CHAPTER 3

1. It Is the World's Largest Market

The foreign exchange market is by far the largest and most liquid market in the world. The estimated worldwide turnover of reporting dealers, at around $1½ trillion a day, is several times the level of turnover in the U.S. Government securities market, the world's second largest market. Turnover is equivalent to more than $200 in foreign exchange market transactions, every business day of the year, for every man, woman, and child on earth!

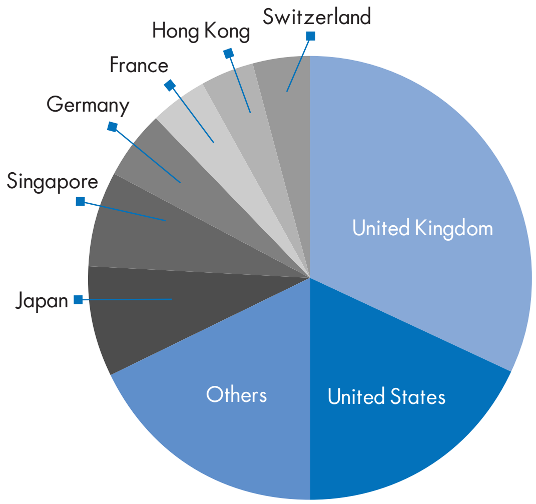
The breadth, depth, and liquidity of the market are truly impressive. Individual trades of $200 million to $500 million are not uncommon. Quoted prices change as often as 20 times a minute. It has been estimated that the world's most active exchange rates can change up to 18,000 times during a single day.[2] Large trades can be made, yet econometric studies indicate that prices tend to move in relatively small increments, a sign of a smoothly functioning and liquid market.

While turnover of around $1½ trillion per day is a good indication of the level of activity and liquidity in the global foreign exchange market, it is not necessarily a useful measure of other forces in the world economy. Almost two-thirds of the total represents transactions among the reporting dealers themselves—with only one-third accounted for by their transactions with financial and non-financial customers. It is important to realize that an initial dealer transaction with a customer in the foreign exchange market often leads to multiple further transactions, sometimes over an extended period, as the dealer institutions readjust their own positions to hedge, manage, or offset the risks involved. The result is that the amount of trading with customers of a large dealer institution active in the interbank market often accounts for a very small share of that institution's total foreign exchange activity.

Among the various financial centers around the world, the largest amount of foreign exchange trading takes place in the United Kingdom, even though that nation's currency—the pound sterling—is less widely traded in the market than several others. As shown in Figure 3-1, the United Kingdom accounts for about 32 percent of the global total; the United States ranks a distant second with about 18 percent, and Japan is third with 8 percent. Thus, together, the three largest markets—one each in the European, Western Hemisphere, and Asian time zones—account for about 58 percent of global trading. After these three leaders comes Singapore with 7 percent.

FIGURE 3-1

Shares of Reported Global Foreign Exchange Turnover, 1998



Source: Bank for International Settlements.
Note: Percent of total reporting foreign exchange turnover, adjusted for intra-country double-counting.

The large volume of trading activity in the United Kingdom reflects London's strong position as an international financial center where a large number of financial institutions are located. In the 1998 foreign exchange market turnover survey, 213 foreign exchange dealer institutions in the United Kingdom reported trading activity to the Bank of England, compared with 93 in the United States reporting to the Federal Reserve Bank of New York.

In foreign exchange trading, London benefits not only from its proximity to major Eurocurrency credit markets and other financial markets, but also from its geographical location and time zone. In addition to being open when the numerous other financial centers in Europe are open, London's morning hours overlap with the late hours in a number of Asian and Middle East markets; London's afternoon sessions correspond to the morning periods in the large North American market. Thus, surveys have indicated that there is more foreign exchange trading in dollars in London than in the United States, and more foreign exchange trading in marks than in Germany. However, the bulk of trading in London, about 85 percent, is accounted for by foreign-owned (non-U.K. owned) institutions, with U.K.-based dealers of North American institutions reporting 49 percent, or three times the share of U.K.-owned institutions there.

