

FX Rates

- Think of FX rates as price tags on foreign currencies. FX rates price the foreign currency in terms of the domestic currency. FX rates are conversion ratios.
- Currency pairs tell us how much of the **quote currency** is required to purchase 1 unit of the base currency. **This is extremely confusing because the first currency in a pair is the base currency (denominator) in an FX rate.**

$$\underbrace{\text{CAD/USD}}_{\text{currency pair}} \equiv \underbrace{\frac{\text{USD}}{\text{CAD}}}_{\text{FX rate}}$$

For example, an American currency quote would be US\$0.85 per C\$1. This shows that it will take 0.85 U.S. dollars to purchase a single unit of Canadian currency. To purchase C\$1,000, it would cost US\$850. The currency pair involved is the CAD/USD.

The opposite of an American currency quotation is a [European currency quotation](#) where the foreign currency is the stated per-unit measure of the U.S. dollar. Using the Canadian dollar again as an example, assume a rate of C\$1.40 per US\$1. This explains that it will take 1.40 Canadian dollars to purchase a single U.S. dollar. In this case, the pair involved flips to the [USD/CAD](#).

In a currency pair, the first currency listed is a single unit, and the attached number or quote shows how much of the second currency it takes to buy that single unit of the first.

Exchange Rates

European convention/
international perspective:

$$\frac{\text{XYZ}}{\text{USD}} = 1$$

"costs $\frac{\text{XYZ}}{\text{USD}}$ XYZ to purchase 1 USD"

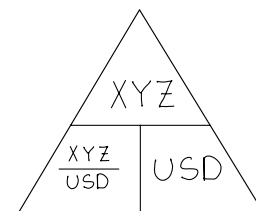
$\frac{\text{XYZ}}{\text{USD}} > 1$: USD stronger than XYZ

$\frac{\text{XYZ}}{\text{USD}} < 1$: USD weaker than XYZ

Reciprocals

European terms do not limit or refer to just Europe-based currencies, but to any currency other than the USD. European terms mean the U.S. dollar sits in the base currency location and the other currency occupies the terms position.

For example, the Swiss franc trades in the spot market in European terms. It is quoted in USD/CHF convention. CHF is the three-letter symbol for the Swiss franc.



American convention/
American perspective:

$$\frac{\text{USD}}{\text{XYZ}} = 1$$

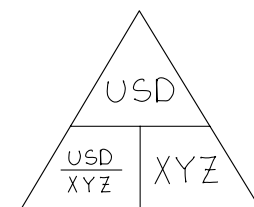
"costs $\frac{\text{USD}}{\text{XYZ}}$ USD to purchase 1 XYZ"

$\frac{\text{USD}}{\text{XYZ}} > 1$: USD weaker than XYZ

$\frac{\text{USD}}{\text{XYZ}} < 1$: USD stronger than XYZ

American terms are currency pairs where the quote convention places the USD in the terms location.

For example, the British pound trades in American terms in the futures market and is shown as GBP/USD. GBP is the three-letter symbol for the British pound.



conversions

European: $\frac{A}{\text{USD}} \left(\frac{\frac{1}{B}}{\text{USD}} \right) = \frac{A}{\cancel{\text{USD}}} \frac{\cancel{\text{USD}}}{B} = \frac{A}{B} \implies \frac{B}{A} = \left(\frac{\frac{1}{A}}{\frac{1}{B}} \right)$

American: $\frac{\text{USD}}{A} \left(\frac{\frac{1}{\text{USD}}}{B} \right) = \frac{\cancel{\text{USD}}}{A} \frac{B}{\cancel{\text{USD}}} = \frac{B}{A} \implies \frac{A}{B} = \left(\frac{\frac{1}{B}}{\frac{1}{A}} \right)$

appreciation/"strengthening" v.s. depreciation/"weakening"

European: $\frac{A}{\text{USD}} \uparrow$

STRENGTHENING CURRENCY: USD

WEAKENING CURRENCY: A

American: $\frac{\text{USD}}{A} \uparrow$

STRENGTHENING CURRENCY: A

WEAKENING CURRENCY: USD

NOTE: the opposite of devaluation is revaluation (refers to pegged/fixed currencies not float i.e., a government **decides** to "devalue" or "revalue" its domestic currency whereas "appreciation" or "depreciation" results from market forces)

Interest Rate Parity (as a no-arbitrage condition)

provides the linkage between foreign exchange rates and international money markets