

## CHAPTER 7

In the discussion below, the focus is narrowed from the foreign exchange market as a whole to how a dealer institution operates within the market.

In the United States, each of the 93 institutions regarded as active dealers—the 82 commercial banks and 11 investment banks and other institutions surveyed by the Federal Reserve—is an important participant in the foreign exchange market. But there are major differences in the size, scope, and focus of their foreign exchange activities. Some are market makers; others are not. Some engage in a wide range of operations covering all areas of foreign exchange trading; others concentrate on particular niches or currencies. They vary in the extent and the nature of the trading they undertake for customers and for their own accounts.

The bulk of foreign exchange turnover is handled by a small number of the 93 active dealers. Ten institutions—about 11 percent of the total—account for 51 percent of foreign exchange turnover in the United States. In other countries, there is comparable concentration. In the U.K. market, the market share of the top ten institutions also was 50 percent.

The very largest dealers in the United States compete with each other, and there are major changes in rankings over time. Only six of the top ten firms in 1995 remained in the top 10 in 1998.

## I. TRADING ROOM SETUP

In appearance, the trading rooms of many major dealer institutions are similar in many respects. All have rows of screens, computers, telephones, dedicated lines to customers and to brokers, electronic dealing and brokering systems, news services, analytic and informational sources, and other communications equipment. All have various traders specializing in individual currencies and cross-currencies, in spot, forwards, swaps, and options; their specialists in offshore deposit markets and various bond markets; and their marketing groups. There are funds managers and those responsible for proprietary transactions using the dealer's own funds. All have their affiliated "back offices"—not necessarily located nearby—where separate

staffs confirm transactions consummated by the traders and execute the financial payments and receipts associated with clearance and settlement. Increasingly, there are "mid-office" personnel, checking on the validity of valuations used by the traders and other matters of risk management.

The equipment and the technology are critical and expensive. For a bank with substantial trading activity, which can mean hundreds of individual traders and work stations to equip, a full renovation can cost many, many millions of dollars. And that equipment may not last long—with technology advancing rapidly, the state of

the art gallops ahead, and technology becomes obsolete in a very few years. But in a business so dependent on timing, there is a willingness to pay for something new that promises information that is distributed faster or presented more effectively, as well as for better communications, improved analytical capability, and more reliable systems with better back-up. These costs can represent a significant share of trading revenue.

Each of the market-making institutions uses its facilities in its own way. All will consider it essential to have the most complete and most current information and the latest technology. But profits will depend, not just on having it, but on how that information and technology are used. Each institution will have its own business plan, strategy, approach, and objectives. Institutions will differ in scale of operations, segments of the market on which they wish to concentrate, target customers, style, and tolerance for risk.

The basic objectives and policy with respect to foreign exchange trading are set by

senior management. They must decide which services the foreign exchange trading function will provide and how it will provide those services—often as part of a worldwide operation—in light of the bank's financial and human resources and its attitude toward risk. The senior management must determine, in short, the bank's fundamental business strategy—which includes, among other things, the emphasis to be placed on customer relationships and service vis-a-vis the bank's trading for its own account—and how that strategy will deal with changing market conditions and other factors.

The trading rooms are the trenches where the battle is joined, where each trader confronts the market, customers, competitors, and other players, and where each institution plays out its fundamental business strategy and sees it succeed or fail. A winning strategy and a sound battle plan are essential, and teamwork—with each trader being aware of the actions of others in the group and of developments in related markets—is of enormous importance to success.

## 2. THE DIFFERENT KINDS OF TRADING FUNCTIONS OF A DEALER INSTITUTION

A dealer bank or other institution is likely to be undertaking various kinds of foreign exchange trading—making markets, servicing customers, arranging proprietary transactions—and the emphasis on each will vary among institutions.

