NISM CERTIFICATION EXAMINATION WORK BOOK

I

Currency Derivatives

National Institute of Securities Markets
A Capacity Building Initiative of SEBI

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

National Institute of Securities Markets
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.

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Sashi Krishnan
Director

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Acknowledgement

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About NISM Certifications

NISM is engaged in developing and administering Certification Examinations and Continuing Professional Education (CPE) Programmes for professionals employed in various segments of the Indian securities markets. These Certifications and CPE Programmes 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.

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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

Feedback and Queries

For any feedback and/or queries, please write back at certification@nism.ac.in.

Important

- Please note that the Test Centre workstations are equipped with either Microsoft Excel or Open Office Calc. Therefore, candidates are advised to be well versed with both of these softwares for computation of numericals.
- The sample questions and the examples discussed in the workbook are for reference purposes only. The level of difficulty may vary in the actual examination.

Syllabus Outline and Weightages

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Unit 3	Exchange Traded Currency Futures	20
Unit 4	Exchange Traded Currency Options	20
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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 Peculiarities in India
- 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 wherein goods were exchanged for each other. For example, a farmer would exchange wheat grown on his farmland with cotton from 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 litres 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 the 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 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 at some time 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 than the exchange rate of INR versus USD would be 1 USD = INR 20. This mechanism of valuing currency was termed 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 intervention was a popular tool to manage the value of currency to maintain the trade competitiveness of the country. Central banks would either buy or sell the local currency depending on the desired direction and value of local currency.

Fiat money is a government-issued currency that is not backed by a physical commodity, such as gold or silver, but rather by the government that issued it. The value of fiat money is derived from the relationship between supply and demand and the stability of the issuing government, rather than the worth of a commodity backing it. Most modern paper currencies are fiat currencies, including the U.S. dollar, the euro, and other major global currencies. The gold standard is not currently used by any government. Britain stopped using the gold standard in 1931 and the U.S. followed suit in 1933 and abandoned the remnants of the system in 1973. The gold standard was completely replaced by fiat money, a term to describe currency that is used because of a government's order, or fiat, that the currency must be accepted as a means of payment. In the U.S., for instance, the US dollar is fiat money, and for India, it is the Indian rupee.

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 could convert their currency into USD at any time and USD value was 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. The Bretton Woods Agreement remains a significant event in world financial history. The two institutions it created, i.e., the International Monetary Fund and the World Bank, played an important part in helping to rebuild Europe in the aftermath of World War II.

By 1973 the Bretton Woods System had collapsed. Countries were then free to choose any exchange arrangement for their currency, except pegging its value to the price of

gold. They could, for example, link its value to another country's currency, or a basket of currencies, or simply let it float freely and allow market forces to determine its value relative to other countries' currencies. Hence, there was the need of a market where the exchange rates would be determined on a real time basis based on the information flowing through the markets. Since the forex market was where currencies have always been exchanged, it was well poised to take up this role. The forex market therefore came into prominence when the world went off the gold standard. This is because during the gold standard, there were no exchange rates to determine! It is only after gold was removed as the common denominator between currencies that all of them became freely floating and there was a need to value them against one another. Developed countries gradually moved to a market determined exchange rate (For e.g. USD, EUR, JPY etc.) and developing countries adopted either a system of pegged currency or a system of managed exchange rates. Under the pegged system, the value of a currency is pegged to another currency or a basket of currencies. The benefit of a pegged currency is that it creates an environment of stability for foreign investors as they know that the exchange rate between the pegged currency and its peg at any point of time would be fixed. However, it is difficult to maintain the peg in the long run and ultimately the central bank may change the pegged ratio 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.

A clean float, also known as a pure exchange rate, occurs when the value of a currency, or its exchange rate, is determined purely by supply and demand in the market. A clean float is the opposite of a dirty float (also known as managed float), which occurs when government rules or laws affect the pricing of currency. A dirty float (managed float) is an exchange rate regime in which the exchange rate is neither entirely free (or floating) nor fixed. Most countries intervene from time to time to influence the price of their currency in what is known as a managed float system. For example, a central bank might let its currency float between an upper and lower price boundary. If the price moves beyond these limits, the central bank may buy or sell large lots of currency in an attempt to rein in the price. For e.g. If domestic currency quickly depreciates against USD, central bank may sell dollar and buy local currency.

1.2 Major Currencies and Currency Pairs

A currency pair is the dynamic quotation of the relative value of a currency unit against the unit of another currency in the foreign exchange market. Currency quotations use the abbreviations for currencies that are prescribed by the International Organization for Standardization (ISO) in standard ISO 4217. ISO currency codes are the three-letter alphabetic codes that represent the various currencies used throughout the world. When combined in pairs, they make up the symbols and cross rates used in currency trading.

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, USDCAD, USDCNY and USDCHF. According to Bank for International Settlement (BIS) survey of April2022, the share of different currency pairs in global average daily foreign exchange market turnover is as given below:

Currency	Share (%)
EUR/USD	22.7
USD/JPY	13.5
GBP/USD	9.5
AUD/USD	5.1
USD/CAD	5.5
USD/CNY	6.6
USD/CHF	3.9
USD/HKD	2.4
USD/INR	1.6
USD/others	17.6
Others/others	11.6
Total	100

Source: BIS Triennial Central Bank Survey 2022

*Net-net basis, daily averages in April 2022, in per cent

Currency pairs that are not associated with the U.S. dollar are referred to as minor currencies or crosses. These are usually derived from major non-USD currencies like EUR, GBP, and JPY. These pairs have slightly wider spreads and are not as liquid as the majors, but they are sufficiently liquid markets, nonetheless. For instance, Euro crosses include EUR/GBP, EUR/JPY, and EUR/CHF. Exotic Pairs stand out from these pairs because they contain a major currency (usually USD) and a currency from a developing or emerging market. This exposes traders to currencies from Asia, Africa, the Middle East, and more. An example of an exotic currency pairs are USD/TRY (U.S. dollar/Turkish Lira), USD/SEK (US Dollar/Swedish Krona), EUR/TRY (Euro/Turkish Lira) etc.

1.2.1 Major Currencies

US Dollar (USD)

U.S. dollar (USD) is the home denomination of the world's largest economy, the United States. U.S. banknotes are issued in the form of Federal Reserve Notes, popularly called greenbacks due to their predominantly green color. The monetary policy of the United States is conducted by the Federal Reserve System, which acts as the nation's central bank. It was founded in 1913 under the Federal Reserve Act in order to furnish an elastic currency for the United States and to supervise its banking system. As with any currency, the dollar is supported by economic fundamentals, including gross domestic product (GDP), manufacturing and employment reports.

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)

Euro is the official currency of 20 of the 27 member states of the European Union. Like the US Dollar, the Euro has a strong international presence and is the second-largest and second-most traded currency in the international markets for different types of transactions after the United States dollar. The euro is managed and administered by the Frankfurt-based European Central Bank (ECB) and the Eurosystem (composed of the central banks of the eurozone countries). As an independent central bank, the ECB has sole authority to set monetary policy. The Eurosystem participates in the printing, minting and distribution of notes and coins in all member states, and the operation of the eurozone payment systems.

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. It is also widely used as a third reserve currency after the US dollar and the Euro. The Yen is preferred as a funding currency for "carry trades[1]" by hedge funds.

British Pound/Pound Sterling (GBP)

Until the end of World War II, the Pound Sterling was the currency of reference. The pound is nicknamed the 'cable'. This nickname is derived from the telegrams used to update the GBPUSD rates across the Atlantic. Sterling is the fourth most-traded currency in the foreign exchange market, after the United States Dollar, the Euro, and the Japanese Yen. The currency is heavily traded against the Euro and the US Dollar, but less presence against other currencies. It is also the fourth most-held reserve currency in global reserves.

Swiss Franc (CHF)

The Swiss Franc is the currency of Switzerland and is represented with the symbol CHF. The Swiss franc is considered a safe-haven currency. Given the stability of the Swiss government and its financial system, the Swiss franc usually faces a strong upward pressure stemming from increased foreign demand. Switzerland's independence from the European Union also makes it somewhat immune to any negative political and economic events that occur in the region. The Swiss Franc is also a popular funding currency along with the Japanese Yen.

Indian Rupee (INR)

The Indian rupee is the official currency of India. The rupee is subdivided into 100 paise. The issuance of the currency is controlled by the Reserve Bank of India. The Reserve Bank manages currency in India and derives its role in currency management on the basis of the Reserve Bank of India Act, 1934. The Indian rupee has a market-determined exchange rate. However, the Reserve Bank of India trades actively in the USD/INR currency market to impact effective exchange rates. Thus, the currency regime in place for the Indian rupee with respect to the US dollar is a de facto controlled exchange rate. This is sometimes called a "managed float". Other rates (such as the EUR/INR and JPY/INR) have the volatility typical of floating exchange rates. Unlike China, India has not followed a policy of pegging the INR to a specific foreign currency at a particular exchange rate. RBI intervention in currency markets is solely to ensure low volatility in exchange rates, and not to influence the rate (or direction) of the Indian rupee in relation to other currencies.

[1] A carry trade involves borrowing funds in a currency with low interest rates (such as the Japanese Yen and the Swiss Franc) and investing these funds in assets denominated in a currency with high interest rates (emerging market currencies such as the Indian Rupee), thus earning the interest rate differential.

According to Bank for International Settlement (BIS) survey of April2022, the percentage share of various currencies in the global average daily foreign exchange market turnover is as follows:

Currency	% Share
USD	88.4
EURO	30.5
JPY	16.7
GBP	12.9
INR	1.6
Others	49.8
TOTAL	200*

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

*Net-net basis, daily averages in April 2022, in per cent

Source: BIS Triennial Central Bank Survey 2022.

1.2.2 Overview of International Currency Markets

The international currency market is a market in which participants from around the world buy and sell different currencies. Participants include banks, corporations, central banks, investment management firms, hedge funds, retail forex brokers, and investors. The international currency market is important because it helps to facilitate global transactions, including loans, investments, corporate acquisitions, and global trade.

Foreign Exchange Market (Forex) is an inter-bank market that took shape in 1971 when global trade shifted from fixed exchange rates to floating rate regimes. Forex transactions are a set of transactions among forex market agents involving the exchange of specified sums of money in a currency unit of any given nation for currency of another nation at an agreed rate as of any specified date. The exchange rate of one currency to another currency is determined by supply and demand. Moreover, a corporate entity willing to hedge its currency exposure may also take appropriate positions in the market.

For the 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 open during the afternoon (as per India time) followed by US, Australia and Japan and then India. The market is most active when both US and Europe are 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 currency price 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.

The Forex market is a worldwide decentralized over-the-counter[2] financial market for the trading of currencies. The scope of transactions in the global currency market is constantly growing, with the development of international trade and abolition of currency restrictions in many nations. 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 the Triennial Central Bank Survey of Foreign Exchange and Over-the-counter (OTC) Derivatives Markets in 2022, the average daily turnover of OTC foreign exchange is approximately USD 7.5 trillion. Growth of FX derivatives trading, especially in FX swaps, outpaced that of spot trading.

OTC Foreign Exchange Turnover by Instrument

Instrument	**Turnover**
Spot Transactions	2104
Outright forwards	1163
Foreign exchange swaps	3810
Currency swaps	124
FX Options & Other	304
OTC Foreign Exchange Turnover	**7506**
Exchange Traded Derivatives	154

* Daily averages, in billions of US dollars
Source: BIS Triennial Central Bank Survey 2022.

At any moment, the exchange rates of major currencies tend to be virtually identical in all the financial centers where there is active trading, leaving very little scope of arbitrage opportunities.

1.3 Basics of Currency Markets and Peculiarities in India

1.3.1 Currency pair

Unlike any other traded asset class, the most significant part of the currency market is the concept of currency pairs. In the currency market, while initiating a trade you buy one currency and sell another currency. Therefore, the same currency will have a very different value against every other currency. For example, the USD may be valued at say, 78 against INR but say, and 115 against JPY. This peculiarity makes the currency market

[2] Over-the-counter generally indicate transaction undertaken other than Stock Exchanges and including electronic trading platform.

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

1.3.2 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 generally 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.

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 one 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 75, it means that one unit of USD has a value of 75 INR. Similarly, GBPUSD = 1.34 means that one unit of GBP is valued at 1.34 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 except when it is quoted against Euro (EUR), Sterling Pound (GBP), Australian Dollar (AUD).

Currency pairs are quoted based on their bid (buy) and ask prices (sell). The bid price is the price that the forex broker will buy the base currency from you in exchange for the quote or counter currency. The ask—also called the offer—is the price that the broker will sell you the base currency in exchange for the quote or counter currency. When trading currencies, you're selling one currency to buy another. Conversely, when trading commodities or stocks, you're using cash to buy a unit of that commodity or a number of shares of a particular stock.

Currency pairs can also be separated into two types, direct and indirect. In a direct quote, the foreign currency is the base currency, while the local currency is the quote currency. An indirect quote is just the opposite: the domestic currency is the base currency, and the foreign currency is the quote currency. The way currency pairs are quoted can vary depending on the country in which the trader lives—most countries use direct quotes, while some countries prefer indirect quotes. Most pairs using the U.S. dollar are direct quotes.

1.3.3 Forex Market

Generally, there are two distinct segments of OTC foreign exchange market. The foreign exchange market in India may be broadly divided into two segments. One segment is termed as the “interbank” market and the other is known as “merchant/retail” market. The participants in the interbank segment are banks holding Authorised Dealer (AD) licenses under the Foreign Exchange Management Act (FEMA), 1999. Transactions in this segment are conducted through trading platforms provide by Clearing Corporation of India Limited (CCIL), Refinitiv (formerly Thomson Reuters) etc. before being settled by CCIL (for Cash, Tom, Spot and Forward USD-INR transactions) through a process of multilateral netting. Interbank FX market has a network of banks and institutions who trade in currencies among themselves. These transactions are generally of very high volume and make up for the bulk of the global forex market volume. The currency desks of different trading banks transact continuously, which keeps the currency exchange rate uniform. The retail forex market, on the other hand, has a large number of traders. The trading volume is, however, less than the interbank market as the value per transaction is low.

The mechanism of quoting price for both buying and selling is called market making. For example, your regular vegetable vendor will quote prices only for selling vegetables but not prices for buying them. While in a wholesale market, the vegetable wholesaler will not only quote prices for buying vegetables from the farmer but also quote prices for selling veggies to the vegetable retailer. Thus, the wholesaler is a market maker as he is quoting two-way prices (for both buying and selling). Similarly, dealers in the interbank market quote prices for both buying and selling i.e., offer two-way quotes.

Retail customers in India with a need to buy/sell foreign exchange have multiple avenues. They can do so over the phone with an AD Bank or through proprietary electronic dealing platforms of individual banks and Multi-Bank Portals (MBPs). In one-to-one negotiated dealing over the phone, customers with large order size command more negotiating power compared to the ones having smaller forex requirement. Banks also follow the practice of fixing “card rates” for the various forex pairs at the beginning of the day at which purchases and sales from/to retail customers would be made regardless of the intraday movement of the currency. To provide transparent and fair pricing in the retail forex market, RBI in 2019 has introduced an electronic trading platform for buying/selling foreign exchange by retail customers of banks. The platform, FX-Retail, was rolled out by the Clearing Corporation of India Limited (CCIL) in August 2019.

Forex trading in India typically takes place over-the-counter (including Electronic trading platform) for spot, forward and swaps (major trading venues for interbank spot market are Refinitiv D2 and FX Clear while forex swaps are largely transacted outside platform on a bilateral basis), futures are traded on exchanges, i.e., National Stock Exchange (NSE), Bombay Stock Exchange (BSE) and Metropolitan Stock Exchange of India Ltd. (MSEI). Options are traded both OTC as well as on Exchanges.

In a majority of the "merchant" markets, merchants are price-takers and banks are price-makers. A few large merchants or corporates may ask banks to quote two- way prices, as such merchants may have interest in selling or buying or both.

1.3.4 Two-way quotes

In the interbank market, currencies are quoted using a two-way price. In a two-way quote, the price quoted for buying is called bid price and the price quoted for selling is called 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 75.0550/75.0600 to a merchant. In this quote, 75.0550 is the *bid* price and 75.0600 is the offer *price* or *ask* price. This quote means that the bank is willing to buy one unit of USD for a price of INR 75.0550 and is willing to sell one unit of USD for INR 75.0600. Thus, a merchant interested in buying one unit of USD will get it for a price of INR 75.06 i.e. the price at which bank is willing to sell, and a merchant interested in selling one unit of USD will receive Rs. 75.055 i.e. the price at which the bank is willing to buy. The difference between the bid and offer is called the "spread". Please note that the price quoted by a market maker is valid for a certain quantity of the currency and it may vary if the amount for which the quote is sought is higher. The spread is an important parameter to note while assessing market liquidity, efficiency of the market maker and the market direction. Clearly, a narrow spread indicates higher liquidity and higher efficiency of the market maker. In the 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 the 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:

Currency pair	Actual Bid-Offer Price	Abbreviated Bid-Offer Price	Comments[3]
USDINR	82.0525/82.0575	82.0525/75	Price generally quoted upto 4 decimals
EURUSD	1.1225/1.1230	1.1225/30	Price generally quoted upto 4 decimals
GBPUSD	1.3365/1.3370	1.3365/70	Price generally quoted

[3] Certain currency pairs like EURUSD, GBPUSD also quoted upto 5 decimal points.

			upto 4 decimals
USDJPY	115.55/115.57	115.55/57	Price generally quoted upto 2 decimals

1.3.5 Appreciation/ Depreciation

Exchange rates are constantly changing, which means that the value of one currency in terms of the other changes constantly. Changes in rates are expressed as strengthening or weakening of one currency vis-à-vis the other currency. Changes are also expressed as the 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 82 to 82.25, the USD has appreciated against INR and the INR has depreciated against USD. Similarly, to say that USD looks strong over next few months would mean that USDINR pair may move towards 83 from the current levels of 82.25.

Hence, when you buy a currency pair, clearly it implies that you expect the value of the pair to go up. Consider this example – USD INR = 82, one would buy the pair, hoping for the price of the pair to hit 83.50. Now if the price of the pair is expected to increase, then it implies that going forward 1 unit of base currency can buy more units of quotation currency i.e. 1 USD to buy more INR. In other words, if the value of the pair increases then the power of the base currency rises while at the same time the quotation currency weakens. This translates to you being bullish on the base currency and bearish on the quotation currency at the same time. Similarly, if you sell the USD INR pair, it implies that you anticipate the base currency to buy lesser amount of quotation currency. This translates to you being bearish on base currency and bullish on the quotation currency.

Given this, "appreciation/depreciation of a currency" refers to the following situations–

a. Base currency appreciates when it can buy more units of quotation currency. For example, USD INR moves from 82 to 83 it means the base currency (USD) strengthens and the quotation currency (INR) weakens.

b. Quotation currency strengthens when the base currency buys lesser units of quotation currency. For example, USD INR moves from 83 to 82 it means the base currency (USD) weakens and the quotation currency (INR) strengthens.

Please note that appreciation and depreciation of one currency is always in terms of other currency. Hence, it is possible that USD can appreciate against INR, however at the same time USD may depreciate against EUR.

1.3.6 Market Timing

In India, for OTC market FEDAI (Foreign Exchange Dealers' Association of India) has stipulated market timings for inter-bank INR forex transactions. The normal market hours for FCY/INR transactions in Inter-bank forex market as well as client transactions in India is from 9.00 a.m. to 5.00 p.m. IST on all working days.

A. Authorised dealers may undertake customer (persons resident in India and persons resident outside India) and inter-bank transactions on all working days beyond normal market hours.

B. Transactions with persons resident outside India, through their foreign branches and subsidiaries may also be undertaken on all working days beyond normal market hours.

C. However, value Cash transactions may be undertaken only up to 5.00 pm IST, except in case of individual persons (including joint account or proprietary firm).

D. Transactions, including value cash transactions, for individual persons (including joint account or proprietary firm) can be undertaken even on Saturdays, Sundays and holidays as per a bank's internal policy.

E. For any transaction undertaken beyond the market hours prescribed above, the bank must ensure that: NOOP (Net Overnight Open Position) Limit is maintained all the time [including transactions executed from EOD to 9.00 am IST (market opening time) next working day].

F. Spot date Roll over for FCY/INR transactions will take place at 12.00 midnight IST.

G. For the purpose of Foreign Exchange business, Saturday will not be treated as a working day except for transactions as stated in (D) above.

H. NOOP Limit is maintained all the time [including transactions executed from EOD to 9.00 am IST (market opening time) next working day].

The central bank has prescribed certain net overnight open position limit for various banks. The Foreign Exchange Exposure Limits of Authorised Dealers would be dual in nature.

- Net Overnight Open Position Limit (NOOPL) for calculation of capital charge on forex risk.
- Limit for positions involving Rupee as one of the currencies (NOP-INR) for exchange rate management.

For banks incorporated in India, the exposure limits fixed by the Board should be the aggregate for all branches including their overseas branches and Off-shore Banking Units. For foreign banks, the limits will cover only their branches in India. NOOP limit may be fixed by the boards of the respective banks and communicated to the Reserve Bank of India immediately. However, such limits should not exceed 25 percent of the total capital (Tier I and Tier II capital) of the bank, or any other condition specified by RBI from time to time.

1.3.7 Forex Rates

Base rate is the rate derived from ongoing market rate, based on which buying / selling rates are quoted for merchant transactions. Normally, the interbank rates are for spot deliveries are considered as base rate. Hence, for quoting rates for merchant transactions on cash basis (i.e. value Today), the base rate will be adjusted to the extent of cash/spot differences. The member banks are free to determine their own charges for various types of forex transactions, keeping in view the advice of RBI that such charges are not to be out of line with the average cost of providing services. Banks should take care to ensure that customers with a low volume of activities are not penalised.

Banks also follow the practice of fixing "card rates" for the various forex pairs at the beginning of the day at which purchases and sales from/to retail customers would be made regardless of the intraday movement of the currency. 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 rates could vary significantly from bank to bank.

1.3.8 Price discovery

Forex market in India is predominantly a wholesale market, dominated by banks, forex brokers and corporate clients. Customers are priced off-market by banks. Trading in forex and related derivatives takes place via OTC as well as on exchanges. Major trading venues for interbank spot market are Refinitiv D2 and FX Clear, while forex swaps are largely transacted outside platform on a bilateral basis. The interbank price discovery happens on these platforms. These platforms offer order matching as well as negotiated mode. The spot trading market is well distributed through the day, while in case of forex forwards, volumes typically increase gradually during the day, with the last two hours having relatively higher volumes.

The current market hours for USD/INR spot/ forward/ options, starts at 9 am and closes at 5 pm. These current timings overlap with the trading hours of Asian markets (including their closing) as well as first half of a European trading day. This allows Indian markets to have a reasonably good price discovery based on news in global markets during these hours. There are, however, some market hours, especially the US market opening (after India closes) and Asia opening (before India opens), during which the Indian markets are shut, which have a bearing on the prices in Indian markets. Domestic markets are closed during important currency trading sessions such as New York time and Tokyo time. Hence, any major domestic or international event or data release during hours when the Indian markets are closed, are not priced in by the residents and this may impact the opening rates of the Rupee. In extreme cases, it may manifest in a gap-up or gap-down at market opening, on the next day. Non-Delivery Forward (NDF)[4] volumes especially for USDINR pair have increased in the recent period, they have begun to play an important role in

[4] A non-deliverable forward (NDF) is a cash-settled, and usually short-term, currency forward contract. The notional amount is never exchanged, hence the name "non-deliverable."

both price discovery and driving volatility, particularly during periods of heightened uncertainty.

RBI has introduced an electronic trading platform for buying/selling foreign exchange by retail customers of banks. The platform, FX-Retail, was rolled out by the Clearing Corporation of India Limited (CCIL) on August 05, 2019, to provide transparency while enhancing competition and paving way for better pricing for retail customers.

1.3.9 FBIL 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. FBIL computes and publishes the USD/INR, EUR/INR, GBP/INR and JPY/INR reference rates on a daily basis on all Mumbai business days at around 13.30 hours. The USD/INR reference rate is computed and published using the transaction level data available on the electronic trading platforms between 11.30 and 12.30 hours. A 15-minute random window is selected between 11.30 and 12.30 hours for the computation of USD/INR reference rate. Normally, the data are sourced from the electronic platforms of Refinitiv and CCIL. Cross currency reference rates for INR/ 1 EUR, INR/ 1 GBP, INR/100 JPY are calculated using the EUR/USD, GBP/USD and USD/JPY quotes in the selected 15-minute window.

Computation methodology

The USD/INR Reference Rate (USD/INR) is computed based on the data in respect of the actual spot US dollar/Indian rupee transactions taking place on electronic platforms during the one-hour time window from 11.30 Hours to 12.30 Hours on each business day in Mumbai. Normally, the data is sourced from Refinitiv (formerly Thomson Reuters) and CCIL platforms. If the transaction data is not available on one of the two platforms due to network failure or for any other reason, the rate is calculated on the basis of transactions data obtained from the other platform. The transactions data for a 15 minutes' time-period within the one-hour time window from 11.30 Hours to 12.30 Hours and selected randomly is used for computation of the USD/INR reference rate. The threshold criteria of ten transactions with aggregate amount of USD 25 million are required to be met for calculating the reference rate.

A +/- 3 Standard Deviation (SD) rule is applied to the transaction data, as above, to remove the outliers. The Reference Rate is set equal to the volume-weighted average of the surviving transactions, after the removal of the outliers. If the first randomly selected time-period of 15 minutes does not contain adequate number of transactions satisfying the threshold criteria, a second random time-period of 15 minutes is generated. This process is repeated up to a maximum of 5 times to obtain adequate number of transactions that satisfy the threshold criterion. If all the 5 randomly selected time-

periods fail to produce sufficient number of transactions that satisfy the threshold criterion, the transactions data pertaining to the whole one-hour window from 11.30 Hours to 12.30 Hours are taken into account for calculating the Reference Rate, provided they meet the threshold criterion.

In case of systems/network failures, if adequate transactions data is still not available, the reference rate is computed using the polled submissions as under: I. A panel of Category -I authorised dealer banks selected on the basis of their USD/INR inter-bank market turnover is maintained for the purpose of polled submission. The submission can be made over a 15-minute time window around 13.00 Hours. The quotes are collected from the empaneled AD Banks over the designated e-mail id. The banks in the panel, as above, submit the bid and offer quotes for spot USD/INR rate up to four decimal places. A minimum of five quotes are required for calculation of the reference rate. The USD/INR reference rate is published up to 4 decimal places.

For calculation of EUR/INR, GBP/INR and JPY/INR reference rates, the ruling spot cross currency rates for EUR/USD, GBP/USD and USD/JPY are obtained from any electronic platform. All the cross-currency rates are taken from the same randomly selected time-period of 15 minutes between 11.30 Hours to 12.30 Hours that are used for the calculation of USD/INR reference rate. This is done by obtaining from any electronic platform the closing prices of each cross-currency pair as depicted in the one-minute charts over the 15- minute time-period. The mean of the closing prices, so obtained, is crossed with the USD/INR reference rate to calculate the EUR/INR, GBP/INR and JPY/INR reference rates. In case of non-availability of cross currency quotes in the above-mentioned window, for each currency pair, the average of the last 15 minutes' quotes from the 1-minute chart of the previous day New York close (16.46 -17.00 New York Time) is considered.

The reference rates in respect of EURO and GBP are published for 1 unit of Euro and GBP and the reference rate in respect of JPY is for 100 units of JPY. EUR/INR and GBP/INR Reference rates are published up to 4 decimal places while the JPY/INR reference rate is published up to 2 decimal places.

The FBIL reference rates are published at around 13.30 Hours on all business days, i.e., excluding Saturday, Sunday and bank holidays in Mumbai

Forward Premia Curve

FBIL announces the benchmark rates for US Dollar - Indian Rupee Forward Premia for Overnight and from 1 month to 12 months tenor on a daily basis except Saturdays, Sundays and public holidays. The benchmark rates are determined based on the USD/INR transactions data reported up to 3 PM on the CCIL platform. For calculation of Overnight rate, the Cash-Tom transactions up to 12 noon are used. The Rolling Forward Premia in rupees and percentage terms are calculated from the month-end forward transactions and the rolling forward transactions.

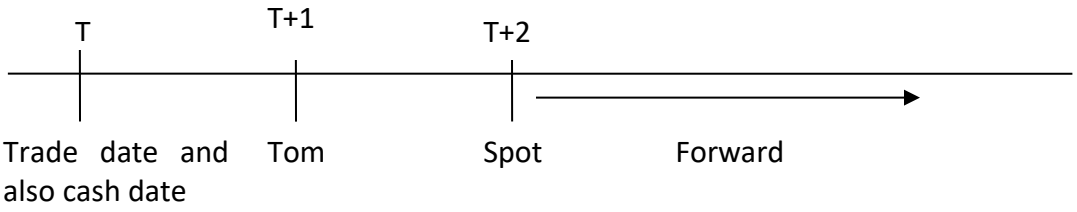
1.3.10 Settlement date and Value date

Forex rates can be quoted as spot or forward contracts. When buyers and sellers agree to trade at the current exchange rate for immediate delivery, it is known as spot transaction or cash transaction. The word “immediate” has a different meaning in this case. It may be interpreted as “at that instance” or up to a maximum of two days. In forex market parlance, the trade date is the day on which both parties agree to buy and sell. The settlement date/value date is the day on which currencies are actually transferred between the buyer and seller. On settlement/value date, the buying or selling will be executed by payment and receipt of the appropriate currency. Depending upon the gap between trade and value date, spot forex trading can either be categorized as cash, tom or spot transactions.

Ready or cash transactions are to be settled on the same day. Tom stands for the delivery of foreign exchange to be made on the business day next to the date of transaction. The most important value date is the “spot” value date, which is the 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 the 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.

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

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



Please note the use of the 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 the trade date.

Any settlement dates after spot value date is called “forward” value dates, which are standardized into 1-month, 2-month, etc. after spot value date. In a forward contract both parties enter into a contract on a given day and lock in a fixed rate on a specific future date. In such types of contracts, the terms of the purchase (buy or sell) are agreed upfront (trade execution date), but actual exchange take place on a date in the future (maturity

date). On the maturity date, both parties exchange the pre-negotiated rate. For example, an Indian company which is likely to earn foreign currency i.e., Euro on account of an export order after one month, may enter into a contract today (trade execution date) to sell Euro and receive Indian Rupees after 1 month (maturity date). The rate is fixed on the trade date and the rate is known as forward- 1 month rate. Suppose on trade date, the Indian exporter agrees to sell EUR 1000 and receive INR 84000 after one month. Thus on the maturity date i.e. after one month, he delivers EUR 1000 and receives INR 84000. Such types of forward contracts are known as outright forward contracts (OFTs).

The forward OTC market can provide quotes for booking a forward contract for any maturity. However, the liquidity is higher for maturities less than one year. Liquidity declines for maturities beyond one year. The settlement of forward contracts is mainly physical, i.e. with exchange of actual currencies. This is unlike the currency futures market, where prices are available for month-end maturity contract and the settlement is always on net settlement basis.

1.4 Exchange Rate Arithmetic- Cross Rate

Prices for some currency pairs 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 the currency pair for which direct quotes are not available is called as the '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.

1.4.1 EURINR

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

EURUSD: 1.1125 / 1.1150; USDINR: 75.64 / 75.65

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 75.65 INR (offer side) i.e., you need INR 75.65 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 1.1150 USD (offer side). Therefore, how many INR you need to spend to buy 1.1150 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 75.65. Therefore, price of buying 1.1150 units of USD would be 1.1150 x 75.65 INR i.e. 84.3498 INR. Therefore, the price of buying 1 unit of EUR in terms of INR is 84.3498 INR.

Similarly, you could use the logic for selling 1unit of EUR and derive its price in terms of INR. The price comes to 84.1495 (1.1125 x 75.64).

Therefore, the cross rate for EURINR would be 84.1495 / 84.3498.

1.4.2 GBPINR

The underlying currency pairs are GBPUSD and USDINR. Assume GBPUSD price as 1.3300 / 1.3325 and USDINR as 75.64 / 75.65, the price for GBPINR works out to be 100.6012 / 100.8036. You should identify the FX conversion path and appropriate price levels to arrive at the above cross rate.

1.4.3 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. In case of GBPINR and USDINR computation, USD is base currency for one currency pair and quote currency for other currency pair. However in case of JPYINR, USD is base currency for both the currency pairs. We will describe below the computation of JPYINR from USDJPY and USDINR. Assume USDJPY price as 115.08 / 115.09 and USDINR as 75.64 / 75.65.

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 75.65 INR (offer side) i.e., you need INR 75.65 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 115.08 (bid side). Therefore, you get 115.08 JPY by spending 75.65 INR. Thus price of buying 1 JPY is 75.65/115.08 i.e. 0.6574 INR or in other words price of buying 100 JPY is 65.74 INR. Similarly, price of selling 1 JPY is 75.64/115.09 i.e. 0.6572 or in other words price of selling 100 JPY is 65.72 INR.

Thus price of JPYINR (for 100 JPY) would be 65.72 / 65.74 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.

1.5 Impact of Economic Factors on Currency Prices

The price of one currency in terms of another is linked to the relative economic strength of the country in the long run, in the same way as the equity price is linked to the fundamental strength of a company. In the short run, factors like demand supply mismatch, global risk appetite, important political events etc. may determine the currency price. There are multiple factors impacting the value of the currency at any given point of time. Some of the factors pertain to 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 the geopolitical situation.

All the factors are at work all the time and therefore some factors may act towards strengthening of the currency and others may act towards weakening. It becomes important to identify the dominating factors at any point in 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 could be 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 dominate at a point in time and accordingly decide on the likelihood of appreciation or depreciation of INR.

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

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 the market. Since the 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 values 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 expectations. For example, during global financial crisis of 2008 and 2009, the USD strengthened against all major currencies like EUR, GBP and JPY. This was despite the US running a 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.

1.6 Economic Indicators

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

1.6.1 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.

1.6.2 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, which could result in relative strengthening of the currency of that country.

1.6.3 Consumer Price Index (CPI)

CPI is a statistical time-series measure of the weighted average of prices of a specified set of goods and services purchased by consumers. The indicator measures the level of inflation in the economy for the basket of goods and services which are generally brought by the people. A rising CPI means 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 a likely increase in interest rates by the central bank, the currency may strengthen in the short run but may start weakening in the long run as rising inflation and rising interest rates 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.

1.6.4 The Real Interest Rate in the Economy

The understanding of the real rate of interest in the economy is an extension of the inflation concept. For example, if the 10-year G-Sec has a yield of 6.5% and if the inflation is at an average of 2% then the real interest rate is 4.5%. Normally, there is a positive

relationship between the real interest rates and the value of the INR . That is why it is seen that whenever the RBI hikes rates, the INR actually sees an appreciation in value because the higher rates of interest increase the real rates of interest proportionately. There is also another portfolio angle to this. When real interest rates are high, we see more flows into debt from Foreign Portfolio Investors (FPIs). As more dollars flow in, the additional supply of dollars in the market tends to make the INR stronger.

1.6.5 Current Account and Trade Deficit

The excess of imports over exports i.e. trade deficit, is a key factor to track as it influences the direction in which the currency trades. In general, a narrowing of the trade deficit is a positive for the domestic currency. 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 of the current account deficit results in weakening of INR. However, during periods of higher risk appetite, the market tends to ignore small changes in the current account deficit.

1.6.6 Non-farm 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. The data for the US 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, which is good for the currency.

1.6.7 Retail Sales

It is a coincident indicator and shows the strength of the consumer spending. The report for the US is published around 13^{th} or 14^{th} 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 the direction for the USD.

1.6.8 Central Bank Actions

The 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). The market also actively looks forward to central bank's perspective on the state of the economy. Intervention in foreign exchange markets is a tool on which Emerging Market Economies (EME) central banks have extensively relied on over the past two decades, as reflected in a significant increase in their FX reserves. FX intervention helps address the challenges from exchange rate swings.

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 the market at any given point in time. For example, sometimes market attaches a lot of importance to crude price and commodity prices while at other times it may ignore these prices and instead focus on employment numbers and the interest rate situation.

Sample Questions and Answers

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 75.10 / 75.12 for USDINR. At what price can you sell one unit of USD?
    a. 75.12
    b. 75.11
    c. 75.09
    d. 75.10

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 something that is *derived* from another called the underlying. The underlying is independent, and the derivative is dependent on and derived from the underlying. The derivative cannot exist without the underlying. This is the general definition of derivative. 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".

However, accounting standards like FAS 133 (in the US), IAS 39 (in the EU) and AS 30 (in India) impose more qualifications for derivatives. For example, IAS 39 and AS 30 require the following three criteria to be satisfied for financial derivatives.

1. Value of derivative is linked to the value of underlying
2. Trade settled on a “future” date
3. On trade date, there should be no full cash outlay

FAS 133 requires an additional qualification:

4. Trade must settle (or capable of being settled) on *net* basis and not on gross basis.

The first requirement implies that the price of derivatives is determined by the price of underlying, and not by the demand-supply for derivative. The underlying is the raw material and derivative is the finished product. If the underlying price goes up (or down), the derivative price will go up (or down) regardless of demand-supply for derivative.

The “future” date in the second requirement means that the settlement of the derivative must be later than that for underlying. For example, if the underlying settles on two business days after trade date (T+2), the derivative on that underlying must settle later than T+2; if the underlying settles in T+5, the derivative on that underlying must settle later than T+5; and so on.

The third requirement provides “leverage”: ability to buy the underlying without fully paying for it immediately or sell it without delivering it immediately.

Derivatives are classified into five asset classes: interest rate, credit, equity, forex and commodity. In each asset class, there are four generic products: *forward, futures, swap* and *option*.

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.

Derivatives are tools to manage price risk. How you manage risk depends on your approach to risk. If you want to take risk, you will trade in derivatives which is called speculation. When you want to avoid risk, you manage it one of the three ways: elimination (called hedging); insurance and minimization (called diversification). The following table summarizes the approaches to market risk management.

The following table summarizes the approaches to risk management.

Approach	Explanation
Speculation	Taking risk (more formally called "trading") It results in the possibility of a positive return (i.e. profit) or a negative return (i.e. loss) in future
Hedging	You are already exposed to risk and hedging substantially reduces that risk and locks in the future return at a known level.
Insurance	You are already exposed to risk and insurance selectively eliminates the negative return but retains the positive return. It has an explicit upfront cost, and requires a particular derivative called option to implement it.
Diversification	It reduces both return and risk but in such a way that risk is reduced more than return so that risk is minimized per unit return (or, alternately, return is maximized per unit risk).

2.2 Key Economic Functions of Derivatives

While the primary function of derivatives is risk management, the derivatives market also performs the following functions::

- Hedging risk exposure: Since the value of the derivatives is linked to the value of the underlying asset, the contracts are primarily used for hedging risks. For example, an investor may purchase a derivative contract whose value moves in the opposite direction to the value of an asset the investor owns. In this way, profits in the derivative contract may offset losses in the underlying asset.
- Price discovery: Derivative market serves as an important source of information about prices. Prices of derivative instruments such as futures and forwards can be used to determine what the market expects future spot prices to be. In most cases, the information is accurate and reliable. Thus, the futures and forwards markets are especially helpful in price discovery mechanism.

- Market efficiency: It is considered that derivatives increase the efficiency of financial markets. By using derivative contracts, one can replicate the payoff of the assets. Therefore, the prices of the underlying asset and the associated derivative tend to be in equilibrium to avoid arbitrage opportunities.
- Access to unavailable assets or markets: Derivatives can help organizations get access to otherwise unavailable assets or markets. By employing interest rate swaps, a company may obtain a more favorable interest rate relative to interest rates available from direct borrowing.
- Price Stability: It has been seen that central banks of many countries use derivatives for stabilizing the currency prices. In India, RBI also intervenes in the forex market through derivatives for INR stability.
- 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.
- Speculation: This is not the only use, and probably not the most important use, of financial derivatives. Financial derivatives are considered to be risky. If not used properly, these can lead to financial destruction in an organization. However, these derivatives act as a powerful instrument for knowledgeable traders to expose them to calculated and well understood risks in search of a reward, that is, profit.
- Derivatives market helps shift of speculative trades from unorganized market to organized market. Risk management mechanism and surveillance of activities of various participants in organized space provide stability to the financial system.

Market Participants must understand that derivatives, being leveraged instruments, have risks like counterparty risk (default by counterparty), price risk (loss on position because of price move), leverage risk (magnifying the gain and losses), liquidity risk (inability to exit from a position), legal or regulatory risk (enforceability of contracts), operational risk (fraud, inadequate documentation, improper execution, etc.) and may not be an appropriate avenue for someone of limited resources, less trading experience and low risk tolerance. A market participant should therefore carefully consider whether such trading is suitable for him/her based on these parameters. Market participants who trade in derivatives are advised to carefully read the Risk Disclosure Document, given by the broker to his clients at the time of signing agreement.

2.3 Derivative Products

As specified earlier, derivatives can be classified into five asset classes: interest rate, credit, equity, forex(currency) and commodity. In each asset class, there are four generic products: *forward, futures, swap* and *option*. We will examine this product with currency as asset class. A foreign exchange derivative (currency derivative) is a financial derivative whose payoff depends on the exchange rates of two (or more) currencies. In Indian

context “Foreign exchange derivative contract”[5] means a financial contract which derives its value from the change in the exchange rate of two currencies at least one of which is not Indian Rupee, or which derives its value from the change in the interest rate of a foreign currency and which is for settlement at a future date, i.e. any date later than the spot settlement date, provided that contracts involving currencies of Nepal and Bhutan shall not qualify under this definition.
“Exchange traded currency derivatives'” means a standardized 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

2.3.1 Forwards

It is a contractual agreement between two parties to buy/sell an underlying asset at a certain future date for a particular price that is predetermined on the date of contract. Both the contracting parties are committed and are obliged to honour the transaction irrespective of the price of the underlying asset at the time of delivery. Since forwards are negotiated between two parties, the terms and conditions of contracts are customized.
These are Over-the-counter (OTC) contracts. Contracts are mainly settled by delivery. However, in certain cases, they are settled in cash on the expiration date. Generally, no initial margin or mark-to-market margin is collected for such contracts.

Foreign exchange forward’ means an OTC derivative involving the exchange of two currencies on a specified date in the future (more than two business days later) at a rate agreed on the date of the contract.

For e.g.: “XYZ” has exported cashews to the US and the total value of the shipment is $5,000,000 (Dollar 5 million) which is due after 3 months. The current rate (spot rate) for exchange is 1 USD = INR 75.10. “XYZ” enters into forward agreement with the bank to realize the proceeds after 3 months at the rate of INR 75.80 per dollar. Agreed rate of 1USD=INR 75.80 shall be the forward rate for the particular transaction.
How does this type of forward cover benefit XYZ?

- Assurance that company will realise inflow of Rs. 37.90 Crs. (5,000,000*75.80)
- If the rupee appreciates to Rs.74.50/USD or remain same at Rs 75.10/USD, does not have much to worry because they have already locked in the exchange forward rate of Rs.75.80/USD
- Businesses generally have payables against their receivable. Company confident that the inflow will take care of the payable with minimum risk of cash flow uncertainty
- Notional loss in case rupee weakens beyond Rs. 75.80/USD.

[5] Foreign Exchange Management (Foreign exchange derivative contracts) Regulations, 2000

2.3.2 Futures

A futures contract is similar to a forward, except that the deal is made through an organized and regulated exchange rather than being negotiated directly between two parties. Indeed, we may say futures are standardized exchange-traded forward contracts. The futures contracts are standardized in terms of lot size, underlying, expiry date etc. Contracts are mainly settled in cash; however, in certain cases they are settled physically on the expiration date. Margins and mark to market are applicable for such contracts. Settlement guarantee is provided by the clearing corporation of the Exchanges.

Currency Futures means a standardized 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.

2.3.3 Options

An Option is a contract that gives the right, but not an obligation, to buy or sell the underlying on or before a stated date and at a stated price. While the buyer of an option pays the premium and buys the right, the writer/seller of the option receives the premium with the obligation to sell/ buy the underlying asset, if the buyer exercises his right. A call option gives the buyer the call the right to buy the asset and a put option gives the buyer of the put the right to sell the asset. In case of futures/forwards it is an obligation for both buyer as well as seller to settle the contract, however in an option contract, the option buyer has the right but not the obligation to buy/sell the underlying asset.

'Foreign exchange option (Currency Option)' is an option that gives the buyer the right, but not the obligation, to buy or sell an agreed amount of a certain currency with another currency at a specified exchange rate on or before a specified date in the future.

In subsequent chapters we will learn in detail about Exchange-traded currency futures and options.

2.3.4 Swaps

A swap is an agreement made between two parties, to exchange cash flows in the future, according to a prearranged formula. Swaps are, broadly speaking, a series of forward contracts. Swaps help market participants to manage the risk associated with volatile interest rates, currency exchange rates, commodity prices etc. Most swaps involve cash flows based on a notional principal amount such as a loan or bond, although the instrument can be almost anything. One cash flow is generally fixed (can be floating), while the other is variable and based on a benchmark interest rate, floating currency exchange rate, or index price etc.

Interest rate swap is a derivative contract that involves exchange of a stream of agreed interest payments on a `notional principal' amount during a specified period. Such contracts generally involve exchange of a `fixed to floating' or `floating to floating' rates of interest. On each payment date that occurs during the swap period, cash payments based on fixed/ floating and floating rates, are made by the parties to one another.

In forex market there are two kinds of swaps namely, foreign exchange swap and currency swap. The two are basically the same but there are slight differences.

- 'Foreign exchange swap' means an OTC derivative involving the actual exchange of two currencies (principal amount only) on a specified date (the short leg) and a reverse exchange of the same two currencies at a date further in the future (the long leg), at rates agreed at the time of the contract.

A Pays $ Notional A Receives INR Notional	→ $ 1000000 ← INR 73000000	B Receives $ Notional B Pays INR Notional	Initial Notional Exchange @ Spot Rate
A Receives $ Notional A Pays INR Notional	← $ 1000000 → INR 73500000	B Pays $ Notional B Receives INR Notional	Final Notional Exchange @ Forward Rate

In the example given above, the spot rate for the short leg is Rs.73 while the rate agreed upon for the long leg is Rs.73.50.

- 'Currency swap' (also known as cross currency swap) means an OTC derivative which commits two counterparties to exchange streams of interest payments and/or principal amounts in different currencies on specified dates over the duration of the swap at a pre-agreed exchange rate. The rate is based on a prevailing spot or predetermined forward rate (for forward start swaps) and agreed upon at the time of the transaction. For example, a customer in India with a long-term USD borrowing is typically exposed to exchange rate risk between the USD and the INR as well as USD interest rate risk. The company can eliminate the risk by entering into a USD/ INR currency swap with a bank at the spot exchange rate of Rs.74. The customer receives from the bank USD floating interest rate payments and USD principal amortisations. Simultaneously, the customer pays the bank fixed interest rate in INR and the equivalent INR principal amortisations at an exchange rate based on a spot rate (or forward rate) prevailing at the time of the transaction and locked in for the entire tenure of the swap. At the start, initial principal is exchanged, though not obligatory.

No Initial Exchange of Principal Amount			
Corporate Receives $ Corporate Pays INR	← 6-month LIBOR+100 on $ 50 mn → 6% on INR 370 Crs	Bank Pays $ Bank Receives INR	Continuing Interest Payment during SWAP period
Corporate Receives $ Notional Corporate Pays INR Notional	← $ 50 mn → INR 370 Crs / INR 400 Crs	Bank Pays $ Notional Bank Receives INR Notional	Final Notional Exchange @ Initial Spot Rate / Forward Rate

The following table summarizes the key feature of four generic types of derivatives.

