

# Fundamentals of Foreign Exchange

## Participant's Guide

Compiled by



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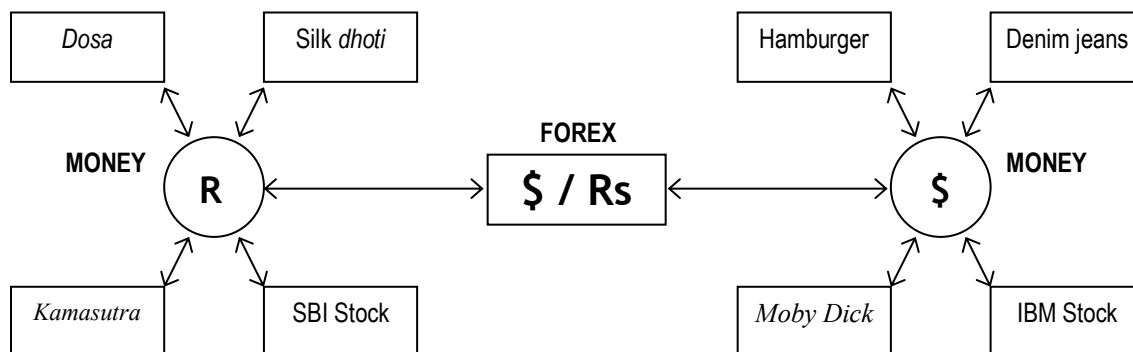
# 1 Foreign Exchange Overview

## 1.1 What is foreign exchange?

Foreign exchange is money denominated in the currency of a foreign country. Different countries use different currencies

A resident of one country will need the currency of another country only if he wishes to make Purchases, Investments, in that other country.

Money is the medium of exchange for goods and services. Money comes in different “brands”: US dollar, British pound, Indian rupee, etc, each having its legal jurisdiction. Foreign exchange is the medium of exchange for different “brands” of money.



### 1.1.1 Why foreign exchange?

We need foreign exchange to buy or sell goods and services in other jurisdictions or countries. Currencies are national but trade is international. Trade goes beyond national boundaries because of comparative and competitive advantages. Foreign exchange stems from the “coexistence between nationalism of currencies and internationalism of trade.” We may say that forex is international clearing mechanism.

Foreign exchange will disappear if: (a) there is no international trade; or (b) the world switches to a single currency. The former is quite unlikely: world exports rose from US\$ 500 billion (or 2.5% world GDP) in 1950 to over US\$ 9 trillion (or 28% of world GDP) in 2004. The latter is unlikely, too, but the emerging trade blocks (e.g. EU, NAFTA, ASEAN, SAFTA) might reduce the number of currencies to select few. Already, euro has replaced a dozen national currencies as the medium of exchange.

### **1.1.2 Forex Transaction**

To be qualified as a forex transaction, two criteria must be satisfied.

*Two currencies are involved*

If the transaction involves only one currency, it is a money transaction and not a forex transaction.

Rate of exchange between the two currencies must be fixed

Not only two currencies must be involved, but the rate of exchange must be fixed. If the rate is not fixed, then the transaction is not entered the forex book, but will eventually enter it when the rate of exchange is fixed.

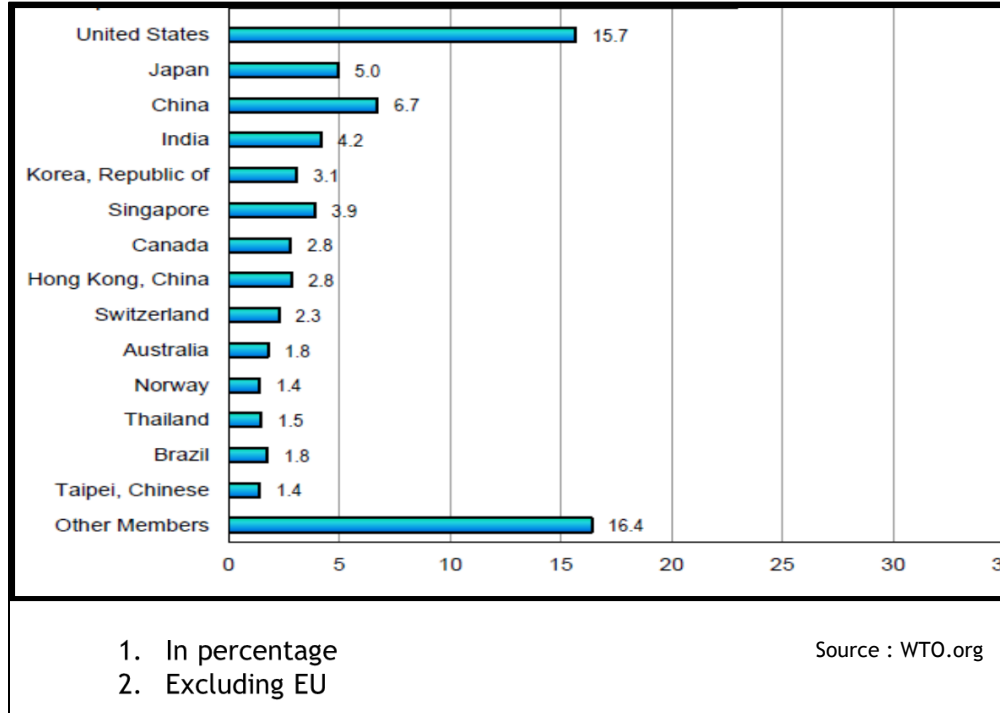
## **1.2 Major Currencies of the World**

Major Currencies of the World

- US Dollar
- Pound Sterling
- Japanese Yen
- Australian Dollar
- Euro
- Swiss Francs

### **1.2.1 Why these currencies are more important?**

- The USA is the major trading partner of most of the countries of the world (the other country may not be a major partner of the USA)
- UK enjoys maximum amount of forex flows from financial services, including, but not limited to the global insurance industry being headquartered in London. The Asia-facing operations of many US Banks are also based out of London
- Japan is the world's third largest economy and is a large exporter.
- The Euro zone (16 countries as on date) are next in size only to Japan.
- Other countries like South Africa (Rand) and Australia enjoy a share in world trade from mineral exports.



Relevance of a currency in International Trade is not a factor of countries involved. It is dependent on the currency of invoicing & settlement.

So, let us examine the Shares countries in international trade with the share of each country's currency in International Trade

China with approximately 13% of international trade settles less than 1% of trades in Chinese yuan. China's preference for yuan as a settlement currency is relatively recent. Till recently it preferred to simply accumulate the US dollar

Approximately 80% of world trade is denominated in US dollars. The usa itself is about 11% of world trade.