*Market making* is basic to foreign exchange trading in the OTC market. The willingness of market makers to quote both bids and offers for particular currencies, to take the opposite side to either buyers or sellers of the currency,

facilitates trading and contributes to liquidity and price stability, and is considered important to the smooth and effective functioning of the market. An institution may choose to serve as a market maker purely because of the profits it believes it can earn on the spreads between buying and selling prices. But it may also see advantages in that the market-making function can broaden in an important way the range of banking services that the institution can offer to clients. In addition, it can give the market-

making institution access to both market information and market liquidity that are valuable in its other activities.

Much of the activity in trading rooms is focused on marketing services and maintaining *customer relationships*. Customers may include treasurers of corporations and financial institutions; managers of investment funds, pension funds, and hedge funds, and high net worth individuals. A major activity of dealer institutions is managing customer business, including giving advice, suggesting strategies and ideas, and helping to carry out transactions and approaches that a particular customer may wish to undertake.

Dealers also trade foreign exchange as part of the bank's *proprietary* trading activities, where the firm's own capital is put at risk on various strategies. Whereas market making is usually reacting or responding to other people's requests for quotes, proprietary trading is proactive and involves taking an initiative.

Market making tends to be short-term and high volume, with traders focusing on earning a small spread from each transaction (or at least from most transactions)—with position-taking limited mainly to the management of working balances and reflecting views on very short-term forces and rate movements. A proprietary trader, on the other hand, is looking for a larger profit margin—in percentage points rather than basis points—based on a directional view about a currency, volatility, an interest rate that is about to change, a trend, or a major policy move—in fact, any strategic view about an opportunity, a vulnerability, or a mispricing in a market rate. Some dealers institutions—banks and otherwise—put sizeable amounts of their own capital at risk for extended periods in proprietary trading, and devote considerable resources to acquiring the risk analysis systems and other equipment and personnel to assist in developing and implementing such strategies. Others are much more limited in their proprietary trading.

### 3. TRADING AMONG MAJOR DEALERS—DEALING DIRECTLY AND THROUGH BROKERS

Dealer institutions trade with each other in two basic ways—*direct dealing* and through the *brokers market*. The mechanics of the two approaches are quite different, and both have been changed by technological advances in recent years.

#### ► Mechanics of Direct Dealing

Each of the major market makers shows a running list of its main bid and offer rates—that is, the prices at which it will buy and sell the major currencies, spot and forward—and those rates are displayed to all market participants on

their computer screens. The dealer shows his prices for the base currency expressed in amounts of the terms currency. Both dollar rates and cross-rates are shown. Although the screens are updated regularly throughout the day, the rates are only *indicative*—to get a *firm* price, a trader or customer must contact the bank directly. In very active markets, quotes displayed on the screen can fail to keep up with actual market quotes. Also, the rates on the screen are typically those available to the largest customers and major players in the interbank market for the substantial amounts that the interbank

market normally trades, while other customers may be given less advantageous rates.

A trader can contact a market maker to ask for a two-way quote for a particular currency. Until the mid-1980s, the contact was almost always by telephone—over dedicated lines connecting the major institutions with each other—or by telex. But *electronic dealing systems* are now commonly used—computers through which traders can communicate with each other, on a bilateral, or one-to-one basis, on screens, and make and record any deals that may be agreed upon. These electronic dealing systems now account for a very large portion of the direct dealing among dealers.

As an example of direct dealing, if trader Mike were asking market maker Hans to give quotes for buying and selling \$10 million for Swiss francs, Mike could contact Hans by electronic dealing system or by telephone and ask rates on “spot dollar-swissie on ten dollars.”

Hans might respond that “dollar-swissie is 1.4585-90;” or maybe “85-90 on 5;” but more likely, just “85-90,” if it can be assumed that the “big figure” (that is, 1.45) is understood and taken for granted. In any case, it means that Hans is willing to *buy* \$10 million at the rate of CHF 1.4585 per dollar, and *sell* \$10 million at the rate of CHF 1.4590 per dollar. Hans will provide his quotes within a few seconds and Mike will respond within a few seconds. In a fast-moving market, unless he responds promptly—in a matter of seconds—the market maker cannot be held to the quote he has presented. Also, the market maker can change or withdraw his quote at any time, provided he says “change” or “off” *before* his quote has been accepted by the counterparty.