Generic derivative	Key feature	Market
Forward	To buy or sell the underlying asset with cash for settlement on a future date. Customized contract.	OTC
Futures	To buy or sell the underlying asset with cash for settlement on a future date. Standardized contract.	Exchange
Swap	To buy or sell returns from the underlying asset with returns from other underlying asset / cash over a period	Mainly OTC
Option	A right to buy or sell on underlying with cash for settlement on a future date	OTC and Exchange

Different kind of derivatives based on underlying

Under lying	Derivatives			
	Forward	Futures	Swap	Option
Interest Rate & Interest Rate Instrument	Forward Rate Agreement and Bond forward	Interest rate & Bond futures	Interest rate swap	Interest rate and Bond option
Equity & Equity Indices	Equity forward	Equity futures	Equity swap	Equity option
Currency Pairs	FX forward / Currency forward	FX futures / Currency futures	FX swap and Currency swap	FX option / Currency option
Commodity	Commodity forward	Commodity futures	Commodity swap	Commodity option

Additionally, “Credit” risk as underlying, Credit Default Swaps (CDS) are also very popular in the financial market. One counterparty in the CDS contract (the “buyer of protection”) makes a regular periodic payment to the other counterparty (the “seller of protection”); in exchange the protection seller agrees to pay the protection buyer any loss in value on the specified reference obligation if a “credit event” (e.g., default) were to occur during the life of the CDS contract.

2.4 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. A significant growth of derivative instruments has been driven by technological breakthrough. Advances in this area include the development of high-speed processors, network systems and improved methods of data entry.
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.

Currency derivatives are one of the most important among all derivatives, as shown in the following tables of notional outstanding amount:

Notional Amount Outstanding (USD Billion) in OTC Derivative Products as of June 2023

Foreign exchange contracts	120250
Interest rate contracts	573697
Equity-linked contracts	7838
Commodity contracts	2244
Credit derivatives (including Credit default swaps)	10122
Other derivatives	593
Total	**714744**

Source: Bank for International Settlement

Notional Amount Outstanding (USD Billion) in Exchange Traded Derivatives during October-December 2022 and Daily Average Turnover (Notional principal USD Billion) during 2022:

	Open Interest		**Daily Average Turnover**	
Exchange Traded Products	**Futures**	**Options**	**Futures**	**Options**
Interest rate	36220	s43974	7892	1786
Currency	320	127	153	19

Source: Bank for International Settlement

Average Daily Turnover of Exchange Traded Currency Derivatives in India for financial year 2022-23.

	Futures (Rs. Crs)	Options (Notional Rs. Crs)
FY 2022-23	60803	121198.14

Source: SEBI Bulletin

2.5 Market Participants in Currency Derivatives Market

There are broadly three types of participants in the currency derivatives market - hedgers, traders (also called speculators) and Arbitrageurs. Market participants may play different roles in different market circumstances. Currency derivatives are most often used to hedge against currency risk, or else to speculate on the direction of future currency moves or to take arbitrage due to price difference in currency in various markets and currency pairs.

Hedgers

They face risk associated with the prices of underlying assets and use derivatives to reduce their risk. Within the context of forex market, in India, "hedging" means the activity of undertaking a foreign exchange derivative transaction to manage currency risk and "currency risk" means the potential for loss on account of movement in exchange rates of the rupee against a foreign currency or on account of movement in exchange rates of one foreign currency against another or on account of movement of interest rate applicable to a foreign currency. Currency risk can be from movement on both the sides; hence hedging may be required for both. For e.g. An importer in India is exposed to the risk of rupee weakening against other currencies, and wants to hedge this risk. On the other hand, an exporter who expects to receive money in foreign currency, is faced with a risk of rupee strengthening against other currencies, and so the exporter will hedge against strengthening of INR.

Speculators/Traders

They try to predict the future movements in prices of underlying assets and based on the view, take positions in derivative contracts. Derivatives are preferred over underlying assets for trading purposes, as they offer leverage, are less expensive (cost of transaction is lower than that of the underlying) and are faster to execute in size (high volumes market).

In the case of currency derivatives, a participant who expects the base currency to appreciate (i.e. quote currency to depreciate), takes a long position. On the other hand, a participant expecting the base currency to depreciate (i.e. quote currency to appreciate) takes a short position.

Arbitragers

Arbitrage is a deal that produces profit by exploiting a price difference in a product in two different markets. Arbitrage originates when a trader purchases an asset cheaply in one location and simultaneously arranges to sell it at a higher price in another location. Such opportunities are unlikely to persist for very long, since arbitragers would rush in to profit from these transactions, thus closing the price gap at different locations. Similarly, in currency derivatives arbitrage may be available between underlying and derivatives market and/or within derivatives market between OTC and Exchange traded Derivatives market and/or between futures and option market and/or between various currency pairs.

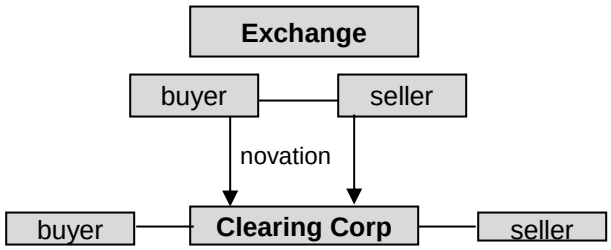
In India, a person, whether resident in India or resident outside India, may enter into a foreign exchange derivative contract or exchange traded currency derivative contract in accordance with provisions contained in Foreign Exchange Management Act (FEMA), 1999, Foreign Exchange Management (Foreign exchange derivative contracts) Regulations, 2000 and any other guideline/regulations etc. provided by financial sector regulators like Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), Pension Fund Regulatory and Development Authority (PFRDA) or any other statutory authority empowered to regulate a financial institution under the Indian laws.

2.6 Exchange-Traded Derivatives vs. OTC Derivatives

Based on the style in which a transaction is negotiated and settled, the market can be classified into two segments: over-the-counter (OTC) and Exchange.

OTC derivatives (OTCD) are privately negotiated and settled contracts between two parties whereas Exchange-traded derivatives (ETD) are screen-based order matching platform and settled contracts with the aid of Exchange (which provides platform for trade execution) and Clearing Corporation (which conducts the settlement). This makes ETD more transparent as compared to OTCD. There are other differences, too. OTCDs can be customized to the specific requirements of the parties where are ETDs are "standardized" in the sense that the trade amount (called "market lot" or "Contract Amount") and the settlement date (called "expiry date") are pre-determined by the Exchange. Another difference is that OTCDs have counterparty credit risk (which is the risk of failure of the counterparty before settlement date) and settlement risk (which is the risk of default by the counterparty on settlement date), but both risks do not arise in ETDs because of "trade guarantee" by Clearing Corporation. The trade guarantee is provided by Clearing Corporation becoming a common party, called central counterparty (CCP), to the buyer and seller through the process of novation, as shown below. We say that both buyer and seller novated the original trade to Clearing Corporation so that Clearing Corporation becomes the buyer to the seller; and the seller to the buyer.

Role of Exchange is to bring a buyer and seller together and enable a trade between them



Role of Clearing Corporation is to settle trade with trade guarantee by becoming CCP

Clearing Corporation protects itself from the counterparty credit risk and settlement risk from both buyer and seller by implementing two processes called margining and mark-to-mark, which are discussed in chapter 7. 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.

Though ETD has advantages in terms of transparency, elimination of counter party risk, access to all types of market, low cost of trading, credit agnostic etc. there are certain limitations. While standardization improves liquidity, it may lead to imperfect hedge as the amount and settlement dates cannot be customized. Similarly, cash settlement in ETD may not be helpful to actual hedgers, and daily MTM and margin may create operational issues to market participants.

Due to increased competition between OTC and Exchange markets, the differences between them are slowly fading. For example, today many derivatives Exchanges abroad offers customized contracts through the facilities of request-for-quote (RFQ) and Exchange-for-Physical (EFP); and OTC market offers both standardized (called "vanilla" products) and customized (called "exotic" products). There are electronic communication networks called "e-trading" platforms in OTC market that does the functions of an Exchange for price discovery and trade execution. Master Direction – Reserve Bank of India (Market-makers in OTC Derivatives) Directions, 2021 define 'Over-the-counter (OTC) derivative' as a derivative (deliverable and non-deliverable) other than those which are traded on exchanges and shall include those traded on electronic trading platforms (ETPs). Many OTC markets are going through central counterparty (CCP) clearing for multilateral settlements, like in Exchange markets. In India, Clearing Corporation of India Ltd (CCIL) is offering CCP services for settlement with trade guarantee for USDINR forward contracts and USDINR swap contracts. The margining and mark-to-market processes of Exchange markets have proved so useful that OTC market implements them today.

In India, a person, whether resident in India or resident outside India, may enter into an OTC foreign exchange derivative contract with an authorized dealer. While offering a foreign exchange derivative contract involving INR, other than NDDCs[6] (Non-deliverable derivative contract) to a user, and during the life of such contracts, Authorised Dealers shall ensure that the contract is for the purpose of hedging. All OTC foreign exchange derivatives contracts are settled through delivery except the Non-deliverable derivative contracts (NDDC).

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 adverse movement in asset

[6] Banks in India having an Authorised Dealer Category-1 license under FEMA, 1999, and operating International Financial Services Centre (IFSC) Banking Units (IBUs), shall be eligible to offer non-deliverable derivative contracts involving the Rupee, or otherwise, to persons not resident in India. Banks can undertake such transactions through their IBUs or through their branches in India or through their foreign branches.

prices. A default by one or two large counterparties may lead to domino effect of default by other counterparties as well, thereby making financial markets unstable. This phenomenon was observed during the financial crisis of 2008. Regulators and governments all over the world are now trying to move more and more derivative contracts to be exchange-traded with centralized clearing and settlement.

2.7 Rationale for Introducing Exchange Traded Currency Derivatives in India

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 will 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 the long run are mean reverting. As such, it is possible that over the long run, the incentive to hedge currency risk may not be large. However, the 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 appears to be natural in the case of assets, and applies equally to trade in goods and services, which results in income flows with leads and lags and gets converted into different currencies at the market rates. Empirically, changes in exchange rates are found to have very low correlations with foreign equity and bond returns. This in theory should lower portfolio risk. Therefore, sometimes an 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 arbitragers, speculators and those traders who may take a bet on exchange rate movements 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 the 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".

In order to expand the exchange traded hedging tools, recognized stock exchanges were permitted to introduce currency options. Further, with a view to enabling direct hedging of exposures in foreign currencies and to permit execution of cross-currency strategies by market participants, exchange traded currency futures and options were introduced in three cross-currency pairs viz., EUR-USD, GBP-USD and USD-JPY.

Sample Questions and Answers

1. Which of the following is the role of derivatives?
    a. Financing
    b. Cash or liquidity management
    c. Risk management
    d. All of the above

2. Participant who take position in Currency Derivatives to reduce currency risk
    a. Hedgers
    b. Speculators
    c. Arbitragers
    d. None of the above

3. Which of the following is derivatives?
    a. Currency Forward
    b. Currency Swaps
    c. Currency Futures
    d. All of the above

4. Following derivatives contracts are traded only on Exchanges?
    a. Currency Options
    b. Currency Swaps
    c. Currency Futures
    d. FX Swaps

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

Futures contract

Futures markets were innovated to overcome the limitations of forwards. A futures contract is an agreement made through an organized exchange to buy or sell a fixed amount of a commodity or a financial asset on a future date at an agreed price. Simply, futures are standardized forward contracts that are traded on an exchange. The Clearing Corporation associated with the exchange guarantees settlement of these trades. A trader who buys futures contracts generally takes a long position and the one, who sells futures, takes a short position. The words buy and sell are figurative only because no money or underlying asset changes hand, between buyer and seller, when the deal is executed.

Features of futures contract

In the futures market, exchange decides all the contract terms of the contract other than price. Accordingly, futures contracts have following features:

- Contract between two parties through Exchange
- Centralised trading platform i.e. Exchange
- Price discovery through free interaction of buyers and sellers
- Margins are payable by both the parties
- Expiry date decided today (standardized)
- Quantity decided today (standardized lot size)

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.

The NSE launched its currency futures trading platform in August 2008, in a separate segment called currency derivatives segment. Initially, futures contracts on USD-INR were introduced for trading and from February 2010, futures on EUR-INR, GBP-INR and JPY-INR were launched. Further in 2018, Cross Currency Futures contracts on EUR-USD, GBP-USD and USD-JPY were also introduced. In the exchange-traded currency derivatives context,

cross currency derivatives means derivatives on currency pair not involving the Indian rupee.

3.1.1 Futures Terminology

Let us understand various terms in the currency futures market.

Underlying Asset: Currency futures are derivatives, and the value of the futures contract is derived from the value/price of the underlying asset, which in this case is the exchange rate in Indian Rupees for US Dollars, Euro, Pound Sterling, Japanese Yen. Further the underlying for cross currency futures may be the exchange rate in US Dollars for Euro and Pound Sterling and exchange rate in Japanese Yen for US Dollars.

Spot price/rate: The price at which the underlying asset (currency pairs) trades in the spot market

Futures price: The current price of the specified futures contract. The future price can be higher or lower than the spot price. However, on the expiry date, the futures price converges with the spot price.

Quotation: It specifies how the price is quoted for the futures contract. For e.g. for USDINR future the price quotation is the exchange rate in Indian Rupees for one US Dollars and for JPYINR it is the exchange rate in Indian Rupees for 100 Japanese Yen.

Contract Cycle: It is a period over which a contract trades. The currency futures contracts on the SEBI recognized exchanges can be weekly, monthly and quarterly. In the case of monthly contracts, the contract maturing in the immediate month is called 'near month contract', the contract expiring in next month is called 'mid-month contract' and those expiring in subsequent months are called 'far month contracts'. These contracts can extend up to one year. There can be different contract cycles based on the underlying. For e.g. INR based currency futures have weekly and monthly contracts but cross currency futures may have only monthly contracts.

Expiry date: Also called last trading day or maturity date of contract. It is the day on which trading ceases in the contract. For all monthly currency futures contract the expiry date is two working days prior to the last business day of the expiry month at 12:30 PM. For instance, if the last business day of April is 30th April (Tuesday), the expiry date for the April futures contract will be 26th April (Friday), assuming there are no holidays apart from Saturday and Sunday. On the expiry date the trading in contract ceases at 12:30 pm and not at the regular trading close of 5:00 pm or 7:30 pm.

Tick Size: It is the minimum move allowed in the price quotations. The minimum trading increment or price differential at which traders are able to enter bids and offers is called the tick size. For example, if tick size for USDINR futures is Rs. 0.0025, the price entered by buyer and seller can be 82.9975, 83.0000, 83.0025 in multiples of Rs.0.0025.

Contract size/Lot Size: Futures contracts are traded in lots. Contract size specifies the amount of the asset that has to be delivered for a single contract. This is also called the 'lot size' or 'contract multiplier'. Trading always takes place in multiples of the lot size. For e.g. lot size for USDINR contract is 1000 USD.

Contract Value: To arrive at contract value, we multiply the futures price with the contract multiplier or lot size or contract size.

Trading Hours: Time during which trading is allowed on the exchange's trading platform. Exchanges currently have different market timings for contracts involving Indian rupee and those not involving Indian rupee. Further, on the contract expiry day, the specific currency futures and option contract stop trading earlier than normal trading hours i.e. 12:30 pm.

Base Price: Base price generally acts as a reference price for trading for the start of the day. Generally, on the first day of trading (i.e. on introduction) of a futures contract, the base price is the theoretical futures price. The base price of the contracts on subsequent trading days is the daily settlement price of the futures contracts as computed by Clearing Corporation.

Price Band: The price range (maximum and minimum price) for the day within which contracts can be traded for that day. Generally, specify +/-% to base price. In many derivatives contracts there is no price band for contracts and in such cases a dummy operating range is set to avoid erroneous order entry at a non-genuine price.

Mark to Market (MTM): The positions in the futures contracts for each member are marked-to-market to the daily settlement price of the futures contracts at the end of each trade day. The exchange/CC collects these margins (MTM margins) from the loss-making participants and pays to the gainers on a day-to-day basis.

Daily Settlement Price (DSP): It is required mainly for MTM settlement. The settlement price is the weighted average futures price (VWAP) of the trades generally in the last 30 minutes of trading (i.e. close price). If the close price is not available then the daily settlement price is set equal to the theoretical price of the futures contracts.

Final Settlement Price (FSP): All open positions on the last trading day of the currency futures contract are marked to the final settlement price for the relevant futures contract and settled on the final settlement day. The Final settlement price / rate is mainly derived from the underlying/spot market.

Final Settlement: Final settlement can be cash settled or physical settled. In the case of cash settlement only the profit and loss resulting from positions is paid / received from the participants. In case of physical settlement, participants must physically give/take delivery of stocks/underlying asset to settle the open transactions instead of settling them

with cash. Currently, all exchange-traded currency futures and option contracts are cash settled in Indian rupees.

Open Interest: The open interest is the total number of contracts outstanding (yet to be settled) for an underlying asset. It is important to understand that the number of long positions as well as number of short positions is equal to the Open Interest. This is because the total number of long positions is always equal to total number of short positions. Only one side is considered while calculating/mentioning the open interest. The level of open interest indicates depth in the market.

Positions in derivatives market

As a market participant, you will always deal with certain terms like long, short and open positions in the market. Let us understand the meanings of commonly used terms:

Long position

Outstanding/ unsettled buy position in a contract is called "Long Position". For instance, if Mr. X buys 5 USDINR futures contracts then he would be long 5 USDINR futures contracts. If Mr. Y buys 4 EURUSD futures contracts, then he would be long 4 EURUSD futures contracts. .

Short Position

Outstanding/ unsettled sell position in a contract is called "Short Position". For instance, if Mr. X sells 5 USDINR futures contracts then he has a short position in 5 USDINR futures contracts. If Mr. Y sells 4 EURUSD futures contracts, then he would be short on 4 EURUSD futures contracts.

Open position

Outstanding/ unsettled either long (buy) or short (sell) position in various derivative contracts is called "Open Position." For instance, if Mr. X shorts say 5 USDINR futures contracts and buys say 3 EURUSD futures contracts, he is said to have an open position, which is equal to short 5 contracts of USDINR and long 3 contracts of EURUSD futures. If on the next day, he sells 2 EURUSD futures contracts of the same maturity, his open position would be short 5 USDINR futures contracts and long 1 EURUSD futures contract.

Opening a position

Opening a position means either buying or selling a contract, which increases the client's open position (long or short).

Closing a position

Closing a position means either buying or selling a contract, which essentially results in the reduction of a client's open position (long or short). A client is said to close a position if he sells a contract which he had bought before or he buys a contract which he had sold earlier.

3.2 Pay off Charts of Futures Contract

Pay off Charts

Pay off on a position is the profit/ loss that would accrue to a market participant with change in the price of the underlying asset at expiry. The pay-off diagram is a graphical representation showing the price of the underlying asset on the X-axis and profits / losses on the Y-axis.

Pay off charts for futures

In the case of futures contracts, the long as well as short position has unlimited profit or loss potential. This results into linear pay offs for futures contracts. Futures pay offs are explained in detail below:

Payoff for buyer of futures: Long futures

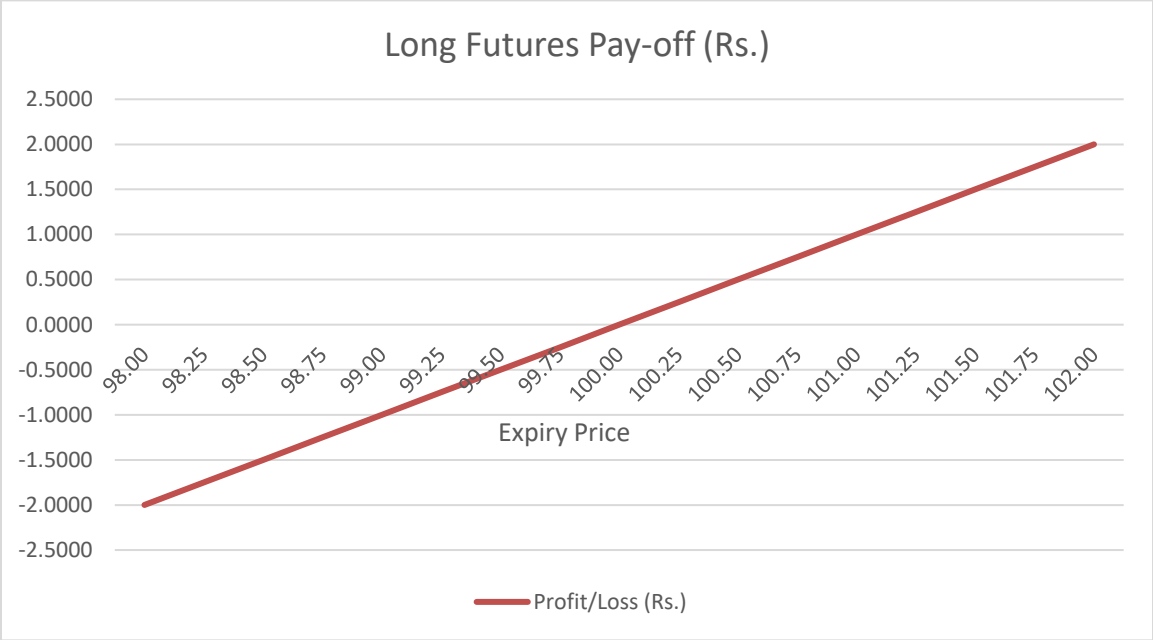
Let us say a person goes long in a futures contract at Rs.100. This means that he has agreed to buy the underlying at Rs. 100 on expiry. Now, if on expiry, the price of the underlying is Rs. 101, then this person will buy at Rs. 100, as per the futures contract and will immediately be able to sell the underlying in the cash market at Rs.101, thereby making a profit of Rs. 1. Similarly, if the price of the underlying falls to Rs. 99 at expiry, he would have to buy at Rs. 100, as per the futures contract, and if he sells the same in the cash market, he will receive only Rs. 99, translating into a loss of Rs. 1. If it is a cash-settled futures contract then the participant will receive / pay only profit/loss amount i.e. Rs. 1 in the above example.

This potential profit/loss at expiry, when expressed graphically, is known as a payoff chart. The X axis has the market price of the underlying at expiry. It increases on the Right-Hand Side (RHS). We do not draw the X axis on the Left-Hand Profit Side (LHS), as prices cannot go below zero. The Y axis shows profit & loss. In the upward direction, we have profits and in the downward direction, we show losses in the chart. So we can see that the long futures position makes profits when prices rise.

The below table and pay off chart show long futures pay offs:

Long Futures at Rs. 100	
Market Price at Expiry	Long Futures Pay-off
98.0000	-2.0000
98.2500	-1.7500
98.5000	-1.5000
98.7500	-1.2500
99.0000	-1.0000
99.2500	-0.7500
99.5000	-0.5000
99.7500	-0.2500
100.0000	0.0000
100.2500	0.2500

100.5000	0.5000
100.7500	0.7500
101.0000	1.0000
101.2500	1.2500
101.5000	1.5000
101.7500	1.7500
102.0000	2.0000



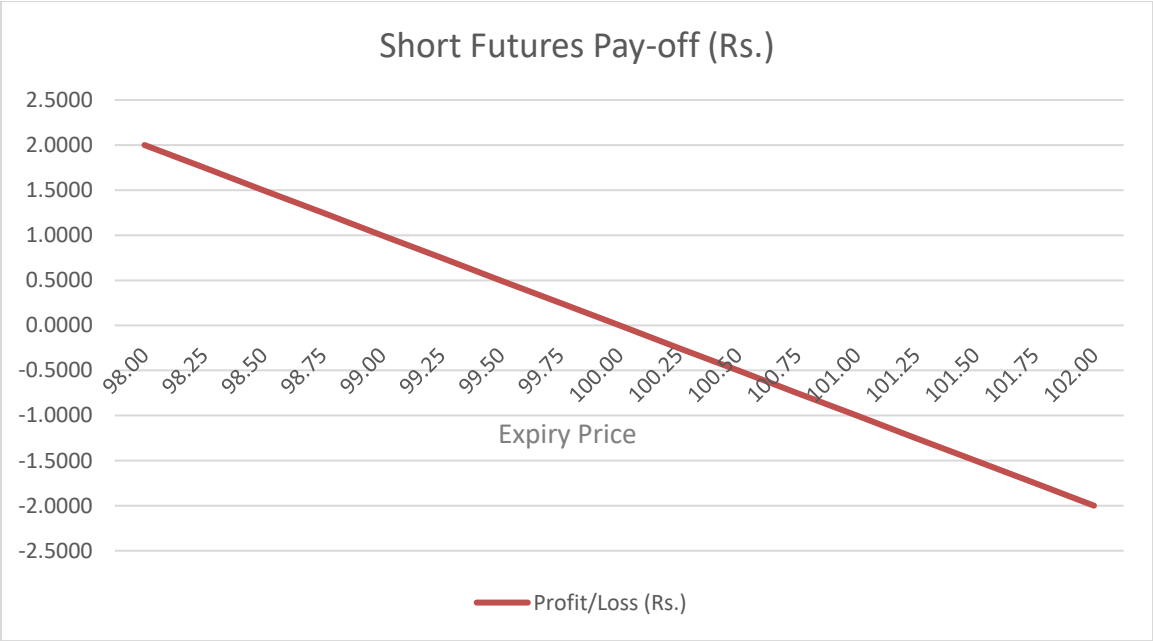
Pay-off for seller of futures: Short futures

Let us say a person goes short in a futures contract at Rs.100. This means that he has agreed to sell the underlying at Rs. 100 on expiry. Now, if on expiry, the price of the underlying is Rs. 99, then the person will buy from underlying in cash market at Rs. 99 and will sell at Rs. 100, as per the futures contract thereby making a profit of Rs. 1. Similarly, if the price of the underlying increases to Rs. 101 at expiry, he would have to buy at Rs. 101, in the underlying cash market and sell at Rs. 100 in the futures market, translating into a loss of Rs. 1. If it is a cash-settled futures contract then the participant will receive / pay only profit/loss amount i.e. Rs. 1 in the above example. So we can see that a short futures position would make profits when prices fall.

The below table and pay off chart show long futures pay offs:

Short Futures at Rs. 100	
Market Price at Expiry	Short Futures Pay-off
98.00	2.0000
98.25	1.7500
98.50	1.5000
98.75	1.2500
99.00	1.0000

99.25	0.7500
99.50	0.5000
99.75	0.2500
100.00	0.0000
100.25	-0.2500
100.50	-0.5000
100.75	-0.7500
101.00	-1.0000
101.25	-1.2500
101.50	-1.5000
101.75	-1.7500
102.00	-2.0000



The payoff graph for futures displays a linear or symmetrical style.

3.3 Contract Specification of Exchange Traded Currency Futures Contracts

Based on RBI and SEBI guidelines, various kinds of currency futures (including cross currency futures) have been launched by Exchanges. Currently Exchange traded currency futures are part of currency derivatives segment. Exchange traded currency futures are regulated by SEBI as well as RBI. We will see the regulatory framework of the Currency Derivatives in the subsequent chapter. Details of the currency futures contracts which are currently active on Exchanges are provided below.

Currency Futures Contracts (Contracts involving Indian Rupee)

Parameters	**Contract Details**			
Underlying	US Dollar-Indian Rupee **(USDINR)**	Euro – Indian Rupee **(EURINR)**	Pound Sterling – Indian Rupee **(GBPINR)**	Japanese Yen-Indian Rupee **(JPYINR)**
Unit of Trading	1 contract denotes 1000 US Dollars	1 contract denotes 1000 Euro	1 contract denotes 1000 Pound Sterling	1 contract denotes 100000 Japanese Yen
Price Quotation	The exchange rate in Indian Rupees for 1 US Dollars. The outstanding position in USD	The exchange rate in Indian Rupees for 1 Euro. The outstanding position in EUR.	The exchange rate in Indian Rupees for 1 Pound Sterling. The outstanding position in GBP.	The exchange rate in Indian Rupees for 100 Japanese Yen. The outstanding position in JPY.
Contract Value	Trade Price * 1000			
Tick Size	Rs. 0.0025 (0.25 paise)			
Base Price	Theoretical price on the 1st day of contract, on all other day's daily settlement price of the contract.			
Price Band	There shall be no daily price bands applicable for contracts. However in order to prevent erroneous order entry by members, operating ranges will be kept at +/-3% of the base price for contracts with tenure up to 6 months and +/- 5% of the base price for contracts with tenure greater than 6 months. The dynamic price bands shall be relaxed in increments of 1% as and when a market-wide trend is observed.			
Trading Hours	Monday to Friday: 9:00 a.m. to 5:00 p.m. On contract expiry, the contract will be available for trading up to 12:30 pm.			
Contract Trading Cycle	11 serial weekly cycle (excluding expiry week wherein monthly contracts expires on a Friday) and 12 serial monthly trading cycle. New serial weekly/monthly futures contracts shall be introduced after expiry of the respective week's/month contract.			
Expiry Day	For weekly contract: Every Friday at 12:30 pm. If the Friday of the expiring week is a trading holiday, then the expiry day is the previous trading day. For monthly contract: Two working days prior to the last business day of the expiry month at 12:30 PM. For e.g. If last business day of the month is Thursday & there is no holiday, then expiry will be on Tuesday.			

Mode of Settlement	Cash Settled in Indian Rupees
Daily Settlement Price	Volume Weighted Average Futures Price of last half an hour across exchanges or theoretical futures price
Final Settlement Price	FBIL reference rate on last trading day
Daily MTM and Final Settlement	Daily Settlement : T+1 Final Settlement : T+2

Cross Currency Futures Contracts (Contracts involving other than Indian Rupee)

Parameters	**Contract Details**		
Underlying	Euro- US Dollar **(EURUSD)**	Pound Sterling - US Dollar **(GBPUSD)**	US Dollar - Japanese Yen **(USDJPY)**
Unit of Trading	1 contract denotes 1000 Euro	1 contract denotes 1000 Pound Sterling	1 contract denotes 1000 US Dollars
Price Quotation	The exchange rate in US Dollars for 1 Euro. The outstanding position in EUR.	The exchange rate in US Dollars for 1 Pound Sterling. The outstanding position in GBP.	The exchange rate in Japanese Yen for 1 US Dollar. The outstanding position in USD.
Contract Value	Trade Price * 1000 (in quote currency)		
Tick Size	USD 0.0001	USD 0.0001	JPY 0.01
Base Price	Theoretical price on the 1st day of contract, on all other day's daily settlement price of contract.		
Price Band	There shall be no daily price bands applicable for Currency Futures contracts. However, in order to prevent erroneous order entry by members, operating ranges will be kept at +/-3% of the base price for contracts with tenure up to 6 months and +/- 5% of the base price for contracts with tenure greater than 6 months. The dynamic price bands shall be relaxed in increments of 1% as and when a market-wide trend is observed.		
Trading Hours	Monday to Friday: 9:00 a.m. to 7:30 p.m. On contract expiry, the expired contract will be available for trading up to 12:30 pm.		

Contract Trading Cycle	12 serial monthly trading cycle. New monthly futures contracts shall be introduced after expiry of the respective month's contract.
Expiry Day	Two working days prior to the last business day of the expiry month at 12:30 PM.
Mode of Settlement	Cash Settled in Indian Rupees
Daily Settlement Price	Volume Weighted Average Futures Price of last half an hour across exchanges or theoretical futures price
Final Settlement Price	The final settlement price for cross-currency futures contracts shall be computed using the FBIL reference rate for USD-INR and the corresponding exchange rate published by FBIL for EUR-INR, GBP-INR and JPY-INR, as applicable, on the last trading day of the contract.
Daily MTM and Final Settlement	Daily Settlement : T+1 Final Settlement : T+2

3.4 Contract Value

Market lot / lot size is the minimum and multiple of trade size. Lot sizes may differ according to the underlying currency pair. Let's study in detail about lot size, contract value and minimum change in the contract value.

Contracts involving Indian Rupee

Currency pair	**USDINR**	**EURINR**	**GBPINR**	**JPYINR**
Contract Size	1000 USD	1000 EUR	1000 GBP	100000 JPY
Price Quotation	The exchange rate in Indian Rupees for 1 US Dollars	The exchange rate in Indian Rupees for 1 Euro	The exchange rate in Indian Rupees for 1 Pound Sterling	The exchange rate in Indian Rupees for 100 Japanese Yen
Contract Value per lot	Trade price *1000			Trade price * 1000 (trade price*100000/100)
Trade Price	INR 83.0000	INR 89.0000	INR 104.00	INR 55.00
Number of lot	5	10	15	20
Total Contract Value	INR 415000 (83*5*1000)	INR 890000 (89*10*1000)	INR 1560000 (104.00*15*1000)	INR 1100000 (55*20*1000)

Tick Size	INR 0.0025	INR 0.0025	INR 0.0025	INR 0.0025
Price movement	82.9975 83.0000 83.0025	88.9975 89.0000 89.0025	103.9975 104.0000 104.0025	54.9975 55.0000 55.0025
Change in contract value for each tick size change	INR = 2.50 (1*1000*0.0025)			

Contracts involving other than Indian Rupee

Currency pair	**EURUSD**	**GBPUSD**	**USDJPY**
Contract Size	1000 EUR	1000 GBP	1000 USD
Price Quotation	The exchange rate in US Dollar for 1 Euro	The exchange rate in US Dollar for 1 Pound Sterling	The exchange rate in Japanese Yen for 1 US Dollar
Contract Value per lot	Trade price *1000 (in quote currency)		
Trade Price	1.08 USD	1.26 USD	150.65 JPY
Number of lot	5	10	15
Total Contract Value	**USD** 5400 (1.08*5*1000)	**USD** 12600 (1.26*10*1000)	**JPY** 2259750 (150.65*15*1000)
Total Contract Value (**in INR**)**	USD 5400 * 82.95 = INR 447930	USD 12600 * 82.95 = INR 1045170	JPY 2259750*55.05/100 = INR 1243992.38***
** To arrive at the value of cross currency positions in INR for EUR-USD and GBP-USD contracts, the latest available FBIL reference rate for USD-INR shall be used. For USD-JPY contracts, the value in INR shall be arrived at using the latest available exchange rate published by FBIL for JPY-INR. *** Reference Rate in respect of JPYINR will be for 100 units of JPY			
Tick Size	USD 0.0001	USD 0.0001	JPY 0.01
Price movement	1.0799 1.0800 1.0801	1.2599 1.2600 1.2601	150.64 150.65 150.66
Change in contract value for each tick size change	USD 0.10 (1*0.0001*1000)	USD 0.10 (1*0.0001*1000)	JPY 10 (1*0.01*1000)

Contract value is important for determining margin amount, transaction charges, regulatory charges etc.

3.5 Advantages and Limitations of Future Contracts in Comparison to Forward

Forward contracts are often confused with futures contracts. The confusion is primarily because both serve essentially the same economic function of hedging risk in the face of price uncertainty in the future. However, futures have some distinct advantages over forward contracts as they eliminate counterparty risk and offer more liquidity and price transparency. On the other hand, forwards enjoy the benefit of being customized to meet specific client requirements.

Comparison of Foreign Exchange Forward and Currency Futures[7]

Parameters	Foreign Exchange Forward	Currency Futures
Operational mechanism	Mainly bilateral over-the-counter (OTC) transactions. Can be traded on electronic trading platform.	Contract between two parties through centralized trading platform of Exchanges
Terms of Contracts	Non- Standardized. Each Contract is custom designed and hence unique in terms of contract size, expiration date, asset quality, asset type etc.	Standardized Contract in terms of underlying asset, contract size, expiry date etc.
Price Discovery	Mainly through negotiation.	Price discovery through free interaction of buyers and sellers on centralized trading platform
Liquidity	Low, as contracts are tailor-made catering to the needs of the parties involved. Further, contracts are not easily accessible to other market participants	High, as contracts are standardised exchange-traded contracts.
Settlement	Contracts are settled bilaterally mainly through physical delivery. Gross settlement without netting is followed. Globally Non-Deliverable Forward contracts i.e. settlement without delivery, are very popular.	Clearing and Settlement through clearing corporation with guaranteed settlement. Currently cash-settled in INR. Mainly net settlement basis.

[7] The comparison mainly based on Indian Foreign Exchange Market.

Quality of information and dissemination	Less information is available in the public domain. Mainly post-trade information is available.	Futures are traded nationwide. Information is available online on trading platform and websites.
Advantages	• Can provide perfect hedge as it is a customized product. • Delivery-based settlement more helpful to importers and exporters • Less operational issues related to margin and mark-to-market settlement.	• Price transparency • Elimination of Counterparty credit risk as settlement guarantee is given by the clearing corporation of Exchanges • Access to all types of market participants • Access to futures contracts does not depend upon the credit profile of the participants • Lower liquidity risk compared to forwards • Generally lower impact cost • Easy entry and exit
Limitations	• Liquidity risk • Counter party risk • Limited market participants • Cancellation and rebooking is based on certain conditions.	• May lead to imperfect hedge as the contract size and settlement dates are standardized. • Since it is cash settled, users need to access cash/spot market for actual delivery of currency. • Operational issues related to mark-to-mark settlement and margin.

3.6 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%. As a smart trader/ investor you will think about raising money from USA and deploying it in India to try and capture the spread of 4%. You could continue to do so and make this transaction as a non-stop 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/forward prices which ensure that arbitrage does not exist.

Assumptions:

1. Spot exchange rate of USDINR is 83 (S)
2. One year future rate for USDINR is "F"
3. Risk free interest rate for one year in USA is 5% (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 the USA.

On start of this transaction, you borrow 1 USD in US at the rate of 5% and agree to return 1.05USD after one year (including interest of 5 cents or 0.05 USD). This 1 USD is converted into INR at the prevailing spot rate of 83. You deposit the resulting INR 83 for one year at interest rate of 7%. At the end of one year, you receive INR 5.81(7% of 83) as interest on your deposit and also get back your principal of INR 83 i.e., you receive a total of INR 88.81. You need to use these proceeds to repay the loan taken in the USA.

Two important things to think before we proceed:

- The loan taken in the US 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 the one-year future prices 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 USD. We will convert the above argument into a formula:

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

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

Another way to illustrate the concept is to think that the INR 88.81 received after one year in India should be equal to USD 1.05 when converted using the one-year future exchange rate.

Therefore,

$F/ 83 = (1+0.07) / (1+0.05)$

$F= 84.5809$

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

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

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". To explain in another way, interest rate parity says that the spot price and futures price of a currency pair incorporate 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.

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

Where
F = forward price
S = spot price
R_{BC} = interest rate on base currency
R_{QC} = interest rate on quoting currency
Period = forward period in years
For a quick estimate of forward premium, the following formula mentioned above for USDINR currency pair could be used. The formula is generalized for other currency pair and is given below:
$F = S + (S \times (R_{QC} - R_{BC}) \times \text{Period})$

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

Traders use expectations about the change in interest rates to initiate long/ short positions in currency futures. Everything else remaining the same, if the USD interest rate is expected to rise (say from 3.0% to 4.0%) and INR interest rate is expected to remain constant say at 7%; a trader would initiate a short position in the USDINR futures contract.

Illustration:

Suppose the 6-month interest rate in India is 3.5% (or 7% per annum) and in the USA it is 2.5% (5% per annum). The current USDINR spot rate is 83. What is the likely 6-month USDINR futures price?

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

Spot + 6-month interest difference = 83 + 1% of 83

= 83+0.83 = 83.83

The exact rate could be calculated using the formula mentioned above and the answer comes to 83.8097. .

6-month futures price = 83 x (1+0.07*0.5) / (1+0.05*0.5) = 83.8097

Now, everything else remaining constant, suppose traders expect the USD interest rate to go up (say from 5% to 5.25%) and INR interest rate to remain constant. What will happen to the 6-month forward rate?

The 6-month forward rate for USDINR will be 83.7076.

6-month forward rate = 83 x (1+0.07*0.5) / (1+0.0525*0.5) = 83.7076

You can see that the 6-month forward USDINR rate will fall from the earlier 83.8097 to 83.7076. Hence, a trader would initiate a short position in the USDINR futures contract.

Concept of premium and discount

You can observe that the 6-month future price of USDINR pair is 83.8097when the spot price is 83. It means that INR trades at a discount to USD and USD quotes at a premium to INR. Intuitively to understand why INR is said to be at a discount to USD, think that to buy 1 USD you had to pay INR 83 now but you have to pay 83.8097 after 6 months i.e., you have to pay more INR to buy the same 1 USD. Hence the future value of INR is at a discount to USD.

Assume that the risk-free interest rate for one year in JPY is 0.25% and in EUR is 1%. The current EURJPY spot rate is 123.4.
Would the future value of EUR be at discount or premium to JPY
What is it likely to be: towards 124 or towards 122?

The 1 year forward rate for EURJPY will be 122.4837.

122.4837 = 123.40 x (1+0.0025*1) / (1+0.01*1)

Key Conclusion:
The future value of a currency with a high interest rate is at a discount to the value of the currency with a low interest rate or future value of a currency with a low interest rate is at a premium to value of the currency with a high interest rate.

Theoretical Price Computation for Currency Futures

The theoretical price of a currency futures contract shall be computed as per the following formula:
$F = S \times e^{(r-rf)*t}$

Where:

- F Theoretical futures price
- S Value of the underlying
- r Correspondence to interest rate for quote currency
- r_f Correspondence to interest rate for base currency
- t Time till expiration
- e 2.71828

Sample Questions and Answers

1. What is the settlement method for USDINR futures?
    a. **Cash**
    b. Physical / Based on Delivery
    c. Can be cash or physical
    d. None of the above

2. Which of the following is the last trading day for EURINR monthly futures contract?
    a. One business days after the first business day of the Expiry Month
    b. **Two working days prior to the last business day of the expiry month**
    c. Seven business days before the last business day of the Expiry Month
    d. Last Thursday of Contract Month

3. Person goes short in a GBPINR futures contract at Rs.99.75 and on expiry GBPINR reference rate is Rs. 100.75, he will _____?
    a. Make profit of Rs. 1
    b. **Make loss of Rs. 1**
    c. No profit no loss
    d. None of the above

CHAPTER 4: EXCHANGE TRADED CURRENCY OPTIONS

LEARNING OBJECTIVES:

After studying this chapter, you should know about:

- Understanding of Options and Option Terms
- Understanding of Option Pricing and Option Greeks
- Options Pay-offs
- Contract Specifications of Exchange Traded Currency Options
- Advantages and Limitations of Exchange Traded Currency Options

4.1 Basics of Options

As seen in the earlier section, forward/futures contract is a commitment to buy/sell the underlying and has a linear pay off, which indicates unlimited losses and profits. Some market participants desire to ride the upside and limit their losses. Accordingly, options emerged as a financial instrument, which restrict the losses while allowing unlimited profits on buying or selling of the underlying asset. An option is a contract that gives the option buyer the right, but not the obligation, to buy or sell the underlying asset on or before a specified date/day, at a pre-determined price. For acquiring this right the option buyer must pay a certain price/premium to the option seller.

Let us understand this with an example:

Mr. X is looking to buy 1 acre of land from Mr. Y. The land is valued at Rs.10,00,000. Mr. X has information about an infrastructure project which is expected to be started near the land within the next 3 months. He expects the value of land to increase as a result of this project. However, if the news turns out to be a rumour, then Mr. X would be stuck with a useless piece of land.

What should X do???

- Mr. X pays an upfront fee of Rs. 50,000/- today i.e. March 01, 2024, to Mr. Y. Consider this as a non-refundable fee.
- Against this fees, Mr. Y agrees to sell the land after 3 months to Mr. X
- The price of the land (which is expected 3 months later) is fixed today at Rs.10,00,000/-
- Mr. X has paid an upfront fee and hence only he can call off the deal at the end of 3 months. Mr. Y cannot back out of the contract.
- In the event Mr. X calls off the deal at the end of 3 months, Mr. Y gets to keep the upfront fee.

The above arrangement between Mr. X and Mr. Y is called an option contract. We could define an option contract as below:

An option is a contract between two parties giving the option buyer the right, but not the obligation, to buy or sell an underlying asset at a specific price on or before a certain date. We will now use the above example to define certain important terms relating to options.

- The right to buy the asset is called a **call option** and the right to sell the asset is called a **put option**. In the above example Mr. X has received the right to buy the land, hence this is a call option transaction.
- The pre-specified price at which the underlying asset may be purchased or sold by the option holder is called the **strike price** of the option**.** In the above example the same is set as Rs.10,00,000.
- The date at which the option contract will expire / or ceases to exist is called the **expiration date** of the contract. In this case May 31, 2024 (3 months from trade date) is the contract expiration date.
- The difference between the date of entering into the contract and the expiration date is called the **time to maturity** which is 3 months in the above example.
- The party which buys the rights but not the obligation and pays a premium for buying the right is called as the **option buyer** and the party which sells the right and receives a premium for assuming such obligation is called the **option seller/ writer**. In the above case Mr. X is the option buyer and Mr. Y is the option seller.
- The price that the option buyer pays to the option seller to acquire the right is called the **option price or option premium.** In the above case, Rs. 50000/- is the option premium**.**
- The asset which is bought or sold is an underlying or the **underlying asset** which is land in the above case.
- In options trading, "**to exercise**" means to put into effect the right to buy or sell the underlying security that is specified in the options contract. If the holder of a call option exercises the contract, they will buy the underlying security at a stated price within a specific timeframe. If the holder of a put option exercises the contract, they will sell the underlying security at a stated price within a specific timeframe. In the above example, if the price of land on May 31, 2024, is Rs. 15 lacs, Mr. X will exercise its option as he needs to pay only Rs. 10 lacs to buy the land.

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 damage 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 the 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. A customer paying additional charges for a warranty of certain parts is also an example of a put option, where the customer is the buyer of the put.

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

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

The difference between the two contracts is that in the case of futures both the parties have the right as well as obligation to buy or sell and therefore face similar risk. Whereas in options, the option buyer has only rights and no obligation and therefore faces only the risk of premium paid. On the other hand, the 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 capture unlimited upside while 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. Similarly, the put option buyer would exercise the option, only if the price of the underlying asset is less than the strike price.

4.3 Style of Options

In options trading, "to exercise" means to put into effect the right to buy or sell the underlying security that is specified in the options contract. Before exercising an option, it is important to consider what type of option you have and whether you can exercise it. Based on when the buyer is allowed to exercise the option, options are classified into two types:

- **European options**: European options can be exercised by the option buyer only on the expiration date. Hence, the option buyer enjoys less flexibility in how they handle option trading. However, please note that in the case of exchange-traded options,

participants can sell their option in the secondary market prior to the option expiration date to square-off their position.

- **American options**: American options can be exercised by the buyer any time on or before the expiration date. American options offer more flexibility to option buyer as they can be exercised on any trading day prior to their expiration. All other things remaining constant (underlying asset, strike price, expiry date etc.) the price of American options is always higher than or equal to European options.

4.4 Moneyness of an Option

The buyer of a call option would exercise his right to buy the underlying asset only if the spot price of the 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 the underlying asset is lower than the strike price at the maturity of the contract. In certain cases, transaction/regulatory charges are applicable at the time of exercise. If these costs are included, the decision of the 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 the spot price is equal to the strike price. On exercise of ATM option buyer gets zero cash flows. Any movement in spot price of underlying from this stage would either make the option ITM or OTM.

Strike	Call Option	Put Option
In-the-money	Strike price < Spot price of underlying asset	Strike price > Spot price of underlying asset
At-the-money	Strike price = Spot price of underlying asset	Strike price = Spot price of underlying asset
Out-of-the-money	Strike price > Spot price of underlying asset	Strike price < Spot price of underlying asset

4.5 Basics of Option Pricing and Options Greeks

4.5.1 Option Value:

The option value/option premium can be broken down into two parts:-

Intrinsic value: The option premium, defined in the earlier section, consists of two components – intrinsic value and time value. For an option, intrinsic value refers to the amount by which the option is in the money i.e. the amount an option buyer will realize, before adjusting for premium paid, if he exercises the option instantly. Therefore, only in-the-money options have intrinsic value whereas at-the-money and out-of-the-money options have zero intrinsic value. The intrinsic value of an option can never be negative. This is because the option buyer would never choose to exercise the option if such exercise can result in a loss for him. Thus, for a call option which is in-the-money, intrinsic value is the excess of spot price (S) over the exercise price (X). Thus, intrinsic value of a call option can be calculated as S-X, with minimum value possible as zero because no one would like to exercise his right in an unprofitable situation.