The EU which comprises 27 countries, not counting the UK has a 16% share in world trade and a 6% share in invoicing.

Japan has approximately 4% of world trade and around 3% of world trade is denominated in its currency the Japanese yen. Export powerhouse cars, electronics etc.

The UK with 4% of world trade, invoices around 2.75% in pound sterling

### 1.3 Role of Central Banks

Often governments, through respective Central Bankers intervene in currency markets to protect their exporters and their national competitiveness.

A strong currency is seen as a disadvantage by exporters.

Intervention by the Central Bank -

- The country which feels its currency is becoming too strong and therefore affecting exports, may want to bring down the value
- To do so, it will sell its own currency: a massive supply of currency will reduce the exchange rate.
- The expectation is that the country's exports will once again become affordable
- These kinds of policy intervention results in the Central Banker being present in the market

These kinds of policy intervention results in the Central Banker being present in the market

### 1.4 FX Dealers and Brokers ( Market Makers)

Market makers are Those players who create a market by being willing to do both buying AND selling: depending on what the Counterparty is looking for. If the currency is infrequently traded, or the requirement is complex it will merely be reflected in the RATE.

The Market Maker checks the inter-bank rate in the market. A number of forces are at play in that market. Based on all of this the forex desk arrives at a rate that can be quoted to the customer.

Finally, the dealer at the forex desk adds a margin to earn profits.

Since Market-Makers are ready to both buy and sell at all times, they quote for both buying and selling, simultaneously.

Market Makers always “Buy Low” and “Sell High”.

## 1.5 Money Changers

A money changer is a person or organisation whose business is the exchange of coins or currency of one country, for that of another. Authorized money changers are one of the most important participants in foreign exchange market. In order to provide facilities for encashment of foreign currency to visitors from abroad, especially foreign tourists, Reserve Bank has granted licenses to certain established firms, hotels and other organizations permitting them to deal in foreign currency notes, coins and travelers cheques subject to directions issued to them from time to time.

These firms and organizations who are generally known as authorized money changers fall into two categories, viz.

1. Full-fledged money changers, who are authorized to undertake both purchase and sale transactions with the public and
2. Restricted money changers, who are authorized only to purchase foreign currency notes, coins and travelers cheques, subject to the condition that all such collections are surrendered by them in turn to an authorized dealer in foreign exchange / full fledged money changer.

Authorized dealers also play an important role in foreign exchange transactions. Authorizations in the form of licenses to deal in foreign exchange are granted to banks which are well equipped to undertake foreign exchange transactions in India. Authorizations have also been granted to certain financial institutions to undertake specific types of foreign exchange transactions incidental to their main business.

## 1.6 Buyers and Sellers of FX (Market Users)

The customers of the banks are market users.

Those players who have an underlying requirement with respect to the financial instruments and products such as foreign exchange.

The Market User always “Buys High” and “Sells Low”

## 1.7 The Role of Commercial Banks

Banks are market makers.

Banks never say “NO” to a customer request, including one for a currency.

Customers typically contact their relationship manager for currency requirements. The customer facing departments in the bank will contact the forex desk. The forex desk checks the interbank market.

Apart from global factors there is demand and supply also at play, there are internal considerations at the bank.

The bank then adds margin to make profit.

And that is how customers of the bank get the rates at which they buy and sell currencies.

Commercial banks form the commercial market where:

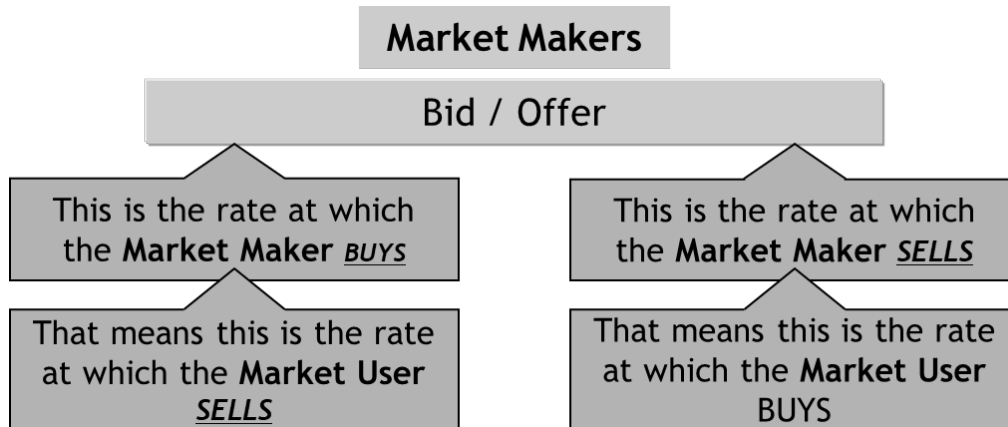
- Retail market operated by banks for non-banks
- Caters to exporters, importers and general public
- Market localized to each country



## 2 Foreign Exchange Basics

### 2.1 Bid/Ask mechanics

Since Market-Makers are ready to both buy and sell at all times, they quote for both buying and selling, simultaneously. That is known as a two-way quote.



The Bid will always be lower than the Offer

The difference between Bid and Offer is called the Spread and always favors the Market Maker.

**Market Makers** always “Buy Low” and “Sell High” and **Market User** always “Buys High” and “Sells Low”.

### 2.2 Currency Pair

A currency pair is the quotation of two different currencies, with the value of one currency being quoted against the other.

Currency pairs compare the value of one currency to another.

In forex trading, four major currency pairs are the most popular:

EUR/USD: The euro and the U.S. dollar.

USD/JPY: The U.S. dollar and the Japanese yen.

GBP/USD: The British pound sterling and the U.S. dollar.

USD/CHF: The U.S. dollar and the Swiss franc.

## 2.3 Base Currency and Quoting Currency - Forex Rate

Forex rate is the price of one currency in terms of another. The currency that is priced is called the base currency; and the currency that prices it is called the quoting currency.

### Base Currency (BC)

- Currency that is priced
- Bought and sold like a commodity
- Does not serve the usual role of currency (i.e. medium of exchange, store of value, unit of account)

### Quoting Currency (QC)

- Currency that prices the BC
- Serves the traditional role of currency (i.e. medium of exchange, store of value, unit of account)

We may define forex rate as the price of BC expressed in QC. This definition always holds in all quotation “styles” (explained later). The quantity of BC is always constant whereas that of QC varies with the changing value of BC.

