MODULE 42: THE FOREIGN EXCHANGE MARKET

In-Class Presentation of Module and Sample Lecture

Suggested time: This module should be covered in two hour-long class sessions. Leave plenty of time to practice at least one released FRQ.

Note: there are many websites that offer currency calculators. Students might find this interesting. http://www.x-rates.com/calculator.html#

    I.   The Role of the Exchange Rate
         A.   Understanding Exchange Rates
         B.   The Equilibrium Exchange Rate
         C.   Inflation and Real Exchange Rates
         D.   Purchasing Power Parity

I.   The Role of the Exchange Rate

In the previous module we saw that the market for loanable funds shows us how financial capital flows into or out of a nation's financial account.
Goods and services also flow, but this flow is tracked as balance of payments into and out of the current account.

So given that the financial account reflects the movement of capital and the current account reflects the movement of goods and services, what ensures that the balance of payments really does balance? That is, what ensures that the two accounts actually offset each other?

The answer lies in the role of the **exchange rate**, which is determined in the **foreign exchange market**.

A.   Understanding Exchange Rates

Suppose you are traveling to Mexico and you wish to buy a t-shirt at a market and the price is 187.5 Mexican pesos. You have U.S. dollars in your pocket, but you must pay the Mexican shirt manufacturer in the currency most useful to her, the peso.

How does an American get his hands on some pesos? He must exchange his dollars for pesos in the foreign exchange market.
How many Mexican pesos does one U.S. dollar fetch at the foreign exchange counter? It depends upon the exchange rate. In mid-June 2010, one U.S. dollar could buy about 12.5 pesos. Or, if you were in Mexico and you wanted some dollars, it would take 12.5 of your pesos to buy one dollar. If you only had one peso, you could buy 1/12.5 = $.08.

So how much does the shirt cost in June 2010? (187.5 pesos)/(12.5 pesos per dollar) = $15

The exchange rate is just a price. In this case, 12.5 pesos is the price of a U.S. dollar. And we know from many previous modules that prices change based upon the forces of supply and demand.

For example, in late April 2010, it took 12.1 pesos to buy 1 U.S. dollar. This means that if you were in Mexico that month, your dollar would have been able to purchase fewer pesos. How much would the shirt cost in April 2010? (187.5 pesos)/(12.1 pesos per dollar) = $15.50.

In other words, the dollar was more expensive (measured in pesos per dollar) in June 2010 than it was two months earlier. Economists would say that the dollar has <u>appreciated</u> in value against the peso because it has become more expensive.

Another way to think about it is to look at what happens to the price of the shirt. From April to June 2010, the price of the shirt, measured in U.S. dollars, drops by $.50. Your dollar would have been stronger in Mexico because it would have been able to buy more of everything priced in pesos.

What happened to the value of the peso?
June 2010: 187.5 pesos would have bought $15
April 2010 187.5 pesos would have bought $15.50

In other words, in the span of two months, the same amount of pesos bought fewer dollars. Economists would say that the peso had <u>depreciated</u> against the dollar. The price of a peso, measured in dollars, has fallen.
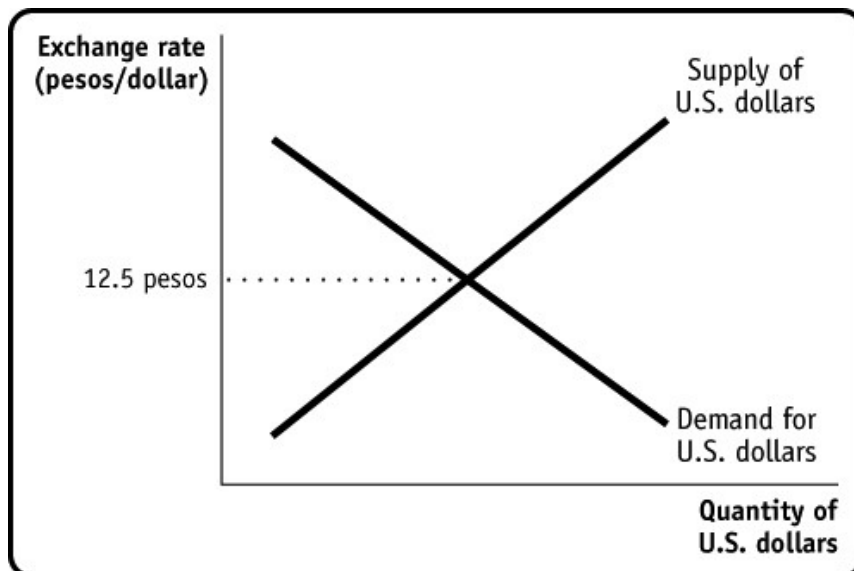
B.   The Equilibrium Exchange Rate

