



# Currency Derivatives



**NiSM** NATIONAL INSTITUTE OF  
SECURITIES MARKETS  
An Educational Initiative of SEBI

**Workbook for  
NISM-Series-I:  
Currency Derivatives  
Certification Examination**



**National Institute of Securities Markets**  
**[www.nism.ac.in](http://www.nism.ac.in)**

This workbook has been developed to assist candidates in preparing for the National Institute of Securities Markets (NISM) NISM-Series-I: Currency Derivatives Certification Examination (NISM-Series-I: CD Examination).

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NISM supports candidates by providing lucid and focused workbooks that assist them in understanding the subject and preparing for NISM Examinations. The book covers basics of the currency derivatives, trading strategies using currency futures and currency options, clearing, settlement and risk management as well as the regulatory environment in which the currency derivatives markets operate in India. It will be immensely useful to all those who want to have a better understanding of various derivatives products available in the exchange-traded currency derivatives markets in India.

**S.K. Mohanty**  
**Director**

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While the NISM Certification examination will be largely based on material in this workbook, NISM does not guarantee that all questions in the examination will be from material covered herein.

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NISM gratefully acknowledges the contribution of the Examination Committee for NISM-Series-I: Currency Derivatives Certification Examination consisting of representatives of the currency derivatives exchanges and industry experts.

## **About NISM Certifications**

The School for Certification of Intermediaries (SCI) at NISM is engaged in developing and administering Certification Examinations and CPE Programs for professionals employed in various segments of the Indian securities markets. These Certifications and CPE Programs are being developed and administered by NISM as mandated under Securities and Exchange Board of India (Certification of Associated Persons in the Securities Markets) Regulations, 2007.

The skills, expertise and ethics of professionals in the securities markets are crucial in providing effective intermediation to investors and in increasing the investor confidence in market systems and processes. The School for Certification of Intermediaries (SCI) seeks to ensure that market intermediaries meet defined minimum common benchmark of required functional knowledge through Certification Examinations and Continuing Professional Education Programmes on Mutual Funds, Equities, Derivatives Securities Operations, Compliance, Research Analysis, Investment Advice and many more.

Certification creates quality market professionals and catalyzes greater investor participation in the markets. Certification also provides structured career paths to students and job aspirants in the securities markets.

## **About the NISM-Series-I: Currency Derivatives Certification Examination**

The examination seeks to create a common minimum knowledge benchmark for persons working in the currency derivative segment, in order to enable a better understanding of currency markets and exchange traded currency derivatives products, better quality investor service, operational process efficiency and risk controls.

### **Examination Objectives**

On successful completion of the examination the candidate should:

- Know the basics of currency markets and specifically Exchange Traded Currency Derivatives markets.
- Understand the trading, clearing and settlement mechanisms related to Exchange Traded Currency Derivatives markets and basic investment strategies that use currency futures and options products.
- Know the regulatory environment in which the Exchange Traded Currency Derivatives markets operate in India.

### **Assessment Structure**

The NISM-Series-I: Currency Derivatives Certification Examination (NISM-Series-I: CD Examination) will be of 100 marks consisting of 100 questions of 1 mark each, and should be completed in 2 hours. There will be negative marking of 25% of the marks assigned to each question. The passing score for the examination is 60%.

### **How to register and take the examination**

To find out more and register for the examination please visit [www.nism.ac.in](http://www.nism.ac.in)

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## Chapter 1: Introduction to Currency Markets

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- History of foreign exchange markets and overview of international currency markets
- Major currency pairs in forex trading
- Basics of currency markets
- Exchange rate arithmetic
- Economic indicators and its impact on currency markets

### 1.1 Brief history of foreign exchange markets

The current currency rate mechanism has evolved over thousands of years of the world community trying with various mechanism of facilitating the trade of goods and services. Initially, the trading of goods and services was by barter system where in goods were exchanged for each other. For example, a farmer would exchange wheat grown on his farmland with cotton with another farmer. Such system had its difficulties primarily because of non-divisibility of certain goods, cost in transporting such goods for trading and difficulty in valuing of services. For example, how does a dairy farmer exchange his cattle for few liters of edible oil or one kilogram of salt? The farmer has no way to divide the cattle! Similarly, suppose wheat is grown in one part of a country and sugar is grown in another part of the country, the farmer has to travel long distances every time he has to exchange wheat for sugar. Therefore, the need to have a common medium of exchange resulted in the innovation of money.

People tried various commodities as the medium of exchange ranging from food items to metals. Gradually metals became more prominent medium of exchange because of their ease of transportation, divisibility, certainty of quality and universal acceptance. People started using metal coins as medium of exchange. Amongst metals, gold and silver coins were most prominent and finally gold coins became the standard means of exchange. The process of evolution of medium of exchange further progressed into development of paper currency. People would deposit gold/ silver coins with bank and get a paper promising that value of that paper at any point of time would be equal to certain number of gold coins. This system of book entry of coins against paper was the start of paper currency.

With time, countries started trading across borders as they realized that everything cannot be produced in each country or cost of production of certain goods is cheaper in certain countries than others. The growth in international trade resulted in evolution of foreign exchange (FX) i.e., value of one currency of one country versus value of currency of other country. Each country has its own “brand” alongside its flag. When money is branded it is called “currency”. Whenever there is a cross-border trade, there is need to exchange one brand of money for another, and this exchange of two currencies is called “foreign exchange” or simply “forex” (FX).

The smooth functioning of international trade required a universally accepted foreign currency to settle the internal trade and a way to balance the trade imbalances amongst countries. This led to the question of determining relative value of two currencies? Different systems were tried in past to arrive at relative value of two currencies. The documented history suggests that sometime in 1870 countries agreed to value their currencies against value of currency of other country using gold as the benchmark for valuation. As per this process, central banks issue paper currency and hold equivalent amount of gold in their reserve. The value of each currency against another currency was derived from gold exchange rate. For example, if one unit of gold is valued at Indian Rupees (INR) 10,000 and US dollar (USD) 500 then the exchange rate of INR versus USD would be 1 USD = INR 20. This mechanism of valuing currency was called as gold standard.

With further growth in international trade, changing political situations (world wars, civil wars, etc) and situations of deficit/ surplus on trade account forced countries to shift from gold standard to floating exchange rates. In the floating exchange regime, central bank's intervention was a popular tool to manage the value of currency to maintain the trade competitiveness of the country. Central bank would either buy or sell the local currency depending on the desired direction and value of local currency.

During 1944-1971, countries adopted a system called Bretton Woods System. This system was a blend of gold standard system and floating rate system. As part of the system, all currencies were pegged to USD at a fixed rate and USD value was pegged to gold. The US guaranteed to other central banks that they can convert their currency into USD at any time and USD value will be pegged to value of gold. Countries also agreed to maintain the exchange rate in the range of plus or minus 1% of the fixed parity with US dollar. With adoption of this system, USD became the dominant currency of the world.

Finally Bretton Woods system was suspended and countries adopted system of free floating or managed float method of valuing the currency. Developed countries gradually moved to a market determined exchange rate and developing countries adopted either a system of pegged currency or a system of managed rate. In pegged system, the value of currency is pegged to another currency or a basket of currencies. The benefit of pegged currency is that it creates an environment of stability for foreign investors as they know the value of their investment in the country at any point of time would be fixed. Although in long run it is difficult to maintain the peg and ultimately the central bank may change the value of peg or move to a managed float or free float. In managed float, countries have controls on flow of capital and central bank intervention is a common tool to contain sharp volatility and direction of currency movement.

## **1.2 Major currency pairs**

The most traded currency pairs in the world are called the Majors. The list includes following currencies: Euro (EUR), US Dollar (USD), Japanese Yen (JPY), Pound Sterling (GBP), Australian Dollar (AUD), Canadian Dollar (CAD), and the Swiss Franc (CHF). These currencies follow free floating method of valuation. Amongst these currencies the most

active currency pairs are: EURUSD, USDJPY, GBPUSD, AUDUSD, CADUSD, USDCNY and USDCHF. According to Bank for International Settlement (BIS) survey of April 2019, the share of different currency pairs in global average daily foreign exchange market turnover is as given below:

Currency	Share (%)
EUR/USD	24.0
USD/JPY	13.2
GBP/USD	9.6
AUD/USD	5.4
USD/CAD	4.4
USD/CNY	4.1
USD/CHF	3.5
USD/others	24.2
Others/others	11.6
Total	100

Source: BIS Triennial Central Bank Survey, April 2019

### **US Dollar (USD)**

The US Dollar is by far the most widely traded currency. In part, the widespread use of the US Dollar reflects its substantial international role as “investment” currency in many capital markets, “reserve” currency held by many central banks, “transaction” currency in many international commodity markets, “invoice” currency in many contracts, and “intervention” currency employed by monetary authorities in market operations to influence their own exchange rates.

In addition, the widespread trading of the US Dollar reflects its use as a “vehicle” currency in foreign exchange transactions, a use that reinforces its international role in trade and finance. For most pairs of currencies, the market practice is to trade each of the two currencies against a common third currency as a vehicle, rather than to trade the two currencies directly against each other. The vehicle currency used most often is the US Dollar, although very recently EUR also has become an important vehicle currency.

Thus, a trader who wants to shift funds from one currency to another, say from Indian Rupees to Philippine Pesos, will probably sell INR for US Dollars and then sell the US Dollars for Pesos. Although this approach results in two transactions rather than one, it may be the preferred way, since the US Dollar/INR market and the US Dollar/Philippine Peso market are much more active and liquid and have much better information than a bilateral market for the two currencies directly against each other. By using the US Dollar or some other currency as a vehicle, banks and other foreign exchange market participants can limit more of their working balances to the vehicle currency, rather than holding and managing many currencies, and can concentrate their research and information sources on the vehicle currency.

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

### **Euro (EUR)**

Like the US Dollar, the Euro has a strong international presence and over the years has emerged as a premier currency, second only to the US Dollar.

### **Japanese Yen (JPY)**

The Japanese Yen is the third most traded currency in the world. It has a much smaller international presence than the US Dollar or the Euro. The Yen is very liquid around the world, practically around the clock.

### **British Pound (GBP)**

Until the end of World War II, the Pound was the currency of reference. The nickname Cable is derived from the telegrams used to update the GBPUSD rates across the Atlantic. The currency is heavily traded against the Euro and the US Dollar, but it has a spotty presence against other currencies.

### **Swiss Franc (CHF)**

The Swiss Franc is the currency of Switzerland and is represented with the symbol CHF. It is one of the most stable currencies in the world and is used as the reserve currency in many of the international transactions. Switzerland has a close economic relationship with the Euro zone and many other countries across the globe. From a foreign exchange point of view, the Swiss Franc closely resembles the patterns of the Euro, but lacks its liquidity.

According to Bank for International Settlement (BIS) survey of April 2019, the percentage share of various currencies in the global average daily foreign exchange market turnover is as follows:

<b>Currency</b>	<b>% Share</b>
USD	88.3
EURO	32.3
JPY	16.8
GBP	12.8
INR	1.7
Others	48.1
TOTAL	200*

\* As two currencies are involved in each transaction, the sum of shares in individual currencies will total to 200%.

Source: BIS Triennial Central Bank Survey, April 2019

### 1.3 Overview of international currency markets

For currency market, the concept of a 24-hour market has become a reality. In financial centers around the world, business hours overlap; as some centers close, others open and begin to trade. For example, UK and Europe opens during afternoon (as per India time) time followed by US, Australia and Japan and then India opens. The market is most active when both US and Europe is open. In the New York market, nearly two-thirds of the day's activity typically takes place in the morning hours. Activity normally becomes very slow in New York in the mid-to late afternoon, after European markets have closed and before the Tokyo, Hong Kong, and Singapore markets have opened.

Given this uneven flow of business around the clock, market participants often will respond less aggressively to an exchange rate development that occurs at a relatively inactive time of day, and will wait to see whether the development is confirmed when the major markets open. Some institutions pay little attention to developments in less active markets. Nonetheless, the 24-hour market does provide a continuous "real-time" market assessment of the ebb and flow of influences and attitudes with respect to the traded currencies, and an opportunity for a quick judgment of unexpected events. With many traders carrying pocket monitors, it has become relatively easy to stay in touch with market developments at all times.

With access to all of the foreign exchange markets generally open to participants from all countries, and with vast amounts of market information transmitted simultaneously and almost instantly to dealers throughout the world, there is an enormous amount of cross-border foreign exchange trading among dealers as well as between dealers and their customers. As per Bank for International Settlements (BIS) survey of April 2016, average daily turnover of currencies in the global market is approximately USD 5.1 trillion, making it the largest traded asset class.

At any moment, the exchange rates of major currencies tend to be virtually identical in all the financial centers where there is active trading. Rarely are there such substantial price differences among major centers as to provide major opportunities for arbitrage. In pricing, the various financial centers that are open for business and active at any one time are effectively integrated into a single market.

### 1.4 Basics of currency markets and peculiarities in India

#### 1.4.1 Currency pair

Unlike any other traded asset class, the most significant part of currency market is the concept of currency pairs. In currency market, while initiating a trade you buy one currency and sell another currency. Therefore, same currency will have very different value against every other currency. For example, same USD is valued at say 68 against INR and say 120 against JPY. This peculiarity makes currency market interesting and



relatively complex. For major currency pairs, economic development in each of the underlying country would impact value of each of the currency, although in varying degree. The currency dealers have to keep abreast with latest happening in each of the country.

#### **1.4.2 Base Currency / Quotation Currency**

Every trade in FX market is a currency pair: one currency is bought with or sold for another currency. We need to identify the two currencies in a trade by giving them a name. The names cannot be “foreign currency” and “domestic currency” because what is foreign currency in one country is the domestic currency in the other. The two currencies are called “base currency” (BC) and “quoting currency” (QC). The BC is the currency that is priced and its amount is fixed at one unit. The other currency is the QC, which prices the BC, and its amount varies as the price of BC varies in the market. What is quoted throughout the FX market anywhere in the world is the price of BC expressed in QC. There is no exception to this rule.

For the currency pair, the standard practice is to write the BC code first followed by the QC code. For example, in USDINR, USD is the base currency and INR is the quoted currency; and what is quoted in the market is the price of USD expressed in INR. If you want the price of INR expressed in USD, then you must specify the currency pair as INRUSD. Therefore, if a dealer quotes a price of USDINR as 68, it means that one unit of USD has a value of 68 INR. Similarly, GBPUSD = 1.44 means that one unit of GBP is valued at 1.44 USD. Please note that in case of USDINR, USD is base currency and INR is quotation currency while in case of GBPUSD, USD is quotation currency and GBP is base currency.

In the interbank market, USD is the universal base currency other than quoted against Euro (EUR), Sterling Pound (GBP), Australian Dollar (AUD), Canadian Dollar (CAD) and New Zealand Dollar (NZD).

#### **1.4.3 Interbank market and merchant market**

There are two distinct segment of OTC foreign exchange market. One segment is called as “interbank” market and the other is called as “merchant” market. Interbank market is the market between banks where dealers quote prices at the same time for both buying and selling the currency. The mechanism of quoting price for both buying and selling is called as market making. For example, your close by vegetable vendor will quote prices only for selling and he will not quote prices for buying it. While in a wholesale market, the vegetable wholesaler will quote prices for buying vegetable from farmer and will also quote prices for selling to vegetable retailer. Thus, the wholesaler is a market maker as he is quoting two way prices (for both buying and selling). Similarly, dealers in interbank market quote prices for both buying and selling i.e., offer two way quotes. In majority of the “merchant” market, merchants are price takers and banks are price givers. Although few large merchants or corporates may ask banks to quote two way prices as such merchants may have both side interest i.e., interest to sell or buy or both.

#### 1.4.4 Two way quotes

In interbank market, currency prices are always quoted with two way price. In a two way quote, the prices quoted for buying is called bid price and the price quoted for selling is called as offer or ask price. Please note that these prices are always from the perspective of the market maker and not from the perspective of the price taker. Let us understand it with an example. Suppose a bank quotes USDINR spot price as 68.05/68.06 to a merchant. In this quote, 68.05 is the *bid* price and 68.06 is the offer *price* or *ask* price. This quotes means that the bank is willing to buy one unit of USD for a price of INR 68.05 and is willing to sell one unit of USD for INR 68.06. Thus a merchant interested to buy one unit of USD will get it for a price of INR 68.06 i.e. the price at which bank is willing to sell. The difference between bid and offer price is called as “spread”. Please note that the price quoted by a market maker is valid for certain quantity of the currency pair and it may vary if the amount for which quote is sought is higher. Spread is an important parameter to note while assessing market liquidity, efficiency of market maker and market direction. Clearly, a narrow spread indicates a higher liquidity and higher efficiency of the market maker. In USDINR spot market, the spreads are wide at the time of opening and gradually start narrowing as the market discovers the price. Similarly, for a USD 100 mn transaction the spread is likely to be higher when compared to the spread for USD 1 mn transaction.

There are certain market norms for quoting the two way quotes. Some of the important norms are as follows:

1. The bid price (lower price) is quoted first followed by offer price (higher price)
2. The offer price is generally quoted in abbreviated form. In case the currency pair is quoted upto four decimal places then offer price is quoted in terms of last two decimal places and if the currency pair is quoted in two decimal places then offer price is quoted in terms of two decimal places.

Let us look at market norm for quoting two way prices for popular currency pairs:

	Actual Bid-Offer Price	Abbreviated Bid-Offer Price	Comments
USDINR	68.02 / 68.03	68.02 / 03	Price generally quoted upto two decimal places
EURUSD	1.0925 / 1.0950	1.0925 / 50	Price generally quoted upto four decimal places
GBPUSD	1.4400 / 1.4425	1.4400 / 25	Price generally quoted upto four decimal places
USDJPY	120.60 / 120.61	120.60 / 61	Price generally quoted upto two decimal places

#### 1.4.5 Appreciation/ Depreciation

Exchange rates are constantly changing, which means that the value of one currency in terms of the other is constantly in flux. Changes in rates are expressed as strengthening or weakening of one currency vis-à-vis the other currency. Changes are also expressed as appreciation or depreciation of one currency in terms of the other currency. Whenever the base currency buys more of the quotation currency, the base currency has strengthened / appreciated and the quotation currency has weakened / depreciated. For example, if USDINR has moved from 68.00 to 68.25, the USD has appreciated and the INR has depreciated. Similarly, to say that USD looks strong over next few months would mean that USDINR pair may move towards 69.00 from the

current levels of 68.25.

#### **1.4.6 Market timing**

In India, OTC market is open from 9:00 AM to 5:00 PM. However, for merchants the market is open from 9:00 AM to 4:30 PM and the last half hour is meant only for interbank dealings for banks to square off excess positions. Central bank has prescribed certain net overnight open position limit for various banks. Banks cannot exceed their overnight open position beyond the prescribed limits and therefore the last half hour of trading window is used to offload excess position to adhere to the guidelines.

#### **1.4.7 Price benchmarks**

There are two price benchmarks used in the OTC market to price merchant transactions. Banks price large value merchant transactions from interbank rate (IBR). IBR is the price available to the bank in the interbank market. Therefore, IBR could differ from bank to bank. However, the price variation in general seems to be very small, may be in the range of 0.25 paise to 2 paise from bank to bank. Also IBR is the price at a specific point of time and for a specific transaction amount.

For small value transactions, banks publish a standard price for the day called as card rate. On most days for most banks, the card rate is same for the whole day. However, on the days of high volatility, banks revise the card rate multiple times during the day. The difference between IBR and card rate is high to cover the risk of price fluctuation. Card rate could vary significantly from bank to bank.

#### **1.4.8 Price discovery**

Indian currency market is increasingly getting aligned to international markets. The opening levels of OTC market are primarily dependent on the development in international markets since closing of domestic market on the previous day. The value of impact of overnight development on the opening level of currency is quite subjective and would vary from one participant to other and therefore the OTC market is generally not very liquid in the first few minutes of its opening. Gradually, market discovers an equilibrium price at which market clears buy and sell orders. This process of discovering an equilibrium price is called as price discovery. The above is true for transactions where merchants execute the transaction on the interbank prices. However, for small value transactions, banks give a standard price called as card rate for whole day.

For large volume transactions, the bid/ask difference could be higher than that for small value transactions. The exact bid/ask difference for a particular deal size could vary from bank to bank.

#### **1.4.9 FBIL reference rate (RBI reference rate)**

The reference rates for USD/INR and other major currencies are computed and disseminated by the Financial Benchmarks India Private Limited (FBIL). FBIL is recognised by Reserve bank of India as an independent Benchmark administrator and has assumed

the responsibility of computation and dissemination of reference rate for USD/INR and exchange rate of other major currencies with effect from July 10, 2018.

The FBIL reference rate is calculated for USD/INR, GBP/INR, EUR/INR and JPY /INR. The USD/INR reference rate is calculated based on actual spot USD/INR transactions taking place on the electronic platforms such as CCIL and Thomson Reuters between 11:30 to 12:30 hours on each working day. A 15 minutes' random time period is generated from this one-hour window and the transactions data pertaining to this 15 minutes' time period is taken to calculate the USD/INR reference rate. A threshold criterion of 10 transactions aggregating USD 25 million is required for the calculation of the reference rate. A +/- 3SD rule is applied to this transaction data in order to remove the outliers. The reference rate is calculated as the volume-weighted average of the surviving transactions (after removing the outliers).

If the first randomly selected time period of 15 minutes does not contain adequate number of transactions satisfying the threshold criteria, up to a maximum of 5 such random 15 minutes' time period will be generated to obtain adequate number of transactions. If the rate still cannot be calculated, then the transactions for the entire one-hour window from 11:30 hours to 12:30 hours will be taken into account for calculating the reference rate. In case of systems / network failures, if the required transactions are not available, FBIL will compute the USD/INR reference rate using polled submission by select major AD banks in India.

The EUR/INR, GBP/INR and JPY/INR reference rates are computed by crossing the USD/INR reference rate of the day with the ruling EUR/USD, GBP/USD and USD/JPY spot rates. For this purpose, all the cross-currency rates (i.e., EUR/USD, GBP/USD and USD/JPY spot rates) are taken from the same randomly selected time-period of 15 minutes that is used for the calculation of the USD/INR reference rate. The mean of the prices, so obtained, are crossed with the USD/INR reference rate to calculate the EUR/INR, GBP/INR and JPY/INR reference rates.

The reference rates are published on the FBIL website [www.fbil.org.in](http://www.fbil.org.in) on all working days except on Saturday, Sunday and bank holidays in Mumbai. The reference rates in respect of USD, EURO and GBP are published for 1 unit of USD, 1 unit of Euro and 1 unit of GBP whereas the reference rate in respect of JPY is published for 100 units of JPY. Also, the reference rates of USD/INR, EUR/INR and GBP/INR are published up to 4 decimal places and JPY/INR reference rate up to 2 decimal places.

### **1.5 Settlement date or Value date**

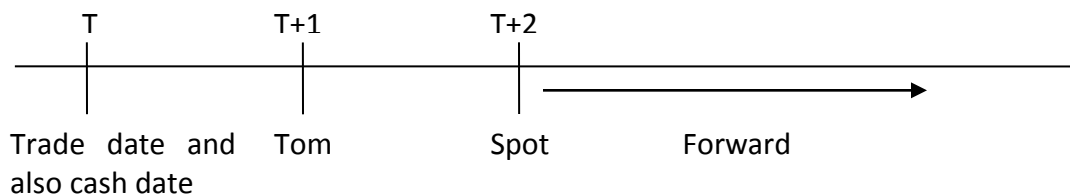
Unlike currency futures market, the settlement in the OTC spot market happens by actual delivery of currency. The mechanism of settlement where each counterparty exchange the goods traded on the maturity of contract is called as gross settlement and the mechanism where market participants only settle the difference in value of goods is called as net settlement. For example, in currency futures market suppose an exporter sells one month USDINR futures contract at 68.5. On termination of contract (either on expiry or even before expiry), if the price of USDINR is 68.2 the exporter will receive the

difference of 68.5 and 68.2 i.e. Rs 0.3 per USD. In OTC spot market, suppose an exporter sells one million of USD at a price of 68.5. On the settlement date, he will deliver one million of USD to the bank and receive Rs 68,500,000 from the bank. In OTC currency market, settlement date is also called as value date. Please note that value date is different from trade date. On trade date, the two counterparties agree to a transaction with certain terms (currency, price, and amount and value date). The settlement of the transaction, when counterparties actually exchange currency, is called as value date.

The most important value date is the “spot” value date, which is settlement after two business days. In practice, it can be after “two business days” because the settlement takes place in two different centers that may have different holidays. The correct definition of spot value date is settlement on second business day, subject to both centers being open on that day. If one of them is closed, then the settlement will be on the next business day (which could be third or fourth, etc, after the trade date) on which both centers are simultaneously open. Any settlement date after spot value date is called “forward” value dates, which are standardized into 1-month, 2-month, etc after spot value date. The forward market can extend up to one year.

It is also possible to settle the transaction before spot date. The price at which settlement takes before spot date is a derived price from spot price and is not a traded price. For a currency pair for which spot date is at T+2 and if settlement happens on the trade date, the settlement price is called as “cash” rate and if happens one day after trade date, the price is called as “tom” rate.

The picture below represents cash, tom, spot and forward value dates on a time line:



Please note the use of word *business* days in the definition of spot value date. It is important to understand how to calculate the exact spot date when there are holidays after trade date. Let us learn the rule that is followed to calculate the exact spot date. For currency pair involving one currency as USD, the spot date is the second business day in the non USD currency centre and a New York business day. In case New York is closed on what is the second business date at non USD centre, then spot date is the next date on which both non USD centre and New York are simultaneously open.

## 1.6 OTC forward market

In the previous section we briefly explained about spot OTC market. In this section, we will explain about OTC forward market. The forward OTC market can provide quotes for booking a forward contract for any maturity. However, the liquidity is high for maturity

less than one year and beyond that liquidity is less. With respect to settlement, the market participant could decide to settle it via gross settlement mechanism or net settlement mechanism. This is unlike currency futures market, where prices are available for month end maturity contract and the settlement is always on net settlement basis.

One more unique feature of OTC forward market is the requirement of underlying trade contract before executing the forward contract. According to RBI guidelines, any resident Indian desiring to book a forward contract should have an underlying trade contract which could establish exposure to foreign currency. The amount and tenor of the contract booked has to be equal to or less than the amount and tenor of foreign exchange exposure as suggested by the underlying trade contract. The market participant is expected to submit the trade contract to bank within 15 days of booking the forward contract. However, RBI has made provisions for cases where the exposure to foreign exchange is only estimated at the time of booking the forward contract and the actual exposure crystallizes over a period of time. It has also made provisions to facilitate booking of forward contracts by small and medium enterprises (SME) without submitting the underlying trade contracts. This exemption is given for entities who qualify as SME as defined by the Rural Planning and Credit Department, Reserve Bank of India vide circular RPCD PLNS.BC.No.63/06.02.031/ 2006-07 dated April 4, 2007.

### **1.7 Exchange rate arithmetic- cross rate**

For some currency pairs prices are not directly available and are rather derived by crossing the prices of underlying currency pairs. Crossing the prices to arrive at price of the currency pair could involve either multiplication or division of the underlying prices. In market parlance, the price of currency pair for which direct prices is not available is called as cross rate. In this section, we will explain the method and rationale of crossing the prices.

Although there are methods like chain rule, Left Hand-Right hand etc prescribed in various books, we would explain the derivation of cross rate using simple commercial logic. We will take example of EURINR, GBPINR and JPYINR.

#### **1.7.1 EURINR**

The underlying currency pairs for deriving prices of EURINR are EURUSD and USDINR. Let us assume following prices:

EURUSD: 1.0925 / 1.0950; USDINR: 68.02 / 68.03

Please recollect, the prices in currency pair is quoted in terms of value of one unit of base currency. While calculating cross rates, it is important to keep in mind which is the base currency and that the price is being calculated for one unit of base currency in terms of quotation currency (also called as term currency). Therefore, for EURINR currency pair, we have to calculate the price of 1 EUR in terms of INR.

Let us start the computation of cross rate, using the buy side argument i.e. price of buying 1 EUR in terms of INR. As understood from underlying currency pairs, the price of

EUR is directly available only in terms of USD. Therefore, you need to sell INR to buy USD; and further sell the USD received to buy EUR. It is important to identify this FX conversion path of selling one currency and buying another to calculate the cross rate. Now we need to use appropriate prices (bid price versus offer price) of underlying currency pairs.

To buy 1 unit of USD, the applicable price is 68.03 INR (offer side) i.e., you need INR 68.03 to buy 1 unit of USD. Now you need to sell certain units of USD (received by selling INR) to buy 1 unit of EUR. The price for buying 1 unit of EUR is 1.0950 USD (offer side). Therefore, how many INR you need to spend to buy 1.0950 USD? The answer to this question would be the price of buying 1 unit of EUR in terms of INR. We identified the price of buying 1 unit of USD as 68.03. Therefore, price of buying 1.0950 units of USD would be  $1.0950 \times 68.03$  INR i.e. 74.4929 INR. Therefore, the price of buying 1 unit of EUR in terms of INR is 74.4929 INR.

Similarly, you could use the logic for selling 1 unit of EUR and derive its price in terms of INR. The price comes to 74.3119 ( $1.0925 \times 68.02$ ).

Therefore, the cross rate for EURINR would be  $74.3119 / 74.4929$ .

### **1.7.2 GBPINR**

The underlying currency pairs are GBPUSD and USDINR. Assume GBPUSD price as 1.4400 / 1.4425 and USDINR as 68.02 / 68.03, the price for GBPINR works out to be 97.9488 / 98.1333. You should identify the FX conversion path and appropriate price levels to arrive at the above cross rate.

### **1.7.3 JPYINR**

For JPYINR, the market convention is to quote price of 100 JPY in terms of INR. In all other pairs mentioned above, the convention is price of 1 unit of base currency in terms of quotation currency. The computation of JPYINR from USDJPY and USDINR is slightly different from the computation of GBPINR or EURINR. We will describe below the computation of JPYINR from USDJPY and USDINR. Assume USDJPY price as 120.60 / 120.61 and USDINR as 68.02 / 68.03.

Let us start the computation of cross rate, using the buy side argument i.e. price of buying 100 JPY in terms of INR. As understood from underlying currency pairs, the price of JPY is directly available only in terms of USD. Therefore, you need to sell INR to buy USD; and further sell the USD to buy JPY. It is important to identify this FX conversion path of selling one currency and buying another to calculate the cross rate. Now we need to use appropriate prices (bid price versus offer price) of underlying currency pairs.

To buy 1 unit of USD, the applicable price is 68.03 INR (offer side) i.e., you need INR 68.03 to buy 1 unit of USD. Now you need to sell one unit of USD (received by selling INR) and buy JPY. The price for selling one unit of USD is 120.60 (bid side). Therefore, you get 120.60 JPY by spending 68.03 INR. Thus price of buying 1 JPY is  $68.03/120.60$  i.e. 0.564096 INR or in other words price of buying 100 JPY is 56.4096 INR. Similarly, price of

selling 1 JPY is 68.02/120.61 i.e. 0.563967 or in other words price of selling 100 JPY is 56.3967 INR.

Thus price of JPYINR (for 100 JPY) would be 56.3967 / 56.4096 INR.

In the above examples, we have elaborated computing cross rates using underlying rates. Similarly, you could use one underlying rate and cross rate to calculate the other underlying rate. For example, using EURINR and USDINR rate, EURUSD rate could be calculated.

### **1.8 Impact of economic factors on currency prices**

There are multiple factors impacting the value of the currency at any given point of time. Some of the factors are of the local country while others could be from global markets. For example, the value of INR against USD is a function of factors local to India like gross domestic product (GDP) growth rate, balance of payment situation, deficit situation, inflation, interest rate scenario, policies related to inflow and outflow of foreign capital. It is also a function of factors like prices of crude oil, value of USD against other currency pairs and geopolitical situation.

All the factors are at work all the time and therefore some factors may act towards strengthening of currency and others may act towards weakening. It becomes important to identify the dominating factors at any point of time as those factors would decide the direction of currency movement. For example, economic factors in India might be very good indicating continued inflow of foreign capital and hence appreciation of INR. However, in global markets USD is strengthening against other currency pairs (on account of multiple factors). In this situation local factors are acting towards strengthening and global factors towards weakening of INR. One needs to assess which factors are more dominating at a point of time and accordingly take decision on likelihood of appreciation or depreciation of INR.

In the very short term, demand supply mismatch would also have bearing on the direction of currency's movement. The extent of impact of demand supply mismatch is very high on days when market is illiquid or on currency pairs with thin trading volumes. For USDINR, demand supply factors have considerable impact on the currency movement. For example, on some day INR may appreciate on account of large USD inflow (ECB conversion/ large FDI/ or any other reason) despite the trend of weakness driven by economic factors. Once the USD inflow is absorbed by the market, INR may again depreciate. Therefore, it is important to keep track of such demand supply related news.