2. It Is a Twenty-Four Hour Market

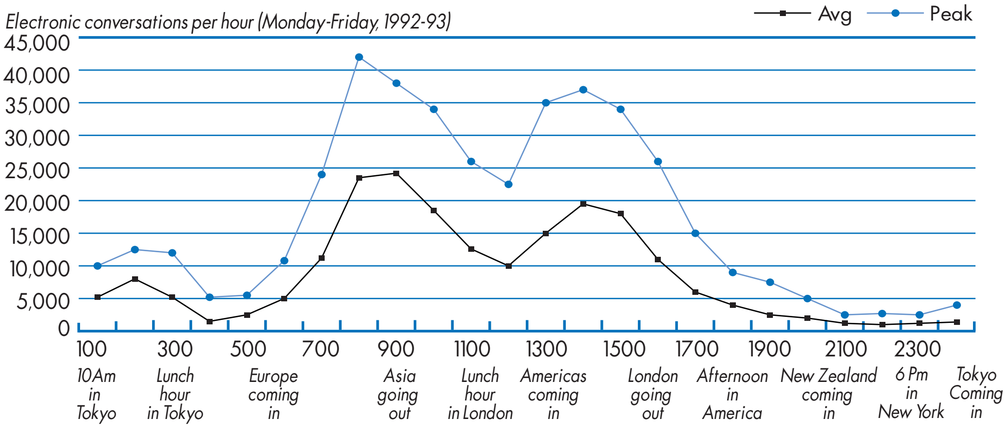
During the past quarter century, the concept of a twenty-four hour market has become a reality. Somewhere on the planet, financial centers are open for business, and banks and other institutions are trading the dollar and other currencies, every hour of the day and night, aside from possible minor gaps on weekends. In financial centers around the world, business hours overlap; as some centers close, others open and begin to trade. The foreign exchange market follows the sun around the earth.

The international date line is located in the western Pacific, and each business day arrives first in the Asia-Pacific financial centers—first Wellington, New Zealand, then Sydney, Australia, followed by Tokyo, Hong Kong, and Singapore. A few hours later, while markets remain active in those Asian centers, trading begins in Bahrain and elsewhere in the Middle East. Later still, when it is late in the business day in Tokyo, markets in Europe open for business. Subsequently, when it is early afternoon in Europe, trading in New York and other U.S. centers starts. Finally, completing the circle, when it is mid- or late-afternoon in the United States, the next day has arrived in the Asia-Pacific area, the first markets there have opened, and the process begins again.

The twenty-four hour market means that exchange rates and market conditions can change at any time in response to developments that can take place at any time. It also means that traders and other market participants must be alert to the possibility that a sharp move in an exchange rate can occur during an off hour, elsewhere in the world. The large dealing institutions have adapted to these conditions, and have introduced various arrangements for monitoring markets and trading on a twenty-four hour basis. Some keep their New York or other trading desks open

FIGURE 3-2

The Circadian Rhythms of the FX Market



Note: Time (0100-2400 hours, Greenwich Mean Time)
Source: Reuters

twenty-four hours a day, others pass the torch from one office to the next, and still others follow different approaches.

However, foreign exchange activity does not flow evenly. Over the course of a day, there is a cycle characterized by periods of very heavy activity and other periods of relatively light activity. Most of the trading takes place when the largest number of potential counterparties is available or accessible *on a global basis.* (Figure 3-2 gives a general sense of participation levels in the global foreign exchange market by tracking electronic conversations per hour.) Market liquidity is of great importance to participants. Sellers want to sell when they have access to the maximum number of potential buyers, and buyers want to buy when they have access to the maximum number of potential sellers.

Business is heavy when both the U.S. markets and the major European markets are open—that is, when it is morning in New York and afternoon in London. In the New York market, nearly two-thirds of the day's activity typically takes place in the morning hours. Activity normally becomes very slow in New York in the mid- to late afternoon, after European markets have closed and before the Tokyo, Hong Kong, and Singapore markets have opened.