### 2.3.1 Standard Codes and Notation

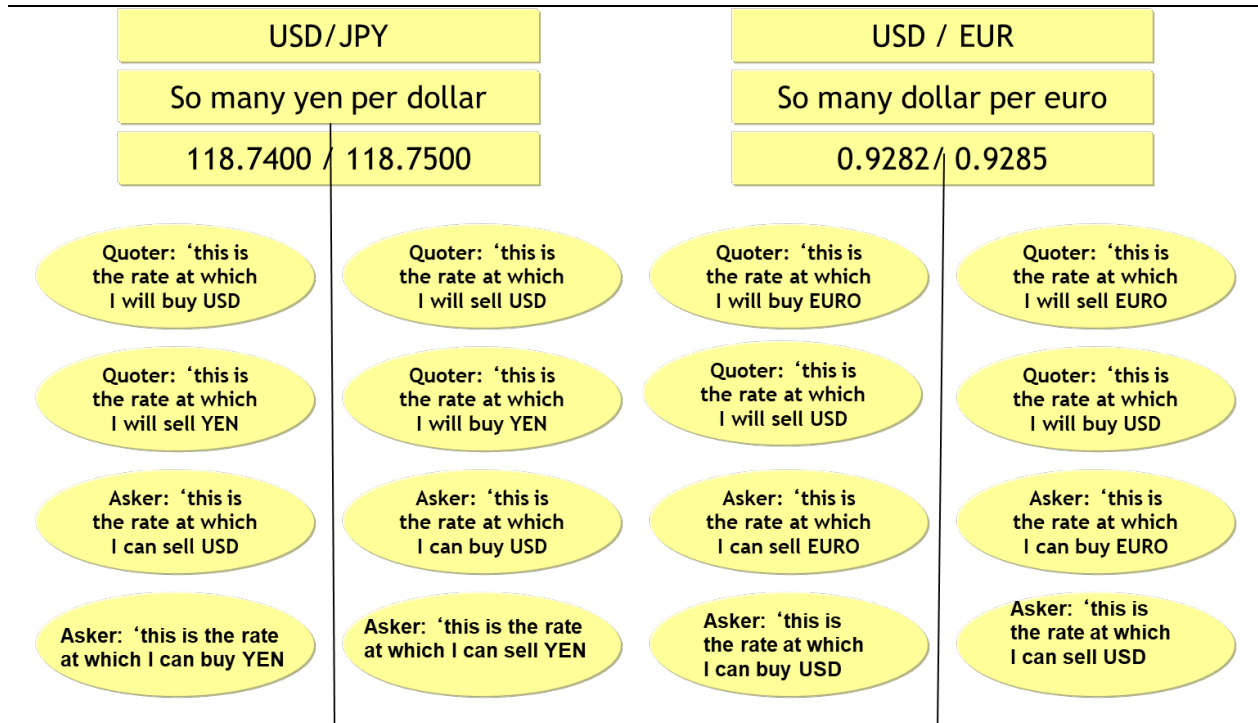
All currencies are given three-letter codes by International Standards Organization (ISO) in its standard ISO-4217. The first two letters always represent the country code given by the ISO (vide standard ISO 3166). In most cases, the third letter is taken from the first letter of the currency name.

When a forex rate is expressed in writing, it is the convention to write the BC first, followed by forward slash (“/”) and QC. For example,

**USD/INR:** US dollar (USD) is the base currency and Indian rupee (INR), quoting currency. Forex rate indicates the price of USD in INR.

**INR/USD:** INR is base currency and USD, quoting currency. Forex rate indicates the price of INR in USD

When the forex rate is so low that the most significant digit is in second decimal, it is customary to hold the unit quantity of base currency at 100. For example, USD/INR forex rate is 72.00. It indicates that the price of USD 1 = INR 72.00. Its reciprocal rate, INR/USD, will be 0.0138. To maintain precision for such low-value rates, we will have to either increase the number of decimal places or keep the amount of base currency at 100 units. The latter is handier because it involves fewer decimal places to handle, and hence is preferred.



## 2.4 Hierarchy in the Currency Pair

The higher valued currency will always be the base and the lesser valued currency will be the variable. (But values change! But the convention remains).

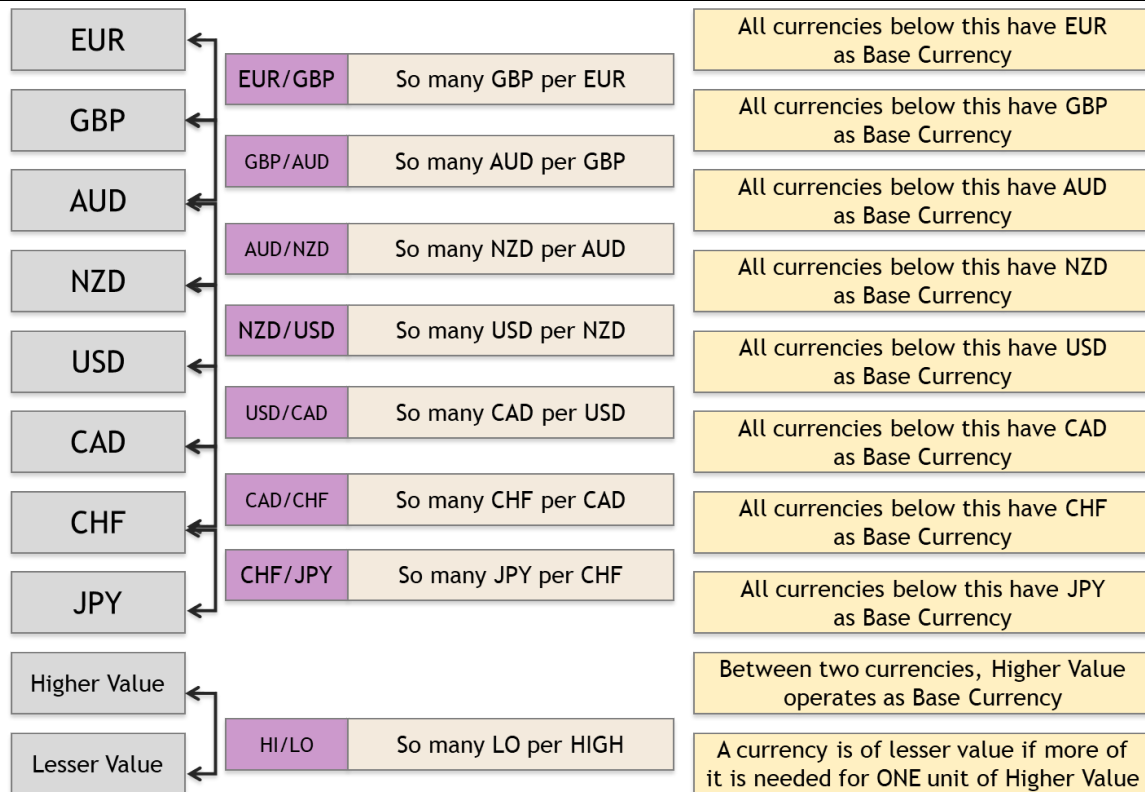
Numeraire currency is USD.