To assess the impact of economic factors on the currency market, it is important to understand the key economic concepts, key data releases, their interpretation and impact on market. Since currency market is a globalized market and the value of currency is always determined against another currency, therefore the analysis in FX market also means analysis of economic conditions in other major countries of the world.



The interpretation of changing values of economic indicators on currency value could be difficult. It cannot be said with certainty that an indicator showing robust economic health of the country would mean strengthening of the currency of that country. The exact impact would be a function of relative health of other economies, global risk appetite among investors and market expectation. For example, during global financial crisis of 2008 and 2009, USD strengthened against all major currencies like EUR, GBP and JPY. This was despite US running record high fiscal deficit and its economy not doing well.

Some of the important economic factors that have direct impact on currency markets are inflation, balance of payment position of the country, trade deficit, fiscal deficit, GDP growth, policies pertaining to capital flows and interest rate scenario.

## **1.9 Economic indicators**

Given below are key economic indicators and their impact on currency market.

### **1.9.1 Gross Domestic Product (GDP)**

GDP represents the total market value of all final goods and services produced in a country during a given year. A GDP growth rate higher than expected may mean relative strengthening of the currency of that country, assuming everything else remaining the same.

### **1.9.2 Retail Sales**

It is a coincident indicator and shows how strong is consumer spending. For US market, the report is published around 13<sup>th</sup> or 14<sup>th</sup> of each month by United States Census Bureau. A retail sales number higher than expected may mean relative strengthening of the currency of that country. The report is amongst the top economic indicators tracked by FX dealers to assess direction for USD.

### **1.9.3 Industrial Production**

The Index of Industrial Production (IIP) shows the changes in the production in the industrial sector of an economy in a given period of time, in comparison with a fixed reference point in the past. In India, the fixed reference point is 2011-12 and the IIP numbers are reported using 2011-12 as the base year for comparison.

A healthy IIP number indicates industrial growth and which could result in relative strengthening of the currency of that country.

### **1.9.4 Consumer Price Index (CPI)**

CPI is a statistical time-series measure of a weighted average of prices of a specified set of goods and services purchased by consumers. The indicator measures level of inflation in the economy for the basket of goods and services which are generally brought by the people.

A rising CPI means a rising prices for goods and services and is an early indicator of inflation. Assessing the impact of CPI on value of currency is difficult. If rising CPI means likely increase in interest rate by the central bank, the currency may strengthen in the

short term but may start weakening in the long run as rising inflation and rising interest may start hurting the growth of the economy.

In India, Reserve Bank of India has started using CPI as the main indicator for measuring inflation and designing its policies to manage it.

#### **1.9.5 Nonfarm payrolls (NFP)**

Nonfarm payrolls represent the number of jobs added or lost in the economy over the last month, not including jobs relating to the farming industry, government jobs, household jobs and employees of non-profit organization that provide assistance to individuals.

For US, the data is released monthly by the Bureau of Labor Statistics and it is one of the most important indicators analyzed by market participants.

A rising and positive number means that the economy is adding jobs and is good for the currency. In general, in non-recessionary times, NFP number ranges between +10,000 to +250,000.

#### **1.9.6 Import / Export growth**

For a country like India, the figures pertaining to import / export, current account deficit and balance of payments are very important. During periods of risk aversion, any development resulting in widening current account deficit results in weakening of INR. However, during periods of risk appetite, market tends to ignore small changes in current account deficit.

#### **1.9.7 Central bank meetings and key decisions**

Market also tracks minutes of the central bank meetings and the key policy decisions. Some of the important announcements from central bank meetings are their interest rate decisions, CRR (cash reserve ratio). Market also actively looks forward to central bank's perspective on state of the economy.

In US, The Federal Open Market Committee (FOMC), a component of the Federal Reserve System, is responsible for making key decisions about interest rates and the growth of the money supply. Currency market actively looks forward to FOMC meeting minutes and its perspective on the interest rate.

It is noticed that not all indicators are important at a particular point in time. It is important to find out which indicators are getting most of the attention of market any given point in time. For example, sometimes market will give lot of importance to crude price and commodity prices while at other times may not give too much importance to it and rather focus on employment numbers and interest rate situation.

Given below are some suggestions that may help you when conducting fundamental analysis in the foreign exchange market:

1. Track the important economic indicators to be released in next few days.  
Generally, markets would predict a set of value for these indicators and start

pricing it before the indicator is released. In case the actual number is very different from market expectation, market may react to it or else may remain stable if the actual outcome is similar to the expectation.

2. Also watch if there is revision in the previously announced data. For example, IIP released in particular month may also give revised figures for previous months. In case, revision is significant, market may give more importance to the revised figures and ignore the current figure.

## Chapter 2: Foreign Exchange Derivatives

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Meaning of derivatives
- Types of derivatives products and its functions
- Difference between exchange traded and OTC derivatives

### 2.1 Derivatives - Definition

Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index, or reference rate). The underlying asset can be equity, foreign exchange, commodity or any other asset. For example, wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction is an example of a derivative. The price of this derivative is driven by the spot price of wheat which is the "underlying".

Derivative products initially emerged as hedging devices against fluctuations in commodity prices, and commodity linked derivatives remained the sole form of such products for almost three hundred years. Financial derivatives came into spotlight in the post 1970 period due to growing instability in the financial markets. However, since their emergence, these products have become very popular and by 1990s, they accounted for about two thirds of total transactions in derivative products. In recent years, the market for financial derivatives has grown tremendously in terms of variety of instruments available, their complexity and also turnover.

In the Indian context the Securities Contracts (Regulation) Act, 1956 [SC(R)A] defines "derivative" to include-

1. A security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.
2. A contract which derives its value from the prices, or index of prices, of underlying securities.

Derivatives are securities under the SC(R)A and hence the trading of derivatives is governed by the regulatory framework under the SC(R)A.

The term derivative has also been defined in section 45U(a) of the RBI act as follows:

An instrument, to be settled at a future date, whose value is derived from change in interest rate, foreign exchange rate, credit rating or credit index, price of securities (also called "underlying"), or a combination of more than one of them and includes interest rate swaps, forward rate agreements, foreign currency swaps, foreign currency-rupee swaps, foreign currency options, foreign currency-rupee options or such other instruments as may be specified by RBI from time to time.

## 2.2 Derivative products

Though derivatives can be classified based on the underlying asset class (such as forex derivatives, equity derivatives, etc.), it is more useful to classify them based on cash flow pattern into four “generic” types of forward, futures, option and swap. We take a brief look at various derivatives contracts that have come to be used.

**Forwards:** A forward contract is a customized OTC contract between two parties, where settlement takes place on a specific date in the future at today's pre-agreed price.

**Futures:** It is similar to forward except that it is an Exchange-trade product. The term “futures” refer to the derivative and the term “future” to a later point in time. Thus, the “futures price” is the current price of derivatives and the “future” price is the price that will prevail on a later point of time.

**Options:** Option does not buy or sell the underlying directly but buys or sells the right without obligation on the underlying. The right can be the right to buy (when it is called call option) and the right to sell (when it is called put option).

**Swaps:** Swaps are agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

- *Interest rate swaps:* These entail swapping only the interest related cash flows between the parties in the same currency.
- *Currency swaps:* These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

## 2.3 Growth drivers of derivatives

Over the last three decades, the derivatives market has seen a phenomenal growth. A large variety of derivative contracts have been launched at exchanges across the world. Some of the factors driving the growth of financial derivatives are:

1. Increased volatility in asset prices in financial markets,
2. Increased integration of national financial markets with the international financial markets,
3. Marked improvement in communication facilities and sharp decline in their costs,
4. Development of more sophisticated risk management tools, providing a wider choice of risk management strategies, and
5. Innovations in the derivatives markets, which optimally combine the risks and returns over a large number of financial assets, leading to higher returns, reduced risk and lower transactions costs as compared to individual financial assets.

## 2.4 Market players

The following three broad categories of participants - hedgers, speculators, and arbitrageurs - trade in the derivatives market. Hedgers face risk associated with the price of an underlying asset and they use derivative markets to reduce or eliminate this risk. Speculators wish to bet on future movements in the price of an underlying asset.

Derivatives give them an ability to buy the underlying without paying for it fully or to sell it without owning it or delivering it immediately. In the process, the potential gains and losses are amplified. Arbitrageurs are in business to take advantage of a discrepancy between prices in two different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to lock in a profit.

## **2.5 Key economic function of derivatives**

Despite the fear and criticism with which the derivative markets are commonly looked at, these markets perform a number of economic functions.

1. Prices in an organized derivatives market reflect the perception of market participants about the future and lead the prices of underlying to the perceived future level. The prices of derivatives converge with the prices of the underlying at the expiration of the derivative contract. Thus derivatives help in discovery of future prices.
2. The derivatives market helps to transfer risks from those who have them but may not like them to those who have an appetite for risks.
3. Derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives, the underlying market witnesses higher trading volumes because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk.
4. Speculative trades shift to a more controlled environment of derivatives market. In the absence of an organized derivatives market, speculators trade in the underlying cash markets. Margining, monitoring and surveillance of the activities of various participants become extremely difficult in these types of mixed markets.
5. An important incidental benefit that flows from derivatives trading is that it acts as a catalyst for new entrepreneurial activity. The derivatives have a history of attracting many bright, creative, well-educated people with an entrepreneurial attitude. They often energize others to create new businesses, new products and new employment opportunities, the benefits of which are immense.

In a nut shell, derivatives markets help increase savings and investment in the long run. Transfer of risk enables market participants to expand their volume of activity.

## **2.6 Financial market stability: Exchange-traded vs. OTC derivatives**

The OTC derivatives markets have witnessed rather sharp growth over the last few years which have accompanied the modernization of commercial and investment banking and globalization of financial activities. The recent developments in information technology have contributed to a great extent to these developments. While both exchange-traded and OTC derivative contracts offer many benefits, there are significant differences between the two. The key difference being that exchange traded derivatives are standardized, more transparent, the counterparty risk is borne by a centralized corporation with stringent margining systems while OTC contracts are customized,

opaque in pricing, risk management is decentralized and individual institutions/ clients take counterparty risk of each other. The exchange traded market can offer hedging solution to even small size requirements whereas in OTC market, hedging a very small size requirement may not be possible or the transaction cost may be prohibitive.

The clearing, settlement and risk management part of OTC contracts, if not managed well could lead to unsustainable counter party credit risk exposure leading to rapid unwinding of positions during periods of sharp volatility and movement in asset prices. A default by one or two large counterparties may lead to domino effect of default by other counterparties also and thereby making financial market unstable. We had observed this phenomenon during financial crisis of 2008.

World over regulators and governments are now trying to move more and more derivative contracts to be exchange traded with centralized clearing and settlement.

## Chapter 3: Exchange Traded Currency Futures

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Meaning of currency futures and the terminology used in futures market
- Rationale behind introducing currency futures in India
- Difference between futures and forward contracts
- Concept of interest rate parity and pricing of currency futures

### 3.1 Currency futures - Definition

A futures contract is a standardized contract, traded on an exchange, to buy or sell a certain underlying asset or an instrument at a certain date in the future, at a specified price. When the underlying asset is a commodity, e.g. Oil or Wheat, the contract is termed a “commodity futures contract”. When the underlying is an exchange rate, the contract is termed a “currency futures contract”. Both parties of the futures contract must fulfill their obligations on the settlement date.

Currency futures are a linear product, and calculating profits or losses on these instruments is similar to calculating profits or losses on Index futures. In determining profits and losses in futures trading, it is essential to know both the contract size (the number of currency units being traded) and also the “tick” value.

A tick is the minimum size of price change. The market price will change only in multiples of the tick. Tick values differ for different currency pairs and different underlyings. For e.g. in the case of the USDINR currency futures contract the tick size shall be 0.25 paise or 0.0025 Rupee. To demonstrate how a move of one tick affects the price, imagine a trader buys a contract (USD 1000 being the value of each contract) at Rs 67.7500. One tick move on this contract will translate to Rs 67.7475 or Rs 67.7525 depending on the direction of market movement.

The contract amount (or “market lot”) is the minimum amount that can be traded. Therefore, the profit/loss associated with change of one tick is: tick x contract amount.

The value of one tick on each USDINR contract is Rupees 2.50 (which is  $1000 \times 0.0025$ ). So if a trader buys 5 contracts and the price moves up by 4 ticks, he makes Rs 50 ( $= 5 \times 4 \times 2.5$ ).

(Note: The above examples do not include transaction fees and any other fees, which are essential for calculating final profit and loss).

### 3.2 Futures terminology

Some of the common terms used in the context of currency futures market are given below:

- **Spot price:** The price at which the underlying asset trades in the spot market.
- **Futures price:** The current price of the specified futures contract



- **Contract cycle:** The period over which a contract trades. The currency futures contracts on the SEBI recognized exchanges have one-month, two-month, and three-month up to twelve-month expiry cycles. Hence, these exchanges will have 12 contracts outstanding at any given point in time.
- **Value Date/Final Settlement Date:** The last business day of the month will be termed as the Value date / Final Settlement date of each contract. The last business day would be taken to be the same as that for Inter-bank Settlements in Mumbai. The rules for Inter-bank Settlements, including those for 'known holidays' and 'subsequently declared holiday' would be those as laid down by Foreign Exchange Dealers' Association of India (FEDAI).
- **Expiry date:** Also called Last Trading Day, it is the day on which trading ceases in the contract; and is two working days prior to the final settlement date.
- **Contract size:** The amount of asset that has to be delivered under one contract. Also called as lot size. In the case of USDINR it is USD 1000; EURINR it is EUR 1000; GBPINR it is GBP 1000 and in case of JPYINR it is JPY 100,000. Further, in case of EURUSD, the contract size is EUR 1000, for GBPUSD it is GBP 1000 and for USDJPY it is USD 1000.
- **Initial margin:** The amount that must be deposited in the margin account at the time a futures contract is first entered into is known as initial margin.
- **Marking-to-market:** In the futures market, at the end of each trading day, the margin account is adjusted to reflect the investor's gain or loss depending upon the futures closing price. This is called marking-to-market.

### 3.3 Rationale behind currency futures

The rationale for introducing currency futures in the Indian context has been outlined in the Report of the Internal Working Group on Currency Futures (Reserve Bank of India, April 2008) as follows:

"The rationale for establishing the currency futures market is manifold. Both residents and non-residents purchase domestic currency assets. If the exchange rate remains unchanged from the time of purchase of the asset to its sale, no gains and losses are made out of currency exposures. But if domestic currency depreciates (appreciates) against the foreign currency, the exposure would result in gain (loss) for residents purchasing foreign assets and loss (gain) for non-residents purchasing domestic assets. In this backdrop, unpredicted movements in exchange rates expose investors to currency risks. Currency futures enable them to hedge these risks. Nominal exchange rates are often random walks with or without drift, while real exchange rates over long run are mean reverting. As such, it is possible that over a long – run, the incentive to hedge currency risk may not be large. However, financial planning horizon is much smaller than the long-run, which is typically inter-generational in the context of exchange rates. Per se, there is a strong need to hedge currency risk and this need has grown manifold with fast growth in cross-border trade and investments flows. The

argument for hedging currency risks appear to be natural in case of assets, and applies equally to trade in goods and services, which results in income flows with leads and lags and get converted into different currencies at the market rates. Empirically, changes in exchange rate are found to have very low correlations with foreign equity and bond returns. This in theory should lower portfolio risk. Therefore, sometimes argument is advanced against the need for hedging currency risks. But there is strong empirical evidence to suggest that hedging reduces the volatility of returns and indeed considering the episodic nature of currency returns, there are strong arguments to use instruments to hedge currency risks.

Currency risks could be hedged mainly through forwards, futures, swaps and options. Each of these instruments has its role in managing the currency risk. The main advantage of currency futures over its closest substitute product, viz. forwards which are traded over the counter lies in price transparency, elimination of counterparty credit risk and greater reach in terms of easy accessibility to all. Currency futures are expected to bring about better price discovery and also possibly lower transaction costs. Apart from pure hedgers, currency futures also invite arbitrageurs, speculators and those traders who may take a bet on exchange rate movements without an underlying or an economic exposure as a motivation for trading.

From an economy-wide perspective, currency futures contribute to hedging of risks and help traders and investors in undertaking their economic activity. There is a large body of empirical evidence which suggests that exchange rate volatility has an adverse impact on foreign trade. Since there are first order gains from trade which contribute to output growth and consumer welfare, currency futures can potentially have an important impact on real economy. Gains from international risk sharing through trade in assets could be of relatively smaller magnitude than gains from trade. However, in a dynamic setting these investments could still significantly impact capital formation in an economy and as such currency futures could be seen as a facilitator in promoting investment and aggregate demand in the economy, thus promoting growth”.

### **3.4 Distinction between futures and forward contracts**

Forward contracts are often confused with futures contracts. The confusion is primarily because both serve essentially the same economic functions of allocating risk in the probability of future price uncertainty. However, futures have some distinct advantages over forward contracts as they eliminate counterparty risk and offer more liquidity and price transparency. However, it should be noted that forwards enjoy the benefit of being customized to meet specific client requirements. The advantages and limitations of futures contracts are as follows:

#### **Advantages of Futures:**

- Price transparency.
- Elimination of Counterparty credit risk.
- Access to all types of market participants. The OTC market is restricted to Authorized Dealers (banks which are licensed by RBI to deal in FX), individuals and entities with

forex exposures. Retail speculators with no exposure to FX cannot trade in OTC market.

- Generally speaking, futures offer low cost of trading as compared to OTC market.

#### **Limitations of Futures:**

- The benefit of standardization, though improves liquidity in futures, leads to imperfect hedge since the amount and settlement dates cannot be customized.
- While margining and daily settlement is a prudent risk management policy, some clients may prefer not to incur this cost in favor of OTC forwards, where collateral is usually not demanded.

### **3.5 Interest rate parity and pricing of currency futures**

#### **Concept of interest rate parity**

Let us assume that risk free interest rate for one year deposit in India is 7% and in USA it is 3%. You as smart trader/ investor will raise money from USA and deploy it in India and try to capture the arbitrage of 4%. You could continue to do so and make this transaction as a non-ending money making machine. Life is not that simple! And such arbitrages do not exist for very long.

We will carry out the above transaction through an example to explain the concept of interest rate parity and derivation of future prices which ensure that arbitrage does not exist.

#### **Assumptions:**

1. Spot exchange rate of USDINR is 68 (\$)
2. One year future rate for USDINR is F
3. Risk free interest rate for one year in USA is 3% ( $R_{USD}$ )
4. Risk free interest rate for one year in India is 7% ( $R_{INR}$ )
5. Money can be transferred easily from one country into another without any restriction of amount, without any taxes etc.

You decide to borrow one USD from USA for one year, bring it to India, convert it in INR and deposit for one year in India. After one year, you return the money back to USA.

On start of this transaction, you borrow 1 USD in US at the rate of 3% and agree to return 1.03 USD after one year (including interest of 3 cents or 0.03 USD). This 1 USD is converted into INR at the prevailing spot rate of 68. You deposit the resulting INR 68 for one year at interest rate of 7%. At the end of one year, you receive INR 4.76 (7% of 68) as interest on your deposit and also get back your principal of INR 68 i.e., you receive a total of INR 72.76. You need to use these proceeds to repay the loan taken in USA.

Two important things to think before we proceed:

- The loan taken in USA was in USD and currently you have INR. Therefore, you need to convert INR into USD
- What exchange rate do you use to convert INR into USD?

At the beginning of the transaction, you would lock the conversion rate of INR into USD using one year future price of USDINR. To ensure that the transaction does not result into any risk free profit, the money which you receive in India after one year should be equal to the loan amount that you have to pay in USA. We will convert the above argument into a formula:

$$S(1+R_{\text{INR}}) = F(1+R_{\text{USD}})$$

$$\text{Or, } F/S = (1+R_{\text{INR}}) / (1+R_{\text{USD}})$$

Another way to illustrate the concept is to think that the INR 72.76 received after one year in India should be equal to USD 1.03 when converted using one year future exchange rate.

Therefore,

$$F/68 = (1+0.07) / (1+0.03)$$

$$F = 70.6408$$

Approximately, F is equal to the interest rate difference between two currencies i.e.,

$$F = S + (R_{\text{INR}} - R_{\text{USD}}) * S$$

This concept of difference between future exchange rate and spot exchange rate being approximately equal to the difference in domestic and foreign interest rate is called the “Interest rate parity”. Alternative way to explain, interest rate parity says that the spot price and futures price of a currency pair incorporates any interest rate differentials between the two currencies assuming there are no transaction costs or taxes.

A more accurate formula for calculating, the arbitrage-free forward price is as follows.

$$F = S \times (1 + R_{\text{QC}} \times \text{Period}) / (1 + R_{\text{BC}} \times \text{Period})$$

Where

F = forward price

S = spot price

$R_{\text{BC}}$  = interest rate on base currency

$R_{\text{QC}}$  = interest rate on quoting currency

Period = forward period in years

For a quick estimate of forward premium, following formula mentioned above for USDINR currency pair could be used. The formula is generalized for other currency pair and is given below:

$$F = S + (S \times (R_{\text{QC}} - R_{\text{BC}}) \times \text{Period})$$

In above example, if USD interest rate were to go up and INR interest rate were to remain at 7%, the one year future price of USDINR would decline as the interest rate difference between the two currencies has narrowed and vice versa.

Traders use expectation on change in interest rate to initiate long/ short positions in currency futures. Everything else remaining the same, if USD interest rate is expected to

go up (say from 2.5% to 3.0%) and INR interest rate are expected to remain constant say at 7%; a trader would initiate a short position in USDINR futures market.

Illustration:

Suppose 6 month interest rate in India is 5% (or 10% per annum) and in USA are 1% (2% per annum). The current USDINR spot rate is 68. What is the likely 6 month USDINR futures price?

As explained above, as per interest rate parity, future rate is equal to the interest rate differential between two currency pairs. Therefore, approximately 6 month future rate would be:

$$\begin{aligned}\text{Spot} + 6 \text{ month interest difference} &= 68 + 4\% \text{ of } 68 \\ &= 68 + 2.72 = 70.72\end{aligned}$$

The exact rate could be calculated using the formula mentioned above and the answer comes to 70.69.

$$70.69 = 68 \times (1 + 0.10 \times 0.5) / (1 + 0.02 \times 0.5)$$

#### **Concept of premium and discount**

Therefore 6 month future price of USDINR pair is 70.69 when spot price is 68. It means that INR is at discount to USD and USD is at premium to INR. Intuitively to understand why INR is called at discount to USD, think that to buy same 1 USD you had to pay INR 68 now and you have to pay 70.69 after 6 months i.e., you have to pay more INR to buy same 1 USD. And therefore future value of INR is at discount to USD.

Therefore, in any currency pair, future value of a currency with high interest rate is at a discount (in relation to spot price) to the currency with low interest rate.

## Chapter 4: Strategies Using Currency Futures

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Different kinds of market participants using currency futures
- Use of currency futures by hedgers, speculators and arbitrageurs
- Spread trading strategy using currency futures
- Limitation of currency futures for hedgers

### 4.1 Market participants

The uses of currency futures market could be better understood by first understanding different type of market participants and their objectives. There could be three different types of market participants. The description of these participants and their objective is given below:

#### 4.1.1 Hedgers

These types of participants have a real exposure to foreign currency risk on account of their underlying business and their objective is to remove the FX risk using currency futures. The exposure could be because of imports/ exports of goods/services, foreign investments or foreign expenditure on account of travel, studies or any other type of need resulting in FX exposure. In other words, anyone having a mismatch in foreign exchange earnings and expenses would have an actual exposure to foreign exchange.

The objective of hedgers is to reduce the volatility in future cash flows by locking in the future currency rates. For example, a shoe exporter from India buys all its raw material domestically and sells all its goods to Europe. For him, the expenditure is in INR while revenue is in EUR. Assume he has shipped an order of EUR 1 million for which payment will be received after 3 months. During the 3 month credit period, shoe exporter is carrying the risk of EUR/INR price movement. He is interested to hedge the currency price risk. In this example, the shoe exporter is a hedger.

#### 4.1.2 Speculators

This set of market participants does not have a real exposure to foreign currency risk. These participants assume FX risk by taking a view on the market direction and hope to make returns by taking the price risk.

Speculators play a vital role in the futures markets. Futures are designed primarily to assist hedgers in managing their exposure to price risk; however, this would not be possible without the participation of speculators. Speculators, or traders, assume the price risk that hedgers attempt to lay off in the markets. In other words, hedgers often depend on speculators to take the other side of their trades (i.e. act as counter party) and to add depth and liquidity to the markets that are vital for the functioning of a futures market.

### 4.1.3 Arbitrageurs

This set of market participants identify mispricing in the market and use it for making profit. They have neither exposure to risk and nor do they take the risk. Arbitrageurs lock in a profit by simultaneously entering opposite side transactions in two or more markets. For example, if the relation between forward prices and futures prices differs, it gives rise to arbitrage opportunities. Difference in the equilibrium prices determined by the demand and supply at two different markets also gives opportunities to arbitrage. As more and more market players will realize this opportunity, they may also implement the arbitrage strategy and in the process will enable market to come to a level of equilibrium and the arbitrage opportunity may cease to exist.

Example – Let's say the spot rate for USDINR is quoted @ Rs. 67.80 and one month forward is quoted at 30 paise premium to spot @ 68.10 while at the same time one month currency futures is trading @ Rs. 68.25. Assume that both the futures contract and the forward contract expires on the same day. An active arbitrager realizes that there is an arbitrage opportunity as the one month futures price is more than the one month forward price. He implements the arbitrage trade where he;

- Sells in futures @ 68.25 levels (1 month)
- Buys in forward @ 68.10 (1 month) with the same term period

On the date of expiry, he/she takes delivery in his/her forwards position and delivers the same on exchange platform (for his/her futures position).

In the process, he/she makes a Net Gain of  $68.25 - 68.10 = \text{Rs } 0.15$  or 15 paise per USD i.e. approximately 15 paise arbitrage. This results into a profit per contract of Rupees 150 ( $= \text{Rs } 0.15 \times 1000$  units per USDINR lot).

## 4.2 Computing payoffs from a portfolio of futures and trade remittances

The market participants may undertake various kinds of currency positions and it is important to understand the payoff from these positions. In this section we will explain different combinations of positions in futures market on standalone basis and futures positions combined with cash position in OTC market.

A market participant may buy or sell in the futures market and this transaction may be linked to an underlying trade transaction (export, import or any kind of actual FX exposure) or it may not be linked to any trade transaction. When it is linked, the computation of payoff of the combined transaction (futures + underlying trade transaction) will be a summation of payoff of futures contract and the payoff from the trade transaction. For the standalone future transaction, the payoff would be the payoff from future contract alone.

Let us now understand these from examples below:

### A. Combined position of futures and underlying export trade remittance

Example 1: An exporter of garments from India has contracted to export 10,000 pieces of shirt to a large retailer in US. The agreed price was USD 100 per shirt and the payment would be made three months after the shipment. The exporter would take one month to manufacture the shirt. The exporter had used the prevailing spot price of 68 as the budgeted price while signing the export contract. To avoid the FX risk, the exporter sells four month futures at the price of 69. The exporter receives USD well on time and he converts USD to INR in the OTC market at the then prevailing price of 70 and also cancels the futures contract at the same time at the price of 70.20. How much was the effective currency price for the exporter?

The effective price would be summation of effect of change in USDINR price on the underlying trade transaction and the effect of change in future price on the currency futures contract.

- Underlying trade transaction: Against the budget of 68, the exporter realizes the price of 70 and therefore there is a net positive change of Rs 2
- Futures contract: Against the contracted price of 69, the exporter had to settle the contract at 70.20 and therefore resulting in a net negative change of Rs 1.20
- Combined effect: The combined effect of change in USDINR spot price and change in future price i.e.  $(Rs\ 2) + (-Rs\ 1.20) = +Rs\ 0.80$
- Effective price: Therefore, the effective price was 68 (budgeted price) + 0.80 (effect of hedging and underlying trade transaction) i.e. Rs 68.80.

In the same example, assume that INR appreciated against USD at time of converting USD to INR the spot was 67 and futures contract's cancellation rate was 67.20, the effective currency price for the exporter would still be 68.80. This is because there would be a negative change of Rs 1 on underlying trade transaction and a positive change of Rs 1.80 on futures contract. Therefore, the net effect will be summation of  $-1$  and  $+1.80$  i.e. Rs 0.80.

Please notice that because of the futures contract exporter always gets a price of 68.80 irrespective of depreciation or appreciation of INR. However, not using currency futures would have resulted in effective rate of 70 (in the first case when INR depreciated from 68 to 70) and effective rate of 67 (in the second case when INR appreciated from 68 to 67). Thus using currency futures, exporter is able to mitigate the risk of currency movement.

## **B. Combined position of futures and underlying import trade remittance**

Let us take an example where an importer hedges only partial amount of total exposure. This example will also demonstrate the method of computing payoff when hedging is done for partial exposure.

An importer of pulses buys 1000 tons of chickpea at the price of USD1600 per ton. On the day of finalizing the contract, USDINR spot price was 68. The importer was not sure about the INR movement in future but he was more biased towards INR appreciation. He decides to hedge half of the total exposure using currency futures and contracted a rate of 68.50 using two months futures contract. In the next two months, INR



depreciated to 69.50 at the time of making import payment. On the day of making import payment, the futures contract price was at 69.70. What was the effective USDINR for the importer and what would it have been had he hedged the full exposure?

The effective price would be summation of final price at which import remittance was made and payoff from the futures contract.

- Futures contract: Against the contracted price of 68.50, the importer settled the contract at 69.70, thereby resulting in a net positive change of Rs 1.20. Since importer hedged only half of the total exposure, the net inflow from hedging would be available for half of total exposure.
- Effective price computation: Therefore the effective price would be 69.50 (final remittance price) for the unhedged part and 68.30 ( = 69.50 – 1.20) for the balance half which was hedged. The figure of 68.30 is computed by deducting 1.20 (inflow from hedged position) from the spot price of 69.50. Therefore, final effective price would be:  
$$(69.50 \times 0.5) + (68.30 \times 0.5) = 68.90$$

Please note that since it is import payment and a lower USDINR exchange rate would be positive for the importer, therefore a positive inflow from future contract is reduced from the remittance price to compute effective price for the hedged part.

As against the effective price of 68.90, the price would have been 68.30 had the importer decided to hedge the total exposure. Also note that without hedging, the effective price would have been 69.50 i.e., the price at which importer made the import remittance.

Did you notice that in the second scenario of full hedging, the effective price (68.30) is different from the contracted price of futures (68.50)? The difference is due to the difference in the final settlement price of futures contract and the price at which remittance was done.

### 4.3 Using currency futures for hedging various kinds of FX exposures

Some of the common purposes/ transactions, in addition to import/export, which could use currency futures for the purpose of hedging, are as follows:

- Payment in foreign currency for travel abroad, for education, for medical treatment, payment for employees based abroad, etc.
- Payment of loan availed in foreign currency
- Investment in assets outside India or repatriation of capital invested outside India
- Payment of loan installments in INR by a person earning in foreign currency

We will explain few interesting examples from the above mentioned scenarios.

#### 4.3.1 Investment in gold

A high net worth individual in India is keen to invest in gold with a view of rising gold prices against USD. He invested via ETF gold contract which are exchange traded and

priced in INR. After three months of investment in ETF, gold appreciated by 15% against USD while ETF appreciated by only 10%. The low appreciation of ETF was because of 5% appreciation in INR against USD in last three months. The investor is contemplating ways to remove the USDINR risk in ETF contract such that the investor is left only with gold related risk and related return without worrying about USDINR fluctuations. How can he use currency futures contract?

The investor could short USDINR currency futures for an amount equal to the amount of investment in ETF and for a tenor for which he intends to stay invested in gold ETF. This would reduce the USDINR risk embedded in gold ETF. If INR appreciates against USD, it would negatively impact gold ETF while it would positively impact the currency futures contract.

Please note that price of currency futures is a function of spot price and also premium/discount between the currency pair. Therefore, in the above example use of currency futures may not completely remove USDINR spot risk as the price of currency futures would also depend on change in USDINR premium over the contracted period.

#### **4.3.2 Investment in assets outside India and repatriation of profit and capital**

Currency futures could also be effectively used to hedge the currency risk when investing abroad. Let us take an example to explain it. A person has invested USD 100,000 in US equities with a view of appreciation of US stock market. In next one year, his investments in US equities appreciated in value to USD 115,000. The investor decided to sell off his portfolio and repatriate the capital and profits to India. However, at the time of converting USD to INR, he received an exchange price of 64 as against 67 which was the price at which he had converted INR to USD at the time of investing abroad.

Let us answer few questions using this example:

- A. What is investor's return on capital in USD and INR? What would be his return in INR if it had depreciated to 70 at the time of converting USD to INR?
- B. What could have investor done to de-risk his portfolio from currency risk?

##### **A. Computing return in USD and INR:**

The value of investment increased from USD 100,000 to USD 115,000 in one year. Therefore, the return in USD would be:

$(115,000 - 100,000)/100,000 = 0.15$  and in percentage terms it would be 15%.