Given this uneven flow of business around the clock, market participants often will respond less aggressively to an exchange rate development that occurs at a relatively inactive time of day, and will wait to see whether the development is confirmed when the major markets open. Some institutions pay little attention to developments in less active markets. Nonetheless, the twenty-four hour market does provide a continuous "real-time" market assessment of the ebb and flow of influences and attitudes with respect to the traded currencies, and an opportunity for a quick judgment of unexpected events. With many traders carrying pocket monitors, it has become relatively easy to stay in touch with market developments at all times—indeed, too easy, some harassed traders might say. The foreign exchange market provides a kind of never-ending beauty contest or horse race, where market participants can continuously adjust their bets to reflect their changing views.

3. The Market Is Made Up of An International Network of Dealers

The market consists of a limited number of major dealer institutions that are particularly active in foreign exchange, trading with customers and (more often) with each other. Most, but not all, are commercial banks and investment banks. These dealer institutions are geographically dispersed, located in numerous financial centers around the world. Wherever located, these institutions are linked to, and in close communication with, each other through telephones, computers, and other electronic means.

There are around 2,000 dealer institutions whose foreign exchange activities are covered by the Bank for International Settlements' central bank survey, and who, essentially, make up the global foreign exchange market. A much smaller sub-set of those institutions account for the bulk of trading and market-making activity. It is estimated that there are 100-200 market-making banks worldwide; major players are fewer than that.

At a time when there is much talk about an integrated world economy and "the global village," the foreign exchange market comes closest to functioning in a truly global fashion, linking the various foreign exchange trading centers from around the world into a single, unified, cohesive, worldwide market. Foreign exchange trading takes place among dealers and other market professionals in a large number of individual financial centers—New York, Chicago, Los Angeles, London, Tokyo, Singapore, Frankfurt, Paris, Zurich, Milan, and many, many others. But no matter in which financial center a trade occurs, the same currencies, or rather, bank deposits denominated in the same currencies, are being bought and sold.

A foreign exchange dealer buying dollars in one of those markets actually is buying a dollar-denominated deposit in a bank located in the United States, or a claim of a bank abroad on a dollar deposit in a bank located in the United States. This holds true regardless of the location of the financial center at which the dollar deposit is purchased. Similarly, a dealer buying Deutsche marks, no matter where the purchase is made, actually is buying a mark deposit in a bank in Germany or a claim on a mark deposit in a bank in Germany. And so on for other currencies.

Each nation's market has its own infrastructure. For foreign exchange market operations as well as for other matters, each country enforces its own laws, banking regulations, accounting rules, and tax code, and, as noted above, it operates its own payment and settlement systems. Thus, even in a global foreign exchange market with currencies traded on essentially the same terms simultaneously in many financial centers, there are different national financial systems and infrastructures through which transactions are executed, and within which currencies are held.

With access to all of the foreign exchange markets generally open to participants from all countries, and with vast amounts of market information transmitted simultaneously and almost instantly to dealers throughout the world, there is an enormous amount of cross-border foreign exchange trading among dealers as well as between dealers and their customers. At any moment, the exchange rates of major currencies tend to be virtually identical in all of the financial centers where there is active trading. Rarely are there such substantial price differences among major centers as to provide major opportunities for arbitrage. In pricing, the various financial centers that are open for business and active at any one time are effectively integrated into a single market.

Accordingly, a bank in the United States is likely to trade foreign exchange at least as frequently with banks in London, Frankfurt, and other open foreign centers as with other banks in the United States. Surveys indicate that when major dealing institutions in the United States trade with other dealers, 58 percent of the transactions are with dealers located outside the United States. The United States is not unique in that respect. Dealer institutions in other major countries also report that more than half of their trades are with dealers that are across borders; dealers also use brokers located both domestically and abroad.

