



THE FOREIGN EXCHANGE MARKET

The foreign exchange market enables companies, fund managers and banks to buy and sell foreign currencies, if necessary in large amounts. The motivations behind this demand for foreign currency include capital flows arising from trade in goods and services, cross-border investment and loans and speculation on the future level of exchange rates. The sums involved are very large: estimated global turnover in all currencies in April 1998 was \$1,490 billion, an increase of 26 percent over the past three years. Deals are typically for amounts between \$3 million and \$10 million, though much larger transactions are often done.

Foreign exchange trading may be for *spot* or *forward* delivery. Generally, spot transactions are undertaken for an actual exchange of currencies (*delivery* or *settlement*) two business days later (*the value date*). Forward transactions involve a delivery date further into the future, possibly as far as a year or more ahead. By buying or selling in the forward market a bank can, on its own behalf or that of a customer, protect the value of anticipated flows of foreign currency, in terms of its domestic currency, from exchange rate volatility.

Unlike some financial markets, the foreign exchange market has no single location - foreign exchange is not dealt across a trading floor. Instead, trading is via telephone and computer links between dealers in different centres and, indeed, different continents. London is the world's largest foreign exchange centre: average daily turnover is \$637 billion. This is approximately the same as the combined level of trading in the United States, Japan and Singapore (see Box 1).

London's leading position arises partly from the large volume of international financial business generated here - insurance, bonds, shipping, equities, commodities and banking. London also benefits from its geographical location which enables firms located here to trade not only with each other and with firms based in Europe throughout the day, but also with the US and the Far East, whereas their time difference makes it difficult for firms in those two centres to trade with each other. When banks in London begin trading

at 8 am they can deal with banks in Tokyo, Hong Kong or Singapore whose trading day is just ending. From about 1 pm onwards, London banks can trade with banks in New York; before they close at 4 pm their counterparties may be in Los Angeles or San Francisco. This is important because the foreign exchange market trades 24 hours a day: 66 percent of trades involving a firm in London are transacted with a counterparty located abroad.

THE PARTICIPANTS

Broadly speaking, there are three types of participant in the market: customers, banks and brokers. *Customers*, such as multinational corporations, are in the market because they require foreign currency in the course of their cross border trade or investment business. For example, an engineering firm based in the United Kingdom might use the foreign exchange market to buy the dollars it needs to pay to a firm in America selling it raw materials; in this instance it would sell sterling and buy dollars. *Commercial banks* are by far the most active participants in the foreign exchange market (see Box 4). Some deal with other financial institutions and corporations who contact them, typically by telephone, to ask for their rates, and may then buy foreign currency from, or sell, to the bank at those rates. This is known as *market making*: the banks will at all times quote buying or selling rates for pairs of currencies - dollars to the pound, Japanese yen to the dollar and so on. The market makers earn a profit on the difference between their buying and selling rates, but

AVERAGE DAILY FOREIGN EXCHANGE MARKET TURNOVER IN THE MAIN CENTRES

Box 1

April 1998	US\$ Billions
United Kingdom	637
United States	351
Japan	149
Singapore	139
Germany	94
Switzerland	82
Hong Kong	79
France	72

Source: Surveys conducted by national central banks, co-ordinated by the Bank for International Settlements

they have to be ready to change their prices very quickly in order to avoid holding a currency whose value is falling (*depreciating*), or being short of a currency which is rising (*appreciating*). Banks also deal on behalf of corporations and other, typically smaller, banks. The third type of participant, the *brokers*, act as intermediaries between the banks. They are specialist companies with computer links or telephone lines to banks throughout the world so that at any time they should know which bank has the highest *bid* (buying) rate for a currency, and which the lowest *offer* (selling) rate. By using a broker it should, therefore, be possible for banks to find the best dealing rate currently available. The broker does not deal on its own account, but charges a commission for its services.

