

## CHAPTER 2

### 1. WHY WE NEED FOREIGN EXCHANGE

Almost every nation has its own *national currency* or monetary unit—its dollar, its peso, its rupee—used for making and receiving payments within its own borders. But foreign currencies are usually needed for payments across national borders. Thus, in any nation whose residents conduct business abroad or

engage in financial transactions with persons in other countries, there must be a mechanism for providing access to foreign currencies, so that payments can be made in a form acceptable to foreigners. In other words, there is need for “foreign exchange” transactions—exchanges of one currency for another.

### 2. WHAT “FOREIGN EXCHANGE” MEANS

“Foreign exchange” refers to money denominated in the currency of another nation or group of nations. Any person who exchanges money denominated in *his own* nation’s currency for money denominated in *another* nation’s currency acquires foreign exchange. That holds true whether the *amount* of the transaction is equal to a few dollars or to billions of dollars; whether the *person involved* is a tourist cashing a traveler’s check in a restaurant abroad or an investor exchanging hundreds of millions of dollars for the acquisition of a foreign company; and whether the *form of money* being acquired is foreign currency notes, foreign currency-denominated bank deposits, or other short-term claims denominated in foreign currency. A foreign exchange transaction is still a shift of funds, or short-term financial claims, from one country and currency to another.

Thus, within the United States, any money denominated in any currency other than the

U.S. dollar is, broadly speaking, “foreign exchange.”

Foreign exchange can be cash, funds available on credit cards and debit cards, traveler’s checks, bank deposits, or other short-term claims. It is still “foreign exchange” if it is a short-term negotiable financial claim denominated in a currency other than the U.S. dollar.

But, in the foreign exchange market described in this book—the international network of major foreign exchange dealers engaged in high-volume trading around the world—foreign exchange transactions almost always take the form of an exchange of *bank deposits* of different national currency denominations. If one bank agrees to sell dollars for Deutsche marks to another bank, there will be an exchange between the two parties of a dollar bank deposit for a DEM bank deposit. In this book, “foreign exchange” means a *bank balance denominated in a foreign (non-U.S. dollar) currency*.

### 3. ROLE OF THE EXCHANGE RATE

The exchange rate is a *price*—the number of units of one nation’s currency that must be surrendered in order to acquire one unit of another nation’s

currency. There are scores of “exchange rates” for the U.S. dollar. In the spot market, there is an exchange rate for every other national currency

traded in that market, as well as for various composite currencies or constructed monetary units such as the International Monetary Fund's "SDR," the European Monetary Union's "ECU," and beginning in 1999, the "euro." There are also various "trade-weighted" or "effective" rates designed to show a currency's movements against an average of various other currencies (see Box 2-1). Quite apart from the spot rates, there are additional exchange rates for other delivery dates, in the forward markets. Accordingly, although we talk about the dollar exchange rate in

the market, and it is useful to do so, there is no single, or unique dollar exchange rate in the market, just as there is no unique dollar interest rate in the market.

A market price is determined by the interaction of buyers and sellers in that market, and a market exchange rate between two currencies is determined by the interaction of the official and private participants in the foreign exchange rate market. For a currency with an exchange rate that is fixed, or set by the monetary authorities, the central bank or another official body is a key participant in the market, standing ready to buy or sell the currency as necessary to maintain the authorized pegged rate or range. But in the United States, where the authorities do not intervene in the foreign exchange market on a continuous basis to influence the exchange rate, market participation is made up of individuals, nonfinancial firms, banks, official bodies, and other private institutions from all over the world that are buying and selling dollars at that particular time.

The participants in the foreign exchange market are thus a heterogeneous group. Some of the buyers and sellers may be involved in the "goods" market, conducting international transactions for the purchase or sale of merchandise. Some may be engaged in "direct investment" in plant and equipment, or in "portfolio investment," dealing across borders in stocks and bonds and other financial assets, while others may be in the "money market," trading short-term debt instruments internationally. The various investors, hedgers, and speculators may be focused on any time period, from a few minutes to several years. But, whether official or private, and whether their motive be investing, hedging, speculating, arbitraging, paying for imports, or seeking to influence the rate, they are all part of the aggregate demand for and supply

### BOX 2-1

#### BILATERAL AND TRADE-WEIGHTED EXCHANGE RATES

Market trading is bilateral, and spot and forward market exchange rates are quoted in bilateral terms—the dollar versus the pound, franc, or peso. Changes in the dollar's average value on a multilateral basis—(i.e., its value against a group or basket of currencies) are measured by using various statistical indexes that have been constructed to capture the dollar's movements on a trade-weighted average, or effective exchange rate basis. Among others, the staff of the Federal Reserve Board of Governors has developed and regularly publishes such indexes, which measure the average value of the dollar against the currencies of both a narrow group and a broad group of other countries. Such trade-weighted and other indexes are not traded in the OTC spot or forward markets, where only the constituent currencies are traded. However, it is possible to buy and sell certain dollar index based futures and exchange-traded options in the exchange-traded market.

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of the currencies involved, and they all play a role in determining the market exchange rate at that instant.

