Mohamed Khaider University, Biskra

Faculty of Economics, Commerce and Management Sciences

Commerce Department

Module: International Finance

Branch: International Trade
Level: Third year Bachelor

Lecture 04: The Exchange rate

Learning Outcomes

When you have completed your Study of this unit and its readings, you will be able to:

- learn about the currencies that are traded

- how the prices of currencies are quoted

1- Definition of Exchange rate

An **exchange rate** is the relative price of two monies, such as the Japanese yen price of the U.S. dollar, the British pound price of the euro, or the Brazilian real price of the Mexican peso. Rather than write out the full name of these currencies, contractual parties use abbreviations.

2- Currency code - currency abbreviations-

It is paramount that all parties understand which currencies are being used. Hence, there is a need for standardization of the abbreviations. The International Organization for Standardization (called ISO from the Greek word for equal) sets these standards.. In most cases, the abbreviation is the ISO two-digit country code plus a letter from the name of the currency.

For example, the notation for the U.S. dollar is USD, the British pound is GBP, the Japanese yen is JPY, and the euro is EUR.

Here is the exhibit that provides a list of some of the ISO currency abbreviations used to represent the different currencies

Exhibit 1 Currencies and Currency Symbols

Argentina	Peso	ARS
Australia	Dollar	AUD
Bahrain	Dinar	BHD
Brazil	Real	BRL
Canada	Dollar	CAD
Chile	Peso	CLP
China	Yuan	CNY
Colombia	Peso	COP
Czech Republic	Koruna	CZK
Denmark	Krone	DKK
Ecuador	US dollar	USD
Egypt	Pound	EGP
European Union	Euro (:)	EUR
Hong Kong	Dollar	HKD
Hungary	Forint	HUF
India	Rupee	INR
Indonesia	Rupiah	IDR
Japan	Yen (¥)	JPY

Jordan	Dinar	JOD
Kuwait	Dinar	KWD
Lebanon	Pound	LBP
Malaysia	Ringgit	MYR
Mexico	Neuvo Peso	MXN
New Zealand	Dollar	NZD
Norway	Krone	NOK
Pakistan	Rupee	PKR
Peru	New Sol	PEN
Philippines	Peso	PHP
Poland	Zloty	PLZ
Russia	Ruble	RUR
Saudi Arabia	Riyal	SAR
Singapore	Dollar	SGD
South Korea	Won	KRW
South Africa	Rand	ZAR
Sweden	Krona	SEK
Switzerland	Franc	CHF
Taiwan	Dollar	TWD
Thailand	Baht	THB
Turkey	Lira	TRL
United Arab Emirates	Dirham	AED
United Kingdom	Pound (£)	GBP
United States	Dollar ($)	USD
Uruguay	Peso	UYU
Venezuela	Bolivar	VEB
Vietnam	Dong	VN

3-Exchange Rate Quotes

a. Currency prices

If it takes 100 yen to purchase 1 dollar, we can write JPY100 = USD1. The exchange rate can be written as JPY100>USD, or ¥100>$, where the 1 dollar in the denominator is implicit. Similarly, if it takes 1.75 U.S. dollars to purchase 1 British pound, then USD1.75 = GBP1 and the exchange rate can be written as USD1.75>GBP or simply $1.75>£. Notice that we treat the slash symbol 1> 2 as a divisor in a ratio to indicate the amount of the first currency that is necessary to purchase one unit of the second currency. While we continue to use this logical notation, you will encounter foreign exchange quotations, such as EUR>USD or EURUSD, in which the first currency in the quote is the base currency and the second currency is the numerator currency or "quote currency." In other words, if you type EUR>USD into Google, it will return the price of the euro in terms of dollars, or how many dollars you can buy with 1 euro. Presentations that use this convention typically contain lists of numbers without letters or symbols. We retain our ratio presentation with either letters or symbols to make it easy for the reader to understand the relative price aspect of exchange rates.

b.Direct and indirect quotes

Because exchange rates are relative prices, they can be expressed in two ways - direct and indirect quotes-

Direct quotes: Exchange rates can be quoted in direct terms as the domestic currency price of the foreign currency. For example, in the United Kingdom, people discuss the pound prices of various goods and assets. If you were in the United Kingdom, you might inquire, "How many pounds does it take to purchase that car?" or "What does that car cost?" In each case, you want to know the number of pounds that must be given up to purchase a specific car. An economist would say the answer to these questions is the value of the car in terms of the pound.

