4 Exchange Rate Determination

Chapter Objectives

- Explain how exchange rate movements are measured.
- Explain how the equilibrium exchange rate is determined.
- Examine factors that determine the equilibrium exchange rate.
- Explain the movement in cross exchange rates.
- Explain how financial institutions attempt to capitalize on anticipated exchange rate movements.

Measuring Exchange Rate Movements

Depreciation: decline in a currency's value
Appreciation: increase in a currency's value

Comparing foreign currency spot rates over two points in time, S and S_{t-1}

$$\text{Percent } \Delta \text{ in foreign currency value} = \frac{S - S_{t-1}}{S_{t-1}}$$

A positive percent change indicates that the currency has **appreciated**. A negative percent change indicates that it has **depreciated**. (Exhibit 4.1)

Measuring Exchange Rate Movements

Example 1: Today's Euro is \$1.45. Yesterday the Euro was traded at \$1.43. What is the percentage change in the value of Euro?

$$\text{Percent } \Delta \text{ in foreign currency value} = \frac{S - S_{t-1}}{S_{t-1}}$$

Therefore,

$$\text{the percent } \Delta \text{ in Euro value} = \frac{1.45 - 1.43}{1.43} = 0.01399 = 1.4\%$$

Exhibit 4.1 How Exchange Rate Movements and Volatility Are Measured

	VALUE OF CANADIAN DOLLAR (C$)	MONTHLY % CHANGE IN C$	VALUE OF EURO	MONTHLY % CHANGE IN EURO
Jan. 1	$0.70	—	$1.18	—
Feb. 1	$0.71	1.43%	$1.16	−1.69%
March 1	$0.70	−0.99%	$1.15	−0.86%
April 1	$0.70	−0.85%	$1.12	−2.61%
May 1	$0.69	−0.72%	$1.11	−0.89%
June 1	$0.70	+0.43%	$1.14	+2.70%
July 1	$0.69	−1.29%	$1.17	+2.63%
Standard deviation of monthly changes		1.04%		2.31%

Exchange Rate Equilibrium

The exchange rate represents the price of a currency, or the rate at which one currency can be exchanged for another.

Demand for a currency increases when the value of the currency decreases, leading to a downward sloping demand schedule. (See Exhibit 4.2)

Supply of a currency for sale increases when the value of the currency increases, leading to an upward sloping supply schedule. (See Exhibit 4.3)

Equilibrium equates the quantity of pounds demanded with the supply of pounds for sale. (See Exhibit 4.4)