Similarly, for a put option which is in-the-money, intrinsic value is the excess of exercise price (X) over the spot price (S). Thus, intrinsic value of a put option can be calculated as: X-S, with minimum value possible as zero because no one would like to exercise his right under disadvantageous conditions.

Time value: The difference between the option premium and the intrinsic value is the time value of that Option. ATM and OTM options have only time value because the intrinsic value of such option is zero. The time value is directly proportional to the length of time to expiration date of the option. The longer the time to expiration, higher is the time value. Therefore, everything else remaining the same, a call option with two months' maturity would be priced higher than the call option at the same strike price but with one month maturity.

The time value reflects the probability that the option will gain intrinsic value or become profitable to exercise before its maturity. Therefore, the higher the time to expiration, higher is this probability and higher is the time value. Please note that at expiry the option value is its intrinsic value and time value will become zero.

4.5.2 Option Pricing Fundamentals

On what basis did market participants come to these values of the premiums? What are the parameters that affect these values? Are these fixed by the stock exchanges, by RBI or by SEBI? The answer lies in understanding what affects options. Prices are never fixed by stock exchanges or RBI or SEBI or anybody for that matter. In fact, price discovery is a very critical and basic component of markets. Stock exchanges only provide a platform where buyers and sellers meet, and SEBI's role is to ensure the smooth functioning of our markets. Any option's value increases or decreases depending upon different variables. Each variable has its impact on an option. The impact can be same or different for a call

and put option. As explained in the earlier section, option premium is the sum of intrinsic value and time value. As long as the option has not expired, there will always be some time value. The option may or may not have any intrinsic value, depending upon whether the option is ITM, ATM or OTM. Time value of the option in turn depends upon how much time is remaining for the option to expire and how volatile is the underlying.

Thus, there are five fundamental parameters on which the option price depends:
1) Spot price of the underlying asset
2) Strike price of the option
3) Volatility of the underlying asset's price
4) Time to expiration
5) Interest rates
These factors affect the premium/ price of options (both American & European) in several ways.

Spot price of the underlying asset

The option premium is affected by the price movements in the underlying instrument. Other factors remaining constant, if the price of the underlying asset goes up, the value of the call option increases, while the value of the put option decreases. Similarly, if the price of the underlying asset falls, the value of the call option decreases, while the value of the put option increases.

Strike Price

If all the other factors remain constant but the strike price of a call option increases, the intrinsic value of the call will decrease and hence the price of the call will also decrease. On the other hand, with all the other factors remaining constant, an increase in the strike price of a put option increases its intrinsic value, which in turn increases the price of the put.

Volatility

It is the magnitude of movement in the underlying asset's price, either up or down. It affects both call and put options in the same way. The higher the volatility of the underlying stock, the higher would be the option premium because there is a greater possibility that the option will move in-the-money during the life of the contract.
Higher volatility = Higher premium, Lower volatility = Lower premium (for both call and put options).

Time to expiration

The effect of time to expiration on both call and put options is similar to that of volatility on option premiums. Generally, the longer the maturity of the option, the greater is the uncertainty and hence the premiums would be higher. If all other factors affecting an option's price remain the same, the time value portion of an option's premium will decrease with the passage of time. This is also known as time decay. Options are known as 'wasting assets', due to this property where the time value gradually falls to zero.

It is also interesting to note that of the two components of option pricing (time value and intrinsic value), one component, i.e. the time value, is inherently biased towards reducing in value. So, if all things remain constant throughout the contract period, the option price will always fall by its expiry date. Thus, option sellers are at a fundamental advantage as compared to option buyers as there is an inherent tendency for the option price to decline over its life.

Interest Rates

The "interest rate" referred to in relation to the prices of options is what is known as the "Risk Free Interest Rate". Interest rates are slightly complicated because they affect different options, differently. In a simpler way high interest rates will result in an increase in the value of a call option and a decrease in the value of a put option.

The relationship between different factors and value of call/ put option is given in the table below. The arrow depicts the rise or fall in prices of options contracts when one of the parameter changes in value while other parameters remain unchanged.

Factor	Change in Factor	Call Premium	Put Premium
Spot Price	Increase	↑	↓
Spot Price	Decrease	↓	↑
Strike Price	Increase	↓	↑
Strike Price	Decrease	↑	↓
Volatility	Increase	↑	↑
Volatility	Decrease	↓	↓
Time to Expiry	Longer	↑	↑
Time to Expiry	Shorter	↓	↓
Interest Rates	Increase	↑	↓
Interest Rates	Decrease	↓	↑

4.5.3 Option Greeks

Option premiums change with changes in the factors that determine option pricing i.e. factors such as strike price, volatility, term to maturity etc. "Greeks" is a term used in the options market to describe the different dimensions of risk involved in taking an options position. There are five primary Greek risk measures represented by Delta, Gamma, Theta, Vega and Rho.

Delta: The most important of the 'Greeks' is the option's "Delta". This measures the sensitivity of the option value to a given small change in the price of the underlying asset.

It may also be seen as the speed with which an option moves with respect to change in the price of the underlying asset.

Delta = Change in option premium/ Unit change in 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.

Delta for call option
Assume a call option has a delta of 0.3 or 30 per cent – what does this mean?
Well, as we know the delta measures the rate of change of premium for every unit change in the underlying. So, a delta of 0.3 indicates that for every 1-point change in the underlying, the premium is likely change by 0.3 units, or for every 100-point change in the underlying the premium is likely to change by 30 points. The following example should help you understand this better:

Price of USDINR @ 9:30 AM is at Rs. 82.80
Option Strike = 82.50 **Call Option**
Premium = Rs. 0.45
Delta of the option = + 0.55

Scenario 1: Price of USDINR @ 3:00 PM is expected to reach Rs. 83.00
What is the likely option premium value at 3:00 PM?
We know the delta of the option is 0.55, which means for every 1-point change in the underlying the premium is expected to change by 0.55 points. We are expecting the underlying to change by 0.20 paise (83.00-82.80), hence the premium is supposed to increase by
= 0.20*0.55
= 0.11
Therefore the new option premium is expected to trade around **0.56** (0.45+0.11)
(Here, we assume that other factors like volatility etc. will remain constant).

Scenario 2: Price of USDINR @ 3:00 PM is expected to reach Rs. 82.60
What is the likely option premium value at 3:00 PM?
We know the delta of the option is 0.55, which means for every 1-point change in the underlying the premium is expected to change by 0.55 points. We are expecting the underlying to change by -0.20 paise (82.80-82.60), hence the premium is supposed to change by
= -0.20*0.55
= -0.11
Therefore, the new option premium is expected to trade around **0.34** (0.45-0.11)

Gamma (γ)

It measures the potential change in option delta with respect to a very small change in the price of the underlying asset. This is the second derivative of the option price with respect to a change in the underlying price. It is calculated as the ratio of change in delta to a unit change in market price of the underlying asset.

Gamma = Change in the option delta / Unit change in price of underlying asset

Gamma works as an acceleration of the delta, i.e. it signifies the speed with which an option will go either in-the-money or out-of-the-money due to a change in price of the underlying asset.

For example, consider this – The delta and Gamma of an ATM Put option is -0.50 and 0.004 respectively. Remember Put options have a negative Delta. Gamma as you notice is a positive number i.e., +0.004. The underlying moves by 10 points without specifying the direction, so let us figure out what happens in both cases.

Case 1 – Underlying price moves up by 10 points
Delta = – 0.5
Gamma = 0.004
Change in underlying = 10 points
Change in Delta = Gamma * Change in underlying = 0.004 * 10 = 0.04
New Delta = -0.5 + 0.04 = **– 0.46**
(The Put option's delta declines when the underlying price increases)

Case 2 – Underlying price goes down by 10 points
Delta = – 0.5
Gamma = 0.004
Change in underlying = – 10 points
Change in Delta = Gamma * Change in underlying = 0.004 *(– 10) = – 0.04
New Delta = – 0.5 + (-0.04) = **– 0.54**
(The Put option gains delta when underlying price declines)

Theta (θ)
It is a measure of an option's sensitivity to time decay. Theta is the change in option price given a one-day decrease in time to expiration. It is a measure of time decay. Theta is generally used to gain an idea of how time decay affects your option positions.

Theta = Change in the option premium / Change in time to expiry

Other things being equal, options tend to lose time value each day throughout their life. This is due to the fact that the uncertainty element in the price decreases. Theta is expressed in points lost per day when all other conditions remain the same. Time runs in only one direction; hence theta is always a positive number, however as it is a loss in the options value, it is sometimes written as a negative number. A Theta of -0.5 indicates that

the option premium will lose -0.5 points for every day that passes by. For example, if an option is trading at Rs.2.75 with theta of -0.05 then it will trade at Rs.2.70 the following day (provided other things remain constant). A long option position (option buyer) always has a negative theta meaning that all else being equal, the option buyer will lose money on a daily basis. A short option (option seller) has a positive theta. Theta is friendly to the option seller.

Vega (v)

This is a measure of the sensitivity of an option price to changes in market volatility. It is the change of an option premium for a given change in the underlying volatility.

Vega = Change in an option premium / Change in volatility

Vega is positive for a long call and a long put. An increase in the assumed volatility of the underlying increases the expected pay-out from a long option, whether it is a call or a put.

Since options gain value with increase in volatility, the vega is a positive number, for both calls and puts. For example – if the option has a vega of 0.15, then for each % change in volatility, the option will gain or lose 0.15 in its theoretical value. The effect of volatility is highest when there are more days left for expiry.

Suppose that the USDINR spot is trading at Rs. 83 in May and a June expiry 83.30 call is trading for Rs.0.10. Let's assume that the vega of the option is 0.02 and that the underlying volatility is 10%. If the underlying volatility increased by 1% to 11%, then the price of the option should rise to 0.10 + (1 x 0.02) = 0.12.

However, if the volatility had gone down by 2% to 8% instead, then the option price should drop to 0.10 - (2 x 0.02) = Rs.0.06.

Rho (ρ)

Rho is the change in option price given a one percentage point change in the risk-free interest rate. Rho measures the change in an option’s price per unit increase in the cost of funding the underlying.

Rho = Change in an option premium / Change in cost of funding of the underlying

Call options generally rise in price as interest rates increase and put options generally decrease in price as interest rates increase. Thus, call options have positive rho, while put options have negative rho. Assume that a put option is priced at Rs. 0.50 and has a rho of -0.05. If interest rates were to decrease from 5 per cent to 4 per cent, then the price of this put option would increase from Rs.0.50 to Rs.0.55. In this same scenario, assuming the call option mentioned above with price 0.25, its price would decrease from Rs 0.25 to Rs. 0.20.

4.5.4 Put-Call Parity

Put-call parity shows the relationship that has to exist between European put and call options that have the same underlying asset, expiration, and strike prices. Put-Call parity holds only for a European option. It shows that value of European call with a certain exercise price and exercise date can be deduced from the value of a European put with the same exercise price and exercise date and vice versa.

Put-call parity is stated using this equation-

$C + PV(x) = P + S$

Here-

- C stands for the price of the call option
- PV(x) is the present value of x (the strike price), as subtracted from the value it has on the date of expiration, as considered at a risk-free rate
- P is the price of the put
- S is the spot price (current market value) the underlying asset

4.6 Option Pricing Methodology

There are various option pricing models which traders use to arrive at the right value of the option. Some of the most popular models are briefly discussed below:

4.6.1 The Binomial Pricing Model

The binomial option pricing model was developed by William Sharpe in 1978. It has proved over time to be the most flexible, intuitive and popular approach to option pricing. It can be used for pricing European as well as American options. The binomial model represents the price evolution of the option's underlying asset as a binomial tree of all possible prices at equally spaced time steps from today. The model assumes that at each step, the price can only move up and down at fixed rates and with respective simulated probabilities. This is a very accurate model as it is iterative, but also running it is very time consuming.

4.6.2 The Black-Scholes Model

The Black-Scholes model was published in 1973 by Fisher Black and Myron Scholes. It is one of the most popular, relatively simple and fast modes of option price calculation. Unlike the binomial model, it does not rely on calculation by iteration. This model is used to calculate a theoretical call price (ignoring the dividends paid during the life of the option) using the five key determinants of an option's price: stock price, strike price, volatility, time to expiration, and short-term (risk free) interest rate.

Call and Put option price can be calculated as:

$C = SN(d_1) – Xe^{-rt}N(d_2)$

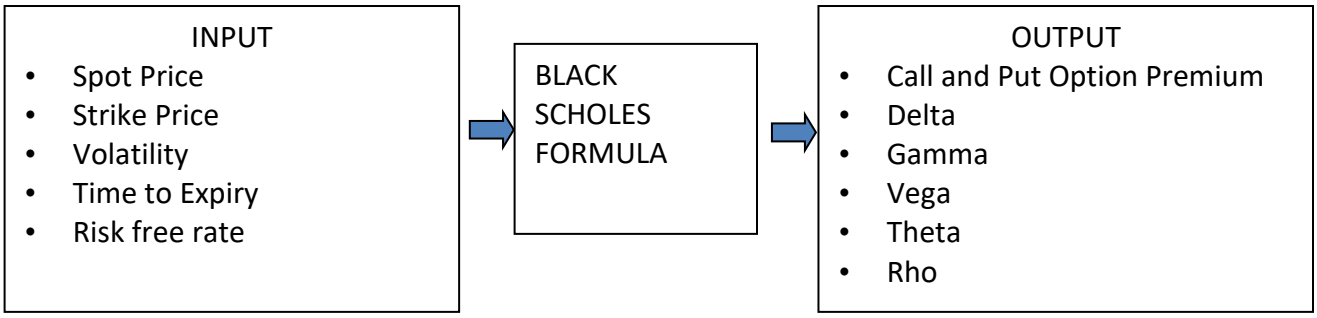
$P = Xe^{-rt}N(-d_2) - SN(-d_1)$

Where, $d1= [In(S/X)+(r+v^2/2)*t]/(v*\sqrt{t})$

$d2 = d1 – v*\sqrt{t}$

And the variables are:

- S = stock price
- X = strike price
- t = time remaining until expiration, expressed in years
- r = current continuously compounded risk-free interest rate
- v = annual volatility of stock price (the standard deviation of the short-term returns over one year)
- In = natural logarithm
- N(x) = standard normal cumulative distribution function
- e = the exponential function



The Black-Scholes model was designed to value options that can be exercised only at maturity and whose underlying assets do not pay dividends. In addition, options are valued based on certain assumptions like market movements are random, there are zero transaction costs etc. In practice, assets do pay dividends, options sometimes get exercised early, and exercising an option can affect the value of the underlying asset. Traders may modify the formula to adjust for the effect of dividend etc.

Dividends: The payment of a dividend reduces the stock price; note that on the ex-dividend day, the stock price generally declines. Consequently, call options become less valuable and put options more valuable, as expected dividend payments increase. There are two ways of dealing with dividends in the Black-Scholes model:

1. Short-term options: One approach to dealing with dividends is to estimate the present value of expected dividends that will be paid by the underlying asset during the option life and subtract it from the current value of the asset to use as S in the model. Modified stock price = Current stock price – Present value of expected dividends during the life of the option.

2. Long-term options: Since it becomes less practical to estimate the present value of dividends for longer maturity options, an alternate approach can be used. If the dividend yield (y = Dividends/Current value of the asset) on the underlying asset is expected to remain unchanged during the life of the option, the Black-Scholes model can be modified to take dividends into account.

Indian exchanges use the Black-Scholes options pricing model for the computation of the theoretical price of exchange-traded currency options..

4.6.3 Black (1976) Model

The original Black–Scholes model has undergone several theoretical developments. One such development for the valuation of futures options is introduced by Black (1976). Black proposed a formula for options under the assumption that investors generate riskless hedges between options and the futures or forward contracts. The problem of negative cost of carry was addressed by using 'forward prices' in the option pricing model instead of 'spot prices'. Black observed that actual forward prices not only incorporate cost of carry but also takes into account other irregularities in the market. In his proposed model, he substituted spot price (S) by the discounted value of future price ($F*e^{-rt}$) in the original Black-Scholes model. Black's model found application in valuing options on physical commodities where the futures price is a better alternative input for valuing options. Its primary applications are for pricing options on futures contracts, bond options, interest rate caps and floors, and swaptions.

The call options prices as per Black's formula can be observed solving the following equation:

$C = Fe^{-rt}*N(d_1) – Xe^{-rt}*N(d_2)$

$= e^{-rt} [F*N(d_1)-X*N(-d_2)]$

The corresponding Put price,

$P=e^{-rt} [X*N(-d_2)-F*N(-d_1)]$

Where $d1= \frac{\ln (F/X) + (\sigma^2/2)t}{\sigma*\sqrt{t}}$

$d2= \frac{\ln (F/X) - (\sigma^2/2)t}{\sigma*\sqrt{t}} = d1 - \sigma*\sqrt{t}$

And the variables are

- F = future price
- X = strike price
- t = time remaining until expiration, expressed in years
- r = current continuously compounded risk-free interest rate
- σ = volatility
- In = natural logarithm

- N(x) = standard normal cumulative distribution function
- e = the exponential function

The important difference between Black's and Black-Scholes is that Black uses forward/future prices and Black-Scholes uses spot prices. Indian exchanges use the Black 1976 options pricing model for computation of the theoretical price of exchange-traded interest rate options (where the underlying is government securities) .

4.7 Implied Volatility (IV)

Different types of volatility that exist – Historical Volatility, Forecasted Volatility, and Implied Volatility.

Historical Volatility: In the financial market world, we take the past closing prices of the stock/index/bonds/currency rate and calculate the historical volatility based on the past price movements. Historical volatility is very easy to calculate and helps us with most of the day-to-day requirements – for instance historical volatility can 'somewhat' be used in the options calculator to get the option price.

Forecasted Volatility refers to the act of predicting volatility over the desired time frame. A few good statistical models are available to forecast volatility.

Implied Volatility (IV) represents the market participant's expectation of volatility over the life of an option. Implied volatility can be thought of as consensus volatility arrived amongst all the market participants with respect to the expected amount of underlying price fluctuation over the remaining life of an option. Implied volatility is reflected in the price of the premium. IV is a metric used by investors to estimate future fluctuations (volatility) of a security's price based on certain predictive factors. Implied volatility is denoted by the symbol σ (sigma). It can often be thought to be a proxy of market risk. It is commonly expressed using percentages and standard deviations over a specified time horizon. IV does not predict the direction in which the price change will proceed. For example, high volatility means a large price swing, but the price could swing upward (very high), downward (very low), or fluctuate between the two directions. Low volatility means that the price likely will not make broad, unpredictable changes. When applied to the financial market, implied volatility generally increases in bearish markets, when investors believe equity prices will decline over time. IV decreases when the market is bullish. This is when investors believe prices will rise over time. Bearish markets are considered to be undesirable and riskier to the majority of equity investors.

Implied volatility can be derived from the price of the option. In fact, if there were no options traded on a given underlying, there would be no way to calculate implied volatility. How can you calculate the implied volatility of a traded option? In the case of a traded option, you know four of the five factors that determine the option price, i.e., you know the current underlying price, the option strike price, the time to maturity and the

rate of interest. Volatility is the only factor in the model that is not directly observable in the market. But if you take the current traded price of the option as given, plug the other four factors in the Black-Scholes model and run the model in reverse, you can arrive at the implied volatility of the option. Thus, implied volatility is that number, which when plugged into the Black-Scholes model along with the underlying price, strike price, time to maturity and rate of interest, makes the resulting option price equal to the current traded option price.

Implied volatility is a dynamic figure that changes based on the activity in the options marketplace. Usually, when implied volatility increases, the price of options will increase as well, assuming all other things remain constant. So, when implied volatility increases after a trade has been placed, it is good for the option owner and bad for the option seller. Conversely, if implied volatility decreases after you enter the trade, the price of options usually decreases. That is good if you are an option seller but bad if you are an option owner (i.e., for long option position).

4.8 Pay off Diagrams for Options

Having gone through the basic terminology used in the options market, let us get to the pay-off profile of various option positions.

Long Option position The buyer of an option is said to be "long on the option". As described above, he/she has a right but no obligation with regard to buying / selling the underlying asset in the contract. When you are long an option contract:

- You have the right to exercise that option.
- Your potential loss is limited to the premium amount you paid for buying the option.
- Profit would depend on the level of underlying asset price at the time of exercise/expiry of the contract.

Short Option position

The seller of an option is said to be "short the option". As described above, he/she has the obligation but no right with regard to selling/buying the underlying asset in the contract. When you are short (i.e., the writer of) an option contract:

- Your maximum profit is the premium received.
- You can be assigned the option on exercise by the option buyer. All option writers should be aware that assignment is a distinct possibility.
- Your potential loss is theoretically unlimited.

Now, let us understand each of these positions in detail:

4.8.1 Long Call

On March 1, 2024, USDINR is trading at Rs. 82.80. You buy a call option with a strike price of 83 expiring on March 26, 2024, by paying a premium of Rs. 0.10 . A call option gives the buyer the right, but not the obligation to buy the underlying at the strike price. So, in this example, you have the right to buy USD at Rs. 83. You may or may not buy the dollar at

this price; there is no compulsion. If the USDINR rate is above Rs. 83 at expiry, you will exercise the option, else you will let it expire. Let us try to understand your maximum profits/ losses under different conditions at expiry using pay off charts.

If on expiry USDINR rate is Rs. 82.75, you will not exercise the right to buy the underlying (which you have obtained by buying the call option) as USD is available in the market at a price lower than your strike price. Why will you buy something at Rs. 83 when you can have the same thing at Rs. 82.75? So, you will give up the right to buy at 83. In such a situation, your loss will be equal to the premium paid, which in this case is Rs. 0.10.

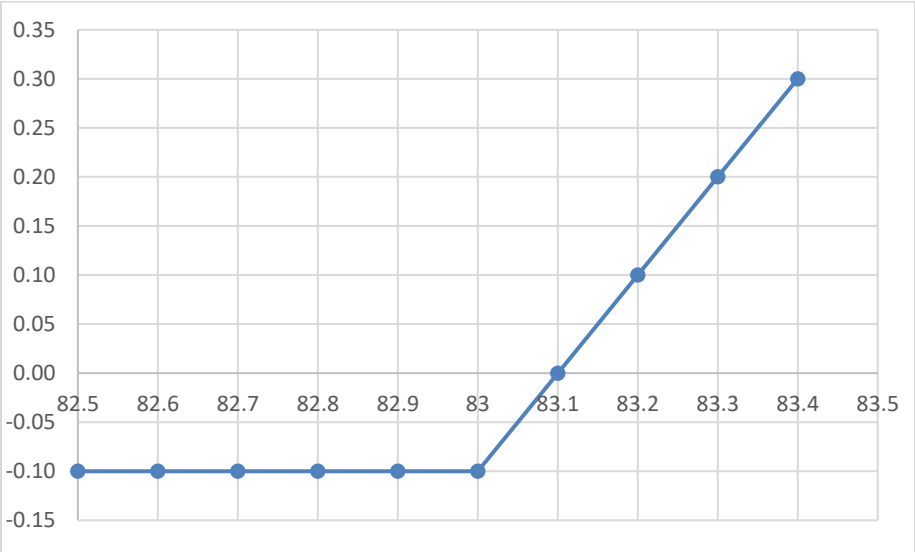
If on expiry if USDINR rate was at Rs. 83.10, you will exercise the option and buy USD at Rs. 83 and sell it at the market price of Rs. 83.10 You will pocket a gain of Rs.0.10 in this transaction, but you have already paid this much money to the option seller right at the beginning, when you bought the option. So, Rs.83.10 is the Break-Even Point (BEP) for this option contract, the price level at which the option buyer makes neither a profit nor any loss. A general formula for calculating BEP for call options is the strike price plus premium (X + c), where X is the strike price of the call and c is the call option premium.

If USDINR were to close at Rs. 83.50, you will exercise the option and buy USD at Rs. 83 and sell it in the market at Rs.83.50, thereby making a profit of Rs. 0.50. But since you have already paid Rs. 0.10 as option premium, your net profit would be 0.50-0.10 = 0.40. Similar to futures contracts, options can be settled through physical delivery, or can be cash settled. In the case of cash-settled option contracts, the option buyer receives only the profit amount on exercise i.e. the difference between the strike price of the option and the spot price on the exercise date, which is Rs.0.50 in this example.

For profits/losses for other values, a table is given below. This table is used to draw the pay off diagram:

Strike price	**83.00**		
Premium	**0.10**		
USDINR at expiry	**Premium paid (A)**	**Payoff on expiry (B)**	**Profit on expiry (C)= (A) +(B)**
82.50	-0.10	0.00	-0.10
82.60	-0.10	0.00	-0.10
82.70	-0.10	0.00	-0.10
82.80	-0.10	0.00	-0.10
82.90	-0.10	0.00	-0.10
83.00	-0.10	0.00	-0.10
83.10	-0.10	0.10	0.00

83.20	-0.10	0.20	0.10
83.30	-0.10	0.30	0.20
83.40	-0.10	0.40	0.30
83.50	-0.10	0.50	0.40



Payoff diagram for the long call position

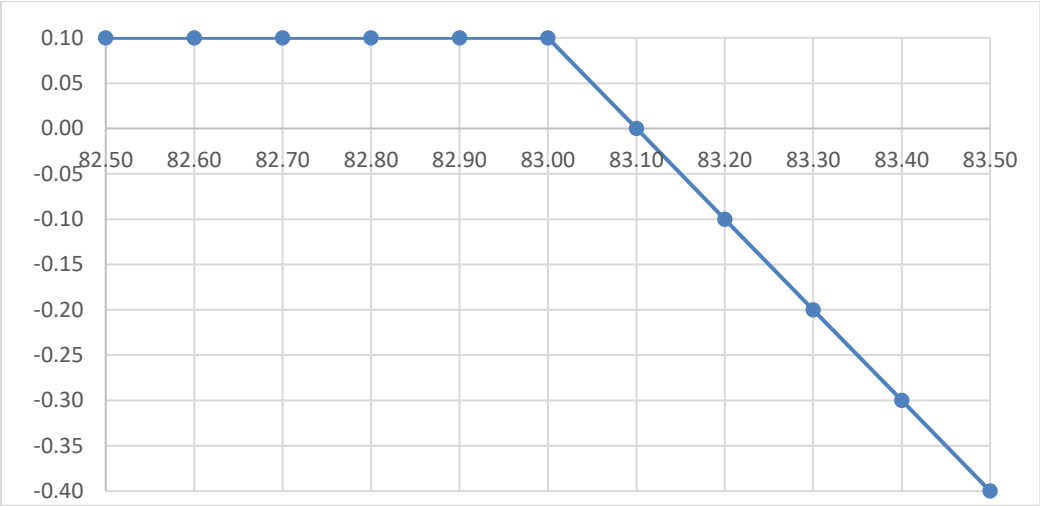
You can see from the diagram that maximum loss for such option buyer will be Rs. 0.10. The lot size of Exchange traded currency option is 1000 USD, so the maximum loss per lot will be Rs. 100 (=1000*0.10).

4.8.2 Short Call

Whenever someone buys a call option, there has to be a counterparty, who has sold that call option. If the maximum loss for a long call position is equal to the premium paid, it automatically means that the maximum gain for the short call position will be equal to the premium received. Similarly, if maximum gain for long call position is unlimited, then the maximum loss for the short call position must be unlimited. Lastly, whenever, the long call position makes losses, the short call position makes profits and vice versa. Hence, the short call pay off chart is just the mirror image of the long call pay off.

Strike price	**83.00**		
Premium	**-0.10**		
USDINR at expiry	**Premium received (A)**	**Payoff on expiry (B)**	**Profit on expiry (C) =(A) +(B)**
82.50	0.10	0.00	0.10

82.60	0.10	0.00	0.10
82.70	0.10	0.00	0.10
82.80	0.10	0.00	0.10
82.90	0.10	0.00	0.10
83.00	0.10	0.00	0.10
83.10	0.10	-0.10	0.00
83.20	0.10	-0.20	-0.10
83.30	0.10	-0.30	-0.20
83.40	0.10	-0.40	-0.30
83.50	0.10	-0.50	-0.40



Payoff diagram for the short call position

The pay-off chart for a short call position is shown above. Maximum gain for an option seller, as explained earlier, is equal to the premium received, whereas maximum loss can be unlimited (when price starts moving above BEP). BEP for a short call position will also be equal to X + P. BEP is independent of position (long or short), it is instrument specific (call option).

4.8.3 Long Put

On March 1, 2024 USDINR is trading at Rs. 82.80. You buy a put option with strike price of 83.00 at a premium of Rs. 0.075 with expiry date March 26, 2024. A Put option gives the buyer the right, but not the obligation to sell the underlying at the strike price. So, in this example, you have the right to sell USD at Rs. 83. You may or may not sell USD at this price; there is no compulsion. If USDINR trades below Rs. 83 at expiry, you will exercise the option; else you will let it expire. Let us try to understand your maximum profits/ losses under different conditions at expiry using pay off diagrams.

If on expiry USDINR rate is Rs. 83.25, you will not exercise the right to sell the underlying (which you have obtained by buying the put option) as USDINR can be sold in the market

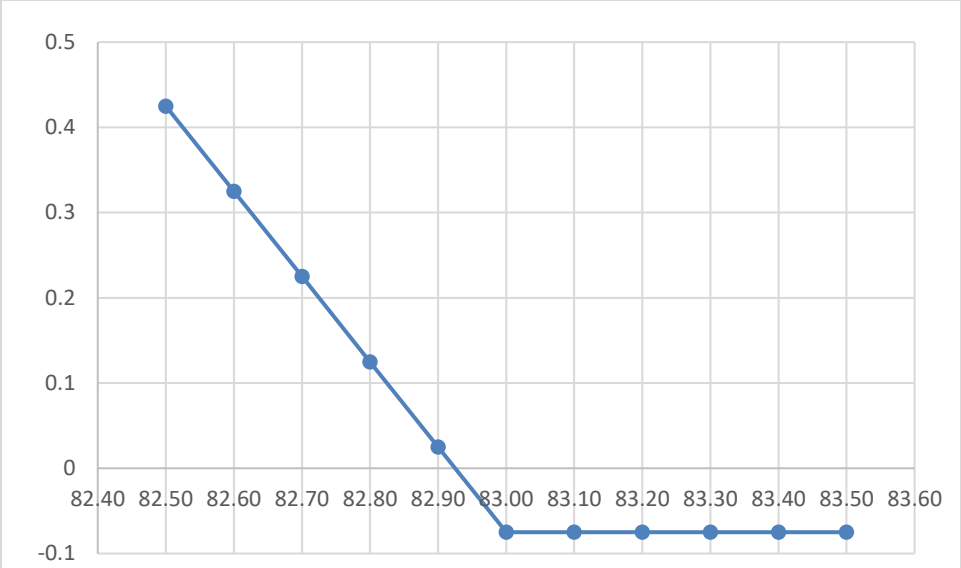
at a price higher than your strike price. Why will you sell something at Rs.83 when you can sell the same thing at Rs. 83.25? So, you will forego the right. In such a situation, your loss will be equal to the premium paid, which in this case is Rs. 0.075.

If on expiry if USDINR rate were at Rs. 82.925, you will exercise the option and sell USD at Rs.83 and make profit by buying it at Rs. 82.925. In this transaction you will make a profit of Rs. 0.075, but you have already paid this much money to the option seller right at the beginning, when you bought the option. So Rs.82.925 is the Break-Even Point (BEP) for this option contract. A general formula for calculating BEP for put options is strike price minus premium (X - P).

If USDINR were to close at Rs. 82.50, you will exercise the option and sell USD at Rs.83 and buy it in the market at Rs.82.50, thereby making a profit of Rs. 0.50. But since you have already paid Rs. 0.075 as option premium, your actual profit would be 0.50-0.075 = 0.425. In the case of cash-settled options, the option buyer will receive only the profit amount i.e. Rs0.425 on exercise.

For profits/losses for other values, a table is given below. This table is used to draw the pay off diagram:

Strike price	**83**		
Premium	**0.075**		
Nifty at expiry	**Premium paid (A)**	**Payoff on expiry (B)**	**Profit on expiry (C) =(A)+(B)**
82.50	-0.075	0.500	0.425
82.60	-0.075	0.400	0.325
82.70	-0.075	0.300	0.225
82.80	-0.075	0.200	0.125
82.90	-0.075	0.100	0.025
83.00	-0.075	0.000	-0.075
83.10	-0.075	0.000	-0.075
83.20	-0.075	0.000	-0.075
83.30	-0.075	0.000	-0.075
83.40	-0.075	0.000	-0.075
83.50	-0.075	0.000	-0.075



Payoff diagram for the long put position

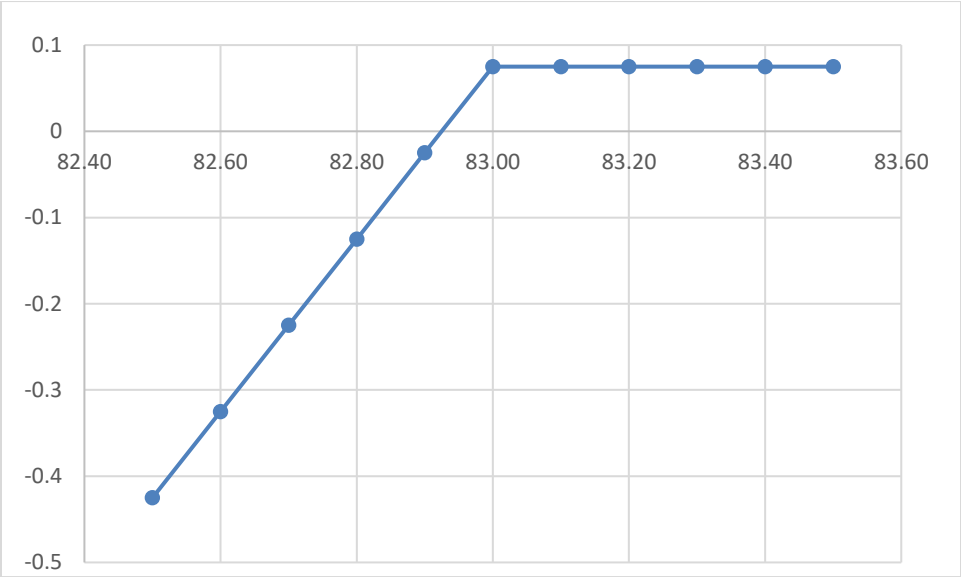
You can see from the diagram that maximum loss for such option buyer will be Rs.0.075. The lot size of Exchange traded currency option is 1000 units, so the maximum loss per lot will be Rs. 75 (=1000*0.075).

4.8.4 Short Put

The position of a put option seller/writer is simply the opposite of that of the put option buyer. When the long put makes profit, the short put makes a loss. If the maximum loss for the long put is the premium paid, then maximum profit for the short put must be equal to the premium received. If the maximum profit for the long put is when price of underlying falls to zero at expiry, then that also is the time when the short put position makes its maximum loss. Hence, the short put pay off chart is just the mirror image of the long put pay off.

Strike price	**83.00**		
Premium	**0.075**		
USDINR at expiry	**Premium received (A)**	**Payoff on expiry (B)**	**Profit on expiry (C)= (A) +(B)**
82.50	0.075	-0.500	-0.425
82.60	0.075	-0.400	-0.325
82.70	0.075	-0.300	-0.225
82.80	0.075	-0.200	-0.125
82.90	0.075	-0.100	-0.025
83.00	0.075	0.000	0.075

83.10	0.075	0.000	0.075
83.20	0.075	0.000	0.075
83.30	0.075	0.000	0.075
83.40	0.075	0.000	0.075
83.50	0.075	0.000	0.075



Payoff diagram for the short put position

The pay-off chart for a short put position is shown above. Maximum gain for an option seller, as explained earlier, will be equal to the premium received, whereas maximum loss will be upto underlying price become zero (when price starts moving below BEP). BEP for a short put position will also be equal to (X – P). BEP is independent of position (long or short), it is instrument specific (put option).

As can be seen above, options are products with asymmetric risk exposure i.e., the gains when the underlying asset moves in one direction is significantly different from the losses when the underlying asset moves in the opposite direction. For example, under a call option, when a stock price goes down, the loss incurred by the buyer of this option is limited to the purchase price of the option. But if the stock price goes up, the buyer of the call gains in proportion to the rise in the stock's value, thereby giving asymmetric pay off. In contrast to this, futures have symmetric risk exposures (symmetric pay off).

4.8.5 Square-off Option positions

Similar to futures, options positions can also be squared off (closing of position) before expiry of contracts. For e.g. An exporter hedges 20000 USD by buying March 2024 USDINR put option at a strike of Rs 83.00 when the available price was Rs 0.07/0.075. He received USD in his account of 15th March. The exporter decided to cancel the option on 15th

March when the available price for the same contract was Rs 0.04/0.045. The net pay-off for exporter will be:
Premium paid: Rs.1500 (20000 * 0.075)
Premium received at the time of square off: Rs.800 (20000 * 0.04)
Net gain / (loss) : (Rs. 700).

4.9 Contract Specification of Exchange-Traded Currency Options

Based on RBI and SEBI guidelines, various kinds of Exchange-traded currency options (also include cross currency options) have been launched by Exchanges. Currently Exchange traded currency options are part of currency derivatives segment and are trading along with currency futures and interest rate derivatives. Exchange-traded currency options are regulated by SEBI as well as RBI. In 2010, the first exchange traded currency option was launched on USDINR pair and then on EURINR, GBPINR and JPYINR. Subsequently, Exchange-traded currency options were launched on cross currency pairs (contracts involving other than Indian Rupee) namely EURUSD, GBPUSD and USDJPY. Details of the currency options contracts which are currently active on Exchanges are provided below:

Exchange Traded Currency Option Contracts (Contracts involving Indian Rupee)

Parameters	**Contract Details**			
Underlying	US Dollar-Indian Rupee **(USDINR)**	Euro – Indian Rupee **(EURINR)**	Pound Sterling – Indian Rupee **(GBPINR)**	Japanese Yen-Indian Rupee **(JPYINR)**
Unit of Trading	1 contract denotes 1000 US Dollars.	1 contract denotes 1000 Euro.	1 contract denotes 1000 Pound Sterling.	1 contract denotes 100000 Japanese Yen.
Price Quotation	The premium for options contract shall be quoted in Indian Rupees			
Contract Value	Trade Price * 1000			
Tick Size	Rs. 0.0025 (0.25 paise)			
Price Band	The price bands for options shall be based on the delta of the options contract and calculated using the previous close price of the underlying and volatility. The price band so computed shall be subject to a minimum operating range which would be applicable for all contracts. The bands shall be computed for each options contract on a daily basis and shall be applicable from the next trading day. The operating range may be flexed during the day in case the option traded prices crosses certain percentage of the set range.			

Trading Hours	Monday to Friday: 9:00 a.m. to 5:00 p.m. On contract expiry, the expired contract will be available for trading up to 12:30 pm.
Contract Trading Cycle	3 Serial monthly contracts followed by 3 quarterly contracts of the cycle March/June/September/December. For Weekly USDINR Options- 11 serial weekly contracts expiring on Friday, excluding expiry week wherein monthly contracts expires on a Friday.
Option Type	Premium style European Call & Put Options
Strike Price Interval	Rs. 0.25 (For e.g. strike will be available at RS. 74.50, 74.75, 75.00, 75.25, 75.50, etc.)
No. of strikes	Minimum 12 In-the-money, Minimum 12 Out-of-the-money and 1 Near-the-money strikes shall be provided for all available contracts.
Expiry Day	For weekly contract: Every Friday at 12:30 pm. If the Friday of the expiring week is a trading holiday, then the expiry day is the previous trading day. For monthly contract: Two working days prior to the last business day of the expiry month at 12:30 PM.
Mode of Settlement	Cash Settled in Indian Rupee
Final Settlement Price	FBIL reference rate on last trading day
Final Settlement	Final Settlement is on T+2 basis, where T denotes the expiry date.

Cross Currency Option Contracts (Contracts involving other than Indian Rupee)

Parameters	**Contract Details**		
Underlying	Euro- US Dollar **(EURUSD)**	Pound Sterling - US Dollar **(GBPUSD)**	US Dollar - Japanese Yen **(USDJPY)**
Unit of Trading	1 contract denotes 1000 Euro	1 contract denotes 1000 Pound Sterling	1 contract denotes 1000 US Dollars

Price Quotation	The premium will be quoted in USD	The premium will be quoted in USD	The premium will be quoted in JPY
Contract Value	Trade Price * 1000 (in quote currency)		
Tick Size	USD 0.0001	USD 0.0001	JPY 0.01
Price Band	The price bands for options shall be based on the delta of the options contract and calculated using the previous close price of the underlying and volatility. The price band so computed shall be subject to a minimum operating range which would be applicable for all contracts. The bands shall be computed for each options contract on a daily basis and shall be applicable from the next trading day. The operating range may be flexed during the day in case the option traded prices crosses certain percentage of the set range.		
Trading Hours	Monday to Friday: 9:00 a.m. to 7:30 p.m. On contract expiry, the expired contract will be available for trading up to 12:30 pm.		
Contract Trading Cycle	3 serial monthly contracts, followed by 3 quarterly contracts of the cycle March/June/September/December.		
Option Type	Premium style European Call & Put Options		
Strike Price Interval	USD 0.005	USD 0.005	JPY 0.5
No. of strikes	Minimum 12 In-the-money, Minimum 12 Out-of-the-money and 1 Near-the-moneys shall be provided for all available contracts.		
Expiry Day	Two working days prior to the last business day of the expiry month at 12:30 PM.		
Mode of Settlement	Cash Settled in Indian Rupees		
Final Settlement Price	The final settlement price for cross-currency futures contracts shall be computed using the FBIL reference rate for USD-INR and the corresponding exchange rate published by FBIL for EUR-INR, GBP-INR and JPY-INR, as applicable, on the last trading day of the contract.		
Final Settlement	Final Settlement: T+2 where T denotes the expiry date.		

4.10 Comparison of Exchange-Traded Currency Options and OTC Currency Options

The differences between Exchange-Traded Currency Options and OTC Options are similar to those between futures and forward contracts. In India, currently only European Options i.e. right to exercise option on specific date only, are allowed in the OTC market as well as in the ETCD segment. Exchange-traded currency options have some distinct advantages over OTC currency options as they eliminate counterparty risk and offer more liquidity and price transparency. However, it should be noted that OTC products enjoy the benefit of being customized to meet specific client requirements. The table below mentions a few differences between Exchange-Traded and OTC currency options.[8]

Comparison of OTC Currency Option and Exchange Traded Currency Option

Parameters	OTC Currency Option	Exchange Traded Currency Option
Operational mechanism	Mainly bilateral over-the-counter (OTC) transactions. Can be traded on electronic trading platform.	Contract between two parties through centralized trading platform of Exchanges
Terms of Contracts	Non- Standardized. Each Contract is custom designed and hence unique in terms of contract size, expiration date, asset quality, asset type etc.	Standardized Contract in terms of underlying asset, lot size, expiry date etc.
Price Discovery	Mainly through negotiation. Banks acts as market-makers for OTC options and the option price can differ from bank to bank. Further, the same bank may offer different option prices for different customers.	Price discovery through free interaction of buyers and sellers on centralized trading platform
Liquidity	Low, as contracts are tailor-made catering to the needs of the parties involved. Further, contracts are not easily accessible to other market participants	High, as contracts are standardized exchange-traded contracts.
Settlement	Contracts are settled bilaterally mainly through physical delivery. Gross settlement without netting is followed.	Clearing and Settlement through clearing corporation with guaranteed settlement. Currently cash settled in INR with multilateral netting.

[8] The comparison mainly based on Indian Foreign Exchange Market

Quality of information and dissemination	Very less. Mainly post trade	Traded nationwide. Information is available online on trading platform and websites.
Advantages	• Since the products are customized, they can provide almost a perfect hedge. • Delivery-based settlement is more helpful to importers and exporters • Less operation issues related to margin.	• Price transparency • Elimination of counterparty credit risk as settlement guarantee by clearing corporation of Exchanges • Access to all types of market participants • The credit risk profile of counterparties does not matter • Lower liquidity risk compared to OTC options • Generally lower impact cost • Easy entry and exit • Flexibility in using various option strategies
Limitations	• Liquidity risk • Counter party risk • Limited market participants • Certain restriction on use of various option strategies	• May lead to imperfect hedge as the contract size and settlement dates are standardized. • Since, it is cash settled, users need to access cash/spot market for actual delivery of currency. • Operational issues related to margin.

Sample Questions and Answers

1. The price which option buyer pays to option seller to acquire the right is called as _____.
    a. Agreed Price
    b. Strike Price
    c. Sell Price
    d. Premium

2. Option buyer faces _____ risk and option seller faces _____ risk.
    a. Limited, Unlimited
    b. Limited, Limited
    c. Unlimited, Limited
    d. Unlimited, Unlimited

3. An option is _____, if on exercising it, the option buyer gets positive cash flow.
    a. In the money
    b. At the money
    c. Out of the money
    d. None of the above

4. The difference between option premium and intrinsic value is _____.
    a. Strike Price
    b. Time Value
    c. Expiry Value
    d. Option Value

5. A client buys a USD call option at strike of 75.5 and pays a premium of INR 0.3. What would be the breakeven point for the transaction?
    a. 75.2
    b. 75.6
    c. 76.1
    d. 75.8

CHAPTER 5: STRATEGIES USING EXCHANGE TRADED CURRENCY DERIVATIVES

LEARNING OBJECTIVES:

After studying this chapter, you should know about following:

- Role of Hedgers, Speculators and Arbitragers
- Hedging, Speculative and Arbitrage Transaction using ETCD
- Option Strategies with Pay-off
- Spread Trading using ETCD
- Limitation of Exchange Traded Currency Derivatives for Hedgers

5.1 Market Participants

The uses of Exchange-Traded Currency Derivatives (ETCD) market could be better understood by first understanding the 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:

Hedgers

Hedgers are traders who wish to protect themselves from the risk involved in price movements of underlying i.e. foreign currency. These types of participants have a real exposure to foreign currency risk on account of their underlying business and their objective is to reduce or mitigate the foreign currency risk using Exchange-Traded Currency Derivatives. 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 has an actual exposure to currency risk.

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 that he has shipped an order of EUR 1 million for which payment will be received after 3 months. During the 3-month credit period, the exporter bears the risk of EURINR price movement. He is interested in hedging the currency price risk in case the EUR depreciates against INR. Hence, the shoe exporter will go short the EURINR futures contracts or buy EURINR put options. In this example, the shoe exporter is a hedger.

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 counterparty) and to add depth and liquidity to the markets that are vital for the functioning of a derivatives market.

Let's understand the same with an example:
For instance, assume, a farmer expects the price of wheat to fall in near future. He wants to hedge his price risk on wheat for next 3 months till the time he has actual produce in his hands and so would like to lock in the forward/ futures price now. Accordingly, farmer can sell futures contracts on the expected quantity of produce. In order to sell this futures contract, he needs a buyer. This buyer may be someone who needs wheat after three months, such as a flour mill or a bakery. However, most of the times, there is a demand supply mismatch in the market and the trader fills the gap between demand and supply. Here the trader, who is a counterparty to the farmer, has the opposite view about the wheat price i.e. he thinks that the actual price of wheat would be higher than the contract price for futures three months down the line. The trader's profit would depend upon whether the actual wheat price is higher than the contracted futures price at the maturity of futures contract. If it is so, the trader would make money otherwise he would lose money.

