Foreign Exchange Markets

Foreign exchange: Money of another country.

Foreign exchange transaction: Agreement between the buyer and the seller of a currency.

Foreign exchange market (FOREX market): Physical and institutional structure through which the money of one country can be exchanged for that of another country.

Geographic Extent of the Market

The FOREX spans the globe with prices moving currencies 24 hours a day.

Major exchanges are located in Singapore, Hong Kong and Tokyo in the East.

Bahrain and London for the European area.

New York, San Francisco and Sydney.

Functions of the FOREX Market

Transfer of Purchasing Power: If a Japanese exporter sells Toyota to a Brazilian importer, payment will be made using a specific currency. The FOREX market allows each party to "trade" in their respective currency.

Provision of Credit: Movement of goods of between countries takes time, the FOREX market provides a source of credit(e.g. letter of credit).

Minimizing Foreign Exchange Risk: Hedging facilities are provided by the FOREX market.

Market Participants

The FOREX market consists of two tiers: Interbank (or wholesale) market and client (or retail) market.

Participants are

- Bank and non-bank dealers
- Individuals and firms (for commerce or investment)
- Speculators and arbitrageurs
- Central banks and treasuries
- Foreign exchange brokers

Banks and Nonbank Dealers

Profit from buying currencies ar a **bid** price and reselling them at an **offer** or **ask** price.

Dealers on behalf of large international banks often act as **market makers**, buying and selling currencies from their own inventories.

Dealers trade with other banks and dealers to maintain their inventories are manageable levels.

Currency trading may contibute 10% - 20% of a bank's average net income.

Small and medium-sized banks rarely act as market makers.

Individuals and Firms Conducting Business/Investment

Importers, exporters, portfolio investors, tourists use the FOREX market to execute transactions.

Some will use the market to hedge against foreign exchange rate risk.

Speculators and Arbitrageurs

Speculators and arbitrageurs seek to profit from trading in the market itself.

Speculators seek to profit from exchange rate changes.

Arbitrageurs seek to profit from simultaneous differences in exchange rates in different markets.

Large portion of speculation is conducted on behalf of large banks.

Central Banks and Treasuries

Acquire and spend their country’s currency reserves.

Influence the price at which their own currency is trading.

Moderate the changes in their country’s currency value.

Foreign Exchange Brokers

Facilitate trading between dealers.

Charge a commission for their services.

Transactions in the Interbank Market

- Spot transactions: Almost immediate delivery (1-2 business days).

- Forward transactions: Delivery at some future date.

- Swap transactions: Simultaneous exchange of currencies.

Spot Transactions

Delivery normally takes place on the second following business day.

Clearing House Interbank Payments System (CHIPS)

Settlement account for member banks at the New York Fed.

Settlement date is the **value date**.

Outright Forward Transactions (Forward)

Transaction that requires delivery at a future date of a specified amount of a currency for a specified amount of another currency.

Exchange rate specified at the time of the transaction, payment and delivery delayed.

Forward rates are quoted for dates of one, two, three, six, nine and twelve months.

Payment is on the second business day after the even-month anniversary of the trade.

Swap Transactions

Simultaneous purchase and sale of foreign exchange, with the same counterpart, for different value dates.

Example: *Spot against Forward*
A dealer buys a currency in the spot market and simultaneously sells forward the same amount back to the same bank. Dealer incurs no exchange rate exposure.

Example: *Forward-Forward Swap*
A dealer sells £20,000 forward for dollars for delivery in two months at \$1.6870/£ and simultaneously buys £20,000 forward for delivery in three months at \$1.6820/£.

The difference between the buying and selling price is equivalent to the interest rate differential.

This can be viewed as a technique for borrowing another currency on a fully collateralized basis.

Nondeliverable Forwards

Settled only in U.S dollars and the other currency involved is not delivered.

NDFs are contracted offshore, and thus beyond the reach of the home country governments.

For example, when Argentine pesos was pegged to the US$, banks in Argentine were quoting the spot rate as the forward rate. NDFs, on the other hand, were reflecting the interest rate differential.

Size of the FOREX Market

The Bank for International Settlements (BIS) estimates that daily global net turnover in traditional FOREX market activity to be US$1,210 billion in April 2001.

Foreign Exchange Rates & Quotations

In the interbank market, there are two types of quote:

- Foreign currency price of one dollar (Sfr1.6000/$)
- Dollar price of a foreign currency unit ($0.6250/Sfr).

The former is considered the "European quote".

The latter is considered the "American quote".

Pound Sterling, Euro, New Zealand and Australian dollars quoted the American way.

