Chapter-14

Foreign Exchange Markets and Exchange Rates

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14.1 Introduction

- The foreign exchange market is the market in which individuals, firms, and banks buy and sell foreign currencies or foreign exchange.
- The foreign exchange market for any currency—say, the U.S. dollar—is comprised of all the locations (such as London, Paris, Zurich, Frankfurt, Singapore, Hong Kong, Tokyo, and New York) where dollars are bought and sold for other currencies.
- These different monetary centers are connected electronically and are in constant contact with one another, thus forming a single international foreign exchange market.

14.2 Functions of Foreign Exchange Markets

1. Transfer of Funds / Purchasing Power

- Demand of foreign currency
- Supply of foreign currency

Four Levels of Participants/ Transactors

First Level- Immediate Users and Suppliers

Second level- Commercial Banks—Clearing houses

Third Level- Foreign Exchange Brokers (so-called Interbank or Whole sale market)

Fourth Level- Central bank

2. Credit Function

3. Facilities for Hedging and Speculation

FOREX Markets works 24 hours per day

As banks end their regular business day in San Francisco and Los Angeles, they open in Singapore, Hong Kong, Sydney, and Tokyo; by the time the latter banks wind down their regular business day, banks open in London, Paris, Zurich, Frankfurt, and Milan; and before the latter close, New York and Chicago banks open.

TABLE 14.1. Relative International Importance of Major Currencies in 2010 (in Percentages)

	Foreign Exchange Trading[a]	International Bank Loans[a]	International Bond Offering[a]	Trade Invoicing[b]	Foreign Exchange Reserves[c]
U.S. dollar	42.5	58.2	38.2	52.0	61.5
Euro	19.6	21.4	45.1	24.8	26.2
Japanese yen	9.5	3.0	3.8	4.7	3.8
Pound sterling	6.5	5.5	8.0	5.4	4.0
Swiss franc	3.2	2.1	1.5	*na*	0.1
Other currencies	18.7	9.8	4.4	13.1	4.4

[a] Bank of International Settlements, *Triennial Central Bank Survey* (Basel, Switzerland: BIS, March 2010) and BIS data set.

[b] P. Bekx, "The Implications of the Introduction of the Euro for Non-EU Countries," *Euro Paper No. 26*, July 1998. Data are for 1995. More recent data are not available.

[c] International Monetary Fund, *Annual Report* (Washington, D.C.: IMF, 2011).

Exchange Rate Systems

- Fixed / Managed Exchange Rate System
- Managed Floating Exchange Rate System
- Floating/Flexible Exchange rate System