In the example of the shoe exporter as a hedger, he will require someone who wants to take a long position in EURINR futures. The trader, say "AD Category-I Bank,"[9] has the opposite view i.e. he believes that the EUR will appreciate against INR three months down the line. Ultimately, the trader's profit would depend upon the actual EURINR price being more than the contracted futures price at the maturity of futures contract. If so, trader would make money, else he would lose money.

Arbitragers

In addition to hedgers and traders, a third type of participants called arbitragers serve as a link between the spot and derivatives markets. These arbitragers continuously hunt for the profit opportunities across the markets and products and seize those by executing

[9] AD Category-I Bank means a bank (Scheduled Commercial, State or Urban Cooperative) which is authorized under Section 10(1) of FEMA to undertake all current and capital account transactions according to the directions issued by the RBI from time to time

trades in different markets and products simultaneously. Importantly, arbitragers generally lock in their profits unlike traders who trade naked contracts. This set of market participants identify mispricing in the market and exploit it for making a profit. Unlike the hedgers, arbitragers have no underlying exposure. Unlike the speculators, arbitragers are not willing to assume risk for the prospect of large profits. Arbitragers 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 discover this opportunity, they may also implement the arbitrage strategy and in the process bring the market to a level of equilibrium and the arbitrage opportunity may cease to exist.

For example, at the end of day (1st March 2024):
Market price of underlying asset (in Rs.) 100
March futures 110
Lot size 50
Here an arbitrageur will buy in the cash market at Rs. 100 and sell in the Futures market at Rs. 110, thereby locking Rs. 10 as his profit on each unit. On the expiration date, suppose price (in Rs.) of the underlying asset is 108.

Cash Market	Futures
Buy 100	Sell 110
Sell 108	Buy 108
+8	+2

Total profit would therefore be 10 (8+2)*50 = Rs. 500.

Suppose price (in Rs.) of the underlying asset is 95 on the expiration date.

Cash Market	Futures
Buy 100	Sell 110
Sell 95	Buy 95
-5	+15

Total profit is 10 (-5+15)*50 = Rs. 500.

We have not considered the transaction costs, impact cost, carry cost/opportunity cost/borrowing cost, etc. while computing the arbitrage gain in this example. All these costs have to be considered in real life.

Here, it may be interesting to look at the risks these arbitragers carry. As seen before, arbitragers execute positions in two or more markets/products simultaneously. Even if the systems are seamless and electronic and both the legs of transaction are liquid, there is a real possibility of a time gap between the execution of both the orders. If either leg of the transaction is illiquid then the arbitrage strategy is highly risky as one leg may be executed and the other may not. This would lead to the arbitrager having a naked position

instead of a hedged position. Similarly, if contracts are not cash settled in both or one of the markets, it would need a reversal of trades in the respective markets, which would result in additional risk on unwinding of the positions with regard to simultaneous execution of the trades. These profit-focused traders and arbitragers fetch enormous liquidity to the products traded on the exchanges. This liquidity in turn results in better price discovery, lower transaction costs and lesser market manipulation.

5.2 Hedging Through Exchange-Traded Currency Derivatives

For hedging we must decide three parameters: (1) the derivative contract to be used as a hedge; (2) type of hedge, i.e. long or short hedge; and (3) Contract Month.

The derivative contract to be used will depend on the currency pair we want to trade. For e.g. An exporter who will receive money in EUR and plans to convert EUR to INR will hedge using the EURINR derivatives contract, while an importer wishing to convert INR into USD for making payment to a foreign supplier will hedge using the USDINR contract.

The type of hedge to be taken, i.e. whether to buy or sell futures or buy or sell a call or a put, will depend on whether the participant has to receive (for e.g. exporter) or pay (for e.g. importer) foreign currency. In case the market participant is expected to receive EUR, it is exposed to the risk of depreciation in the value of EUR against INR. Hence, the participant will either sell EURINR futures or buy EURINR "Put" option. Similarly, a participant who has to make payment in USD, is exposed to the risk of appreciation of USD against INR. Hence, this participant will either buy USDINR futures or buy USDINR "Call" option.

The choice of the contract month depends on the timing of expected receipt or payment of foreign currency. If the participant expects to receive EUR after three months, he will choose a contract that expires in three months; if participant expects to pay USD after one month, he will choose a contract that expires in one month; and so on. The contract month should be chosen in such a way that the date of receipt or payment of foreign currency is close to but prior to the expiration date of the contract. For example, an exporter who expects to receive EUR on 17th March, 2024, will choose the March futures contract as its expiration date (26th March) is closer to the expected date of receipt than that of the April or May futures contracts. The following summarizes the selection of these parameters.

Parameter	Selection
Derivative contract	Linked to Currency Pair For EUR, use EURINR futures/options. For USD, use USDINR futures/options
Type of hedge-long or short	Linked to the receipt or payment of foreign currency For receipt of EUR against INR, either sell EURINR futures or buy EURINR Put option

	For payment of USD against INR, either buy USDINR futures or buy USDINR Call option
Contract Month	Linked to when we expect to receive foreign currency or have to pay foreign currency The timing of expected receipt or payment of foreign currency should be as close as possible, but before the expiration date of the futures or options.

Similarly, for trading we must decide three parameters 1) the derivatives contract to be used; (2)type of trade,i.e. whether to buy or sell ; and (3) contract month.
For e.g. a trader who expects the USD to appreciate against INR in next 2 months, will buy USDINR futures or buy USDINR call options maturing after 2 months. If a trader expects the rupee to appreciate against EUR (i.e. EUR will depreciate against INR) in next three months, he will sell EURINR futures or buy EURINR put options maturing after 3 months.

5.2.1 Combined position of futures and underlying export trade remittance

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 USDINR @ 81 as the budgeted price while signing the export contract. To avoid the FX risk, the exporter sells four-month futures at the price of 81.75 which is expiring on March 26, 2024. The exporter receives USD on March 15, 2024, well on time and he converts USD to INR in the OTC market at the then prevailing price of 83and also squares up the futures contract at the same time at the price of 83.05. 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 81, the exporter realizes the price of 83 and therefore there is a net positive change of Rs 2
- Futures contract: Against the contracted price of 81.75, the exporter had to square up the contract at 83.05, thus resulting in a net negative change of Rs 1.30.
- Combined effect: The combined effect of change in USDINR spot price and change in future price i.e. (Rs 2) + (- Rs 1.30) = + Rs 0.70
- Effective price: Therefore, the effective price was 81(budgeted price) + 0.70 (effect of hedging and underlying trade transaction) i.e. Rs 81.70. (In other way: the effective price is Rs. 8300-Rs.1.30)

In the same example, suppose that the INR appreciated against USD. At the time of converting USD to INR the spot was 80 and the futures contract was wound up at 80.05,

the effective exchange rate for the exporter would still be 81.70. This is because while the exporter receives Re.1 less than his budgeted price in the spot market, he also makes a gain of Rs.1.70 (Rs.81.75-Rs.80.05) on the squaring up of the futures contract . Therefore, the net effect will be summation of -1 and +1.70, i.e.0.70 + the budgeted price of Rs.81, i.e. Rs.81.70

Please notice that the futures contract enables the exporter to lock in a price of 81.70 irrespective of any depreciation or appreciation of INR. However, not using currency futures would have resulted in an effective rate of 83 (in the first case when INR depreciated from 81 to 83) and an effective rate of 80 (in the second case when INR appreciated from 81 to 80). Thus the exporter is able to mitigate the risk of currency movement by using currency futures.

5.2.2 Combined position of futures and underlying import trade remittance

Let us take an example where an importer hedges only a partial amount of his 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 81. 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 81.50 using two months futures contract. In the next two months, INR depreciated to 82 at the time of making import payment. On the day of making import payment, the futures contract price was at 82.05. 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 81.50, the importer settled the contract at 82.05, thereby resulting in a net positive change of Rs 0.55. 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 82 (final remittance price) for the unhedged part and 81.45 (= 82 – 0.55) for the balance half which was hedged. The figure of 81.45 is computed by deducting 0.55 (inflow from hedged position) from the spot price of 82. Therefore, final effective price would be:
  (82.00 x 0.5) + (81.45 x 0.5) = Rs.81.725.

Please note that since it is an import payment, a lower USDINR exchange rate would be beneficial for the importer. Therefore a positive inflow from the futures contract is reduced from the remittance price to compute the effective price for the hedged part. As against the effective price of 81.725, the price would have been Rs.81.45 had the importer

decided to hedge the total exposure. Also note that without hedging, the effective price would have been 82, i.e., the price at which the importer made the import remittance.
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

5.2.3 Investment in Gold

Many investors in India are keen to invest in gold with expectation of rising gold prices in dollar terms. Suppose that an investor invested in a gold ETF contract priced in INR. Within three months of his investment, gold appreciated by 15% in dollar terms while the ETF appreciated by only 10%. The low appreciation of ETF was because of a 5% appreciation in INR against USD in the last three months. The investor is contemplating ways to remove the USDINR risk in ETF contract such that he is left only with the risk and return related to gold price movement without worrying about USDINR fluctuations. How can he achieve this using currency derivatives ?

The investor could short USDINR currency futures/buy USDINR put option 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 the gold ETF. If INR appreciates against USD, it will negatively impact gold ETF while it would positively impact the currency futures/ put option contract.

Please note that the 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.

5.2.4 Investment in assets outside India and repatriation of profit and capital

Currency derivatives 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 anticipating an appreciation of the US stock market. In the 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 81 as against 83 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 the investor's return on capital in USD and INR? What would be his return in INR if it had depreciated to 85 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 83,00,000 and at maturity it is 93,15,000 (81 x 115,000). Therefore, the return in INR is:

(93,15,000-83,00,000)/(83,00,000) = 12.23%.

Thus, the return decreased from 15% to 12.23% due to INR appreciation from 83 to 81. However, if INR had depreciated from 83 to 85 the return would have increased to 17.77%.

((115,000 x 85) – 83,00,000)/ 83,00,000 = 0.1777 In percentage terms, it would be 17.77 %.

You would notice that the return in INR terms 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 his portfolio from currency risk.

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

The investor may short a one-year USDINR currency futures or buy a one-year USDINR put option. This would allow him to sell USD to INR at a contracted price via the derivatives contact and thus remove currency risk from the portfolio.

5.2.5 Trade remittance from multiple transactions

An international trading company has export revenue in USD., It uses part of the revenues to make import payments in EUR and the balance is converted in INR. The company is concerned about EURUSD risk for its import payments. The company can go long on EURUSD futures contract for hedging the risk. In case EURUSD contract is illiquid and there is no price advantage, the company can short USDINR futures and long EURINR futures to hedge EURUSD.

A company in India has both imports and exports in USD. In such a case the company may hedge only the residual currency risk provided there is no significant gap between remittances receivable and payable. In the case of imports being more than the exports, the company can hedge the residual USDINR risk by going long on USDINR futures and vice versa.

5.2.6 Payment in foreign currency for education in abroad

A person is required to pay the education fee for his son in USDafter 6 months. The current USDINR is trading at 82 and the premium for 6 months is 2%. The person invested Rs. 200,000 in Indian fixed income securities for 6 months @ rate of 6% p.a. The person hedges his currency risk using USDINR 6-month futures. How many dollars can this person remit to his son for education fee at the end of 6 months?

Fixed Income investment = Rs. 200000
Interest on Fixed Income investment = 200000*6%*6/12= Rs. 6000
Total amount available after 6 months= Rs. 206000
6-month USDINR Future rate = 82+2%*82 = Rs.83.64
USD available after 6 months = 206000/83.64 = USD 2462.94

5.3 Option Trading Strategies

Having understood the risk / return profiles for vanilla call / put options in earlier chapter, now we turn to using these products to our advantage – called option strategies. The only limiting factor for strategies is the thought of the trader / strategy designer. As long as the trader can think of innovative combinations of various options, newer strategies will keep coming to the market. Exotic products (or 'exotics') are nothing but a combination of different derivative products. In this section, we will see some of the most commonly used strategies.

5.3.1 Option Spreads

Spreads involve combining options of the same type (call/ put) on the same underlying asset but with different strikes and maturities. These are limited profit and limited loss positions. They are primarily categorized into three sections as:

- Vertical Spreads
- Horizontal Spreads
- Diagonal Spreads

Vertical Spreads

Vertical spreads are created by using options having the same expiry but different strike prices. Further, these can be created using combinations of either calls or puts. These can be further classified as:

- Bullish Vertical Spread
    - Using Calls
    - Using Puts
- Bearish Vertical Spread
    - Using Calls
    - Using Puts

5.3.1.1 Bullish Vertical Spread using Calls

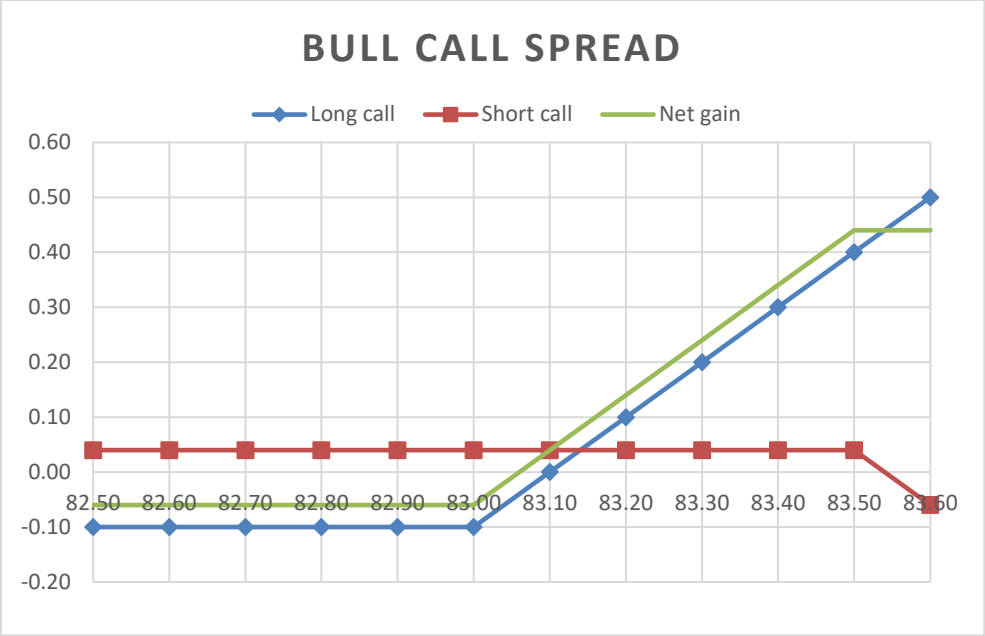
A bull spread is created when the underlying view on the market is positive, but the trader would also like to reduce his cost on position. So, he takes one long call position with a lower strike and sells a call option with a higher strike. As the lower strike call costs more than the premium earned by selling a higher strike call, the cost of executing the position reduces, but the position still results in an initial net cash outflow. Secondly, as the higher strike call is sold, all gains on the long call beyond the strike price of the short call would

get negated by losses of the short call. To generate larger profits from his long call, the trader can short a call with as high a strike as possible, but this will result in only a marginal reduction in his cost, as the higher strike call will fetch lesser and lesser premium.

Say, for example, a trader is bullish on USDINR (assumes USD will appreciate against INR), so he decides to go long a 83 strike call option by paying a premium of 0.10 and he expects the USDINR not rise beyond 83.50, so he shorts a call option with a strike price of 83.50 and receives a premium of 0.04. His pay off for various price moves will be as follows:

Option Type	Call	Call
Long/Short	Long	Short
Strike Price	83.00	83.50
Premium	0.10	0.04
Spot	82.95	

USDINR at expiry	**P&L long call**	**P&L short call**	**Net gain**
82.50	-0.10	0.04	-0.06
82.60	-0.10	0.04	-0.06
82.70	-0.10	0.04	-0.06
82.80	-0.10	0.04	-0.06
82.90	-0.10	0.04	-0.06
83.00	-0.10	0.04	-0.06
83.10	0.00	0.04	0.04
83.20	0.10	0.04	0.14
83.30	0.20	0.04	0.24
83.40	0.30	0.04	0.34
83.50	0.40	0.04	0.44
83.60	0.50	-0.06	0.44



As can be seen from the above pay off chart, it is a limited profit and limited loss position. Maximum profit in this position is Rs.0.44 (83.50-83.00-0.06), which will be achieved when both options get exercised i.e. at and above Rs. 83.50 and the maximum loss is Rs. 0.06(0.10-0.04) when both option remain unexercised i.e. at or below Rs.83.00 and the BEP for this is Rs. 83.06 (83.00+0.10-0.04).

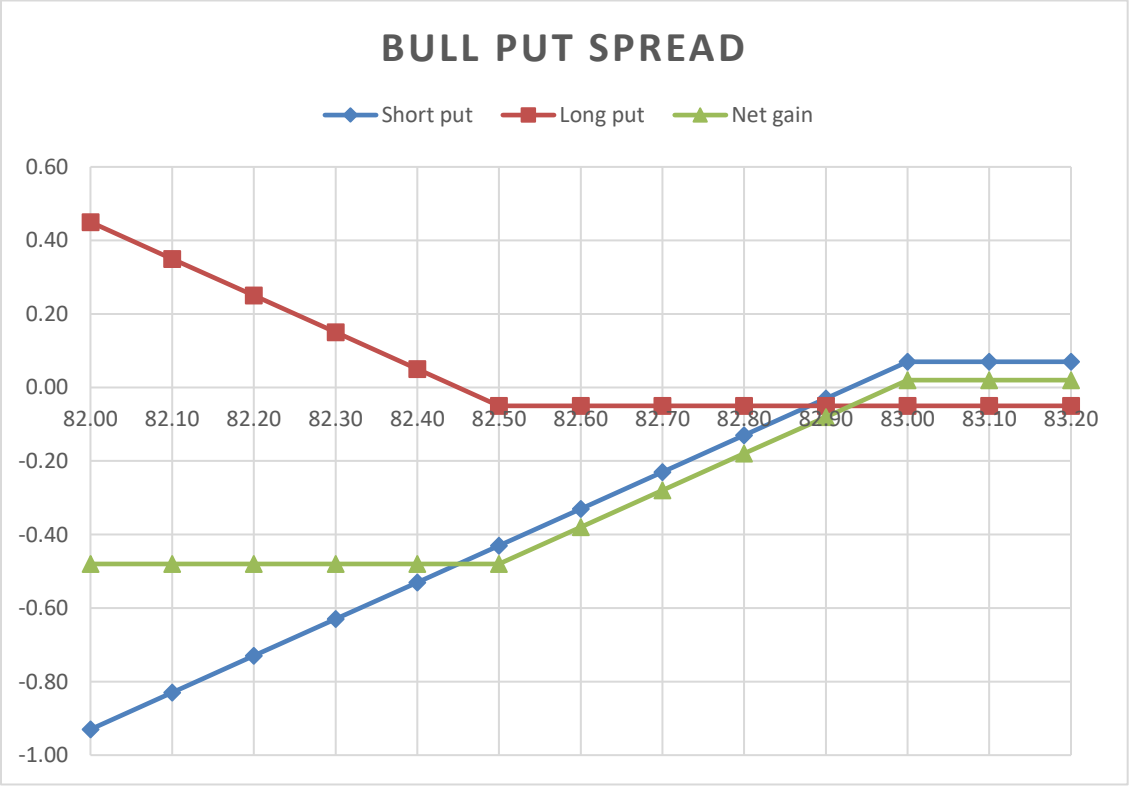
5.3.1.2 Bullish Vertical Spread Using Puts

Here again, a trader is bullish on the USD against INR, hence, he would like to short a put option on the USDINR. If prices go up, the trader will end up pocketing the premium on sold puts. However, if prices decline, the trader would be facing the risk of unlimited losses as he has sold a put option. In order to protect his downside, he may buy a put option with a lower strike. While this would reduce his overall upfront premium, the benefit would be the embedded insurance against unlimited potential loss on short put. This is a net premium receipt strategy.

Let us see this with the help of an example, where the trader goes short in a put option of strike 83.00 and receives a premium of 0.07 and goes long in a put option of strike 82.50 and pays a premium of 0.05:

Option Type	Put	Put
Long / Short	Long	Short
Strike Price	82.50	83.00
Premium	0.05	0.07
Spot	83.00	

USDINR at expiry	P&L short put	P&L long put	Net gain
82.00	-0.93	0.45	-0.48
82.10	-0.83	0.35	-0.48
82.20	-0.73	0.25	-0.48
82.30	-0.63	0.15	-0.48
82.40	-0.53	0.05	-0.48
82.50	-0.43	-0.05	-0.48
82.60	-0.33	-0.05	-0.38
82.70	-0.23	-0.05	-0.28
82.80	-0.13	-0.05	-0.18
82.90	-0.03	-0.05	-0.08
83.00	0.07	-0.05	0.02
83.10	0.07	-0.05	0.02
83.20	0.07	-0.05	0.02



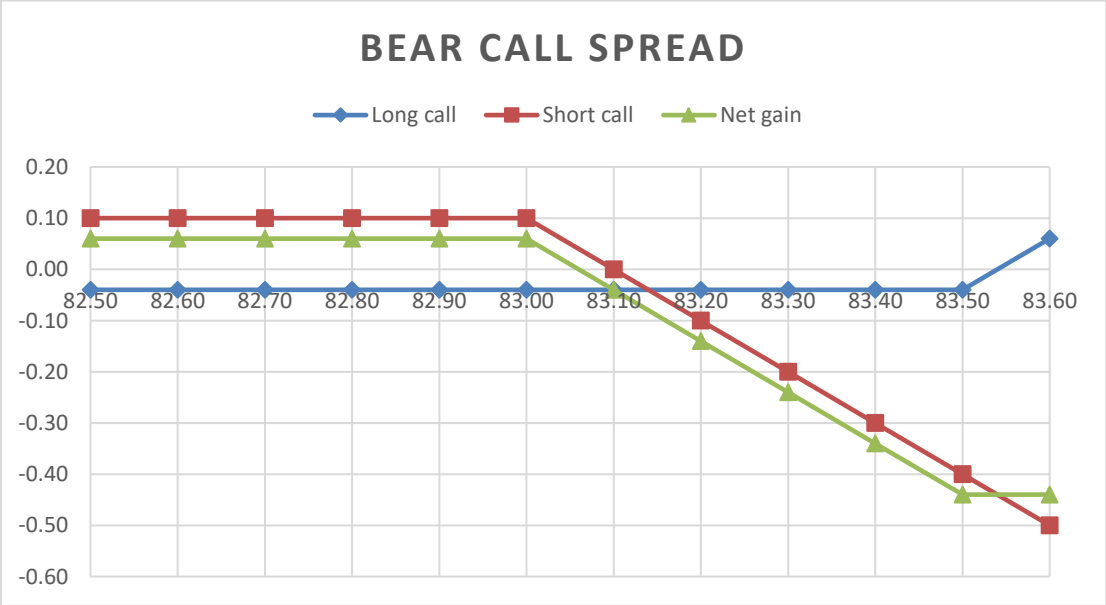
As can be seen from the above pay off chart, it is a limited profit and limited loss position. Maximum profit in this position is 0.02 (0.07-0.05) and the maximum loss is 0.48 (83.00-83.50-0.02). The BEP for this spread is 82.98 (83.00-0.02). This strategy will result in the maximum profit when both the options expire unexercised, and the maximum loss will occur when both the options get exercised.

5.3.1.3 Bearish Vertical Spread using Calls

Here, the trader is bearish on the USDINR (i.e. assumes USD will depreciate against INR) and so he shorts a low strike high premium call option. The risk in a naked short call is that if prices rise, losses could be unlimited. So, to prevent his unlimited losses, he buys a higher strike call with a lower premium. Thus, in this strategy, he starts with a net inflow.

Option Type	Call	Call
Long/Short	Long	Short
Strike Price	83.50	83.00
Premium	0.04	0.10
Spot	83.0000	

USDINR at expiry	P&L long call	P&L short call	Net gain
82.50	-0.04	0.10	0.06
82.60	-0.04	0.10	0.06
82.70	-0.04	0.10	0.06
82.80	-0.04	0.10	0.06
82.90	-0.04	0.10	0.06
83.00	-0.04	0.10	0.06
83.10	-0.04	0.00	-0.04
83.20	-0.04	-0.10	-0.14
83.30	-0.04	-0.20	-0.24
83.40	-0.04	-0.30	-0.34
83.50	-0.04	-0.40	-0.44
83.60	0.06	-0.50	-0.44

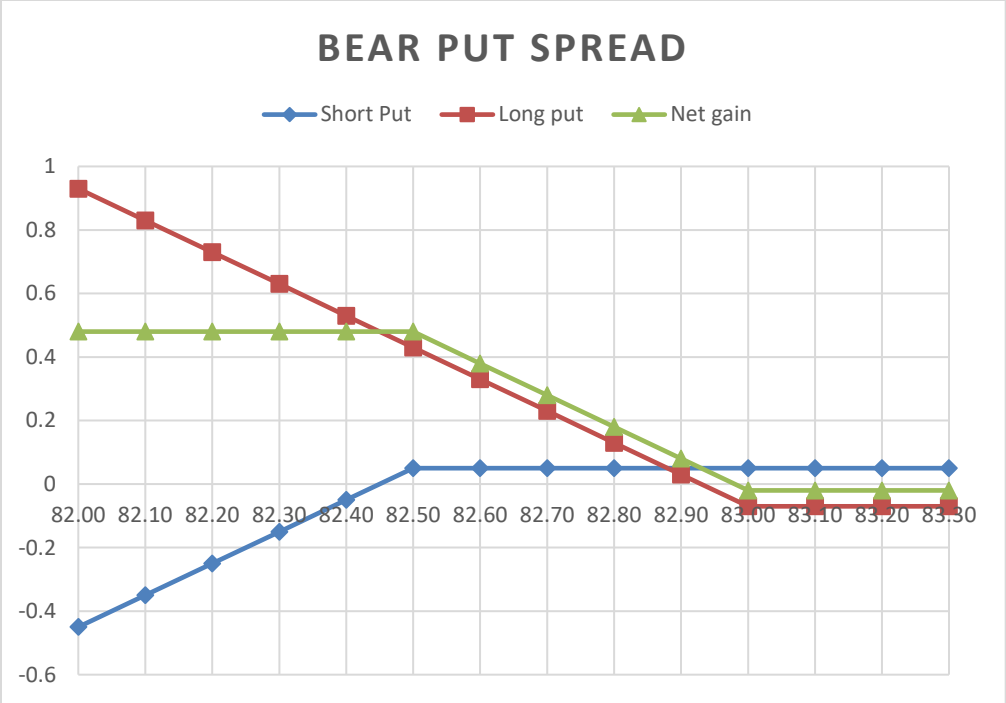


As can be seen from the above pay-off chart, it is a limited profit and limited loss position. The maximum profit in this position is Rs. 0.06 (0.10-0.04) and maximum loss is Rs.0.44 (83.50-83.00-0.06). The BEP for this position is 83.06 (83.00+0.06). This strategy results in the maximum profit when the USDINR closes at or below the lower strike price of 83 so that both options expire worthless. The maximum loss occurs when USDINR closes at or above the higher strike price of 83.50 and both options are exercised.

5.3.1.4 Bearish Vertical Spread using Puts

Here, again the trader is bearish on the USDINR (i.e. assumes that USD will depreciate against INR) and so goes long in one USDINR put option by paying a premium. The trader shorts another put option at a lower strike price and receives a premium which reduces his overall cost.

USDINR at expiry	P&L short put	P&L long put	Net gain
82.00	-0.45	0.93	0.48
82.10	-0.35	0.83	0.48
82.20	-0.25	0.73	0.48
82.30	-0.15	0.63	0.48
82.40	-0.05	0.53	0.48
82.50	0.05	0.43	0.48
82.60	0.05	0.33	0.38
82.70	0.05	0.23	0.28
82.80	0.05	0.13	0.18
82.90	0.05	0.03	0.08
83.00	0.05	-0.07	-0.02
83.10	0.05	-0.07	-0.02
83.20	0.05	-0.07	-0.02
83.30	0.05	-0.07	-0.02



As can be seen from the above pay-off chart, it is a limited profit and limited loss position. The maximum profit in this position is Rs. 0.48 (83.00-82.50-0.02) and the maximum loss is Rs.0.02 (0.07-0.05). The BEP for this position is 82.98 (83.00-0.02). This strategy results in the maximum profit when the USDINR closes at or below the lower strike price of 82.50 and both options are exercised. The maximum loss occurs when USDINR closes at or above the higher strike price of 83 and both options expire worthless.

5.3.2 Horizontal Spread

A horizontal spread involves positions in options of the same type and the same strike price, but different expiry dates. This is also known as time spread or calendar spread. Here, it is not possible to draw the payoff chart as the expiry dates of the options forming the spread are different. The rationale for executing horizontal spreads is that these two options would have different time values and the trader believes that the difference in the time values of these two options would shrink or widen. This is essentially a play on the shrinking or widening of the difference between the premium of both the options.

5.3.3 Diagonal spread

A diagonal spread involves a combination of options on the same underlying but having different expiry dates as well as different strikes. Again, as the two legs of the spread have different maturities, it is not possible to draw a payoff diagram. These are much more complicated in nature and in execution.

5.3.4 Straddle

This strategy involves two options with the same strike price and same maturity. A long straddle position is created by buying a call and a put option of the same strike and same

expiry whereas a short straddle is created by shorting a call and a put option with the same strike and same expiry.

5.3.4.1 Long Straddle

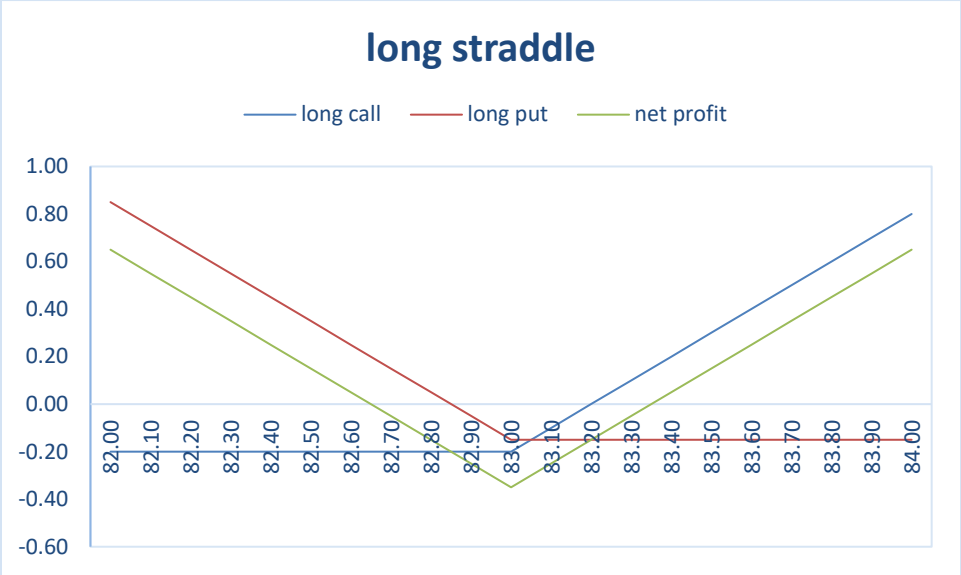
If a person buys both a call and a put at the same strike price, then his maximum loss will be equal to the sum of these two premiums paid and any price movement from here (in either direction) would first result in that person recovering his premium and then making a profit. This position is undertaken when the trader's view about the direction of the currency price movement is uncertain, but he thinks that the currency would move significantly in some direction.

As the currency keeps moving up, the trader's loss on the long put position is limited to premium paid initially, whereas the profit on the long call position keeps increasing. Thus, it can be seen that the strategy yields profits for huge swings in either direction. However, there is a band within which the position would result into losses. This position would have two Break even points (BEPs) and they would lie at "Strike – Total Premium" for the long put position and "Strike + Total Premium" for the long call position. The combined pay-off may be shown as follows:

Option Type	Call	Put
Long/Short	Long	Long
Strike Price	83	83
Premium	0.20	0.15
Spot	83.00	

USDINR at expiry	Profit for long USDINR call	Profit for long USDINR put	Net profit for long straddle
82.00	-0.20	0.85	0.65
82.10	-0.20	0.75	0.55
82.20	-0.20	0.65	0.45
82.30	-0.20	0.55	0.35
82.40	-0.20	0.45	0.25
82.50	-0.20	0.35	0.15
82.60	-0.20	0.25	0.05
82.70	-0.20	0.15	-0.05
82.80	-0.20	0.05	-0.15
82.90	-0.20	-0.05	-0.25
83.00	-0.20	-0.15	-0.35
83.10	-0.10	-0.15	-0.25
83.20	0.00	-0.15	-0.15

83.30	0.10	-0.15	-0.05
83.40	0.20	-0.15	0.05
83.50	0.30	-0.15	0.15
83.60	0.40	-0.15	0.25
83.70	0.50	-0.15	0.35
83.80	0.60	-0.15	0.45
83.90	0.70	-0.15	0.55
84.00	0.80	-0.15	0.65



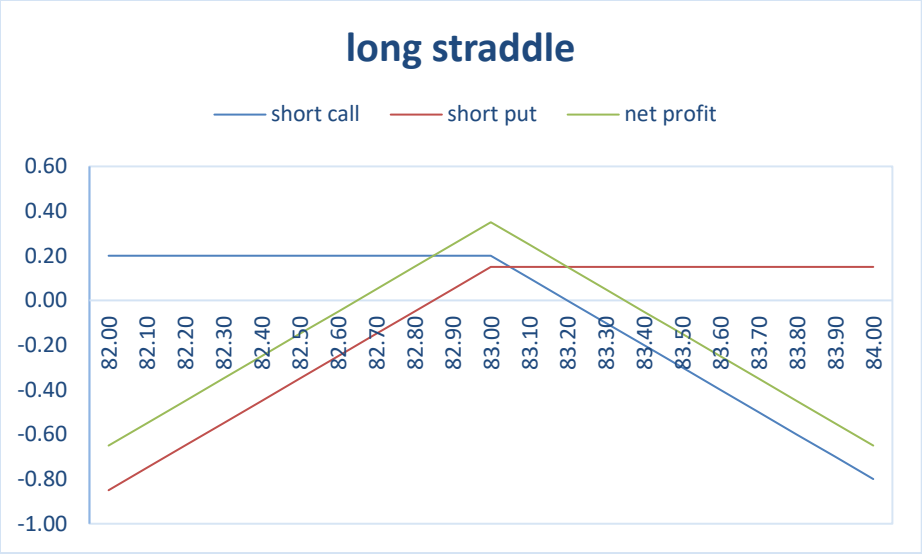
As can be seen from the above pay-off chart, it is a limited loss but unlimited profit strategy. It may be noted from the table and picture, that maximum loss of Rs. 0.35 would occur if the USDINR expires at the strike price of Rs. 83.00. Further, as long as the USDINR expires between Rs.82.65 and Rs.83.35, the trader would always incur a loss which would depend on the level of the USDINR. His profit would start only after recovery of his total premium of Rs. 0.35, in either direction, and that is the reason there are two breakeven points in this strategy. Here, the trader is bullish on volatility.

5.3.4.2 Short Straddle

This would be the exact opposite of long straddle. Here, the trader's view is that the currency prices would not move much or remain stable (i.e. not much movement is expected in the exchange rate). So, he sells a call and a put so that he can profit from the premiums. As the position of short straddle is just opposite of that of the long straddle, the payoff chart would be inverted, so what was a loss for the long straddle becomes a profit for short straddle and vice versa. The short straddle position may be shown as follows:

Option Type	Call	Put
Long/Short	Short	Short
Strike Price	83	83
Premium	0.20	0.15
Spot	83.0000	

USDINR at expiry	**Profit for short USDINR call**	**Profit for short USDINR put**	**Net profit for short straddle**
82.00	0.20	-0.85	-0.65
82.10	0.20	-0.75	-0.55
82.20	0.20	-0.65	-0.45
82.30	0.20	-0.55	-0.35
82.40	0.20	-0.45	-0.25
82.50	0.20	-0.35	-0.15
82.60	0.20	-0.25	-0.05
82.70	0.20	-0.15	0.05
82.80	0.20	-0.05	0.15
82.90	0.20	0.05	0.25
83.00	0.20	0.15	0.35
83.10	0.10	0.15	0.25
83.20	0.00	0.15	0.15
83.30	-0.10	0.15	0.05
83.40	-0.20	0.15	-0.05
83.50	-0.30	0.15	-0.15
83.60	-0.40	0.15	-0.25
83.70	-0.50	0.15	-0.35
83.80	-0.60	0.15	-0.45
83.90	-0.70	0.15	-0.55
84.00	-0.80	0.15	-0.65



It should be clear that this strategy results in a limited profit but unlimited loss and should be undertaken with significant care. Further, it will incur a loss if the exchange rate moves significantly in either direction – up or down.

5.3.5 Strangle

This strategy is similar to the straddle in its outlook but different in implementation, aggression and cost.

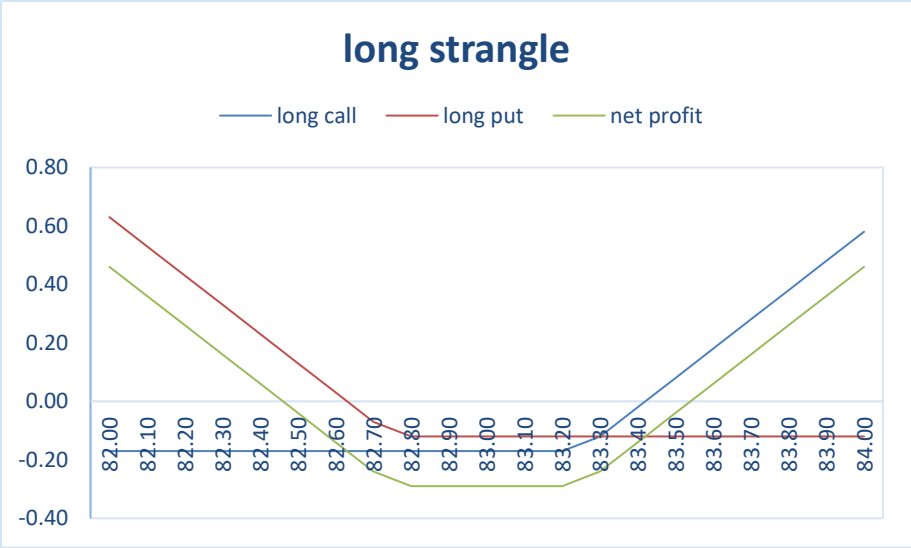
5.3.5.1 Long Strangle

As in the case of a long straddle, the outlook of a long strangle is that the exchange rate will move substantially in either direction, but while in a straddle, both options have same the strike price, in case of a strangle, the strikes are different. Both the options (call and put) in this case are out-of-the-money and hence the premium required is low.

Let us say the USDINR spot is Rs.83. Rs. 83.25 strike call is available at 0.17 and 82.75 put is trading at a premium of 0.12. Both these options are out-of-the-money.
If a trader takes a long position in both these options, then his maximum cost would be equal to the sum of the premiums of both these options. This would also be his maximum loss in worst case situation. However, if USDINR starts moving sharply in either direction, he would incur losses within a band and then the losses would start to reduce. Beyond a point in either direction, the strategy would start making money.

Option Type	Call	Put
Long/Short	Long	Long
Strike Price	83.25	82.75
Premium	0.17	0.12
Spot	83.0000	

USDINR at expiry	Profit for long USDINR call	Profit for long USDINR put	Net profit for long strangle
82.00	-0.17	0.63	0.46
82.10	-0.17	0.53	0.36
82.20	-0.17	0.43	0.26
82.30	-0.17	0.33	0.16
82.40	-0.17	0.23	0.06
82.50	-0.17	0.13	-0.04
82.60	-0.17	0.03	-0.14
82.70	-0.17	-0.07	-0.24
82.80	-0.17	-0.12	-0.29
82.90	-0.17	-0.12	-0.29
83.00	-0.17	-0.12	-0.29
83.10	-0.17	-0.12	-0.29
83.20	-0.17	-0.12	-0.29
83.30	-0.12	-0.12	-0.24
83.40	-0.02	-0.12	-0.14
83.50	0.08	-0.12	-0.04
83.60	0.18	-0.12	0.06
83.70	0.28	-0.12	0.16
83.80	0.38	-0.12	0.26
83.90	0.48	-0.12	0.36
84.00	0.58	-0.12	0.46



In this position, the maximum profit for the trader would be unlimited in both the directions – up or down while the maximum loss would be limited to Rs. 0.29, which would occur if the USDINR closes at any price between 82.75 and 83.25. This position would have two BEPs
at 82.46 and 83.54. The trader would always incur a loss until the USDINR crosses either of these prices.

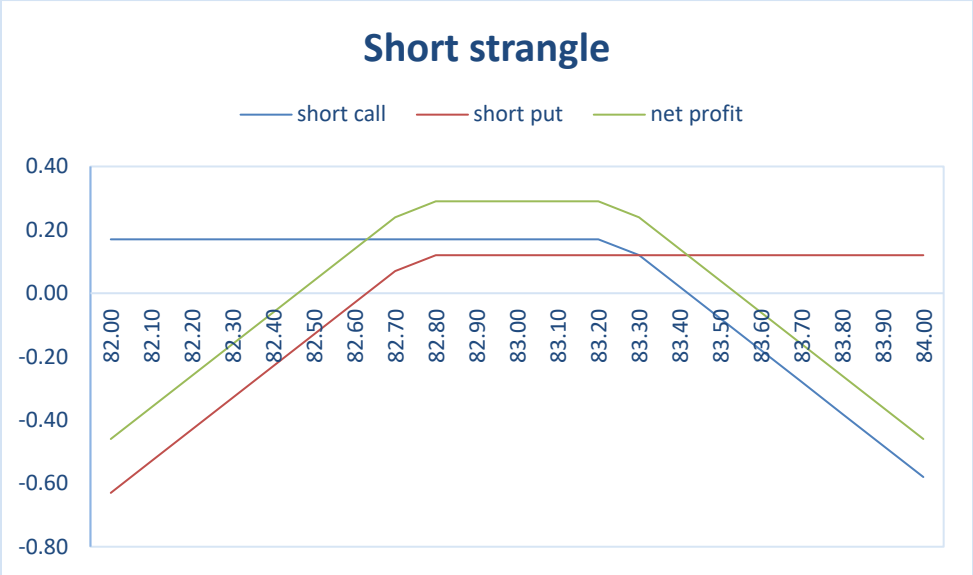
5.3.5.2 Short Strangle

This strategy is exactly opposite to the long strangle and requires the selling of two out-of-the-money options (call and
put) . As with the short straddle, the trader's view is that the USDINR will remain stable over the life of the options. Payoffs for this position will be exactly opposite to that of a long strangle . As always, the short position will make money, when the long position is in loss and vice versa.

Option Type	Call	Put
Long/Short	Short	Short
Strike Price	83.25	82.75
Premium	0.17	0.12
Spot	83.0000	

USDINR at expiry	Profit for short USDINR call	Profit for short USDINR put	Net profit for short strangle
82.00	0.17	-0.63	-0.46
82.10	0.17	-0.53	-0.36
82.20	0.17	-0.43	-0.26
82.30	0.17	-0.33	-0.16
82.40	0.17	-0.23	-0.06
82.50	0.17	-0.13	0.04
82.60	0.17	-0.03	0.14
82.70	0.17	0.07	0.24
82.80	0.17	0.12	0.29
82.90	0.17	0.12	0.29
83.00	0.17	0.12	0.29
83.10	0.17	0.12	0.29
83.20	0.17	0.12	0.29
83.30	0.12	0.12	0.24
83.40	0.02	0.12	0.14
83.50	-0.08	0.12	0.04

83.60	-0.18	0.12	-0.06
83.70	-0.28	0.12	-0.16
83.80	-0.38	0.12	-0.26
83.90	-0.48	0.12	-0.36
84.00	-0.58	0.12	-0.46



In this position, the maximum loss for the trader would be unlimited in both the directions up or down while the maximum profit would be limited to Rs. 0.29, which would occur if the USDINR expires at any price between 82.75 and 83.25. The short strangle position would have two BEPs at 82.46 and 83.54. The trader would always make a profit until the USDINR crosses either of these prices.

5.3.6 Butterfly Spread

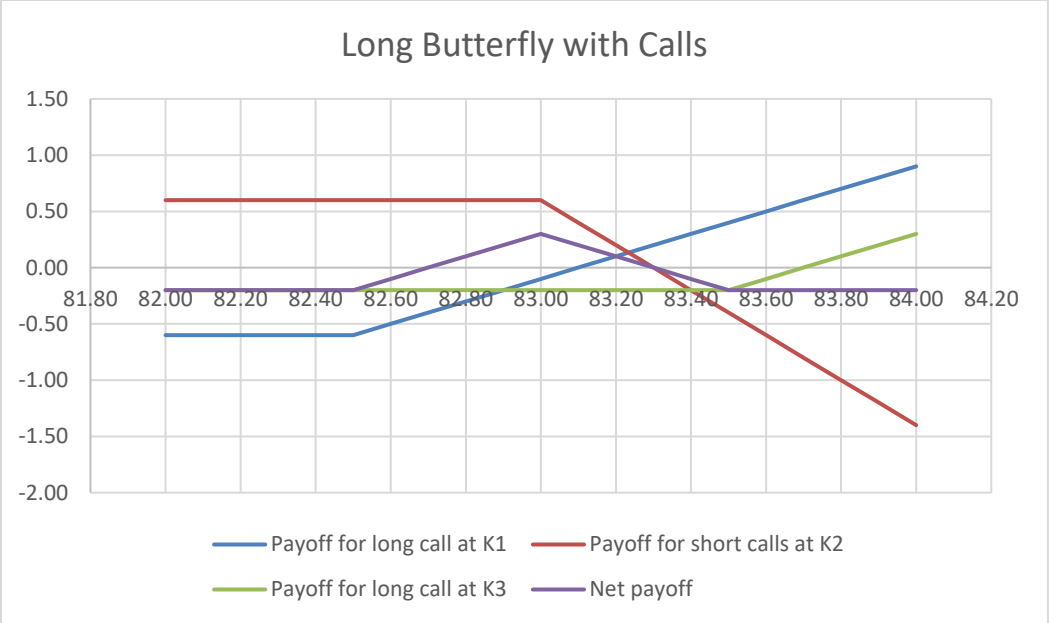
A butterfly spread is an options strategy that combines both bull and bear spreads. These are neutral strategies that come with a fixed risk and capped profits and losses. These spreads use four options and three different strike prices. There are multiple butterfly spread strategies like long call butterfly spreads, Short call butterfly spreads, Long put butterfly spread, Short put butterfly spread, Iron Butterfly Spread etc. We will examine in detail the "Long Call Butterfly spread".

Long Call Butterfly

Long Call Butterfly is a neutral strategy where the trader expects very low volatility in the underlying price. The strategy is a combination of Bull Spread and Bear Spread. It involves buying 1 ITM call, selling 2 ATM calls and buying 1 OTM call. The strike prices of all options should be at equal distance from the current price. The risk is limited to the net premium paid and the profit is limited to the difference between adjacent strikes minus net premium paid.