Dollar is the Base Currency; all other currencies are the variable.

Depicted below is the hierarchy for major currencies of the world.

These are market conventions: there is no body which makes a rule as such.

Typically, in some market they may locally prefer to calculate rates the “other way around”; this would be called local practice and contrasted with global market practice of following the hierarchy.



## 2.5 Quotation Styles

There are two “styles” of quotations: direct and indirect. Both styles are prevalent in both market segments (i.e. interbank and commercial).

In the interbank market, the direct style requires the numeraire to be the base currency and the other currency to be the quoting currency. In other words, the forex rate is the price of numeraire in terms of the other currency. The indirect style switches the places: numeraire is the quoting currency and the other is the base currency so that the forex rate will be the price of other currency in terms of numeraire. Thus,

Direct style: USD/JPY, USD/INR, etc (numeraire underlined)

Indirect style: GBP/USD, AUD/USD, etc (numeraire underlined)

In the commercial market (in which the local currency is always one of the two currencies of forex rate), the direct style has the local currency as quoting currency and indirect style has it as the base currency.

Thus,

**Direct style:**

India: USD/INR, JPY/INR, etc (local currency is underlined)

USA: INR/USD, JPY/USD, etc (local currency is underlined)

**Indirect style:**

UK: GBP/USD, GBP/INR, etc (local currency is underlined)

Australia: AUD/USD, AUD/INR, etc (local currency is underlined)

Direct style is intuitive and conveys the required information directly. For example, in the wholesale interbank market, everyone is interested in the price of numeraire, which is important in international trade and finance. Similarly, in commercial rates, exporters and importers will be interested in the price of foreign currency in terms of home currency, rather than the other way round. It is followed for most forex rates in interbank market (the major exceptions being GBP, AUD, NZD and EUR) and in commercial market of most countries (except UK, Australia, New Zealand and European Union area).

We may say that direct style is the *price quotation* system: what is quoted is the price of commodity. In this system, if we “buy low and sell high,” we will make profit. Indirect style is a *volume quotation* system: what is quoted is the volume per unit price. In this system, if “buy high and sell low” (or take more and give less), we make profit. For example, if we buy 10 apples for Rs 100 and sell 9 apples for Rs. 100, we will make a profit of 1 apple. The price is kept constant and the quantity (or volume) of the commodity is changed. In both systems, the profit or loss will always accrue in that whose quantity is changed. The following is the summary of forex quotation styles.

	<i>Interbank Market</i>	<i>Commercial Market</i>
Direct Style	Nomeraire is the BC	Local currency is the BC
Indirect Style	Nomeraire is the QC	Local currency is the QC

## 3 Position Management

A position is the amount of a currency which is owned by an individual, dealer, institution, or other fiscal entity.

### 3.1 Building/ Initiating Positions

Banks never say “NO” to their customers for the customer’s business/operational needs. If nothing else, they will deal in the market to find what the customer wants.

The banker to the client has two choices:

- Either run the position  
Because it holds the opposite view as the client
- Or Cover the position

Because it holds the same view as client Or because even if it holds the opposite view as the client, the exposure limits do not permit the bank to keep the position open.

When the bank covers, it enters the market and squares its position

In back to back dealing the bank would quote rates to the client based on the cover it can obtain.

### 3.2 Interbank markets

The interbank market is the global network utilized by financial institutions to trade currencies between themselves. While some interbank trading is done by banks on behalf of large customers, most interbank trading is proprietary, meaning that it takes place on behalf of the banks' own accounts.

The interbank market for forex serves commercial turnover of currency investments as well as a large amount of speculative, short-term currency trading.

### 3.3 Running positions

When the customer ( market user) contacts the dealer at the Bank for currency exchange, the Bank may hold an opposite view to the customer and hence the bank/broker may meet the client need and do nothing in the market. That would be called ‘taking a position’ or ‘running the position’.

### **3.4 Closing Positions**

Closing a position refers to executing a transaction that is the exact opposite of an open position, thereby nullifying it and eliminating the initial exposure. Closing a long position in a trade would entail selling it, while closing a short position in a trade would involve buying it back.

Only when the position closes, the actual gains or losses for the trade is realized, thereby affecting the actual cash balance of the account. It is important to understand that gains or losses for open positions are still unrealized.

### **3.5 Position Limits**

Bank controls the forex operations by placing limits on position. The position limit has two variants: daylight limit and overnight limit. The daylight limit is the limit during the day while the overnight limit is the limit at the close of business each day. The overnight limit is also used to compute capital adequacy for trading operations under Basel II regulatory regime.

### **3.6 Risk Management**

- Fx transactions are direct between two parties on a one-to-one basis
- Due to this, there is a risk that a counterparty to a trade defaults on its obligations
- Counterparty Credit Risk is managed by established trading limits for each Counterparty in respect of OTC Trades
- The hygiene check before entering a trade is to ensure that after this trade, the Counterparty Credit Risk limit should not be exceeded.

## 4 The FX Market

### 4.1 Cash, Tom, Spot & Forwards

- Value Dates

Value date is the date of settlement for forex deal, which is usually later than the trade date. The time lag between the two dates is necessary because every forex deal involves settlement of two currencies whose settlement centers may be in different time zones. Besides, the deal needs to be processed for affecting payment of one currency and receipt of another. Value dates are grouped into the following three.

- Spot

The settlement date is the “second business day” from the trade date. However, determining the “second business day” is a little complicated, as we will examine later. The spot value date is the most important of all because all other value dates are derived from it. Unless otherwise specified, every deal is assumed a spot deal.