In INR terms, the value of investment at the beginning was 6,700,000 and at maturity it is 7,360,000 (64 x 115,000). Therefore, the return in INR is:

$(7,360,000 - 6,700,000)/(6,700,000) = 0.0985$  and in percentage terms it would be 9.85%

Thus the return decreased from 15% to 9.85% due to INR appreciation from 67 to 64. However, if INR had depreciated from 67 to 70 the return would have increased to 20.15%.

$((115,000 \times 70) - 6,700,000) / 6,700,000 = 0.2015$ . In percentage terms, it would be 20.15%

You would notice that return in INR is impacted by USDINR price movement. An investor whose objective is to execute a view on US equities and not on USDINR movement would want to de-risk the portfolio from currency risk.

#### **B. De-risking the US equity portfolio from USDINR currency risk**

The investor may short USDINR currency futures for one year. This would allow him to sell USD to INR at a contracted price via futures contract and thus remove currency risk from the portfolio.

### **4.4 Use of currency futures by speculators**

In the examples shared above, currency futures contract was used for hedging an actual currency exposure. In this section, we will explain its use by speculators.

As explained in earlier section, speculators take a view on the market with an objective to profit from it. Let us take an example.

A trader has a view that given the buoyant economic condition in India and likelihood of drop in inflation, the INR may appreciate in next six months from current level of 66 to 64. To execute the view, he shorts 100 contracts at a price of 67.5. As expected, INR appreciated. At the expiry of the contract, the settlement price was 64.5. How much profit / loss did the trader make on his transaction?

Since the settlement price was lower than the contracted price and the trader had shorted the futures, he made profit. The amount of profit would be equal to the difference in the contracted price and the settlement price. Thus the trader made a profit of Rs 3 per USD. Since he had shorted 100 contracts and each contract is of 1000 USD, the absolute profit made on the transaction was Rs 300,000 ( $= 3 \times 100 \times 1000$ ).

Please note that had the INR depreciated, the trader would have either made loss or relatively lesser profit. The exact amount would have been a function of the final settlement price of the futures contract.

### **4.5 Use of currency futures by arbitrageurs**

As mentioned earlier, arbitrageurs look for mispricing in the market and execute simultaneous buy and sell to capture the mispricing and make profit. They do not take any view on the market direction. Let us take an example.

A trader notices that 6 month USDINR currency futures was trading at 65.98/66.00 while 6 month forward in OTC market, for same maturity as that of currency futures contract, was available at 65.85/65.86. Let us answer few questions on this scenario.

Is there an opportunity to make money in the scenario given above? If yes, what trade can be executed to make money?

Ideally currency futures and currency forward should be trading at same level, if their settlement dates are same. A difference in pricing means mispricing and an opportunity to set an arbitrage trade to capture the mispricing and make money by selling in the market where the price is higher and in buying in the market where the price is lower.

The trader could short currency futures and go long on currency forward to capture the mispricing.

How much profit per USD could the trader make by setting an arbitrage trade if the settlement price of currency futures was 67 and the OTC contract was also settled at 67?

The trader would short currency futures at price of 65.98 and go long in currency forward at 65.86. At the time of settlement, trader loses 1.02 on futures and makes a profit of 1.14 on OTC forward contract. Thus he makes an arbitrage profit of 0.12 per USD.

Please note that arbitrage profit would have been constant at 0.12 irrespective of final settlement price as long as both OTC contract and futures contract were settled at the same price.

Since execution of arbitrage trade requires simultaneous buy and sell of a contract, there is a loss of value in paying bid-ask difference. As you would have noticed in the above example, the trader pays two paise bid-ask in futures contract and pays one paise in OTC contract. Therefore, arbitrageurs prefer to execute the trade through the brokers/ exchanges/ trading terminals etc which offers prices at the least possible bid-ask difference.

### **Triangular Arbitrage**

Triangular arbitrage involves identifying and exploiting the arbitrage opportunity resulting from price differences among three different currencies in the forex market. It involves three trades: exchanging the first currency for a second currency, exchanging the second currency for a third currency and exchanging the third currency for the first currency. Like all other arbitrage opportunities, this triangular arbitrage also possible only when the exchange rates are not aligned with the implicit cross exchange rate.

Suppose EURUSD is available at 1.25, USDINR at 65 and EURINR at 80.65. An arbitrageur who has 1000 EUR can exchange these for 1250 USD. He can further exchange these 1250 USD for 81250 INR ( $\text{USD } 1250 * 65 \text{ INR per USD} = \text{INR } 81250$ ). In the last leg of the triangular arbitrage, he can exchange 81250 INR for 1007.44 EUR thereby making an arbitrage profit of 7.44 EUR. Had the EURINR been trading at 81.25 (instead of the 80.65 given in this example), there could be no arbitrage opportunity. But for the given EURUSD and USDINR rates, anything below 81.25 EURINR provides an arbitrage opportunity.

Please note that profitable triangular arbitrage is very rarely possible because when such opportunity arises, traders execute trades that take advantage of the imperfections and prices adjust up or down until the opportunity disappears. Even when

those opportunities appear for a very brief period of time, the opportunity (price disparity) may be very small (around 1 basis point or so in many cases) making it not a profitable opportunity after factoring in the transaction costs and taxes. Moreover, there is also a risk of adverse price movement while the arbitrageur is still setting up the arbitrage position.

#### 4.6 Trading spreads using currency futures

Spread refers to difference in prices of two futures contracts. A good understanding of spread relation in terms of pair spread is essential to earn profit. Considerable knowledge of a particular currency pair is also necessary to enable the trader to use spread trading strategy.

Spread movement is based on following factors:

- Interest Rate Differentials
- Liquidity in Banking System
- Monetary Policy Decisions (Repo, Reverse Repo and CRR)

**Intra-Currency Pair Spread** (also called as “calendar spread”): An intra-currency pair spread consists of one long futures and one short futures contract. Both have the same underlying but different maturities.

**Inter-Currency Pair Spread:** An inter-currency pair spread is a long-short position in futures on different underlying currency pairs. Both typically have the same maturity.

**Example:** A person is an active trader in the currency futures market. In September 2015, he gets an opportunity for spread trading in currency futures. He is of the view that in the current environment of high inflation and continuing increase in interest rates in India may result in increasing premiums and therefore spread may widen. On the basis of this view, he decides to buy December currency futures at 67.00 and at the same time sell October futures contract at 66.80; the spread between the two contracts is 0.20.

Let's say after 30 days the spread widens as per his expectation and now the October futures contract is trading at 66.90 and December futures contract is trading at 67.25, the spread now stands at 0.35. He decides to square off his position, making a gain of Rs. 150 per contract ( $= 0.35 - 0.20 = 0.15 \times \text{lot of } 1000$ ).

#### 4.7 Limitations of currency futures for hedgers

Exchange traded currency futures contracts are standard contracts which are settled in cash i.e. without delivery of currencies. For hedgers, there might be a mismatch in the timing of settlement or cancellation of futures contract and the timing of actual trade remittance. This timing mismatch may result in small loss of value as compared to OTC forward contract. However, the transparency, small lot size and ease of trade execution may offset it.

## 4.8 Conclusion

It must be noted that though the above examples illustrate how a hedger can successfully avoid negative outcomes by taking an opposite position in FX futures, it is also possible, that on occasion the FX fluctuations may have been beneficial to the hedger had he not hedged his position and taking a hedge may have reduced his windfall gains from these FX fluctuations. FX hedging may not always make the hedger better-off but it helps him to avoid the risk (uncertainty) related to currency fluctuations and lets him focus on his core competencies instead.

Many people are attracted toward futures market speculation after hearing stories about the amount of money that can be made by trading futures. While there are success stories, and many people have achieved a more modest level of success in futures trading, the keys to their success are typically hard work, a disciplined approach, and a dedication to master their trade. An investor should always remember that the trade he has initiated has the equal probability of going wrong and must therefore apply meticulous risk management practices to ensure the safety of his hard-earned capital.

## Chapter 5: Trading in Currency Futures

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Contract design and terminologies related to exchange traded currency futures
- Trader workstation screen, types of orders and price limits in currency futures
- Rules, regulations and byelaws of exchanges

### 5.1 Currency futures contract specification

Currently currency futures contracts on four INR pairs i.e., USDINR, EURINR, GBPINR and JPYINR and on three cross currency pairs i.e., EURUSD, GBPUSD and USDJPY are being traded on the recognized stock exchanges.

The contract specification for INR currency pairs is given in the table below:

<b>Contract specification: USDINR, EURINR, GBPINR and JPYINR Currency Futures</b>	
Underlying	Foreign currency as base currency and INR as quoting currency
Market timing	Monday to Friday, 9:00 AM to 5:00 PM
Contract Size	USD 1000 (for USDINR), EUR 1000 (for EURINR), GBP 1000 (for GBPINR) and JPY 100,000 (for JPYINR)
Tick Size	0.25 Paise (i.e., Rs 0.0025)
Quotation	The contract would be quoted in Rupee terms. However, outstanding position would be in USD, EUR, GBP and JPY terms for USDINR, EURINR, GBPINR and JPYINR contracts respectively
Contract trading cycle	Maximum of 12 calendar months from current calendar month. New contract will be introduced following the Expiry of current month contract.
Last trading day (or Expiry day)	Two working days prior to the last business day of the expiry month at 12:30 pm. If last trading day is a trading holiday, then the last trading day shall be the previous trading day.
Final Settlement Day	Last working day (excluding Saturdays) of the expiry month. The last working day will be the same as that for Interbank Settlements in Mumbai. The rules for Interbank Settlements, including those for 'known holidays' and 'subsequently declared holiday would be those as laid down by FEDAI.
Settlement Basis	Daily mark to market settlement will be on a T +1 basis and final settlement will be cash settled on T+2 basis.
Mode of Settlement	Cash settled in INR

Daily Settlement Price	Daily mark to market settlement price will be announced by the exchange, based on volume-weighted average price in the last half an hour of trading, or a theoretical price if there is no trading in the last half hour.
Final Settlement Price	RBI reference rate

The contract specification for cross currency pairs is given in the table below:

<b>Contract specification: EURUSD, GBPUSD and USDJPY Currency Futures</b>	
Underlying	In case of EURUSD and GBPUSD, the contract would be quoted in USD (i.e., EUR and GBP would be the base currency and USD would be the quoting currency). The outstanding positions would be in EUR and GBP terms respectively. In case of USDJPY, the contract would be quoted in JPY (i.e., USD would be the base currency and JPY would be the quoting currency). The outstanding positions would be in USD terms.
Market timing	Monday to Friday, 9:00 AM to 7:30 PM
Contract Size	EUR 1000 (for EURUSD), GBP 1000 (for GBPUSD) and USD 1000 (for USDJPY)
Tick Size	0.0001 USD for EURUSD & GBPUSD and 0.01 JPY for USDJPY
Contract trading cycle	Maximum of 12 calendar months from current calendar month. New contract will be introduced following the Expiry of current month contract.
Last trading day (or Expiry day)	Two working days prior to the last business day of the expiry month at 12:30 pm. If last trading day is a trading holiday, then the last trading day shall be the previous trading day.
Final Settlement Day	Last working day (excluding Saturdays) of the expiry month. The last working day will be the same as that for Interbank Settlements in Mumbai. The rules for Interbank Settlements, including those for 'known holidays' and 'subsequently declared holiday would be those as laid down by FEDAI.
Settlement Basis	Daily mark to market settlement will be on a T+1 basis and final settlement will be cash settled on T+2 basis.
Mode of Settlement	Cash settled in INR
Daily Settlement Price	Daily mark to market settlement price will be announced by the exchange, based on volume-weighted average price in the last half an hour of trading, or a theoretical price if there is no trading in the last half hour.



Final Settlement Price	The final settlement price of the cross-currency derivatives contracts shall be computed using the RBI reference rate for USD-INR and the corresponding exchange rate published by RBI for EUR-INR, GBP-INR and JPY-INR, as applicable, on the last trading day of the contract. For arriving at the final settlement value in INR for EUR-USD and GBP-USD contracts, the RBI reference rate for USD-INR on the last trading day of the contract shall be used. For USD-JPY contracts, the final settlement value in INR shall be arrived at using the exchange rate published by RBI for JPY-INR on the last trading day of the contract.
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The contract specification for the weekly futures contracts on USDINR currency pair is given in the table below:

<b>Contract specification: Weekly Futures Contracts on USDINR Currency Pair</b>	
Underlying	USD as base currency and INR as quoting currency
Market timing	Monday to Friday, 9:00 AM to 5:00 PM
Contract Size	USD 1000
Tick Size	0.25 Paise (i.e., Rs 0.0025)
Quotation	The contract would be quoted in Rupee terms (i.e., as INR Rupee per US Dollar), quoted upto the fourth decimal place.
Contract trading cycle	11 weekly expiry contracts excluding the expiry week of monthly contract. New serial weekly futures contract shall be introduced after expiry of the respective week's contract.
Last trading day (or Expiry day)	Every Friday of the week except for expiry week of monthly contract (during the expiry week of monthly contract, the contract will expire on day of expiry of monthly contract). In case the Friday is a trading holiday, the previous trading day shall be the expiry/last trading day.
Settlement Basis	Daily mark to market settlement will be on a T+1 basis and final settlement will be cash settled on T+2 basis.
Mode of Settlement	Cash settled in INR
Daily Settlement Price	Daily mark to market settlement price will be announced by the exchange, based on volume-weighted average price in the last half an hour of trading, or a theoretical price if there is no trading in the last half hour.
Final Settlement Price	RBI reference rate

## 5.2 Other terminologies with respect to contract specifications

### **Base Price**

Base price of the futures contracts on the first day of its life shall be the theoretical futures price. The base price of the contracts on subsequent trading days will be the daily settlement price of the previous trading day.

### **Settlement Price (or Closing Price)**

The closing price for a futures contract is currently calculated as the last half an hour weighted average price of the contract. In case a futures contract is not traded on a day or not traded during the last half hour, a 'theoretical settlement price' is computed as may be decided by the relevant authority from time to time.

### **Tenor of futures contract**

The tenor of a contract means the period when the contract will be available for futures trading, i.e. the cycle” of the contract. The currency futures contracts are available for trading for all maturities from 1 to 12 months. In addition to these, 11 weekly expiry contracts are also available.

## 5.3 Trader workstation screen (TWS)

Each Exchange has its own unique format of the Trader Workstation Screen and the best way to familiarize oneself with the screen and its various segments would be to actually spend time studying a live screen. Information regarding the TWS can also be obtained from exchange websites.

### **Dissemination of Open, High, Low, and Last-Traded Prices**

During a trading session, the Exchange continuously disseminates open, high, low, and last-traded prices through its trading system on real time basis.

## 5.4 Entities in the trading system

There are five entities in the trading system: Trading members, clearing members, trading-cum-clearing members, professional clearing members and participants. A brief description of each of these entities is given below and details of the regulatory framework for these entities are given in the subsequent chapters.

**Trading Members (TM):** Trading members are members of an authorized Exchange. They can trade either on their own account or on behalf of their clients including participants. The exchange assigns a trading member ID to each trading member. Each trading member can have more than one user. The number of users allowed for each trading member is notified by the exchange from time to time. Each user of a trading member must be registered with the exchange and is assigned a unique user ID. The unique trading member ID functions as a reference for all orders/trades of different users. This ID is common for all users of a particular trading member. It is the

responsibility of the trading member to maintain adequate control over persons having access to the firm's User ID.

**Clearing Members (CM):** Clearing members are members of the Clearing Corporation. They carry out risk management activities and confirmation/inquiry of participant trades through the trading system.

**Trading-cum-Clearing Member (TCM):** A member with a right to trade on its own account as well as on account of its clients. He can clear and settle the trades for self and for others through the Clearing House.

**Professional Clearing Members (PCM):** A professional clearing member is a clearing member who is not a trading member. Typically, banks and custodians become professional clearing members and clear and settle for their trading members and participants.

**Participants:** A participant is a client of a trading member- like financial institutions. These clients may trade through multiple trading members but settle through a single clearing member.

**Authorised Persons (APs):** SEBI had earlier allowed spread of sub-brokership as well as Authorised Person's network to expand the brokers' network. However, SEBI Board in its meeting held on June 21, 2018 decided that sub-brokers as an intermediary shall cease to exist with effect from April 01, 2019. All existing sub-brokers would migrate to become Authorised Persons (APs) or Trading Members if the sub-brokers meet the eligibility criteria prescribed under Stock Exchange bye-laws and SEBI Regulations and by complying with these Regulations.

## 5.5 Types of orders

The system allows the trading members to enter orders with various conditions attached to them as per their requirements. These conditions are broadly divided into the following categories:

- Time conditions
- Price conditions
- Other conditions

Several combinations of the above are allowed thereby providing enormous flexibility to the users. The order types and conditions are summarized below.

### 5.5.1 Time conditions

- A. **Day order:** A day order, as the name suggests is an order which is valid for the day on which it is entered. If the order is not executed during the day, the system cancels the order automatically at the end of the day.

- B. **Immediate or Cancel (IOC):** An IOC order allows the user to buy or sell a contract as soon as the order is released into the system, failing which the order is cancelled from the system. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

### 5.5.2 Price conditions

- A. **Market price:** Market orders are orders for which no price is specified at the time the order is entered (i.e. price is market price). For such orders, the trading system determines the price. For the buy order placed at market price, the system matches it with the readily available sell order in the order book. For the sell order placed at market price, the system matches it with the readily available buy order in the order book.
- B. **Limit price:** An order to buy a specified quantity of a security at or below a specified price, or an order to sell it at or above a specified price (called the limit price). This ensures that a person will never pay more for the futures contract than whatever price is set as his/her limit. It is also the price of orders after triggering from stop-loss book.
- C. **Stop-loss:** This facility allows the user to release an order into the system, after the market price of the security reaches or crosses a threshold price e.g. if for stop-loss buy order, the trigger is Rs 64.0025, the limit price is Rs 64.2575, then this order is released into the system once the market price reaches or exceeds Rs 64.0025. This order is added to the regular lot book with time of triggering as the time stamp, as a limit order of Rs 64.2575. Similarly, for a stop-loss sell order, the trigger is Rs 64.2575 and the limit price is Rs 64.0025. This stop loss sell order is released into the system once the market price is reaches or drops below Rs 64.2575. This order is added to the regular lot book with time of triggering as the time stamp, as a limit order of Rs 64.0025.

Thus, for the stop loss buy order, the trigger price has to be less than the limit price and for the stop-loss sell order, the trigger price has to be greater than the limit price.

Let us explain the above concept of limit order and stop loss order with an example. Assume you are holding a long USDINR currency future position at Rs 65. You are concerned about increasing losses with likelihood of INR appreciation. You want to square off (sell) the long position if the price falls below Rs 64.80 and limit your losses. In such a case, you would place a stop loss sell order with trigger price as Rs 64.80.

Similarly, assume that you are of the view that INR to depreciate but its technical confirmation could happen if USDINR one month futures contract trades above Rs 64.80. You want to initiate a long position as soon as the contract breaches Rs 64.80 on the upward side. In this scenario, you would place a stop loss buy order with trigger price as Rs 64.80.

From the above examples, please note that for stop loss sell order the trigger price is greater than the limit price and is lower than the limit price for stop loss buy order.

### 5.5.3 Other conditions

- **Pro:** 'Pro' means that the orders are entered on the trading member's own account.
- **Cli:** 'Cli' means that the trading member enters the orders on behalf of a client.

For exchange traded derivative contracts, the Clearing Corporation acts as a central counterparty to all trades. The risk to the clearing corporation can only be taken care of through a stringent margining framework. Also, since derivatives are leveraged instruments, margins also act as a cost and discourage excessive speculation. A robust risk management system should therefore, not only impose margins on the members of the clearing corporation but also enforce collection of margins from the clients.

### 5.6 Price Limit Circuit Filter

With the view to ensure orderly trading and market integrity, SEBI prescribes stock exchanges to implement a mechanism of Dynamic Price Bands so as to prevent acceptance of orders placed beyond the price limits set by the stock exchanges. These dynamic price bands are applicable to all currency futures positions including the cross currency futures contracts.

Contracts with tenure up to 6 months	± 3% of the theoretical price or the previous day closing price, as applicable
Contracts with tenure greater than 6 months	± 5% of the theoretical price or the previous day closing price, as applicable

The exchanges relax the dynamic price bands in increments of 1% as and when a market-wide trend is observed.

### 5.7 Rules, Regulations and Byelaws of Exchange

Rules, regulation and byelaws of the Exchange govern the functions and processes of the Exchange. They guide broader aspects, like constitution and composition of the Board, the Executive committee, types of membership, criteria and eligibility of membership, to operational issues, like, how transaction is entered into and how it is settled. It also explains process of arbitration, investors' protection and compensation, and penalty for violation of any of the rules, regulations and bye-laws of the Exchange.

## Chapter 6: Clearing, Settlement and Risk Management in Currency Futures

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Clearing and settlement mechanism in currency futures
- Entities involved in the clearing and settlement process
- Margin requirements for trading in currency futures
- Risk management system
- Surveillance mechanism

Clearing Corporation undertakes clearing and settlement of all trades executed on the currency derivatives segment of the exchange. It also acts as legal counterparty to all trades on the currency derivatives segment and guarantees their financial settlement.

### 6.1 Clearing vs. Settlement

Clearing means computing open positions and obligations of clearing members in the trading system. Whereas, settlement means actual pay in or pay out to settle the contract. The open positions computation is used to arrive at daily mark to market margin requirement and maintaining exposure norms. The settlement could be of mark to market settlement which happens on daily basis or could be final settlement which happens at the expiry of the contract.

### 6.2 Clearing entities

Clearing and settlement activities in the Currency Derivatives segment are undertaken by a Clearing Corporation with the help of the following entities:

#### 6.2.1 Clearing members

In the Currency Derivatives segment, trading-cum-clearing member clear and settle their own trades as well as trades of other trading members (TMs). Besides, there is a special category of members, called professional clearing members (PCM) who clear and settle trades executed by TMs. The members clearing their own trades and trades of others, and the PCMs are required to bring in additional security deposits in respect of every TM whose trades they undertake to clear and settle.

#### 6.2.2 Clearing banks

Funds settlement takes place through clearing banks. For the purpose of settlement all clearing members are required to open a separate bank account with the Clearing Corporation designated clearing bank for Currency Derivatives segment. The Clearing and Settlement process comprises of the following three main activities:

- 1) Clearing
- 2) Settlement
- 3) Risk Management

### 6.3 Clearing mechanism

The clearing mechanism essentially involves working out open positions and obligations of clearing (trading-cum-clearing/professional clearing) members. This position is considered for exposure and daily margin purposes. The open positions of Clearing Members (CMs) are arrived at by aggregating the open positions of all the TMs and all custodial participants clearing through him. A TM's open position is arrived at as the summation of his proprietary open position and clients' open positions. While entering orders on the trading system, TMs are required to identify the orders, whether proprietary (if own trades) or client (if entered on behalf of clients) through 'Pro/Cli' indicator provided in the order entry screen. Proprietary positions are calculated on net basis (buy - sell) for each contract. Clients' positions are arrived at by summing together net (buy - sell) positions of each individual client. Please note that positions are only netted for each client and not netted across clients and are rather added up across clients. A TM's open position is the sum of proprietary open position, client open long position and client open short position.

Let us take an example to demonstrate this principle.

A trading member XYZ trades for his own proprietary account and has three clients A, B and C trading through him. The day wise trading activity of XYZ's proprietary deals and trading activity of his clients are given below:

	<b>XYZ's proprietary deals*</b>	<b>A's deals*</b>	<b>B's deals*</b>	<b>C's deals*</b>
<b>Day 1</b>	Buys 40, sells 60	Buys 20, sells 10	Buys 30, sells 10	Buys 10, sells 20
<b>Day 2</b>	Buys 40, sells 30	Buys 10, sells 30	Buys 20, sells 10	Short 20

\* All the above deals were done in the same contract and not across different contracts.

As mentioned above, the long and short deals are netted off for proprietary deals and also for deals of individual clients to compute open position for each client and proprietary book. Using this principle, the open position at the end of day is given below:

	XYZ's proprietary deals	A's deals	B's deals	C's deals
For trades done on Day 1	Short 20	Long 10	Long 20	Short 10
Carry forward to Day 2	Short 20	Long 10	Long 20	Short 10
For trades done on Day 2	Long 10	Short 20	Long 10	Short 20
Net position at the end of Day 2	Short 10	Short 10	Long 30	Short 30

Please note that while computing open position at the TM/CM level, the direction of trade (long vs. short) has no relevance. In the table above we have mentioned long/short to compute netting off of positions at the client level.

Now let us compute open position for XYZ. As a Trading member -TM, open position would be a combination of open position of XYZ as a proprietary client and that for each of the three individual clients. The details are given below.

	Open position of XYZ as TM	Open position of XYZ's proprietary book	Open position of A	Open position of B	Open position of C
End – Day 1	60 units**	20 units	10 units	20 units	10 units
End – Day 2	80 units***	10 units	10 units	30 units	30 units

\*\* 60 units = 20(Prop book')+10 (A's open position)+20 (B's open positions)+10 (C's open position)

\*\*\* 80 units = 10(Prop book')+10 (A's open position)+30 (B's open positions)+30 (C's open position)

Please note that while computing open position of XYZ as a TM on day 1, the long position of client A and B were not netted off against short position of proprietary book and of client C. The positions were rather summed up to compute open position of XYZ as a TM. Similarly, on day 2 the positions were netted for each client and not across clients to compute open position of XYZ.

To calculate the open position in USD, EUR, GBP, JPY for exposure monitoring purpose, all open position would be multiplied by 1000 for USD, EUR, GBP and by 100,000 for JPYINR deals. This is because of the contract size specifications for each of these currency pairs.

Assume above example was for USDINR deals, the open position for XYZ as a TM was 60,000 USD (60 x 1000) at the end of day 1 and was 80,000 USD (80 x 1000) at the end of day 2.

Another important point to note is that while computing open position, the price of the deal (buy or sell price) is irrelevant. The price becomes relevant when computing mark to market margin requirement.

#### 6.4 Regulatory guidelines on open position limits

In order to avoid building up of huge open positions, the regulator has specified the maximum allowable open position limit across all members of the Exchange.

Rules with respect to monitoring and enforcement of position limits in the currency futures market:

- Positions during the day are monitored based on the total open interest at the end of the previous day's trade.
- The above monitoring is for both client level positions (based on the unique client code) and for trading member level positions.
- The Exchange treats violation of position limits as an input for further surveillance action. Upon detecting large open positions, the Exchange conducts detailed analysis based on the overall nature of positions, the trading strategy, positions in the underlying market, positions of related entities (concept of persons acting in concert would be applied), etc.
- The violators of position limits are accountable for their large positions and are asked to submit detailed information pertaining to their trading activities whenever the information is sought by the Exchange. The clearing member is accountable for



positions of all trading members and clients of trading members clearing through him. Similarly, the trading member is accountable for the positions of his clients. The Exchange also calls for information directly from the client itself.

The latest gross open position limits for different currency pairs and different market participants can be accessed on the websites of SEBI and stock exchanges.

## 6.5 Settlement mechanism

All futures contracts are cash settled, i.e. through exchange of cash in Indian Rupees. The settlement amount for a CM is netted across all their TMs/clients, with respect to their obligations on Mark-to-Market (MTM) settlement.

### Settlement of currency futures contracts

Currency futures contracts have two types of settlements, the MTM settlement which happens on a continuous basis at the end of each day, and the final settlement which happens on the last trading day of the futures contract.

#### 6.5.1 Mark-to-Market settlement (MTM Settlement)

All futures contracts for each member are marked to market to the daily settlement price of the relevant futures contract at the end of each day. The profits/losses could be computed differently for different types of positions. The computational methodology is given below:

- For squared off position: The buy price and the sell price for contracts executed during the day and squared off.
- For positions not squared off: The trade price and the day's settlement price for contracts executed during the day but not squared up.
- For brought forward positions: The previous day's settlement price and the current day's settlement price for brought forward contracts.

Let us take three different examples to explain computation of mark to market margin under different scenarios.

**A. Scenario 1:** XYZ trading member has proprietary deals and two clients who trade only in USDINR and that too in contracts of same maturity.

The trading details of XYZ trading member and his two clients are given below:

	XYZ's proprietary deals	A's deals	B's deals
Day 1	Buys 40 @ Rs 65, sells 60 @ Rs 65.20	Buys 20 @ Rs 65.15, sells 10 @ Rs 65.05	Buys 30 @ Rs 65.10, sells 10 @ Rs 65.20
Day 2	Buys 40 @ Rs 65.40, sells 30 @ Rs 65.30	Buys 10 @ Rs 65.30, sells 30 @ Rs 65.40	Buys 20 @ Rs 65.20, sells 10 @ Rs 65.10

The daily settlement price at the end of day 1 was Rs 65.15 and at the end of day 2 was Rs 65.30.

The computation of profit/ loss for mark to market purpose at the end of day 1 is shown below:

**At the end of day 1:**

	XYZ's proprietary deals	A's deals	B's deals
For squared off positions	$40 \times 1000 \times 0.20 = 8000$	$10 \times 1000 \times (0.10) = (1000)$	$10 \times 1000 \times 0.10 = 1000$
For positions not squared off	$20 \times 1000 \times 0.05 = 1000$	$10 \times 1000 \times 0 = 0$	$20 \times 1000 \times 0.05 = 1000$
For positions brought forward	None	None	None
Total	9000	(1000)	2000

For squared off positions, profit/ loss is computed by multiplying total units squared off with contract size and with profit/ loss made per USD during squaring off. For positions not squared off, the profit/ loss is computed by multiplying total units not squared off with contract size and with difference between the price at which position was initiated and that day's settlement price.

In this example, XYZ would have to collect Rs 1000 as mark to market margin from client A and deposit it with its clearing member. XYZ would also receive Rs 11,000 as mark to market profit from its clearing member and it would distribute it as Rs 9000 to its own account and Rs 2000 to the account of client B.

Please note that there was no mark to market netting off done across clients. If such netting was done, then XYZ was not required to pay any mark to market margin to its clearing member. To de-risk the system, at TM level netting off across client is not permitted.

Similarly, we can compute mark to market margin requirement at the end of day 2.

**At the end of day 2:**

	XYZ's proprietary deals	A's deals	B's deals
For squared off positions	$30 \times 1000 \times (0.10) = (3000)$	$10 \times 1000 \times 0.10 = 1000$	$10 \times 1000 \times (0.10) = (1000)$
For positions not squared off	$10 \times 1000 \times (0.10) = (1000)$	$20 \times 1000 \times 0.10 = 2000$	$10 \times 1000 \times 0.10 = 1000$
For positions brought forward*	$20 \times 1000 \times (0.15) = (3000)$	$10 \times 1000 \times 0.15 = 1500$	$20 \times 1000 \times 0.15 = 3000$
Total	(7000)	4500	3000

\* For brought forward positions, profit/ loss is computed by multiplying number of units brought forward with contract size and the difference between previous day's settlement price and the current day's settlement price. For example, in case of XYZ's prop deals, 20 sell position were brought forward from day 1 to day 2. These positions were valued at Rs 65.15 at the end of day 1 (at day 1's settlement price) and were

valued at Rs 65.30 at the end of day 2 (at day 2's settlement price), thereby making a loss of Rs 0.15 per USD.

At the end of day 2, XYZ need to deposit a mark to market margin loss of Rs 7000 to its CM on its own proprietary account and it would receive RS 7500 (4500 + 3000) as mark to market profit from its CM on account of its clients.

**B. Scenario 2:** XYZ trading member has proprietary deals and two clients who trade only in USDINR contracts but across maturities.

	XYZ's proprietary deals	A's deals	B's deals
Day 1	Buys July 40 @ Rs 65, sells Aug 60 @ Rs 65.20	Buys July 20 @ Rs 65.15, sells July 10 @ Rs 65.05	Buys Aug 30 @ Rs 65.35, sells July 10 @ Rs 65.15
Day 2	Buys Aug 60 @ Rs 65.40, sells July 40 @ Rs 65.30	Sells July 10 @ Rs 65.25	Buys July 10 @ Rs 65.05, sells Aug 10 @ Rs 65.40

The daily settlement price at the end of day 1 for July contract was Rs 65.15, for Aug contract was Rs 65.45 and at the end of day 2, the daily settlement price for July was Rs 65.05 and for Aug was Rs 65.30.

As we would demonstrate below, the main difference in this example and the previous one is the trading in contracts of different maturity. In such cases, contracts for each maturity is taken as a separate contract and there is no netting off done across contracts, both for each client and also across clients.

Let us now compute mark to market requirement for XYZ at the end of day 1 and at the end of day 2.