Option Type	Call	Call	Call
Long/Short	Long	Short	Long
Strike Price	82.50	83.00	83.50
Premium	0.6	0.3	0.2
No. of Lot	1	2	1
Spot	83.0000		

USDINR at expiry	**Payoff for long call at K1**	**Payoff for short calls at K2**	**Payoff for long call at K3**	**Net payoff**
82.00	-0.60	0.60	-0.20	-0.20
82.10	-0.60	0.60	-0.20	-0.20
82.20	-0.60	0.60	-0.20	-0.20
82.30	-0.60	0.60	-0.20	-0.20
82.40	-0.60	0.60	-0.20	-0.20
82.50	-0.60	0.60	-0.20	-0.20
82.60	-0.50	0.60	-0.20	-0.10
82.70	-0.40	0.60	-0.20	0.00
82.80	-0.30	0.60	-0.20	0.10
82.90	-0.20	0.60	-0.20	0.20
83.00	-0.10	0.60	-0.20	0.30
83.10	0.00	0.40	-0.20	0.20
83.20	0.10	0.20	-0.20	0.10
83.30	0.20	0.00	-0.20	0.00
83.40	0.30	-0.20	-0.20	-0.10
83.50	0.40	-0.40	-0.20	-0.20
83.60	0.50	-0.60	-0.10	-0.20
83.70	0.60	-0.80	0.00	-0.20
83.80	0.70	-1.00	0.10	-0.20
83.90	0.80	-1.20	0.20	-0.20
84.00	0.90	-1.40	0.30	-0.20



The cost of creating a long call butterfly spread = (0.30*2)-0.60-0.20 = -0.20
Lower BEP = 82.50+0.2 = 82.70
Upper BEP= 83.50-0.2 = 83.30
This position can also be created with the help of only puts or a combination of calls and puts.

5.3.7 Hedging Strategies with Currency Options

5.3.7.1 Buying protection with put options

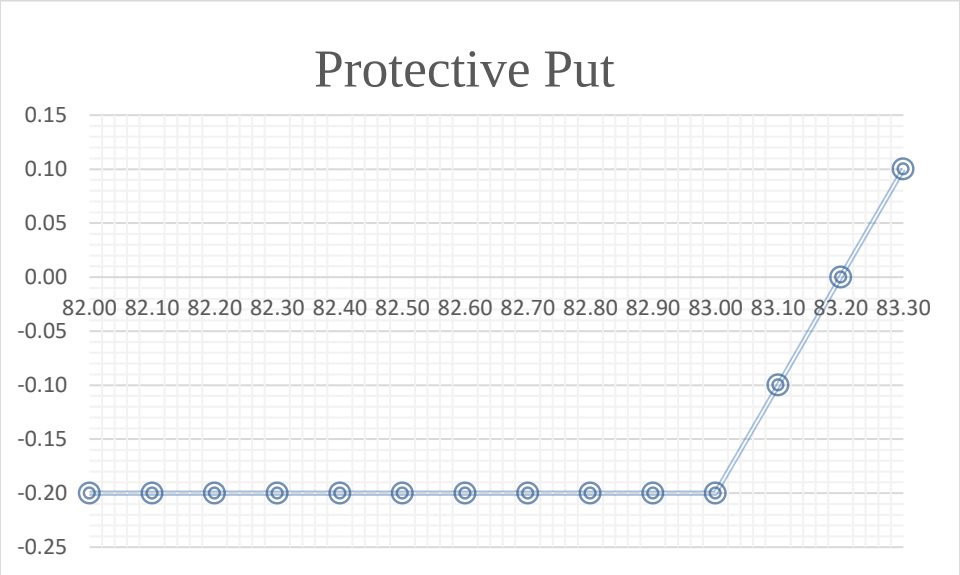
The idea behind the purchase of puts is to compensate for the loss associated with the potentially declining value of a currency with the rising intrinsic value of the puts. As the exchange rate declines, puts go deeper and deeper in-the-money, permitting the put holder to exercise the options for a profit. Of course, if the exchange rate should rise instead, the puts become out-of-the-money. However, since the put holder's loss is limited to the premium paid a favorable underlying price movement should work to the benefit of the hedger.

Let us understand with an example:

Case 1

An export company is expecting a receipt of 1 million USD after one month. The company runs the risk of a fall in USDINR prices and thereby a reduction of its profit. The company can short USDINR futures to hedge its dollar receivables. However, a short futures position, while hedging the company against a decline in the USDINR, does not allow the company to benefit from a potential rise in the USDINR. What can be done to hedge the losses from potential dollar depreciation but also gain from an appreciation of the dollar?

By buying put options, the company is effectively taking a bearish view on the USDINR. Suppose the company buys put options with a strike price of Rs. 83 at a premium of Rs.0.20. If the USDINR keeps rising, the company will be able to sell its dollars in the market at higher and higher prices but its losses on the long put will be restricted to the premium paid. On the other hand, in case of USDINR depreciation, although the company will receive lower spot prices on the conversion of its dollar receivables, these losses will be offset with the profits on the long put position.



The long put hedge allows one to lock-in a floor return while still retaining a great deal of the upside potential associated with a possibly favorable market swing. In the above example, the exporter has locked in a minimum USDINR rate at 82.80 (83.00-0.20) with an unlimited upside potential.

Put options are more suited as a hedging tool for contingent cash flow receivable. Let us understand with some examples:

Case 2

A company exports mango pulp to the Middle East region. It receives confirmed orders 6 months in advance at a fixed price in USD. Sometimes the company is not able to fulfill the order quantity as it is not able to buy adequate amount of mango. As a practice, the company hedges FX risk by selling USD in the futures market. In the past the company has faced huge losses on account of FX hedging when it could not complete the orders and the USD strengthened significantly against INR. What is the alternative hedging strategy that the company could use to avoid such losses?

This company could hedge a part of its exposure using currency options, specifically by buying puts. This would ensure that the company's losses are limited to the premium paid and not beyond that in a case when they are not able to supply the goods.

Case 3

Another typical contingent cash flow example is the bidding process. When a firm bids for an overseas project which involves foreign exchange risk, it may quote its bidding price and at the same time protect itself from foreign exchange risk by buying put options. If the bidding is successful, the firm is protected from a depreciation of the foreign currency. However, if the bidding is unsuccessful and the currency appreciates, then the firm may just let the contract expire. In this case the firm loses the premium paid, which is the maximum loss possible with options. If the firm loses the bid and the currency depreciates, the firm may exercise its put option and make some profits from this favourable movement. In the case of hedging with forwards or futures, the firm would be automatically placed in a speculative position in the event of an unsuccessful bid, without any limit to its downside losses.

Case 4

Assume that there is an exporter of jewellery from India. The export house believes that INR would appreciate from its current level of 83 to 82 in three months' time. However, there is a possibility that the USD will appreciate against other currencies which could prevent the appreciation of the rupee beyond 82. The company decides to hedge its USD receivable via options. The company is looking for an alternative to buying a plain vanilla put option. What strategy could the company consider?

The company could buy an ATM or ITM put option on the USDINR and reduce its cost by selling OTM put option. The actual strike would depend on premiums and the objectives of the management. Can you recollect what is this option strategy called? This is called a bear put spread. The company could achieve a similar pay off using call options and that strategy is called a bear call spread. Please refer to section on bear call / put spread for explanation.

Case 5

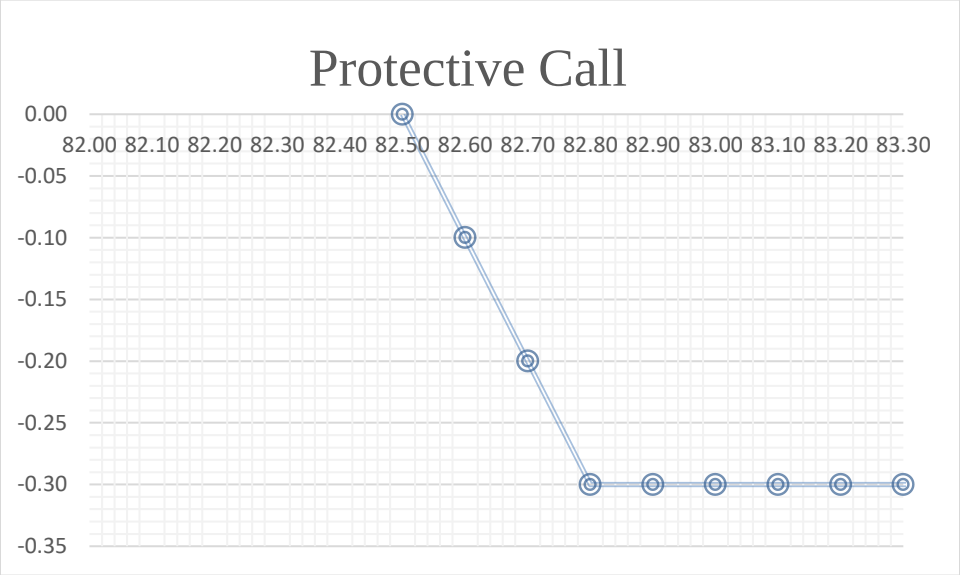
An exporter hedged 20,000 USD by buying USDINR put options at a strike of Rs 83 when the available price was Rs 0.35/0.37. Later he received USD earlier than the maturity of the contract, and decided to unwind the long put position. The available price at the time of unwinding was Rs 0.48/0.49 and the latest available FBIL USDINR reference rate was Rs 82.50. At the time of converting USD into INR, the exporter's bank quoted him a price of Rs 82.45/75. What was the net price received per USD?

Premium paid at the time of buying the put option: Rs. 0.37
Premium received at the time of unwinding of the put position: Rs. 0.48
Net gain from transaction: Rs.0.11 (0.48-0.37)
Rate received from Bank: 82.45
Effective net rate/price per USD for exporter: Rs. 82.45 + Rs. 0.11 = Rs. 82.56.

5.3.7.2 Buying Protection with call

Case 1

XYZ Ltd. is an importer. The company has to make payment of USD 100,000 at the end of the month. The company can go long USDINR futures to hedge its dollar payable. However, buying USDINR futures locks in the purchase price of USD for the company and does not allow the company to benefit from a decline in the USDINR. How can the company hedge itself from the risk of dollar appreciation and at the same time, enjoy the benefits from a potential weakening of the dollar? By buying call options, the company is effectively taking a bullish view on the USDINR. Suppose the company buys call options with a strike price of Rs.82.80 at a premium of Rs.0.30. If the USDINR falls sharply below 82.80, the company will benefit as it will purchase dollars at a lower rate in the open market. Although the call options expire worthless, the loss on the long call position will be restricted to the premium already paid. On the other hand, if the USDINR appreciates over the month, the company will end up buying dollars at higher prices, but these losses will be offset by the profits on its long call position.



The long call hedge allows the importer to lock-in a maximum payable amount while still enjoying the benefits from a decline in the exchange rate. . In the above example, the importer has locked in a maximum purchase price of Rs.83.10 (82.80+0.30) for the dollars that he needs to purchase at the month-end . However, if USDINR trades below the strike price of 82.80, the importer can let his call options expire worthless and buy dollars at the market rate, which is lower than his strike price.

Case 2

Assume there is an importer of edible oil in the country. The company believes that because of the increasing fiscal deficit in the country, reducing portfolio inflows and political uncertainty there is a high probability of USD strengthening from current level of 83 to 84 in three months. However, it is possible that the USD may weaken against other currencies and hence USDINR may not appreciate beyond 84 The company decides to hedge its USD payable via options, but wants a cheaper alternative to buying plain vanilla call options.

The company could buy an ATM or ITM call option on USDINR and reduce its cost by selling an 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. The company could achieve a similar pay off using put options and that strategy is called as bull put spread. Please refer to earlier sections on bull call / put spread for explanation.

Case 3

A student going abroad for higher studies gets a loan of Rs 15,00,000 sanctioned from his bank He has to make the payment to the University after one month and he is concerned about foreign exchange (FX) rate fluctuation. To hedge the FX risk, he wants to buy an exchange-traded call option with a strike price of Rs.83.00 . How many lots of call options should he buy?

Amount in USD = (1500000/83) = USD 18072.
1 lot = 1000 USD
No. of Lots = = 18 (18072/1000).

5.4 Use of Currency Derivatives by Speculators

This section explains the use of currency derivatives by speculators.

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

Case 1

A trader has a view that given the buoyant economic condition in India and the likelihood of a drop in the inflation, the INR may appreciate against USD (i.e. USD will depreciate against INR) in next six months from its current level of 83 to 81. To execute the view, he shorts 100 lots of the 6-months USDINR futures contract at a price of 83.90. As expected, the INR appreciates against the USD over the next 6 months. At the expiry of the contract, the final settlement price is 81.20. How much profit / loss did the trader make on his transaction?

Since the settlement price is lower than the contracted price and the trader had sold the futures, he makes a profit. The amount of profit is equal to the difference in the contracted price and the settlement price. Thus, the profit is Rs. 2.70 per USD. Since he

had shorted 100 contracts and each contract is of 1000 USD, the absolute profit made on the transaction was Rs.2,70,000 (2.70 x 100 x 1000).

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

Case 2

A trader has a view that given the international tensions, an increase in the price of crude oil will lead to depreciation of the INR against USD (i.e. USD will appreciate against INR) over the next three months, from the current level of 83 to 85. To execute the view, he goes long 3-months contracts of 500 USDINR futures at a price of 83.10. As expected, INR depreciates against USD over the next 3 months. At the expiry of the contract, the final settlement price is 85.30. How much profit / loss did the trader make on his transaction?

The trader made a profit on the transaction since the settlement price is higher than the contracted price and the trader had a long futures position.. The amount of profit is equal to the difference in the contracted price and the settlement price. Thus, the profit is Rs 2.20 per USD. Since he had bought 500 contracts and the contract size is 1000 USD, the absolute profit made on the transaction is Rs11,00,000 (2.2*500*1000).

Please note that had the INR appreciated, the trader would have made a loss. The exact amount would have been a function of the final settlement price of the futures contract.

Case 3

A currency derivatives trader has a view that USD will depreciate against EUR (EUR will appreciate against USD) in next few months. To execute the view, the trader will buy EURUSD futures or buy EURUSD call option. In case trader also assumes that the USDINR rate will remain same in this period, the trader can also execute his view by buying EURINR futures or buying EURINR call option (Cross rate arithmetic; EURINR = EURUSD * USDINR). Similarly, if the trader believes that the JPY will weaken against the USD (USD will strengthen against JPY) in next few months, he will buy USDJPY futures or buy USDJPY call option. In case trader also assumes that the USDINR rate will remain same in this period, the trader can also execute his view by selling JPYINR futures or buying JPYNR put option.

A trader takes a view that the EUR will depreciate against the Dollar. He can short EURUSD futures contract. On the other hand, he can buy USDINR and sell EURINR futures contract for an equivalent amount to take the similar view (Cross rate arithmetic; EURUSD = EURINR/USDINR).

Case 4

We have seen in the earlier chapter that the currency futures may be traded at a premium or discount to spot prices due to the interest rate differential. If a trader takes a view that the currency prices will remain the same in the future period, he will execute his view based on whether the currency is trading at a premium or discount . For e.g. USDINR futures trades at premium as USD interest rates are lower than the INR interest rate. Hence, if the trader has a view that USDINR prices will remain constant in futures, to execute the view, he will short USDINR futures. In such a scenario, if the trader's view is correct and USDINR prices remain constant, the profit of trader will be equal to the forward premium.

Case 5

The trader can speculate using currency options as well. For e.g. If a trader has the view that the USD will appreciate against the Rupee i.e. bullish on USDINR, he will buy USDINR call option. On the other hand, if he thinks that USD will depreciate against Rupee, he will buy USDINR put option.

Sometimes, traders may have a certain view but do not want to buy options as this requires payment of an initial premium. In such cases, the trader may sell options instead. For e.g. If a trader has a view that USD will appreciate against Rupee, he will sell USDINR put option and vice versa. However, in such cases the trader is exposed to unlimited loss with limited profit potential.

5.5 Use of Currency Derivatives by Arbitragers

As mentioned earlier, arbitragers look for mispricing in the market and execute simultaneous buy and sell trades to capture the mispricing and make a profit. They do not take any view on the market direction.

Let us take an example: A trader notices that the 6-month USDINR currency futures was trading at 83.2500/83.2600 while the 6-month forward in OTC market, was available at 83.1500/83.1600. Let us answer a 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 forwards should be trading at the same level if their settlement dates are the same. A difference in pricing means mispricing and an opportunity to set an arbitrage trade to capture the mispricing. The arbitrage profit arises from selling in the market where the price is higher and buying in the market where the price is lower.

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

How much profit per USD could the trader make by entering into an arbitrage trade if the currency futures and the OTC forward contract are both settled at 83.75?

The trader would short currency futures at 83.25(bid price) and go long in currency forward at 83.16 (offer price). At the time of settlement, the trader loses 0.50 on futures but makes a profit of 0.59 on the forward contract. Thus, he makes an arbitrage profit of 0.09 per USD.

If the currency futures and forward are both settled at 83, the trader would make a profit of 0.25 on the futures but lose 0.16 on the settlement of the forward contract. Thus, he would earn an arbitrage profit of 0.09 per USD.

Please note that arbitrage profit would have been constant at 0.09 irrespective of final settlement price as long as both OTC contract and futures contract were settled at the same price.

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 is possible only when the exchange rates are not aligned with the implicit cross exchange rate.

Suppose that the EURUSD is trading at USD 1.09, the USDINR at Rs.82.89 and the EURINR at Rs.90.11. An arbitrageur with 1000 EUR can exchange these for USD 1090. Then he can convert USD 1090 into Rs.90,350.10 at the current USDINR exchange rate. Finally, he can convert Rs.90,350.10 into EUR 1002.67, thus making an arbitrage profit of EUR 2.67. Had the EURINR been trading at 90.35 (instead of the 90.11 given in this example), there could be no arbitrage opportunity. But for the given EURUSD and USDINR rates, anything below 90.35 EURINR provides an arbitrage opportunity.

Please note that profitable triangular arbitrage is very rarely possible because when such an 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 price disparity may be very small (around 1 basis point or so in many cases) making it unprofitable 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.

Here, it may be interesting to look at the risks these arbitragers carry. As seen before, arbitragers execute positions in two or more markets/products simultaneously. Even if the systems are seamless and electronic and both the legs of transaction are liquid, there is a possibility of a time gap between the execution of both the orders. If either leg of the transaction is illiquid then the risk on the arbitrage deal is huge as only one leg may get

executed and the other may not, which would create a naked position for the arbitrageur instead of a hedged position. Similarly, in the case of any difference in the mode of settlement in the two markets, it may need a reversal of trades in the respective markets, which would result in additional risk of unwinding positions with regard to simultaneous execution of the trades. For e.g. currency future market is cash settled while the currency forward market has delivery-based settlement. Hence, the arbitrageur will bear increased risk on settlement date to ensure that both contracts are settled at the same price or he should be able to reverse both transactions at the same price. Also, , transaction costs and the impact cost have not been considered in the above examples. In real life, the transaction cost like the brokerage, stamp duty, margin cost and impact cost etc. must be factored in before entering into any strategies.

5.6 Trading Spreads Using ETCD

Spread refers to the difference in prices of two futures / option contracts. A good understanding of spreads is essential to earn profits. Considerable knowledge of a particular currency pair and the interest rate parity is also necessary to enable the trader to use spread trading strategy.

Spread movement is based on following factors:

- Interest rate differentials
- Liquidity in the banking system
- Monetary Policy Decisions (Repo, Reverse Repo and CRR)

Calendar Spread: A calendar spread is a contract where a trader buys/sells a particular month contract (Futures or Options) and sells/buys (take an opposite position) of the same contract of a different month. Both have the same underlying but different maturities. In a calendar trade position, the trader does face the risk of underlying security/currency movement but is only exposed to the basis risk due to change in the spread between two contracts. Hence the margin applicable on such positions is much lower than the normal margin[10].

Example: A trader is of a view that the spread between near-month and mid-month may widen. On the basis of this view, he decides to sell March (Near month contract) USDINR futures @83 and at the same time buy April (mid-month) futures contract @83.20; the spread between the two contracts is Rs. 0.20. Suppose that the spread widens after 10 days and now the March futures contract is trading at 83.10 while the April futures contract is trading at 83.40, and as a result the spread now stands at Rs. 0.30. He decides to square off both the positions, making a gain of Rs. 100 per contract {(0.30 – 0.20)* 1000} in the transaction. The issue with entering a calendar spread through 2 separate orders like in the above example is that there is a risk of adverse price movement during

[10] Refer Calendar spread charge section 7.9.1.1.3

the order placement i.e. execution risk. Such risk can be avoided by using spread order[11] facility provided by Exchanges.

A trader has a view that interest rates in India may increase while those in the US may remain flat. This will increase the spread between short-term and long-term USDINR futures contract. Hence, the trader will buy far-month USDINR futures contract and at the same time sell the near-month USDINR futures contract.

While using exchange-traded currency derivatives for the purpose of hedging, speculating, arbitrage or calendar spread trading market participants must ensure that they are trading within the guidelines provided by The Foreign Exchange Management Act, 1999 (FEMA), RBI guidelines on foreign exchange trading, SEBI guidelines and their respective regulatory guidelines.

5.7 Limitations of Exchange-Traded Currency Derivatives for Hedgers

Exchange-traded currency derivatives contracts are standard contracts which are mainly settled in cash i.e. without any delivery of currencies. This may lead to imperfect hedging and leads to basis risk for hedgers. For example, the USDINR contract expires on every Friday of week and two working days prior to the last business day of the expiry month. If the exposure to be hedged matures on some other day in the week or month, there will be mismatch in the maturity dates which leads to imperfect hedging.

Further, the USDINR contract has a standard lot size of 1000 USD. If an importer has to make payment of USD 10500 after 3 months, he can hedge for either USD 10000 or USD 11000. Hence, there will be either over-hedging or under-hedging.

As ETCD are cash settled, the importers and exporters must deal with Authorized Dealers for the actual underlying settlement. There might be a mismatch in the time/price of cancellation of contract in ETCD and the time/price of actual underlying settlement. This mismatch may result in a small loss of value.

At other times, market participants may wish to hedge their exposure over a long term. For e.g. A company that has taken a loan for 5 years in foreign currency, will find it difficult to hedge their borrowing through ETCD as such contracts are generally available only for maturities up to 1 year.

However, the transparency, small lot size, flexibility in trading, guaranteed settlement and ease of trade execution may offset the above limitations of ETCD.

[11] Refer spread order book section 6.2.5

Sample Questions and Answers

1. In OTC market, one month USDINR is quoting at 74.75/75.00 and futures for same maturity is quoting at 75.50/75.60. 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 forward in OTC and buy in futures, 85 paise
    b. Buy USDINR forward in OTC and sell in futures, 60 paise
    c. Buy USDINR forward in OTC and sell in futures, 75 paise
    d. Buy USDINR forward in OTC and sell in futures, 50 paise

2. In Bullish vertical spread using put strategy, trader _____?
    a. buy put option with lower strike and sell a put option with higher strike
    b. buy put option with higher strike and sell a put option with lower strike
    c. buy call with lower strike and sell a put option with higher strike
    d. None of the above

3. If you expect the USD will appreciate against INR in future, today you should _____.
    a. Buy USDINR futures
    b. Sell USDINR futures
    c. Buy USDINR put option
    d. Sell USDINR call option

4. 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

5. 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 74.5 and at the time of converting USD back into INR, he received an exchange rate of 76.00. How much is the return on investment in USD and in INR respectively?
    a. 20%, 16.65%
    b. 20%, 22.41%
    c. 20%, 20%
    d. 20%, 18%

CHAPTER 6: TRADING MECHANISM IN EXCHANGE TRADED CURRENCY DERIVATIVES

LEARNING OBJECTIVES:

After studying this chapter, you should know about following:

- Entities in the Trading System and Their Role
- Features of the Exchange Trading System
- Order Management
- Trading Costs

6.1 List of Entities in Trading System

The stock exchanges provide a trading platform where the buyers and sellers (investors) can meet to transact in securities. An Exchange provides multiple segments in which Equity, Equity Derivatives, Currency Derivatives, Commodity Derivatives, Interest Rate Derivatives, Debt Securities are traded. Generally, the segments are specific to the underlying asset, for e.g. Trading in futures and option with underlying as equity or equity indices takes place in the Equity derivatives segment However, Exchange Traded Currency Derivatives (ETCD) are traded in a separate segment called "Currency Derivatives Segment" (CDS) in stock exchanges. Along with ETCD, Exchange-traded interest rate derivatives are also traded in Currency Derivatives Segment. As is the norm for all derivatives exchanges, the trading and settlement are conducted by two distinct legal entities: trading by the Exchange and settlement (along with the associated process of Clearing) by the Clearing Corporation (CC).

In this section we will discuss about a few important entities of trading system of the Exchange and their role.

6.1.1 Stock Exchanges

The Securities Contract (Regulation) Act, 1956 (SCRA) defines a 'Stock Exchange' as (a) any body of individuals, whether incorporated or not, constituted before corporatization and demutualization under sections 4A and 4B, or (b) a body corporate incorporated under the Companies Act, 1956 (1 of 1956) or the Companies Act, 2013, whether under a scheme of corporatization and demutualization or otherwise, for the purpose of assisting, regulating or coordinating the business of buying, selling or dealing in securities. A stock exchange is incorporated for the purpose of assisting, regulating or coordinating the business of buying, selling or dealing in securities. Its important role is to establish a nation-wide trading facility for various financial instruments. Stock Exchanges ensure equal access to investors across the nation through an appropriate communication network. Exchanges set out and implement rules and regulations to govern the securities

market. These rules and regulations extend to member registration, securities listing, transaction monitoring, compliance by members to SEBI / RBI regulations, investor protection etc.

Typical functions of Stock Exchanges are:

- Providing a trading platform
- Dissemination of information
- Investor education, awareness and protection
- Facilitating redressal mechanism
- Surveillance and Investigation
- Listing of securities and monitoring compliance of listed companies
- Inspection and monitoring of member compliance

6.1.2 Clearing Corporations (CC)

Clearing Corporation does the clearing, settlement and risk management for trades executed on Exchanges. It also provides a settlement guarantee for such trades. We will examine the functions of CC in detail in the subsequent chapter.

6.1.3 Trading Member and Authorized Person

An important constituent of the securities market is a trading member/ stock broker[12] who is a member of the stock exchange. In India, investors cannot access the Exchange platform directly. They have to compulsorily trade through registered stock brokers/trading member of the Exchanges. Hence, stock brokers/trading members are one of the important intermediaries of securities market. A trading member is allowed to execute trades on his own account as well as on the account of his clients. A trading member can be an individual (sole proprietor), a partnership firm, Limited Liability Partnership, Corporate or a bank[13] who is a member of a Stock Exchange. Authorized person[14] is not a member of a Stock Exchange but is 'Any person, individual, partnership firm, LLP or body corporate, who is appointed as such by a Stock Broker (including Trading Member) and who provides access to trading platform of a Stock Exchange as an agent of the Stock Broker'. For executing trades in ETCD on own as well as client account, a trading member is required to take membership of Currency Derivatives Segment of the Exchange. The admission as a trading member on the Stock Exchanges is based on various criteria like age, capital adequacy, financial track record, education, experience and fulfilment of criteria of "fit & proper person" as laid down in the SEBI (Intermediaries) Regulations, 2008. The Exchanges may stipulate additional requirements over and above the SEBI prescribed rules. To get access to the trading system, a dealer (who will enter

[12] Stock broker" means a person having trading rights in any recognized stock exchange and includes a trading member

[13] Banks are permitted to become member of the currency derivative segment of recognized stock Exchanges subject to fulfillment of minimum prudential requirements

[14] https://www.sebi.gov.in/legal/circulars/aug-2018/role-of-sub-broker-sb-vis-a-vis-authorized-person-ap-39825.html (Discontinuation of Sub-broker category)

deals in the trading system) of the trading member should successfully pass the NISM-Series-I: Currency Derivatives or NISM-Series-XIII Common Derivatives Certification Examination. The membership for currency derivatives segment can be taken individually or in combination like a trading member, trading cum self-clearing member and trading cum clearing member. Entities belonging to the trading member category are allowed to execute their own trades as well as their clients' trades but the clearing and settlement of such trades must be done through a Trading-cum Clearing Member or Professional Clearing Member of the Exchange.

6.1.4 Clearing Members

Clearing Members have clearing and settlement rights in any recognised clearing corporation. Clearing Members help in clearing of the trades of their clients. There are three kinds of clearing members - Professional Clearing Members (PCM), Trading Cum Clearing Member (TCM) and Self Clearing Member (SCM). We will examine the role of all these entities in the next chapter.

6.1.5 Investor / Client

Investors/clients trade in Exchange-Traded Currency Derivatives (ETCD) through trading member of the currency derivatives segment. Trading members accept orders on behalf of client and send the same to the Exchange. Investors may be individuals, body corporates, domestic financial institutions, Authorised Dealers, foreign portfolio investors etc. Clients have the option of placing their orders through various channels like internet, phone, direct market access (DMA) (for institutional clients), Securities trading using wireless technology facility (STWT), etc. To participate in ETCD, an investor must open a trading account with the trading member of currency derivative segment of the Exchange and complete the necessary procedure related to account opening, KYC, etc. Once the KYC and other details thereon are complete, each client is assigned a unique client code (UCC) by the broker. This acts as an identity for the client with respect to the broker. SEBI has made it mandatory for all the brokers to use unique client codes for all clients while entering orders on their behalf. It is also mandated by SEBI, that the unique client code should be mapped with the PAN number of the client. The broker has to provide the Stock Exchange(s) with the UCC and the PAN details of the client(s) before entering any order/trade on behalf of the client. The Stock Exchanges provide an upload facility to the brokers through which the UCC and other client details are uploaded on the stock exchange platform on a regular basis. If the broker fails to register the unique client code with the Exchange, he is liable to be penalized.

6.2 Exchange Trading System

All the derivatives exchanges in India provide a fully automated screen-based trading platform for ETCD as part of currency derivatives segment. These trading systems support an order driven market and simultaneously provide complete transparency of trading

operations. Exchange trading system is a fully computerized system designed to offer investors across the length and breadth of the country a safe and easy way to invest. It adopts the principle of an order driven market. Important features of Exchange trading system are:

- Screen based trading system.
- Fully automated: No manual intervention.
- Transparent: Quantity and price information related to orders and trades is disseminated on the trading system on a real-time basis.
- Anonymous order matching: The identity of buyer and seller is not revealed to market. Only price and quantity information is available on the system. It is an order-driven platform where order matching is done strictly on price-time priority basis.
- Higher speed of execution: Handling of multiple orders and trade execution.
- Connected to multiple interfaces: Trading system is connected to clearing corporation system, surveillance system of the Exchanges, data vendors system for dissemination of data.
- Risk management facility: To mainly avoid errors related to order entry.
- Nationwide reach: Trading members/participants can have access from any part of the country.
- Trading members can connect to the system by various mode such as lease line, VSAT, co-location[15] etc.

6.2.1 Trader Workstation (TWS)

The trader workstation (TWS) is the terminal from which a member accesses the trading system. An exchange provides its own trading platforms to its members. Each trader has a unique identification by way of Trading Member ID and User ID through which they are able to log on to the system for trading or inquiry purposes. As mentioned earlier, a dealer (who will enter deal through TWS) of the trading member should be successfully certified in the specific module of NISM.

TWS provides mainly two kinds of information which are:

Trading member's own transaction Information:

- Orders entered
- Orders modified
- Outstanding Orders
- Order Log
- Trade details

[15] The facility of co-location or proximity hosting (or by whatever name called) is offered by the stock exchanges to stock brokers and data vendors whereby their trading or data-vending systems are allowed to be located within or at close proximity to the premises of the stock exchanges, and are allowed to connect to the trading platform of stock exchanges through direct and private network

Market Information:

- Order book
- Securities / contract price information
- Securities / contract trade information
- Additional information

To assist trading in various currency contracts, the exchanges also provide spot market currency price feed.

Exchanges have allowed members to develop their customized trading workstation as per their requirements and connect to Exchange trading system. Under this facility, the exchanges have made available products such as Computer to Computer Link (CTCL) / Internet based trading (IBT) / Direct Market Access (DMA) / Security trading through wireless technology facility (STWT) / Automated / Algorithm Trading (ALGO) / Smart order router (SOR) to the Trading Members.

6.2.2 Placing of Order

The broker accepts orders from the client and sends the same to the exchange after performing the risk management checks. Clients have the option of placing their orders directly through various channels, provided by members, like internet, phone, direct market access (DMA) (for institutional clients), securities trading using wireless technology facility (STWT) / Automated / Algorithm Trading (ALGO) / Smart order router (SOR), etc. To strengthen the regulatory provisions against un-authorized trades and to harmonise the requirements across equity & derivative market, all brokers are required to execute trades of clients only after maintaining the evidence of such order placement, which could be, inter alia, in the form of: (a) Physical record written and signed by client, (b) Telephone recording, (c) Email from authorized email id, (d) Log of internet transactions, € Record of SMS messages, (f) Any other legally verifiable record.

SEBI has further instructed that wherever the order instructions were received from clients through the telephone, the stock broker must mandatorily use telephone recording system to record the instructions and maintain telephone recordings as part of its records[16]. Internet trading can take place through order routing systems, which will route client orders to exchange trading systems for execution. Thus, a client sitting in any part of the country would be able to trade using the Internet as a medium through brokers' Internet trading systems. SEBI-registered brokers can introduce internet-based trading after obtaining permission from respective Stock Exchanges. SEBI has stipulated the minimum conditions to be fulfilled by trading members to start internet-based trading and services. Direct Market Access (DMA) is a facility which allows brokers to offer clients direct access to the exchange trading system through the broker’s infrastructure without

[16] SEBI Circular Ref No.: SEBI/HO/MIRSD/DOP1/CIR/P/2018/54Dated March 22, 2018

manual intervention by the broker. Some of the advantages offered by DMA are: direct control of clients over orders, faster execution of client orders, reduced risk of errors associated with manual order entry, greater transparency, increased liquidity, lower impact costs for large orders, better audit trails and better use of hedging and arbitrage opportunities through the use of decision support tools / algorithms for trading. SEBI in 2008, introduced Direct Market Access (DMA) and permitted institutional investors to use DMA facility. The facility of the DMA provided by the stock brokers shall be used by the client or an investment manager of the client. A SEBI registered entity is permitted to act as an investment manager on behalf of institutional clients. In case the facility of DMA is used by the client through an investment manager, the investment manager is required to execute the necessary documents on behalf of the client(s). The exchange can also specify the categories of investors to whom the DMA facility can be extended. SEBI-registered brokers can introduce DMA facility to their clients after obtaining permission from respective Stock Exchanges. Brokers must specifically authorize clients or investment managers acting on behalf of clients for providing DMA facility, after fulfilling KYC requirements, documentation and carrying out necessary due diligence, the records of which should be properly maintained.

Another feature which has been introduced in the Indian securities market is Algorithmic Trading and High Frequency Trading. Any order that is generated using automated execution logic shall be known as algorithmic trading[17]. "Automated Trading" shall mean and include any software or facility by the use of which, upon the fulfillment of certain specified parameters, without the necessity of manual entry of orders, buy/sell orders are automatically generated and pushed into the trading system of the Exchange for the purpose of matching. SEBI has advised the stock exchanges to ensure that all algorithmic orders are necessarily routed through broker servers located in India and the stock exchange has appropriate risk controls mechanism to address the risk emanating from algorithmic orders and trades. The minimum order-level risk controls include a price check and quantity limit check. Stock exchanges must ensure that the stock broker provides the facility of algorithmic trading only upon the prior permission of the stock exchange. A stock broker, desirous of placing orders generated using algos, must satisfy the stock exchange with regard to the implementation of the minimum levels of risk controls at its end as specified by SEBI and Exchanges from time to time. The stock brokers that provide the facility of algorithmic trading are required to subject their algorithmic trading system to a system audit every six months in order to ensure that the requirements prescribed by SEBI / stock exchanges with regard to algorithmic trading are effectively implemented[18]. High frequency trading (HFT) is a type of algorithmic trading which is latency sensitive and is characterized by a high daily portfolio turnover and high order-to trade ratio (OTR).

[17] SEBI Circular Ref. no. CIR/MRD/DP/09/2012 Dated March 30, 2012

[18] SEBI/HO/MRD/DP/CIR/P/117 dated October 25, 2019 "Master Circular for Stock Exchange and Clearing Corporation, Chapter 2 - Trading Software and Technology" & SEBI/HO/MRD1/DSAP/CIR/P/2020/234 dated November 24, 2020.

Once the orders are received by the broker, it is confirmed with the client and then entered into the trading system of the Exchange. The exchange confirms the order and time stamps it. An order generally comes with certain conditions which determine whether it is a market order, limit order, etc. (discussed in section 6.3.1). These specify the terms and conditions at which the client wants his/her order to get executed.

Placing of orders through the Internet / Phone

Placing of orders through the internet/phone means the facility provided by stock brokers, whereby the client can place order(s) over the phone/internet for transactions in securities, to be executed on behalf of clients by the broker. Here, the dealer shall refer to the Dealing Desk Executive appointed by the call centre(s) for the purpose of providing this facility.

- For the purpose of availing of this service, the client is required to call on the specific numbers intimated or notified from time to time by the stock broker for the said purpose by means of an email and/or by putting up such numbers on the website or otherwise.
- In case the client opts for this service, he/she may be required to provide accurate answers to the questions asked by the dealing desk executive, including the client's user id and TPIN, for ascertaining the genuineness of the caller. Once this is done, the order can be placed and will be processed in the normal course.

6.2.3 Process of order routing through the Exchanges

Once the order is entered and confirmed by the client/dealer at his trading terminal and verified by the broker software, the order is routed to the exchange for its execution. The Exchange system allots a unique order number for all orders received in the system. This is given as order confirmation along with the time stamp to the broker.

The order execution at the exchange depends upon the type of order. If the order is a market order, it gets executed immediately, subject to availability of counter order. If it is a limit order, it is matched against appropriate counter orders. Once the order is matched, a trade is said to be executed. As soon as a trade is executed, the trade confirmation message along with time stamp is automatically available on the trading terminal of broker. All orders can be modified or cancelled during the trading hours provided they are not fully executed. For the orders, which are partially executed, only the open or unexecuted part of the order can be cancelled / modified.

6.2.4 Order Book

The term "order book" refers to an electronic list of buy and sell orders which are available for matching (not yet converted in trade or outstanding order) for a specific security or derivatives contract organized by price level. An order book lists the number of shares/lot being bid on or offered at each price point, or market depth. It also provides number of orders at each price level. The Exchange order book is generally available up to five price

levels based on the priority of matching. The identities of market participants remain anonymous. The order book helps to improve market transparency as it provides information on price, availability, depth of trade. An order book is dynamic, meaning that it is constantly updated in real-time throughout the day.

Below is an example of a typical order book:

Contract: USDINR Futures Expiry: 26032024

No. of Orders	Buy Qty./ Lot *	Buy Price	Sell Price	Sell Qty./ Lot*	No. of Orders
2	35	82.5500	82.5625	10	1
3	25	82.5425	82.5700	11	3
1	38	82.5400	82.5750	184	2
10	78	82.5300	82.5800	42	1
1	1	82.5250	82.5975	86	4
Total Buy Qty / Lot	3525		Total Sell Qty / Lot	4250	

*Trading in the case of derivatives is mainly in lot size. In such cases, number of lots.

The left hand side of the order book provides details of buy orders and the right hand side provides details of sell orders . The column “Number of orders” provides information about the number of unique orders available at the given price point. Quantity columns show the total quantity / lot available at given price point. Information about buy prices is provided in the descending order i.e., from the highest to lowest price while the sell price information is provided in the ascending order i.e. from the lowest price to highest price. The order depth is generally up to five price points on each side. Additionally, the total buy order quantity and total sell order quantity of overall market are also shown in the order book

6.2.5 Spread Order Book

Exchanges provide a separate spread order book for participants interested in executing calendar spreads . A calendar spread is a contract where you buy/sell a particular month’s contract (Futures or Options) and sell/buy (take an opposite position) of the same contract maturing in a different month. The dealer can set up the spread combination contract on TWS and place a Buy Spread order (BSP) and a Sell Spread order (SSP) with individual contracts defaulted for leg1 and leg2.

For e.g. USDINR future MAR24MAY24 spread contract allows participants to trade the difference of price between USDINR MAY24 futures (Far month contract/2nd leg contract) expiry and MAR24 (near month contract/1st leg contract) expiry. The difference which is shown on the spread contract can be positive, negative, or zero, which is not possible for all other contracts other than spread contracts. The orders are matched in the spread order book on price-time priority only, where the price is basically the difference between

the far-month contract and near-month contract. When a spread order is matched, the trades shall be executed at following prices:
Traded price for the first leg contract = Reference price
Traded price for the second leg contract = Reference price + the price difference entered for the spread order
where, the Reference price = Last Traded Price of the first leg contract.

Spread USDINR MAR24APR24 futures

No. of Orders	Buy Qty./ Lot *	Buy Price	Sell Price	Sell Qty./ Lot	No. of Orders
2	35	0.0600	0.1000	10	1
3	25	0.0300	0.1100	11	3
1	38	0.0100	0.1200	184	2
1	78	0.0000	0.1400	42	1
1	1	-0.0100	0.1500	86	4
Total Buy Qty / Lot	3525		Total Sell Qty / Lot	4250	

*Trading in case of derivatives is mainly in lot size. In such cases, number of lots.

A buy side spread means sell near-month leg (first leg) and buy the far-month leg (second leg). A sell side spread means buy in near-month leg (first leg) and sell in far-month leg (second leg). Buy spread order of 10 lots in USDINR MAR24MAY24 futures means: sell 10 lots in USDINR MAR24 futures and buy 10 lots in USDINR MAY24 futures. Similarly, a sell spread order of 10 lots in USDINR MAR24MAY24 futures mean: buy 10 lots in USDINR MAR24 futures and sell 10 lots in USDINR MAY24 futures.

The issue with entering a calendar spread trade as 2 separate orders is that there is a risk of adverse price movement between placing of both the orders. The trader is also subject to a higher margin requirement till the second order is executed. Both these issues can be fixed by using the spread order facility in the spread order window.

6.2.6 Order Matching Rule

Exchanges follow continuous matching based on price-time priority. An order may match partially with another order resulting in multiple trades. The best price orders are matched first. If more than one order arrives at the same price, they are arranged in ascending time order. Best buy price is the highest buy price amongst all buy orders and similarly best sell price is the lowest price of all sell orders. This is because the system views all buy orders available from the point of view of a seller and all sell orders from the point of view of the buyers in the market. So, of all buy orders available in the market at any point of time, a seller would obviously like to sell at the highest possible buy price that is offered. Hence, the best buy order is the order with the highest price and the best sell order is the order with the lowest price. Orders lying unmatched in the system are

'passive' orders and orders that come in to match the existing orders are called 'active' orders. Orders are always matched at the passive order price. The matching of active order may be against a single order or multiple passive orders. Quantity is not a factor considered for matching.

Let us take an example here to better understand this. A sample of the order book is given below for understanding.

Buy Quantity/Lot	Buy Price	Sell Price	Sell quantity
50	121.2000	121.5000	50
100	121.1000	121.8000	200
25	120.9000	122.1000	3000
500	120.8000	122.2000	1000
5000	120.0000	122.6000	200

These quotes given in the table above are visible to clients. Now if a buy market order comes with an order quantity of 50 it gets executed for a price of Rs. 121.50 and the order book entries on the sell side move up by one notch i.e., the Rs. 121.80 order comes to top. On the other hand, if a limit order with a sell price of Rs. 121.20 for a quantity of 500 is entered, the sale of 50 shares gets executed immediately and the order for the remaining 450 shares stays at the top on the sell side with a price of 121.20. All orders come as active orders into the order book. If they get a match, they will be executed immediately; else they will enter the order book according to their price and time as passive orders.

Let us take another example:-

Buy Qty./Lot	Buy Price	Sell Price	Sell Qty./Lot
1,606	807.5500	807.6000	100
13	807.5000	807.7500	119
383	807.4500	807.8000	184
78	807.4000	807.8500	42
1	807.3500	807.9000	86

An order is placed to buy 200 shares at Rs.807.65. In this current scenario, the incoming limit order will get matched with the best sell order in the book which is 100 shares @ Rs.807.60 and a trade will take place for 100 shares at Rs.807.60 and not at Rs. 807.65. It should be noted that the incoming order is always matched with the passive order price, in this case as the sell order is the passive order, matching takes place at Rs.807.60. The balance buy order for 100 shares @ Rs.807.65 will sit in the order book on the buy side as the best buy order.

Revised order book snapshot as follows:

Buy Qty./Lot	Buy Price	Sell Price	Sell Qty./Lot
100	807.6500	807.7500	119
1,606	807.5500	807.8000	184
13	807.5000	807.8500	42
383	807.4500	807.9000	86
78	807.4000	807.9500	12

6.3 Order Management

Order management consists of entering orders, order modification, order cancellation and order matching. The main components of an order are:

- Price
- Time
- Quantity / No. of Contracts
- Security/Contract (What to buy and what to sell))
- Action (Buy / Sell)
- Client identity (UCC) and Proprietary / Client identifier.

6.3.1 Order Entry

A trading member can enter various types of orders depending upon his/her requirements. The order conditions are broadly classified into three categories: price-related conditions, time-related conditions, and quantity-related conditions. We will study the order conditions in the following section. Trading members are allowed to enter orders in the trading system during market hours only. Following are some examples of order entry:

Contract Descriptor									
Type of Derivatives	Underlying	Expiry Date	Buy / Sell	Mkt Lot	Price	Time Condition	Pro / Cli	UCC & PAN	CP Code
Currency Future	USDINR	260324	B	5	82.95	Day	Cli	A001 XXXX	-

Contract Descriptor											
Type of Derivative	Underlying	P/C	Strike Price	Expiry Date	Buy/ Sell	Mkt Lot/ Qty	Price	Time Cond.	Pro / Cli	UCC & PAN	CP Code
Currency Option	USDINR	Call	83.00	260324	B	5	0.2025	Day	Cli	A01 XXX	-

Once the order is entered and confirmed by the client/dealer at his trading terminal and verified by the broker software, the order is routed to the exchange for its execution. The Exchange system allots a unique order number for all orders received in the system. This is given as order confirmation along with the time stamp to the broker. As soon as a trade is executed, the trade confirmation message is automatically available on the trading terminal of broker.

6.3.2 Types of orders

Price, time and quantity are three major components of an order. A stock broker can enter various types of orders depending upon the requirement. These conditions are broadly classified into three categories: price-related conditions, time-related conditions, and quantity related conditions.

A. Price Condition:

Market Order - Basic Trade

A market order is where a trader purchases or sells their contracts at the best market price available across the market depth to complete the order quantity/lot. In the market order there is no need to specify the price at which a trader wants to purchase or sell. There are two variations on the market order—market order without protection and Market order with protection. The market order without protection means that the trades are executed at the best available price/s in the market at that point in time. The second type of market order i.e. market with protection order is a combination of market and limit order. It allows the market order to be executed up to a specified level mentioned by the trader. The risk of an order getting executed at any price is protected by using such order.

Example: Illustration of a typical market order

Order is placed to buy 100 lots of USDINR futures "at Market". The order book snapshot looks like as below:

Buy Qty./Lot	Buy Price	Sell Price	Sell Qty./Lot
1,606	82.5500	82.6000	100
13	82.5000	82.6500	119
383	82.4500	82.7000	184
78	82.4000	82.7500	42
1	82.3500	82.8500	86

In this current scenario, the incoming buy market order will be matched with the best sell order in the book which is 100 lots @ Rs.82.60 and a trade will take place for 100 lot at Rs.82.60. If a buy order is placed for 200 lots "at Market" then the trade will take place for 100 lots at Rs.82.60 and another 100 lots at Rs.82.65.

Limit Order -

Limit orders involve setting the entry or exit price and then aiming to buy at or below the market price or sell at or above it. Unlike a market order, the trader here needs to specify the price. The price can be changed any time before order execution. Reaching these limits/targets is not always possible and sometimes the orders are not executed. Limit orders are very common for online traders.