DEALING IN THE SPOT & FORWARD MARKETS

To execute a *spot* deal in the market, a dealer contacts his counterpart at a market-making bank and asks for his price in, for example "sterling-dollar" (i.e US dollars to the British pound). The market maker normally quotes a two-way price - that is he stands ready to bid for or offer up to some standard amount. The difference between these two prices is known as the spread. For the sake of convenience, the market convention where trading is between banks is not to quote the "big figures" (i.e pounds and pence, dollars and cents); instead, dealers tend to quote only the *points* (the last two figures of the

FUTURES AND OPTIONS

Box 3

Currency futures are forward transactions with standard contract sizes and maturity dates (e.g US dollars 125,000 for settlement in December) which are traded on a formal exchange. Because futures contracts are standardised, they are less flexible than forward contracts. Dealing in futures also involves certain transactions costs, such as the costs of being, or trading through, a member of the exchange. But, futures do provide the opportunity to deal in smaller amounts than in the spot/forward markets and to obtain a considerable exposure with a small capital outlay, since the initial capital outlay is small relative to the contract size.

Currency options provide the buyer with the right, but not the obligation, to sell or buy an amount of foreign currency at an exchange rate and date specified in advance. The buyer must pay a premium to the writer of the option (which is often a bank). Currency options allow the user to guarantee the buying price (*call*) or selling price (*put*) of a currency without foregoing the opportunity to benefit from favourable exchange rate movements, as the user can buy or sell in the spot market if the price is better. The writer of an option benefits from the premiums received but, because it stands committed to buy or sell currency at the pre-agreed exchange, it faces the risk of losses arising from exchange rate movements.

THE DETERMINATION OF FORWARD RATES

Box 2

The forward rate is equivalent to the spot rate plus a premium or minus a discount. The forward premium or discount is determined by means of the following general equation which is adjusted to take account of whether the discount/premium or the bid/offered rate is being calculated:

$$\frac{\text{Spot rate} \times (\text{interest rate differential, i.e. } \$ \text{ interest rate} - \text{EUR interest rate}) \times \text{days}/360}{1 + (\text{EUR interest rate} \times \text{days}/360)}$$

To calculate, for example, the six month forward rate for the Euro against the Dollar by determining the necessary adjustment (premium/discount), the following information is also needed:

	BID	OFFER
Spot exchange rate (€/=\$US)	0.9720	0.9725
6 month \$ interest rate	6 ¹ / ₄ %	6 ³ / ₈ %
6 month Euro interest rate	3 ⁵ / ₈ %	3 ³ / ₄ %

So offer rate equation is:

$$\frac{0.9725 \times (.06375 - .03625) \times 182/360}{1 + (.003625 \times 182/360)} = -.013280$$

And the bid rate equation is:

$$\frac{0.9720 \times (.0625 - .0375) \times 182/360}{1 + (.0375 \times 182/360)} = -.012056$$

So the forward rates are 0.9841 (bid) and 0.9858 (offered)

price). For example, if the rate for pounds against the dollar was £1 = US\$ 1.6315-25 then the market maker would quote "fifteen-twenty five": he bids for pounds at \$1.6315 and offers them at \$1.6325. If the market maker wishes to deal he will *hit*, that is accept, one side of the price. Written confirmation of this oral contract will be exchanged and instructions concerning payment given, and passed on to the settlements staff who ensure that the respective currency amounts are transferred into the designated accounts on the value date.

Quotation of prices and dealing in the *forward* market are rather different from spot dealing. Theoretically it is possible for the forward price of a currency to equal its spot price. But because the interest rate that can be earned by holding different currencies usually varies, in practice the forward price is normally higher or lower than (at a *premium* or a *discount* to) the spot rate (see Box 2 for the method of calculation). For convenience, forward prices are not quoted outright, and instead dealers quote the differential (the premium or discount). This practice has a number of benefits. Premiums and discounts are subject to much less fluctuation than are spot rates, so quoting the differentials requires far fewer changes to published prices. Furthermore, foreign exchange *swaps* (combining a spot purchase with a simultaneous forward sale, or vice-versa) are based on the differentials with the actual spot rate being of relatively little consequence.