- Fixed / Managed Exchange Rate System

Central Bank or Monetary Authority

State Bank of Pakistan

Revaluation or Devaluation

- Managed Floating Exchange Rate System

Example

SBP sets range for USD 100-110

Within this range USD rate is flexible but Range is managed

- Floating / Flexible Exchange Rate System

Demand and Supply Framework

Appreciation or Depreciation

14.3 Foreign Exchange Rates

- Equilibrium Foreign Exchange Rates

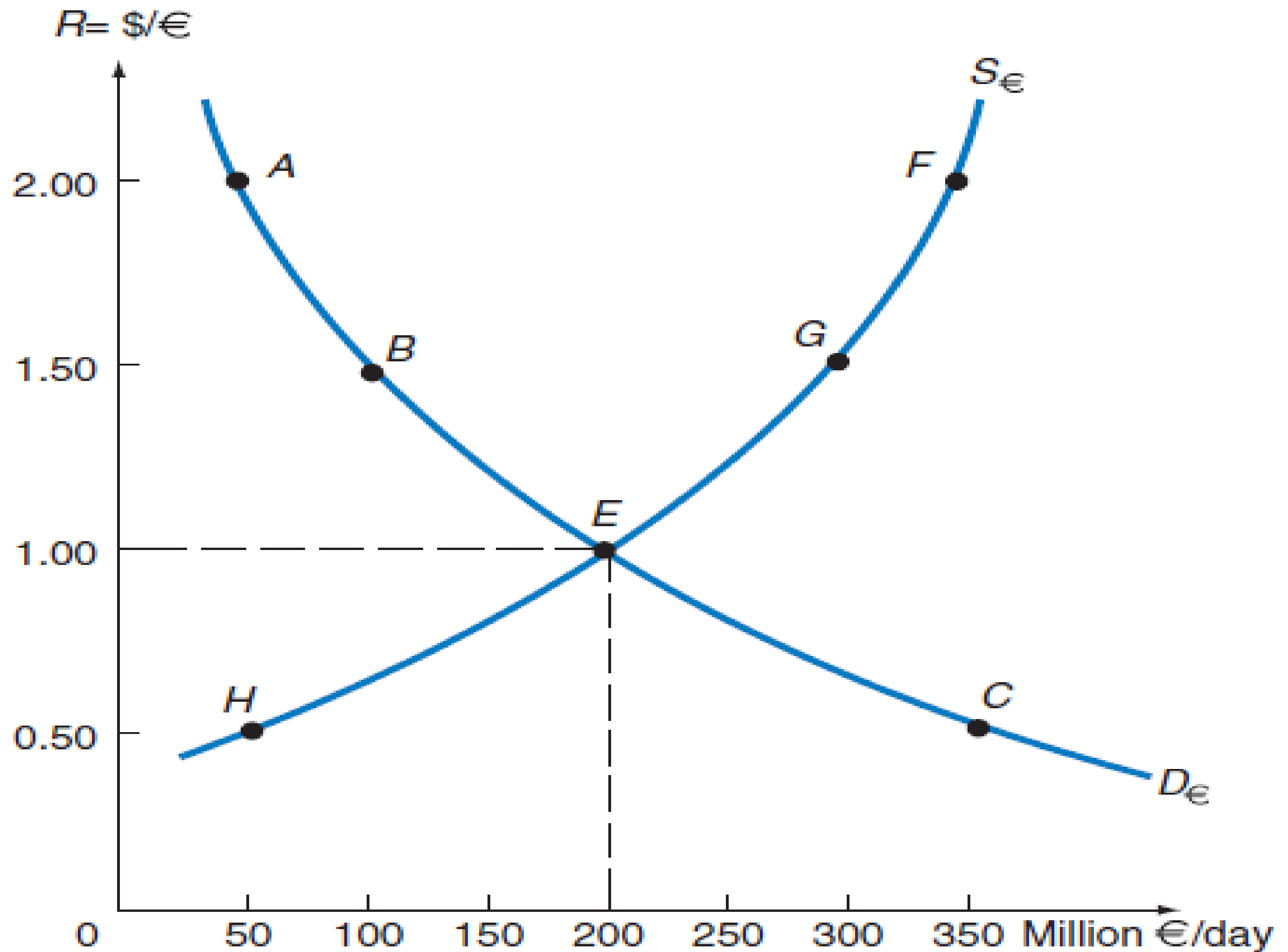
R= $/ €=1

Number of dollar needed to purchase one euro

Appreciation of a Currency

Depreciation of a Currency

Equilibrium Foreign Exchange Rates



The Exchange Rate under a Flexible Exchange Rate System.

Arbitrage

- The exchange rate between any two currencies is kept the same in different monetary centers by arbitrage.
- This refers to the purchase of a currency in the monetary center where it is cheaper, for immediate resale in the monetary center where it is more expensive, in order to make a profit.

Example: Two-Point Arbitrage

$0.99 = €1 in New York

€1 = $1.01 in Frankfurt

Buy…. from………… and Sell …in…..

Example: Two-Point Arbitrage

$1 = €1.02 in Hong Kong

€0.99 = $1 in Paris

Buy…. from………… and Sell ….in…..

- Example

$$\$1 = €1 \text{ in New York}$$
$$€1 = £0.64 \text{ in Franfurt}$$
$$£0.64 = \$1 \text{ in London}$$

These cross rates are consistent because

$$\$1 = €1 = £0.64$$

Example: Three-Point Arbitrage

$1 = €0.99   in New York

€1.01 = £0.64 in Frankfurt

£0.64 = $1 in London

Cross Rates?