Example: Illustration of a typical limit order

Order is placed to buy 200 lots of USDINR futures at Rs.82.60. The order book snapshot is shown below:

Buy Qty./Lot	Buy Price	Sell Price	Sell Qty./Lot
1,606	82.5500	82.6000	100
13	82.5000	82.7500	119
383	82.4500	82.8000	184
78	82.4000	82.8500	42
1	82.3500	82.9000	86

In this current scenario, the incoming limit order will get matched with the best sell order in the book which is 100 lots @ Rs.82.60 and a trade will take place for 100 shares at Rs.82.60. The remaining buy order for 100 shares @ Rs.82.60 will sit in the order book on the buy side as the best buy order. The revised order book snapshot after the trade match will look as follows:

Buy Qty./Lot	Buy Price	Sell Price	Sell Qty./lot
100	82.6000	82.7500	119
1,606	82.5500	82.8000	184
13	82.5000	82.8500	42
383	82.4500	82.9000	86
78	82.4000	82.9500	12

Stop Orders (orders with stop loss triggers)

This facility allows the Trading Member to place an order which gets activated only when the market price of the relevant security reaches or crosses a threshold price. The order does not enter the market until the threshold price is reached.

In a stop order, the client enters two prices: one is the trigger price and the other is the limit/market price. A stop order can best be explained with an example. Suppose a trader has a short term (say, for a day), bullish view on the USD against INR, he may buy the USDINR futures at say Rs.83 in the early hours of the trading session. If the exchange rate moves upwards as per his expectations, he may sell the futures contract, say at Rs.83.50 and close his long position. The futures price can also move downwards against the

trader's expectations. It may so happen that the trader has a limited risk appetite and does not want to incur a loss of more than Rs.0.25 per USD. In such a scenario, the trader can place a stop loss sell order with a trigger price of Rs.82.80 and a limit price of Rs.82.75. If the USDINR futures price starts moving lower, and hits the trigger price of Rs.82.80, the sell order at Rs.82.75 will automatically get activated. Any further downward movement in the futures price will not affect the trader as he has already limited his loss on the long position. A buy order in the stop loss book gets triggered when the last traded price in the normal market reaches or exceeds the trigger price of the order.

A typical sell stop loss order example:

- Original transaction: Bought 400 lot of USDINR futures at Rs.83.
- If the price falls below the buy price, the investor will start clocking a loss.
- Investor may place a sell stop loss order at a trigger price of Rs.82.80. When the USDINR futures price drops to Rs.82.80 or below, the sell stop loss order will get triggered.
- An order is then placed in the market to sell 400 lots of USDINR futures.
- It can be triggered as a market order, or as a limit order
- The investor may specify a limit price (which can be equal to or less than trigger price), for example in this case, Rs.82.75
- In the case of a stop loss limit order, once triggered, the order will be placed in the market for selling USDINR futures 400 lots at Rs.82.75.
- It will match only if a corresponding buy order exists for Rs.82.75/- or better.
- If it is a stop loss with market order, once triggered it will match with the best counter order available.

A typical buy stop loss order example:

- Original transaction: Sell 400 lots of USDINR futures at Rs.83.
- If the futures price rises above the sell price, the investor will start clocking a loss.
- Buy stop loss order is used to anticipate a potential loss. The investor may place a buy stop loss order at a trigger price of say Rs.83.25.
- When the futures price reaches Rs.83.25 or above, the buy stop loss order will get triggered.
- An order will be placed in the market to buy 400 lots of USDINR futures.
- It can be triggered as a market order, or as a limit order.
- The investor can specify a limit price (which can be equal to or more than trigger price), for example in this case, the limit price could be Rs.83.28.
- In the case of stop loss limit order, when the stop loss order is triggered, the order will be placed in the market for buying 400 USDINR futures lots at Rs.83.28/-. It will match only if a corresponding sell order exists for Rs.83.28/- or better.
- If it is a stop loss with market order, once triggered it will match with the best counter order available.

It is also important to note that once the order is triggered, it will match only if the counter order is available in the order book.

The variations in the three orders require traders to be well aware of the options when trading. Studying the currency/interest rate/security price movement and predicting the trend accurately is very important.

B. Time Condition:

DAY - 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 matched during the day, it gets cancelled automatically at the end of the trading day.

IOC - An Immediate or Cancel (IOC) order allows a trading member to buy or sell a security as soon as the order is released into the market, failing which the order is removed from the market. Partial matching is possible for the order, and the unmatched portion of the order is cancelled immediately.

Example: Illustration of a typical IOC order

An order is placed to buy 200 lots of USDINR futures at Rs.82.60 immediate or cancel. The order book snapshot looks like as below:

Buy Qty./Lot	Buy Price	Sell Price	Sell Qty./Lot
1,606	82.5500	82.6000	100
13	82.5000	82.7500	119
383	82.4500	82.8000	184
78	82.4000	82.8500	42
1	82.3500	82.9000	86

In this current scenario, the incoming limit order will be matched with the best sell order in the book which is 100 lots @ Rs.82.60 and a trade will take place for 100 lots at Rs.82.60. The balance buy order for 100 lots @ Rs.82.60 will be cancelled as it is an IOC order and there is no match for the remaining 100 lots.

GTC - A Good Till Cancelled (GTC) order is an order that remains in the system until it is cancelled by the Trading Member. It will therefore be able to span trading days if it does not get matched. The maximum number of days a GTC order can remain in the system is notified by the exchange from time to time.

GTD - A Good Till Days/Date (GTD) order allows the trading member to specify the days/date up to which the order should stay in the system. At the end of this period the order will get flushed from the system. Each day/date counted is a calendar day and inclusive of holidays. The days/date counted are inclusive of the day/date on which the order is placed. The maximum number of days a GTD order can remain in the system is notified by the Exchange from time to time.

Cancel on Logout (COL): If a member / user entered order with COL, all outstanding orders of the user will get cancelled once the user logs out from the TWS.

Note: Currently, GTC and GTD orders are not available on the system as per SEBI directives.

C. Quantity Condition:

DQ - Disclosed Quantity (DQ) - An order with a DQ condition allows the Trading Member to disclose only a part of the order quantity/lot to the market. For example, an order of 1000 lots with a disclosed quantity condition of 200 will mean that "200 lots" is displayed to the market at a time. After this is traded, another 200 lots is automatically released and so on till the full order is executed. The exchange may set a minimum disclosed quantity criteria from time to time.

MF - Minimum Fill (MF) orders allow the Trading Member to specify the minimum quantity by which an order should be filled. For example, an order of 1000 lots with a minimum fill of 200 will require that each trade must be for at least 200 lots. In other words, there will be a maximum of 5 trades of 200 each or a single trade of 1000. The exchange may lay down norms of MF from time to time.

AON - All or None orders allow a Trading Member to impose the condition that only the full order should be matched against. This may be by way of multiple trades. If the full order is not matched it will stay in the books till matched or cancelled. There will be no partial execution of the order.

Note: Currently, AON and MF orders are not available on the system as per SEBI directives.

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.

Proprietary Trading

Trading members are also allowed to trade on their own behalf. To facilitate the same Stock Exchanges provide a facility of placing orders on proprietary (pro) account. The facility of placing orders on proprietary account through trading terminals is extended only at one location of the member as specified / required by the member. Trading terminals located at places other than the above location will have a facility to place orders only for and on behalf of a client by entering the client code details as required / specified by the Exchange / SEBI. Proprietary trading is allowed from more than one location subject to certain conditions. Members need prior approval of the exchange for the facility of 'proprietary-account' through trading terminals from more than one location and / or CTCL terminal.

6.3.3 Order Modification/ Order Cancellation

Sometimes orders in a moving market need to be changed in terms of the price and quantity as per the client's requirement. All orders can be modified till the time they are not fully executed. Order modification is allowed only for certain parameters like price, quantity etc. Also, in certain scenarios the order will lose time priority due to order modification. Sometimes orders need to be cancelled due to some problems in a moving market or when the trader does not want the order to be executed. In this case only those orders which have not been fully or partially executed can be cancelled during market hours.

6.3.4 Trade execution

Execution of trades occurs when a buyer and seller reach an agreement pertaining to the terms and price of a trade and the order to buy or sell a security is completed after the same is matched on the Exchange platform. Once the order is executed it turns into a trade and the exchange sends notification of the trade to the broker along with the trade number, trade time, traded quantity / lot, traded price, etc. A single order can have multiple trade numbers. The broker in turn communicates these trades to the client either immediately or at the end of the day. Official communication from the broker to the client is done through a contract note.

Trade modification is allowed for parameters like client code and custodian participant code. However, there are certain conditions and timings for such modifications. Also, these modifications may attract penalties.

Trade annulment: Trading members are allowed to submit a request for trade annulment on the trading system. The request should be submitted within 30 minutes from the point of trade execution. A trade annulment request should satisfy certain conditions for further processing. A fee based on value of trade(s) for which annulment is requested, subject to a minimum and a maximum fee is charged as annulment application fee for accepting the request.

6.4 Risk Management and Order Routing

Any transaction or behaviour, whether it is buying, selling or instigating to willfully produce an abnormal effect on prices and/or volumes, goes against the fundamental objective of protecting the interest of the investors of the securities markets. Here the risk management system plays a crucial role. An efficient risk management system is integral to an efficient settlement system.

The obligation to settle the trades lies with the broker. If any client commits any trade default, then the same has to be made good by the broker to the clearing corporation. When orders are accepted and sent to exchange these orders go through various risk

management checks for clients. The broker system should have an on-line risk management capability for all orders placed on the exchange platform. Further, brokers should have various trading limits (like Order Quantity and Value Limits, User / Branch Order Limit, Order Price limit, etc.) on the system and only such orders which are within the parameters specified by the risk management system are allowed to be pushed into the exchange trading platform.
A margin is an amount that clearing corporations levy on the brokers for maintaining positions on the exchange. The amount of margin levied is proportional to the exposure and risk carried by the broker. Since positions may belong to a broker's clients, it is the broker's responsibility to collect the margin upfront from clients and allow trading facility to clients based on the collateral provided by them. The broker system should have the capability to generate reports relating to margin requirements, payments, and delivery obligations. The goal of a broking firm's risk management system is to measure and manage its own and its client's exposure to various risks identified as central to its operations. The broker's system should assess the risk of the clients as soon as the order is received., Further the broker can have system-based controls on the trading limits of clients and their exposure.

Brokers are required to set pre-defined limits on the exposure and turnover of each client. SEBI/Stock Exchanges have specified various systems / risk management requirements based on the type of broker. For example, there are brokers who trade through exchange; those who trade through CTCL, IBT, STWT, SOR; and those who use Algorithmic Trading facility. For each risk category, the broking firm must employ procedures to measure and manage firm-level exposure. These are:

Establish Standards and Reports: Every broker has a set of standards which they adhere to, and these are the standards against which a client is measured. In general, and not only among brokers, but certain standards must also be met before rating a company or a client. These must be reported to the management for their perusal and action.

Impose Position Limits and Rules: A key element of financial risk management is deciding which risk to bear and to what degree. A broker firm needs to impose limits to cover exposures, and overall position concentrations relative to systematic risks. SEBI and exchanges prescribe from time to time the open position limit for various categories of products in the Equity Derivatives, Currency Derivative, Interest Rate Derivatives and Commodity Derivative segments.

Set Investment Guidelines and Strategies: A firm should outline investment guidelines and strategies for risk taking in the immediate future in terms of commitments to a particular market area, extent of asset-liability mismatching, or the need to hedge against systematic risk at a particular time. Risk management involves determining what risks a firm's financial activities generate and avoiding unprofitable risk positions. The board's role is usually described as setting the risk appetite of the organization; however, this is not possible if risks are understated or ill defined. Guidelines can advise on the

appropriate level of active management, given the state of the market and senior management's willingness to absorb the risks implied by the aggregate portfolio.

6.4.1 Types of Risk for Members

Operational risk is the risk of monetary loss resulting from inadequate or failed internal processes, manual and systems error or external events. For the stock broker, operations risks are essentially risks arises on account of handling of client assets, regulatory non-compliance, trading error, non-payment for buying or selling a scrip, non-delivery of scrip(s), denial of matched order by clients, sudden closure of banks where funds are deposited etc.

Market risk refers to the possibility of incurring large losses from adverse changes in financial asset prices such as stock prices. For the stock broker, market risks are essentially risks arising on account of concentration of client collateral in stocks/sectors, brokers own investment in stocks/sectors etc. This risk entails the erosion of value of marketable securities and assets, due to factors beyond the broker's control. Market risk is usually affected by economic developments and political destabilization such as a rising fiscal gap, national debt, terrorism, energy price shocks, increase in interest rates, all resulting in a drop in equity or currency or commodity prices.

Credit risk is the risk of default on a debt that may arise from a borrower failing to make required payments. The credit risk for broker can arise on account of Loans to Group Companies/ Related Parties, debit balance of clients, funding of clients, short collection of margins, non-confirmation of DVP trade by the custodian etc.

A stock broking firm must identify factors that can trigger operational, market and credit risk. It needs to establish procedures so that risk management begins at the point nearest to the assumption of risks. This means adopting trade-entry procedures, customer documentation, client engagement methods, trading limits, and other normal activities to maintain management control, generate consistent data, and eliminate needless exposure to risk.

6.4.2 Pre-Order and Pre-Trade Checks

There are various pre-order (checks which are applicable before order entry into the trading system) and Pre-trade (checks which are applicable before execution of the trade) checks which are available on TWS and trading system of the Exchange. Certain checks are monitored by the trading member and certain checks are monitored by the Exchange trading system. Some of the pre-order and pre trade checks are given below:

Pre-order checks

- Price range check: Orders are allowed to be entered within a specific price range.
- Quantity Freeze: Single order quantity / lot cannot exceed the limit specified by Exchanges.
- Single order quantity / value limit: This limit is specified by the trading member for its dealer.
- User order value limits: This limit can be set up by the trading member for its dealer / branch.
- Cumulative open order value checks: This limit can be set up by the trading member for its dealer / branch / trading member level
- UCC/PAN check: The Trading member can put this check to ensure that the order is not entered for an unregistered client.

Pre-trade checks

- Trade Execution Range: Orders are matched, and trades can place only if the trade price is within the trade execution range based on the reference price of the contract.
- Self-Trade Check: If the Pro / Client orders entered by the same/different members result in self-trade due to the same PAN or CP code, as the case may be, on the active and passive side, the same results in the active or passive order getting cancelled due to self-trade checks.
- Market price protection: Market with protection order is a combination of market and limit order. It allows the market order to be executed up to a specified level mentioned by the trader. The risk of an order getting executed at any price is protected by using such order.
- Kill Switch: This allows a member to cancel all outstanding orders with one single command.
- Cancel on Logout (COL): If a member / user enters an order with COL, all outstanding orders of the user get cancelled once the user logs out from the TWS.

Introduction of Investor Risk Reduction Access (IRRA) platform in case of disruption of trading services provided by the Trading Member[19]**:** Salient features of the SEBI circular are given below. For additional information participant may refer to the SEBI circular.

- A joint platform to provide Investor Risk Reduction Access (IRRA) service has been developed by the exchanges to provide the investors an opportunity to square off/close the open positions and /or cancel pending orders in case of disruption of trading services provided by the Trading Member.
- The IRRA service shall support multiple segments across multiple exchanges.
- TMs, upon facing technical glitches which lead to disruption of trading services, can request for enablement of the IRRA service as per the procedures specified by the

[19] https://www.sebi.gov.in/legal/circulars/dec-2022/introduction-of-investor-risk-reduction-access-irra-platform-in-case-of-disruption-of-trading-services-provided-by-the-trading-member-tm-_66785.html

stock exchanges from time to time and IRRA shall be enabled on receipt of such requests.

- Once the service is enabled, all the investors of the TM shall be informed by the exchange of the availability of the service through email/SMS and a public notice on exchanges' website. TMs shall also communicate the same by displaying on their website.
- Investor can us IRRA service to square off/close the open position and/or cancel the pending order. The IRRA service shall not permit any action that increases the risk of the investor.
- Further, IRRA service shall also provide the TM with access to an Admin Terminal, through which the TM can monitor the actions of investors and also carry out the actions as mentioned above, on instructions of investors.
- It's important to clarify that the IRRA system is exclusively for individual investors and does not cater to algorithmic trading or institutional clients. Furthermore, its primary function is to facilitate the closure of positions and the cancellation of pending orders & not the initiation of new positions.

Framework to address the 'technical glitches' in Stock Brokers' Electronic Trading Systems[20]. Salient features of the SEBI circular are given below. For additional information participant may refer to the SEBI circular.

- Stock brokers shall inform about the technical glitch to the stock exchanges immediately but not later than 1 hour from the time of occurrence of the glitch.
- Stock brokers shall submit a Preliminary Incident Report to the Exchange within T+1 day of the incident (T being the date of the incident). The report shall include the date and time of the incident, the details of the incident, effect of the incident and the immediate action taken to rectify the problem.
- Stock brokers shall submit a Root Cause Analysis (RCA) Report (as per format specified by SEBI)of the technical glitch to stock exchange, within 14 days from the date of the incident.
- RCA report submitted by the stock brokers shall, inter-alia, include time of incident, cause of the technical glitch (including root cause from vendor(s), if applicable), duration, chronology of events, impact analysis and details of corrective/ preventive measures taken (or to be taken), restoration of operations etc.
- Increasing number of investors may create additional burden on the trading system of the stock broker and hence, adequate capacity planning is prerequisite for stock brokers to provide continuity of services to their clients.
- In order to streamline the reporting process of technical glitches across MIIs and creation of centralized repository of technical glitches, SEBI has developed a web-based portal, i.e. Integrated SEBI Portal for Technical Glitches (iSPOT), for submission of preliminary and final RCA reports of technical glitches by the MIIs.

[20] https://www.sebi.gov.in/legal/circulars/nov-2022/framework-to-address-the-technical-glitches-in-stock-brokers-electronic-trading-systems_65466.html

- Proactively and independently monitoring technical glitches shall be one of the approaches in mitigating the impact of such glitches. In this context, the stock exchange has advised to build API based Logging and Monitoring Mechanism (LAMA) to be operated between stock exchanges and specified stock brokers' trading systems. Under this mechanism, specified stock brokers shall monitor key systems & functional parameters to ensure that their trading systems function in a smooth manner.

Business Continuity for Interoperable Segments of Stock Exchanges[21]

The following has been decided by SEBI for the interoperable segments of stock exchanges (i.e. Cash Market/ Equity Derivatives/ Currency Derivatives/ Interest Rate Derivatives etc.):

i. **Common scrips, derivatives on single stocks or correlated indices, currency derivatives segment and interest rate derivatives**: If identical or correlated trading products are available on another trading venue, then participants can hedge their open positions by taking offsetting positions in identical or correlated indices on other exchange. Further, as these segments are interoperable, taking offsetting positions in other trading venue would net off such open positions for end clients and release the margin. Hence, no separate treatment is required for such category of products.

ii. **Scrips exclusively listed on an exchange**: To ensure continuity, exchanges may create reserve contracts for scrips (i.e. exclusively listed scrips on other exchange) and single stock derivatives not traded on their exchange (and available on other exchange), to be invoked at the time of outage on the other exchange.

iii. **Index derivatives products not having correlated index derivatives products on another exchange**: Exchange which does not have a highly correlated index derivatives product with one available on other exchange may consider creating such an index and introducing derivatives contracts on it, in line with extant Regulatory provisions. The aforesaid would provide an avenue to hedge positions in index derivatives products of an exchange that suffered an outage.

iv. **Intimation to SEBI and Alternative Trading Venue**: The affected exchange should comply with extant Regulatory requirements with regard to handling of technical glitch / outage and intimate about the invocation of the instant business continuity mechanism to the alternative trading venue and SEBI within 75 minutes of occurrence of impact. The alternative trading venue would invoke the business continuity plan as per the Standard Operating Procedure (SOP) within 15 minutes from such intimation.

[21]https://www.sebi.gov.in/legal/circulars/nov-2024/business-continuity-for-interoperable-segments-of-stock-exchanges_89032.html

NSE would act as an alternative trading venue for BSE and vice-a-versa. Both exchanges would prepare a joint SOP that would include plan to be invoked at the time of outage on one exchange along with flow of activity involving the affected exchange and its alternative trading venue and roles/responsibility of each of them.

6.4.3 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 patterns 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 for building up of databases.

6.5 Price Limit Circuit Filter

With a view to ensure orderly trading and market integrity, SEBI prescribes stock exchanges to implement a mechanism of price bands so as to prevent the acceptance of orders placed beyond the price limits set by the stock exchanges. The following price bands/operating ranges are applicable to currency futures and options contract.

Contract	Price Band
Currency Futures (Contract involving INR	There are no daily price bands applicable for Currency Futures contracts. However, in order to prevent erroneous order entry by members, operating ranges are kept at +/-3% of the base price for contracts with tenure up to 6 months and +/- 5% of base price for contracts with tenure greater than 6 months. The dynamic price bands are relaxed in increments of 1% as and when a market-wide trend is observed. For example, in March 2024, the USDINR contract expiring in April with a base price of Rs.83, will have an operating range of Rs. 80.51-85.49 and the USDINR contract expiring in October with base price Rs. 84.50 will have an operating range of Rs. 80.275-88.725.
Cross Currency Futures (Contracts involving other than INR)	There are no daily price bands applicable for Cross Currency Futures contracts. However, in order to prevent erroneous order entry by members, operating ranges are kept at +/-3% of the base price for contracts with tenure up to 6 months and +/- 5% of base price for contracts with tenure greater than 6 months. The dynamic price bands are relaxed in increments of 1% as and when a market-wide trend is observed.

In the case of currency options, the price operating range is based on the delta of the options contract and calculated using the previous close price of the underlying and volatility. The price band so computed is subject to a minimum operating range which would be applicable for all contracts. The bands are computed for each options contract on a daily basis and are applicable from the next trading day. The operating range may be flexed during the day in case the options traded price crosses a certain percentage of the set range.

6.6 Trading Cost

While trading in Exchange Traded Currency Derivatives (ETCD) on behalf of client, a trading member should specify the various charges, including brokerage, payable by the client to avoid any disputes at a later date. Following levies / brokerage can be charged to a client:

a. **Statutory levies:** These are charges levied by Central/ State governments e.g. Goods and Service Tax, Security Transaction Tax (STT), Stamp Duty, etc. and may be recovered from client only at actuals paid / payable. Currently, **STT is not applicable for ETCD transactions**.

b. **Regulatory levies/charges:** These are charges levied by SEBI / Exchanges / Clearing Corporations. For e.g. SEBI turnover fees, Exchange transaction charges, etc. If such

charges are separately recovered from the client, they may be specified in contract notes or may be given under the head "Other levies, if any". The above charges may be recovered from the client only at actuals paid/ payable.

c. **Brokerage** can be charged as may be mutually agreed between the member and the client subject to the maximum permissible by the exchange, and brokerage rates should be mentioned in a tariff sheet. Trading members can charge brokerage/commission to their clients. The trading member firms have elaborate commission module (brokerage) to attract and retain clients. Given below are the rules for charging brokerage.

Brokerage rule for Derivatives segment are:

- In the case of futures, the maximum brokerage chargeable by a trading member in relation to trades executed on the exchange is 2.5% of the contract value exclusive of statutory levies.
- Brokerage on options contracts cannot exceed 2.5% of the premium amount or Rs.100/- per lot whichever is higher.
- There is no minimum brokerage requirement specified.

A trading member can be a full-service broker, discount broker or an online broker. The commission charged can be different for different types of brokers.

- Full-service brokers charge higher commission
- Discount brokers charge a much lower commission than full-service brokers
- Online brokers cater to a niche segment of retail clients.
    - The commission charged is less than what would be charged for a client placing orders through a broker.
- Brokers also use multiple commission schemes such as
    - Volume-based commission
    - Slab-wise commission or
    - Scrip-wise commission.

6.6.1 SEBI Turnover Fees:

Every stock broker / clearing member / self-clearing member is required to pay to the SEBI a fee in respect of the securities transactions including off-market transactions undertaken by them, at the rates specified by SEBI from time to time. Currently for Currency Derivatives the SEBI turnover fees is Rs. 10 per crore of turnover[22]. A clearing member / self-clearing member must pay a fee of Rs. 50000/- per year till the registration is in force.

[22] The expression 'turnover' shall include the value of the trades executed by the stock broker on the concerned segment of the recognized stock exchange and of the trades settled on the expiration of the contracts. In case of options contracts, 'turnover' shall be computed on the basis of premium traded for the option contracts and in case where the option is exercised or assigned, it shall be additionally computed on the basis of notional value of option contracts exercised or assigned.

6.6.2 Stamp Duty:

In order to facilitate ease of doing business and to bring in uniformity of the stamp duty on securities across States and thereby build a pan-India securities market, the Central Government, through requisite amendments in the Indian Stamp Act, 1899 and Rules made thereunder, has created the legal and institutional mechanism to enable states to collect stamp duty on securities market instruments at one place by one agency (through Stock Exchange or Clearing Corporation authorized by it or by the Depository) on one Instrument. A mechanism for appropriately sharing the stamp duty with relevant State Governments has also been developed which is based on the state of domicile of the buyer. Exchanges / clearing corporation will collect the stamp duty from member. Members have to collect the stamp duty from their clients and remit the same to the Exchange/Clearing Corporation.

Type of Security	Applicable Stamp Duty Rate	Applicable on
Currency Derivatives	0.0001%	Buyer

Stamp duty is collected on transactions for both futures and option contracts executed on stock exchanges. For the purpose of stamp duty, each futures trade is valued at the actual traded price and an option trade is valued at premium.

Sample Questions and Answers

1. Client can place order through following options _____?
    a. Phone
    b. Internet
    c. Direct Market Access
    d. All of the above

2. A Buy or a Sell order(s) which is/ are lying unmatched in the order book are known as _____.
    a. Active Orders
    b. Passive Orders
    c. Best Orders
    d. None of the above

3. A _____ order is classified as price related condition.
    a. Market
    b. Day
    c. IOC
    d. None of the above

4. Due to denial of matched orders by client/s, which type of risk arises?
    a. Operational
    b. Market
    c. Regulatory
    d. None of the above

5. If the base rate of GBPINR one month future is Rs. 100 then its operating range will be _____.
    a. 103 & 97
    b. 104 & 96
    c. 105 & 95
    d. 106 & 96

CHAPTER 7: CLEARING, SETTLEMENT AND RISK MANAGEMENT IN EXCHANGE TRADED CURRENCY DERIVATIVES

LEARNING OBJECTIVES:

After studying this chapter, you should know about following:

- Clearing and Settlement Mechanism
- Risk Management of Clearing Corporation
- Interoperability among Clearing Corporation
- Regulatory Guidelines on Position Limits

Introduction

The Clearing Corporation registered with SEBI is responsible for the clearing and settlement of all trades executed in Exchange-Traded Currency Derivatives. Clearing Corporation acts as a legal counterparty to all trades in the Currency Derivatives Segment of the Exchange and also guarantees their financial settlement. The Clearing and Settlement process comprises of three main activities, viz., Clearing, Settlement and Risk Management. Clearing and settlement activities are undertaken by the Clearing Corporation with the help of Clearing Members and Clearing Banks.

7.1 Clearing and Settlement Mechanism

The clearing mechanism essentially involves working out open positions and obligations of clearing members. This position is considered for exposure and daily margin purposes. The open positions of clearing members are arrived at by aggregating the open positions of all the brokers/trading members and all custodial participants[23] clearing through them. A trading member's open position is arrived at by summing up his proprietary and clients' open positions. All derivatives contracts of currency futures and currency options are cash settled. The settlement amount for a clearing member is netted across all their TMs/Clients with respect to their obligations on mark-to-market settlement, premium settlement, and final settlement.

Clearing is the process of determining the obligations, after which the obligations are discharged by settlement. A multilateral netting procedure is adopted to determine the net settlement obligations (delivery/receipt positions) of the clearing members. Accordingly, a clearing member would have either pay-in or pay-out obligations for funds

[23] Custodial participants (CP) are those clients who are eligible for trading through multiple trading members and clearing and settling deals through single clearing member

and securities separately. Settlement is a two-way process which involves the transfer of funds and securities on the settlement date.

Important Terminologies pertaining to clearing corporations

Pay-In is a process whereby a Clearing Member brings in money and/or securities to the Clearing House/ Corporation. This forms the first phase of the settlement activity.

Pay-Out is a process where the Clearing House/ Corporation pays money or delivers securities to the Clearing Member. This is the second phase of the settlement activity.

The daily settlement of Exchange-Traded Currency Derivatives (ETCD) trades is done on a T+1 working day basis while the final settlement is done on a T+2 basis. The final settlement date is T+2 day from the last trading day of the contract as specified by the Exchange. The funds pay-in and pay-out of daily mark-to-market settlement, final settlement of futures contracts, premium settlement and the final exercise settlement of options contracts are typically effected before the start of market hours on the settlement day. The Clearing Corporation announces the settlement schedule for various segments/products on a periodic basis.

7.2 List of Entities in Clearing and Settlement of ETCD

In this section we will discuss about a few important entities of clearing and settlement and their role.

7.2.1 Clearing Corporation

Securities Contract (Regulation) (Stock Exchange and Clearing Corporations) Regulations 2018, defines Clearing Corporation as an entity that is established to undertake the activity of clearing and settlement of trades in securities or other instruments or products that are dealt with or traded on a recognized stock exchange and includes a clearing house and a limited purpose clearing corporation. A Clearing Corporation performs three main functions, namely: clearing and settlement of all transactions executed in the stock market (i.e., completes the process of receiving and delivering shares/funds to the buyers and sellers in the market) and carrying out risk management. The Clearing Corporation acts as a central counterparty i.e., it provides financial guarantees for all transactions executed on the Exchange. It acts as a legal counterparty to all trades through the process called novation. Thus, the Clearing Corporation becomes the buyer to every seller and seller to every buyer. If there is a default in this scenario, the Clearing Corporation being a central counter party, is responsible for ensuring the settlement, thus managing the risk and guaranteeing settlement to both the parties.

The clearing corporation determines fund/security obligations and arranges for pay-in of the same. It collects and maintains margins, processes for shortages in funds and securities. For carrying out settlement of trades, the clearing corporation is helped by the clearing members, clearing banks, custodians and depositories. Thus, these entities are also important intermediaries of the securities market.

7.2.2 Clearing Members

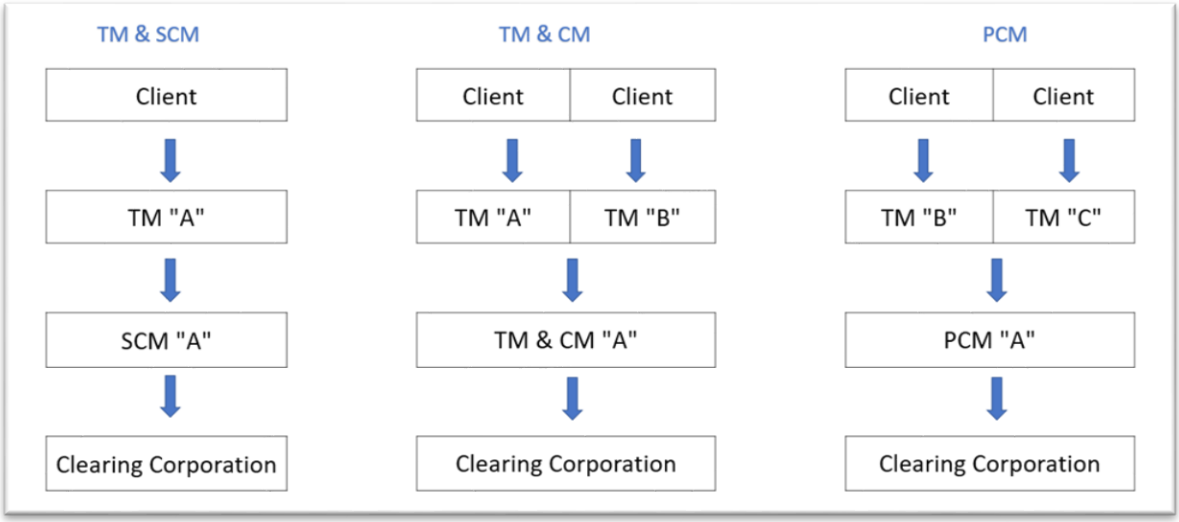
Clearing Members have clearing and settlement rights in any recognized clearing corporation. Clearing Members help in the clearing of the trades of their clients. There are three kinds of clearing members - Professional Clearing Members (PCM), Trading Cum Clearing Member (TCM) and Trading cum Self Clearing Member (SCM).

Trading cum Self-clearing member: They have trading as well clearing rights. They clear and settle trades executed solely by themselves, either on their own account or on account of their clients but not for custodial participants.

Trading member–cum–clearing member: They have trading as well clearing rights. They clear and settle their own trades as well as trades of other trading members and custodial participants.

Professional clearing member: They have only clearing rights and do not have trading rights. They clear and settle trades executed by trading members and custodial participants. SEBI registered custodians and banks recognized by clearing corporations are eligible to become PCM subject to fulfilling the prescribed criteria.

Pictorial representation of various kind of clearing member is given below:



Clearing Members handle the responsibility of clearing and settlement of all deals executed by Trading Members, who clear and settle such deals through them. Clearing Members perform the following important functions:

- Clearing: Computing obligations of all their trading members i.e., determining the positions to be settled.
- Settlement: Performing actual settlement.
- Risk Management: Setting position limits based on upfront deposits / margins for each trading member/client and monitoring positions on a continuous basis.
- Confirmation of the trades of custodial participants.

7.2.3 Clearing Banks

Clearing Bank(s) acts as an important intermediary between a clearing member(s) and the clearing corporation. Every clearing member needs to maintain an account with any of the empaneled clearing banks at the designated clearing bank branches. The clearing accounts are to be used exclusively for clearing & settlement operations. It is the function of the clearing members to ensure that the funds are available in his account with clearing bank on the day of funds pay-in to meet the funds obligations. In the case of a pay-out, the clearing member receives the amount on pay-out day. All transactions of pay-in/pay-out of funds are carried out by these clearing banks. The pay-in obligation details are passed on to the clearing banks by clearing corporation, who then debit the clearing member account and based on pay-out instruction from clearing corporation the clearing bank credits the receiving member's clearing account. In the case of ETCD this mainly happens on T+1 day for daily settlement and T+2 day on final settlement. The clearing banks are required to provide certain minimum services as specified by the Clearing Corporation to clearing members.

7.2.4 Depository & Depository Participants

A "Depository" is an entity facilitating holding of securities in electronic form and enables transfer of securities by book entry. The main objective of a depository is to provide maintenance of ownership or transfer records of securities in an electronic book entry form resulting in paper-less trading rather than paper-based trading and to ensure the transferability of securities with speed, accuracy and safety. The depository provides its services to clients through its agents called Depository Participants (DPs). In Exchange-Traded Currency Derivatives (ETCD), the role of the depository and DPs is mainly limited to the pledge and re-pledge of securities as collateral towards margin.

7.3 Interoperability of Clearing Corporation

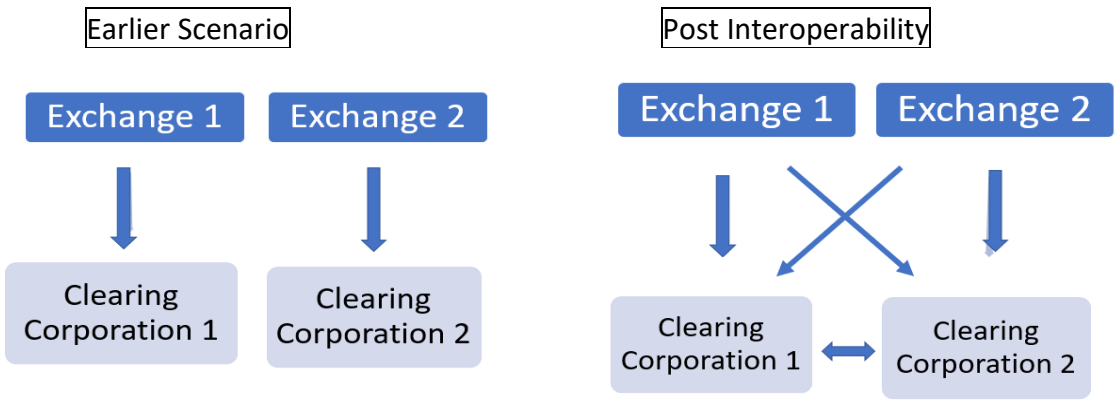
SEBI introduced the concept of Interoperability among Clearing Corporations which necessitates the linking of multiple Clearing Corporations. Inter-operability among Clearing Corporations (CC) has enabled a Clearing Member to select the Clearing

Corporation of its choice to clear and settle trades executed in multiple exchanges. It allows market participants to consolidate their clearing and settlement functions at a single Clearing Corporation, irrespective of the stock exchange on which the trade is executed. Interoperability among Clearing Corporations is expected to lead to efficient allocation of capital for the market participants, thereby saving on costs as well as provide better execution of trades.

The interoperability framework is applicable to all the recognised clearing corporations excluding those operating in International Financial Services Centre (IFSC) and all the products available for trading on stock exchanges, except commodity derivatives, are made available under this framework. Hence, interoperability is also applicable to the Currency Derivatives Segment. The recognised clearing corporations are required to establish a peer-to-peer link for ensuring interoperability. A clearing corporation must maintain special arrangements with another clearing corporation and is not subjected to the normal participant (membership) rules. Risk management between the clearing corporations is based on a bilaterally approved framework and must ensure coverage of inter-clearing corporation exposures. Clearing corporations are required to exchange margins and other financial resources on a reciprocal basis based on mutually agreed margining models.

To manage the inter-Clearing Corporation exposure in the peer-to-peer link, Clearing Corporations must maintain sufficient collateral with each other so that any default by one Clearing Corporation, in an interoperable arrangement, would be covered without any financial loss to the other non-defaulting Clearing Corporation. The inter- Clearing Corporation collateral comprises two components, viz. (a) Margins as per the existing Risk Management Framework (initial margin, extreme loss margin, calendar spread margin, etc.) prescribed by SEBI; and (b) Additional capital, to be determined by each Clearing Corporation, based on the credit risk from the linked Clearing Corporation, on which no exposure is granted to the linked Clearing Corporation.

Pictorial representation of Interoperability among clearing corporations



Following are some of the benefits of interoperability among clearing corporations

- Choice to participants to choose the clearing corporation for clearing trades
- Better capital utilization
- Reduced trading disruption
- Reduced aggregate exposure
- Reduced operational complexity
- Enhanced market competition and lower cost of clearing
- Execution risk can be decoupled from settlement risk as there can be an 'arm's length' relationship between the exchange and adjunct clearing corporation.

7.4 Clearing Mechanism

The clearing mechanism essentially involves working out open positions and obligations of clearing members. The open 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 the 'Pro/Cli' indicator provided in the order entry screen. Proprietary positions are calculated on net basis (buy - sell) for each contract[24]. 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 at the contract level and not netted across clients but are rather added up across clients. A TM's open position is the sum of proprietary open positions, client open long positions and client open short positions.
To illustrate, consider a clearing member 'A' with trading members clearing through him 'PQR' and 'XYZ'.

			Proprietary Position			Client 1			
TM	Instrument	Expiry	Buy qty*	Sell qty	Net qty	Buy qty	Sell qty	Net qty	Position
PQR	USDINR Futures	Mar 24	5000	3000	2000	3000	2000	1000	Long 3000
	EURINR futures	Mar 24	1000	2000	(1000)	2000	1000	1000	Long 1000 Short 1000
XYZ	USDINR Futures	Mar 24	2000	4000	(2000)	3000	4000	(1000)	Short 3000
	EURINR futures	Mar 24	1000	3000	(2000)	2000	1000	1000	Long 1000 Short 2000

*Qty indicate lots

[24] The contract will be distinguished based on futures and option, underlying instrument, expiry date, option type, strike price.

Please note that while computing the open position of PQR, the long position of client 1 was not netted off against the short position of the proprietary book for EURINR futures. Further there is no netting between the long position in USDINR Futures and the short position in EURINR futures within the proprietary book. The positions were instead summed up to compute the open position of PQR as a TM. The overall open position of Trading member PQR in March USDINR Futures is long 3000 lots while that for March EURINR futures it is long 1000 and short 1000 lots. Similarly, the overall open position of trading member XYZ in USDINR March Futures is short 3000 lots and that in March EURINR futures is long 1000 and short 2000 lots. Similarly, no netting is allowed to clearing members for counter positions of trading members. The positions are summed up to compute the open position of clearing member A.

Hence, clearing member A's overall open position in March USDINR Futures is long 3000 and short 3000 lots while the open position in March EURINR futures is long 2000 and short 3000 lots.

7.5 Determination of Settlement Obligations

7.5.1 Settlement of Admitted Deals

Admitted deals executed on a trading day are cleared on a netted basis, by the Clearing Corporation as prescribed under the relevant regulation. The clearing members are responsible for all obligations arising out of such trades including the payment of margins, penalties, any other levies and settlement of obligations of the trades entered by them as trading members and also of those trading members and custodial participants, if any, for whom they have undertaken to settle as a clearing member. Where the clearing member is not a trading member of the exchange the trades of those trading members and custodial participants of the Exchange for whom the clearing member has undertaken to settle are considered for determining the obligations as a clearing member.

7.5.2 Confirmation of trades entered by custodial participants

Custodial participants are those constituents who are eligible for trading through multiple trading members and who clear and settle deals through a single clearing member. The custodial participants are required to register themselves with the Clearing Corporation through their clearing members and avail a unique code (custodial participant code) which is linked to their clearing member. The trading member needs to enter the custodial participant code at the time of order entry. Clearing members of the custodial participants are required to confirm the trades entered by the trading member of the custodial participants in such manner, within such time and through such facility as may be provided to clearing members from time to time. All trades which have been confirmed by clearing members are part of the obligations of clearing members concerned and such clearing members are responsible for all obligations arising out of such trades including the payment of margins, penalties, any other levies and settlement of obligations. Trades which have not been confirmed by clearing members of the custodial participants are

considered as trades pertaining to the trading members entering such trades and form a part of the obligations of the clearing members, who clear and settle for such trading members.

7.5.3 Settlement Obligation

The clearing Corporation receives the details of trades and prices from the exchange. Settlement obligations are computed using a predefined methodology specified for the segment/product. The obligations are generated and downloaded to trading and clearing member at end of day. Some of the methods of determining obligations are listed below:

a) ***Daily mark to market settlement of futures contract***: Daily settlement prices are computed for futures contracts based on a specified methodology. All open positions are marked to market at the settlement prices to determine mark-to-market obligations to be settled in cash. All open positions are carried forward at the latest daily settlement prices.
b) **Final settlement for futures contract** (currently all ETCD contracts available on Exchanges are cash settled): All positions (brought forward, created during the day, closed out during the day) of a clearing member in cash-settled futures contracts, at the close of trading hours on the last trading day of the contract , are marked to market at the final settlement price (for final settlement) and settled.
c) **Premium settlement for option contracts:** Premiums in respect of admitted deals in options contracts are cash-settled by debit / credit of the clearing accounts of clearing members with the respective clearing bank. The premium payable or receivable from clearing members is computed after netting the premium payable or receivable positions at the trading member/Custodial Participant level, for each option contract, at the end of each trading day.
d) **Exercise settlement for option contracts** (currently all ETCD contracts available on Exchanges are cash settled)**:** In the case of ETCD, all in-the-money contracts are exercised automatically and are randomly assigned to short positions in option contracts with the same series. Cash settlement of options is by debit/ credit to the clearing accounts of the relevant clearing members with the respective clearing bank.
e) ***Netted obligation***: Funds obligation is generated on a netted basis considering the obligations of a clearing member in the ETCD (Exchange-Traded Currency Derivatives) and ETIRD (Exchange-Traded Interest Rate Derivatives) segments as both are part of the Currency Derivatives Segment of the exchange. Hence, clearing members can have either a funds pay-in or funds pay-out for the day.

7.6 Position Limits

In order to avoid build-up of huge open positions, the regulator has specified the maximum allowable position limit at client level, member level, currency level etc. Position limits are the maximum exposure levels specified for the entire market and for each trading member or investor.

A. Trading Member (Banks and Non-Banks) (Also applicable to Domestic Institutional Investors (DIIs) as permitted by the respective sectoral regulator and AD-Category I Bank, FPI Category I & II (other than Individual, family office and Corporates)

USDINR	Higher of 15% of the total open interest or USD 100 million*
EURINR	Higher of 15% of the total open interest or EUR 50 million
GBPINR	Higher of 15% of the total open interest or GBP 50 million
JPYINR	Higher of 15% of the total open interest or JPY 2000 million
EURUSD	Higher of 15% of the total open interest or EUR 100 million
GBPUSD	Higher of 15% of the total open interest or GBP 100 million
USDJPY	Higher of 15% of the total open interest or USD 100 million

* For Bank trading members as authorized by RBI: Gross open position across all contracts shall not exceed 15% of the total open interest or USD 1 billion, whichever is higher.

B. Domestic Clients, Non-Resident Indians (NRIs) and FPI Cat II (Individuals, family offices and corporates)

USDINR	Higher of 6% of the total open interest or USD 20 million
EURINR	Higher of 6% of the total open interest or EUR 10 million
GBPINR	Higher of 6% of the total open interest or GBP 10 million
JPYINR	Higher of 6% of the total open interest or JPY 400 million
EURUSD	Higher of 6% of the total open interest or EUR 10 million
GBPUSD	Higher of 6% of the total open interest or GBP 10 million
USDJPY	Higher of 6% of the total open interest or USD 10 million

C. Prop Position for Stock-Broker (other than bank)

USDINR	Higher of 15% of the total open interest or USD 50 million
EURINR	Higher of 15% of the total open interest or EUR 25 million
GBPINR	Higher of 15% of the total open interest or GBP 25 million
JPYINR	Higher of 15% of the total open interest or JPY 1000 million
EURUSD	Higher of 15% of the total open interest or EUR 50 million
GBPUSD	Higher of 15% of the total open interest or GBP 50 million
USDJPY	Higher of 15% of the total open interest or USD 50 million

D. The Stock Brokers (bank and non-bank) shall ensure that all proprietary positions created in FCY-INR pairs (USD-INR, EUR-INR, GBP-INR and JPY-INR) are within the following consolidated position limits:

Single INR limit for proprietary position for bank stock brokers	Single INR limit for proprietary position for non-bank stock brokers
Higher of 15% of total OI across all FCY-INR pairs or USD 200 million	Higher of 15% of total OI across all FCY-INR pairs or USD 100 million

E. Single limit across currency

As per clause 3 of RBI circular RBI/2019-20/210 AP (Dir Series) Circular 29 dated April 07,2020:
Quote

" i. Users[25] may take positions (long or short), up to a single limit of USD 100 million equivalent across all currency pairs involving INR, put together, and combined across all exchanges.

ii. Exchanges authorised by RBI to offer currency derivatives shall provide facility to users, intending to take position beyond USD 100 million (or equivalent) in contracts involving INR in all exchanges put together, to designate an Authorised Dealer/Custodian.

iii. For users referred to in the previous para, the exchanges shall provide information on day-end open positions as well as intra-day highest position of the user to the designated Authorised Dealer/Custodian.

iv. The onus of complying with the directions shall rest with the user. In case of any contravention, the user shall render itself liable to any action under the Foreign Exchange Management Act (FEMA), 1999"

F. Position Limits – Other Guidelines

I. The previous day's open interest at the respective exchanges is considered for the purpose of computation of position limits.
II. The position limit linked to open interest is applicable at the time of opening a position. Such positions need not be unwound immediately in the event of a drop of total open interest.
III. However, in the aforementioned scenario, the eligible market participants are not allowed to increase their existing positions or create new positions till they comply with the applicable position limits.

[25] User is any person as defined under para 2(u) of FEMA, 1999 whether resident in India or resident outside India.

IV. Notwithstanding the above, in view of risk management or surveillance concerns with regard to such positions of the market participants, stock exchanges may direct the market participants to bring down their positions to comply with the applicable position limits within the time period prescribed by the stock exchange.

V. No separate position limit is prescribed at the level of clearing member. However, the clearing member must ensure that his own trading position and the positions of each trading member clearing through him are within the limits specified above.

VI. For the purpose of computing the client-level gross open position, long futures, long calls; and short puts are treated as long positions and short futures, short calls, and long puts are considered as short positions.