- Forward

All value dates later than spot value date are collectively called the forward value dates. There could be infinite number of such dates. To reduce them to manageable numbers, they are standardized in multiples of a month. Thus, we have 1-month, 2-month, etc. Forward values dates for odd-dates (i.e. 25-days, 45 days, 81-days, etc. from spot) are also possible, but are quoted only on specific request. They are called “odd” forward value dates. It should be remembered that all forward values dates are after spot value dates. For example, the 3-month forward value date means that the settlement would be three months from the spot value date.

- Short-date

Any value date before spot value date is called short-dated value date. Since spot is defined as the second business day, there can be only two possible short-dated value dates, as follows.

- Cash

Settlement date is the same as the trade date.

- Tom (short for “tomorrow”)

Settlement date is the first working day from the trade date.

**NOTE:** In the ACI Code of Conduct, the term “short date” is used for any trade whose settlement is before one month (1M). However, in the market, some traders restrict the term to trades that settle before spot date. The reason is that all the prices other than spot price are derived from the spot price and that the method is different from trades before spot date and trades after it.



## 4.2 Factors affecting Spot FX rates

Spot value date is always possible (if both currencies are tradable). Theoretically, all forward dates are possible but exchange controls by government or market liquidity may restrict their availability. Short dates, on the other hand, may not be always possible because of time zone differences. For example, Tokyo is ahead of New York by 13 hours in time zone. When New York opens, Tokyo is already closed. Therefore, USD/JPY trade executed in New York cannot be settled for cash value date because Tokyo (which is the settlement center for JPY) is already closed. However, the same transaction executed in Tokyo can be settled for cash value date because there are 13 hours left to settle USD.

### *Spot Value Date :*

Spot value date is the most important because all other value dates are derived from it. We will also see the importance of the numeraire (ie, USD) in the determination of value date.

If the forex rate contains numeraire (which is currently USD)

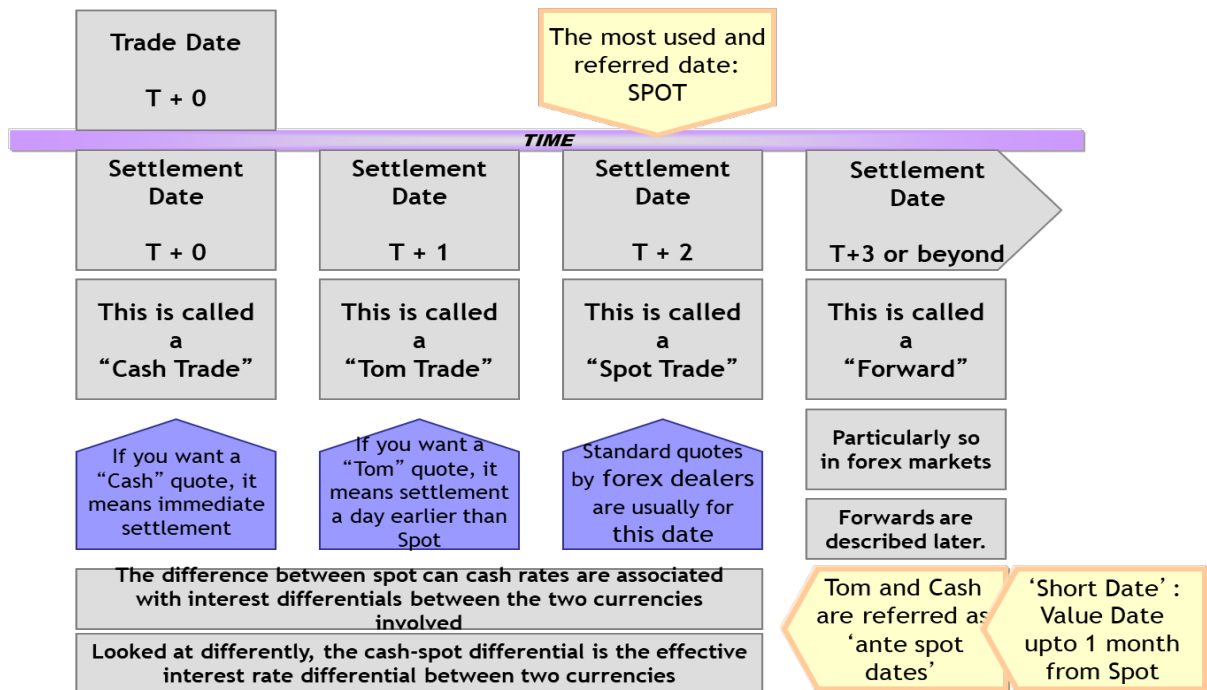
The spot value date is the second business day at non-USD center. It need not be the second business day at USD settlement center (i.e., New York). It is sufficient if New York is open on the second business day at the other center. If New York is closed on the eligible date, the value date is the next business date on which both centers are open.

If the forex rate does not contain USD

The spot value date is the second business day at each center. Further, New York must be open on the eligible value date, though USD is not involved in settlement. If New York is closed on the eligible date, the value date is the next date on which all the three centers (i.e. two settlement centers and New York) are opened.

## 5 Settlement Dynamics

### Quotation & Settlement Dates



## 6 Settlement Infrastructure

### 6.1 Nostro Accounts

Nostro (Italian) means “Ours”

A nostro is our account of our money, held by you.

A bank maintains various Nostro accounts in a number of countries

If someone refers to a Nostro account, they are referring to an account which they own

Nostro accounts are mostly commonly used for currency settlement, where a bank or other financial institution needs to hold balances in a currency other than its home accounting unit

- A Nostro account is a bank account.
- It is with a bank located in the other country/ currency zone.
- It is denominated in that other currency.
- The bank in that other country could be our own bank’s branch in that country; it could also be a Correspondent Banking arrangement.
- Banks have different nostro accounts: one for each currency in which the bank has dealings.

### 6.2 International Fund transfer Mechanisms

#### 6.2.1 Clearing House Interbank Payment Systems (CHIPS)

CHIPS (Clearing House Inter-bank Payments System) is a privately operated, real-time, multilateral, payments system typically used for large dollar payments. CHIPS is owned by financial institutions, and any banking organization with a regulated U.S. presence may become an owner and participate in the network. The payments transferred over CHIPS are often related

to international interbank transactions, including the dollar payments resulting from foreign currency transactions (such as spot and currency swap contracts) and Euro placements and returns. Payment orders are also sent over CHIPS for the purpose of adjusting correspondent balances and making payments associated with commercial transactions, bank loans, and securities transactions.