Premiums and discounts reflect the interest rate differentials between currencies at the time the deal is done; the determination of the forward rate does not depend directly on

THE MARKET IN LONDON

Box 4

Participants

The vast majority of foreign exchange business in London is accounted for by trading between banks: in April 1998, domestic and international inter-bank transactions accounted for 83 percent of trading, up from 75 percent in 1995. Of the remainder of banks' trading activity, 9.5 percent was with other, non-bank financial institutions such as pension funds and asset managers; non-financial institutions, such as multinational corporations, account for just over 7 percent.

The proportion of principals' business handled by brokers is now 27 percent, down from 35 percent in 1995. However, electronic broking systems have continued to take market share away from traditional, telephone-based,

voice brokers: the proportion of business conducted by voice brokers has fallen to 16 percent, from 30 percent in 1995; the share of electronic brokers such as Reuters and EBS has risen from 5 percent to 11 percent.

Spot transactions

Over the past 15 years, spot business has not grown as fast as forward business: forward transactions now account for 65 percent of turnover, compared with 27 percent in 1986. In the forward market, most of the transactions are swaps, which are often used to hedge currency risk and manage liquidity.

Currency composition

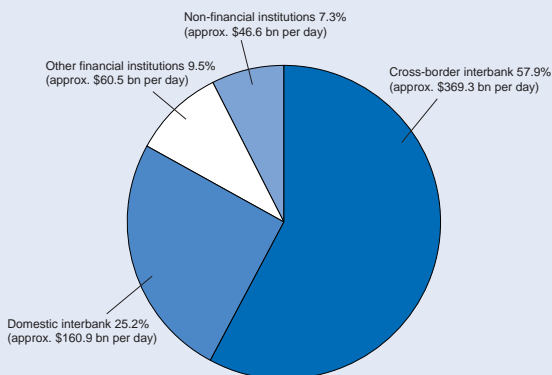
The most widely traded currency pairs are US\$/€, US\$/¥ and £/US\$. A wide range of currencies are traded in London; unlike other European financial centres, trading in the domestic currency accounts for a small proportion of turnover. Only 18 percent of turnover in the UK involves sterling; this compares with domestic currency trading accounting for 66 percent of turnover in Germany, 41 percent in France and 39 percent in Switzerland.

Market share of overseas banks

About 15 percent of the foreign exchange business in London transacted by banks is done by UK institutions and the remaining 85 percent by overseas banks. North American principals are the most active, with a 49 percent share, followed by UK principals (15 percent) and Japanese (7 percent)

Source: Bank of England Survey, April 1998

Average daily turnover by counterparty



any estimation of what the future exchange rates in question are likely to be. Thus, if a currency with a high interest rate is sold forward in exchange for a currency with a lower interest rate, then the seller continues to enjoy the benefit of the higher interest rate for the period until the value date. However, the buyer must wait to obtain the currency on which it can earn the higher interest rate. This imbalance is compensated by the purchaser receiving a discount on the spot exchange rate in a deal undertaken for forward settlement.

A forward transaction can be "closed out" at any time by means of another forward transaction to sell or repurchase the foreign currency for the original value date.

Forward transactions are a flexible and commonly used method of protecting the value of future flows of foreign currency in terms of the domestic currency of a firm or bank. As the foreign exchange market has grown, so other instruments such as *futures and options* (see Box 3) have developed to facilitate the protection, or *hedging*, of foreign exchange commitments.

THE DETERMINATION OF EXCHANGE RATES

In the long run, the demand for one country's currency in terms of another country's currency is determined by real economic factors. The exchange rate is influenced by relative inflation, growth and interest rates and trade and investment

flows between countries. Foreign exchange dealers therefore closely monitor announcements of new economic statistics on the major world economies. When economic releases are out of line with forecasts, dealers alter the rates they are quoting to reflect the implied change in their assessment of the currency's value.