Now, suppose you were in the United Kingdom, and you wanted to travel to Germany. If you thought you might need 1,000 euros on your trip, it would also be natural for you to inquire, "How many pounds does it take to purchase 1,000 euros?" or "What do 1,000 euros cost?" In each case, you want to know the

number of pounds that must be given up to purchase this specific number of euros. Once again, economists would say that the answer is the value of 1,000 euros in terms of the pound. If the pound price of the euro is £0.90>:, the pound cost of 1,000 euros is :1,000 * 1£0.90>:2 = £900. Notice that with direct exchange rates, converting from a foreign currency amount (in this case, the euro) into a domestic currency value (in this case, the pound) simply involves multiplying the amount of foreign currency by the exchange rate expressed in units of domestic currency per foreign currency.

Indirect quotes :

Because exchange rates are the relative prices of monies, an exchange rate expressed in direct terms is the reciprocal (inverse) of the exchange rate expressed in indirect terms. For example, suppose it takes 100 yen to purchase 1 dollar—that is, the exchange rate in indirect terms from the U.S. perspective is ¥100>$. Then, the exchange rate in direct terms from the U.S. perspective, which is the dollar price of the Japanese yen, is the reciprocal of the exchange rate quoted in indirect terms: 1>1¥100>$2 = $1> ¥100 = $0.01> ¥ The reciprocal nature of direct and indirect terms often confuses students . We converted money between pounds and euros when traveling between the United Kingdom and Germany. Now, suppose you are in the United States, and you want to travel to Japan. If you were advised that you needed 500,000 yen for your trip, it would be natural for you to inquire, "How many dollars does it take to purchase 500,000 yen?" Now, though, because the exchange rate is typically quoted as ¥100>$, the dollar cost of the ¥500,000 is ¥500,000>1¥100>$2 = $5,000 Notice that with the exchange rate quoted as an indirect price, converting from a foreign currency amount (the yen, in this case) into a domestic currency value (the dollar, in this case) involves dividing the amount of foreign currency (the yen) by the exchange rate expressed in units of foreign currency per domestic currency 1¥ per $2. Because such currency conversions lie at the heart of all international financial transactions, it clearly pays to be careful to remember how the exchange rate is being quoted before converting from one currency into another

4-Cross-Exchange Rate Quotations

a-Vehicle Currencies; it is actively used in many international financial transactions around the world. The transaction costs of making markets in many currencies lead the market to use only a few currencies as the major vehicles for international transactions. In the 19th century, the world's primary vehicle currency was the British pound; now, it is the U.S. dollar.

b-Currency Cross-Rates; A cross-exchange rate is an exchange rate between a currency pair where neither currency is the U.S. dollar. The cross-exchange rate can be calculated from the U.S. dollar exchange rates for the two currencies, using either European or American term quotations.

The method for calculating the cross exchange rate can be shown as follows:

We assume the following two quotes:

$X/y = CA_{x/y} - CV_{x/y}$

$X/Z = CA_{x/z} - CV_{x/z}$

Where it is :

$CA_{x/y}$: Buyer price X vs. y

$CV_{x/y}$: Seller's price X for y.

$CA_{x/z}$: Buyer price X vs. Z

$CV_{x/z}$: Seller's price X for Z.

The cross rate means using the two previous exchange rates x/z and x/z to calculate the exchange rate of Y vs. Z. In order to do this, you must calculate all of the purchase price $CA_{y/z}$ and selling price $CV_{y/z}$ in the following way;

$$CV_{y/z} = \frac{CVx/z}{CAX/Y} \qquad CA_{Y/Z} = \frac{CAx/z}{CVx/y}$$

Hence we get the following exchange rate:

$Y/Z = CA_{y/z} - CV_{y/z}$

5-Suggested Readings:

.Cheol S. Eun and Bruce G. Resnick. International Financial Management. Sixth edition. Published by McGraw-Hill/Irwin companies. New York. 2012

.Federal Reserve Bank of New York. The Foreign Exchange and Interest Rate Derivatives Markets: Turnover in the United States. New York: Federal Reserve Bank of New York, April 2007