It can all happen very quickly. Several conversations can be handled simultaneously on

the dealing systems, and it is possible to complete a number of deals within a few minutes. When he hears the quotes, Mike will either buy, sell, or pass—there is no negotiation of the rate between the two traders. If Mike wants to buy \$10 million at the rate of CHF 1.4590 per dollar (i.e., accept Hans’ offer price), Mike will say “Mine” or “I buy” or some similar phrase. Hans will respond by saying something like “Done—I sell you ten dollars at 1.4590.” Mike might finish up with “Agreed—so long.”

Each trader then completes a “ticket” with the name and amount of the base currency, whether bought or sold, the name and city of the counterparty, the term currency name and amount, and other relevant information. The two tickets, formerly written on paper but now usually produced electronically, are promptly transmitted to the two “back offices” for confirmation and payment. For the two traders, it is one more deal completed, one of 200-300 each might complete that day. But each completed deal will affect the dealer’s own limits, his bank’s currency exposure, and perhaps his approach and quotes on the next deal.

The spread between the bid and offer price in this example is 5 basis points in CHF per dollar, or about three one-hundredths of one percent of the dollar value. The size of the spread will, other things being equal, tend to be comparable among currencies on a *percentage* basis, but larger in *absolute* numbers the lower the value of the currency unit—i.e., the spread in the dollar-lira rate will tend to be wider in *absolute number* (of lire) than the spread in dollar-swissie, since the dollar sells for a larger absolute number of lire than of Swiss francs. The width of the spread can also be affected by a large number of other factors—the amount of liquidity in the market, the size of the transaction, the number of players, the time of day, the volatility of market conditions, the trader’s own

position in that currency, and so forth. In the United States, spreads tend to be narrowest in the New York morning-Europe afternoon period, when the biggest markets are open and activity is heaviest, and widest in the late New York afternoon, when European and most large Asian markets are closed.

#### ► Mechanics of Trading Through Brokers: Voice Brokers and Electronic Brokering Systems

The traditional role of a broker is to act as a go-between in foreign exchange deals, both within countries and across borders. Until the 1990s, all brokering in the OTC foreign exchange market was handled by what are now called live or *voice brokers*.

Communications with voice brokers are almost entirely via dedicated telephone lines between brokers and client banks. The broker's activity in a particular currency is usually broadcast over open speakers in the client banks, so that everyone can hear the rates being quoted and the prices being agreed to, although not specific amounts or the names of the parties involved.

A live broker will maintain close contact with many banks, and keep well informed about the prices individual institutions will quote, as well as the depth of the market, the latest rates where business was done, and other matters. When a customer calls, the broker will give the best price available (highest bid if the customer wants to sell and lowest offer if he wants to buy) among the quotes on both sides that he or she has been given by a broad selection of other client banks.

In direct dealing, when a trader calls a market maker, the market maker quotes a two-way price and the trader accepts the bid or accepts the offer or passes. In the voice brokers market, the dealers have additional alternatives. Thus, with a broker, a market maker can make a

quote for only one side of the market rather than for both sides. Also, a trader who is asking to see a quote may have the choice, not only to hit the bid or to take (or lift) the offer, but also to join either the bid or the offer in the brokers market, or to improve either the bid or the offer then being quoted in the brokers market.

At the time a trade is made through a broker, the trader does not know the name of the counterparty. Subsequently, credit limits are checked, and it may turn out that one dealer bank must refuse a counterparty name because of credit limitations. In that event, the broker will seek to arrange a name-switch—i.e., look for a mutually acceptable bank to act as intermediary between the two original counterparties. The broker should not act as principal.

Beginning in 1992, *electronic brokerage systems* (or *automated order-matching systems*) have been introduced into the OTC spot market and have gained a large share of some parts of that market. In these systems, trading is carried out through a network of linked computer terminals among the participating users. To use the system, a trader will key an order into his terminal, indicating the amount of a currency, the price, and an instruction to buy or sell. If the order can be filled from other orders outstanding, and it is the best price available in the system from counterparties acceptable to that trader's institution, the deal will be made. A large order may be matched with several small orders.