- It's a LVPS - Large Value Payments System
- It's a Clearing House - having established service of more than 35 years
- Typically used for large USD payments
- Serves major International banks having offices in US, Domestic Banks and Private

Banking Institutions representing about 19 Countries

Types of Payment Transaction Executed through CHIPS

- Large and small payment transactions
- U.S. dollar foreign exchange settlements
- Financial settlements (ex. Loan and interest payments)
- Commercial payments
- Off shore investments.

## **6.2.2 TARGET 2**

TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) is the Euro system's interbank funds transfer system, which is designed to support the Euro system's objectives of defining and implementing the monetary policy of the euro area and promoting the smooth operation of payment systems, thus contributing to the integration and stability of the euro area money market. While the first TARGET system was made up of RTGS (real-time gross settlement) systems in all participating countries and the ECB payment mechanism (EPM), connected by an interlinking component, TARGET2 is a single centralized system, offering the same level of service to all TARGET2 users. It has been designed and built to meet the highest standards of robustness and operational reliability.

The system has been designed in such a way that it is able to process cross-border payments denominated in euro as smoothly as if they were domestic payments. TARGET2 processes only transfers denominated in euro. The aim is to allow payments - especially large-value payments such as those relating to foreign exchange and money market transactions - to be made throughout the euro area at low cost with high security and very short processing times.

As it is a RTGS system, payments are handled individually. Unconditional payment orders are automatically processed one at a time on a continuous basis. Thus, TARGET2 provides immediate and final settlement of all payments, provided that there are sufficient funds or overdraft facilities available on the payer's account with its central bank. There is no set minimum amount for a payment made through TARGET2.

### **6.2.3 International ACH Transaction (IAT)**

An IAT is a debit or credit entry that is part of a payment transaction involving a financial agency located outside of the U.S. The rule was created at the request of the Office of Foreign Assets Control (OFAC) in order to improve Anti-Money Laundering (AML) compliance in the U.S. ACH system. The rule makes it easier for U.S. banks and businesses to comply with OFAC requirements by mandating that in addition to other data, messages carry information identifying the originator and receiver of the transaction.

OFAC is a part of the U.S. Department of the Treasury which administers and enforces economic and trade sanctions based on U.S. foreign policy and national security goals against targeted foreign countries, terrorists, international narcotics traffickers, and those engaged in activities related to the proliferation of weapons of mass destruction. OFAC acts under presidential wartime and national emergency powers, as well as authority granted by specific legislation, to impose controls on transactions and freeze foreign assets under U.S. jurisdiction.

#### **Examples of IAT**

##### **ACH Debits for Payments to Foreign Receivers**

- A foreign bank (Originating Bank) allows non-bank customers to originate payments to consumers in their country
- A person (Originator) in the U.S. logs on to the foreign bank site and originates a payment to a relative (Receiver) in that country, providing the bank with their routing and transit number (ABA number) and account number at their U.S. bank along with the routing, account number and physical address of the Receiver in the foreign country
- The foreign Originating Bank sends a SWIFT message to their U.S. correspondent bank with instructions to send an ACH debit to the Originators account at their U.S. bank along with the name and physical address of the Receiver in the foreign country

## **6.3 Society for Worldwide Interbank Financial Telecommunication (SWIFT)**

International funds transfer operates differently from domestic large-value funds transfer. While the SWIFT operates as a messaging system, transmitting instructions to move funds, the domestic systems discussed above accomplish the actual funds movement.

### **6.3.1 What Is Swift Messaging?**

Banks transmit millions of messages per day, many of which contain highly sensitive information. It is important that they have access to a highly reliable and highly secure network through which they can communicate without fear of intercepted or lost messages. SWIFT provides that service to banks. Developed in 1973 by bankers in need of a more secure and reliable way to communicate with each other, SWIFT has now grown into a worldwide network of banks, and is the standard method of communication among banks

### **6.3.2 What Is SWIFT?**

SWIFT stands for the "Society for Worldwide Interbank Financial Telecommunication." SWIFT is a network of over 8,300 banks, securities, and corporations located in over 208 countries. SWIFT allows for the exchange of millions of standardized financial messages between financial institutions throughout the world. SWIFT was created in 1973 by bankers who were in need of a more efficient and secure system for interbank communications and transfer of funds and securities. Prior to SWIFT, all communication between banks was done by telephone, telex, courier or mail. Prior to SWIFT messages between banks contained no instructions past the basic funds transfer itself, however SWIFT allows the banks to attach messages and conditions to fund transfers. Each SWIFT message is a condition of wire transfer.

Founded in Brussels in 1973, the Society for the Worldwide Interbank Financial Telecommunication (SWIFT) is a co-operative organization dedicated to the promotion and development of standardized global interactivity for financial transactions. SWIFT's original mandate was to establish a global communications link for data processing and a common language for international financial transactions. The Society operates a messaging service for financial messages, such as letters of credit, payments, and securities transactions, between member banks worldwide. SWIFT's essential function is to deliver these messages quickly and securely -- both of which are prime considerations for financial matters. Member organizations create formatted messages that are then forwarded to SWIFT for delivery to the recipient member organization. SWIFT operates out of its Brussels headquarters and processes data at centers in Belgium and the United States

### 6.3.3 What Does SWIFT Do?

SWIFT provides a platform for banks, corporations and other financial institutions to exchange messages, enabling banks to work cooperatively with other banks located across the street, and across the globe. The standardization of such messages allows both banks and their customers to enjoy uniform policies and practices across many different banks. SWIFT is not a bank, and does not hold money or maintain accounts, it merely facilitates the communication between banks. SWIFT provides banks with a centralized data base which allows Bank A to send a message to Bank B securely, without the vulnerability inherent in using email, phone or fax, and without the need for humans to facilitate the process. The communication network created by SWIFT is extremely secure and reliable.

### 6.3.4 Swift codes

ISO 9362 (also known as SWIFT-BIC, BIC code, SWIFT ID or SWIFT code) is a standard format of Bank Identifier Codes approved by the International Organization for Standardization (ISO). It is the unique identification code of a particular bank. These codes are used when transferring money between banks, particularly for international wire transfers, and also for the exchange of other messages between banks

The SWIFT code is 8 or 11 characters, made up of:

- 4 characters - bank code (only letters)
- 2 characters - ISO 3166-1 alpha-2 country code (only letters)
- 2 characters - location code (letters and digits) (if the second character is '1', then it
  - denotes a passive participant in the SWIFT network)
- 3 characters - branch code, optional ('XXX' for primary office) (letters and digits)

Where an 8-digit code is given, it may be assumed that it refers to the primary office.