4. The Market's Most Widely Traded Currency Is the Dollar

The dollar is by far the most widely traded currency. According to the 1998 survey, the dollar was one of the two currencies involved in an estimated 87 percent of global foreign exchange transactions, equal to about $1.3 trillion a day. In part, the widespread use of the dollar reflects its substantial international role as: "investment" currency in many capital markets, "reserve" currency held by many central banks, "transaction" currency in many international commodity markets, "invoice" currency in many contracts, and "intervention" currency employed by monetary authorities in market operations to influence their own exchange rates.

In addition, the widespread trading of the dollar reflects its use as a "vehicle" currency in foreign exchange transactions, a use that reinforces, and is reinforced by, its international role in trade and finance. For most pairs of currencies, the market practice is to trade each of the two currencies against a common third currency as a vehicle, rather than to trade the two currencies directly against each other. The vehicle currency used most often is the dollar, although by the mid-1990s the Deutsche mark also had become an important vehicle, with its use, especially in Europe, having increased sharply during the 1980s and '90s.

Thus, a trader wanting to shift funds from one currency to another, say, from Swedish krona to Philippine pesos, will probably sell krona for U.S. dollars and then sell the U.S. dollars for pesos. Although this approach results in two transactions rather than one, it may be the preferred way, since the dollar/Swedish krona market, and the dollar/Philippine peso market are much more active and liquid and have much better information than a bilateral market for the two currencies directly against each other. By using the dollar or some other currency as a vehicle, banks and other foreign exchange market participants can limit more of their working balances to the vehicle currency, rather than holding and managing many currencies, and can concentrate their research and information sources on the vehicle.

Use of a vehicle currency greatly reduces the number of exchange rates that must be dealt with in a multilateral system. In a system of 10 currencies, if one currency is selected as vehicle currency and used for all transactions, there would be a total of *nine* currency pairs or exchange rates to be dealt with (i.e., one exchange rate for the vehicle currency against each of the others), whereas if no vehicle currency were used, there would be *45* exchange rates to be dealt with. In a system of 100 currencies with no vehicle currencies, potentially there would be 4,950 currency pairs or exchange rates [the formula is: $n(n-1)/2$]. Thus, using a vehicle currency can yield the advantages of fewer, larger, and more liquid markets with fewer currency balances, reduced informational needs, and simpler operations.

The U.S. dollar took on a major vehicle currency role with the introduction of the Bretton Woods par value system, in which most nations met their IMF exchange rate obligations by buying and selling U.S. dollars to maintain a par value relationship for their own currency against the U.S. dollar. The dollar was a convenient vehicle, not only because of its central role in the exchange rate system and its widespread use as a reserve currency, but also because of the presence of large and liquid dollar money and other financial markets, and, in time, the Euro-dollar markets where dollars needed for (or resulting from) foreign exchange transactions could conveniently be borrowed (or placed).

Changing conditions in the 1980s and 1990s altered this situation. In particular, the Deutsche mark began to play a much more significant role as a vehicle currency and, more importantly, in direct "cross trading."

As the European Community moved toward economic integration and monetary unification, the relationship of the European Monetary System (EMS) currencies to each other became of greater concern than the relationship of their currencies to the dollar. An intra-European currency market developed, centering on the mark and on Germany as the strongest currency and largest economy. Direct intervention in members' currencies, rather than through the dollar, became widely practiced. Events such as the EMS currency crisis of September 1992, when a number of European currencies came under severe market pressure against the mark, confirmed the extent to which direct use of the DEM for intervening in the exchange market could be more effective than going through the dollar.

Against this background, there was very rapid growth in *direct cross rate trading* involving the Deutsche mark, much of it against European currencies, during the 1980s and '90s. (A "cross rate" is an exchange rate between two *non-dollar* currencies—e.g., DEM/Swiss franc, DEM/pound, and DEM/yen.) As discussed in Chapter 5, there are *derived* cross rates calculated from the dollar rates of each of the two currencies, and there are *direct* cross rates that come from *direct trading* between the two currencies—which can result in narrower spreads where there is a viable market. In a number of European countries, the volume of trading of the local currency against the Deutsche mark grew to exceed local currency trading against the dollar, and the practice developed of using cross rates between the DEM and other European currencies to determine the dollar rates for those currencies.