Example: Three-Point Arbitrage

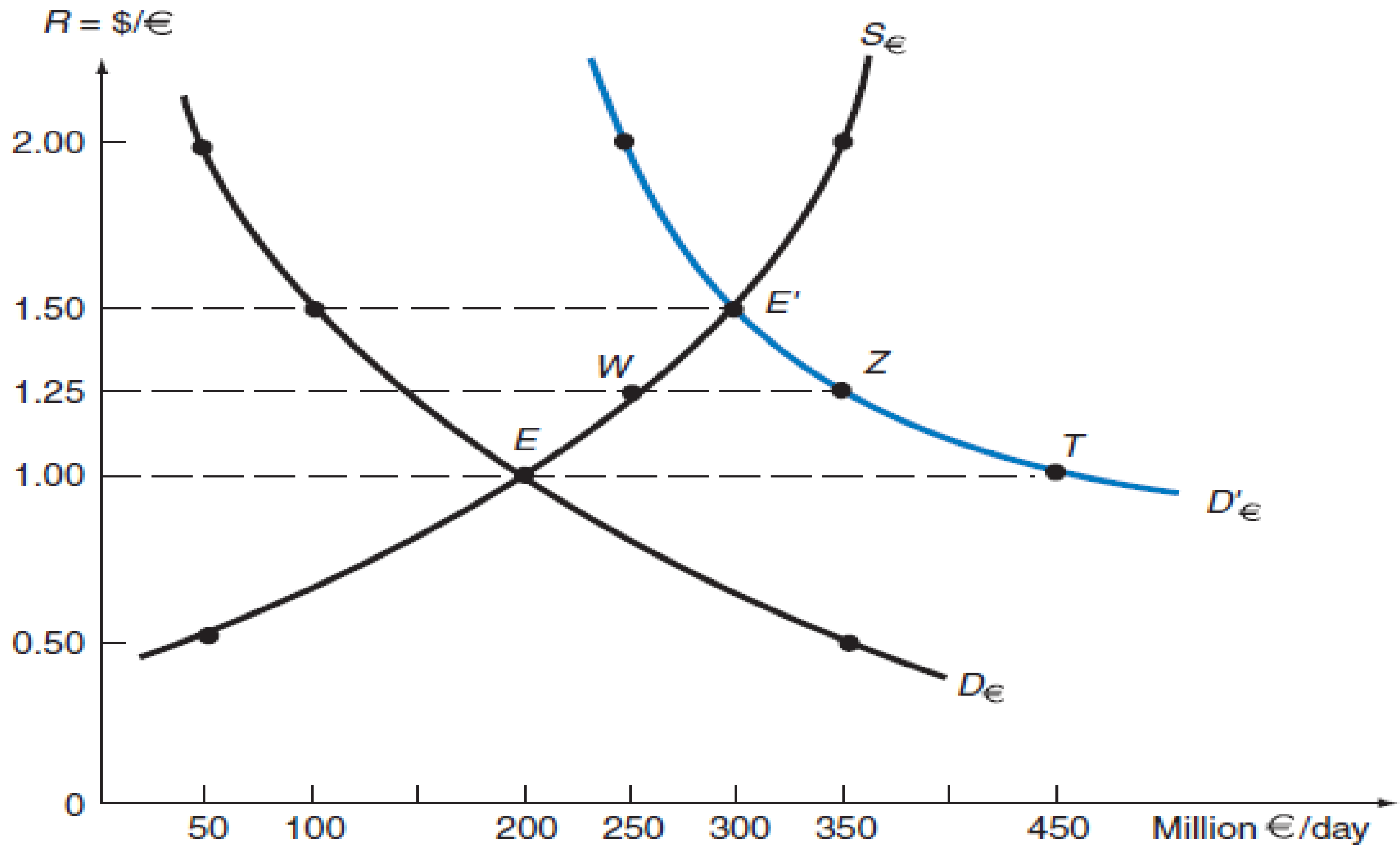
$1 = €1   in New York

€1 = £0.63 in Frankfurt

£0.65 = $1 in London

Cross Rates?