The **International Bank Account Number (IBAN)** is an international standard for identifying bank accounts across national borders. It was originally adopted by the European Committee for Banking Standards, and was later adopted as an international standard

The official IBAN registrar under ISO 13616:2003 is SWIFT and the IBAN registry is currently at SWIFT. The IBAN consists of a ISO 3166-1 alpha-2 country code, followed by two check digits and up to thirty alphanumeric characters for the domestic bank account number (incorporating routing information), called the BBAN (Basic Bank Account Number). It is up to each country's national banking community to decide on the length of the BBAN for accounts in that country, but its length must be fixed for any given country.

### **6.3.5 SWIFT Users**

Although originally the network was designed to support the requirements of Treasury and Correspondent banking operations, it has over the years allowed other institutions access to the services, albeit in some cases only to a limited degree. Currently the following categories of organization can access the service:

- Banks.
- Trading Institutions.
- Money Brokers.
- Securities Broker Dealers.
- Investment Management Institutions.
- Clearing Systems and Central Depositories.
- Recognized Exchanges.
- Trust and Fiduciary Service Companies.
- Subsidiary Providers of Custody and Nominees.
- Treasury Counterparties Treasury ETC Service Providers

### **6.3.6 SWIFT message types**

SWIFT processes information (i.e., data, text, or commands) in the form of messages. SWIFT initially offers two applications - GPA (General Purpose Application which controls how users communicate within SWIFT ) and FIN (Financial Application which controls the user to user messaging facilities within SWIFT ) - which together provide all of the messaging functions and facilities available to users.



### 6.3.7 Foreign Exchange and Derivatives Messages type: MT 300 Series

SWIFT Message Type	Description
MT 300	Foreign Exchange Confirmation
MT 303	Forex/Currency Option Allocation Instruction
MT 304	Advice/Instruction of a Third Party Deal
MT 305	Foreign Currency Option Confirmation
MT 306	Foreign Currency Option Confirmation
MT 307	Advice/Instruction of a Third Party FX Deal
MT 308	Instruction for Gross/Net Settlement of Third Party FX Deals
MT 320	Fixed Loan/Deposit Confirmation
MT 321	Instruction to Settle a Third Party Loan/Deposit
MT 330	Call/Notice Loan/Deposit Confirmation
MT 340	Forward Rate Agreement Confirmation
MT 341	Forward Rate Agreement Settlement Confirmation
MT 350	Advice of Loan/Deposit Interest Payment
MT 360	Single Currency Interest Rate Derivative Confirmation
MT 361	Cross Currency Interest Rate Swap Confirmation
MT 362	Interest Rate Reset/Advice of Payment
MT 364	Single Currency Interest Rate Derivative Termination/Recouping Confirmation
MT 365	Single Currency Interest Rate Swap Termination/Recouping Confirmation
MT 380	Foreign Exchange Order
MT 381	Foreign Exchange Order Confirmation
MT 390	Advice of Charges, Interest and Other Adjustments
MT 391	Request for Payment of Charges, Interest and Other Expenses
MT 392	Request for Cancellation
MT 395	Queries
MT 396	Answers
MT 398	Proprietary Message
MT 399	Free Format Message

## 7 Risk & Compliance

### 7.1 Risks in Foreign Exchange Settlements

The following observations on Risks are made by the New York Foreign Exchange Committee, an industry body:

Operational risk for foreign exchange in particular involves problems with processing, product pricing, and valuation. These problems can result from a variety of causes, including natural disasters, which can cause the loss of a primary trading site, or a change in the financial details of the trade or settlement instructions on a FX transaction. Operational risk may also emanate from poor planning and procedures, inadequate systems, failure to properly supervise staff, defective controls, fraud, and human error.

Failure to adequately manage operational risk, in turn, can decrease a firm's profitability. Incorrect settlement of FX transactions, for example, can have direct costs in improper payments and receipts. In addition, trade processing and settlement errors can lead to indirect costs, such as compensation payments to counterparts for failed settlements or the development of large losses in a firm's portfolio as a result of managing the wrong position. Furthermore, investigating problems and negotiating a resolution with a counterparty may carry additional costs. Failure to manage operational risk may also harm a firm's reputation and contribute to a loss of business

Operational risk has another distinctive quality. Unlike credit and market risk, operational risk is very difficult to quantify. Clearly, an institution can measure some of the losses associated with operational errors or losses that result from the failure of the operational process to catch errors made by sales and trading areas. Determining expected losses, however, given the uncertainty surrounding those losses, is much more complicated for operational risks than for other risk categories.

#### 7.1.1 Pre-trade Controls

In the pre-trade process, a bank develops an understanding of the inherent business risks and risk mitigants of each of its counter-party relationships. The documentation and agreements reflecting the relationship should be identified and, if possible, executed before trading. Thus, pre-trade preparation involves coordination with sales and trading and operations as well as other support areas such as systems, credit, legal, and compliance to establish trade capture parameters and requirements that should be in place prior to trading. This process is especially important when the business requirements may be unique and require additional controls.

## 7.2 Limits on Position, Gap and Others

Bank controls the forex operations by placing limits on position, gap, counterparty exposure, stop-loss, etc. Of them, the most important is that on position.

The position limit has two variants: *daylight limit* and *overnight limit*. The daylight limit is the limit during the day while the overnight limit is the limit at the close of business each day. The overnight limit is also used to compute capital adequacy for trading operations under Basel II regulatory regime. The international norm for computing the position limit is the “short hand” rule, according to which the limit for capital adequacy is computed as follows.

- Segregate currencies into those with overbought and oversold positions
- Translate the position into home currency equivalent
- Separately sum the overbought and oversold positions
- The higher of the aggregate overbought and aggregate oversold positions is considered the “net open position.”

The reason for the short hand rule is the currency diversification effect. In the forex market, in terms of price changes, it is a see-saw between US dollar and all other currencies. If dollar rises against a currency, it rises against all other; and vice versa. Most banks are now adopting advanced techniques like value-at-risk (VaR) to measure forex price risk. Basel II regulations allow VaR model to compute capital adequacy as an alternative to the short-hand rule.

### 7.2.1 Maintaining and Tracking Positions

Positions are maintained for every currency pair. Furthermore, the position is translated to the reporting currency of the bank in question.

For example, positions will be maintained for

GBP/USD

EUR/USD

USD/CHF

CHF/SGD

... and so on for every currency pair.

Thereafter these positions will be converted to EUR if the bank reports its risk positions in Euros which might be the case.