**At the end of day 1:**

	XYZ's proprietary deals	A's deals	B's deals
For squared off positions	None (as buy and sell were in two different contracts)	July: $10 \times 1000 \times (0.10) = (1000)$	None
For positions not squared off	July: $40 \times 1000 \times 0.15 = 6000$ Aug: $60 \times 1000 \times (0.25) = (15000)$	July: $10 \times 1000 \times 0 = 0$	July: $10 \times 1000 \times 0 = 0$ Aug: $30 \times 1000 \times 0.1 = 3000$
For positions brought forward	None	None	None
Total	6000, (15000)*	(1000)	3000

\*Rs 6000 refers to MTM for July contract and Rs (15000) refers to MTM of Aug contract

**At the end of day 2:**

	XYZ's proprietary deals	A's deals	B's deals
For squared	None	None	None

off positions			
For positions not squared off	July: $40 \times 1000 \times 0.25 = 10000$ Aug: $60 \times 1000 \times (0.10) = (6000)$	July: $10 \times 1000 \times 0.20 = 2000$	July: $10 \times 1000 \times 0 = 0$ Aug: $10 \times 1000 \times 0.10 = 1000$
For positions brought forward	July: $40 \times 1000 \times (0.10) = (4000)$ Aug: $60 \times 1000 \times 0.15 = 9000$	July: $10 \times 1000 \times (0.10) = (1000)$	July: $10 \times 1000 \times 0.10 = 1000$ Aug: $30 \times 1000 \times (0.15) = (4500)$
Total	6000, 3000*	1000	1000, (3500)**

\*Rs 6000 refers to MTM for July contract and Rs3000 refers to MTM of August contract

\*\*Rs1000 refers to MTM for July contract and Rs (3500) refers to MTM of August contract

**C. Scenario 3:** XYZ trading member has proprietary deals and two clients who trade in different currency pair's contracts and across maturities

This mark to market margin requirement for this scenario can be worked out on the lines of scenario 2. Like scenario 2, contracts of two different currency pairs are not netted for each client and also across clients.

### 6.5.2 Final settlement for futures

On the last trading day of the futures contracts, after the close of trading hours, the Clearing Corporation marks all positions of a CM to the final settlement price and the resulting profit/loss is settled in cash. Final settlement loss/profit amount is debited/credited to the relevant CM's clearing bank account on T+2 working day following last trading day of the contract (contract expiry day). The final settlement price is the RBI reference rate for the last trading day of the futures contract. All open positions are marked to market on the final settlement price for all the positions which gets settled at contract expiry. Such marked to market profit / loss shall be paid to / received from clearing members.

## 6.6 Risk management measures

Since futures is a leveraged position, it is imperative to have very effective margining framework at exchange to avoid any systemic failure during periods of high volatility. Margins also play the role of acting as a deterrent to excessive speculation. In addition to having daily mark to market margin that is computed at end of the day, exchanges have systems to levy additional margin or limit the amount of position that can be initiated against initial margin during the course of the trading session. A robust risk management system should therefore, not only impose margins on the members of the clearing corporation but also enforce collection of margins from the clients.

During the trading session, the system keeps track of losses, both notional and booked, incurred by every member up to the last executed trade. This is calculated by the system

on a real-time basis by way of computing the difference between the actual trade price of a member and the daily settlement price of the market. Such calculation happens for every member after execution of each and every trade. The maximum loss limit, which the system allows a member to sustain on a real-time basis, is 75% of the total deposit. Every time such loss amount goes beyond the levels of 60%, 75%, or 90% of the prior mentioned maximum loss limit, the member gets a warning signal. Thereafter, when the loss crosses the 75% of the total deposit limit, the member is suspended by the system. In such calculations, there is no allowance given in respect of profits made by such members in a different contract. This is monitored by the system to curb any default in the process of day trading.

Every exchange has a comprehensive risk containment mechanism for the currency derivatives segment. The salient features of risk containment mechanism on the currency derivatives segment are:

1. The financial soundness of the members is the key to risk management. Therefore, the requirements for membership in terms of capital adequacy (net worth, security deposits) are quite stringent.
2. Upfront initial margin is charged for all the open positions of a CM. The exchange specifies the initial margin requirements for each futures contract on a daily basis. It also follows a value-at-risk (VaR) based margining through SPAN® (Standard Portfolio Analysis of Risk). The CM in turn collects the initial margin from the TMs and their respective clients.
3. The open positions of the members are marked to market based on contract settlement price for each contract. The difference is settled in cash on a T+1 basis.
4. The on-line position monitoring system monitors the member's open positions and margins on a real-time basis vis-à-vis the deposits provided by the CM or the limits set for the TM by the CM. The on-line position monitoring system generates alerts whenever the margins of a member reaches the predetermined percentage of the capital deposited by the CM or limits set for the TM by the CM. The Clearing Corporation monitors the CMs for initial margin and extreme loss margin violations, while TMs are monitored for initial margin violation.
5. CMs are provided with a trading terminal for the purpose of monitoring the open positions of all the TMs clearing and settling through them. A CM may set limits for a TM clearing and settling through him. The Clearing Corporation assists the CM to monitor the intra-day limits set up by a CM and whenever a TM exceeds the limits, it stops that particular TM from further trading.
6. A member is alerted of his position to enable him to adjust his position or bring in additional capital. Margin violations result in withdrawal of trading facility for all TMs of a CM in case of a violation by the CM.
7. Separate settlement guarantee funds for this segment have been created by exchanges.

The most critical component of risk containment mechanism for the currency derivatives segment is the margining system and on-line position monitoring. The actual position monitoring and margining is carried out on-line through Exchange Risk

Management Systems that use SPAN® (Standard Portfolio Analysis of Risk) methodology, and compute on-line margins, based on the parameters defined by SEBI.

## **6.7 Margin requirements**

The different types of margins collected by the Exchanges are as follows:

### **6.7.1 Initial Margin**

The initial security deposit paid by a member is considered as his initial margin for the purpose of allowable exposure limits. Initially, every member is allowed to take exposures up to the level permissible on the basis of the initial deposit. The Initial Margin requirement is based on a worst case loss of a portfolio of an individual client across various scenarios of price changes. The various scenarios of price changes would be so computed so as to cover a 99% Value at Risk (VaR) over a one-day horizon. In order to achieve this, the price scan range is fixed at 3.5 standard deviation. The initial margin so computed would be subject to a minimum margin for the first day of trading and a minimum margin % thereafter. The initial margin shall be deducted from the liquid net worth of the clearing member on an online, real-time basis.

### **6.7.2 Portfolio Based Margin**

The Standard Portfolio Analysis of Risk (SPAN) methodology is adopted to take an integrated view of the risk involved in the portfolio of each individual client comprising his positions in futures contracts across different maturities. The client-wise margin is grossed across various clients at the Trading / Clearing Member level. The proprietary positions of the Trading / Clearing Member are treated as that of a client.

### **6.7.3 Real-Time Computation**

The computation of worst scenario loss has two components. The first is the valuation of the portfolio under the various scenarios of price changes. At the second stage, these scenario contract values are applied to the actual portfolio positions to compute the portfolio values and the initial margin. The Exchange / Clearing Corporation updates the scenario contract values at least 9 times in the day, which is carried out by taking the closing price of the previous day at the start of trading session (Beginning-of-Day) and the prices at 11:00 am, 12:30 pm, 2:00 pm, 3:30 pm, 5:00 pm, at Provisional EOD, 6:30 pm and Final / End-of-Day (after market close). The latest available scenario contract values are applied to member/client portfolios on a real-time basis.

### **6.7.4 Calendar Spread Margins**

A currency futures position at one maturity which is hedged by an offsetting position at a different maturity is treated as a calendar spread. The benefit for a calendar spread continues till expiry of the near-month contract. For a calendar spread position, the extreme loss margin is charged on one-third of the mark-to-market value of the far-month contract.

#### **6.7.5 Extreme Loss Margin**

Extreme loss margin is computed as percentage of the mark-to-market value of the Gross Open Position. It shall be deducted from the liquid assets of the Clearing Member.

#### **6.7.6 Liquid Net worth**

The initial margin and the extreme loss margin are deducted from the liquid assets of the clearing member. The clearing member's liquid net worth after adjusting for the initial margin and extreme loss margin requirements must be at least Rs. 50 lacs at all points in time. The minimum liquid net worth is treated as a capital cushion for days of unforeseen market volatility.

#### **6.7.7 Liquid Assets**

The liquid assets for trading in currency futures are maintained separately in the currency futures segment of the clearing corporation. However, the permissible liquid assets, the applicable haircuts and minimum cash equivalent norms would be same as that are applicable for the equity derivatives segment.

### **6.8 Mark-to-Market Settlement**

The mark-to-market gains and losses are settled in cash before the start of trading on T+1 day. If mark-to-market obligations are not collected before start of the next day's trading, the clearing corporation collects correspondingly higher initial margin to cover the potential for losses over the time elapsed in the collection of margins.

### **6.9 Margin collection and enforcement**

The client margins (initial margin, extreme-loss margin, calendar-spread margin, and mark-to-market settlements) are compulsorily collected and reported to the Exchange by the members. The Exchange imposes stringent penalty on members who do not collect margins from their clients. The Exchange also conducts regular inspections to ensure margin collection from clients.

The various scenarios with respect to pay in / pay out and margin payable as reflected in the end-of-day report and its impact on the system are as follows:

- If a member has payable obligation towards pay-in as well as margins, he will not be able to place his orders the next day morning (though he would be able to log in), unless he pays at least the margin payable amount immediately. If he pays the margin demanded, his square-off mode is revoked immediately, but if he also wants to increase his exposure, he has to pay additional margins for increasing his exposure, failing which he will be allowed to square off only.
- If a member has only pay-in obligation but no payment required towards margins, he will be allowed to trade at the commencement of the trading session the next day morning, provided that his available deposit would be reduced by the amount of

pay-in. Thereafter, as soon as the pay-in is complete and the confirmation file is received from the bank, his blocked limit is released immediately.

- If a member is obligated to pay margins, while in respect of pay-in he has a receivable amount, he will be allowed to log into the system and have a view only facility. He will not be allowed to submit orders unless he pays fresh margins equivalent to his obligation plus additional margins to create fresh positions. However, if a member pays margins only to the extent of his actual margin obligation, he will be allowed by the system only to square off his positions, but as soon as he increases his positions, he will again be suspended from trading.

#### **6.9.1 Safeguarding Client's Money**

The Clearing Corporation segregates the margins deposited by the Clearing Members for trades on their own account from the margins deposited with it on client account. The margins deposited on client account are not utilized for fulfilling the dues that a Clearing Member may owe the Clearing Corporation in respect of trades on the member's own account. The client's money is to be held in trust for client purpose only. The following process is adopted for segregating the client's money vis-à-vis the clearing member's money:

- At the time of opening a position, the member indicates whether it is a client or proprietary position.
- Margins across the various clients of a member are collected on a gross basis and should not be netted off
- When a position is closed, the member indicates whether it was a client or his own position which is being closed.
- In the case of default, the margin paid on the proprietary position is used by the Clearing Corporation for realizing its dues from the member.

#### **6.10 Periodic Risk Evaluation Report**

The Clearing Corporation of the Exchange, on an ongoing basis and at least once in every six months, conducts back-testing of the margins collected vis-à-vis the actual price changes. A copy of the study is submitted to SEBI along with suggestions on changes to the risk containment measures, if any.

#### **6.11 Surveillance**

The exchanges as first-level regulators have an online surveillance capability that monitors positions, prices, and volumes in real time so as to deter market manipulation. The surveillance systems of the exchanges are designed keeping in view all the relevant aspects, including the following:

- i. The alerts in the online surveillance system automatically generate material aberrations from normal activity.
- ii. The surveillance systems and processes are able to:
  - Monitor open interest, cost of carry, and volatility.
  - Monitor closing prices.



- Capture and process client level details.
  - Develop databases of trading activity by brokers as well as clients.
  - Generate trading pattern by a broker over a period of time or by a client / group of clients over a period of time.
- iii. The information and feedback received from member inspections are vital inputs for effective surveillance. For this, member inspections are taken up in a rational manner keeping in view the level of trading activity, client profile, number and nature of complaints received against the member, history of risk management related defaults and regulatory violations, etc. Information obtained through member inspections is made available to the monitoring/ surveillance departments of Exchanges.
- iv. The Exchange calls for information from members in a standard form, and preferably in electronic form, to facilitate faster analysis as well as building up of databases.

#### **6.12 Unique Client Code (UCC)**

The Exchange ensures that each client is assigned a client code that is unique across all members. The unique client code is assigned with the use of Income Tax Permanent Account Number (PAN) number.

## Chapter 7: Exchange Traded Currency Options

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Concept of currency options and its types
- Contract design of currency options
- Option pricing model
- Pay offs in case of options
- Clearing, settlement and risk management of currency options

### 7.1 Options – Definition, basic terms

As the word suggests, option means a choice or an alternative. To explain the concept through an example, take a case where you want to buy a house and you finalize the house to be bought. On September 1<sup>st</sup> 2019, you pay a token amount or a security deposit of Rs 1,00,000 to the house seller to book the house at a price of Rs 10,00,000 and agree to pay the full amount in three months i.e., on November 30<sup>th</sup> 2019. After making full payment in three months, you get the ownership right of the house. During these three months, if you decide not to buy the house, because of any reasons, your initial token amount paid to the seller will be retained by him.

In the above example, at the expiry of three months you have the option of buying or not buying the house and house seller is under obligation to sell it to you. In case during these three months the house prices drop, you may decide not to buy the house and lose the initial token amount. Similarly, if the price of the house rises, you would certainly buy the house. Therefore, by paying the initial token amount, you are getting a choice/ option to buy or not to buy the house after three months.

The above arrangement between house buyer and house seller is called as option contract. We could define option contract as below:

Option: It is a contract between two parties to buy or sell a given amount of asset at a pre-specified price on or before a given date.

We will now use the above example, to define certain important terms relating to options.

- The right to buy the asset is called **call option** and the right to sell the asset is called **put option**.
- The pre-specified price is called as **strike price** and the date at which strike price is applicable is called **expiration date**.
- The difference between the date of entering into the contract and the expiration date is called **time to maturity**.
- The party which buys the rights but not obligation and pays premium for buying the right is called as **option buyer** and the party which sells the right and receives premium for assuming such obligation is called **option seller/ writer**.

- The price which option buyer pays to option seller to acquire the right is called as **option price or option premium**
- The asset which is bought or sold is also called as an underlying or **underlying asset**.

Buying an option is also called as taking a long position in an option contract and selling is also referred to as taking a short position in an option contract.

To make these terms clearer, let us refer to the earlier example of buying a house and answer few questions.

1. Does the above example constitute an option contract? If yes,
2. Is it a call option or put option?
3. What is the strike price?
4. What is the expiration date?
5. What is the time to maturity?
6. Who is the option buyer and who is the option seller?
7. What is the option premium?
8. What is the underlying asset?

Now let us assess the answers to these questions:

1. Does the above example constitute an option contract?
  - The above example constitutes an option contract as it has all the properties – two parties, an underlying asset, a set price, and a date in future where parties will actually transact with right without obligation to one party.
2. Is it a call option or put option?
  - It is a call option as you are paying the token amount to buy the right to buy the house
3. Who is the option buyer and who is the option sellers?
  - You are the option buyer and house seller is option seller
4. What is the strike price?
  - Rs 10,00,000
5. What is the expiration date?
  - November 30<sup>th</sup> 2019
6. What is the time to maturity?
  - Three months
7. What is the option premium?
  - Rs 1,00,000
8. What is the underlying asset?
  - The house is an underlying asset

Let us also take a real life example of a put option. When you get your car insured, you pay an insurance premium to the insurance company and the insurance company guarantees to compensate you for the damages to your car during the insurance period. In this example, you are buying a put option from the insurance company and paying it an option premium in form of insurance premium. If your car gets damaged during the insurance period, you can use your policy to claim the compensation and if all goes well

and you do not need to claim the compensation, the insurance company keeps the premium in return for taking on the risk.

## **7.2 Difference between futures and options**

Let us first highlight the similarities between two types of derivative contracts – Futures and Options. The similarities are as follows:

- Both the contracts have a buyer and seller
- Both the contracts have a set price for the underlying asset
- Both the contracts have a set settlement date

The difference between two contracts is that in futures both the parties are under right as well as obligation to buy or sell and therefore face similar risk. Whereas in options, the buyer has only rights and no obligation and therefore he faces only the risk of premium paid and option seller is under obligation to buy or sell (depending on whether put option is sold or a call option is sold, respectively) and therefore faces unlimited risk. At the same time, the option buyer has chances to get unlimited upside and the option seller has limited upside equal to the premium received.

The call option buyer would exercise the option only if the price of underlying asset is higher than the strike price and premium paid. Similarly, the put option buyer would exercise the option if the price of the underlying asset is less than the strike price and the premium paid.

Just like futures, options can be used for hedging, or to generate returns by taking a view on the future direction of the market, or for arbitrage.

## **7.3 Options in financial market**

Options are very actively traded instruments in most financial assets like equities, currency, commodities and interest rate. Currency options trading witnessed an explosive growth in 1990 when trading of options started in the interbank market. It is impossible to be precise about overall size of currency options market because the majority of trading takes place in the private interbank market.

### **7.3.1 Options market in India**

Exchange traded equity index options commenced trading in India on June 4, 2001 followed by single stock specific options on July 2001. Since then, the volume in options is on a continuous growth path.

RBI allowed banks to offer foreign currency-INR European options to its customers with effect from July 7, 2003. Banks were allowed to run option book subject to their meeting certain parameters with respect to net worth, profitability, capital adequacy and NPA%.

The currency options are allowed for trading on recognized exchanges. The exchanges started trading in currency options from November 10, 2010.

### 7.3.2 Difference between OTC and exchange traded currency options

In OTC option market, the select scheduled commercial banks are permitted to be market makers in currency options market and resident Indians are allowed to be net buyer of options i.e., they should be paying a net premium when undertaking an option structure and they should not be the net receiver of premium. The options are mainly used by corporates to hedge their exposure arising out of import, export of any other foreign currency related receipts or payments. There are strict guidelines related to amount and tenor or option contracts that a corporate can book. The amount and tenor of option contract has to be lower than or equal to the amount and tenor of the underlying trade transaction. For example, if you are crude oil importer in the country and you have USD payment of USD 10 mn to be made after three months. Under this trade transaction, you can buy a call option on USDINR for a maximum amount of USD 10 mn and a maximum tenor/ maturity of 3 months. The corporates have to submit a proof of underlying trade transaction to the bank from whom it is buying the option before booking the contract.

While for an exchange traded option, the restriction on amount and tenor are not related to the underlying FX transaction but are restricted by open interest and total volume. In terms of currency pair, in OTC market the client can get quotes for any currency pair and in exchange traded market the prices are currently available only for USDINR option contracts.

In currency option, every option is simultaneously call and put on different currencies. For example, when you buy call on USD against INR, you have the right to buy USD with INR, which is the same as the right to sell INR and receive USD. Therefore, USD call is also INR put.

### 7.4 Style of options

Based on when the buyer is allowed to exercise the option, options are classified into two types:

- A. **European options:** European options can be exercised by the buyer of the option only on the expiration date. In India, all the currency options are of European type.
- B. **American options:** American options can be exercised by the buyer any time on or before the expiration date. Currently American options are not allowed in currencies in India.

### 7.5 Moneyness of an option

The buyer of call option would exercise his right to buy the underlying asset only if the spot price of underlying asset is higher than the strike price at the maturity of the contract. Similarly, the buyer of a put option would exercise his right to sell the underlying asset only if the spot price of underlying asset is lower than the strike price at the maturity of the contract (assuming zero transaction charge and zero option premium). If these costs are included, the decision of option buyer would take into account these costs also.

Moneyness of an option indicates whether the contract would result in a positive cash flow, negative cash flow or zero cash flow for the option buyer at the time of exercising it. Based on these scenarios, moneyness of option can be classified in three types:

**In the money (ITM) option:** An option is said to be in the money, if on exercising it, the option buyer gets a positive cash flow. Thus a call option would be in the money, if underlying price is higher than the strike price and similarly a put option would be in the money if underlying price is lower than the strike price.

**Out of the money (OTM) option:** An option is said to be out of the money, if on exercising it, the option buyer gets a negative cash flow. Thus a call option would be out of the money, if underlying price is lower than the strike price and similarly a put option would be out of the money if underlying price is higher than the strike price.

**At the money (ATM) option:** An option is said to be at the money if spot price is equal to the strike price. Any movement in spot price of underlying from this stage would either make the option ITM or OTM.

## 7.6 Basics of option pricing and option Greeks

There have been scholarly works on option pricing since 1877 when in 1877- Charles Castelli wrote a book “The Theory of Options in Stocks and Shares”. And subsequently, the successors advanced the works of their predecessors and the theory got developed over time. The modern option pricing model was first articulated by Fischer Black and Myron Scholes in their 1973 paper, "The Pricing of Options and Corporate Liabilities". Subsequently, other models and methods were developed. The determinants of option price for currency options are as follows.

- Spot price of the underlying asset
- Strike price
- Annualized volatility of the currency pair
- Time to expiration
- Risk free interest rate on base currency and quoting currency

The relationship between different factors and value of call/ put option is given below.

The arrow depicts the rise or fall in prices of options contracts when one of the parameter increases in value while other parameters remain unchanged.

	Call	Put
Spot FX rate	↑	↓
Strike price	↓	↑
Interest rate differential between base currency and quoting currency	↑	↓
Volatility	↑	↑
Time to expiration	↑	↑↓*

\*In case of deep in the money European-style put option with low volatility in underlying asset, the value of put option for a long tenor option may be lower than the short tenor one.

Some of the important factors are explained below:

**Volatility:** It is a measure of the magnitude of the change of prices (up or down) of the underlying asset. Higher the volatility, higher is the option premium and vice versa. Please note that volatility does not measure direction.

**Interest rate differential between two currencies:** It measures the difference between risk free interest rate of base currency and that of quoting currency. As the differential increase the value of call option increases and value of put option decreases and vice versa.

**Time to expiration:** It measures the time to maturity of the option.

### 7.6.1 Option value

The option value can be broken in two parts:

**Intrinsic value:** The intrinsic value of an option is the difference between spot price and the strike price. For a call option, the intrinsic value is  $\text{Max}(0, S_t - K)$ , where  $K$  is strike price and  $S_t$  is the spot price of the asset. Therefore, for an ATM option or an OTM option, the intrinsic value is zero as  $S_t$  is equal to  $K$  or lower than  $K$ . For a put option, the intrinsic value is  $\text{Max}(0, K - S_t)$ .

**Time value:** The difference between option premium and intrinsic value is time value of option. The time value is directly proportional to the length of time to expiration date of the option. Longer the time to expiration, higher is time value. Therefore, everything else remaining the same, call option on USDINR at a strike price of say 65 for two months maturity would be priced higher than the call option at the same strike price for one month maturity.

The time value reflects the probability that the option will gain in intrinsic value or profitable to exercise before its maturity. Therefore, higher time to expiration, higher the probability and higher the time value.

Please note that at expiry the option value is its intrinsic value and time value is zero.

### 7.6.2 Option Greeks

The change in option price when a particular price determinant changes is expressed as option Greek. For every price determinant, there is a Greek. Because the Greeks indicate the price sensitivity of option to change in price determinant, they are used for risk assessment and management. Some of the important options Greeks are given below:

- **Delta:** It is the rate of change of option price with respect to the price of the underlying asset. Delta of a long call option (and/ or short put) is always positive and ranges between 0 and 1 and for a long put (and/or short call) is always negative and ranges between 0 and -1.

- Vega: It measures the rate of change of option value to volatility of price of the underlying asset. It is always positive for long options (both for long put and long call) and negative for short options (both for short put and short call).
- Theta: It measures the change in the value of the option with respect to the passage of time. Thus if you bought an option i.e., you are long on an option, you are short theta: all other things remaining the same, the option would lose value with passage of time.
- Rho: It measures sensitivity of option value to the risk free rate.

## 7.7 Option pricing methodology

There are two common methodologies for pricing options:

- Black and Scholes: This methodology is more analytical, is faster to compute and is mainly used to price European options.
- Binomial pricing: This methodology is more computational, taken more computing power and is mainly used to price American options.

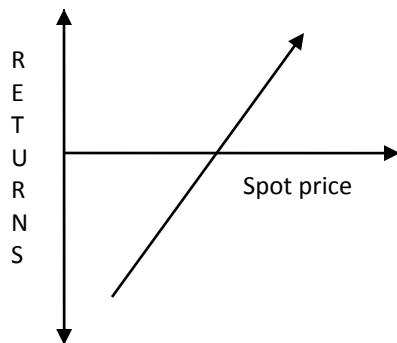
## 7.8 Option pay offs

Payoff means return from the derivative strategy with change in the spot price of the underlying. Option strategies result in non-linear pay offs (that is not a straight line, but either curve or a line with a sharp bend) because of the optionality of options, which is the right without obligation for the buyer. The buyer of option has limited downside and unlimited upside, while seller has limited upside and unlimited downside. This is unlike returns from a futures contract or returns from a position in cash market which are linear and are same for both buyer and seller.

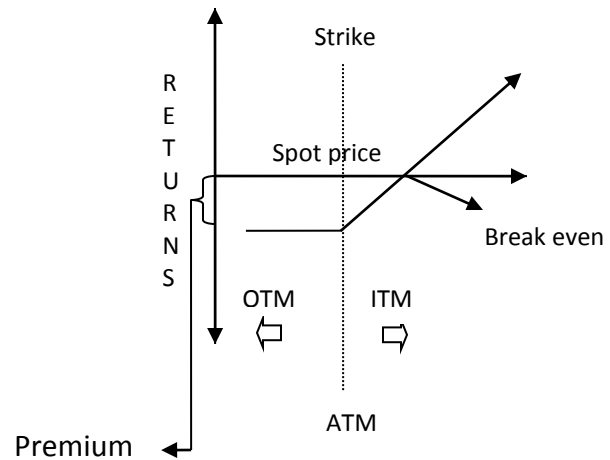
Given below is an illustrative payoff diagram of a long futures contract (Figure 1) and a long call option (Figure 2). Please note that in future contract, change in returns is similar for the same increase and decrease in price. In other words, the return would increase by say Rs 10 for every Rs 8 increase in spot price and would also decrease by Rs 10 for every Rs 8 decrease in spot price. However, in options, say a long call option, the change in return when spot price decreases is not same as when spot price increases. As shown in Figure 2, the returns are negative and remain constant irrespective of amount of decrease in spot price while returns keep increasing with increasing spot price.



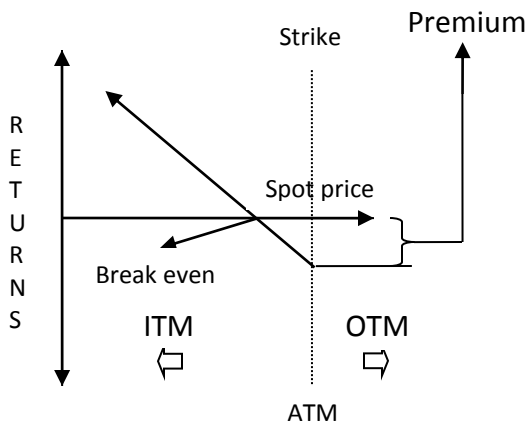
**Figure 1: Pay off of long futures contract**



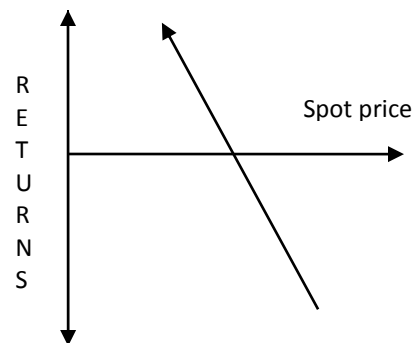
**Figure 2: Payoff of long call**



**Figure 3: Payoff of long put**



**Figure 4: Pay off of short futures contract**



Similarly, for a long put option, the returns are negative and remain constant irrespective of amount of increase in spot price while returns keep increasing with decreasing spot price. Please refer to figure 3 above for a pay off chart of long put and refer to figure 4 for payoff chart of short futures.

## 7.9 Option strategies

We will first explain the vanilla option strategies that could be used in FX market. Please note that all advanced strategies are built using these basic strategies and therefore it is important to learn these carefully.

### 7.9.1 Vanilla options

Vanilla options: These are four basic option positions, which are long call, long put, short call and short put option. Please note that in all the exchange traded currency option contracts, the final settlement of the contracts happens at RBI reference rate.

#### 7.9.1.1 Buying a call option or going long call option

**View:** Assume that current USDINR spot is 64.5 you are of the view that in next one month there is high probability of USD strengthening trading around 66.

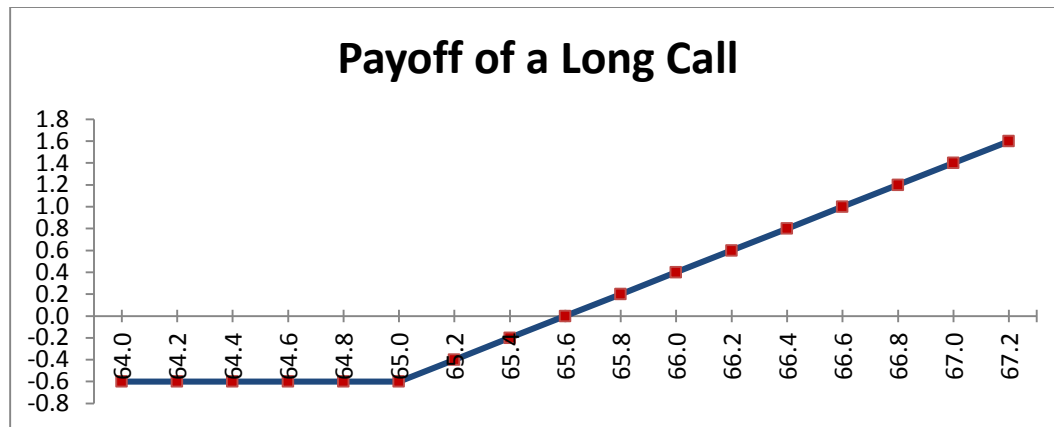
**Objective:** You want to take full benefit of the view if it turns correct and at the same time want to cap your losses if your view turns wrong.

**Option strategy:** Considering this view, you bought a USD call option at strike price of 65 and pay premium of Rs 0.6 per USD. If on maturity, USDINR is above 65 you would exercise the option and buy USDINR at 65 when spot price is higher than 65. Therefore, you realize an exercise profit which is equal to difference between spot price and 65. However, this profit is partly offset by the call option premium (Rs 0.6) that you have paid. You start making net positive cash flow for every price higher than 65.6 (also called as breakeven point). At the same time, you would not exercise the option if USDINR trades at or below 65 and in this case your loss is fixed at Rs 0.6 which is equal to the premium paid.

Settlement Price	Payoff of Long Call
64.0	-0.6
64.2	-0.6
64.4	-0.6
64.6	-0.6
64.8	-0.6
65.0	-0.6
65.2	-0.4
65.4	-0.2
65.6	0.0 (Breakeven point)
65.8	0.2
66.0	0.4
66.2	0.6
66.4	0.8
66.6	1.0
66.8	1.2
67.0	1.4
67.2	1.6

Please refer to Figure 5 below and notice the non-linearity in the payoff: for option buyer, the losses are limited to premium paid (Rs 0.6) irrespective of extent of market movement and his profits are unlimited.

Figure 5:



#### 7.9.1.2 Selling a call option or going short on call option

**View:** Assume current spot as 64.5 and you are of a strong view that in next one month there is a high probability of USD weakening and trading around 63.5 level. You also believe that if USD strengthens, it will not strengthen above 65.

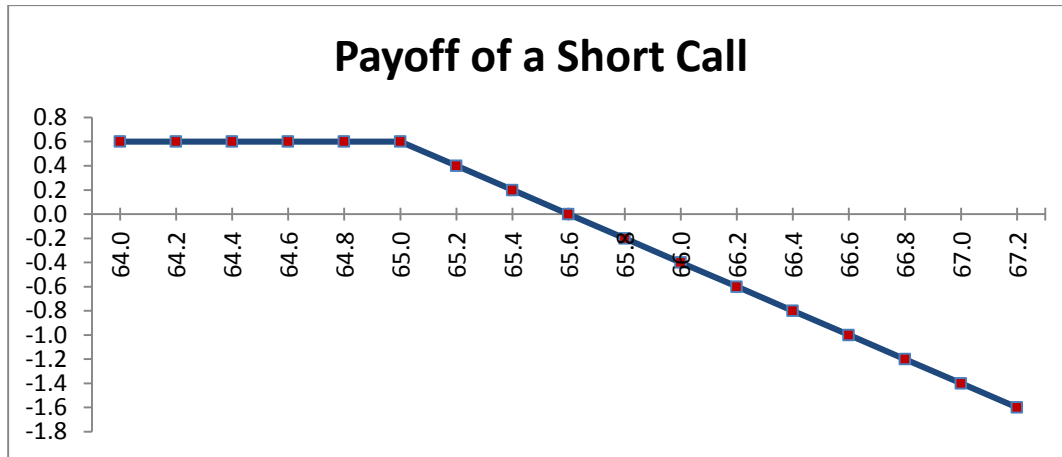
**Objective:** You do not want any cost to execute the view and rather want a positive cash inflow to execute this view. You are comfortable to bear losses if your view turn wrong and INR weakens beyond 64.5.