The price of a currency, or exchange rate, is determined in the market with the forces of supply and demand. If I want pesos, I demand them. And in order to acquire pesos, I must supply dollars to the exchange market. So when Americans demand more pesos, they must supply more dollars.

The graph below shows the market for the U.S. dollar.
*   The unit on the *x*-axis is the quantity of U.S. dollars supplied and demanded.
*   The unit on the *y*-axis is the price of U.S. dollars, measured in pesos per dollar.

Note: If students are graphing the market for the U.S. dollar, an easy way to remember how to label the *y*-axis is to think of the notation typically used: (foreign currency)/dollar. The dollar goes in the denominator or "below" the "/". The dollars are also the unit on the x-axis, which is "below" the graph. Tell the students that "what goes below goes below". If it's the market for dollars, dollars are on the *x*-axis and in the denominator.

The equilibrium exchange rate is 12.5 Mexican pesos per U.S. dollar.

Why does the Demand for dollars slope downward?
- As the price of a dollar falls (its value depreciates) it takes fewer pesos to buy one dollar.
- Consumers in Mexico will find U.S. goods to be less expensive.
- U.S. exports to Mexico will rise, and more dollars will be demanded to pay for those goods.

Why does the Supply of Dollars slope upward?
- As the price of a dollar rises (its value appreciates) one dollar buys more pesos.
- Consumers in the U.S. will find Mexican-made goods to be less expensive.
- U.S. imports from Mexico will rise, and more dollars will be supplied to pay for those goods.

At the equilibrium exchange rate of 12.5 pesos/dollar, the quantity of dollars demanded is equal to the quantity of dollars supplied.

Suppose the demand for U.S. dollars increases. Maybe Mexican consumers have more income to spend and some of that additional income is being spent on financial investments in America. The payments from those Mexican citizens will flow into the U.S. financial account.
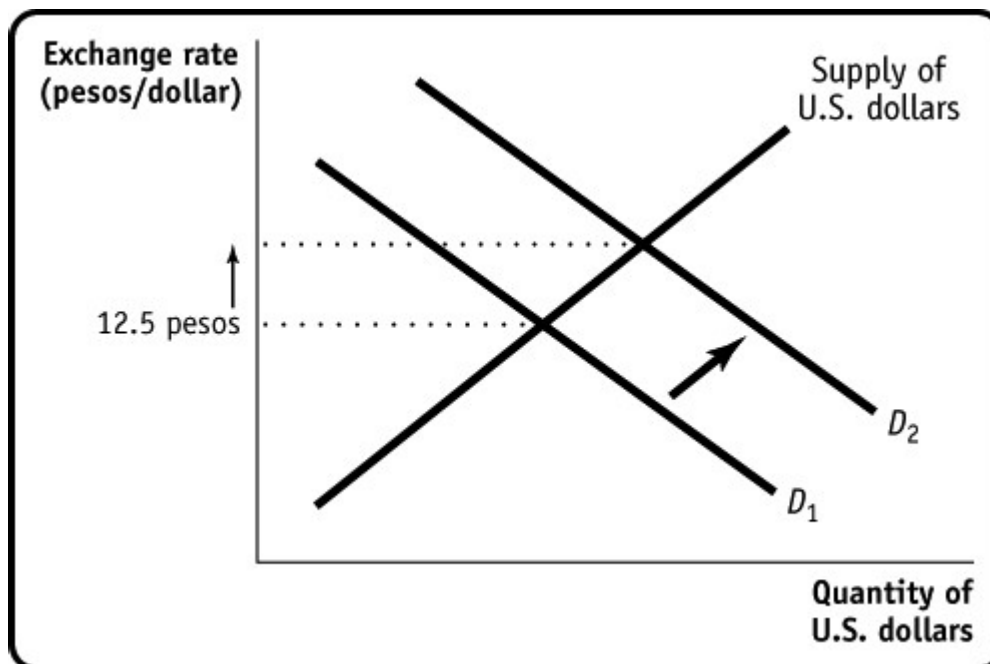
As the demand for dollars shifts to the right, the equilibrium price of dollars rises and the dollar appreciates. It will now cost more than 12.5 pesos to buy one U.S. dollar. Because the U.S. dollar has appreciated against the peso, American consumers will increase purchases of goods and services from Mexico. More U.S. dollars will be supplied and will flow out of the U.S. current account. Because the quantity of dollars demanded and supplied is the same at the equilibrium exchange rate, the increased quantity of dollars demanded must be equal to the increased quantity of dollars supplied.