### **7.2.2 At the Desk Level**

Positions are also monitored at Desk Level. Desk refers to a major trading desk at a currency location. For example:

London

New York

Singapore

Hong Kong

### **7.2.3 At the Dealer Level**

Every dealer at the bank has a limit up to which he or she may trade for specific currency pairs. These limits are monitored closely. Each dealer has a seniority in the hierarchy of the bank and the limits apply as per the seniority. A newly joined dealer will have a much lower trading limit than a veteran.

### **7.2.4 Loss Limits**

Traders and dealers do make losses. The possibility of loss is inevitable because unless that possibility is there, one cannot make a profit. And yet, the possibility of a loss is a big risk. Rogue currency traders have often made huge losses.

There are two reasons why such losses happen: 1. The position limits set for a trader or dealer are exceeded; 2. the exchange rate volatility spiked and the movement was too large.

Therefore, monitoring loss limits are important.

### **7.2.5 Operational Processes**

After the deal is executed, the trader, or trader's assistant, inputs trade data into the front-office system or writes a ticket to be entered into a bank's operations system. Deals done over electronic dealing systems such as Reuters or EBS allow deal information to flow electronically to the front-office system. Trade information typically includes trade date, time of trade, settlement date, counterparty, financial instrument traded, amount transacted, price or rate, and may include settlement instructions.

The system used in the front-office processes this information and can provide "real-time" position and profit and loss updates. Trade information captured in the front office system flows to the credit system where settlement risk and mark-to-market (also referred to as pre-settlement) credit risk measures and limits are updated.

Sales and trading should see the effects of a deal on a counterparty's credit status immediately, and that unit should know when a counterparty's credit limit is close to being filled and be prevented from dealing with counterparties who have reached or exceeded such limits. Sales and trading and credit management should produce reports of credit line excesses and exceptions on a regular basis for review. Exception reports should identify both counterparties involved and the sales and trading personnel executing the transactions.

Real-time credit systems also allow a bank's credit managers to assess the credit exposure to a counterparty throughout the life of a transaction. Credit officers are better able to manage crisis situations and to adjust limits as the creditworthiness of a counterparty changes. A real-time credit system ensures that any changes in the credit limit of a counterparty are reflected in the sales and trading system immediately.<sup>8</sup>

All payments are exchanged through the aforementioned nostro accounts. These accounts are denominated in the currency of the country where they are located. When a bank enters into a contract to buy dollars and sell yen, for example, it will credit its yen nostro account and debit its dollar nostro account. The counterparty credits its dollar nostro account and debits its yen nostro account in Japan. Both banks initiate a money transfer to pay their respective counterparties; this is done by a funds movement between the two banks using the local payment system. The money transfer is complete when both counterparties have been paid the appropriate amounts.

If settlement error occurs in the process, it is typically quite costly. If a bank fails to make a payment, it must compensate its counterparty, thus generating additional expense. Settlement errors may also cause a bank's cash position to be different than expected.

In addition, settlement risk—the risk that a bank makes its payment but does not receive the payment it expects—can cause a large loss. This risk arises in FX trading because payment and receipt of payment often do not occur simultaneously. A properly managed settlement function reduces this risk. Settlement risk is measured as the full amount of the currency purchased and is considered at risk from the time a payment instruction for the currency sold becomes irrevocable until the time the final receipt of the currency purchased is confirmed.<sup>15</sup>

Sources of this risk include internal procedures, intramarket payment patterns, finality rules of local payments systems, and operating hours of the local payments systems when a counterparty defaults. Settlement risk may have significant ramifications and is controlled through the continuous monitoring of the bank's nostro balances and through the establishment of counterparty limits. A maximum settlement risk limit is usually established for each counterparty.

Notably, the introduction of the CLS Bank has increased the efficiency of settlement by introducing a mechanism for simultaneous exchange of currencies on an intraday and multilateral basis.

The NY FX Committee requires that:

All senior managers should obtain a high level understanding of the settlement process. Additionally, both credit and risk managers (those managing position risk and credit risk) should be cognizant of the impact their internal procedures have on settlement exposure.

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## **7.3 Best Practices from a Risk Control perspective:**

### **7.3.1 Best Practice no. 1: Know Your Customer**

A bank should know the identity of its counterparties, the activities they intend to undertake with the bank, and why they are undertaking those activities. All firms should have strong Know Your Customer (KYC) procedures for collecting information required to understand who the customer is and why they are conducting business. KYC procedures have long been the first line of defense for banks in setting appropriate credit limits, determining the most appropriate documentation for the activities being contemplated, identifying additional business opportunities, and protecting against fraud.

KYC procedures have, more recently, also become the cornerstone for combating criminal activity. Illicit activity has become more sophisticated in the methods used to conceal and move proceeds. The global response has been to develop laws and regulations requiring institutions to establish familiarity with each of their counterparties to better identify and report suspicious activity.

At a minimum, information relating to the identity of a counterparty and the counterparty's activity should be gathered to satisfy applicable laws and regulations for prudent business conduct. The reputation and legal risk to banks of not being vigilant in knowing their customers and complying with KYC laws and regulations can be severe. In the United States, examples of laws and regulations that impose obligations of this sort on banks are the Bank Secrecy Act, money laundering regulations, U.S. Treasury, Office of Foreign Assets Control (OFAC) regulations, and the USA PATRIOT Act.

### **7.3.2 Best Practice no. 58: Maintain Records of Deal Execution and Confirmations**

Banks should maintain documentation supporting the execution of foreign exchange trades. Such documentation should provide a sufficient audit trail of the events throughout the deal execution, trade, and validation process. This documentation may be in the form of written or electronic communication, a tape recording, or other forms evidencing the agreement between the parties. Documentation should cover communication not only between the sales and trading groups of the bank and the counterparty but also between the operations area of the bank and the counterparty.

Deal execution and confirmation documentation can aid institutions in verifying trade details and ensure that amounts were confirmed as expected. This step may help a bank if it becomes involved in counterparty disputes. For each trade, the following information should be documented: currencies, amount, price, trade date, value date and the notional currency of each transaction. The length of time that a bank keeps records (which may be left to management's discretion) depends on the type of business they transact and may also be subject to local regulations. Record retention, for example, may depend on the character of a bank's forward trading or long-dated options trading.

It is important to note that trades conducted over the telephone pose particular risks. The phone conversation is the only bilateral record of the trade details, at least until the trade is validated through the traditional confirmation process. Until this confirmation process is completed, market participants should establish close controls to minimize the exposure inherent in such trades.