VII. The exchange provides the conversion ratio on a quarterly basis for the conversion to USD 100 million equivalent.

In addition to the above, participants are required to adhere to the Foreign Exchange Management Act, 1999, Foreign Exchange Management (Foreign exchange derivative contracts) Regulations, 2000, RBI Master Direction - Risk Management and Inter-Bank Dealings, any other guidelines/notifications/regulations provided by RBI / SEBI and other market regulators with regard to the trading in Foreign exchange derivatives contracts. We will examine the regulatory guidelines on user participation in Exchange-Traded Currency Derivatives in subsequent chapters.

Monitoring of position limits:

At the end of each trading day, the clearing corporation provides the exchange-wide position limit applicable to various clients and members for the next day. The position limits are always specified in number of lots.

For example, suppose the total open interest at the end of the day for USDINR is 4 million contracts in Exchange "A" and 0.5 million contracts in Exchange "B" . Then the position limits for USDINR applicable for the next day will be as follows:

Category	Exchange A	Exchange B
A. TM (Banks and Non-Banks), Domestic Institutional Investors, FPI Category I & II (other than Individual, family office and Corporates)	Higher of 15% of 4 million contract = **0.6 million contracts** Or 0.10 million contracts. (USD100 million = 0.10 million contract as 1 contract =1000 USD)	Higher of 15% of 0.5 million contracts = 0.075 million Or **0.10 million contracts**. **Position limit = 0.10 million contracts i.e. 100 million USD**

	Position limit = 0.60 million contracts i.e. 600 million USD	
B. Domestic Clients, Non-Resident Indians (NRIs) and FPI Cat II (Individuals, family offices and corporates)	Higher of 6% of 4 million contract = **0.24 million contracts** Or 0.02 million contracts. (USD20 million = 0.02 million contract as 1 contract =1000 USD) **Position limit = 0.24 million contracts i.e. 240 million USD**	Higher of 6% of 0.5 million contracts = 0.03 million Or **0.02 million contracts**. **Position limit = 0.03 million contracts i.e. 30 million USD**

For monitoring the position limit specified in 7.6 (E), clearing corporation provides day-end position and intra-day highest position at EOD to the Authorised Dealer (in case of domestic clients, wherever applicable) and to the Custodian[26] (in case of FPIs).

Monitoring of position limits is done by the Exchanges and /or clearing corporation. When the open position of any trading member/client, exceeds the specified limit at any time, it is treated as a violation. The clearing member is accountable for the 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. Exchange / Clearing Corporation may take the following actions against a trading member- for client-level position limit violation.

- The Trading Member is restrained from taking any further positions in the contract in which there is a violation and is required to bring their positions within the specified limit.
- The Trading member may use the existing close-out facility to place close-out orders in the contract in which there is a violation.
- A penalty can be levied for such violations.

7.7 Settlement

Settlement follows clearing and consists of receipt and payment of cash and/or delivery of underlying (in case of physical settlement) after multilateral netting in the clearing. Physical settlement generally means exchange of cash for the underlying asset. Physical

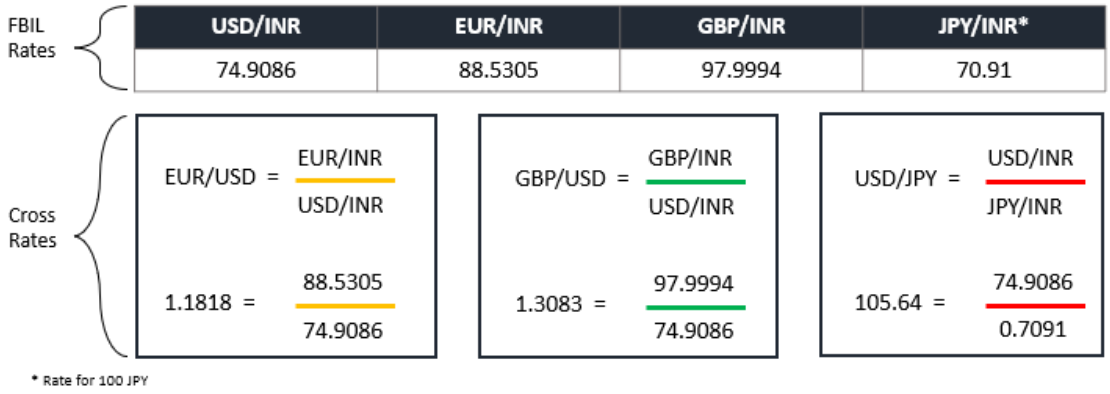
[26] Custodian means any person who carries on or propose to carry on the business of providing custodial service. To provide custodian services entity has registered with SEBI and obtain certificate to carry custodian services. A Custodian is an entity that is responsible for safeguarding the securities of its clients

settlement does not mean that every sell trade during contract's life results in physical delivery. The seller can always close ("square up") his position with an offsetting buy trade, but it must be done before the close of business on the last trading day. In the case of physical delivery, the open position at the close on the last trading day must be settled with physical delivery of underlying asset. For example, if USDINR future is physically settled, then buyer will pay INR and receive USD and seller will pay USD and receive INR on expiry.

Currently all Exchange-Traded Currency Derivatives contracts are cash settled in Indian Rupees. All open positions on the last trading day of the futures contract are marked to the final settlement price of the relevant futures contract and settled in cash. The profit / loss resulting therefrom is paid to/ received from such member in accordance with the settlement procedures laid down in this regard. In case of options all In-the-money (ITM) contracts are exercised automatically and the amount is debited / credited to the relevant clearing member. The daily settlement of ETCD trades is on T+1 working day and final settlement of ETCD trades is on T+2 working day i.e. two business days after the contract expiry date (For monthly contracts it is the last business /working day). The funds pay-in and pay-out of daily mark to market settlement, final settlement of futures contracts, premium settlement, and the final exercise settlements of options contracts typically take place before the start of market hours on the settlement day. The Clearing Corporation announces the settlement schedule for various segments/products on a periodic basis.

The computation of settlement prices for ETCD contracts is explained in the following table:

Product	Settlement	Price
Currency Futures	Daily Settlement	Closing price of the futures contracts for the trading day. (The closing price for a futures contract is calculated on the basis of the last half an hour weighted average price across Exchanges of such contract)
Un-expired illiquid Currency futures contracts	Daily Settlement	Theoretical Price computed as per formula $F=S*e^{(r-rf)t}$
Currency Futures and Options (contract involving Indian Rupee)	Final Settlement	FBIL reference rate on the last trading day
Cross Currency Futures and Options (contract involving other than Indian Rupee)	Final Settlement	The final settlement price for cross-currency futures contracts is computed using the FBIL reference rate for USD-INR, EUR-INR, GBP-INR and JPY-INR, on the last trading day of the contract.



7.7.1 Daily Mark to Market (MTM) settlement of futures contract

Daily settlement prices are computed for currency futures contracts based on the methodology specified in the above table. All positions (brought forward, created during the day, closed out during the day) of a clearing member in currency futures contracts, at the close of trading hours on a day, are marked to market at the daily settlement price (for daily mark to market settlement) and settled in cash. The settlement is done by debit/ credit of the clearing accounts of clearing members with the respective clearing bank on T+1 as per the timeline specified by clearing corporation. All open positions are carried forward at the latest daily settlement prices. Please find below MTM settlement for a market participant who has sold 1 lot of USDINR futures @ Rs. 74.90 on 21-XX-2020 and keeps the position open till expiry.

USD Futures (XX Expiry)				1 contract = 1000 USD
Date (A)	Sell Price (B)	Settlement Price (C)	Mark to Market Spread (D)	Per contract P&L (E)
			(B-C)	(D*1000)
21-XX-20	74.9000	74.6925	0.2075	207.50
22-XX-20	74.6925	74.6225	0.0700	70.00
23-XX-20	74.6225	74.8425	-0.2200	-220.00
24-XX-20	74.8425	74.8550	-0.0125	-12.50
27-XX-20	74.8550	74.8200	0.0350	35.00
28-XX-20	74.8200	74.8450	-0.0250	-25.00
29-XX-20*	74.8450	74.7667*	0.0783	78.30
		Net Effect	**0.1333**	**133.30**

** On expiry – final settlement price*

Positions in Cross currency contracts are marked to market at the daily settlement price and the profit is arrived at in the quote currency. However, the settlement is in cash in

Indian Rupee (INR). To arrive at the settlement value of cross currency positions in INR for EUR-USD and GBP-USD contracts, the latest available FBIL reference rate for USD-INR is used. For USD-JPY contracts, the settlement value in INR is arrived at using the latest available exchange rate published by FBIL for JPY-INR. The following table shows the MTM settlement for cross currency futures where the participant has bought 10 lots of EURUSD futures @ USD 1.1570 on 23-XX-2020 and kept the position open till expiry.

Trade Date	Buy Price	Settlement Price	MTM in **USD** for 10 contracts	FBIL Ref Rate (USDINR)	MTM in INR
23-XXX-20	1.1570	1.1577	7[#]	74.7548	523.28
24-XXX-20	1.1577	1.1571	-6	74.8672	-449.20
27-XXX-20	1.1571	1.1720	149	74.7620	11,139.54
28-XXX-20	1.1720	1.1736	16	74.7458	1,195.93
29-XXX-20*	1.1736	1.1749*	13	74.7667	971.97

#7.00 = (1.1577 – 1.1570) * 10 (no. of contracts) * 1000 (contract size)
** On expiry FSP will be derived from FBIL reference rate*

7.7.2 Premium settlement for option contracts:

Premium in respect of admitted deals in currency options contracts is settled in cash by debit/ credit of the clearing accounts of clearing members with the respective clearing bank on T+1 as per the specified timelines. The amount of premium payable or receivable by the clearing members is computed after netting the premium payable or receivable positions at the trading member/Custodial Participant level, for each option contract at the end of each trading day. The variation in premium is adjusted against the collateral placed and not settled in cash. Thus, unlike currency futures, there is no mark-to-market cash settlement of the changes in the premium value of the open option positions.

For cross currency option contracts, the premium is settled in Indian rupees. To arrive at the settlement value in INR for EUR-USD and GBP-USD contracts, the latest available FBIL reference rate for USD-INR is used. For USD-JPY contracts, the settlement value in INR is arrived at using the latest available exchange rate published by FBIL for JPY-INR.

7.7.3 Final Settlement

Final settlement for currency futures contract

All positions (brought forward, created during the day, closed out during the day) of a clearing member in futures contracts (including cross currency futures), at the close of trading hours on the last trading day of the contract, are marked to market at the final settlement price (for final settlement) and settled in cash on T+2 day by debit/ credit of the clearing accounts of clearing members with the respective clearing bank. Open positions in a futures contract cease to exist after its expiration day.

Final exercise settlement for currency option contracts:
On the expiry date, all open long in-the-money contracts are automatically exercised at the final settlement price and randomly assigned to the open short positions of the same strike and series. Exercise settlement takes place in cash on T+2 day by debit/ credit of the clearing accounts of clearing members with the respective clearing bank. Option contracts, which have been exercised, are assigned and allocated to clearing members at the client level. Open positions in option contracts cease to exist after the expiration day. Cross currency option settlement in INR is done by using the applicable FBIL reference rate of USDINR and JPYINR.

7.8 Funds Settlement

Every clearing member is required to maintain and operate a separate and distinct primary clearing account for each segment with one of the designated clearing banks. Clearing members having an obligation to pay funds should have a clear balance of the requisite funds in their clearing accounts of Currency Derivatives Segment of Exchange (CDS) on or before the stipulated funds pay-in day and the stipulated time.

- Pay-in of funds: Clearing Corporation advises the clearing banks to debit the account of Clearing members and credit its account and the clearing bank does the same.
- Pay-out of funds: Clearing Corporation advises clearing banks to credit the account of Clearing members and debit its account and the clearing bank does the same.

Clearing members can deposit funds into these accounts in any form and can withdraw funds from these accounts only in their own name.

Fund Shortages

Non-fulfilment of obligations towards settlement of contracts traded on currency derivatives segment by the scheduled date and time is treated as a violation. In the case of a settlement shortage, in additional to monetary penalty, the clearing corporation may advise the exchanges to withdraw any or all of the membership rights of the clearing member including the withdrawal of trading facilities of all trading members and/ or clearing facility of custodial participants clearing through such clearing member.

Settlement of running account of Client's funds lying with the TM:

With a view to prevent any misuse of a client's funds by the broker, SEBI has made it mandatory for brokers to settle the running account of client funds on a monthly or quarterly basis as per the mandate of the client.

The TM (Trading Member), after considering the End of the Day (EOD) obligation of funds across all the Exchanges, shall settle the running accounts at the choice of the clients on quarterly and monthly basis, on the dates stipulated by the Stock Exchanges. To ensure uniformity and clarity on dates of such monthly and quarterly settlement of client

accounts; Stock exchanges shall, jointly, issue the annual calendar for the settlement of running account (quarterly and monthly) at the beginning of the financial year.

For the clients having credit balance, who have not done any transaction in the 30 calendar days since the last transaction lying with member for more than such 30 calendar days, the entire credit balance of client shall be returned to the client by TM, on the upcoming settlement dates of monthly running account settlement cycle (irrespective of settlement cycle preferred by the client) as stipulated by stock exchanges.

However, if the client trades after 30 calendar days and before aforesaid upcoming settlement dates of monthly running account settlement cycle, the settlement of account of client shall continue to be done by the Trading member as per the preference of quarterly/monthly as indicated by the client for running account settlement.

7.9 Risk Management

A comprehensive Risk Management framework is the backbone of the Clearing Corporation. A clearing corporation provides a settlement guarantee i.e., it ensures that the settlement of securities and funds takes place even if there is a failure by a broker/clearing member to fulfill their obligation. In order to safeguard against such failures, the clearing corporation is required to implement such risk management measures as specified by SEBI through its various circulars. The Risk Management framework mainly consists of the margins, liquid assets, base minimum capital, pre-trade risk controls, risk reduction mode, monitoring of position limits etc.

Following are the salient features of the Clearing Corporation Risk Management System:

- On-line real time risk management
    - Online monitoring of margins against liquid assets
    - On-line position limit monitoring
- Use of different kind of margins to cover all kinds of losses
- Intra-day and end of day mark-to-market margins
- Client-level margining
- Alerts to members on various levels of collateral utilization
- Risk reduction mode
- Automatic disablement from trading when limits are breached
- Cross margining facility
- Capital adequacy requirements for members
- Monitoring of member performance and track record

Every Clearing Corporation has a comprehensive risk containment mechanism for the currency derivatives segment with the following salient features:

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 & extreme loss margin (ELM) are charged for all the open positions of a Clearing Member. The Exchange/CC 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 Clearing Member in turn collects the initial margin and ELM from the Trading Members and Trading Members from their respective clients.
3. The open positions of the members are marked to market based on the settlement price for each contract. The difference is settled in cash on a T+1 basis for futures contracts while it is adjusted against liquid assets in the case of option contracts.
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 Clearing Member or the limits set by him for the Trading Members trading through him. The on-line position monitoring system generates alerts whenever the margin of a member reaches the predetermined percentage of the capital deposited by the Clearing Member or limits set by him for the Trading Member. The Clearing Corporation monitors the Clearing Members for any violations of the initial margin and extreme loss margin requirements.
5. Clearing Members are provided with a trading terminal for the purpose of monitoring the open positions of all the Trading Members clearing and settling through them. A Clearing Member may set limits for a Trading Member clearing and settling through him. The Clearing Corporation assists the Clearing Member to monitor the intra-day limits and whenever a Trading Member exceeds the limits, it stops that particular Trading Member from trading any further.
6. A member is alerted about the margin required on his position to enable him to either adjust his position or bring in additional capital. Margin violations result in the withdrawal of the trading facility for all Trading Members of a Clearing Member in the case of a violation by the Clearing Member.
7. Separate settlement guarantee funds for this segment have been created by the clearing corporation.

Risk Management framework for ETCD consists of the following:

- Margins
- Liquid Net worth & Liquid Assets
- Pre-trade risk control[27]
- Risk Reduction Mode
- Position Limits[28]

[27] Please refer section 6.4

[28] Please refer section 7.6

7.9.1 Margin

Margining is a process by which a clearing corporation computes the potential loss that can occur to the open positions (both buy and sell) held by the members across all its clients. Based on the computation, the clearing corporation will ensure that the liquid assets deposited by members are sufficient to cover the potential loss. The clearing corporation collects the margins from its members and members collect margins from their respective clients. The clearing corporation computes margins at the client-level positions and there is no netting of positions between clients / member etc. The clearing corporation collects various kinds of margin from its members as explained below:

7.9.1.1 Initial Margin

Initial margin is payable on all open positions of clearing members, up to client level and is payable upfront by Clearing Members in accordance with the margin computation mechanism adopted by the Clearing Corporation. Initial margin includes SPAN margins, margin on consolidated crystallized obligations, delivery margins and such other additional margins that may be specified by the clearing corporation from time to time[29].

Initial margin requirement:

1. For client positions - It is netted at the level of individual client and grossed across all clients, at the trading/ clearing member level, without any set-offs between clients.
2. For proprietary positions - It is netted at the trading/ clearing member level without any set-offs between client and proprietary positions.

The margins so computed are aggregated first at the trading member level and then aggregated at the clearing member level.

7.9.1.1.1 Computation of Initial Margin

The clearing corporations have adopted the SPAN[30] system for the purpose of real-time initial margin computation. The SPAN methodology is adopted to take an integrated view of the risk involved in the portfolio of each individual client. Initial Margin requirement is based on a worst-case scenario loss of a portfolio of an individual client comprising his positions in options and futures contracts on the same underlying asset across different maturities and across various scenarios of price and volatility changes. Initial margin requirements are based on 99% value at risk (VaR) over a one-day horizon. Value-at-risk (VaR) is a measure of the maximum likely price change over a given interval (called "horizon") and at a given confidence level (called "percentile"). However, in the case of futures contracts, where it may not be possible to collect mark-to-market settlement before the commencement of trading on the next day, the initial margin is computed over a two-day horizon by applying an appropriate statistical formula. SPAN margining uses

[29] SEBI/HO/MRD2/DCAP/CIR/P/2020/27 dated February 24, 2020

[30] It is a product developed by Chicago Mercantile Exchange (CME) and is extensively used by leading stock Exchanges of the world. SPAN® uses scenario-based approach to arrive at margins. It generates a range of scenarios and highest loss scenario is used to calculate the SPAN margin.

VaR to compute the initial margin but improves upon it with two modifications. It generates 16 “what-if” scenarios. The second and more important feature of SPAN margin is that it considers the entire portfolio of an investor for computing the portfolio-wide margin. The margin is not computed for each position separately. The methodology for computation of value-at- risk percentage is as per the recommendations of SEBI from time to time.

For the purpose of SPAN Margin, various parameters as specified hereunder are applicable:

Price Scan Range

The Price Scan Range ("PSR") is the probable price change over a one-day period. The PSR is specified by clearing corporation from time to time subject to following:

Product	Based on 6σ subject to minimum percentage of underlying price
USDINR	1.50%
EURINR	2.15%
GBPINR	2.25%
JPYINR	2.65%
EURUSD	2.50%
GBPUSD	2.50%
USDJPY	2.50%

Volatility calculation

The standard deviation (volatility estimate) is calculated using the Exponential Weighted Moving Average (EWMA). The estimate at the end of time period t (σ_t) is estimated using the volatility estimate at the end of the previous time period. i.e. as at the end of t-1 time period (σ_{t-1}), and the return (r_t) observed in the futures market during the time period t. The formula is as under:

$$(\sigma_t)^2 = \lambda\,(\sigma_{t-1})^2 + (1 - \lambda)\,(r_t)^2$$

The value of λ, the parameter which determines how rapidly volatility estimation changes in the Exponential Weighted Moving Average (EWMA) method, is currently fixed at 0.995.

Volatility Scan Range

For currency derivatives, the volatility scan range for generating the scenarios is fixed at 25% of annualized EWMA volatility subject to a minimum of 3%.

Updation of risk parameters

The parameters for computation of span margin are updated based on the prices at 11:00 a.m., 12:30 p.m., 2:00 p.m., 3:30 p.m., 5:00 p.m., 6:30 p.m., end of the day and begin of the day. Additionally, a provisional end-of-day parameter file based on daily settlement prices of currency contracts based on FCY-INR pairs is provided. This information is also available on Exchanges/Clearing Corporation website.

7.9.1.1.2 Net Option Value

Net Option Value is computed as the difference between the long option positions and the short option positions, valued at the last available closing price of the option contract and is updated intraday at the current market value of the relevant option contracts at the time of generation of risk parameters. The Net Option Value is added to the Liquid Net Worth of the clearing member. Thus, mark-to-market gains and losses for options positions are not settled in cash.

7.9.1.1.3 Calendar Spread Charge:

A futures position in one expiry month which is hedged by an offsetting position in a different expiry month is treated as a calendar spread. The following calendar spread margins are levied:

Product	Calendar spread charge for spreads in months (INR)			
	1 month	2 months	3 months	4 months or more
USDINR	500	600	900	1100
EURINR	750	1050	1550	1550
GBPINR	1575	1875	2075	2075
JPYINR	675	1075	1575	1575
EURUSD	1600	1900	2100	2200
GBPUSD	1600	1900	2100	2200
USDJPY	1600	1900	2100	2200

The margins for options calendar spread are the same as specified for futures calendar spread. The margins for option calendar spread are calculated on the basis of delta of the portfolio in each month. A portfolio consisting of a near month option with a delta of 100 and a far month option with a delta of –100 bears a spread charge equal to the spread charge for a portfolio which is long 100 near month futures and short 100 far month futures. The benefit for a calendar spread continues till the expiry of the near month contract.

7.9.1.1.4 Margin on consolidated crystallized obligation

The margin on consolidated crystallized obligation in derivatives shall represent:

On Intra-day Basis	Payable crystallized obligations based on the closed-out futures positions and premium payable/receivable at the client level.
At end-of-day basis	Payable obligations at the client level considering all futures and options positions.

Intraday basis

On intraday basis, the net payable/receivable amount at the client level is calculated using:

1. Premium payable/receivable
2. Futures crystallized profit or loss (calculated based on weighted average prices of trades executed).

If the overall amount at the client level is payable, such amount is treated as the intraday consolidated crystallized obligation margin for the client.

End-of-day basis

At the end of day, the payable/receivable amount at the client level is calculated using:

1. Futures mark-to-market profit/loss to be settled
2. Options premium payable/receivable
3. Options exercise/assignment for expired contracts
4. Futures final settlement for expired contracts

If the overall amount at the client level is payable, such amount is treated as the end of-day consolidated crystallized obligation margin for the client. The margin on consolidated crystallized obligations is released on the completion of settlement.

The initial margins for cross currency derivatives are collected in Indian Rupees (INR). For this purpose, the RBI reference rate of the previous day for USD-INR or JPY-INR, as applicable, is used till 02:00 p.m. The latest available FBIL reference rate for USD-INR and the corresponding exchange rate published by FBIL for JPY-INR, as applicable, is used post 02:00 p.m. Since the margins are collected in INR, the price scanning range is scaled up by the total futures margin rate of the contract involving the quoted currency in cross-currency pair and INR.

The margin on consolidated crystallized obligations has replaced the net buy premium, intraday crystallized losses, assignment margin and futures final settlement margin levied.

7.9.1.2 Extreme Loss Margin

Clearing members are subject to extreme loss margins in addition to initial margins:

Product	ELM: Futures	ELM: Options
USDINR	0.50%	0.75%
EURINR	0.15%	0.75%
GBPINR	0.25%	0.75%

JPYINR	0.35%	0.75%
EURUSD	0.50%	0.50%
GBPUSD	0.50%	0.50%
USDJPY	0.50%	0.50%

Notes:

1. In the case of calendar spread positions in currency futures contracts, extreme loss margin is levied on one third of the mark-to-market value of the open position of the far month contract.
2. The applicable extreme loss margin for futures is calculated on the mark-to -market value of the gross open positions
3. The extreme loss margin for options is calculated on the notional value of the open short option position. Notional Value for this purpose is calculated on the basis of the latest available FBIL Rate for FCY-INR pairs. The extreme loss margins for cross currency derivatives is collected in Indian rupees. For this purpose, the FBIL reference rate of the previous day for USD-INR and the corresponding FBIL for JPY-INR, as applicable, is used till 02:00 p.m. The latest applicable FBIL reference rate for USD-INR and the corresponding FBIL for JPY-INR, as applicable, are used post 02:00 p.m.

Extreme Loss margin requirement is computed as under:

1. For client positions - the ELM requirement is netted at the level of individual client and grossed across all clients, at the trading/ clearing member level, without any set-offs between clients.
2. For proprietary positions - the ELM requirement is netted at trading/ clearing member level without any set-offs between client and proprietary positions.

The margins so computed are aggregated first at the trading member level and then aggregated at the clearing member level.

7.9.1.3 Additional Margin

Exchanges / Clearing Corporations have the right to impose additional risk containment measures over and above the risk containment system mandated by SEBI. This is in addition to the initial margin and extreme loss margin, which are or may have been imposed from time to time.

Clearing members can provide for margins in any one or more of the eligible collateral modes as detailed in section 7.9.2. The margins are collected /adjusted from the liquid assets of the member on a real-time basis.

7.9.2 Liquid Assets & Liquid Net worth

Clearing member may deposit liquid assets in the form of cash, bank guarantees, fixed deposit receipts, approved securities and any other form of collateral as may be prescribed by the Clearing Corporation from time to time.

These liquid assets are segregated as cash component and non-cash component. Cash component includes cash, bank guarantees, fixed deposit receipts, units of money market mutual funds, Gilt funds, Government of India Securities, and any other form of collateral as may be prescribed by the Clearing Corporation from time to time. Non-cash component includes all other forms of collateral deposits like deposit of approved list of demat securities, units of the other mutual funds and any other form of collateral as may be prescribed by the Clearing Corporation from time to time.

The cash component must be at least 50% of the total liquid assets. This implies that the non-cash component in excess of the total cash component is not regarded as a part of liquid assets.

Item	**Haircut**	**Limits**
Cash Equivalents		
Cash	0	No limit
Bank fixed deposits	0	No limit
Bank guarantees	0	Limit on Exchange's/Clearing Corporation exposure to a single bank
Securities of the Central Government	Refer Note	No limit
Units of liquid mutual funds or government securities mutual funds	10 percent	CCs may specify the limit
Other liquid assets (Non-Cash Component)		
Liquid (Group I) Equity Shares	Same as the VaR margin for the respective shares	Limit on CC's exposure to a single issuer
Mutual fund units other than those listed under cash equivalents	VaR margin, if available, or else, using the NAV of the unit	CCs may specify limit

Note:

A) The exchanges lay down exposure limits either in rupee terms or as percentage of the Trade Guarantee Fund (TGF) / Settlement Guarantee Fund (SGF) that can be exposed to a single bank directly or indirectly. The total exposure includes guarantees provided by

the bank for itself or for others as well as debt or equity securities of the bank which have been deposited by members towards total liquid assets.

B) At least 50% of the total liquid assets must be in the form of cash and cash equivalents

C) The clearing corporation does not accept Fixed Deposit Receipts (FDRs) from trading/clearing members as collateral, if these are issued by the trading/ clearing member themselves or banks who are an associate of the trading/ clearing member. Explanation: For this purpose, 'associate' shall have the same meaning as defined under Regulation 2 (b) of SECC Regulations 2012.

D) Only FPIs are permitted to offer foreign sovereign securities with AAA ratings.

E) A haircut is levied on securities of the Central Government as stated below:

Type and Tenor of Securities	Haircut
Treasury Bills and liquid Government of India Dated Securities having residual maturity of less than 3 years	2%
Liquid Government of India Dated Securities having residual maturity of more than 3 years	5%
For all other semi-liquid and illiquid government of India Dated Securities	10%

Liquid Networth is computed as liquid assets less initial margin and extreme loss margin payable at any point in time. The clearing member is required to meet with the liquid networth requirements prescribed by the Clearing Corporation at all points of time. Currently every clearing member in the Currency Derivatives segment is required to maintain a minimum liquid networth of Rs.50 lakhs.

7.9.3 Risk Reduction Mode

Stock Exchanges / Clearing Corporation need to ensure that the stock brokers are mandatorily put in risk-reduction mode when a specific percent (currently 90%) of the stock broker's/clearing member collateral available for adjustment against margins gets utilized on account of trades that fall under a margin system. The risk reduction mode is applicable at the level of the trading members as well as clearing members. Such risk reduction mode includes the following:

- All unexecuted orders are cancelled once a stock broker breaches 90 percent collateral utilization level.
- Only orders with Immediate or Cancel attribute are permitted in this mode.
- All new orders are checked for sufficiency of margins. Fresh orders placed by members to reduce the open position are accepted, but orders that will result in an increase in the position are checked for the sufficiency of margin. Orders that are not supported by adequate margins are rejected.

- The stock-broker is moved back to the normal risk management mode only when the percentage of utilized collateral is lower than the utilization level specified by the clearing corporation from time to time (currently 85%).

Additionally, when the member is in risk reduction mode:

- The member is not allowed to place orders with custodial participant code.
- Modification of Client and Custodial Participant code is not permitted.

The following procedure is adopted for monitoring of the risk reduction mode (90% utilization or such applicable limit).[31]

- TM level risk reduction mode: Client margins in excess of 90% of the client collateral is identified for each client under a Trading Member. The total of such client margin in excess of 90% of the client collateral, plus the proprietary Trading Member margin is assessed against the Trading Member's proprietary collateral for monitoring of Trading Member- level risk reduction mode.

Clearing Member- level risk reduction mode: Sum of client margins in excess of 90% of the client collateral for each client under a Trading Member plus the proprietary Trading Member margin, in excess of 90% of Trading Member proprietary collateral is calculated as the Trading Member margin in excess of 90% of Trading Member collateral. Sum of such margin for each Trading Member clearing through a Clearing Member, plus the sum of client margin in excess of 90% of the client collateral for each client clearing through such Clearing Member, plus the proprietary Clearing Member margin is assessed against the proprietary Clearing Member collateral for monitoring of Clearing Member- level risk reduction mode.

7.10 Margin Collection by Clearing Corporation

- The initial margin and extreme loss margins are payable upfront by the clearing members. Clearing/Trading members are required to collect initial margins and extreme loss margins from their client/constituents on an upfront basis.
- The clearing member's total margin requirement (aggregated across all clients / clients of Trading Member/Proprietary position of Trading Member clearing through clearing member) is monitored against the total available collateral of the clearing member (Cash and Cash equivalent and clearing member own securities) on a real-time basis. In addition to monitoring clearing member level exposure, the clearing corporation also monitors the trading member's margin against the limit set by the Clearing Member of such trading member[32].
- Clearing members are required to provide for margin in any one or more of the eligible collateral modes as detailed in section "Liquid Asset".

[31] https://www.sebi.gov.in/legal/circulars/jul-2021/segregation-and-monitoring-of-collateral-at-client-level_51265.html

[32] SEBI vide circular SEBI/HO/MRD2_DCAP/CIR/2021/0598 dated July 20, 2021, has issued revised guideline for "Segregation and Monitoring of Collateral at Client Level". The brief details of the same are given in section 7.10.4

- Clearing member can deposit the liquid asset in a combination of various liquid assets in a manner and within a limit as specified by clearing corporation from time to time.
- Clearing members are permitted to provide "own" securities or trading member's proprietary securities or client securities towards the margin deposit requirements. Clearing members can re-pledge client/trading member (TM) proprietary securities only through Margin Pledge facility provided by NSDL and CDSL.
- CCs also provide a facility to enable clearing members to transfer collaterals from one segment to another on an intraday basis.
- CCs provide a facility to release collateral intra-day as well as at the end of the day.

7.10.1 Margin Payment

The clearing member is required to pay upfront margin to the clearing corporation as specified by clearing corporation / SEBI from time to time. Clearing members can provide for margin in the form of any one or more of the eligible collaterals as specified by clearing corporation from time to time, and such margins are collected /adjusted from the liquid assets of a clearing member on a real-time basis. Clearing members who are clearing and settling for other trading members can specify the maximum collateral limit towards margins, for each trading member clearing and settling through them. Such limits can be set up through the facility provided by the clearing corporation. Such collateral limits once set are applicable to the trading members for that day, unless otherwise modified by the clearing member. The collateral limit set up by clearing members for trading members is assessed against total margin i.e. initial margin plus exposure margin/extreme loss margin for each trading member. Non-fulfilment of either the whole or any part of the margin obligations by the clearing member is treated as a violation of the rules, bye-laws and regulations of the clearing agency and attracts a penalty. In addition, the clearing agency may at its discretion and without any further notice to the clearing member, initiate other disciplinary action, inter-alia including, withdrawal of trading facilities and/or clearing facility, close out of outstanding positions, imposing penalties, collecting appropriate deposits, invoking bank guarantees/ fixed deposit receipts, etc.

7.10.2 Margins from Client

Trading Members/Clearing Members should have a prudent risk management system to protect themselves against the default made by their clients. Margins constitute an important element of risk management systems and are required to be well documented and made accessible to the clients and the Stock Exchanges.

In case of Currency Derivatives segment, it is mandatory for trading members to collect initial margin and extreme loss margins from their client on an upfront basis. It must be ensured that all upfront margins are collected in advance of trade. Margin on consolidated crystallized obligation must be collected from clients by T+1 day. The Trading

Members/Clearing Members must report the actual short-collection/ non-collection of all margins from clients to the Stock Exchange on T+5 day.

The Trading Member/Clearing Member can collect the margin from its client in various forms as specified by SEBI/Exchanges/Clearing Corporation from time to time after taking into account their risk management policy and liquidity aspects. SEBI has also laid down a "Framework to Enable Verification of Upfront Collection of Margins from Clients in Cash and Derivatives segments.[33] Stock Exchange/Clearing Corporation levy a penalty on the Trading Member/Clearing Member for short collection/non-collection of margins. All instances of non-reporting are regarded as 100% short collection and the applicable penalty in respect of short collection is charged in these instances. If during inspection it is found that a member has reported falsely the margin collected from clients, the member is penalized to the extent of 100% of the falsely reported amount along with suspension of trading for 1 day in that segment

7.10.3 Providing margin related information to clients

Stock Brokers should send margin related information across all segments to their clients, which shall, inter-alia, include:

- Client code and name, Trade day (T)
- Margin deposit available for the client on day T (with break-up in terms of cash, FDRs, BGs and pledged/re-pledged securities)
- Margin adjustments (including MTM losses) for day T after adjusting MTM profit, if any.
- Margin status (balance with the member / due from the client) at the end of T day.

Such margin related information (Daily margin statement) is issued by Stock Brokers to their clients on T-Day itself or within the specified timelines.

Brokers should maintain proper records of client collateral and prevent misuse of client collateral:

- Brokers should have adequate systems and procedures in place to ensure that client collateral is not used for any purposes other than meeting the respective client's margin requirements/pay-ins. Brokers should also maintain records to ensure proper audit trail of use of client collateral.
- Additionally, every Stock Broker must maintain proper records of collateral received from clients as under:
    - Receipt of collateral from client and the acknowledgement issued to client on receipt of collateral
    - Client authorization for deposit of collateral with the exchange/ clearing corporation/ clearing house towards margin

[33] SEBI/HO/MRD2/DCAP/CIR/P/2020/127 dated July 20, 2020

- Record of deposit of collateral with exchange/ clearing corporation/ clearing house
- Record of return of collateral to client
- Credit of corporate action benefits to clients

- The records should be periodically reconciled with the actual collateral deposited with the broker.

If the client collateral is found to be mis-utilized, the broker would attract appropriate deterrent penalty for violation of norms provided under Securities Contract Regulation Act, SEBI Act, SEBI Regulations and circulars, Exchange Byelaws, Rules, Regulations and circulars.

7.10.4 Mechanism for Client Collateral

In order to strengthen the mechanism of protection of client collateral from misappropriation/ misuse by Trading Member/ Clearing Member, default of Trading Member/ Clearing Member and/or other clients and to ensure upfront collection of margins from clients; SEBI has implemented various measures like:

1. Margin obligations must be settled only by way of Pledge/ Re-pledge in the Depository System[34]. Salient features of this system are given below:
   - Collateral from clients in the form of securities is allowed only by way of 'margin pledge', created in the Depository system
   - Procedure provided by depositories for the manner of creating pledge of the dematerialized securities should be followed. Any other procedure for creating pledge is prohibited.
   - It is clarified that an off-market transfer of securities leads to change in ownership and shall not be treated as pledge. Transfer of securities to the demat account of the TM / CM for margin purposes (i.e., title transfer collateral arrangements) is prohibited.
   - Depositories provide a separate pledge type viz. 'margin pledge', for pledging client's securities as margin to the TM / CM. The TM / CM shall open a separate demat account for accepting such margin pledge, which shall be tagged as 'Client Securities Margin Pledge Account'.
   - For the purpose of providing collateral in form of securities as margin, a client shall pledge securities with TM, and TM shall re-pledge the same with CM, and CM in turn shall re-pledge the same to Clearing Corporation (CC). The complete trail of such re-pledge shall be reflected in the de-mat account of the pledgor.
   - In client account, margin pledge or re-pledge shall be reflected against each security, if it is pledged / re-pledged, and in whose favour i.e. TM / CM / CC.

[34] SEBI circular SEBI/HO/MIRSD/DOP/CIR/P/2020/28 dated February 25, 2020

- The TM shall re-pledge securities to the CM's 'Client Securities Margin Pledge Account' only from the TM's 'Client Securities Margin Pledge Account'. The CM shall create a re-pledge of securities on the approved list to the Clearing Corporation (CC) only out of 'Client Securities Margin Pledge Account'.
- In this context, re-pledge would mean endorsement of pledge by TM / CM in favour of CM/CC, as per procedure laid down by the Depositories
- The TM and CM shall ensure that the client's securities re-pledged to the CC shall be available to give exposure limit to that client only.
- Securities that are not on the approved list of a CC may be pledged in favour of the TM / CM. Each TM / CM may have their own list of acceptable securities that may be accepted as collateral from client.
- CM shall be allowed to re-pledge acceptable/approved client securities with the CC by furnishing the UCC wise client details. CC shall not allow any exposure to the CM on re-pledged securities of the client / TM.
- In case of a trade by a client / TM whose securities are re-pledged with CC, the CC shall first block the available collateral provided by CM. However, at periodic intervals (latest by end of day), CC shall release the blocked securities collateral of CM to the extent of re-pledged securities collateral of that client / TM available with the CC.

2. Framework to enable verification of upfront collection of margins from clients in Cash and Derivatives segments[35]:
   The guideline reiterated that the applicable upfront margins are required to be collected from the clients in advance of the trade. With an objective to enable uniform verification of upfront collection of margins from clients by TM/ CM and levy of penalty across segments, SEBI has specified a framework to the Stock Exchanges/ Clearing Corporations for the purpose of 'Mechanism for regular monitoring of and penalty for short-collection/ non-collection of margins from clients' in Cash and Derivatives segments.

3. Segregation and Monitoring of Collateral at Client Level[36]. Salient features are given below:
   - With a view to providing visibility of client-wise collateral (for each client) at all levels, viz., TM, CM and Clearing Corporation (CC), a reporting mechanism, covering both cash and non-cash collateral, shall be specified by the CCs.
   - TM shall report disaggregated information on collaterals up to the level of its clients to the CM.
   - CM shall report disaggregated information on collaterals up to the level of clients of TM and proprietary collaterals of the TMs to the Stock Exchanges (SEs) and CCs in respect of each segment.

[35] SEBI circular SEBI/HO/MRD2/DCAP/CIR/P/2020/127 dated July 20, 2020

[36] SEBI circular SEBI/HO/MRD2_DCAP/CIR/2021/0598 dated July 20, 2021,
SEBI circular SEBI/HO/MRD2/DCAP/P/CIR/2022/0022 dated February 24, 2022

- A web portal facility shall be provided by the CCs/ SEs to allow clients to view aforesaid disaggregated collateral reporting by TM/CM.
- The CCs shall provide a facility to CMs for upfront segment-wise allocation of collateral to a TM/ client or CM's own account. The CCs shall use such collateral allocation information to ensure that the collateral allocated to a client is used towards the margin obligation of that client only.
- The members shall ensure that allocated collateral plus value of securities collateral re-pledged to the CC for a client is at all times greater than or equal to the minimum margin collection requirement for the respective client in the respective segment.
- The terms "Client Collateral", "TM Collateral", "CP Collateral" and "CM Collateral" shall mean the total of the allocated collateral value plus the value of demat securities collateral provided through margin pledge/re-pledge by any individual client, TM, CP and CM respectively to the level of CC. The TM/CM collateral shall mean the proprietary collateral of the TM/CM only and shall not include the collateral of any of their clients.
- On receipt of a trade from a client account by the CC, the margin shall first be blocked from the value of the client collateral. If the client collateral is not sufficient, the residual margin shall be blocked from the TM proprietary collateral of the TM of such client. If the TM proprietary collateral is also not sufficient, then the residual margin shall be blocked from the CM proprietary collateral of the CM of such TM.
- In case of a trade from the proprietary account of a TM, the margin shall first be blocked from the TM proprietary collateral, and in case such collateral is not sufficient, then the residual margin shall be blocked from the CM proprietary collateral.
- Margins based on trades from proprietary account of the CM shall be blocked from the proprietary collateral of the CM only.
- In case of Custodial Participant (CP) trades executed by TMs, the margin shall be blocked in the following order- (i) CP collateral through the executing TM, if any, (ii) residual margin from the proprietary collateral of the executing TM, and (iii) residual margin from the proprietary collateral of the CM of the executing TM. Upon confirmation of such trades by CM of the CP, the margin so blocked prior to the confirmation shall be released, and shall be blocked in the following order- (i) CP collateral through the confirming CM, and (ii) residual margin from the proprietary collateral of the confirming CM. In case of CP trades, the requirement to ensure that sufficient collateral is allocated to clients to cover their margin requirements shall be on the confirming CM. However, if the trade is confirmed under the auto approval facility provided by the CC, then margin shall be directly blocked in the following order- (i) CP collateral through the confirming CM, and (ii) residual margin from the proprietary collateral of the confirming CM.
- CMs shall be permitted to change the allocation of collateral deposited with the CC, subject to the value allocated to any client not exceeding the value of actual

collateral received from that client (excluding the securities collateral re-pledged to CC through margin pledge mechanism).

For additional details participants are requested to refer the relevant circulars.

7.11 Core Settlement Guarantee Fund

Securities Contracts (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, 2018, inter-alia, state the following:
1) Every recognized clearing corporation shall establish and maintain a Fund by whatever name called, for each segment, to guarantee the settlement of trades executed in respective segment of a recognized stock exchange.
(2) In the event of a clearing member failing to honour his settlement obligations, the Fund shall be utilized to complete the settlement.
(3) The corpus of the Fund shall be adequate to meet the settlement obligations arising on account of failure of clearing member(s).
(4) The sufficiency of the corpus of the Fund shall be tested by way of periodic stress tests, in the manner specified by SEBI.
(5) The utilization of the Fund shall be in accordance with the norms specified by SEBI.

Further, SEBI has directed clearing corporation to have a fund called Core SGF (Settlement Guarantee Fund) for each segment of each Recognized Stock Exchange (SE) to guarantee the settlement of trades executed in respective segment of the Stock Exchange[37]. Hence there is a separate Core Settlement Guarantee Fund for Currency Derivatives Segment. In the event of a clearing member (member) failing to honour settlement commitments, the Core SGF is used to fulfill the obligations of that member and complete the settlement without affecting the normal settlement process.

The corpus of the fund should be adequate to meet out all the contingencies arising on account of failure of any member(s). The risk or liability to the fund depends on various factors such as trade volume, delivery percentage, maximum settlement liability of the members, the history of defaults, capital adequacy of the members, the degree of safety measures employed by the CC/SE, etc. While deciding on the fair quantum of the corpus of the SGF, the CC should consider the following factors:

- Risk management system in force.
- Current and projected volume/turnover to be cleared and settled by the CC on a guaranteed basis.
- Track record of defaults of members (number of defaults, amount in default).

A Minimum Required Corpus (MRC) of the core SGF should be created subject to the following conditions:

i. The MRC shall be fixed for a month.

[37] https://www.sebi.gov.in/sebi_data/attachdocs/1409136206919.pdf

ii. By 15th of every month, CC shall review and determine the MRC for next month based on the results of daily stress tests of the preceding month.
iii. CC shall also review and determine by 15th of every month the adequacy of contributions made by various contributors and any further contributions to the Core SGF required to be made by various contributors for the next month.
iv. For every day of the preceding month, uncovered loss numbers shall be estimated by the various stress tests for credit risk conducted by the CC for the segment and the highest of such numbers shall be taken as worst-case loss number for the day.
v. Average of all the daily worst case loss numbers determined in (iv) above shall be calculated.
vi. The MRC for next month shall be higher of the average arrived at as (v) above and the segment MRC as per previous review.

Contributions of various contributors to Core SGF of any segment shall be as follows:

a) *Clearing Corporation Contribution:* CC contribution to Core SGF shall be at least 50 percent of the MRC which should be from its own funds. CC contribution to core SGF shall be considered as part of its net worth.
b) *Stock Exchange Contribution:* Stock Exchange contribution to Core SGF shall be at least 25 percent of the MRC (can be against transfer of profits by Exchange as per Regulation 33 of SECC Regulations).
c) *Clearing Member Primary Contribution:* The total contribution from members to core SGF for each segment will not be more than 25% of MRC of the respective segment. No exposure shall be available to CMs on their contribution to core SGF. The required contributions of individual CMs shall be assessed pro-rata based on the risk they bring to the system. CC shall have the flexibility to collect CM primary contribution either upfront or staggered over a period of time. In case of staggered contribution, the remaining balance shall be met by CC to ensure adequacy of total Core SGF corpus at all times. Such CC contribution shall be available to CC for withdrawal as and when further contributions from CMs are received. As per SEBI circular no SEBI/HO/MRD/DRM/NP/CIR/P/2016/54 dated May 04, 2016, the clearing member contribution to core SGF shall be met to the extent available from the amount received from Exchange.
d) Any penalties levied by CC shall be credited to Core SGF corpus.
e) Interest on cash contribution to Core SGF shall also accrue to the Core SGF and pro-rata attributed to the contributors in proportion to their cash contribution.

CC may utilize the Core SGF in the event of a failure of member(s) to honour settlement commitment.

Default Waterfall

In the event of a default, the utilization of the Settlement Guarantee Fund shall generally follow the following order:

a) Monies of defaulting member (including defaulting member's primary contribution to Core SGF(s) and excess monies of defaulter in other segments).
b) Insurance, if any.

c) CC resources (equal to 5% of the segment MRC).
d) Core SGF of the segment in the following order:
    I. Penalties
    II. CC contribution to the extent of at least 25% of the segment MRC
    III. Remaining Core SGF: CC contribution, Stock Exchange contribution and non-defaulting members' primary contribution to Core SGF on pro-rata basis.
e) Proportion of remaining CC resources (excluding CC contribution to core SGFs of other segments and Rs. 100 Crore) equal to ratio of segment MRC to sum of MRCs of all segments. Rs. 100 Crore to be excluded only when remaining CC resources (excluding CC contribution to core SGFs of other segments) are more than Rs. 100 Crore.
f) CC/SE contribution to Core SGFs of other segments (after meeting obligations of those segments) and remaining CC resources to that extent as approved by SEBI.
g) Capped additional contribution by non-defaulting members of the segment[38].
h) Any remaining loss to be covered by way of pro-rata haircut to pay-outs.

7.12 Cyber Security & Cyber Resilience framework (CSCRF) for Stock Brokers / Depository Participants

Rapid technological developments in securities market highlighted the need for maintaining a robust cyber security and cyber resilience framework to protect the integrity of data and guard against breaches of privacy. Since stock brokers and depository participants perform significant functions in providing services to holders of securities, these entities should have robust cyber security and cyber resilience framework. This shall provide for essential facilities and perform systemically critical functions relating to securities market. Cyber security framework includes measures, tools and processes that are intended to prevent cyber-attacks and improve cyber resilience.