If a new order cannot be matched with outstanding orders, the new order will be entered into the system, and participants in the system from other banks will have access to it. Another player may accept the order by pressing a "buy" or "sell" button and a transmit button. There are other buttons to press for withdrawing orders and other actions.

Electronic brokering systems now handle a substantial share of trading activity. These systems are especially widely used for *small transactions* (less than \$10 million) in the *spot market* for the most *widely traded currency pairs*—but they are used increasingly for larger transactions and in markets other than spot. The introduction of these systems has resulted in greater price transparency and increased efficiency for an important segment of the market. Quotes on these smaller transactions are fed continuously through the electronic brokering systems and are available to all participating institutions, large and small, which tends to keep broadcast spreads of major market makers very tight. At the same time electronic brokering can reduce incentives for dealers to provide two-way liquidity for other market participants. With traders using quotes from electronic brokers as the basis for prices to customers and other dealers, there may be less propensity to act as market maker. Large market makers report that they have reduced levels of first-line liquidity. If they need to execute a trade in a single sizeable amount, there may be fewer reciprocal counterparties to call on. Thus, market liquidity may be affected in various ways by electronic brokering.

Proponents of electronic brokering also claim there are benefits from the certainty and clarity of trade execution. For one thing there are clear *audit trails*, providing back offices with information enabling them to act quickly to reconcile trades or settle differences. Secondly, the electronic systems will match orders only between counterparties that have available *credit lines* with each other. This avoids the problem sometimes faced by voice brokers when a dealer cannot accept a counterparty he has been matched with, in which case the voice broker will need to arrange a “credit switch,” and wash the credit risk by finding an

acceptable institution to act as intermediary. Further, there is greater certainty about the posted price and greater certainty that it can be traded on. Disputes can arise between voice brokers and traders when, for example, several dealers call in simultaneously to hit a given quote. These uncertainties are removed in an electronic process. But electronic brokering does not eliminate all conflicts between banks. For example, since dealers typically type into the machine the last two decimal points (pips) of a currency quote, unless they pay close attention to the *full* display of the quote, they may be caught unaware when the “big figure” of a currency price has changed.

With the growth of electronic brokering, voice brokers and other intermediaries have responded to the competitive pressures. Voice brokers have emphasized newer products and improved technology. London brokers have introduced a new automated confirmation system, designed to bring quick confirmations and sound audit trails. Others have emphasized newer products and improved technology. There have also been moves to focus on newer markets and market segments.

The two basic channels, direct dealing and brokers—either voice brokers or electronic brokering systems—are complementary techniques, and dealers use them in tandem. A trader will use the method that seems better in the circumstances, and will take advantage of any opportunities that an approach may present at any particular time. The decision on whether to pay a fee and engage a broker will depend on a variety of factors related to the size of the order, the currency being traded, the condition of the market, the time available for the trade, whether the trader wishes to be seen in the market (through direct dealing) or wants to operate more discreetly (through brokers), and other considerations.



The 1998 Federal Reserve turnover survey indicated that brokers handled 41 percent of spot transactions, and a substantially smaller percentage of outright forwards and FX swaps. Altogether, 24 percent of total U.S. foreign

exchange activity in the three traditional markets was handled by brokers. In the brokers market, 57 percent of turnover is now conducted through automated order-matching systems, or electronic brokering, compared with 18 percent in 1995.

#### 4. OPERATIONS OF A FOREIGN EXCHANGE DEPARTMENT

Typically the foreign exchange department of a bank will meet each morning, before trading starts, review overnight developments, receive reports from branches and affiliated outlets in markets that opened earlier, check outstanding orders from customers, discuss their views toward the market and the various currencies, and plan their approaches for the day. As market events unfold, they may have to adapt their view and modify their approach, and the decisions on whether, when, and how to do so can make the difference between success and failure.