With its increased use as a vehicle currency and its role in cross trading, the Deutsche mark was involved in 30 percent of global currency turnover in the 1998 survey. That was still far below the dollar (which was involved in 87 percent of global turnover), but well above the Japanese yen (ranked third, at 21 percent), and the pound sterling (ranked fourth, at 11 percent).

5. It Is an "Over-the-Counter" Market With an "Exchange-Traded" Segment

Until the 1970s, all foreign exchange trading in the United States (and elsewhere) was handled "over-the-counter," (OTC) by banks in different locations making deals via telephone and telex. In the United States, the OTC market was then, and is now, largely unregulated *as a market*. Buying and selling foreign currencies is considered the exercise of an express banking power. Thus, a commercial bank in the United States does not need any special authorization to trade or deal in foreign exchange. Similarly, securities firms and brokerage firms do not need permission from the Securities and Exchange Commission (SEC) or any other body to engage in foreign exchange activity. Transactions can be carried out on whatever terms and with whatever provisions are permitted by law and acceptable to the two counterparties, subject to the standard commercial law governing business transactions in the United States.

There are no official rules or restrictions in the United States governing the hours or conditions of trading. The trading conventions have been developed mostly by market participants. There is no official code prescribing what constitutes good market practice. However, the Foreign Exchange Committee, an independent body sponsored by the Federal Reserve Bank of New York and composed of representatives from institutions participating in the market, produces and regularly updates its report on *Guidelines for Foreign Exchange Trading*. These *Guidelines* seek to clarify common market practices and offer "best practice recommendations" with respect to trading activities, relationships, and other matters. The report is a purely advisory document designed to foster the healthy functioning and development of the foreign exchange market in the United States.

Although the OTC market is not regulated as a market in the way that the organized exchanges are regulated, regulatory authorities examine the foreign exchange market activities of banks and certain other institutions participating in the OTC market. As with other business activities in which these institutions are engaged, examiners look at trading systems, activities, and exposure, focusing on the safety and soundness of the institution and its activities. Examinations deal with such matters as capital adequacy, control systems, disclosure, sound banking practice, legal compliance, and other factors relating to the safety and soundness of the institution.

The OTC market accounts for well over 90 percent of total U.S. foreign exchange market activity, covering both the traditional (pre-1970) products (*spot*, *outright forwards*, and *FX swaps*) as well as the more recently introduced (post-1970) OTC products (*currency options* and *currency swaps*). On the "organized exchanges," foreign exchange products traded are *currency futures* and certain *currency options*.

Trading practices on the organized exchanges, and the regulatory arrangements covering the exchanges, are markedly different from those in the OTC market. In the exchanges, trading takes place publicly in a centralized location. Hours, trading practices, and other matters are regulated by the particular exchange; products are standardized. There are margin payments, daily marking to market, and cash settlements through a central clearinghouse. With respect to regulation, exchanges at which currency *futures* are traded are under the jurisdiction of the Commodity Futures Trading Corporation (CFTC); in the case of currency *options*, either the CFTC or the Securities and Exchange Commission serves as regulator, depending on whether securities are traded on the exchange.

Steps are being taken internationally to help improve the risk management practices of dealers in the foreign exchange market, and to encourage greater transparency and disclosure. With respect to the internationally active banks, there has been a move under the auspices of the Basle Committee on Banking Supervision of the BIS to introduce greater consistency internationally to risk-based capital adequacy requirements. Over the past decade, the regulators of a number of nations have accepted common rules proposed by the Basle Committee with respect to capital adequacy requirements for *credit* risk, covering exposures of internationally active banks in all activities, including foreign exchange. Further proposals of the Basle Committee for risk-based capital requirements for *market* risk have been adopted more recently. With respect to investment firms and other financial institutions, international discussions have not yet produced agreements on common capital adequacy standards.