Given the diverse views, interests, and time frames of the participants, predicting the future course of exchange rates is a particularly complex and uncertain business. At the same time, since the exchange rate

influences such a vast array of participants and business decisions, it is a pervasive and singularly important price in an open economy, influencing consumer prices, investment decisions, interest rates, economic growth, the location of industry, and much else. The role of the foreign exchange market in the determination of that price is critically important.

#### 4. PAYMENT AND SETTLEMENT SYSTEMS

Just as each nation has its own national currency, so also does each nation have its own payment and settlement system—that is, its own set of institutions and legally acceptable arrangements for making payments and executing financial transactions within that country, using its national currency. “Payment” is the transmission of an *instruction* to transfer value that results from a transaction in the economy, and “settlement” is the final and unconditional *transfer* of the value specified in a payment instruction. Thus, if a customer pays a department store bill by check, “payment” occurs when the check is placed in the hands of the department store, and “settlement” occurs when the check clears and the department store’s bank account is credited. If the customer pays the bill with cash, payment and settlement are simultaneous.

When two traders enter a deal and agree to undertake a foreign exchange transaction, they are agreeing on the *terms* of a currency exchange and committing the resources of their respective institutions to that agreement. But the *execution* of that exchange—the settlement—does not take place until later.

Executing a foreign exchange transaction requires two transfers of money value, in opposite directions, since it involves the exchange of one national currency for another. Execution of the transaction engages the payment and settlement systems of both nations, and those systems play a key role in the operations of the foreign exchange market.

Payment systems have evolved and grown more sophisticated over time. At present, various forms of payment are legally acceptable in the United States—payments can be made, for example, by cash, check, automated clearinghouse (a mechanism developed as a substitute for certain forms of paper payments), and electronic funds transfer (for large value transfers between banks). Each of these accepted forms of payment has its own settlement techniques and arrangements.

By number of transactions, most payments in the United States are still made with cash (currency and coin) or checks. However, the electronic funds transfer systems, which account for less than 0.1 percent of the *number* of all payments transactions in the United States, account for more than 80 percent of the value of payments. Thus,

**BOX 2 - 2**

**PAYMENTS VIA FEDWIRE AND CHIPS**

When a payment is executed over Fedwire, a regional Federal Reserve Bank debits on its books the account of the sending bank and credits the account of the receiving bank, so that there is an immediate transfer from the sending bank and delivery to the receiving bank of “central bank money” (i.e., a deposit claim on that Federal Reserve Bank). A Fedwire payment is “settled” when the receiving bank has its deposit account at the Fed credited with the funds or is notified of the payment. Fedwire is a “real-time gross settlements” (or RTGS) system. To control risk on Fedwire, the Federal Reserve imposes charges on participants for intra-day (daylight) overdrafts beyond a permissible allowance.

In contrast to Fedwire, payments processed over CHIPS are finally “settled,” not individually during the course of the day, but collectively at the end of the business day, after the net debit or credit position of each CHIPS participant (against all other CHIPS participants) has been determined. Final settlement of CHIPS obligations occurs by Fedwire transfer (delivery of “central bank money”). Settlement is initiated when those CHIPS participants in a net debit position for the day’s CHIPS activity pay their day’s obligations. If a commercial bank that is scheduled to receive CHIPS payments makes funds available to its customers before CHIPS settlement occurs at the end of the day, that commercial bank is exposed to some risk of loss if CHIPS settlement cannot occur. To ensure that settlement does, in fact, occur, the New York Clearing House has put in place a system of net debit caps and a loss-sharing arrangement backed up by collateral as a risk control mechanism.

electronic funds transfer systems represent a key and indispensable component of the payment and settlement systems. It is the electronic funds transfer systems that execute the inter-bank transfers between dealers in the foreign exchange market. The two electronic funds transfer systems operating in the United States are CHIPS (Clearing House Interbank Payments System), a privately owned system run by the New York Clearing House, and Fedwire, a system run by the Federal Reserve (see Box 2-2).

Other countries also have large-value interbank funds transfer systems, similar to Fedwire and CHIPS in the United States. In the United Kingdom, the pound sterling leg of a foreign exchange transaction is likely to be settled through CHAPS—the Clearing House Association Payments System, an RTGS system whose member banks settle with each other through their accounts at the Bank of England. In Germany, the Deutsche mark leg of a transaction is settled through EAF—an electronic payments system where settlements are made through accounts at Germany’s central bank, the Deutsche Bundesbank. A new payment system, named Target, has been designed to link RTGS systems within the European Community, to enable participants to handle transactions in the euro upon its introduction on January 1, 1999.

Globally, more than 80 percent of global foreign exchange transactions have a dollar leg. Thus, the amount of daily dollar settlements is huge, one trillion dollars per day or more. The settlement of foreign exchange transactions accounts for the bulk of total dollar payments processed through CHIPS each day.

The matter of settlement practices is of particular importance to the foreign exchange

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market because of “settlement risk,” the risk that one party to a foreign exchange transaction will pay out the currency it is selling but not receive the currency it is buying. Because of time zone differences and delays caused by the banks’ own internal procedures and corresponding banking

arrangements, a substantial amount of time can pass between a payment and the time the counter-payment is received—and a substantial credit risk can arise. Efforts to reduce or eliminate settlement risk are discussed in Chapter 8.

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