Since changes within and between different governments often lead to changes in economic and financial policies, political developments can also affect the foreign exchange market. The market may therefore react to changes in public opinion polls or other news items which have implications for future political developments. But expected news, whether economic or political, rarely moves exchange rates - the effect will already have been anticipated or "discounted". Unexpected news, such as a country changing the regime it favours for managing its currency, or unanticipated problems in a nation's economy, however, can lead to sudden and sharp exchange rate movements.

Alongside these fundamental considerations, banks and brokers undertake "technical analysis", studying market movements by means of *charts* showing the movement of exchange rates over time. Charts can be used to extrapolate from past movements. Technical analysis is based on the underlying assumption that price movements follow broadly predictable patterns which reflect market psychology, and that past patterns can thus give an indication to possible future trends.

THE ROLE OF GOVERNMENT AND CENTRAL BANKS

Not only is the exchange rate influenced by real economic variables, but its level and volatility also have an impact (both direct and indirect) on these same economic factors. Even modest changes in the value of a currency can have significant effects on business and the national economy more generally. If a currency were to weaken excessively, it would put upward pressure on domestic inflation as imports and internationally tradeable goods produced domestically rose in price: the cost, in terms of the domestic currency, of buying foreign currency is higher at a weaker exchange rate. Conversely, a strengthening currency might lead to a fall in import prices and lower domestic inflation: the cost of buying foreign currency in terms of the domestic currency is lower at a stronger exchange rate. Domestic producers would need to contain their costs in order to remain internationally competitive. Otherwise their profitability and the level of growth and employment in the economy as a whole might fall.

The pound ('sterling') is currently allowed to "float" freely against all other currencies. This means that the authorities are not committed to maintaining the market value of sterling within a pre-announced range against any other currency. Sterling was a member of the Exchange Rate Mechanism of the European Monetary System from 8 October 1990 until 16 September 1992. During this period sterling's ability to fluctuate against the other participating currencies was constrained by the central banks of participating countries, who were committed to holding sterling within a margin of 6 percent on either side of its agreed central rates against each of the other participating currencies.

The authorities have a number of means of influencing the exchange rate. The Bank of England can *intervene* in the foreign exchange market by buying or selling pounds which would alter the supply of sterling relative to other currencies. However, although intervention could be effective in smoothing short-term fluctuations in the value of the pound, it cannot resolve underlying economic problems, which have to be addressed by more fundamental policy measures. Although monetary policy can influence the level of the exchange rate, the overall objective of monetary policy in the UK is the achievement of domestic price stability, as defined by the inflation target set by the Government.

The Government's foreign exchange reserves are approximately \$35 billion; in addition, the Bank of England has approximately \$4 billion of holdings of foreign currency and gold. A principal source of the reserves is borrowing by the government in foreign currency. The other main source is intervention. When the Bank of England intervenes to buy foreign currencies (and sells sterling), the proceeds will be added to the reserves. On the other hand, sales of foreign currencies to protect the value of sterling will reduce the reserves. However, this does not mean that the reserves have been spent: the foreign exchange reserve "asset" has merely been converted into a sterling one.

THE EFFECTIVE EXCHANGE RATE

Box 5

An effective exchange rate is a measure of the value of a currency against several other currencies (a "basket") at once. It is calculated as a weighted geometric average of exchange rates and expressed as an index relative to a base year. (In the chart below the base year is 1990, when the sterling's average level was 100). Because the effective exchange rate is an average of a currency's exchange rates, it is often more useful when looking at the value of a currency over a long period than a single exchange rate (such as sterling-dollar). The higher the index figure, the stronger the currency. In the chart below the weight given to each currency in the basket is derived from the trade flows in manufactured goods and represents the relative importance of the country in question as a competitor in export markets. The weights are revised periodically to accommodate countries' changing economic circumstances.

Sterling's effective exchange rate (January 1992-March 2000)

