









London

Tokyo

## **Exchange Rates**

Three types of trades take place in the foreign exchange market:

- Spot trades involve an agreement on the exchange rate today for settlement in two days. The rate is called the spot exchange rate.
- Forward trades involve an agreement on exchange rates today for settlement in the future. The rate is called the forward exchange rate. The maturities for forward trades are usually 1 to 52 weeks.
- A swap is the sale (purchase) of a foreign currency with an agreement to repurchase (resell) it sometime in the future. The difference between the sale price and the repurchase price is called the swap rate.



The spot exchange rate refers to the current exchange rate.

The forward exchange rate refers to an exchange rate that is quoted and traded today but for delivery and payment on a specific future date.

### QUOTATIONS

Quotes using a country's home currency as the price currency (e.g., EUR 1.00 = \$1.45 in the US) - direct quotation or price quotation (from that country's perspective), used by most countries. Quotes using a country's home currency as the unit currency (e.g.,  $\pounds0.4762 = \$1.00$  in the US) are known as indirect quotation or quantity quotation.

direct quotation: 1 home currency unit = x foreign currency units
indirect quotation: 1 foreign currency unit = x home currency units

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# Nominal and Real Exchange Rates

The nominal exchange rate e is the price in domestic currency of one unit of a foreign currency.

The real exchange rate (RER) is defined as

$$RER = e\left(\frac{P^*}{P}\right)$$

where *P* is the domestic price level and  $P^*$  the foreign price level. *P* and *P*\* must have the same arbitrary value in some chosen base year. Hence in the base year, *RER* = *e*.

The *RER* is only a theoretical ideal. In practice, there are many foreign currencies and price level values to take into consideration.





Formally,

$$\frac{\mathcal{S}(t+1)}{\mathcal{P}^{US}(t)} = \frac{S_{\mathfrak{L}}(t+1)}{S_{\mathfrak{L}}(t)} \times \frac{\mathcal{P}^{UK}(t+1)}{\mathcal{P}^{UK}(t)}$$

1 + U.S. inflation rate = 1 + Change in foreign exchange rate x 1 + British inflation rate

This states that the rate of inflation in the United States relative to that in Great Britain determines the rate of change in the value of the dollar relative to that of the pound during the interval t to t + 1.



Whether forward rates are at a premium or at a discount when compared to a domestic currency depends on the relative interest rates in the foreign and domestic currency markets. The interest rate parity theorem implies that, if interest rates are higher domestically than in a particular foreign country, the foreign country's currency will be selling at a premium in the forward market, and if the interest rates are lower domestically, the foreign currency will be selling at a discount in the forward market.

## **Exchange Rate Risk**

 the natural consequence of international operations in a world where foreign currency values move up and down. International firms usually enter into some contracts that require payments in different currencies.

### Example

Suppose that the treasurer of an international firm knows that one month from today the firm must pay GBP 2 million for goods it will receive in England. The current exchange rate is USD 2.00/GBP, and if that rate prevails in one month, the dollar cost of the goods to the firm will be USD 2.00/GBP GBP 2 million = USD 4 million. The treasurer in this case is obligated to pay pounds in one month. (Alternately, we say that he is short in pounds). A net short or long position of this type can be very risky. If the pound rises in the month to USD 2.5/GBP, the treasurer must pay USD 2.5/GBP GBP 2 million = USD 5 million, an extra USD 1 million