**Option strategy:** You sell a USD call option at a strike price of 65 and receive a premium of Rs 0.6 per USD. If on maturity, USDINR is at or below 65 the other party (who has bought call option from you) would not exercise it and hence you gain the premium. However, if USDINR is higher than 65, the other party will exercise the option and you would be obliged to sell USDINR at 65. Under this scenario, the transaction gets into loss. The losses will keep increasing as INR keeps weakening.

Settlement Price	Payoff of Short Call
64.0	0.6
64.2	0.6
64.4	0.6
64.6	0.6
64.8	0.6
65.0	0.6
65.2	0.4
65.4	0.2
65.6	0.0 (Breakeven Point)
65.8	-0.2
66.0	-0.4
66.2	-0.6
66.4	-0.8
66.6	-1.0
66.8	-1.2
67.0	-1.4
67.2	-1.6

Please refer to Figure 6 and notice the non-linearity in the payoff: for option seller, the losses are unlimited while profits are limited to the premium received (Rs 0.6 per USDINR) irrespective of extent of market movement.

Figure 6:



### 7.9.1.3 Buying a put option or going long put option

**View:** Assume current spot as 65.5 and you are of the view that in next one month there is high probability of USD weakening below 65 as against current spot of 65.5.

**Objective:** You want to take full benefit of the view if it turns correct and at the same time want to limit your losses if view turns wrong.

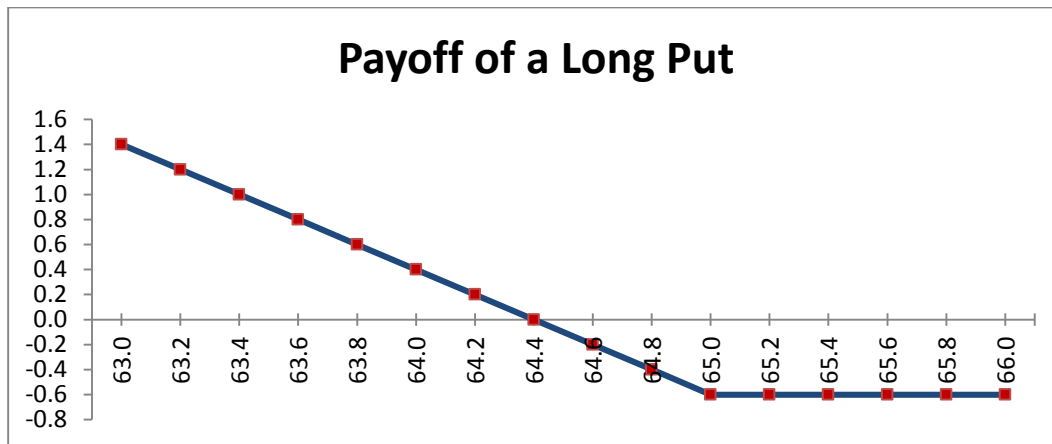
**Options strategy:** Considering the view and objective, you bought a USD put option at strike price of 65 and paid a premium of Rs 0.6 per USD. If on maturity, USDINR is below 65 you would exercise the option and sell USDINR at 65 when spot price is lower than 65. Therefore, you realize an exercise profit which is equal to difference between spot price and 65. However, this profit is partly offset by the put option premium (Rs 0.6) that you have paid. You start making net profit for every price lower than 64.4, which is the breakeven point (and equal to strike price minus put premium). At the same time, you would not exercise the option if USDINR trades at or above 65 and in this case your loss is fixed at Rs 0.6 which is equal to the premium paid.

Settlement Price	Payoff of a Long Put
63.0	1.4
63.2	1.2
63.4	1.0
63.6	0.8
63.8	0.6
64.0	0.4
64.2	0.2
64.4	0.0 (Breakeven Point)
64.6	-0.2
64.8	-0.4
65.0	-0.6

65.2	-0.6
65.4	-0.6
65.6	-0.6
65.8	-0.6
66.0	-0.6

Please refer to Figure 7 and notice the non-linearity in the payoff: for option buyer, the losses are limited to premium paid (Rs 0.6) irrespective of extent of market movement and his profits are unlimited.

Figure 7



#### 7.9.1.4 Selling a put option or going short on put option

**View:** Assume current USDINR spot to be 65.5 and you are of the view that there is a high probability of USD strengthening and trading around 66.5 levels. You also believe that if this view turns wrong, USD will not weaken below 65 as against current spot of 65.5.

**Objective:** You do not want any cost to execute the view and rather want a positive cash inflow to execute this view. You are comfortable to bear losses if view turns wrong and INR strengthens beyond 65.

**Option strategy:** You sell a USD put option at a strike price of 65 and receive a premium of Rs 0.6 per USD. If on maturity, USDINR is at or above 65 the other party (who has bought put option from you) would not exercise it and hence you gain the premium. However, if USDINR is lower than 65, the other party will exercise the option and you would be obliged to buy from him at 65. Under this scenario, the transaction would start getting into loss. The losses will keep increasing as INR keeps strengthening.

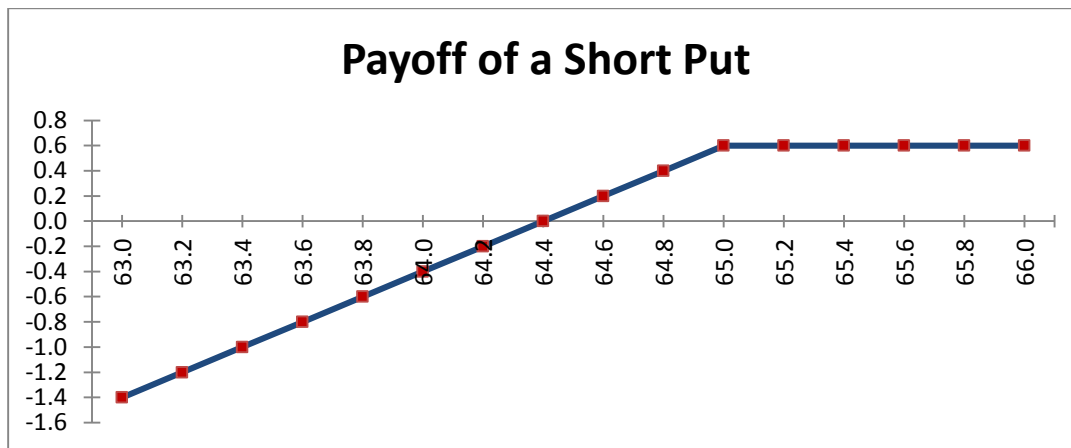
Settlement Price	Payoff of a Short Put
63.0	-1.4
63.2	-1.2
63.4	-1.0
63.6	-0.8
63.8	-0.6
64.0	-0.4

64.2	-0.2
64.4	0.0 (Breakeven Point)
64.6	0.2
64.8	0.4
65.0	0.6
65.2	0.6
65.4	0.6
65.6	0.6
65.8	0.6
66.0	0.6

Please refer to Figure 8 below and notice the non-linearity in the payoff: for option seller, the losses are unlimited while profits are limited to the premium received (Rs 0.6 per USDINR) irrespective of extent of market movement.

Did you notice that in illustrations given above, you could either buy one type of option or short another type of option to execute the same view? For example, when you are bullish on USD, you could either buy a call option or short a put option and vice versa. The choice is a function of your risk appetite to bear losses if your view turns wrong and your preference for either cash payout or cash pay in to initiate a transaction.

Figure 8



## 7.10 Uses of currency options

In this section, we will relate the option strategies (discussed above) to different business needs. We will take up hedging solutions for businesses having a need to sell USD and also for businesses having a need to buy USD. Some examples of such businesses are as follows:

- Business needs to sell USD: an exporter of goods / services from India, a company getting capital infusion in foreign currency, an investor who has invested in foreign currency denominated assets and is now expected to repatriate those investments back to India, an Indian investment company which has raised money from abroad for investment in India etc.

- Business need to buy USD: an importer of goods / services into India, a company which has to repay the capital raised from abroad, an individual planning to spend in foreign currency on account of investments, studies, medical, vacation etc., an Indian investment company planning to sell assets in India and repatriate capital back to foreign investors etc.

### Case 1

An Indian IT company with exports of USD 10mn per year is preparing its revenue budget for next quarter. The company's sales team has given revenue estimate of USD 4mn. The senior management of company is struggling to find a way to prepare the revenue budget in INR as they are uncertain of USDINR exchange rate. They also have an additional uncertainty of volatile economic conditions in USA and which may result in actual revenues to be lower than USD 4mn as estimated by sales team.

The company has two choices to convert USD revenue estimate in INR estimate: 1. short USDINR futures for next quarter and use the price to convert USD estimate to INR estimate; 2. buy put option on USDINR for next quarter and use the strike price for converting USD estimate to INR estimate.

Assessment of two choices:

- **Futures:** While futures are low cost choice, it does not allow participation in favorable currency movement. Additionally, use of futures may result in losses if actual revenues in USD are lower than estimate and USDINR weakens. In such a scenario, company will lose on futures leg of transaction and will have gain on a lower amount of corresponding spot leg of transaction.
- **Put option:** It is a costly alternative as company has to pay option premium for buying the option. However, it allows company to take benefit of any favorable price movement in currency. Additionally, put option also allows company to know the maximum possible loss in the event actual revenue is less than estimated revenue.

Example: Assume that the current USDINR spot is 65 and three months futures is 65.6. The premium on a three month put option with strike of 65.6 is Rs 1.5. In future, if on contract expiry the spot is 66, there would be loss of Rs 0.4 (66-65.6) while there would be gain of Rs 1 (66-65) on the corresponding spot leg. There by resulting in a gain of Rs 0.6 per USDINR. Thus on USD 4mn, the effective realization would be Rs 26.24 crore (USD 4mn X 65.6). However, if amount of futures booked was for USD 4 million while actual sales is lower by 0.5 million, the actual realization on USD 3.5 million would be Rs 22.94 crore (USD 3.5mn x 65.6) – (USD 0.5mn x 0.4). This translates into an effective exchange rate of 65.54, which is lower than 65.6.

**Case 2:** The company chooses to opt for options over futures. It asks its finance team to find out the cost of buying plain-vanilla put option. Finance team reverts back with a

cost estimate of 3% for a strike price equal to that of 3 months futures price. Company analyses the option cost and comes to a conclusion that buying plain-vanilla option would certainly lower the revenue estimate by 3%. Senior management decides that it is comfortable in giving up part of the upside, if any, from any favorable currency movement if the cost is lowered. What kind of option strategy could finance team present to its senior management?

Finance team could suggest a strategy where in company can buy an ATM or ITM put and reduce its cost by selling an OTM call. The strike price of these options would depend on premiums and the management decision on how much cost they are comfortable with and after what price level they are comfortable to let go off of any favorable currency price movement.

**Case 3:** An iron ore exporter has covered his next three months USD receivables in futures market at 65. The current spot is 63 and there are fifteen days left for the option maturity. The exporter feels that in next fifteen days USDINR may not go below 63 and it is likely that it may strengthen from the current level of 63. He wants to fully/ partly protect his current profit in currency future position. Can you suggest him some option idea?

The exporter could consider selling a put option with same maturity as that of futures contract and at strike of 63. In case USDINR weakens beyond 63 (goes below 63), the sold option gets exercised with loss in options and profit in futures. While if the view goes correct, exporter will make lesser profit in futures and the reduced profit is partly offset by the option premium received.

The examples given above are only for illustrative purposes and do not comprise an exhaustive list of option strategies. Some cases comprising combination strategies using options are presented in Annexure 3.

### 7.11 Contract Specification of Option Contracts

Currently currency options contracts on four INR pairs i.e., USDINR, EURINR, GBPINR and JPYINR and on three cross currency pairs i.e., EURUSD, GBPUSD and USDJPY are being traded on the recognized stock exchanges.

The contract specification for INR currency pairs is given in the table below:

<b>Contract specification: USDINR, EURINR, GBPINR and JPYINR Currency Options</b>	
Underlying	Foreign currency as base currency and INR as quoting currency
Market timing	Monday to Friday, 9:00 AM to 5:00 PM
Contract Size	USD 1000 (for USDINR), EUR 1000 (for EURINR), GBP 1000 (for GBPINR) and JPY 100,000 (for JPYINR)
Tick Size	0.25 Paise (i.e., Rs 0.0025)
Quotation	The contract would be quoted in Rupee terms. However, outstanding position would be in USD, EUR, GBP and JPY terms for USDINR, EURINR, GBPINR and JPYINR contracts respectively



Contract trading cycle	3 serial monthly contracts followed by 3 quarterly contracts of the cycle March/June/September/December.
Last trading day (or Expiry day)	Two working days prior to the last business day of the expiry month at 12:30 pm. If last trading day is a trading holiday, then the last trading day shall be the previous trading day.
Final Settlement Day	Last working day (excluding Saturdays) of the expiry month. The last working day will be the same as that for Interbank Settlements in Mumbai. The rules for Interbank Settlements, including those for 'known holidays' and 'subsequently declared holiday would be those as laid down by FEDAI.
Settlement Basis	Daily mark to market settlement will be on a T+1 basis and final settlement will be cash settled on T+2 basis.
Mode of Settlement	Cash settled in INR
Daily Settlement Price	Daily mark to market settlement price will be announced by the exchange, based on volume-weighted average price in the last half an hour of trading, or a theoretical price if there is no trading in the last half hour.
Final Settlement Price	RBI reference rate on the date of the expiry of the contract

The contract specification for cross currency pairs is given in the table below:

<b>Contract specification: EURUSD, GBPUSD and USDJPY Currency Options</b>	
Underlying	In case of EURUSD and GBPUSD, the contract would be quoted in USD (i.e., EUR and GBP would be the base currency and USD would be the quoting currency). The outstanding positions would be in EUR and GBP terms respectively.  In case of USDJPY, the contract would be quoted in JPY (i.e., USD would be the base currency and JPY would be the quoting currency). The outstanding positions would be in USD terms.
Market timing	Monday to Friday, 9:00 AM to 7:30 PM
Contract Size	EUR 1000 (for EURUSD), GBP 1000 (for GBPUSD) and USD 1000 (for USDJPY)
Tick Size	0.0001 USD for EURUSD & GBPUSD and 0.01 JPY for USDJPY
Contract trading cycle	3 serial monthly contracts, followed by 3 quarterly contracts of the cycle March/June/September/December.
Last trading day (or Expiry day)	Two working days prior to the last business day of the expiry month at 12:30 PM. If last trading day is a trading holiday, then the last trading day shall be the previous trading day.
Final	Last working day (excluding Saturdays) of the expiry month.

Settlement Day	The last working day will be the same as that for Interbank Settlements in Mumbai. The rules for Interbank Settlements, including those for 'known holidays' and 'subsequently declared holiday would be those as laid down by FEDAI.
Settlement Basis	Daily mark to market settlement will be on a T+1 basis and final settlement will be cash settled on T+2 basis.
Mode of Settlement	Cash settled in INR
Daily Settlement Price	Daily mark to market settlement price will be announced by the exchange, based on volume-weighted average price in the last half an hour of trading, or a theoretical price if there is no trading in the last half hour.
Final Settlement Price	The final settlement price of the cross-currency derivatives contracts shall be computed using the RBI reference rate for USD-INR and the corresponding exchange rate published by RBI for EUR-INR, GBP-INR and JPY-INR, as applicable, on the last trading day of the contract. For arriving at the final settlement value in INR for EUR-USD and GBP-USD contracts, the RBI reference rate for USD-INR on the last trading day of the contract shall be used. For USD-JPY contracts, the final settlement value in INR shall be arrived at using the exchange rate published by RBI for JPY-INR on the last trading day of the contract.

The contract specification for the weekly options contracts on USDINR currency pair is given in the table below:

<b>Contract specification: Weekly Options Contracts on USDINR Currency Pair</b>	
Underlying	Foreign currency as base currency and INR as quoting currency
Market timing	Monday to Friday, 9:00 AM to 5:00 PM
Contract Size	USD 1000
Tick Size	0.25 Paise (i.e., Rs 0.0025)
Quotation	The contract would be quoted in Rupee terms (i.e., as INR Rupee per US Dollar), quoted upto the fourth decimal place.
Contract trading cycle	11 weekly expiry contracts excluding the expiry week of monthly contract. New serial weekly futures contract shall be introduced after expiry of the respective week's contract.
Last trading day (or Expiry day)	Every Friday of the week except for expiry week of monthly contract (during the expiry week of monthly contract, the contract will expire on day of expiry of monthly contract). In case the Friday is a trading holiday, the previous trading day shall be the expiry/last trading day.
Settlement Basis	Daily mark to market settlement will be on a T+1 basis and final settlement will be cash settled on T+2 basis.

Mode of Settlement	Cash settled in INR
Daily Settlement Price	Daily mark to market settlement price will be announced by the exchange, based on volume-weighted average price in the last half an hour of trading, or a theoretical price if there is no trading in the last half hour.
Final Settlement Price	RBI reference rate on the date of the expiry of the contract

## Chapter 8: Accounting and Taxation

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Accounting entries for live position and cancelled positions of currency futures
- Disclosure requirements in case of currency futures trading
- Taxation of currency derivatives

### 8.1 Accounting

The Institute of Chartered Accountants of India (ICAI) has issued guidance notes on accounting of index futures contracts from the view point of parties who enter into such futures contracts as buyers or sellers. For other parties involved in the trading process, like brokers, trading members, clearing members and clearing corporations, a trade in currency derivatives is similar to a trade in, say shares, and does not pose any peculiar accounting problems. Market participants have to abide by any guidance which is released at different point of time and they are expected to keep themselves abreast of such new guidelines.

### 8.2 Name of accounts

Client has to maintain two separate accounting heads for initial margin and mark to market margin. These heads could be called as:

- Initial margin-currency futures
- Mark to market- currency futures

Sometime clients may place extra deposit / security with trading member to take care of daily mark to market instead of settling it on a daily basis. Such account may be called as Deposit for mark to market margin account.

### 8.3 Accounting entries for live positions

The accounting entries has to be understood separately for any pay-in or pay-out for positions which are live and for positions which are expired or cancelled.

#### a) For pay out:

Any cash lay out on account of initial margin or mark to market has to be debited to respective heads i.e., Initial margin-currency futures or Mark to market- currency futures and bank account has to be credited.

At the balance sheet date, any debit balance in “Initial margin-currency futures” has to be shown as under current asset. In case client provides bank guarantee or specified security, a disclosure should be made in the notes to financial statement of the client. Similarly any debit balance in “Mark to market- currency futures” should be considered as loss and there should be a provision made against the current assets.

#### b) For pay in:

Any cash inflow on account of mark to market settlement, mark to market- currency futures has to be credited and Bank account has to be debited. On balance sheet date, credit balance in “Mark to market- currency futures” has to be shown as a current liability under the head –“current liabilities and provisions”

### **8.3.1 Accounting entries for expired or cancelled positions**

At the expiry of a series of currency futures, the profit/loss should be calculated as the difference between final settlement and contract prices of all the contracts in the series and it should be passed through the profit and loss statement of the client. However, where a balance exist in the provision account created for any anticipated loss, any loss arising on final settlement should be first charged to the provision account and the balance to the profit and loss account. If more than one contract in a series are outstanding at the time of expiry/ squaring off, the contract price of the contract so squared off should be determined using First-in, First-out (FIFO) method for calculating profit/loss on squaring-up.

Similarly, on settlement, initial margin money which is released should be credited to “Initial margin-currency futures account” and a corresponding debit to bank account.

### **8.4 Accounting entries in case of default by a client**

When a client defaults in making payments in respect of a daily settlement, the contract is closed out. The amount not paid by the client is adjusted against the initial margin. In the books of client, the amount so adjusted should be debited to “Mark to market- currency futures account” with a corresponding credit to “Initial margin- currency futures account”. The amount of initial margin which is in excess of the amount adjusted against the mark to market margin not paid will be released. The accounting treatment in this regard will be the same as explained above. In case, the amount to be paid on daily settlement exceeds the initial margin the excess is a liability and should be shown as such under the head ‘current liabilities and provisions’, if it continues to exist on the balance sheet date. The amount of profit or loss on the contract so closed out should be calculated and recognized in the profit and loss account in the manner dealt with above.

### **8.5 Disclosure requirements**

The amount of bank guarantee and book value as also the market value of securities lodged should be disclosed in respect of contracts having open positions at the year end, where initial margin money has been paid by way of bank guarantee and/or lodging of securities.

Total number of contracts entered and gross number of units of currency futures traded (separately for buy/sell) should be disclosed in respect of each series of currency futures.

The number of currency futures contracts having open position, number of units of currency futures pertaining to those contracts and the daily settlement price as on the

balance sheet date should be disclosed separately for long and short positions, in respect of each series of currency futures.

## 8.6 Taxation of Currency Derivatives

### Taxation of Profit/Loss on derivative transaction in securities

Prior to Financial Year 2005–06, transaction in derivatives were considered as speculative transactions for the purpose of determination of tax liability under the Income-tax Act. This is in view of section 43(5) of the Income-tax Act which defined speculative transaction as a transaction in which a contract for purchase or sale of any commodity, including stocks and shares, is periodically or ultimately settled otherwise than by the actual delivery or transfer of the commodity or scrips. However, such transactions entered into by hedgers and stock exchange members in course of jobbing or arbitrage activity were specifically excluded from the purview of definition of speculative transaction.

In view of the above provisions, most of the transactions entered into in derivatives by investors and speculators were considered as speculative transactions. The tax provisions provided for differential treatment with respect to set off and carry forward of loss on such transactions. Loss on derivative transactions could be set off only against other speculative income and the same could not be set off against any other income. This resulted in payment of higher taxes by an assessee.

Finance Act, 2005 has amended section 43(5) so as to exclude transactions in derivatives carried out in a “recognized stock exchange” for this purpose. This implies that income or loss on derivative transactions which are carried out in a “recognized stock exchange” is not taxed as speculative income or loss. Thus, loss on derivative transactions can be set off against any other income during the year (except salary income). In case the same cannot be set off, it can be carried forward to subsequent assessment year and set off against any other non-speculative business income of the subsequent year. Such losses can be carried forward for a period of 8 assessment years. It may also be noted that securities transaction tax paid on such transactions is eligible as deduction under Income-tax Act, 1961.

### Securities Transaction Tax (STT)

STT is the Securities Transaction Tax that is levied on every purchase and sale of securities that are listed on the Indian stock exchanges. STT is levied on transactions involving equity, derivatives and equity oriented mutual funds. In case of derivatives transactions, the exchange on which the transaction took place is required to collect (deduct) the STT and remit the same to the Government. Traders have to pay securities transaction tax on the derivatives transactions executed on a recognized exchange as per the rates given below:

Sr. No.	Taxable securities transaction	STT rate	Payable by
1.	Sale of an option in securities	0.05 per cent	Seller

2.	Sale of an option in securities, where option is exercised	0.125 per cent	Purchaser
3.	Sale of a futures in securities	0.01 per cent	Seller

Value of taxable securities transaction relating to an “option in securities” shall be the option premium, in case of sale of an option in securities. Value of taxable securities transaction relating to an “option in securities” shall be the settlement price, in case of sale of an option in securities, where option is exercised.

Exchanges adopt the following procedure in respect of the calculation and collection of Securities Transaction Tax:

- STT is applicable on all sell transactions for both futures and option contracts.
- For the purpose of STT, each futures trade is valued at the actual traded price and option trade is valued at premium. On this value, the STT rate as prescribed is applied to determine the STT liability. In case of voluntary or final exercise of an option contract, STT is levied on settlement price on the day of exercise if the option contract is in the money.
- STT payable by the clearing member is the sum total of STT payable by all trading members clearing under him. The trading member’s liability is the aggregate STT liability of clients trading through him.

## Chapter 9: Regulatory Framework for Currency Derivatives

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Definition of securities and derivatives according to the SCRA, 1956
- Salient Features of Foreign Exchange Management Act, 1999
- Eligibility conditions for exchanges and clearing corporations for setting up currency futures trading
- Eligibility criterion for trading membership of currency derivatives segment of exchanges

The Indian economy is integrating at a fast pace with the rest of the world. Indian Financial Markets have also been growing significantly. Although liberalization helped the Indian foreign exchange markets in various ways, extensive fluctuations of exchange rate also occurred. These issues have attracted a great deal of interest from policy-makers and investors. Hence in the context of upgrading the Indian foreign exchange market to international standards, a well-developed foreign exchange derivative market (both OTC as well as Exchange Traded) is required.

The Committee on Fuller Capital Account Convertibility had recommended that currency futures may be introduced subject to risks being contained through proper trading mechanism, structure of contracts and regulatory environment. Accordingly, Reserve Bank of India in the Annual Policy Statement for the Year 2007-08 proposed to set up a Working Group on Currency Futures to study the international experience and suggest a suitable framework to operationalise the proposal, in line with the current legal and regulatory framework. The group has had extensive consultations with a cross section of market participants including bankers' associations, banks, brokers, and exchanges, both Indian and International.

### 9.1 Securities Contracts (Regulation) Act, 1956 [SC(R)A]

The Act aims to prevent undesirable transactions in securities. It governs the trading of securities in India. The term "securities" has been defined in the Section 2(h) of SCRA. The term 'Securities' include:

- Shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company or other body corporate
- Derivative
- Units or any other instrument issued by any collective investment scheme to the investors in such schemes
- Security receipt as defined in clause (zg) of section 2 of the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002



- Units or any other such instrument issued to the investors under any mutual fund scheme (securities do not include any unit linked insurance policy or scrips or any such instrument or unit, by whatever name called which provides a combined benefit risk on the life of the persons and investment by such persons and issued by an insurer refer to in clause (9) of section 2 of the Insurance Act, 1938 (4 of 1938))
- Any certificate or instrument (by whatever name called), issued to an investor by any issuer being a special purpose distinct entity which possesses any debt or receivable, including mortgage debt, assigned to such entity, and acknowledging beneficial interest of such investor in such debt or receivable, including mortgage debt, as the case may be
- Government securities
- Such other instruments as may be declared by the Central Government to be securities (including onshore rupee bonds issued by multilateral institutions like the Asian Development Bank and the International Finance Corporation)
- Rights or interests in securities

According to the act “Derivatives” is defined as:-

- A security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.
- A contract which derives its value from the prices, or index of prices, of underlying securities.
- Commodity derivatives, and
- Such other instruments as may be declared by the Central Government to be derivatives.
- Section 18A provides that notwithstanding anything contained in any other law for the time being in force, contracts in derivative shall be legal and valid if such contracts are:
  - Traded on a recognized stock exchange
  - Settled on the clearing house of the recognized stock exchange, in accordance with the rules and bye-laws of such stock exchanges.

## **9.2 RBI-SEBI standing technical committee on exchange traded currency and interest rate derivatives**

With a view to enable entities to manage volatility in the currency market, RBI on April 20, 2007 issued comprehensive guidelines on the usage of foreign currency forwards, swaps and options in the OTC market. At the same time, RBI also set up an Internal Working Group to explore the advantages of introducing currency futures. The Report of the Internal Working Group of RBI submitted in April 2008, recommended the introduction of exchange traded currency futures. With the expected benefits of exchange traded currency futures, it was decided in a joint meeting of RBI and SEBI on

February 28, 2008, that an RBI-SEBI Standing Technical Committee on Exchange Traded Currency and Interest Rate Derivatives would be constituted. To begin with, the Committee would evolve norms and oversee the implementation of Exchange traded currency futures. The Terms of Reference to the Committee were as under:

1. To coordinate the regulatory roles of RBI and SEBI in regard to trading of Currency and Interest Rate Futures on the Exchanges.
2. To suggest the eligibility norms for existing and new Exchanges for Currency and Interest Rate Futures trading.
3. To suggest eligibility criteria for the members of such exchanges.
4. To review product design, margin requirements and other risk mitigation measures on an ongoing basis
5. To suggest surveillance mechanism and dissemination of market information.
6. To consider microstructure issues, in the overall interest of financial stability.

This committee submitted its report on 29<sup>th</sup> May 2008. The Report of the RBI-SEBI Standing Technical Committee on Exchange Traded Currency Futures is available on SEBI's web site.

The trading of derivatives is governed by the provisions contained in the SC(R)A, the SEBI Act, the rules and regulations framed there under and the rules and bye-laws of stock exchanges.

### **9.3 Foreign Exchange Management Act, 1999 - Provisions**

Thereafter, a series of regulatory measures were taken so as to implement the recommendations of both the committees and introduce Exchange Traded Currency Futures in the Indian market.

These regulatory measures are summarized below:

- 1) The Foreign Exchange Management (Foreign Exchange Derivative Contracts) Regulations, 2000 (Notification No. FEMA 25/RB-2000 dated May 3, 2000) was amended by RBI in exercise of the powers conferred by clause (h) of sub-section 2 of Section 47 of the Foreign Exchange Management Act, 1999 (Act 42 of 1999).
- 2) This amendment incorporated a new clause after clause (v) in regulation 2 reading "(va) 'Currency Futures' means a standardised foreign exchange derivative contract traded on a recognized stock exchange to buy or sell one currency against another on a specified future date, at a price specified on the date of contract, but does not include a forward contract."
- 3) A new regulation (5A) was inserted after regulation 5 of the principal regulation, reading:  
5A. Permission to a person resident in India to enter into currency futures  
A person resident in India may enter into a currency futures in a stock exchange recognized under section 4 of the Securities Contract (Regulation) Act, 1956, to hedge an exposure to risk or otherwise, subject to such terms and conditions as may be set forth in the directions issued by the Reserve Bank of India from time to time."

- 4) These amendments have defined the meaning of 'Currency Futures' and also permitted a person resident in India to enter into a Currency Future Transaction to hedge on exposure to risk or otherwise.
- 5) On 6<sup>th</sup> August 2008 RBI had issued Notification No. FED.1/DG(SG)-2008 in exercise of powers conferred by section 45W of the Reserve Bank of India Act, 1934. The directions issued under this notification are titled "Currency Futures (Reserve Bank) Directions, 2008" which came into force w.e.f. 6<sup>th</sup> August, 2008. The salient features of this notification are:
- (i) Currency Futures means a standardised foreign exchange derivative contract traded on a recognized stock exchange to buy or sell one currency against another on a specified future date, at a price specified on the date of contract, but does not include a forward contract.
  - (ii) Currency Futures market means the market in which currency futures are traded.
  - (iii) Currency futures are permitted in USDINR, EURINR, GBPINR and JPYINR or any other currency pairs, as may be approved by the Reserve Bank from time to time.
  - (iv) Only 'persons resident in India' may purchase or sell currency futures.
  - (v) The Scheduled Banks have to obtain permission from the respective Regulatory Departments of RBI to participate in Currency Futures Markets.
  - (vi) Other regulated entities have to obtain concurrence from their respective regulators for participation in Currency Futures Markets.
  - (vii) The membership of the currency futures market of a recognised stock exchange shall be separate from the membership of the equity derivative segment or the cash segment.
  - (viii) Banks authorized by the Reserve Bank of India under section 10 of the Foreign Exchange Management Act, 1999 as 'AD Category - I bank' are permitted to become trading and clearing members of the currency futures segment of the recognized stock exchanges, on their own account and on behalf of their clients, subject to fulfilling the following minimum prudential requirements:
    - a) Minimum net worth of Rs. 500 crores.
    - b) Minimum Capital adequacy ratio (CAR) of 10 per cent.
    - c) Net NPA should not exceed 3 per cent.
    - d) Made net profit for last 3 years.
  - (ix) AD Category - I banks, excluding Urban Co-operative Banks, which fulfil the above RBI prudential requirements should formulate detailed guidelines for Trading and Clearing of currency futures contracts and management of risks. These guidelines should be approved by their Boards.
  - (x) The exposure of the banks, on their own account, in the currency futures market shall form part of their Net Open Position (NOP) and Aggregate Gap (AG) limits.

- (xi) The position limits for various classes of participants in the currency futures markets, the surveillance and disclosures of transactions in the currency futures market shall be in accordance with the guidelines issued by the SEBI.
- (xii) Under section 10 (1) of the Foreign Exchange Management Act, 1999, Recognized Stock Exchanges and their respective Clearing Corporations must hold an authorization issued by the Reserve Bank to deal in or otherwise undertake the business relating to currency futures.

6) Reserve Bank of India, Foreign Exchange Department have issued A.P. (DIR Series) Circular No. 05 dated August 06, 2008 (RBI/2008-09/122) titled 'Guidelines on trading of Currency Futures in Recognised Stock / New Exchanges'.