Exhibit 4.2 Demand Schedule for British Pounds

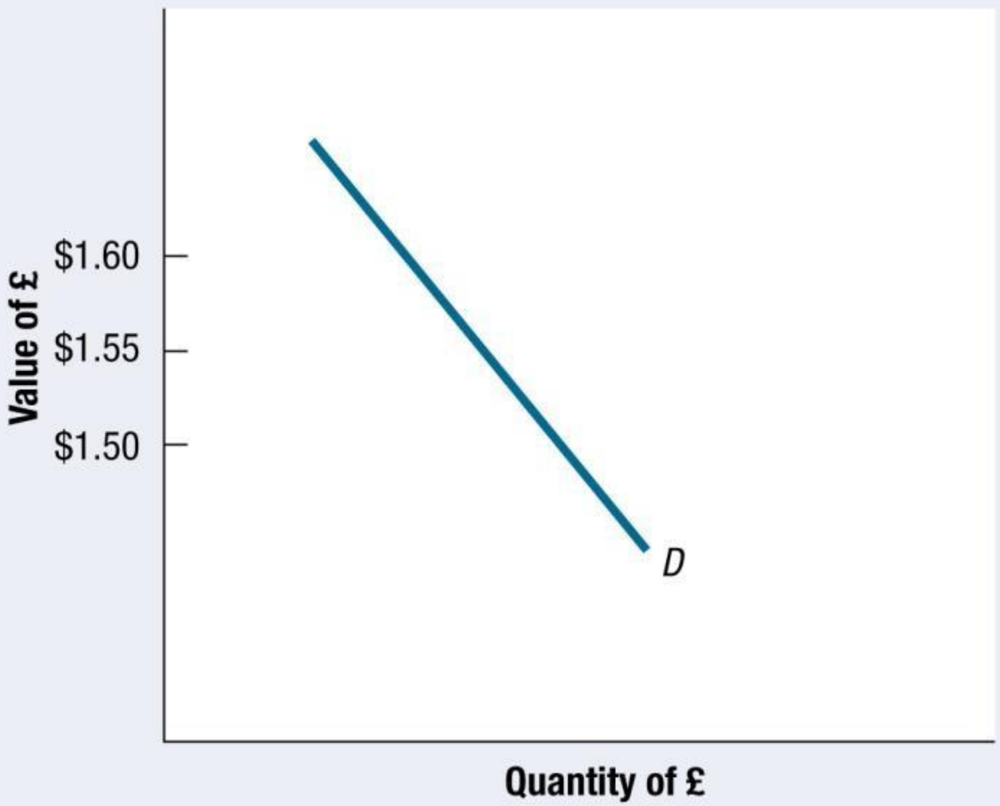

Exhibit 4.3 Supply Schedule of British Pounds for Sale

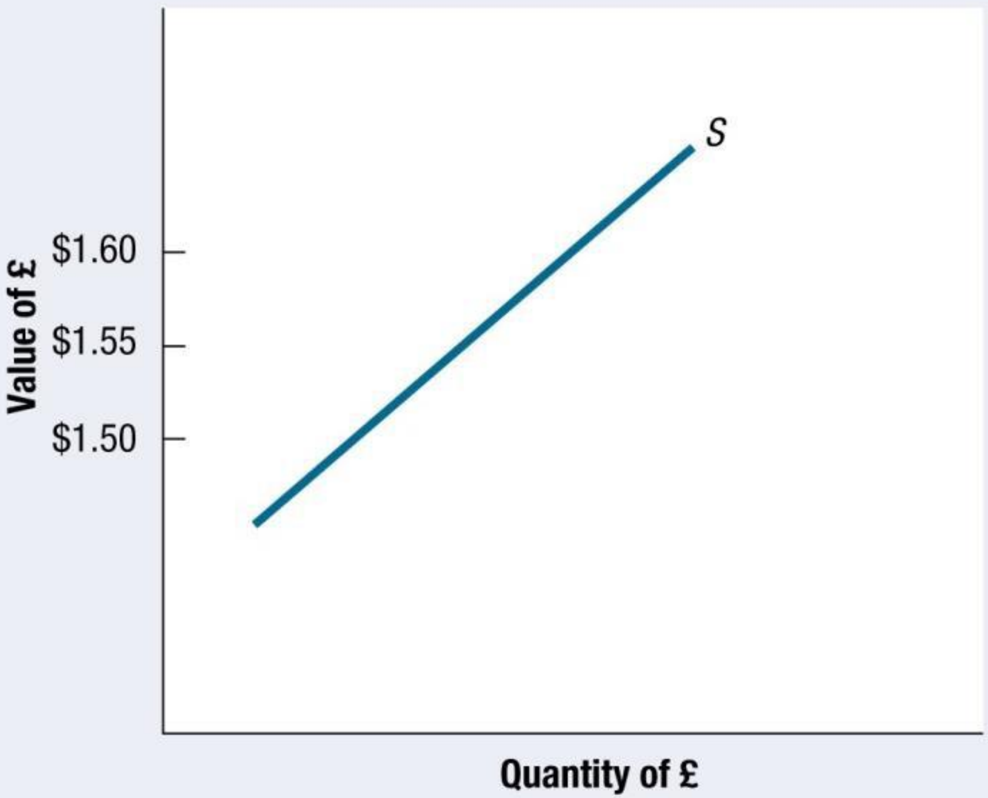

Exhibit 4.4 Equilibrium Exchange Rate Determination