Direct and Indirect Quotes

- A *direct* quote is a home currency price of a foreign currency unit.
  Sfr1.6000/$ is a direct quote in Switzerland.

- A *indirect* quote is a foreign currency price of a home currency unit.
  $0.625/Sfr is an indirect quote in Switzerland.

Bid and Ask Quotations

¥118.27-¥118.37:

- the dealer will pay ¥118.27 for one dollar (bid price).
- the dealer demands ¥118.37 per dollar (ask price).

The latter are “outright” quotes.

Expressing Quotes on a Points Basis

A point refers to the last digit of a quotation. Hence a point is 0.0001 for most currencies.

Yen: Spot and Forward (¥/$)

	Bid	**Ask**
Spot	118.27	118.37
1 mo	-51	-50
2 mo	-95	-93

1 month forward bid: $118.27 - 0.51 = 117.76$

1 month forward bid: $118.37 - 0.50 = 117.87$

Could be expressed in the following manner:

	Spot	**30-day**	**90-day**	**180-day**
£:	\$2.0015-30	19-17	26-22	42-35
SFr:	\$0.6963-68	4-6	9-14	25-38

If bid (in points) is smaller than ask (in points), add to spot.
If bid is greater than ask, subtract from spot.

The outright rates of the last table are

	£		SFr	
Maturity	**Bid**	**Ask**	**Bid**	**Ask**
Spot	\$2.0015	\$2.0030	\$0.6963	\$0.6968
30-day	1.9996	2.0013	0.6967	0.6974
90-day	1.9989	2.0008	0.6972	0.6982
180-day	1.9973	1.9995	0.6988	0.7006

Forward Quotations in Percentage Terms

Forward quotations may also be expressed as the percent-per-annum deviation from the spot rate.

A forward premium or discount tells us if a foreign currency (FC) is selling forward for more or less than its spot rate:

$$f_{\mathsf{FC}}^{n} = \frac{F_{\mathsf{HC/FC}}^{n} - S_{\mathsf{HC/FC}}}{S_{\mathsf{HC/FC}}} \times \frac{360}{n},$$

where HC means home currency.

Rates may be directly (HC/FC), or indirectly (FC/HC) quoted.

If indirectly quoted,

$$\begin{aligned}
f^n_{\mathsf{FC}} &= \frac{F^n_{\mathsf{HC/FC}} - S_{\mathsf{HC/FC}}}{S_{\mathsf{HC/FC}}} \times \frac{360}{n} \\
&= \frac{\frac{1}{F^n_{\mathsf{FC/HC}}} - \frac{1}{S_{\mathsf{FC/HC}}}}{\frac{1}{S_{\mathsf{FC/HC}}}} \times \frac{360}{n} \\
&= \frac{S_{\mathsf{FC/HC}} - F^n_{\mathsf{FC/HC}}}{F^n_{\mathsf{FC/HC}}} \times \frac{360}{n}
\end{aligned}$$

10 A.M. MIDPOINTS - NEW YORK INTERBANK MARKET
(This Morning)

Currency	**Spot**	F^{90}	F^{180}
Euro (US$/€)	1.0755	1.0715	1.0682
Pound Sterling (US$/£)	1.6467		
Canadian Dollar	1.5289		
Swiss Franc	1.3668		
Japanese Yen	119.32	118.91	118.53
Swedish Krona	8.5310		
Norwegian Krone	6.8985		
Danish Krone	6.9125		

The 180-day Japanese yen is selling at a

$$
\begin{aligned}
f_{¥}^{180} &= \frac{S_{¥/\$} - F_{¥/\$}^{180}}{F_{¥/\$}^{180}} \times \frac{360}{180} \\
&= \frac{119.32 - 118.53}{118.53} \times 2 \\
&= 1.33\%
\end{aligned}
$$

premium.

The euro, on the other hand, is directly quoted. The 180-day euro is selling at a

$$
\begin{aligned}
f_{€}^{180} &= \frac{F_{\$/€}^{180} - S_{\$/€}}{S_{\$/€}} \times \frac{360}{180} \\
&= \frac{1.0682 - 1.0755}{1.0755} \times 2 \\
&= -1.36\%,
\end{aligned}
$$

premium, or a 1.36% discount.

Cross Rates

A Norwegian importer needs Japanese yen to pay for purchase in Tokyo. Both the Norwegian krone (NKr) and the Japanese yen are quoted in US$. We have ¥119.32/\$ and NKr6.8985/\$. This gives us

$$\frac{¥119.32/\$}{\text{NKr}6.8985/\$} = ¥17.2965/\text{NKr}.$$