RBI has advised in this circular that "Persons resident in India have a menu of over-the-counter (OTC) products, such as currency forwards, swaps and options for hedging their currency risk. In the context of liberalisation of the capital account, as also continued development of the financial markets, it is felt that wider hedging opportunities could enhance the flexibility for the residents to manage their currency risk dynamically. International experiences have also established that the exchange traded currency futures contracts facilitate efficient price discovery, enable better counterparty credit risk management, wider participation, trading of standardized product, reduce transaction costs, etc. Accordingly, as a part of further developing the derivatives market in India and adding to the existing menu of foreign exchange hedging tools available to the residents, it has been decided to introduce currency futures in recognized stock exchanges or new exchanges recognized by the Securities and Exchange Board of India (SEBI) in the country. The currency futures market would function subject to the directions, guidelines, instructions issued by the Reserve Bank and the SEBI, from time to time."

- 7) Reserve Bank of India, Department of Banking Operations and Development in their Circular DBOD.No.FSD.BC. 29 /24.01.001/2008-09 dated August 6, 2008 (RBI/2008-09/123) titled 'Introduction of Currency Futures–Permitting banks to become trading /clearing members of SEBI-approved exchanges' stated that 'Banks which fulfil the conditions mentioned in the Notification No. FED.1/DG(SG)-2008 dated August 6, 2008 should lay down detailed guidelines with their Board's approval for conduct of this activity and management of risks. It should be ensured that the bank's position is kept distinct from the clients' position. In case of supervisory discomfort with the functioning of a bank, the Reserve Bank may impose restrictions on the bank regarding the conduct of this business as it deems fit.
- 8) This circular also stated that the banks which do not meet the minimum prescribed prudential requirements are permitted to participate in the currency futures market only as clients.

Reserve Bank of India vide its circular dated December 10, 2015 has specified the guidelines for the introduction of currency futures contracts on cross-currency pairs of

EURUSD, GBPUSD and USDJPY on recognized stock exchanges. In the same circular, RBI has also allowed recognized stock exchanges to offer exchange traded currency options contracts on EURINR, GBPINR and JPYINR currency pairs (in addition to the existing USDINR options contract). Subsequently, SEBI vide its circular dated March 9, 2016 has also allowed trading in the above cross currency derivatives contracts and has specified the product design and risk management framework for these contracts.

#### **9.4 Regulatory framework for exchanges**

A recognized stock exchange having nationwide terminals or a new exchange recognized by SEBI may set up currency futures segment after obtaining SEBI's approval. The currency futures segment should fulfil the following eligibility conditions for approval:

1. The trading should take place through an online screen-based trading system, which also has a disaster recovery site.
2. The clearing of the currency derivatives market should be done by an independent Clearing Corporation.
3. The exchange must have an online surveillance capability which monitors positions, prices and volumes in real time so as to deter market manipulation.
4. The exchange shall have a balance sheet net worth of at least Rs. 100 crores.
5. Information about trades, quantities, and quotes should be disseminated by the exchange in real time to at least two information vending networks which are accessible to investors in the country. The per-half-hour capacity of the computers and the network should be at least 4 to 5 times of the anticipated peak load in any half hour, or of the actual peak load seen in any half-hour during the preceding six months, whichever is higher. This shall be reviewed from time to time on the basis of experience. The segment should have at least 50 members to start currency derivatives trading. The exchange should have arbitration and investor grievances redressal mechanism operative from all the four areas/regions of the country. The exchange should have adequate inspection capability. If already existing, the exchange should have a satisfactory record of monitoring its members, handling investor complaints and preventing irregularities in trading.

A recognized stock exchange where other securities are also being traded may set up a separate currency futures segment in the following manner:

1. The trading and the order driven platform of currency futures should be separate from the trading platforms of the other segments.
2. The membership of the currency futures segment should be separate from the membership of the other segments.

#### **9.5 Regulatory framework for clearing corporations**

A Clearing Corporation in the currency futures segment can function only after obtaining SEBI approval. The conditions inter-alia includes the following:

- The Clearing Corporation should be a company incorporated under the Companies Act, 1956 and should be distinct from the exchange.
- The Clearing Corporation must ensure that all trades are settled by matching of buyers and sellers
- The Clearing Corporation should enforce the stipulated margin requirements, mark to market settlement, electronic funds transfer, etc.
- A separate settlement guarantee fund should be created and maintained for meeting the obligations arising out of the currency futures segment. A separate investor protection fund should also be created and maintained for the currency futures market.

### **9.6 Governing council of the exchange and clearing corporation**

The currency futures segment of the Exchange should have a separate Governing Council on which the representation of Trading /Clearing Members of the currency futures segment should not exceed 25%. Further, 50% of the public representatives on the Governing Council of the currency futures segment can be common with the Governing Council of the cash/equity derivatives segments of the Exchange. The Chairman of the Governing Council of the currency futures segment of the Exchange shall be a member of the Governing Council. If the Chairman is a Trading Member/ Clearing Member, then he shall not carry on any trading/clearing business on any Exchange during his tenure as Chairman. No trading / clearing member should be allowed simultaneously to be on the Governing Council of the currency futures segment and the cash/equity derivatives segment.

The currency futures segment of the Clearing Corporation should be governed by a separate Governing Council which should not have any trading member representation.

### **9.7 Eligibility criteria for members**

The membership of the Currency Derivatives Segment shall be separate from the membership of the Equity Derivative Segment or the Cash Segment of a recognized stock exchange. Members in Currency Derivatives segment are required to seek separate registration from SEBI, in addition to their registration as members of existing stock exchanges. The members of an existing segment of the Exchange would not automatically become the members of Currency Derivatives Segment.

#### **Eligibility Criteria for members in Currency Derivatives Segment**

The following entities are eligible to apply for membership subject to the regulatory norms and provisions of SEBI and as provided in the Rules, Regulations, Byelaws and Circulars of the Exchange -

- Individuals;
- Partnership Firms registered under the Indian Partnership Act, 1932;
- Corporations, Companies or Institutions or subsidiaries of such Corporations, Companies or Institutions set up for providing financial services;

- Such other person as may be permitted under the Securities Contracts (Regulation) Rules 1957

**Individuals and partnership firms:** The exchange may specify specific eligibility criteria for this segment of market participants.

### **Corporates**

A company as defined in the Companies Act shall be eligible to be admitted as a member of a Stock Exchange provided:

- such company is formed in compliance with the provisions of Section 12 of the said Act;
- it undertakes to comply with such other financial requirements and norms as may be specified by the Securities and Exchange Board of India for the registration of such company under sub-section (1) of section 12 of the Securities and Exchange Board of India Act, 1992 (15 of 1992);
- the directors of such company are not disqualified for being members of a stock exchange under clause (1) of rule 8 [except sub-clauses (b) and (f) thereof] or clause (3) of rule 8 [except sub-clauses (a) and (f) thereof] of the Securities Contracts (Regulation) Rules, 1957 and the directors of the company had not held the offices of the directors in any company which had been a member of the stock exchange and had been declared defaulter or expelled by the stock exchange.
- It fulfills other criteria which may be specific to each exchange.

### **Professional Clearing Member**

The following persons are eligible to become PCMs for Currency Futures Derivatives provided they fulfill the prescribed criteria:

1. SEBI Registered Custodians; and
2. Banks

### **Other applicable eligibility criteria**

1. Where the applicant is a partnership firm/corporate entity, the applicant shall identify a Dominant Promoter Group as per the norms of the Exchange at the time of making the application. Any change in the shareholding of the company including that of the said Dominant Promoter Group or their shareholding interest shall be effected only with the prior permission of the Exchange/SEBI.
2. The applicant has to ensure that at any point of time they would ensure that at least individual/one partner/one designated director/compliance officer would have a valid certification as per the requirements of the Exchange. The above norm would be a continued admittance norm for membership of the Exchange.
3. An applicant must be in a position to pay the membership and other fees, deposits etc, as applicable at the time of admission within three months of intimation to him of admission as a Trading Member or as per the time schedule specified by the Exchange.
4. The trading members and sales persons in the currency futures market must have passed a certification program which is considered adequate by SEBI. The approved

users and sales personnel of the trading member should have passed the certification program.

5. Strict enforcement of “Know Your Customer” (KYC) rule is required. Therefore, every client shall be registered with the member. The members are also required to make their clients aware of the risks involved in derivatives trading by issuing to the client the Risk Disclosure Document and obtain a copy of the same duly acknowledged by the client. The members shall enter into a member constituent agreement as stipulated.
6. The Exchange may specify such standards for investor service and infrastructure with regard to any category of applicants as it may deem necessary, from time to time.

#### **Who cannot become a member?**

No entity shall be admitted as a member/partner or director of the member if

- a. It has been adjudged bankrupt or a receiver order in bankruptcy has been made against him or he has been proved to be insolvent even though he has obtained his final discharge;
- b. it has compounded with his creditors for less than full discharge of debts;
- c. it has been convicted of an offence involving a fraud or dishonesty;
- d. it is engaged as a principal or employee in any business other than that of Securities, except as a broker or agent not involving any personal financial liability or for providing merchant banking, underwriting or corporate or investment advisory services, unless he undertakes to sever its connections with such business on admission, if admitted;
- e. it has been at any time expelled or declared a defaulter by any other Stock Exchange or he has been debarred from trading in securities by an Regulatory Authorities like SEBI, RBI etc;
- f. it incurs such disqualification under the provisions of the Securities Contract (Regulations) Act, 1956 or Rules made there-under so as to disentitle such persons from seeking membership of a stock exchange;
- g. it incurs such disqualification consequent to which the Exchange determines it to be not in public interest to admit him as a member on the Exchange, provided that in case of registered firms, body corporates and companies, the condition from (will apply to all partners in case of partnership firms, all directors in case of companies) the Exchange may from time to time modify / expand the scope of activities that could be considered as relevant experience for the above purpose.

Further, the Exchange reserves the right to accept or reject any application or amend the terms and conditions without assigning any reason whatsoever.

#### **Forms of collaterals acceptable by the Clearing Corporation**



Members have to fulfil certain requirements and provide collateral deposits to the Clearing Corporation. All collateral deposits are segregated into cash component and non-cash component. Cash component means cash, bank guarantee, fixed deposit receipts, Treasury bills and dated government securities. Non-cash component mean all other forms of collateral like approved demat securities.

**Requirements to become authorized / approved user**

Trading members and participants are entitled to appoint, with the approval of the Currency Derivatives segment of the exchange, authorized persons and approved users to operate the trading workstation(s). These authorized users can be individuals, registered partnership firms or corporate bodies.

These Authorized Persons cannot collect any commission or any amount directly from the clients they introduce to the trading member who appointed him. However, they can receive a commission or any such amount from the trading member who appointed them as provided under regulation.

## Chapter 10: Codes of Conduct and Investor Protection Measures

### LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- General code of conduct for brokers
- Code of conduct specific to currency derivatives for brokers
- Grievance redressal mechanism for investors

### 10.1 Adherence to SEBI codes of conduct for brokers

All trading members must at all times adhere to the Code of Conduct as specified by the Securities and Exchange Board of India (Stock Brokers) Regulations, 1992.

#### Code of conduct for brokers

A registered broker must at all times abide by the Code of Conduct as given below:

##### I. General

a) Integrity: A broker should maintain high standards of integrity, promptitude and fairness in the conduct of all his business.

b) Exercise of Due Skill and Care: A broker should act with due skill, care and diligence in the conduct of all his business.

c) Manipulation: A broker should not indulge in manipulative, fraudulent or deceptive transactions or schemes or spread rumors with a view to distorting market equilibrium or making personal gains.

d) Malpractices: A broker should not create false market either singly or in concert with others or indulge in any act detrimental to the investors' interest or which leads to interference with the fair and smooth functioning of the market. A broker should not involve himself in excessive speculative business in the market beyond reasonable levels.

e) Compliance with Statutory Requirements: A broker should abide by all the provisions of the Act and the rules, regulations issued by the Government, SEBI and the stock exchanges from time to time as may be applicable to him.

##### II. Duty to the client

a) Execution of Orders: A broker, in his dealings with the clients and the general public, should faithfully execute the orders for buying and selling of securities at the best available market price. A broker should promptly inform his client about the execution or non-execution of an order.

b) Issue of Contract Note: A broker should issue without delay to his client a contract note for all transactions in the form specified by the exchanges.

c) Breach of Trust: A broker should not disclose or discuss with any other person or make improper use of the details of personal investments and other information of a confidential nature of the client which he comes to know in his business relationship.

d) Business and Commission:

(i) A broker should not encourage sales or purchases of securities with the sole object of generating brokerage or commission.

(ii) A broker should not furnish false or misleading quotations or give any other false or misleading advice or information to the clients with a view of inducing him to do business and enabling himself to earn brokerage or commission thereby.

e) Business of Defaulting Clients: A broker should not deal or transact business knowingly, directly or indirectly or execute an order for a client who has failed to carry out his commitments in relation to securities with another broker.

f) Fairness to Clients: A broker, when dealing with a client, should disclose whether he is acting as a principal or as an agent and should ensure at the same time that no conflict of interest arises between him and the client. In the event of a conflict of interest, he should inform the client accordingly and should not seek to gain a direct or indirect personal advantage from the situation and should not consider client's interest inferior to his own.

g) Investment Advice: A broker should not make a recommendation to any client who might be expected to rely thereon to acquire, dispose of, retain any securities unless he has reasonable grounds for believing that the recommendation is suitable for such a client upon the basis of the facts, if disclosed by such a client as to his own security holdings, financial situation and objectives of such investment. The broker should seek such information from clients, wherever he feels it is appropriate to do so.

h) Investment Advice in publicly accessible media:

(i) A broker or any of his employees should not render, directly or indirectly, any investment advice about any security in the publicly accessible media, whether real-time or non real-time; unless a disclosure of his interest including their long or short position in the said security has been made, while rendering such advice.

(ii) In case, an employee of the broker is rendering such advice, he should also disclose the interest of his dependent family members and the employer including their long or short position in the said security, while rendering such advice.

(iii) Competence of Broker: A broker should have adequately trained staff and arrangements to render fair, prompt and competent services to his clients.

**III. Brokers vis-à-vis other brokers**

(a) Protection of Clients Interests: A broker should extend fullest cooperation to other brokers in protecting the interests of his clients.

(b) Transactions with Brokers: A broker should carry out his transactions with other brokers and should comply with his obligations in completing the settlement of transactions with them.

(c) Advertisement and Publicity: A broker should not advertise his business publicly unless permitted by the exchange.

(d) Inducement of Clients: A broker should not resort to unfair means of inducing clients from other brokers.

(e) False or Misleading Returns: A broker should not neglect or fail or refuse to submit the required returns and not make any false or misleading statement on any returns required to be submitted to the Board and the exchange.

## **10.2 Adherence to codes of conduct specific to currency derivatives segment**

Exchange regulations specify codes of conduct related to the currency derivatives segment. All trading members must comply with these. These are detailed below:

### **General principles**

(a) A Trading Member shall make adequate disclosures of relevant material information in his dealings with his clients.

(b) No Trading Member or person associated with the Trading Member shall guarantee a client against a loss in any transactions effected by the Trading Member for such client.

(c) Professionalism: A Trading Member in the conduct of his business shall observe high standards of commercial honor of just and equitable principles of trade.

(d) Adherence to Trading Practices: Trading Members shall adhere to the Rules, Regulations and Bye - laws of the Exchanges and shall comply with such operational parameters, rulings, notices, guidelines and instructions of the Relevant Authority as may be applicable from time to time.

(e) Honesty and Fairness: In conducting his business activities, a Trading Member shall act honestly and fairly, in the best interests of his constituents.

(f) Capabilities: A Trading Member shall have and employ effectively the resources and procedures which are needed for the proper performance of his business activities.

### **Trading principles**

(a) Trading Members/Participants shall ensure that the fiduciary and other obligations imposed on them and their staff by the various statutory acts, rules and regulations is complied with.

(b) Trading Members/Participants shall ensure –

(i) That any employee who commits the Trading Members or Participants to a transaction has the necessary authority to do so.

(ii) that employees are adequately trained in operating in the relevant market segment in which they deal, are aware of their own, and their organization's responsibilities as well as the relevant statutory acts governing the Trading Member,

the Rules, Regulations and Bye-laws of the Currency Derivatives Segments of the Exchanges including any additions or amendments thereof.

(c) A Trading Member shall be responsible for all the actions including trades originating through or with the use of all following variables - Trading Member Id and User Id, at that point of time. However, if the Trading Member satisfies the Currency Derivatives Segment of the Exchanges that the action(s) and/or trade(s) took place due to fraud or misrepresentation by any other person other than his authorized person(s) and that the action(s) and/or trades did not originate from any of his approved workstations, the Currency Derivatives Segment of the Exchanges may issue such directions as they considers just and reasonable. The directions may include referring the matter to arbitration and/or annulment of trade(s) so affected.

(d) When entering into transactions on behalf of constituents, the Trading Members shall ensure that they abide by the Code of Conduct and regulations.

(e) No Trading Member or person associated with a Trading Member shall make improper use of constituent's securities/positions in derivatives contracts or funds.

(f) No Trading Member shall publish and circulate or cause to be published or circulated, any notice, circular, advertisement, newspaper article, investment service or communication of any kind which purports to report any transaction as a purchase or sale of any derivatives contracts unless such Trading Member can establish if called for, that such transaction was a bonafide purchase or sale of such contract; or which purports to quote the purchase/sale price for any derivatives contract unless such Trading Member can establish if called for that such quotation represents a bonafide order of such derivatives contract.

(g) When entering into or arranging a transaction, Trading Members must ensure that at all times great care is taken not to misrepresent in any way, the nature of transaction.

(h) No Trading Member shall exercise any discretionary power in a constituent's account unless such constituent has given prior written authorization to a stated individual or individuals and the account has been accepted by the Trading Member, as evidenced in writing by the Trading Member.

(i) A Trading Member shall not act as a principal or enter into any agreement or arrangement with a constituent or constituent's agents, employees or any other person connected to the constituent, employee or agency, whereby special or unusual rates are given with an intent to give special or unusual advantage to such constituent for the purpose of securing his business.

(j) The Trading Member shall not disclose the name and beneficial identity of a constituent to any person except to the Currency Derivatives Segment of the Exchanges as and when required by it.

(k) The facility of placing orders on 'Pro-account' through trading terminals shall be availed by the Trading Members only at one location of the Trading Members as specified / required by the Trading Members. Any trading terminal located at a place other than the above location shall have a facility to place order only for and on behalf

of a Constituent by entering client code details as required/specified by the Exchange / SEBI. In case any Trading Member requires the facility of using 'Pro-account' through trading terminals from more than one location, such Trading Member shall request the Exchange stating the reason for using the 'Pro-account' at multiple locations and the Exchange may, on a case to case basis after due diligence, consider extending the facility of allowing use of 'Pro-account' from more than one location.

#### **General guidelines**

A Trading Member shall desist from the following trading practices while conducting business on the Currency Derivatives Segment of the Exchanges.

##### **(a) Shielding or Assisting**

No Trading Member shall shield or assist or omit to report any other Trading Member whom he has known to have committed a breach or evasion of any Rules, Bye-Laws or Regulations of the Currency Derivatives Segment of the Exchanges or of any resolution, order, notice or direction there under of the Governing Board or the Managing Director or of any committee or officer of the Currency Derivatives Segment of the Exchanges authorized in that behalf.

##### **(b) Suspended Derivatives Contracts**

Except with the permission of the Currency Derivatives Segment of the Exchanges, business shall not be transacted by the Trading Member in derivatives contracts which have been suspended from official quotation.

##### **(c) Misleading Transactions**

A Trading Member shall not -

(i) make bids and/or offers for derivatives contracts with an intention of creating a false or misleading appearance with respect to the market for, or the price of any derivatives contracts,

(ii) Make a transaction or give an order for the purchase or sale of derivatives contracts, the execution of which would involve no change of beneficial ownership, unless the Trading Member had no knowledge that the transaction would not involve a change in the beneficial ownership of derivatives contracts.

##### **(d) Use of Information obtained in Fiduciary Capacity**

A Trading Member who in the capacity of paying agent, transfer agent, trustee, or in any other similar capacity, has received information as to the purchase/sale of derivatives contracts, shall under no circumstance make use of such information for the purpose of soliciting purchases/sales except at the request and on behalf of the issuer, if any.

### **10.3 Grievance redressal mechanism for investors**

Each Exchange has a process for grievance redressal. The general features of these processes are mentioned below.

### **Investor grievance resolution mechanism (against trading members)**

All exchanges have a dedicated department to handle grievances of investors against the Trading Members and Issuers. Generally, these departments operate from all offices of the exchange so as to provide easy access to investors. All exchanges also have supervision mechanisms for the functioning of this department/ cell. These include the Investor Service Committees (ISC) consisting of Exchange officials and independent experts whose nomination is approved by Securities and Exchange Board of India. SEBI also monitors exchange performance related to investor grievance redressal.

#### **Process**

##### Receipt of Complaints

The investor is required to submit his complaint in the prescribed complaint form against the trading member providing the details as specified in the instructions annexed to the complaint registration form along with supporting documents substantiating his claim.

On receipt of the complaint, exchanges scrutinize the nature of complaint and adequacy of documents submitted along with the complaint. If all the relevant documents are submitted, the complaint is recorded, a complaint number is assigned and an acknowledgement towards receipt of complaint is sent to the investor. If the documents are inadequate, the investor is advised to set right the deficiencies in the documents.

##### Redressal of Complaints

Generally, exchanges initially try to resolve the complaint by following up with the member and the complainant. The issues raised by the complainant are analyzed and the complaint is taken up the concerned trading member for resolution / response within the set timeframe. Subsequently, the response received from the trading member is reviewed.

- If the Trading Member has agreed with the contents of the complaint, he is advised to settle the matter immediately and confirm
- If the Trading Member states that he has already settled the complaint, proof of settlement is solicited and cross confirmation is obtained from the investor
- If the Trading Member raises issues from his side, the comments are analyzed and forwarded to the investor for his views and comments. If differences persist the Exchange holds meeting with the parties at the Exchange premises for expeditious resolution of the complaints. In case differences still persist the investor is informed that he may opt for Arbitration proceedings.
- If the Trading Member has justifiable reasons for his actions which are within the regulatory framework, the investor is enlightened on the correct position on the matter.

#### **Nature of complaints**

Exchanges provide assistance if the complaints fall within the purview of the Exchange and are related to trades that are executed on the Exchange Platform. These may be of the following types:

- Non-Receipt of Corporate Benefit (Dividend/Interest/Bonus etc.)
- Complaints against trading members on account of the following:
  - Non-receipt of funds / securities
  - Non- receipt of documents such as member client agreement, contract notes, settlement of accounts, order trade log etc.
  - Non-Receipt of Funds / Securities kept as margin
  - Trades executed without adequate margins
  - Delay /non – receipt of funds
  - Squaring up of positions without consent
  - Unauthorized transaction in the account
  - Excess Brokerage charged by Trading Member
  - Unauthorized transfer of funds from commodities account to other accounts etc.
- Complaints in cases where the member has surrendered his membership and the complainant has approached the Exchange before expiry of the time mentioned in the public notice

**Exchanges may not take up the following types of complaints**

- a. Complaints in respect of transactions which are already subject matter of Arbitration proceedings,
- b. Complaints involving payment of funds and transfer of securities to entities other than Trading Member,
- c. Claims for mental agony/harassment and expenses incurred for pursuing the matter with the ISC,
- d. Claims for notional loss, opportunity loss for the disputed period or trade,
- e. Complaints pertaining to trades not executed on the Exchange by the complainant,
- f. Claims of authorized persons for private commercial dealings with the trading member,
- g. Claims relating to transactions which are in the nature of loan or financing which are not within the framework defined by the Exchange.

**Arbitration**

SEBI has instructed the exchange to have arbitration committees so that differences, disputes and claims between trading members and investors can be settled effectively and in a short time.

Arbitration is a quasi-judicial process of settlement of disputes between Trading Members, Investors, Clearing Members and also between Investors and Issuers (Listed



Companies). Generally, the application for arbitration has to be filed at the Regional Arbitration Centers (RACs), established by the exchanges, within three years from the date of dispute. Arbitration is governed by Bye-laws, Regulations and Circulars issued by stock exchanges and SEBI.

The parties to arbitration are required to select the arbitrator from the panel of arbitrators provided by the Exchange. The arbitrator conducts the arbitration proceeding and passes the award normally within a period of four months from the date of initial hearing.

The arbitration award is binding on both the parties. However, the aggrieved party, within thirty days of the receipt of the award from the arbitrator, can file an appeal to the arbitration tribunal for re-hearing the whole case. On receipt of the appeal, the Exchange appoints an Appellate Bench consisting of three arbitrators who re-hear the case and then give the decision. The judgment of the Bench is by a 'majority' and is binding on both the parties. The final award of the Bench is enforceable as if it were the decree of the Court.

Any party who is dissatisfied with the Appellate Bench Award may challenge the same only in a Court of Law.

#### **SEBI Complaints Redress System (SCORES) [<http://scores.gov.in>]**

SEBI's web based complaints redressal system is called SCORES (Sebi COmplaints REDress System). SCORES is a centralized grievance management system with tracking mechanism to know the latest updates and time taken for resolution. Each complaint will have a unique reference number, which will help customers keep a track and follow up the resolution. It was introduced on June 8, 2011 to facilitate redressal of investor grievances in a speedy manner. The salient features of SCORES are:

- (i) Centralised database of investor complaints
- (ii) Online movement of complaints to the concerned listed company or SEBI registered intermediary
- (iii) Online upload of Action Taken Reports (ATRs) by the concerned listed company or SEBI registered intermediary
- (iv) Online viewing by investors of actions taken on the complaint and its current status

All complaints are lodged electronically at: <https://scores.gov.in>

Investors may contact the Investor Associations (IAs) recognized by SEBI for any assistance in filing complaints on SCORES. The lists of Investor Associations are available on SEBI website ([www.sebi.gov.in](http://www.sebi.gov.in)). Investors may also seek assistance in filing complaints on SCORES from SEBI's toll free helpline number 1800 266 7575 or 1800 22 7575.

The companies are required to view the pending complaints and take action and provide resolution along with necessary documents (can be uploaded online). If the company fails to provide resolution within specific turn-around time, it will be treated as non-

redressal or non-compliance in the SCORES system and the regulator will keep a track of such instances.

## **Process**

### **Receipt of Complaints**

The investor is required to submit his complaint in the prescribed complaint form against the trading member providing the details as specified in the instructions annexed to the complaint registration form along with supporting documents substantiating his claim.

On receipt of the complaint, the nature of complaint and adequacy of documents submitted along with the complaint would be scrutinized and if all the relevant documents are submitted, the complaint is recorded, a complaint number is assigned and an acknowledgement towards receipt of complaint is sent to the investor. If the documents are inadequate, the investor is advised to set right the deficiencies in the documents.

### **Redressal of Complaints**

Generally, exchanges initially try to resolve the complaint by following up with the member and the complainant. The issues raised by the complainant are analyzed and the complaint is taken up to the concerned trading member for resolution / response within the set timeframe. Subsequently, the response received from the trading member is reviewed.

- If the Trading Member has agreed with the contents of the complaint, he is advised to settle the matter immediately and confirm.
- If the Trading Member states that he has already settled the complaint, proof of settlement is solicited and cross confirmation is obtained from the investor.
- If the Trading Member raises issues from his side, the comments are analyzed and forwarded to the investor for his views and comments. If differences persist the Exchange holds meeting with the parties at the Exchange premises for expeditious resolution of the complaints. In case differences still persist the investor is informed that he may opt for Arbitration proceedings.
- If the Trading Member has justifiable reasons for his actions which are within the regulatory framework, the investor is informed on the correct position on the matter.

### **Nature of Complaints**

Exchanges provide assistance if the complaints fall within the purview of the Exchange and are related to trades that are executed on the Exchange Platform such as:

#### **Complaints against Exchange Members:**

- Non-issuance of the documents by the Trading Member
- Non-receipt of funds / securities

- Non-receipt of margin / security deposit given to the Trading Member (TM)
- Non-receipt of corporate benefits (dividend, interest, bonus, etc.)
- Auction value / close out value received or paid
- Execution of trades without consent
- Excess brokerage charged by Trading Member
- Non-receipt of credit balance as per the statement of account
- Non-receipt of funds / securities kept as margin

**Complaints against Listed Companies:**

- Regarding non-receipt of allotment advice, securities allotted, refund order
- Interest on delay in redemption / refund amount
- Sale proceeds of fractional entitlement
- Composite Application Form (CAF) for Rights offer
- Securities purchased through a Rights offer
- Letter of offer for buyback
- Regarding non-receipt of dividend, interest, bonus shares, stock split shares, etc.
- Regarding non-receipt of securities after dematerialization, after transfer / transmission.

SEBI mandates that all listed companies are required to view the complaints pending against them and submit ATRs along with supporting documents electronically in SCORES. Failure on the part of the company to update the ATR in SCORES will be treated as non-redressal of investor complaints by the company. SEBI also mandates that companies desirous of getting their equity shares listed on the stock exchanges should also obtain authentication on SCORES, before Listing Approval is granted by stock exchanges.

Investors, who wish to lodge a complaint on SCORES, have to register themselves on [www.scores.gov.in](http://www.scores.gov.in). While filing the registration form, mandatory details like name of the investor, address, e-mail id, PAN and Contact details/mobile number needs to be furnished. Upon successful registration, a unique user id and a password will be communicated to the investor through an acknowledgement email. Using the login credentials, the investor can lodge his/her complaint on SCORES. The complainant may use SCORES to submit the grievance directly to companies / intermediaries and the complaint shall be forwarded to the entity for resolution. The entity is required to redress the grievance within 30 days, failing which the complaint will be routed to SEBI directly and a new SCORES registration number for the complaint will be generated. When complaints come to SEBI, it forwards the complaint to the concerned entity with an advice to send a written reply to the investor and file an action taken report (ATR) in SCORES.

If a complaint in SCORES is disposed-off and the investor is not satisfied with the closure of the complaint, the investor needs to mandatorily provide the reasons for his/ her

dissatisfaction with the redressal within a period of 15 days from the closure of the complaint. The said complaint then shall be escalated to the appropriate Supervising Officer in SEBI.

The detailed process of registering into SCORES and filing complaints into the system can be accessed from: [https://www.sebi.gov.in/sebi\\_data/faqfiles/apr-2019/1556089488014.pdf](https://www.sebi.gov.in/sebi_data/faqfiles/apr-2019/1556089488014.pdf).

## **Appendix A: Safeguards for Investors**

Investors must understand the process that is required to be followed while transacting on exchanges. Investors must also be aware of their rights vis-à-vis trading members. The following section contains some of these processes that must be understood before trading in the securities market.

### **1. Selecting a Broker**

Investors must deal only with a SEBI registered Broker after due diligence. Details of the registered brokers can be obtained from the Exchange websites.

### **2. Entering into an Agreement with the Trading member (broker)**

Investors must:

- Fill in a Client registration form with the Broker
- Enter into Broker - Client Agreement. This agreement is mandatory for all investors for registering as a client of a Trading Member.

Ensure the following before entering into an agreement:

- Carefully read and understand the terms and conditions of the agreement before executing the same on a valid stamp paper of the requisite value.
- Agreement must be signed on all the pages by the Client and the Member or their representative who has the authority to sign the agreement. Agreement has also to be signed by the witnesses by giving their names and addresses.
- Investors must note that Regulatory Authorities have not stipulated for execution of any document other than Broker-Client Agreement.

### **3. Transacting**

Investors must:

- Specify to the Broker, the exchange through which the trade is to be executed and maintain separate account for each exchange.
- Obtain a valid Contract Note from the Broker within 24 hours of the execution of the trade.
- Contract note is a confirmation of trade(s) done on a particular day for and on behalf of a client in the prescribed format. It establishes a legally enforceable relationship between the Trading Member and his Client in respect of settlement of trades executed on the exchange as stated in the Contract Note. Contract Notes are made in duplicate, and the Trading Member and Client, both are provided one copy each. The Client is expected to sign on the duplicate copy of the Contract Note, confirming receipt of the original. The following are the prescribed types of contract notes:
  - Contract Note - Form 'A' - Contract Note issued where Member is acting for constituents as brokers/ agents.

- Contract Note - Form 'B' - Contract Note issued by Members dealing with constituents as principals.
- Ensure that the Contract Note:
  - Contains SEBI registration number of the Trading Member.
  - Contains details of trade such as, Order number, trade number, trade time, quantity, price, brokerage, settlement number, and details of other levies.
  - Shows trade price separately from the brokerage charged.
  - Shows brokerage within SEBI stipulated limits.
  - The brokerage, service tax and STT are indicated separately in the Contract Note.
  - Contains signature of authorized representative of the broker.
  - Contains arbitration clause stating jurisdiction of relevant courts.

#### **4. Settlement**

Investors must:

- Ensure delivery of securities/ payment of money to the broker immediately upon getting the Contract Note for sale / purchase but in any case, before the prescribed pay-in-day.
- Give the Depository Participant (DP), 'Delivery out' instructions to transfer the same from the beneficiary account to the pool account of broker through whom shares and securities have been sold, so as to deliver securities from 'demat' account.