This tells us that any increase in the U.S. balance of payments on the financial account is exactly offset by a decrease in the U.S. balance of payments on the current account.

Summary:
- An increase in capital flows into the U.S. leads to a stronger dollar, which then creates a decrease in U.S. net exports.

- A decrease in capital flows into the U.S. leads to a weaker dollar, which then creates an increase in U.S. net exports.

C. Inflation and Real Exchange Rates

The price of imported goods depends on the exchange rate for foreign currencies, but also on the aggregate price level in those nations.

To take account of the effects of differences in inflation rates, economists calculate **real exchange rates,** exchange rates adjusted for international differences in aggregate price levels.

> **Example:** Suppose that the exchange rate we are looking at is the number of Mexican pesos per U.S. dollar.
>
> Let *PUS* and *PMex* be indexes of the aggregate price levels in the United States and Mexico, respectively. Then the real exchange rate between the Mexican peso and the U.S. dollar is defined as:
>
> Real exchange rate = Mexican pesos per U.S. dollar *(*PUS*/*PMex*)
>
> To distinguish it from the real exchange rate, the exchange rate unadjusted for aggregate price levels is sometimes called the *nominal* exchange rate.
>
> Example 1: There is no difference in aggregate price levels between the U.S. and Mexico in the base year.
>
> Real exchange rate = 12.5*(100/100) = 12.5 pesos per dollar
>
> Example 2: Suppose the Mexican economy has suffered 10% aggregate inflation and PMex=110.
>
> Real exchange rate = 12.5*(100/110) = 11.4 pesos per dollar.
> So in real terms, even though the exchange rate hasn't changed, inflation in Mexico means that each U.S. dollar will buy fewer pesos and thus fewer Mexican goods.

D. Purchasing Power Parity

The purchasing power parity between two countries' currencies is the nominal exchange rate at which a given basket of goods and services would cost the same amount in each country.

Suppose, for example, that a basket of goods and services that costs $100 in the United States costs 1,000 pesos in Mexico. Then the purchasing power parity is 10 pesos per U.S. dollar: at that exchange rate, 1,000 pesos = $100, so the market basket costs the same amount in both countries.

Note: The three most important factors affecting the exchange rate (the ones tested on the AP[®] Exams) are:
- Differences in growth rates or income (addressed above in this module sample lecture)
- Differences in rates of inflation (addressed above as well)
- Differences in real interest rates (covered in Section 5, Module 29)

For review of real interest rates, refer back to the Module 29 Sample Lecture.