Each institution has its own decision-making structure based on its own needs and resources. A chief dealer supervises the activities of individual traders and has primary responsibility for hiring and training new personnel. The chief dealer typically reports to a senior officer responsible for the bank's international asset and liability area, which includes, not only foreign exchange trading, but also Eurodollar and other offshore deposit markets, as well as derivatives activities intimately tied to foreign exchange trading. Reporting to the chief dealer are a number of traders specializing in one or more currencies. The most actively traded currencies are handled by the more senior traders, often assisted by a junior person who may also handle a less actively traded currency. But the actions of any trader, regardless of rank, commit the bank's funds. All need to be on their toes. Even a day trader whose objective may be simply to buy at his bid price and sell at his offer is in a better

position to succeed if he is well informed, and can read the market well, see where rates may be headed, and understand the forces at play. He must have a clear understanding of his currency position, his day's net profit or loss, and whether and by how much to shade his quotes in one direction or the other.

Many senior traders have broad responsibility for the currencies they trade—quoting prices to customers and other dealers, dealing directly and with the brokers market, balancing daily payments and receipts by arranging swaps and other transactions, and informing and advising customers. They may have certain authority to take a view on short-term exchange rate and interest rate movements, resulting in a short or long position within authorized limits. The chief dealer is ultimately responsible for the profit or loss of the operation, and for ensuring that management limits to control risk are fully observed.

Most large market-making institutions have “customer dealers” or “marketers” in direct contact with corporations and other clients, advising customers on strategy and carrying out their instructions. This allows individual traders in spot, forwards, and other instruments to concentrate on making prices and managing positions. If the client deals, the marketer must make sure that all of the various traders involved in the transactions are informed of the particulars.

When a customer asks a market-making institution for the rates at which it is willing to buy and sell a particular currency, the response will be based on a number of factors. In deciding what bid and offer prices to quote, the trader takes into account the current quotations in the market, the rates at which the brokers are transacting business, the latest trends and expectations, whether the bank is long or short the currency in question, and views about where rates are headed. The trader is expected to be knowledgeable about both “fundamental” analysis (broad macroeconomic and financial trends underlying the supply and demand conditions for currencies that are being traded) and “technical” analysis (charts showing price patterns and volume trends). The trader also should be aware of the latest economic news, political developments, predictions of experts, and the technical position of the various currencies in the market. In bid and offer price quotes, the trader also may be influenced by the size of the trade—on the one hand, a small trade may call for a less favorable rate to cover fixed costs; on the other hand, a large trade may be much more difficult to offset.

When making quotes on outright forwards and FX swaps, in addition to understanding all the factors that may be influencing the spot rate, the trader must know the interbank swap rates for the currency in question—since the swap rate will reflect the interest rate differential between the two currencies being traded, and is the critical factor in determining the amount of premium or discount at which the forward exchange rate will trade. The trader, in addition, must be aware of the maturity structure of the contracts already outstanding in his bank’s foreign exchange book, and whether the proposed new transaction would add to or reduce the mismatches. Of course, in offering a quote for an option, a trader must consider other

complex factors. The trader will have loaded into his computer various formulas for estimating the future volatility of the currency involved, along with spot and forward exchange rates and interest rates, so that he can very quickly calculate and quote the price of the premium when given the particulars of the transaction.

On top of all this, in setting quotes, a trader will take into account the relationship between the customer or counterparty and his institution. If it is a valued customer, the trader will want to consider the longer-term relationship with that customer and its importance to the longer-term profitability of the bank. Similarly, when dealing with another market maker institution, the trader will bear in mind the necessity of being competitive and also the benefit of relationships based on reciprocity.

When asked for a quote, the trader must respond immediately, making an instantaneous assessment of these thousand and one factors. Quotes have to be fine enough to attract customers and to win an appropriate share of the business—but also not too fine, since the trader wants to avoid excessive or inappropriate risk and to make profits. A trader wants to be an active participant in the market—it’s helpful in keeping abreast of what’s going on, and he wants others to think of him as a potential counterparty—but he doesn’t want to “over-trade” or feel he must be in on every trade.