The instructions must contain: details of the pool a/c of broker to which the shares are to be transferred, details of security, quantity etc.

As per the requirement of depositories the 'Delivery out' Instruction should be given at least 48 hours prior to the cut-off time for the prescribed securities 'pay-in'.

- Give the Depository Participant (DP) 'Delivery in' instructions to accept shares in beneficiary account from the pool account of broker through whom shares have been purchased, so as to receive shares in the demat account.
- Ensure that the members pay the money or securities to the investor within 24 hours of the payout.

#### **General Do's and Don'ts for Investors**

Investors must follow some Do's and Don'ts while transacting in the securities market. Given below are some general Do's and Don'ts for investors:

##### **Do's**

Investors must:

- Always deal with the market intermediaries registered with SEBI / stock exchanges.

- Carry out due diligence before registering as client with any intermediary. Carefully read and understand the contents stated in the Risk Disclosure Document, which forms part of the investor registration requirement for dealing through brokers.
- Collect photocopies of all documents executed for registration as a client, immediately on its execution.
- Ensure that the documents or forms for registration as Client are fully filled in.
- Give clear and unambiguous instructions to their broker / agent / depository participant.
- Always insist on contract notes from their brokers. In case of doubt in respect of the transactions, verify the genuineness of the same from the exchange.
- Always settle the dues through the normal banking channels with the market intermediaries.
- Adopt trading / investment strategies commensurate with their risk-bearing capacity as all investments carry some risk, the degree of which varies according to the investment strategy adopted.
- Be cautious about securities which show a sudden spurt in price or trading activity, especially low price stocks.
- Remember that there are no guaranteed returns on investment in the stock market.
- Read the terms and conditions and understand the risk factors associated with the commodity market investment
- Always keep copies of all investment documentation (e.g. application forms, acknowledgements slips, contract notes).
- Send important documents by a reliable mode (preferably through registered post) to ensure delivery.
- Ensure that they have money and will be able to pay, before you buy.
- Ensure that they hold securities and will be able to deliver, before they sell.
- Follow up diligently and promptly e.g. If the required documentation is not received within a reasonable time, investors must contact the concerned person at the Trading Member immediately.

### **Don'ts**

Investors must not:

- Deal with unregistered brokers, or other unregistered intermediaries.
- Execute any documents with any intermediary without fully understanding its terms and conditions.

- Leave the custody of their Demat Transaction slip book in the hands of any intermediary.
- Make any payments in cash
- Accept unsigned/ duplicate or incomplete contract notes
- Deal based on rumors or 'tips'.
- Get swayed by promises of high returns.
- Fall prey to promises of guaranteed returns.
- Get misled by guarantees of repayment of their investments through post-dated cheques.
- Get carried away by luring advertisements of any nature in print and electronic media.
- Blindly follow media reports on corporate developments, as some of these could be misleading.
- Blindly imitate investment decisions of others who may have profited from their investment decisions.
- Forgo obtaining all documents of transactions, in good faith even from people whom they 'know'.
- Delay approaching concerned authorities in case of a dispute. Written complaints must be filed with the Exchange as soon as possible.



## Appendix B: Combination strategies

In section 7.9.1, we learnt about vanilla options and when they can be used. In the section below, we will learn about combination strategies which are more suitable when market view is moderately bullish/ bearish, range bound or uncertain and the transaction objective is to also reduce the overall payout of options premium.

Combination strategies mean use of multiple options with same or different strikes and maturities. Numerous strategies can be worked out depending on the view on the market, risk appetite and objective. In this section, we will discuss some of the common combination strategies for following market views:

- Moderately bullish or bearish
- Range bound
- Break out on either side

A section of combination strategy is also devoted to understand strategies which can be used to protect or increase the returns from existing position in cash/ futures market. We have used numerical examples and pay off charts to explain these strategies. The following assumption on option premiums have been used in working these examples.

### Assumptions:

	Spot	Strike 1	Strike 2	Strike 3
Level	64.5	64.5	64	65
Call option-moneyness	-	ATM	ITM	OTM
Premium - Call		0.75	1.1	0.6
Put option-moneyness	-	ATM	OTM	ITM
Premium - Put		0.7	0.5	1

### A. View: Moderately bullish or bearish

#### A.1 Bull call spread

View: Assume current USDINR spot is 64.5 and you have a view that in three months it should trade around 66 i.e., you have a moderately bullish view on USD.

Objective: You want to participate in the profits that would accrue if the view turns correct and are also keen to reduce the cost of executing this view. To reduce the cost, you are okay to let go of any profit that may accrue to you beyond 65. In other words, you do not mind if your potential profits are capped to reduce the cost. At the same time, you want to know how much the maximum loss could be if view turns wrong.

Option strategy: You could buy an ATM or ITM call option for three months and pay premium for it. To reduce the cash payout resulting from option buying, you could also sell an OTM call option for same maturity and partly offset the cost of buying option by the premium received from selling a call option. The net cost would be related to the

distance between the strike prices. Larger the spread between the two strike prices, the higher will be the net cost, and vice versa. In all cases, both profit and loss are limited.

Example: You buy an ATM call at strike of 64.5 and pay a premium of 0.75 INR (leg A of transaction). To reduce the cost of buying ATM call, you also sell an OTM call with strike of 65 and receive a premium of 0.6 INR (leg B of transaction). This means that total cash outlay on account of premium is reduced from 0.75 to 0.15. In this combined strategy, leg A gets exercised and start resulting in profit when USD strengthens beyond 64.5 and leg B gets exercised and start resulting in losses beyond 65. Therefore the maximum net profit happens at 65 and is equal to 0.35. For any movement below 64.5, none of the legs get exercised and the losses are limited to the net premium paid which in this case is 0.15. Please note that exercise of leg B means that other party would buy USD from you at 65 when market is higher than 65 and you start making loss on leg B. However the premium received on leg B reduces the loss to the extent of premium received. For price move above 65, both options are in-the-money and the profit is limited to 0.35. The following is summary of bullish call spread.

- Maximum loss: Net premium paid. Maximum loss occurs when the spot price is at or below lower strike price
- Maximum profit: (higher strike price - lower strike price) - net premium. Maximum profit occurs when spot price is at or above higher strike price
- Breakeven point: (lower strike price + net premium) above which there will be profit

As a combined strategy, the price level at which the strategy starts resulting in profit (net of premiums) is called breakeven point. In the example given above, the breakeven point is 64.65. Please refer to the detailed pay off table and pay off chart at the end of this section for this strategy.

## **A.2 Bull put spread**

Another way to design the strategy is to use put option instead of call option. You could sell an ATM put to generate premium and reduce the risk by buying a farther OTM put (with lower strike price as compared to strike of long put). The view being that short put will not get exercised as USD is likely to be bullish and if it gets exercised (if view turns wrong) the risk can be reduced because of long put. This strategy is called as bull put spread.

Example: You sell an ATM put at strike of 64.5 and receive a premium of 0.7 INR (leg A of transaction). To reduce the amount of losses that may incur if leg A gets exercised, you also buy an OTM put with strike of 64 and pay a premium of 0.5 INR (leg B of transaction). This means that total cash inflow on account of premium is reduced from 0.7 to 0.2. In this combined strategy, leg A gets exercised when USD weakens below 64.5 and leg B gets exercised when USD weakens below 64. For any movement above 64.5, none of the leg gets exercised and there is a fixed gain of net premium received which in this case would be 0.20. Please note that exercise of leg A means that other party would sell USD to you at 64.5 when market is lower than 64.5 and you start

making loss on this leg. However, the losses are reduced to the extent of premium received and the maximum possible loss is 0.3. The breakeven point comes at 64.3. The summary of bull put spread is as follows:

- Maximum loss: (higher strike price - lower strike price) - net premium. Maximum loss occurs when spot price is at or below lower strike price
- Maximum profit: net premium received. Maximum profit occurs when spot price is at or above higher strike price.
- Breakeven point: (higher strike price - net premium received) below which there will be loss

Please refer to the detailed pay off table and pay off chart at the end of this section for this strategy.

Please note the choice of words in naming this strategy: Bull refers to the view being bullish on USDINR; spread word is generally used when same type of options/futures are used but which are contrasting and have different strike price or have different maturity. In case call option used, this strategy is called as bull call spread and if put is used it is called as bull put spread.

### **A.3 Bear put spread:**

This strategy has to be used when view is moderately bearish and transaction objective is same as above: reduce the option premium pay out by letting go off the profit beyond a price level when view turns correct and to fix the losses when view turns wrong

Option design: The option design in moderately bearish view will be reverse of option design for moderately bullish view. You could buy an ATM or ITM put and reduce the payout of option premium by selling an OTM put for same maturity. This design is called Bear put spread.

Example: You buy an ATM put at strike of 64.5 and pay a premium of 0.7 INR (leg A of transaction). To reduce the cost of buying ATM put, you also sell an OTM put with strike of 64 and receive a premium of 0.5 INR (leg B of transaction). This means that total cash outlay on account of premium is reduced from 0.7 to 0.20. In this combined strategy, leg A gets exercised and starts resulting in profit when USDINR weakens beyond 64.5 and leg B gets exercised and starts resulting in losses beyond 64. Therefore, maximum profit happens at 64 and is equal to 0.3. For any movement above 64.5, none of the leg gets exercised and the losses are equal to the net premium paid which in this case is 0.20. Please note that exercise of leg B means that other party would sell USD to you at 64 when market is lower than 64 and you start making losses. However, the losses are reduced to the extent of premium received and maximum possible loss is 0.20. The breakeven comes at 64.3. The summary of bear put spread is given below:

- Maximum loss: net premium. Maximum loss occurs when spot price is at or above higher strike price.
- Maximum profit: (Higher strike price - lower strike price) - net premium paid. Maximum profit occurs when spot price is at or below lower strike price.

- Breakeven point: (higher strike price - net premium paid) below which there will be profit

#### **A.4 Bear call spread**

You could also design the strategy by selling an ATM call to generate premium and reduce the risk by buying a farther OTM call. The view being that short call will not get exercised as USD is likely to be bearish against INR and if it gets exercised (if view turns wrong) the risk can be reduced because of long call. This design is called Bear call spread.

Example: You sell an ATM call at strike of 64.5 and receive a premium of 0.75 INR (leg A of transaction). To reduce the losses that may occur if view turns wrong you also buy an OTM call at strike of 65 and pay a premium of 0.6 INR (leg B). This means that total cash inflow on account of premium is reduced from 0.75 to 0.15. In this combined strategy, leg A gets exercised when USD strengthens above 64.5 and leg B gets exercised above 65. For any movement below 64.5, none of the leg gets exercised and the gains are equal to the net premium received which in this case is 0.15. Please note that exercise of leg A means that other party would buy USD from you at 64.5 when market is higher than 64.5 and you start making losses. However, the losses are reduced to the extent of premium received and the maximum loss is 0.35. The breakeven point comes at 64.65. The summary of bear call spread is given below:

- Maximum loss: (Higher strike price - lower strike price) - net premium received. Maximum loss occurs when the spot price is at or above higher strike price.
- Maximum profit: net premium received. Maximum profit occurs when spot price is at or below lower strike price
- Breakeven point: lower strike price + net premium received (above which there will be loss)

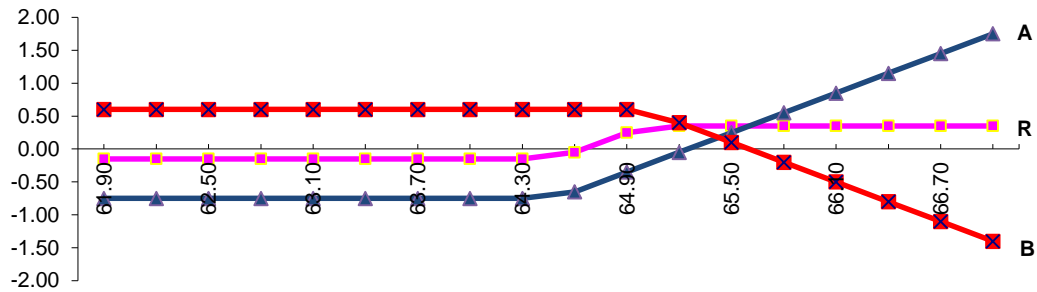
Given below is detailed payoff for example of these strategies and the related payoff chart. Please note the difference in each of the strategy with respect to maximum profit, profit zone and maximum loss.

Payoff Table:

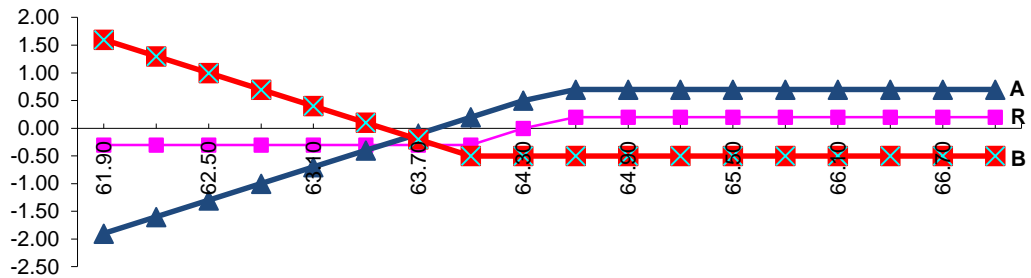
Spot	Bull call spread				Bull put spread				Bear call spread				Bear put spread		
	R:Net return	A:Return - long ATM call (64.5 strike @ 0.75)	B:Return - short OTM call (65 strike @ 0.6)		R:Net return	A:Return - short ATM put (64.5 strike @ 0.7)	B:Return - long OTM put (64 strike @ 0.5)		R:Net return	A:Return - short ATM call (64.5 strike @ 0.75)	B:Return - long OTM call (65 strike @ 0.6)		R:Net return	A:Return - long ATM put (64.5 strike @ 0.7)	B:Return - short OTM put (64 strike @ 0.5)
61.90	-0.15	-0.75	0.60		-0.30	-1.90	1.60		0.15	0.75	-0.60		0.30	1.90	-1.60
62.20	-0.15	-0.75	0.60		-0.30	-1.60	1.30		0.15	0.75	-0.60		0.30	1.60	-1.30
62.50	-0.15	-0.75	0.60		-0.30	-1.30	1.00		0.15	0.75	-0.60		0.30	1.30	-1.00
62.80	-0.15	-0.75	0.60		-0.30	-1.00	0.70		0.15	0.75	-0.60		0.30	1.00	-0.70
63.10	-0.15	-0.75	0.60		-0.30	-0.70	0.40		0.15	0.75	-0.60		0.30	0.70	-0.40
63.40	-0.15	-0.75	0.60		-0.30	-0.40	0.10		0.15	0.75	-0.60		0.30	0.40	-0.10
63.70	-0.15	-0.75	0.60		-0.30	-0.10	-0.20		0.15	0.75	-0.60		0.30	0.10	0.20
64.00	-0.15	-0.75	0.60		-0.30	0.20	-0.50		0.15	0.75	-0.60		0.30	-0.20	0.50
64.30	-0.15	-0.75	0.60		0.00	0.50	-0.50		0.15	0.75	-0.60		0.00	-0.50	0.50
64.60	-0.05	-0.65	0.60		0.20	0.70	-0.50		0.05	0.65	-0.60		-0.20	-0.70	0.50
64.90	0.25	-0.35	0.60		0.20	0.70	-0.50		-0.25	0.35	-0.60		-0.20	-0.70	0.50
65.20	0.35	-0.05	0.40		0.20	0.70	-0.50		-0.35	0.05	-0.40		-0.20	-0.70	0.50
65.50	0.35	0.25	0.10		0.20	0.70	-0.50		-0.35	-0.25	-0.10		-0.20	-0.70	0.50
65.80	0.35	0.55	-0.20		0.20	0.70	-0.50		-0.35	-0.55	0.20		-0.20	-0.70	0.50
66.10	0.35	0.85	-0.50		0.20	0.70	-0.50		-0.35	-0.85	0.50		-0.20	-0.70	0.50
66.40	0.35	1.15	-0.80		0.20	0.70	-0.50		-0.35	-1.15	0.80		-0.20	-0.70	0.50
66.70	0.35	1.45	-1.10		0.20	0.70	-0.50		-0.35	-1.45	1.10		-0.20	-0.70	0.50
67.00	0.35	1.75	-1.40		0.20	0.70	-0.50		-0.35	-1.75	1.40		-0.20	-0.70	0.50

# Payoff Chart:

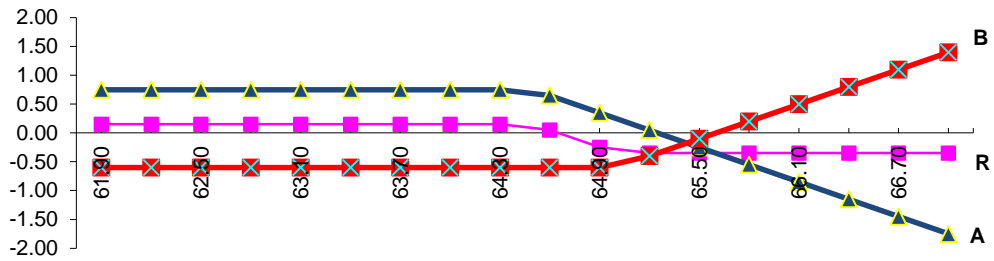
## Bull call spread payoff



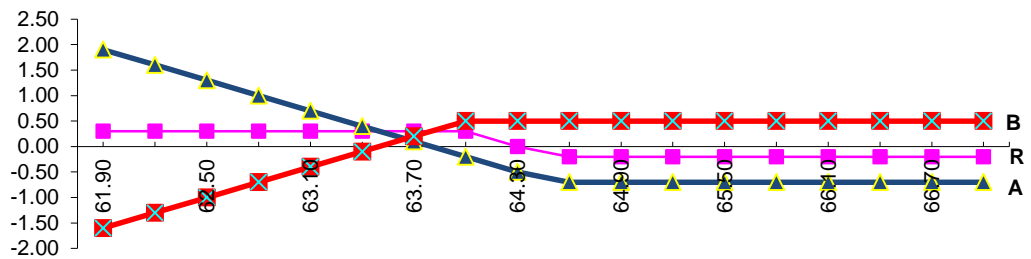
## Bull put spread payoff



## Bear call spread payoff



## Bear put spread payoff



## **B. View: Range bound view on USDINR or a break out view**

Range bound view means that USD /INR value is likely to hover in a range or move sideways and breakout view means that market could strongly break either of bullish side or a bearish side and will not remain range bound.

We will first understand the strategies for a range bound view and later understand the reverse of same strategies for breakout view.

Range bound view: Assume current USDINR spot is 64.5 and there is a strong view is that it is likely to be in range of 64 and 65 and not break this range.

### **B.1 Short Strangle**

Objective: You want to earn a return from the expected range bound market movement and you are comfortable in taking losses if the view turns wrong and market does not remain in the range.

Option composition: You sell one OTM call and one OTM put for same maturity i.e., one month. The premium received from selling the options is your return and the risk starts when market breaks beyond the strike price of any of the sold options. This design of using OTM options is called Strangle. The strike price of the call should be at the upper end of range and the strike of put should be at the lower end of range.

Example: Since you believe that market is likely to be in a range, you sell OTM call at strike of 65 and earn premium of 0.6 and also sell OTM put at strike of 64 and earn premium of 0.5. The strategy results in maximum profit as long as both calls and puts are not exercised and the profit declines as either of the option is exercised. The maximum profit is 1.1 and happens in the range of 64 and 65 and it continues to decline beyond these levels. The return turns zero at 62.9 and 66.1 (also called as breakeven levels) and beyond these it turns into losses.

Please note that in this strategy the profits are capped at 1.1 and losses can be infinite. The summary of short strangle is given below:

- Maximum loss: Could be unlimited if price moves in either direction
- Maximum profit: Summation of two premiums received. Maximum profit occurs when spot price is within strike price
- Breakeven point: (A) (Higher strike price + premium received) above which there will be a loss and (B) (Lower strike price- premium received) below which there will be a loss

Also refer to payoff table and payoff chart given below.

### **B.2 Short Straddle**

You could also achieve the same objective by designing a riskier strategy by selling ATM put and ATM call. This design of using ATM options is called Straddle.

Example: This strategy is relatively conservative than the previous one as the price range in which strategy will remain profitable is wider than the previous one. Here you sell one ATM call at strike of 64.5 and earn premium of 0.75 and also sell an ATM put at strike of 64.5 and earn premium of 0.7. The maximum return is 1.45 and happens at 64.5 and it continues to decline beyond these levels. The returns become zero at 63.05 and 65.95 (also called as breakeven levels) and it turns into negative beyond these levels.

Please note the difference between short strangle and short straddle. In short straddle, the ranges in which returns are positive is narrow as compared to short strangle and the maximum returns are also higher than short strangle. Therefore, short straddle is riskier than short strangle. The summary of short straddle is given below:

- Maximum loss: unlimited if the price moves in either direction.
- Maximum profit: limited to the premiums received. Maximum profit occurs when the spot price is at the strike price.
- Breakeven point: (a) (strike price + premium received) above which there will be loss (b) (strike price - premium received) below which there will be loss.

### **B.3 Long Butterfly**

You could also design a very conservative strategy to execute a range bound market view. Unlike Strangle/ Straddle, in long butterfly strategy the losses are limited and known in advance. Here you buy one ITM call, one OTM call and sell two ATM calls. Please note that strike price of all ITM call and OTM call have to be equidistant from the ATM strike.

Example: You sell 2 ATM calls at strike of 64.5 and earn premium of 0.75 per call and you also buy one ITM call at strike of 64 and pay premium of 1.1 and buy another OTM call at strike of 65 and pay premium of 0.6. The profit zone in this strategy is 64.2 and 64.8 and turns negative beyond these levels. Please note that unlike strangle and straddle, the maximum losses in this strategy are capped at 0.2 and the maximum profit is also relatively lower at 0.3. The summary of long butterfly is given below:

- Maximum loss: limited to the net premium paid
- Maximum profit: limited to: (middle strike price - lowest strike price) - net premium paid. Maximum profit occurs when the spot price is at middle strike price
- Breakeven point: (a) (highest strike price - net premium paid) above which there will be loss (b) (lowest strike price + net premium paid) below which there will be loss

It must be noted that the butterfly strategy is a market-maker's inventory management tool rather than a pure bet on the price. Besides the four commissions involved, profit occurs in a narrow range and to a lower amount, as shown in the table below. Retail investors may stay away from butterfly strategy in betting on price stability.

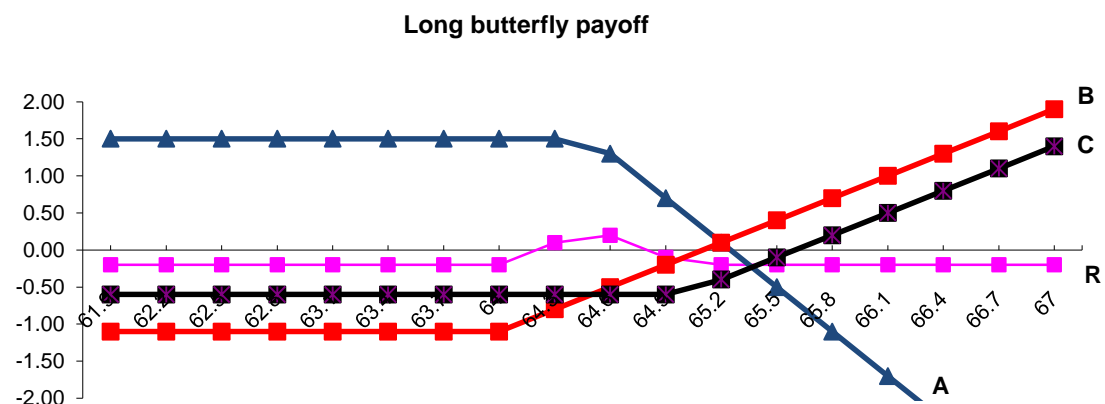
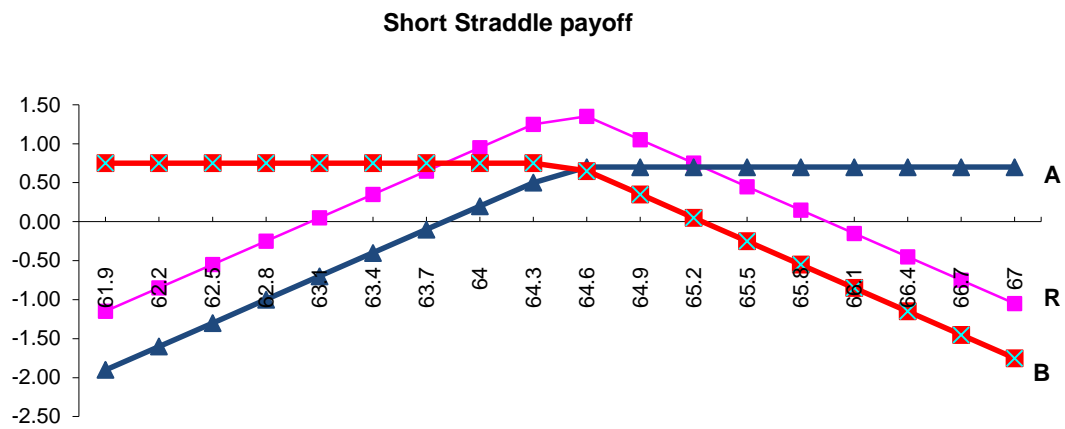
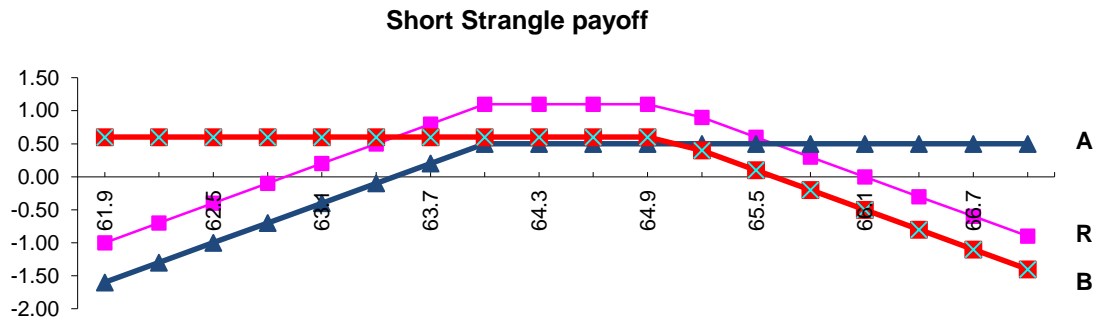
Now we will see a detailed payoff for these strategies and the related pay off chart. Please note the difference in each of the strategy with respect to maximum profit, profit zone and maximum loss.



Payoff table:

Spot	Short Strangle				Short Straddle				Long Butterfly			
	R:Net return	A:Return - short OTM put (64 strike @ 0.5)	B:Return - short OTM call (65 strike @ 0.6)		R:Net return	A:Return - short ATM put (64.5 strike @ 0.7)	B:Return - short ATM call (64.5 strike @ 0.75)		R:Net return	A:Return - short 2 ATM call (64.5 strike @ 0.75)	B:Return - long ITM call (64 strike @ 1.1)	C:Return - long OTM call (65 strike @ 0.6)
61.9	-1.00	-1.60	0.60		-1.15	-1.90	0.75		-0.20	1.50	-1.10	-0.60
62.2	-0.70	-1.30	0.60		-0.85	-1.60	0.75		-0.20	1.50	-1.10	-0.60
62.5	-0.40	-1.00	0.60		-0.55	-1.30	0.75		-0.20	1.50	-1.10	-0.60
62.8	-0.10	-0.70	0.60		-0.25	-1.00	0.75		-0.20	1.50	-1.10	-0.60
63.1	0.20	-0.40	0.60		0.05	-0.70	0.75		-0.20	1.50	-1.10	-0.60
63.4	0.50	-0.10	0.60		0.35	-0.40	0.75		-0.20	1.50	-1.10	-0.60
63.7	0.80	0.20	0.60		0.65	-0.10	0.75		-0.20	1.50	-1.10	-0.60
64.0	1.10	0.50	0.60		0.95	0.20	0.75		-0.20	1.50	-1.10	-0.60
64.3	1.10	0.50	0.60		1.25	0.50	0.75		0.10	1.50	-0.80	-0.60
64.6	1.10	0.50	0.60		1.35	0.70	0.65		0.20	1.30	-0.50	-0.60
64.9	1.10	0.50	0.60		1.05	0.70	0.35		-0.10	0.70	-0.20	-0.60
65.2	0.90	0.50	0.40		0.75	0.70	0.05		-0.20	0.10	0.10	-0.40
65.5	0.60	0.50	0.10		0.45	0.70	-0.25		-0.20	-0.50	0.40	-0.10
65.8	0.30	0.50	-0.20		0.15	0.70	-0.55		-0.20	-1.10	0.70	0.20
66.1	0.00	0.50	-0.50		-0.15	0.70	-0.85		-0.20	-1.70	1.00	0.50
66.4	-0.30	0.50	-0.80		-0.45	0.70	-1.15		-0.20	-2.30	1.30	0.80
66.7	-0.60	0.50	-1.10		-0.75	0.70	-1.45		-0.20	-2.90	1.60	1.10
67.0	-0.90	0.50	-1.40		-1.05	0.70	-1.75		-0.20	-3.50	1.90	1.40

Payoff Chart:



### C. View: Break out view of USDINR

A break out view is opposite of range bound view. In this view, a bought option offers best reward and since direction of breakout is not clear it is suggested to buy both call and put. The design of these strategies is reverse of strategies used in range bound market view. In the examples given below, we have assumed a view that market is going to break the range of 64 – 65.

Let us understand three popular strategies to be used in break out view.

**C.1 Long Strangle:** You buy one OTM call and one OTM put for same maturity. The premium paid from buying these options is your cost and the return starts when market break beyond the strike price of any of the bought options.

Example: You buy OTM put at strike of 64 and pay premium of 0.5 and also buy OTM call at strike of 65 and pay premium of 0.6. The maximum loss is if the market remains in the range of 64 to 65 and the losses are capped at summation of premium paid i.e., 1.1. For any movement, beyond 64 or 65, the losses continue to decline and the strategy turns profitable at 62.9 and 66.1 (also called as breakeven levels).

**C.2 Long Straddle:** In this design instead of OTM strike, you chose ATM strike for buying both call and put options.

Example: You buy ATM put at strike of 64.5 and pay premium of 0.7 and also buy ATM call at strike of 64.5 and pay premium of 0.75. The maximum loss occurs when the market remains at 64.5 and none of the option is exercised. The maximum losses are capped at summation of premium paid i.e., 1.45. For any movement, beyond 64.5, the losses continue to decline and the strategy turns profitable at 63.05 and 65.95 (also called as breakeven levels).

**C.3 Short butterfly:** You could also design a very conservative strategy to execute a breakout market view. Unlike Strangle/ Straddle, in this strategy the profits are limited and are known in advance. In this strategy, you sell one ITM call, one OTM call and buy two ATM calls. Please note that strike price of all ITM call and OTM call have to be equidistant from the ATM strike.

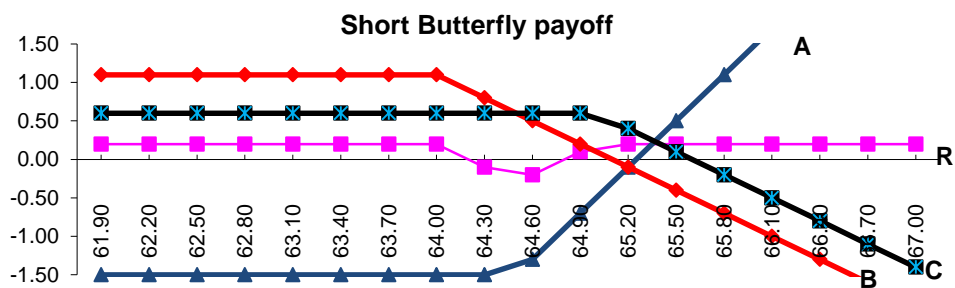
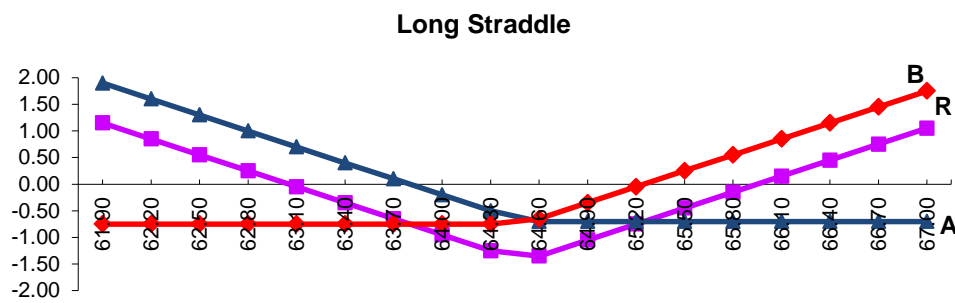
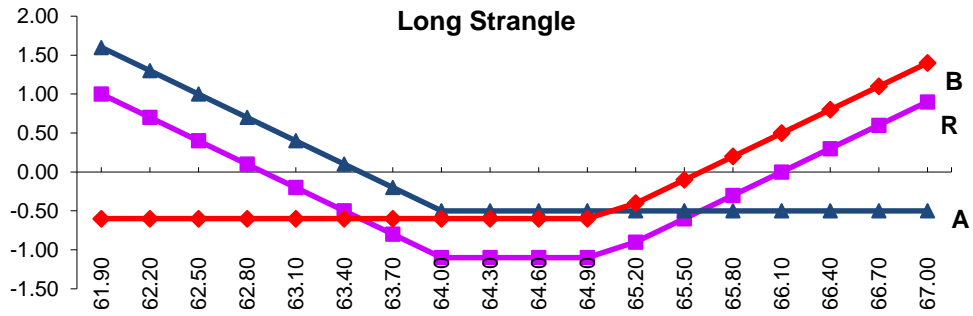
Example: You sell ITM call at strike of 64 and receive premium of 1.1, you sell another OTM call at strike of 65 and receive premium of 0.6 and you buy two ATM calls at strike of 64.5 and pay premium of 0.75. The payoff of strategy is negative in the range of 64.2 and 64.8 and beyond this range it turns positive and remains flat irrespective of extent of market movement.

