How Much Is That in Dollars?

The Determination and Role of Exchange Rates in the International Economy

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The views expressed are my own and do not necessarily reflect official positions of the Federal Reserve Bank of St. Louis, or the Federal Reserve System.
Topics

- What is an Exchange Rate?
- How Are Exchange Rates Determined?
- How Do Exchange Rates Affect Trade?
What is an Exchange Rate?

- An exchange rate is the relative price of monies.
- The price of a peso in terms of dollars or the price of a dollar in terms of pesos.
  - 10 pesos per dollar or 0.1 dollars per peso.
What Sorts of Exchange Rate Regimes Are There?

Flexible Exchange Rates

- The U.S. has flexible exchange rates. Neither the Treasury nor the Federal Reserve is obligated to manage the money supply to maintain the value of the dollar.

Fixed Exchange Rates

- Countries whose international trade is very important to them frequently “fix” their exchange rates to reduce uncertainty in trade.
What Sorts of Exchange Rate Regimes Are There?

- Many smaller countries - like Mexico or Hong Kong - or countries that trade heavily with each other - like the E.U. nations - have fixed exchange rates.

- Fixed exchange rates require countries to manage their money supply to maintain the value of their currency.
  - More money lowers the value of the currency, less money raises it.
What Sorts of Exchange Rate Regimes Are There?

- Since the U.S. has flexible exchange rates, we will focus on those today.
- The fundamentals of flexible exchange rates are useful to understanding fixed exchange rates.
How Are Exchange Rates Determined?

Have you ever wondered how the dollar’s value is determined and why it moves the way it does?
How Are Exchange Rates Determined?

The Law of One Price

– The price of a good should be the same when expressed in a common currency.

- If the price of a barrel of oil is 150 pesos in Mexico City and $15 in Dallas, then the price of a peso in terms of dollars should be $15/150 = $0.1.

– What would happen if the exchange rate were not $0.1?

- If it were less than $0.1, say $0.05, we would buy oil in Mexico City at 150 pesos and sell it in Dallas for 300 pesos. We would need pesos to purchase oil in Mexico. These purchases would cause the peso to appreciate until it equaled $0.10.
How Are Exchange Rates Determined?

– If the price of oil rises to 300 pesos in Mexico, what happens to the exchange rate?
  
  Peso depreciates to reflect higher prices in Mexico. The price of a peso falls to $0.05.
  
  – This is very important.
How Are Exchange Rates Determined?

How well does the Law of One Price hold?

- The Law of One Price holds very well for commodities such as oil, corn or gold.
- Transportation costs, barriers to trade, differentiated goods and other factors will prevent the Law of One Price from holding for most goods.
How Are Exchange Rates Determined?

Suppose the Law of One Price held for every price in the economy and that price indices were constructed with the same weights in each country, then the Law of One Price would hold for price indices like the CPI.

- When we aggregate prices into a price index, we have to weight the prices by the importance of the good.
The Law of One Price for a price index implies an idea called *Purchasing Power Parity*.

Purchasing Power Parity suggests that exchange rate changes should reflect inflation differentials.

- If inflation in Mexico exceeds that in the United States, the peso will depreciate to reflect the difference.
- Why? If Mexican prices rise, people will not buy Mexican goods; the peso will depreciate.
How Are Exchange Rates Determined?

- How well does PPP hold?
  - Pretty well over long periods, more than 5-10 years.
How Are Exchange Rates Determined?

Countries with high productivity growth - like Japan - also tend to see their currencies appreciate.
How Are Exchange Rates Determined?

- If Japanese productivity in manufactured goods rises, the price of manufactured goods (e.g., TVs) will fall compared to other goods (e.g., land) or services.

- Japanese tradeable goods - mostly manufactures - prices will rise more slowly than overall Japanese inflation.

- PPP determines the exchange rate through the prices of tradeable goods only.
How Are Exchange Rates Determined?

- If we try to measure PPP with overall price indices, we will overestimate the inflation in Japanese tradeable goods.
- This will make the Japanese yen look like it is rising “too much” in value.
- If we could measure PPP with only tradeable goods prices, this would not happen.
Exchange Rates and Trade

- When the dollar price of foreign currency rises (the dollar depreciates), American goods look less expensive compared to foreign goods.

- Conversely, when the dollar appreciates, American goods look more expensive to consumers here and abroad.

- Therefore, the conventional view is that a dollar depreciation is good for U.S. firms and bad for U.S. consumers.
A depreciation of the dollar will tend to improve the U.S. trade balance as we export more and import less.

This effect may not happen right away though. There may be a delay as consumers and firms switch to cheaper American goods.
This delay in the improvement in the trade balance is called the “J-curve” effect.
Key Points to Remember

- An exchange rate is the relative price of monies.
- Inflation determines the value of the dollar through Purchasing Power Parity (PPP) in the long run.
- Countries with unusually high productivity also tend to see their currencies appreciate.
- A weaker dollar tends to aid U.S. firms, improve the U.S. trade balance, but reduce the purchasing power of U.S. consumers.