As the traders in a foreign exchange department buy and sell various currencies throughout the day in spot, forward, and FX swap transactions, the trading book or foreign exchange position of the institution changes, and long and short positions in individual currencies arise. Since every transaction involves an exchange of one currency for another, it results in



two changes in the bank's book, creating a "long" (credit) position in one currency and a "short" (debit) position in another. The foreign exchange department must continuously keep track of the long and short positions in various currencies as well as how any positions are to be financed. The bank must know these positions precisely at all times, and it must be prepared to make the necessary payments on the settlement date.

Trading in the nontraditional instruments—most importantly, foreign exchange options—requires its own arrangements and dedicated personnel. Large options-trading institutions have specialized groups for handling different parts of the business: some personnel contact the customers, quote prices, and make deals; others concentrate on putting together the many pieces of particularly intricate transactions; and still

others work on the complex issues of pricing, and of managing the institution's own book of outstanding options, written and held. A major options-trading institution needs, for its own protection, to keep itself aware, on a real time basis, of the status of its entire options portfolio, and of the risk to that portfolio of potential changes in exchange rates, interest rates, volatility of currencies, passage of time, and other risk factors. On the basis of such assessments, banks adapt options prices and trading strategy. They also follow the practice of "dynamically hedging" their portfolios—that is, continuously considering on the basis of formulas, judgment, and other factors, possible changes in their portfolios, and increases or reductions in the amounts they hold of the underlying instruments for hedging purposes, as conditions shift and expected gains or losses on their portfolios increase or diminish.

## 5. BACK OFFICE PAYMENTS AND SETTLEMENTS

Every time a deal to buy or sell foreign exchange is agreed upon by two traders in their trading rooms, a procedure is set in motion by which the "back offices" of the two institutions confirm the transaction and make the necessary funds transfers. The back office is usually separated physically from the trading room for reasons of internal control—but it can be next door or thousands of miles away.

For each transaction, the back office receives for processing the critical information with respect to the contract transmitted by the traders, the brokers, and the electronic systems. The back offices confirm with each other the deals agreed upon and the stated terms—a procedure that can be done by telephone, fax, or telex, but that is increasingly handled

electronically by systems designed for this purpose. If there is a disagreement between the two banks on a relevant factor, there will be discussions to try to reach an understanding. Banks and other institutions regularly tape record all telephone conversations of traders. Also, electronic dealing systems and electronic broking systems automatically record their communications. These practices have greatly reduced the number of disputes over what has been agreed to by the two traders. In many cases, banks participate in various bilateral and multilateral netting arrangements with each other, instead of settling on the basis of each individual transaction. As discussed in Chapter 8, netting, by reducing the amounts of gross payments, can be both a cheaper and safer way of settling.

Payments instructions are promptly exchanged—in good time before settlement—indicating, for example, on a dollar-yen deal, the bank and account where the dollars are to be paid and the bank and account where the yen are to be paid. On the value date, the two banks or correspondent banks debit-credit the clearing accounts in response to the instructions received. Since 1977, an automated system known as SWIFT (Society for the Worldwide Interbank Financial Telecommunications) has been used by thousands of banks for transferring payment instructions written in a standardized format among banks with a significant foreign exchange business.

When the settlement date arrives, the yen balance is paid (for an individual transaction or as part of a larger netted transaction) into the designated account at a bank in Japan, and a

settlement occurs there. On the U.S. side, the dollars are paid into the designated account at a bank in the United States, and the dollar settlement—or shift of dollars from one bank account to another—is made usually through CHIPS (Clearing House Interbank Payments System), the electronic payments system linking participating depository institutions in New York City.

After the settlements have been executed, the back offices confirm that payment has indeed been made. The process is completed. The individual, or institution, who wanted to sell dollars for yen has seen his dollar bank account decline and his bank account in yen increase; the other individual, or institution, who wanted to buy dollars for yen has seen his yen bank deposit decline and his dollar bank account increase.