14.3C The Exchange Rate and the Balance of Payments



Disequilibrium under a Fixed and a Flexible Exchange Rate System.

14.4 Spot and Forward Rates, Currency Swaps, Futures, and Options

Spot Transaction & Rate

- **Spot transaction** involves the payment and receipt of the foreign exchange within two business days after the day the transaction is agreed upon.
- The exchange rate at which the transaction takes place is called the **spot rate**.

Forward Transaction & Rate

- A ***forward transaction*** involves an agreement today to buy or sell a specified amount of a foreign currency at a specified future date at a rate agreed upon today (the ***forward rate***).
- The typical forward contract is for **one** month, **three** months, or **six** months
- **Three months the most common**
- Forward contracts can be renegotiated for one or more periods when they become due.

- If the forward rate is below the present spot rate, the foreign currency is said to be at a ***forward discount (FD)*** with respect to the domestic currency.
- Example: if the spot rate is $1 = €1 and the three-month forward rate is $0.99 = € 1
- If the forward rate is above the present spot rate, the foreign currency is said to be at a ***forward premium (FP)***
- Example: if the spot rate is $1 = €1 and the three-month forward rate is $1.01 = € 1

$$FD \text{ or } FP = \frac{FR - SR}{SR} \times 4 \times 100$$

$$FD = \frac{\$0.99 - \$1.00}{\$1.00} \times 4 \times 100 = \frac{-\$0.01}{\$1.00} \times 4 \times 100$$

$$= -0.01 \times 4 \times 100 = -4\%$$

$$FP = \frac{\$1.01 - \$1.00}{\$1.00} \times 4 \times 100 = \frac{\$0.01}{\$1.00} \times 4 \times 100$$

$$= 0.01 \times 4 \times 100 = +4\%$$

14.4B Foreign Exchange Swaps

- A foreign exchange swap refers to a spot sale of a currency combined with a forward repurchase of the same currency—as part of a single transaction.
- For example, suppose that Citibank receives a $1 million payment today that it will need in three months, but in the meantime it wants to invest this sum in euros.
- The *swap rate* (usually expressed on a yearly basis) is the difference between the spot and forward rates in the currency swap.

14.4C Foreign Exchange Futures and Options

- A ***foreign exchange futures*** is a forward contract for standardized currency amounts and selected calendar dates traded on an organized market (exchange).
- The currencies traded are the Japanese yen, the Canadian dollar, the British pound, the Swiss franc, the Australian dollar, the Mexican peso, and the euro.
- International Monetary Market trading is done as contracts of standard size.
- The IMM imposes a daily limit on exchange rate fluctuations.

The IMM Contracts details

- Japanese yen contract is for \12.5 million
- Canadian dollar contract is for C$100,000
- Pound contract is for £62,500
- Euro contract is for ¤125,000

Only four dates per year are available: the third Wednesday in March, June, September, and December

Forward vs Future Markets

In the futures market

- Only a few currencies are traded
- Trades occur in standardized contracts only
- Few specific delivery dates
- Subject to daily limits on exchange rate fluctuations;
- Trading takes place only in a few geographical locations, such as Chicago, New York, London, Frankfurt, and Singapore.

- Futures contracts are usually for smaller amounts than forward contracts and thus are more useful to small firms than to large ones but are somewhat more expensive.
- Futures contracts can also be sold at any time up until maturity on an organized futures market, while forward contracts cannot.
- While the market for currency futures is small compared with the forward market, it has grown very rapidly

- A **foreign exchange option** is a contract giving the purchaser the right, but not the obligation
- to buy (a *call option*) or to sell (a *put option*) a standard amount of a traded currency on a stated date (the *European option*) or at any time before a stated date (the *American option*) and at a stated price (the *strike* or *exercise price*).
- Foreign exchange options are in standard sizes equal to those of futures IMM contracts.
- The buyer of the option has the choice to purchase or forego the purchase if it turns out to be unprofitable.

- The seller of the option, however, must fulfill the contract if the buyer so desires.
- The buyer pays the seller a premium (the option price) ranging from 1 to 5 percent of the contract's value for this privilege when he or she enters the contract.