.g., some U.S. consumers prefer Toyotas over Chevys, or vice versa
 - Price differences reflect taste differences

ACTIVE LEARNING 3

Answers

A Ford Escape SUV sells for \$24,000 in the U.S. and 720,000 rubles in Russia.

If purchasing-power parity holds, what is the nominal exchange rate (rubles per dollar)?

$$P^* = 720,000 \text{ rubles}$$

$$P = \$24,000$$

$$e = P^*/P = 720000/24000 = \underline{30 \text{ rubles per dollar}}$$

SUMMARY

- Net exports equal exports minus imports.
Net capital outflow equals domestic residents' purchases of foreign assets minus foreigners' purchases of domestic assets.
- Every international transaction involves the exchange of an asset for a good or service, so net exports equal net capital outflow.

SUMMARY

- Saving can be used to finance domestic investment or to buy assets abroad. Thus, saving equals domestic investment plus net capital outflow.
- The nominal exchange rate is the relative price of the currency of two countries.
- The real exchange rate is the relative price of the goods and services of the two countries.

SUMMARY

- According to the theory of purchasing-power parity, a unit of any country's currency should be able to buy the same quantity of goods in all countries.
- This theory implies that the nominal exchange rate between two countries should equal the ratio of the price levels in the two countries.
- It also implies that countries with high inflation should have depreciating currencies.