Given below are detailed payoffs for examples discussed above and the related payoff charts. Please note the difference in each of the strategy with respect to maximum profit, profit zone and maximum loss.

Payoff table:

Long Strangle				Long Straddle				Short Butterfly			
Spot	R:Net return	A:Return - long OTM put (64 strike @ 0.5)	B:Return - long OTM call (65 strike @ 0.6)	R:Net return	A:Return - long ATM put (64.5 strike @ 0.7)	B:Return - long ATM call (64.5 strike @ 0.75)		R:Net return	A:Return - long 2 ATM call (64.5 strike @ 0.75)	B:Return - short ITM call (64 strike @ 1.1)	C:Return - short OTM call (65 strike @ 0.6)
61.90	1.00	1.60	-0.60	1.15	1.90	-0.75		0.20	-1.50	1.10	0.6
62.20	0.70	1.30	-0.60	0.85	1.60	-0.75		0.20	-1.50	1.10	0.6
62.50	0.40	1.00	-0.60	0.55	1.30	-0.75		0.20	-1.50	1.10	0.6
62.80	0.10	0.70	-0.60	0.25	1.00	-0.75		0.20	-1.50	1.10	0.6
63.10	-0.20	0.40	-0.60	-0.05	0.70	-0.75		0.20	-1.50	1.10	0.6
63.40	-0.50	0.10	-0.60	-0.35	0.40	-0.75		0.20	-1.50	1.10	0.6
63.70	-0.80	-0.20	-0.60	-0.65	0.10	-0.75		0.20	-1.50	1.10	0.6
64.00	-1.10	-0.50	-0.60	-0.95	-0.20	-0.75		0.20	-1.50	1.10	0.6
64.30	-1.10	-0.50	-0.60	-1.25	-0.50	-0.75		-0.10	-1.50	0.80	0.6
64.60	-1.10	-0.50	-0.60	-1.35	-0.70	-0.65		-0.20	-1.30	0.50	0.6
64.90	-1.10	-0.50	-0.60	-1.05	-0.70	-0.35		0.10	-0.70	0.20	0.6
65.20	-0.90	-0.50	-0.40	-0.75	-0.70	-0.05		0.20	-0.10	-0.10	0.4
65.50	-0.60	-0.50	-0.10	-0.45	-0.70	0.25		0.20	0.50	-0.40	0.1
65.80	-0.30	-0.50	0.20	-0.15	-0.70	0.55		0.20	1.10	-0.70	-0.2
66.10	0.00	-0.50	0.50	0.15	-0.70	0.85		0.20	1.70	-1.00	-0.5
66.40	0.30	-0.50	0.80	0.45	-0.70	1.15		0.20	2.30	-1.30	-0.8
66.70	0.60	-0.50	1.10	0.75	-0.70	1.45		0.20	2.90	-1.60	-1.1
67.00	0.90	-0.50	1.40	1.05	-0.70	1.75		0.20	3.50	-1.90	-1.4

## Payoff Charts:



## **D. Strategies complimenting existing position in futures market**

These strategies are used to protect the returns from existing position in currency futures, reduce losses on it or enhance the returns on it.

### **D.1 Covered call**

**View / objective:** Assume you already have a long position on USDINR futures and you are interested in reducing the potential losses on it if market weakens. While you seek to reduce losses, you are not keen for any cash payout to achieve the objective.

**Option design:** You short OTM USDINR call option with same maturity as that of futures contract. This strategy of having an existing long position in currency and a complementing short call position is called covered call. In this strategy the long position provides “cover” to the short call i.e., in case the call gets exercised, you could use the long position to deliver the currency to settle the claim on short call. Hence the name covered call.

**Payoff:** In case USDINR weakens, the futures position will result in losses and the short call position will not get exercised. The premium generated from short call can offset part of the losses from long futures position. On the otherhand, if USDINR strengthens, long currency futures position will turn profitable and short call position may get exercised and therefore offsetting part of the profits.

**Example:** You already have a long futures position in USDINR at 64.5 and you are keen to reduce losses on this position if USDINR weakens beyond 64.5 i.e., goes below 64.5. As stated above, you are not keen to pay any upfront cash to buy protection and therefore you go short call at strike of 65 and also receive premium of 0.6. If USDINR weakens below 64.5, the futures position result in loss and the losses are partly offset by the premium received on short call. At the same time, when USDINR strengthens above 64.5 and stays below 65, there is profit in long futures position and you also earn premium on short call which is not exercised. Therefore, the combined returns are higher than standalone long futures. And if USDINR strengthens above 65, the call gets exercised and partly offsets the profit on long futures position. Similarly, an exporter with USD receivables can reduce risk by writing a call option.

### **D.2 Covered put**

Like covered call, you could also short a put on the back of an existing short currency futures position. This combination is called covered put.

**Example:** You already have a short futures position in USDINR at 64.5 and you are keen to reduce losses on this position if USDINR strengthens beyond 64.5 i.e., goes above 64.5. As stated above, you are not keen to pay any upfront cash to buy protection and therefore you go short put at strike of 64 and also receive premium of 0.5. If USDINR strengthens above 64.5, the futures position results in loss and the losses are partly offset by the premium received on short put. At the same time, when USDINR weakens below 64.5 and stays above 64, there is profit in short futures position and you also earn premium on short put which is not exercised. Therefore, the combined returns are

higher than standalone short futures. And if USDINR weakens below 64, the put gets exercised and partly offsets the profit on short futures position.

### D.3 Protective call

**View / objective:** Assume you already have a short position on USDINR futures and you are interested in reducing the potential losses on it, if market strengthens. While you seek to reduce losses, you are okay to pay also to achieve the objective.

**Option design:** You buy OTM USDINR call option with same maturity as that of futures contract. This strategy of having an existing short position in currency and a long call position is called protective call.

**Payoff:** In case USDINR strengthens, the futures position will result in losses and the long call position will get exercised. The pay off from long call will partly offset the losses from short futures position. On the otherhand if USDINR weakens, short currency futures position will turn profitable and long call position may not get exercised and therefore the premium loss on long call will offset part of the profits.

**Example:** You already have a short futures position in USDINR at 64.5 and you are keen to reduce losses on this position if USDINR strengthens beyond 64.5 i.e., goes above 64.5. As stated above, you are okay to pay upfront cash to buy protection. You go long call at strike of 65 and pay premium of 0.6. If USDINR strengthens above 65, the futures position result in loss and the losses are partly offset by gain in long call. At the same time, when USDINR weakens below 64.5 there is profit in short futures position but it is partly offset by the premium paid on long call. Therefore, the losses in combined strategy are lower than standalone short futures. Please note that in price range of 64.5-65, the losses in combined strategy are higher than the standalone short futures.

### D.4 Protective put

Like protective call, you could also have long put on the back of an existing long currency futures position. This combination is called protective put.

**Example:** You already have a long futures position in USDINR at 64.5 and you are keen to reduce losses on this position if USDINR weakens below 64.5. As stated above, you are okay to pay upfront cash to buy protection. You go long put at strike of 64 and pay premium of 0.5. If USDINR weakens below 64, the futures position results in loss and the losses are partly offset by gain in long put. At the same time, when USDINR strengthens above 64.5 there is profit in long futures position but it is partly offset by the premium paid on long put. Therefore, the losses in combined strategy are lower than standalone short futures. Please note that in price range of 64 – 64.5, the losses in combined strategy are higher than the standalone long futures.

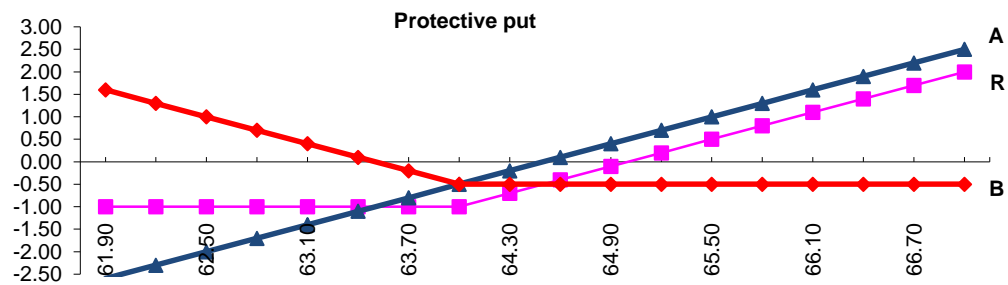
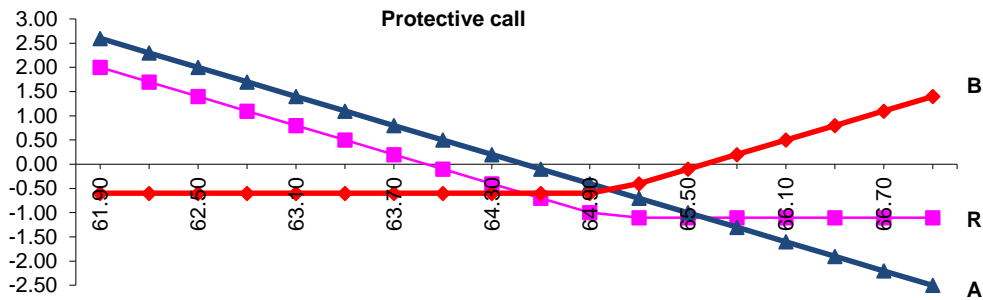
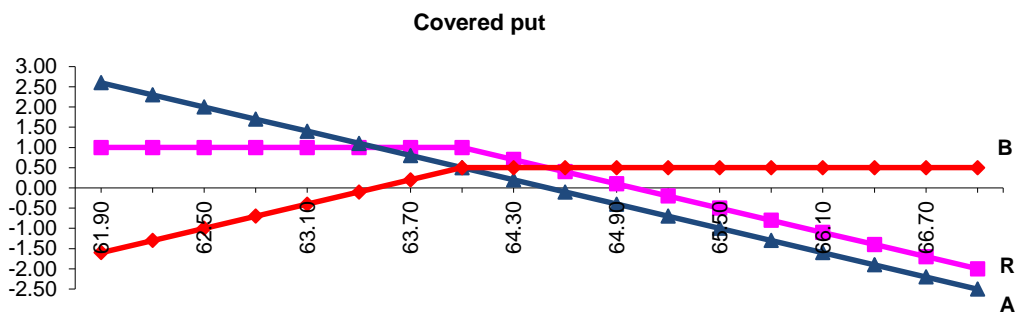
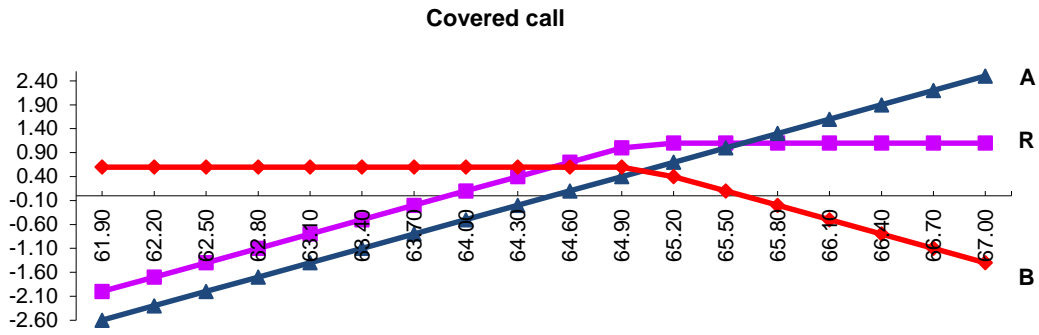
Given below is detailed payoff for example of these strategies and the related pay of chart. Please note the difference in each of the strategy with respect to maximum profit, profit zone and maximum loss.

Pay off table:

Spot	Covered call				Covered put				Protective call				Protective put		
	R: Net return	A: Long futures @ 64.5	B: Short call (65 strike @ 0.6)		R: Net return	A: Short futures @ 64.5	B: Short put (64 strike @ 0.5)		R: Net return	A: Short futures @ 64.5	B: Long call (65 strike @ 0.6)		R: Net return	A: Long futures @ 64.5	B: Long put (64 strike @ 0.5)
61.90	-2.00	-2.60	0.60		1.00	2.60	-1.60		2.00	2.60	-0.60		-1.00	-2.60	1.60
62.20	-1.70	-2.30	0.60		1.00	2.30	-1.30		1.70	2.30	-0.60		-1.00	-2.30	1.30
62.50	-1.40	-2.00	0.60		1.00	2.00	-1.00		1.40	2.00	-0.60		-1.00	-2.00	1.00
62.80	-1.10	-1.70	0.60		1.00	1.70	-0.70		1.10	1.70	-0.60		-1.00	-1.70	0.70
63.10	-0.80	-1.40	0.60		1.00	1.40	-0.40		0.80	1.40	-0.60		-1.00	-1.40	0.40
63.40	-0.50	-1.10	0.60		1.00	1.10	-0.10		0.50	1.10	-0.60		-1.00	-1.10	0.10
63.70	-0.20	-0.80	0.60		1.00	0.80	0.20		0.20	0.80	-0.60		-1.00	-0.80	-0.20
64.00	0.10	-0.50	0.60		1.00	0.50	0.50		-0.10	0.50	-0.60		-1.00	-0.50	-0.50
64.30	0.40	-0.20	0.60		0.70	0.20	0.50		-0.40	0.20	-0.60		-0.70	-0.20	-0.50
64.60	0.70	0.10	0.60		0.40	-0.10	0.50		-0.70	-0.10	-0.60		-0.40	0.10	-0.50
64.90	1.00	0.40	0.60		0.10	-0.40	0.50		-1.00	-0.40	-0.60		-0.10	0.40	-0.50
65.20	1.10	0.70	0.40		-0.20	-0.70	0.50		-1.10	-0.70	-0.40		0.20	0.70	-0.50
65.50	1.10	1.00	0.10		-0.50	-1.00	0.50		-1.10	-1.00	-0.10		0.50	1.00	-0.50
65.80	1.10	1.30	-0.20		-0.80	-1.30	0.50		-1.10	-1.30	0.20		0.80	1.30	-0.50
66.10	1.10	1.60	-0.50		-1.10	-1.60	0.50		-1.10	-1.60	0.50		1.10	1.60	-0.50
66.40	1.10	1.90	-0.80		-1.40	-1.90	0.50		-1.10	-1.90	0.80		1.40	1.90	-0.50
66.70	1.10	2.20	-1.10		-1.70	-2.20	0.50		-1.10	-2.20	1.10		1.70	2.20	-0.50
67.00	1.10	2.50	-1.40		-2.00	-2.50	0.50		-1.10	-2.50	1.40		2.00	2.50	-0.50



Payoff charts:



## Appendix C: Cases of Combination Strategies

**Case 1:** The company chooses to opt for option over futures. It asks its finance team to find out the cost of buying vanilla put option. Finance team reverts back with a cost estimate of 3% for a strike price equal to that of 3 months futures price. Company analyses the option cost and comes to a conclusion that buying vanilla option would certainly lower the revenue estimate by 3%. Senior management decides that it is comfortable in giving up part of the upside, if any, from any favorable currency movement if the cost is lowered. What kind of option strategy could finance team present to its senior management?

Finance team could suggest a strategy where in company can buy an ATM or ITM put and reduce its cost by selling an OTM call. The strike price of these options would depend on premiums and the management decision on how much cost they are comfortable with and after what price level they are comfortable to let go off of any favorable currency price movement.

**Case 2:** Assume there is an importer of edible oil in the country. The company believes that because of increasing fiscal deficit in the country, reducing portfolio inflows and political uncertainty there is high probability of USD strengthening from current level of 65 to 66 in three months. However, there is silver lining in Chinese Yuan strengthening and resulting in strengthening of INR also (which is same as weakening of USD). Therefore, company is moderately bullish on USD. In such scenario, company decides to hedge its USD payable via options. It is looking for an alternative that cost lower than vanilla option.

Company could buy an ATM or ITM call option on USDINR and reduce its cost by selling OTM call option. The actual strike would depend on premiums and management objective. Can you recollect what is this option strategy called? This is called a bull call spread. Company could achieve a similar pay off using put options and that strategy is called as bull put spread. Please refer to above section on bull put spread for explanation.

**Case 3:** Assume that there is an exporter of jewellery from India. The export house believes that INR would appreciate from current level of 65 to 64 in three months time. It wants to protect its realization in INR and decides to evaluate a low cost option strategy. What strategy could the company consider?

The company could consider executing bear put spread or a bear call spread.

**Case 4:** An edible oil importer has already hedged its payables using futures. After few weeks of initiating the future transaction, company develops a strong view that USD may weaken. Company wants to minimize the loss on future position in the event of view of USD weakening turns correct. What could it do?

On the back of long futures position, the company could buy a put option for same maturity to recoup losses on futures if USDINR weakens. Can you recollect what is this strategy called? It is called as protective put.

**Case 5:** An iron ore exporter has covered his next three months USD receivables in futures market at 65. The current spot is 63 and there are fifteen days left for the option maturity. The exporter feels that in next fifteen days USDINR may not go below 63 and it is likely that it may strengthen from the current level of 63. He wants to fully/ partly protect his current profit in currency future position. Can you suggest him some option idea?

The exporter could consider selling a put option with same maturity as that of futures contract and at strike of 63. In case USDINR weakens beyond 63 (goes below 63), the sold option gets exercised with loss in options and profit in futures. While if the view goes correct, exporter will make lesser profit in futures and the reduced profit is partly offset by the option premium received.

Please note that using combination options you could design a strategy to suit any kind of market view and any kind of financial objective. The examples given above are only for illustrative purposes and do not comprise an exhaustive list of option strategies.

## Appendix D: Sample Questions

1. Which term best describes EUR currency?
  - (a) Managed float
  - (b) Pegged to USD
  - (c) Pegged to gold
  - (d) Free floating
2. Which of the following is true?
  - (a) Base currency is the first currency in a currency pair
  - (b) Base currency is the second currency in a currency pair
  - (c) Quotation currency is the first currency in a currency pair
  - (d) Exchange rates are quoted in per unit of quotation currency
3. Assume you are an exporter and you want to sell USD that you have received as export remittance. The bank quotes a price of 65.10 / 65.12 for USDINR. At what price can you sell one unit of USD?
  - (a) 65.12
  - (b) 65.11
  - (c) 65.09
  - (d) 65.10
4. As a trader you believe EURUSD will move from 1.12 to 1.18 in next 2 months. Which of the following would you do to execute this view using currency futures contract of EURINR and USDINR?
  - (a) Long EURINR
  - (b) Short EURINR
  - (c) Short EURINR, Long USDINR
  - (d) Long EURINR, Short USDINR
5. As a trader you believe GBPUSD will move from 1.50 to 1.55 in next 2 months. Which of the following would you do to execute this view using currency futures contract of GBPINR and USDINR?
  - (a) Long GBPINR
  - (b) Long GBPINR, Short USDINR
  - (c) Short GBPINR, Long USDINR
  - (d) Short GBPINR
6. One year interest rate is 4% in US and 1% in UK. If current GBPUSD spot rate is 1.5, which of the following could be closest to one year future rate of GBPUSD?
  - (a) 1.5446
  - (b) 1.6005
  - (c) 1.7325
  - (d) 1.6500

7. If one year interest rate is 2% in US and 10% in India. If current USDINR spot rate is 64, which of the following could be closest to the six month future rate of USDINR?

- (a) 60.48
- (b) 67.52
- (c) 62.24
- (d) 66.53

8. An exporter sells 10 lots of one month EURINR futures at 75. At the expiry, the settlement price was announced as 75.70. How much profit/loss (in Rupees) did he make on the transaction?

- (a) Profit of 7000
- (b) Profit of 700
- (c) Loss of 7000
- (d) Loss of 700

9. An international trading company has export revenue in USD and it uses part of it to make import payments in GBP and balance is converted to INR. The company is concerned about GBPUSD risk for its import payments. Which of the following best describes company's risk and the currency futures strategy that it may use to mitigate the risk?

- (a) USD depreciating against GBP; Short GBPINR and long USDINR for same maturity
- (b) USD appreciating against GBP; Short USDINR and long GBPINR for same maturity
- (c) USD appreciating against GBP; Short GBPINR and long USDINR for same maturity
- (d) USD depreciating against GBP; Short USDINR and long GBPINR for same maturity

10. An IT professional buys a house for INR 600,000 for which payment has to be made after three months. As he is expecting to receive USD 10,000 in three months, he executes 10 USDINR futures contracts of 3 months maturity to hedge currency risk at a price of 60. When he received the payment, he converted USD into INR with his bank at a price of 61 for making the payment for the house and also settles the futures contract at a price of 59. Given this situation, would he have sold/bought USDINR futures while hedging the position and also would the effective price for house be lower than or higher than USD 10,000 because of this hedge?

- (a) Bought, Higher
- (b) Sold, Higher
- (c) Bought, Lower
- (d) Sold, Lower

11. A trader executes following currency futures trade: buys one lot of USD/INR, sells one lot of JPY/INR. What view has he executed?

- (a) JPY strengthening against USD
- (b) JPY weakening against USD
- (c) INR strengthening against USD
- (d) INR weakening against JPY

12. A trader in India expects international gold prices to appreciate in next six months. To benefit from the view, he buys 30 grams of gold at Rupees 22,000 per gram and also sold 6 month USDINR futures at 66. After six months, gold prices have appreciated as he expected and the trader sold gold at Rupees 24,000 per gram and unwinds currency futures contract at 64. How many lots of currency futures would he have used to hedge the currency risk and how much was the real return for the investor?

- (a) 15 lots, 13%
- (b) 15 lots, 12%
- (c) 10 lots, 12%
- (d) 10 lots, 13%

13. In OTC market, one month USDINR is quoting at 63.75/64.00 and futures for same maturity is quoting at 64.50/64.60. Which of the following describes possible arbitrage trade and possible arbitrage profit per USD if the arbitrage trade is carried until maturity?

- (a) Sell USDINR in OTC and buy in futures, 85 paise
- (b) Buy USDINR in OTC and sell in futures, 60 paise
- (c) Buy USDINR in OTC and sell in futures, 75 paise
- (d) Buy USDINR in OTC and sell in futures, 50 paise

14. If you expect USDINR spot value to remain stable over next one month and also expect forward premium with USD at premium to INR to continue expect the future value of INR at a discount to USD to continue, what trade position could result in losses?

- (a) Selling USDINR OTC forward
- (b) Buying USDINR futures
- (c) Selling USDINR futures
- (d) Selling long term USDINR futures and buying short term USDINR futures

15. A person has invested USD 100,000 in US equities with a view of appreciation of US stock market. In next one year, his investments in US equities appreciated in value to USD 120,000. The investor decided to sell off his portfolio and repatriate the capital and profits to India. At the time of investing abroad the exchange rate was 64.5 and at the time of converting USD back into INR, he received an exchange rate of 66. How much is the return on investment in USD and in INR respectively?

- (a) 20%, 16%
- (b) 20%, 22.8%
- (c) 20%, 20%
- (d) 20%, 18%

16. A person has invested INR 100,000 in an Indian corporate bond for a year giving a return of 16% in one year. The person plans to use the proceeds from the maturity of corporate bond to fund his son's education on US. At the time of investing in the corporate bond, USDINR spot rate was 70 and one year premium was 4%. The person decides to hedge currency risk using USDINR one year futures. At the end of one year, how many USD can this person remit to his son?

- (a) 1320
- (b) 1417
- (c) 1083
- (d) 1593

17. A trading member (TM) has two clients "A" and "B" and he also does proprietary trading in currency futures. On day 1, TM buys 12 lots of USDINR one month futures and also sells 2 lots of the same contract on the same day in his proprietary book. On the same day, client "A" buys 12 lots of USDINR one month futures and also sells 2 lots of the same contract while client "B" buys 12 lots and sells 2 lots. What would be the open position (in USD) of the trading member, client "A" and client "B" respectively at the end of day 1?

- (a) 30,000; 10,000; 10,000
- (b) 10,000; 10,000; 10,000
- (c) zero, 10,000; 10,000
- (d) 10,000; zero; zero

18. A trading member (TM) has two clients "A" and "B" and he also does proprietary trading in currency futures. On day 1, TM buys 8 lots of USDINR one month futures and also sells 2 lots of the same contract on the same day in his proprietary book. On the same day, client "A" buys 8 lots of USDINR one month futures and also sells 2 lots of the same contract while client "B" sells 8 lots and buys 2 lots. What would be the open position (in USD) of the trading member, client "A" and client "B" respectively at the end of day 1?

- (a) zero; 6,000; 6,000
- (b) 18,000; 6,000; 6,000
- (c) 6,000; zero; zero
- (d) 6,000; 6,000; 6,000

19. Which of the following best describes the total open interest which is used for the purpose of monitoring of open position during the day?

- (a) Minimum open interest in the previous day
- (b) Total open interest at the time of monitoring
- (c) Total open interest at end of previous day
- (d) Maximum open interest in the previous day

20. A trader writes a call option and receives premium of 80 paise to a USD. Next day the premium for the same call option falls to 30 paise to a USD when spot prices did not change. Which of the following could best explain the drop in option price?

- (a) Increase in volatility
- (b) Decrease in volatility
- (c) Unexpected fall in inflation
- (d) None of the above

21. A trader writes a call option and receives premium of 80 paise to a USD. Next day the premium for the same call option falls to 30 paise. Which of the following transaction would result in profit for the trader?

- (a) Buy the call option which he had sold earlier
- (b) Short the call option to receive 30 paise premium
- (c) Short the put option
- (d) Buy the put option

22. Which of the following acts is mainly responsible for governing the securities trading in India?

- (a) FEMA, 1999
- (b) SC(R)A, 1956
- (c) SEBI Act

23. Which of the following segments of market participants are allowed to trade in currency futures?

- (a) Trusts
- (b) NRIs
- (c) Corporates
- (d) All of the above

24. What is the minimum net worth for a company for it to be eligible for applying to become an authorized exchange for currency futures?

- (a) Rs 200 crore
- (b) Rs 100 crore
- (c) Rs 50 crore
- (d) Rs 75 crore

25. Which of the following organizations issues guidelines for accounting of currency futures contracts?

- (a) ICSI
- (b) ICWAI
- (c) IIM
- (d) ICAI

26. What are the basic accounting heads to be maintained by any market participant for maintaining currency futures accounts?

- (a) Initial margin - currency futures
- (b) Profit and Loss - currency futures
- (c) Mark to market - currency futures
- (d) Initial margin - currency futures and Mark to market - currency futures

27. Which of the following best describes the guidelines for brokers with respect to execution of client orders?

- (a) Promptly intimate the execution or non-execution of the order
- (b) Intimate the execution or non-execution within two hour of deal execution
- (c) Intimate the execution or non-execution by the end of the day



(d) Intimate the execution or non-execution within three hour of deal execution

28. An employee of a broking house has started giving advice on taking trading position on USDINR currency futures on TV. Which of the following best describes the steps that broking house needs to take to ensure that its employee complies with guidelines?

- (a) Employee to also disclose the proprietary interest, including long and short position, of broking house in USDINR currency futures contracts
- (b) Employee to be presentable
- (c) Employee to also share technical analysis to support currency view

29. A client buys a USD call option at strike of 65.5 and pays a premium of INR 0.3. What would be the breakeven point for the transaction?

- (a) 65.2
- (b) 65.6
- (c) 66.1
- (d) 65.8

30. A client sells a USD call option at strike of 65.8 and receives a premium of INR 0.3. What would be the breakeven point for the transaction?

- (a) 65.5
- (b) 66.1
- (c) 66.8
- (d) 65.8

31. One of the key difference in OTC and Exchange traded USDINR currency option market is related to \_\_\_\_\_.

- (a) Lot size
- (b) Requirement of proof of underlying FX transaction
- (c) Market timings
- (d) Both (b) and (c)

32. A trading member has two clients in currency futures segment and one client in currency option segment. At the end of a trading day, one of the clients in currency futures segment has 5000 USD short position and the other client has 4000 USD long position. Additionally, the currency option client has 2000 USD long position. What is the gross open position for the trading member for the purpose of monitoring open position?

- (a) 4000 USD
- (b) 11000 USD
- (c) 2000 short for currency futures and 2000 long for currency options
- (d) 20000 USD

33. For a person who is trading in both currency futures and currency options, the open interest would be monitored for combined gross positions in futures and options.

- (a) TRUE
- (b) FALSE

34. A trading member has two clients in currency futures segment and one client in currency option segment. During the day, each of the clients in currency futures segment sold 6000 USD and bought 3000 USD. At the end of a trading day, each of the client in currency futures segment have 6000 USD short position and 3000 USD long position. Additionally, the currency option client has 3000 USD long position. What is the gross open position for the trading member for the purpose of monitoring open position?

- (a) No open position
- (b) 12000 USD
- (c) 2000 short for currency futures and 2000 long for currency options
- (d) 9000 USD

35. An active trader in currency options market wants to execute his view on change in volatility over a period of time and wants to be insulated from changes in other factors impacting option pricing. What option strategy is he likely to use?

- (a) Short option
- (b) Long option
- (c) Covered call
- (d) Calendar spread

**PLEASE NOTE THAT THESE ARE ONLY SAMPLE QUESTIONS PROVIDED AS A GUIDE TO CANDIDATES AND MAY NOT BEAR ANY RESEMBLANCE TO QUESTIONS IN THE CERTIFICATION EXAMINATION.**

## ANSWERS

- |     |     |     |     |
|-----|-----|-----|-----|
| 1.  | (d) | 21. | (a) |
| 2.  | (a) | 22. | (b) |
| 3.  | (d) | 23. | (d) |
| 4.  | (d) | 24. | (b) |
| 5.  | (b) | 25. | (d) |
| 6.  | (a) | 26. | (d) |
| 7.  | (d) | 27. | (a) |
| 8.  | (c) | 28. | (a) |
| 9.  | (d) | 29. | (d) |
| 10. | (d) | 30. | (b) |
| 11. | (b) | 31. | (d) |
| 12. | (c) | 32. | (b) |
| 13. | (d) | 33. | (a) |
| 14. | (b) | 34. | (d) |
| 15. | (b) | 35. | (d) |
| 16. | (d) |     |     |
| 17. | (a) |     |     |
| 18. | (b) |     |     |
| 19. | (c) |     |     |
| 20. | (b) |     |     |

## About NISM

National Institute of Securities Markets (NISM) is an educational institution established by the Securities and Exchange Board of India (SEBI), the securities market regulator, in 2006. The Institute was established in pursuant to the Union Finance Minister's proposal, in his 2005-06 Budget Speech, to set up an institution 'for teaching and training intermediaries in the securities markets and promoting research'.

NISM is committed to its vision 'to lead, catalyze and deliver educational initiatives to enhance the quality of securities markets'. The Institute conducts a wide range of capacity building programmes in securities markets - from basic financial literacy to full-time post-graduation programmes. The Institute's six Schools of Excellence, viz., School for Certification of Intermediaries, School for Securities Education, School for Investor Education and Financial Literacy, School for Regulatory Studies and Supervision, School for Corporate Governance and School for Securities Information and Research upholds NISM's vision and works in synergy towards professionalizing the markets.

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## About the Workbook

This workbook has been developed to assist candidates in preparing for the National Institute of Securities Markets (NISM) Currency Derivatives Certification Examination. NISM-Series-I: Currency Derivatives Certification Examination seeks to create common minimum knowledge benchmark for associated persons functioning as approved users and sales personnel of the trading member of currency derivative segment of a recognized stock exchange.

The book covers basics of the currency derivatives, trading strategies using currency futures and currency options, clearing, settlement and risk management as well as the regulatory environment in which the exchange-traded currency derivatives markets operate in India.

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