SEBI has recently notified a detailed CSCRF for the SEBI Regulated Entities (REs) that shall come into effect, in phased manner, starting from January 1, 2025 onwards (superseding the existing circulars). The key objective of CSCRF is to address evolving cyber threats, to align with the industry standards, to encourage efficient audits, and to ensure compliance by SEBI Regulated entities. As per the CSCRF, the following REs are constituted as the Market Infrastructure Institutions (MIIs):

a. Stock Exchanges
b. Depositories
c. Clearing Corporations

[38] For further details, refer SEBI Circular Ref. No. SEBI/HO/MRD2/DCAP/CIR/P/2020/01 Dated January 03, 2020. The maximum capped additional contribution by non-defaulting members shall be lower of 2 times of their primary contribution to Core SGF or 10% of the Core SGF of the segment on the date of default in case of equity/ debt segments. The maximum capped additional contribution by non-defaulting members shall be lower of 2 times of their primary contribution to Core SGF or 20% of the Core SGF of the segment on the date of default in case of derivatives segment.

d. KYC Registration Agencies (KRAs)
e. Qualified Registrars and Transfer Agents (QRTAs)

Cyber Resilience is an organization's ability to prepare and respond to a cyber-attack and to continue operation during, and recover from, a cyber-attack. The Cyber Security and Cyber Resilience Framework is based on 5 cyber resiliency goals:

1. **Anticipate**: Maintain a state of informed preparedness from adversary attacks.
2. **Withstand**: Continue essential business functions at times of adversary attacks.
3. **Contain**: In the event of cyber-attacks, localise containment of crisis and isolate trusted functions from untrusted ones to continue business operations.
4. **Recover**: Restore business functions to the maximum extent, subsequent to adversary attacks.
5. **Evolve**: To change business functions and its supporting cyber capabilities to minimize adverse impacts of adversary attacks (actual or predicted).

Sample Questions and Answers

1. In the clearing corporation, clearing is carried out by a process called _____ netting?
    - **a. Multilateral**
    - b. Closed
    - c. Open
    - d. Gross
2. Interoperability of clearing corporation framework is allowed all the products available in the Indian securities markets, EXCEPT:
    - **a. Commodity Derivatives**
    - b. Interest rate derivatives
    - c. Currency Derivatives
    - d. Cash Market
3. Daily Mark to market settlement of Exchange traded currency future contract is …….
    - **a. Cash settled**
    - b. Adjusted to liquid asset
    - c. Both a & b
    - d. None of the above
4. Position limit for EURUSD at trading member level is?
    - **a. Higher of 15% of the total open interest or EUR 100 million**
    - b. Lower of 15% of the total open interest or EUR 100 million
    - c. Higher of 6% of the total open interest or EUR 10 million
    - d. Higher of 15% of the total open interest or EUR 50 million
5. As a Risk Reduction Measure, all unexecuted orders shall be cancelled once stock broker breaches ____ collateral utilization level.
    - **a. 90 percent**
    - b. 75 percent
    - c. 50 percent
    - d. 80 percent
6. What is the Base Minimum Capital requirement specified by the SEBI for only Proprietary trading without Algorithmic trading (Algo)?
    - a. Rs. 25 Lakhs
    - b. Rs. 20 Lakhs
    - c. Rs. 50 Lakhs
    - **d. Rs. 10 Lakhs**

CHAPTER 8: REGULATORY FRAMEWORK FOR EXCHANGE TRADED CURRENCY DERIVATIVES

LEARNING OBJECTIVES:

After studying this chapter, you should know about following:

- Role of RBI-SEBI Standing Technical Committee
- SEBI and RBI Regulations on ETCD
- Regulatory Guideline on Participation of Various Entities
- Eligibility Criteria for Membership of ETCD

Introduction

Exchange-traded currency derivatives are jointly regulated by Reserve Bank of India (RBI) and Securities and Exchange Board of India (SEBI). The Exchanges and Clearing Corporations frame the operational rules and procedures under their bye-laws for Exchange-traded currency derivatives within the statutory regulations of RBI and SEBI. The following is a summary of statutory regulations and operational rules.

Entity	Authority/Statute	Scope
RBI	The Foreign Exchange Management Act, 1999 (FEMA)	Power conferred to Reserve Bank to make regulations to carry out the provisions of this Act and the rules made thereunder. Power conferred to issue direction to Authorized Person[39]
	Reserve Bank of India Act 1934	Dealing in foreign Exchange and Derivatives
SEBI	Securities Contract (Regulation) Act 1956; and SEBI Act 1992	All exchange-traded contracts
Exchanges/Clearing Corporation	Bye-laws of the Exchange and Clearing Corporations	Operational rules and procedures for trading, clearing, settlement & risk management

RBI's role in regulation of Foreign Exchange Market is primary and fundamental and covers all activities while that of SEBI is limited to the Exchange-traded derivative contracts on them.

[39] Under FEMA 1999, "authorised person" means an authorised dealer, money changer, off-shore banking unit or any other person for the time being authorised under sub-section (1) of section 10 to deal in foreign exchange or foreign securities;

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

It provides for direct and indirect control of virtually all aspects of securities trading and the running of Stock Exchanges and aims to preventing undesirable transactions in securities. It gives Central Government the regulatory jurisdiction over-

(a) Stock Exchanges through a process of recognition and continued supervision

(b) Contracts in securities, and

(c) Listing of securities on Stock Exchanges

The term "**Securities**" as defined in the SCRA, 1956 includes the following:

i. Shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company or a pooled investment vehicle other body corporate;
ii. Derivatives;
iii. Units or any other instrument issued by any Collective Investment Scheme;
iv. Security receipt as defined in the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002;
v. units or any other instrument issued by any pooled investment vehicle;
vi. Units or any other such instrument issued to the investors under any mutual fund scheme[40];
vii. Any certificate or instrument, 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;
viii. Government Securities
ix. Such other instruments as may be declared by the Central Government to be securities, and
ix. Rights or interest in securities.
x. "Electronic Gold Receipt" means an electronic receipt issued on the basis of deposit of underlying physical gold in accordance with the regulations made by the
Securities and Exchange Board of India under section 31 of the said Act.

The term 'derivative' has been defined in Securities Contracts (Regulations) Act, 1956 as: Derivative includes:
a. 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;
b. a contract which derives its value from the prices, or index of prices, of underlying securities;
c. commodity derivatives; and
d. such other instruments as may be declared by the Central Government to be derivatives;

[40] "Securities" shall 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 referred to in clause (9) of section 2 of the Insurance Act, 1938 (4 of 1938);

Section 18A provides that notwithstanding anything contained in any other law for the time being in force, contracts in derivatives 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.
- Between such parties and on such terms as the Central Government may, by notification in the Official Gazette specify.

8.2 RBI-SEBI Standing Technical Committee on Exchange Traded Currency and Interest Rate Derivatives

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.

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. The same is available on RBI website[41]. 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:

- To coordinate the regulatory roles of RBI and SEBI in regard to trading of Currency and Interest Rate Futures on the Exchanges.
- To suggest the eligibility norms for existing and new Exchanges for Currency and Interest Rate Futures trading.
- To suggest eligibility criteria for the members of such exchanges.

[41] https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/84213.pdf

- To review product design, margin requirements and other risk mitigation measures on an on-going basis
- To suggest surveillance mechanism and dissemination of market information.
- To consider microstructure issues, in the overall interest of financial stability.

The committee has submitted its report on Currency Futures on May 29, 2008. The Report of RBI-SEBI Standing Technical Committee on Currency Futures is available on SEBI's website[42].

The Report of RBI-SEBI Standing Technical Committee on Currency Futures has made the following recommendations/suggestions:

- Currency Futures product design to start with an underlying as USDINR
- Risk management measures for currency futures including margining, mark to market etc.
- Surveillance measures and position limits
- Eligibility criteria for setting up of currency futures segment in a recognized stock exchange and clearing corporation
- Committee has suggested a separate segment for currency futures with separate trading platform, clearing corporation and membership from other segments. The Exchange shall have balance sheet net worth of at least Rs. 100 crores[43].
- Eligibility criteria for membership of currency futures segment. The committee recommended that the trading members will be subject to a balance sheet net worth requirement of Rs. 1 crore while the clearing member would be subject to a balance sheet net worth requirement of Rs 10 crores.
- Regulatory and Legal aspects.

This report became the important point for the introduction of Exchange Traded Currency Derivatives in India.

8.3 Foreign Exchange Management Act, 1999

- The Government of India formulated Foreign Exchange Management Act (FEMA) to encourage external payments and across the border trades in India. It was formulated in the year 1999 while it replaced FERA (Foreign Exchange Regulation Act).
- The main objective of FEMA was to help facilitate external trade and payments in India. It was also meant to help orderly development and maintenance of the foreign exchange market in India.
- It defines the procedures, formalities, holding of foreign exchange, realisation and repatriation of foreign exchange, dealings of all foreign exchange transactions in India.

[42] https://www.sebi.gov.in/sebi_data/commondocs/rbirep_p.pdf

[43] SEBI (Stock Exchange and Clearing Corporation) Regulation, 2018 specified that every recognised Stock Exchange shall have minimum networth of one hundred crore rupees at all times.

Foreign Exchange transactions are mainly classified under two categories — Current Account Transactions and Capital Account Transactions.

- Amongst other, it defines Authorised Person, Foreign Exchange, Foreign Currency, Person, Person residents in India, Person residents outside India
- FEMA is applicable to all parts of India and was primarily formulated to utilize foreign exchange resources in an efficient manner.
- It shall also apply to all branches, offices and agencies outside India owned or controlled by a person resident in India and also to any contravention thereunder committed outside India by any person to whom this Act applies.
- FEMA is applicable to Foreign Exchange, Foreign Security, Export and Import of commodity and services, Securities as defined under Public Debt Act 1994, Banking, financial and insurance services, citizens of India residing in the country or outside (NRI).
- FEMA is a regulatory mechanism that empowers RBI to make regulations to carry out the provisions of this Act and the rules made thereunder by way of notification.
- FEMA has also empowers the RBI to provide authorisation to Authorised Person, issue directions to Authorised Persons and to inspect the books of Authorised persons.

8.4 SEBI Regulation and Guideline

SEBI Act, 1992

SEBI Act, 1992 provides for establishment of Securities and Exchange Board of India (SEBI) with statutory powers for

(a) Protecting the interests of investors in securities,

(b) Promoting the development of the securities market, and

(c) Regulating the securities market.

Its regulatory jurisdiction extends over corporates (who list or propose to list their securities) in the issuance of capital and transfer of securities, in addition to all intermediaries and persons associated with securities (more specifically the capital market) market. It can conduct enquiries, audits and inspection of all concerned and adjudicate offences under the Act. It has powers to register and regulate all market intermediaries and to penalize them in case of violations of the provisions of the Act, Rules and Regulations made thereunder. SEBI has full autonomy and authority to regulate and develop an orderly securities market.

In particular, it has powers for:

- Regulating the business in stock exchanges and any other securities markets.
- Registering and regulating the working of stock brokers, authorized person etc.
- Promoting and regulating self-regulatory organizations.
- Prohibiting fraudulent and unfair trade practices.
- Calling for information from, undertaking inspection, conducting inquiries and audits of the stock exchanges, mutual funds and other persons associated with the

securities market and intermediaries and self–regulatory organizations in the securities market.
- Performing such functions and exercising according to Securities Contracts (Regulation) Act, 1956, as may be delegated to it by the Central Government.

Though RBI has provided broad level guideline for participation of currency derivatives on Exchanges, SEBI plays a major role in regulating, development of Exchange-traded currency derivatives. SEBI guidelines related to trading, clearing and settlement, risk management, surveillance, investor grievance and protection, fraudulent and unfair trade practices, stock broker regulations, KRA regulations, anti-money laundering etc. are applicable for ETCD.

Brief points on SEBI guidelines/regulations related to Trading:

- A recognized stock exchange having nationwide terminals, or a new exchange recognized by SEBI may set up currency derivatives segment after obtaining SEBI's approval. The Currency Derivative contracts shall be traded as separate segment of a recognized Stock Exchange.
- Exchange shall submit the application along with details pertaining to currency derivatives product proposed to be introduce along with proposed Bye-laws of the Exchanges.
- After obtaining SEBI's approval, the Recognized Stock Exchange and its Clearing Corporation / Clearing House shall make an application to RBI to obtain permission under FEMA for trading, clearing and settlement of Currency Derivatives.
- Membership of the Currency Derivatives Segment is separate from the membership of the other segments of the Exchange. A person desirous of becoming a Clearing Member and / or a Trading Member and fulfilling the eligibility conditions may apply for membership in accordance with SEBI (Stock Brokers) Regulations, 1992.
- SEBI has also allowed Banks to take membership of ETCD subject to eligibility criteria specified by RBI and SEBI from time to time.
- A trading member shall have approved users and sales personnel who have Certification as applicable from time to time.
- Provide guidelines on contract specifications which includes trading hours, underlying instrument, contract size, contract cycle, price band, expiry dated etc.
- Provide guidelines on position limits for trading members, institutional clients and non-institutional clients etc.
- Provide guidelines on surveillance system to effectively monitor trading in such contracts.
- Provide guidelines to ensure market integrity, protection of investors and smooth and orderly trading etc.

Brief points on SEBI guidelines/regulations related to the Clearing Corporations:

- A Clearing Corporation / Clearing House should obtain SEBI's approval for undertaking clearing and settlement related to trades in Currency Derivatives.

- After obtaining SEBI's approval, the Recognized Stock Exchange and its Clearing Corporation / Clearing House shall make an application to RBI to obtain permission under FEMA for trading, clearing and settlement of Currency Derivatives.
- The Clearing Corporation must perform full novation, i.e. the clearing corporation should interpose itself between both legs of every trade, becoming the legal counterparty to both or alternatively should provide an unconditional guarantee for settlement of all trades.
- SEBI has allowed interoperability of clearing corporations for currency derivatives segment
- Provided guidelines on clearing and settlement which includes mode of settlement, daily and final settlement price, settlement cycle, etc.
- Provided guidelines on risk management which includes margining mechanism, liquid net worth, Liquid Assets, MTM settlement etc.
- There will be separate Core Settlement Guarantee Fund (CSGF) for Currency Derivatives Segment.

8.5 RBI Regulation and Guideline

Foreign Exchange Management Act, 1999 (42 of 1999), has conferred the power on RBI, to make regulations, to promote orderly development and maintenance of foreign exchange market in India. FEMA has also provided power to RBI to provide authorisation to Authorised Persons, issue directions to Authorised persons and to inspect the books of Authorised persons.

Given below brief of some of the important RBI guidelines/direction on Foreign Exchange trading mainly focusing on Exchange Traded Currency Derivatives:

RBI Direction / Guideline	Details
Currency Futures (Reserve Bank) Directions, 2008 as amended from time to time	These Directions came into effect from August 06, 2008. Directions on Currency futures provide guidelines regarding: • Definition of currency futures • Eligible Currency pairs {included FCY-INR pairs (pairs involving Indian Rupee) and Cross currency pairs (FCY-FCY pairs not involving Indian Rupee)} • Eligible participants • Contract features of currency futures • Membership guidelines and membership criteria for banks • Position limits • Risk management measures • Authorisation to Stock Exchanges and Clearing Corporations for dealing in currency futures • Surveillance and disclosure

Exchange Traded Currency Options (Reserve Bank) Directions, 2010 as amended from time to time	These Directions came into effect from July 30, 2010 and provide guidelines regarding : • Eligible Currency pairs {included FCY-INR pairs (pairs involving Indian Rupee) and Cross currency pairs (FCY-FCY pairs not involving Indian Rupee)} • Eligible participants • Contract features of Exchange-traded currency options • Membership guidelines and membership criteria for banks • Position limits • Risk management measures • Authorisation to Stock Exchanges and Clearing Corporations for dealing in currency options • Surveillance and disclosure
Foreign Exchange Management (Foreign exchange derivative contracts) Regulations, 2000	In exercise of the powers conferred by clause (h) of sub-section (2) of Section 47 of the Foreign Exchange Management Act, 1999 (42 of 1999), the Reserve Bank makes these regulations, to promote orderly development and maintenance of foreign exchange market in India. The Regulations provide details about: • Definition of Authorised Dealer, Foreign exchange derivative contract, Exchange traded currency derivatives, Hedging, Currency risk, contracted exposure and anticipated exposure etc. • Provisions for a person, whether resident in India or resident outside India, to enter into a foreign exchange derivative contract or exchange traded currency derivative contract • Remittance related to a Foreign Exchange Derivative contract .
Master Direction - Risk Management and Inter-Bank Dealings	These directions lay down the modalities regarding the conduct of foreign exchange business by the Authorised Persons with their customers / constituents with a view to implementing the Foreign Exchange Management (Foreign exchange derivative contracts) Regulations, 2000. Instructions issued in respect of Foreign Exchange Derivative Contracts, Overseas Commodity & Freight Hedging, Rupee Accounts of Non-Resident Banks and Inter-Bank Foreign Exchange Dealings etc. have been compiled in this Master Circular.

	Master circular provides details about: • Definition of Hedging, Users, Contracted and Anticipated Exposure etc. • Directions for Authorised Dealers for offering derivatives contract involving INR to users • Directions to users for participation and monitoring in Exchange-traded currency derivatives • Participation of AD Category I Bank in Exchange trade currency futures and option contracts • Operational Guidelines, terms and conditions for AD Category-I banks participation in the ETCD market

8.5.1 Foreign Exchange Dealers' Association of India (FEDAI)

Foreign Exchange Dealers' Association of India (FEDAI) was set up in 1958 as an Association of banks dealing in foreign exchange in India (typically called Authorised Dealers - ADs) as a self-regulatory body and is incorporated under Section 25 of The Companies Act, 1956. Its major activities include framing of rules governing the conduct of inter-bank foreign exchange business among banks vis-à-vis public and liaison with RBI for reforms and development of forex market. Presently some of the functions are as follows:

- Guidelines and Rules for Forex Business.
- Training of Bank Personnel in the areas of Foreign Exchange Business.
- Accreditation of Forex Brokers
- Advising/Assisting member banks in settling issues/matters in their dealings.
- Represent member banks on Government/Reserve Bank of India/Other Bodies.
- Announcement of daily and periodic rates to member banks.

Due to continuing integration of the global financial markets and increased pace of de-regulation, the role of self-regulatory organizations like FEDAI has also evolved. In such an environment, FEDAI plays a catalytic role for smooth functioning of the markets through closer co-ordination with the RBI, other organizations like FIMMDA, the Forex Association of India and various market participants. FEDAI also maximizes the benefits derived from synergies of member banks through innovation in areas like new customized products, benchmarking against international standards on accounting, market practices, risk management systems, etc.

8.6 Regulatory Guidelines on Participation of Various Entities in ETCD

India has been experiencing heightened cross-border flows in past few years with globalization and relaxations in the rules governing external transactions. The flows have been strong on both current and capital accounts. There has also been some increase in

the volatility of exchange rates due to global imbalances and changing dimensions of the capital flows. This has increased market risk, which, in turn, has made the issues relating to hedging of such risk exposures very critical. Both residents and non-residents are exposed to currency risk when residents purchase foreign currency assets and non-residents purchase domestic currency assets. If the exchange rate remains unchanged from the time of the purchase of the asset to its sale, no gains and losses arise from the currency exposures. But if the domestic currency depreciates (or appreciates) against the foreign currency, the exposure will result in gain (or loss) for residents purchasing foreign assets and loss (or gain) for non-residents purchasing domestic assets. Against this backdrop, unpredicted movements in exchange rates expose investors to currency risks. Hence, it is important to have participation from all categories of investor (resident as well as non-resident) in ETCD.

The rules for participation in domestic foreign exchange market are largely covered under Foreign Exchange Management Act, 1999 and the Foreign Exchange Management (Foreign Exchange Derivative Contracts Regulations, 2000). A person, whether resident in India or resident outside India, may enter into a foreign exchange derivative contract or exchange-traded currency derivative contract in accordance with provisions contained in this regulation. Further guidance is provided by the Master Directions - Risk Management and Inter-Bank Dealings of RBI, Currency Futures (Reserve Bank) Directions, 2008 and Exchange-Traded Currency Options (Reserve Bank) Directions, 2010. The SEBI circular of ETCD has also specified eligibility and limits to trade in ETCD. The circular states that all regulated entities shall participate in ETCD with the permission of and subject to the terms and conditions, if any, fixed by their respective regulator.

8.6.1 Authorised Dealer Category I Banks

AD Category I Banks are permitted to become trading and clearing members of the currency derivatives market of recognized stock exchanges, on their own account and on behalf of their clients, subject to fulfilling the following minimum prudential requirements:

i) Minimum net worth of Rs. 500 crores.
ii) Minimum CRAR of 10 per cent.
iii) Net NPA should not exceed 3 per cent.
iv) Net profit for last 3 years.

AD Category - I banks, which do not meet the above minimum prudential requirements and AD Category - I banks, which are Urban Co-operative banks or State Co-operative banks, can participate in the exchange traded currency derivatives market only as clients, subject to approval therefor from the respective regulatory Departments of the Reserve Bank. The AD Category - I banks shall operate within prudential limits, such as Net Open Position (NOP) and Aggregate Gap (AG) limits. The option position of the banks, on their

own account, in the exchange-traded currency derivatives shall form part of their NOP and AG limits.

AD Category-I banks may undertake trading in all permitted exchange-traded currency derivatives within their Net Open Position Limit (NOPL) subject to limits stipulated by the exchanges (for the purpose of risk management and preserving market integrity) provided that any synthetic USD-INR position created using a combination of exchange traded FCY- INR and cross-currency contracts shall have to be within the position limit prescribed by the exchange for the USD-INR contract.

AD Category-I banks may net / offset their positions in the ETCD market against the positions in the OTC derivatives markets. Keeping in view the volatility in the foreign exchange market, Reserve Bank may however stipulate a separate sub-limit of the NOPL (as a percentage thereof) exclusively for the OTC market as and when required.

8.6.2 Person Resident in India

- A person may enter into an exchange-traded currency derivatives contract on an Exchange as per provisions of the Foreign Exchange Management Act, 1999, Foreign Exchange Management (Foreign exchange derivative contracts) Regulations, 2000 and any other regulation, direction, guideline issued by RBI and/or SEBI in this regard.
- Users may take positions (long or short), without having to establish existence of underlying exposure, up to a single limit of USD 100 million equivalent across all currency pairs involving INR, put together, and combined across all exchanges.
- Exchanges authorised by RBI to offer currency derivatives shall provide facility to users, intending to take position beyond USD 100 million (or equivalent) in contracts involving INR in all exchanges put together, to designate an Authorised Dealer/Custodian. For such users, the exchanges/clearing corporation at end of day shall provide information of day-end open positions as well as intra-day highest position of the user to the designated Authorised Dealer.
- The onus of complying with the above directions shall rest with the user. In case of any contravention, the user shall render itself liable to any action under the Foreign Exchange Management Act (FEMA), 1999.
- Market Participants are allowed to take positions in the cross-currency futures and exchange-traded cross-currency option contracts (contracts not involving Indian Rupee) without having to establish underlying exposure subject to the position limits as prescribed by the exchanges.

8.6.3 Foreign Portfolio Investor (FPIs)

- A FPI may enter into an exchange-traded currency derivative contract on an Exchange as per provisions of the Foreign Exchange Management Act, 1999, Foreign Exchange Management (Foreign exchange derivative contracts) Regulations, 2000 and any other regulation, direction, guideline issued by RBI and/or SEBI in this regard.

- FPIs may take positions (long or short), without having to establish existence of underlying exposure, up to a single limit of USD 100 million equivalent across all currency pairs involving INR, put together, and combined across all exchanges.
- FPIs shall ensure that their short positions at all stock Exchanges across all contracts involving Indian Rupee do not exceed USD 100 million.
- The exchanges/clearing corporation at end of day shall provide information of day-end open positions as well as intra-day highest position of the FPIs to the designated Custodian.
- The onus of complying with the above directions shall rest with the FPIs. In case of any contravention, the user shall render itself liable to any action under the Foreign Exchange Management Act (FEMA), 1999.
- FPIs are allowed to take positions in the cross-currency futures and exchange-traded cross-currency option contracts (contracts not involving Indian Rupee) without having to establish underlying exposure subject to the position limits as prescribed by the exchanges.

8.6.4 Non-Banking Financial Institutions

Applicable NBFCs shall participate in the designated currency futures on exchanges recognized by SEBI as clients, subject to the Bank's (Foreign Exchange Department) guidelines in the matter, only for the purpose of hedging their underlying forex exposures.

Non-deposit taking applicable NBFCs with asset size of ₹500 crore and above, are allowed to participate in the designated currency options exchanges recognized by SEBI, as clients, subject to the Bank's (Foreign Exchange Department) guidelines in the matter, only for the purpose of hedging their underlying forex exposures.

8.6.5 Primary Dealers

Standalone Primary Dealers (SPD) having a minimum Net Owned Fund of ₹250 crore or any amount as prescribed for undertaking diversified activity shall be allowed to participate in currency futures. SPDs are permitted to participate in the currency futures market either as clients or direct trading / clearing members of the currency derivatives segment of the Stock Exchanges recognized by SEBI. SPDs shall trade only on their own account, and they are not permitted to take positions on behalf of clients.

The aggregate gross open positions across all contracts in all the stock exchanges in the respective currency pairs shall not exceed the limits as mentioned below:

Currency Pairs	Position Limits
USD-INR	Gross open position across all contracts shall not exceed 15% of the total open interest or USD 50 million, whichever is higher.

EUR-INR	Gross open position across all contracts shall not exceed 15% of the total open interest or EUR 25 million, whichever is higher.
GBP-INR	Gross open position across all contracts shall not exceed 15% of the total open interest or GBP 25 million, whichever is higher.
JPY-INR	Gross open position across all contracts shall not exceed 15% of the total open interest or JPY 1000 million, whichever is higher.

8.6.6 Reserve Bank of India intervention in Exchange-Traded Currency Derivatives

RBI vide press release 2015-2016/1362 dated December 09, 2015, has stated following:

"The Reserve Bank of India intervenes in the foreign exchange market as and when required in order to manage excessive volatility and to maintain orderly conditions in the market. As a further measure it has been decided to intervene in the Exchange-Traded Currency Derivatives (ETCD) segment, if required. The data for the ETCD intervention will be published in the RBI monthly bulletin as in the case of Over the Counter (OTC) intervention.

In addition to above, users should participate in ETCD within the position limits (please refer section 7.6) specified by SEBI from time to time and any other restriction or guideline specified by respective regulators.

In a circular dated January 5, 2024, the RBI has reiterated its existing directions under which Authorized Dealers may allow users of currency derivatives to take position upto 100 million dollars equivalent in notional value for hedging contracted exposures, without the requirement to establish the existence of an underlying exposure. Thus, the RBI has clarified that while users of currency derivatives are not required to provide evidence of underlying exposure while entering into a currency derivatives contract, they must have such exposure in place. With this circular, the RBI has stressed the importance of a valid hedging requirement for users of currency derivatives.

8.7 Eligibility Criteria for Members

The membership of the Currency Derivatives Segment is separate from the membership of the other segments of the Exchange. As per the SEBI (Stock Brokers) Regulations, 1992:

- The stock broker shall have such networth and shall deposit with the stock exchange such sum as may be specified by the SEBI/ stock exchange from time to time for Currency Derivatives Segment.
- The clearing member/ self-clearing member shall have the minimum networth and shall deposit the minimum sum specified by SEBI or a higher amount with the clearing corporation promoted by the respective stock exchange in the manner specified from time to time for Currency Derivatives Segment.

- The quantum of networth to be maintained by the stock broker/clearing member, as specified in the said regulations, shall be reckoned for all segments/stock exchanges. The quantum of deposit to be maintained by the stock broker/clearing member shall be separately calculated segment wise.

Further, as per the SEBI (Stock Brokers) Regulations, 1992, the existing requirement of obtaining registration as stock broker/clearing member for each stock exchange/ clearing corporation has been done away with and instead a single registration with any stock exchange/ clearing corporation shall be required. For operating in any other stock exchange(s)/ clearing corporation(s), approval will be required from the concerned stock exchange or clearing corporation. If a new entity desires to register as a stock broker or clearing member with any stock exchange or clearing corporation, as the case may be, then the entity shall apply to SEBI through the respective stock exchange or clearing corporation in the manner prescribed in the Stock Broker Regulations. The entity shall be issued one certificate of registration, irrespective of the stock exchange(s) / clearing corporation(s) or number of segment(s).

Eligibility Criteria for a Trading Member

The admission as a trading member on the Stock Exchanges is based on the various criteria like age, capital adequacy, financial track record, education, experience and fulfillment of criteria of "fit & proper person" as laid down in the SEBI (Intermediaries) Regulations, 2008. The Exchanges may stipulate additional requirements over and above the SEBI prescribed rules.

A. Base Minimum Capital (BMC)

BMC is the deposit given by the member of the exchange against which no exposure for trades is allowed. The base minimum capital for trading members in cash, derivatives and debt segment is shown below:

Categories	**BMC Deposit**
Only Proprietary trading without Algorithmic trading (Algo)	Rs 10 Lacs
Trading only on behalf of clients (without proprietary trading) and without Algo	Rs 15 Lacs
Proprietary trading and trading on behalf of clients without Algo	Rs 25 Lacs
All Brokers with Algo	Rs 50 Lacs

- The BMC deposit is meant to meet contingencies in any segment of the Exchange.
- For members who are registered on more than one segment of the same Exchange, the highest BMC deposit across various segments is applicable.
- No exposure is granted against BMC deposit.
- The Stock Exchanges shall be permitted to prescribe suitable deposit requirements, over and above the SEBI prescribed norms, based on their perception and evaluation of risks involved.

- Minimum 50 percent of the deposit shall be in the form of cash and cash equivalents.

B. Eligibility Criteria

Eligibility criteria for membership are subject to the regulatory norms and provisions of SEBI and as provided in the Rules, Regulations, Byelaws and Circulars of the Exchanges. Securities Contracts (Regulation) Rules, 1957 has provided details of qualifications for membership of a recognized stock exchange:

Individual trading membership	
Age	Minimum Age: 21 years
Status	Indian Citizen
Education	At least HSC or Equivalent qualification
Experience	Applicant should have an experience of not less than two years as a partner with, or an authorized assistant or authorized remisier or apprentice to a member.

Partnership Firms registered under the Indian Partnership Act, 1932	
Where the applicant is a partnership firm, 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 partnership firm including that of the said Dominant Promoter Group (DPG) or their sharing interest shall be effected only with the prior permission of Exchange/SEBI.	
Age	Minimum Age of designate partner: 21 years
Status	Registered Partnership firm under Indian Partnership Act, 1932
Designated Partners	Identify at least two partners as designated partners who would be taking care of the day-to-day management of the partnership
Education	Designated Partners should be at least HSC or equivalent qualification
Designated Partners Experience	Should have a minimum of 2 years' experience in an activity related to dealing in securities or as portfolio manager or as investment consultant or as a merchant banker or in financial services or treasury, broker, authorized agent or authorized clerk or authorized representative or remisier or apprentice to a member of a recognized stock exchange, dealer, jobber, market maker, or in any other manner in dealing in securities or clearing and settlement thereof.
Dominant Promoter Norms	Identify partner's sharing interest as per Exchange DPG norms

Limited Liability Partnership (LLP)
An LLP as defined in the Limited Liability Partnership Act, 2008 (6 of 2009), shall be eligible to be admitted as a member of a Stock Exchange if, such 'limited liability partnership' undertakes to comply with such financial requirements and norms as may be specified by

the Securities and Exchange Board of India for the registration of such limited liability partnerships under sub-section (1) of section 12 of the SEBI Act, 1992 (15 of 1992); The designated partners of the 'limited liability partnership' are not disqualified from being members of a stock exchange under sub-rule (1) of rule 8 [except sub-clauses (b) and (f) thereof] or sub-rule (3) of rule 8 [except sub-clauses (a) and (f) thereof] of the Securities Contracts (Regulation) Rules, 1957 and the designated partners of the 'limited liability partnership' had not held the offices of Directors in any company or body corporate or partner in any firm or 'limited liability partnership', which had been a member of the stock exchange and had been declared defaulter or expelled by the stock exchange.	
Status	Registered Limited Liability Partnership under Limited Liability Partnership Act, 2008
Designated Partners	Identify at least two partners as designated partners who would be taking care of the day to day management of the limited liability partnership
Age	Minimum age of designated partner(s) : 21 years
Designated Partners Education	Designated Partners should be at least HSC or equivalent qualification
Designated Partners Experience	Should have a minimum of 2 years' experience in an activity related to dealing in securities or as portfolio managers or as investment consultants
Dominant Promoter Norms	Identify partner's sharing interest as per Exchange DPG norms

Corporations / Companies /Institutions	
A Company as defined in the Companies Act, 1956 (1 of 1956), and under Sec. 2(20) of the Companies Act, 2013, 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 SEBI 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	
Status	Corporate registered under The Companies Act, 1956 (Indian)
Minimum Paid up Equity Capital	30 lakhs
Designated Directors	Identification of at least two directors as designated directors who would be managing the day to day trading operations
Age	Minimum age of designated director(s) : 21 years
Education	Each of the Designated Directors should be at least HSC or equivalent qualification

Designated Directors Experience	Should have a minimum of 2 years' experience in an activity related to dealing in securities or as portfolio manager or as investment consultant or as a merchant banker or in financial services or treasury, broker, authorised agent or authorised clerk or authorised representative or remisier or apprentice to a member of a recognised stock exchange, dealer, jobber, market maker, or in any other manner in dealing in securities or clearing and settlement thereof.
Dominant Promoter Norms	Identify dominant group as per Exchange DPG norms

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 derivatives segment of the recognized stock exchanges, on their own account and on behalf of their clients, subject to fulfilling the following minimum prudential requirements:

- Minimum net worth of ₹ 500 crores.
- Minimum CRAR of 10 per cent.
- Net NPA should not exceed 3 per cent.
- Made net profit for last 3 years.

C. Other Criteria:

At any point of time the applicant has to ensure that either the proprietor/one designated director/partner or the Compliance Officer of the applicant entity should be meeting the certification requirements as specified by SEBI or the Stock Exchanges. The certification requirements mandated by SEBI or by the exchanges make the members eligible for continued admittance norm for membership of the Exchange. Further, member should satisfy the minimum networth and deposit requirement as specified by SEBI/Exchanges/Clearing Corporation from time to time.

The Exchange may also specify such standards for investor service and infrastructure with regards to any category of applicants as it may deem necessary, from time to time.

Who is not eligible to become a member:

Further to the capital and networth requirements, no entity shall be admitted as a member/partner or director of the member if:

- 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;
- it has compounded with his creditors for less than full discharge of debts;
- it has been convicted of an offence involving a fraud or dishonesty;
- 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;

- 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 a Regulatory Authorities like SEBI, RBI etc.;
- 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;
- it incurs such disqualification consequent to which 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 will apply to, all partners in case of partnership firms, all directors in case of companies; Exchange may from time to time modify / expand the scope of activities that could be considered as relevant experience for the above purpose.

Fit and Proper Person[44]

For the purpose of determining whether an applicant or the stock broker, authorized persons trading member and clearing member is a fit and proper person, the SEBI Board may take into account of any consideration as it deems fit including but not limited to the following criteria in relation to the applicant or the intermediary, the principal officer [the director, the promoter] and the key management persons by whatever name called:

(a) Integrity, reputation and character

(b) Absence of convictions and restraints order

(c) Competence including financial solvency and net worth of the applicant

(d) Absence of categorisation as a willful defaulter.

Authorized person[45]

Authorized person is not a member of a Stock Exchange but is 'Any person, individual, partnership firm, LLP or body corporate, who is appointed as such by a Stock Broker (including Trading Member) and who provides access to the trading platform of a Stock Exchange as an agent of the Stock Broker'. Trading members are entitled to appoint authorized persons to operate the trading workstations of Currency Derivatives Segment, with the approval of the exchange. The trading member must obtain specific prior approval for each such person, and it is segment specific. Authorized Persons (AP) should satisfy the criteria as specified by SEBI/stock exchanges from time to time. The AP should have the necessary infrastructure like adequate office space, equipment and manpower to effectively discharge the activities on behalf of the stock broker.

[44] Schedule II, SEBI (Intermediaries) Regulations, 2008

[45] https://www.sebi.gov.in/legal/circulars/aug-2018/role-of-sub-broker-sb-vis-a-vis-authorized-person-ap-39825.html (Discontinuation of Sub-broker category). Please note that "Authorised Person" defined under FEMA and "Authorized Person" as per SEBI are two different kind of entities.

Sample Questions and Answers

1. 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
    d. RBI Act

2. Which of the following segments of market participants are allowed to trade in currency futures?
    a. Individual
    b. NRIs
    c. Corporates
    d. All of the above

3. Which of the following segments of market participants are allowed to become member of Currency Derivatives of Exchange?
    a. Individual
    b. AD Category I Bank
    c. Corporates
    d. All of the above

CHAPTER 9: ACCOUNTING AND TAXATION

LEARNING OBJECTIVES:

After studying this chapter, you should know about following:

- Accounting Treatment
- Disclosure Requirement
- Taxation

9.1 Accounting Guideline and Disclosure Requirements

Similar to other Exchange-traded derivatives "Accounting, valuation and capital requirement shall be as per the applicable accounting standards and valuation methods prescribed by ICAI or other standard setting organization or as specified by the respective regulators of participants" will be applicable for Exchange-Traded Currency Derivatives.

9.1.1 ICAI Guidance Notes on Accounting for Derivatives Contract (Revised 2021)[46]

The Institute of Chartered Accountants of India (ICAI) has issued guidance notes on Accounting for Derivatives Contract (Revised 2021). Brief points of the guidance note are given below:

The scope of the note specifies that entities such as banking, non-banking finance companies ('NBFCs'), housing finance companies and insurance entities are required to follow the accounting treatment for derivative contracts, if any, prescribed by the concerned regulators such as the Reserve Bank of India (RBI) in case of banking entities NBFCs, , Housing finance companies (HFCs) and Insurance Regulatory and Development Authority of India(IRDAI) in case of insurance entities. In case the concerned regulator has not prescribed any accounting treatment for derivative contracts, the recommendations contained herein should be followed.

The accounting for derivatives covered by this Guidance Note is based on the following key principles:
(i) All derivative contracts should be recognized on the balance sheet and measured at fair value.

[46] https://resource.cdn.icai.org/65422asb060421.pdf

(ii) If any entity decides not to use hedge accounting as described in this Guidance Note, it should account for its derivatives at fair value with changes in fair value being recognized in the statement of profit and loss.
(iii) If an entity decides to apply hedge accounting as described in this Guidance Note, it should be able to clearly identify its risk management objective, the risk that it is hedging, how it will measure the derivative instrument if its risk management objective is being met and document this adequately at the inception of the hedge relationship and on an on-going basis.
(iv) An entity may decide to use hedge accounting for certain derivative contracts and for derivatives not included as part of hedge accounting, it will apply the principles at (i) and (ii) above.
(v) Adequate disclosures of accounting policies, risk management objectives and hedging activities should be made in its financial statements.

Recognition of derivatives on the balance sheet at fair value

This Guidance Note requires that all derivatives are recognized on the balance sheet and measured at fair value since a derivative contract represents a contractual right or an obligation. Fair value in the context of derivative contracts represents the 'exit price' i.e. the price that would be paid to transfer a liability or the price that would be received when transferring an asset to a knowledgeable, willing counterparty. The fair value would also incorporate the effect of credit risk associated with the fulfilment of future obligations. The extent and availability of collateral should be factored in while arriving at the fair value of a derivative contract.

Hedge accounting

An entity is permitted but not required to designate a derivatives contract as a hedging instrument. Where it designates a derivative contract as a hedging instrument, it needs to, as a minimum:
(i) identify its risk management objective;
(ii) demonstrate how the derivative contract helps meet that risk management objective;
(iii) specify how it plans to measure the fair value of the derivative instrument if the derivative contract is effective in meeting its risk management objective (including the relevant hedge ratio);
(iv) document this assessment (of points (i), (ii), (v), (vi) and (vii) of this paragraph) at inception of the hedging relationship and subsequently at every reporting period;
(v) demonstrate in cases of hedging a future cash flow that the cash flows are highly probable of occurring.

(vi) conclude that the risk that is being hedged could impact the statement of profit and loss; and
(vii) adequately disclose its accounting policies, risk management objectives and hedging activities (as required by this Guidance Note) in its financial statements.

Certain derivative instruments that are traded on stock exchanges such as foreign exchange futures contracts or equity options / equity futures do not have such requirements and in those cases, in particular, it will be important to demonstrate compliance with the above criteria before hedge accounting can be applied.

In case a derivative contract is not classified as a hedging instrument because it does not meet the required criteria or an entity decides against such designation, it will be measured at fair value and changes in fair value will be recognized immediately in the statement of profit and loss.

Types of hedge accounting

This Guidance Note recognises the following three types of hedging;

- The fair value hedge accounting model is applied when hedging the risk of a fair value change of assets and liabilities already recognized in the balance sheet, or a firm commitment that is not yet recognized.
- The cash flow hedge accounting model is applied when hedging the risk of changes in highly probable future cash flows or a firm commitment in a foreign currency.
- The hedge of a net investment in a foreign operation.

Fair value hedge accounting model

A fair value hedge seeks to offset the risk of changes in the fair value of an existing asset or liability or an unrecognised firm commitment that may give rise to a gain or loss being recognized in the statement of profit and loss. A fair value hedge is a hedge of the exposure to changes in fair value of a recognized asset or liability or an unrecognized firm commitment, or an identified portion of such an asset, liability or firm commitment, that is attributable to a particular risk and could affect the statement of profit and loss.
An example of a fair value hedge is the hedge of a fixed rate bond with an interest rate swap, changing the interest rate from fixed to floating. Another example is the hedge of the changes in value of inventory using commodity futures contracts.

Cash flow hedge accounting model

A cash flow hedge seeks to offset certain risks of the variability of cash flows in respect of an existing asset or liability or a highly probable forecast transaction that may be reflected

in the statement of profit and loss in a future period. Under the cash flow hedge, the hedging instrument is measured at fair value, but any gain or loss that is determined to be an effective hedge is recognized in equity, for e.g. cash flow hedge reserves. This is intended to avoid volatility in the statement of profit and loss in a period when the gains and losses on the hedge item are not recognized therein.

Net Investment Hedging

An investor in a non-integral operation is exposed to changes in the carrying amount of the net assets of the foreign operation arising from the translation of those assets into the reporting currency of the investor.

Principles relating to the hedge of a net investment in a foreign operation are:

- Foreign exchange gains and losses on a net investment in a non-integral foreign operation are recognised directly in equity. This occurs through the translation of the non-integral foreign operation's net assets for purposes of consolidation.
- Gains and losses of foreign currency derivatives used as hedging instruments are recognised directly in equity to the extent that the hedge is considered to be effective.
- The ineffective portion of the gains and losses on the hedging instruments is recognised in the statement of profit and loss immediately.
- Any net deferred foreign currency gain and losses i.e. arising from both the net investment and hedging instruments are recognised in the statement of profit and loss at the time of disposal of the foreign operation.

Presentation in the financial statements

Derivative assets and liabilities recognized on the balance sheet at fair value should be presented as current and non-current based on the following considerations:

- Derivatives that are intended for trading or speculative purposes should be reflected as current assets and liabilities.
- Derivatives that are hedges of recognized assets or liabilities should be classified as current or non-current based on the classification of the hedged item.
- Derivatives that are hedges of forecasted transactions and firm commitments should be classified as current or non-current based on the settlement date / maturity dates of the derivative contracts.
- Derivatives that have periodic or multiple settlements such as interest rate swaps should not be bifurcated into current and non-current elements. Their classification should be based on when a predominant portion of their cash flows are due for settlement as per their contractual terms.

This Guidance Note does not permit any netting of assets and liabilities except where basis adjustment is applied under cash flow hedges and hence all the amounts presented in the financial statements should be gross amounts. Amounts recognized in the statement of profit and loss for derivatives not designated as hedges may be presented on a net basis.

Disclosures in financial statements

An entity should satisfy the broader disclosure requirements by describing its overall financial risk management objectives, including its approach towards managing financial risks. Disclosures should explain what the financial risks are, how the entity manages the risk and why the entity enters into various derivative contracts to hedge the risks. An entity should disclose the methodology used to arrive at the fair value of derivative contracts (whether used for hedging or not) and the extent of fair value gains/losses recognized in the statement of profit and loss and in equity. The entity should disclose its risk management policies. An entity is also required to make specific disclosures about its outstanding hedge accounting relationships. Insofar as disclosure of derivatives designated for hedging foreign currency risks are concerned, the same should be disclosed in the format specified under this Guidance Note, which also requires disclosure of all foreign exchange assets and liabilities including contingent liabilities, both hedged and unhedged.

Hedge Effectiveness:

Hedge effectiveness is the degree to which changes in the fair value or cash flows of the hedged item that are attributable to a hedged risk are offset by changes in the fair value or cash flows of the hedging instrument. Hedge ineffectiveness is the extent to which the changes in the fair value or the cash flows of the hedging instrument are greater or less than those of the hedged item. This Guidance Note does not prescribe one single method for how hedge effectiveness testing and ineffectiveness measurement should be conducted. The appropriate method for each entity will depend on the facts and circumstances relevant to each hedging programme and be driven by the risk management objective of the entity. Entities may apply commonly used measures such as critical terms match, dollar offset or regression methods as appropriate to assess hedge effectiveness.

9.1.2 Accounting Standard (AS) 30

Accounting Standard (AS) 30, “Financial Instruments: Recognition and Measurement”, issued by the Council of the Institute of Chartered Accountants of India, specify the

principles for the accounting of derivatives contracts. The objective of this Standard is to establish principles for recognizing and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. Accounting Standard (AS) 30 has defined derivatives as:

A derivative is a financial instrument or other contract within the scope of this Standard with all three of the following characteristics:
(a) its value changes in response to the change in a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, or other variable, provided in the case of a non-financial variable that the variable is not specific to a party to the contract (sometimes called the 'underlying');
(b) it requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors; and
(c) it is settled at a future date.

AS 30 is applicable to exchange-traded derivatives contracts because the above conditions are satisfied. Participants can refer to AS 30 and similar Indian Accounting Standards for further details.

9.2 Taxation of Exchange Traded Currency Derivatives:

The gains or losses arising from trading in Exchange traded derivatives are taxable under the head 'Profits and Gains from Business or Profession' (PGBP). Any expenditure relating to administration is considered to be deductible. The Income-tax Act classifies the business income into 'speculative' and 'non-speculative'. Though Income arising from speculative transactions are taxable under the head PGBP, yet they are treated differently and rigorously from non-speculative business income. Any loss arising from speculative transaction could be set off only from speculative income.

A transaction is deemed as speculative if it is periodically or ultimately settled otherwise than through actual delivery or transfer. However, Section 43(5) has specifically excluded

certain derivative transactions from the meaning of speculative transaction as these instruments are used for hedging underlying assets. Further, an eligible transaction in respect of trading in derivatives referred to in clause (*ac*) of section 2 of the Securities Contracts (Regulation) Act, 1956 (42 of 1956) carried out in a recognized stock exchange shall not be deemed to be a speculative transaction. Thus, income or loss from dealing in exchange traded currency derivatives shall be deemed as normal business income (non-speculative business) even though delivery is not effected in such transactions. Consequently, any loss arising from Exchange traded derivatives can be set off against any normal business income. The business income of an assessee is charged to tax at normal rates as applicable in case of an assessee.

However, securities held by FPIs are always treated as capital asset. Therefore, any profit and gains arising to FPI from derivative transactions shall always be taxable under the head capital gain. Generally, if the derivatives positions are held for less than 12 months, any gain or loss arising to an FPI from dealing in derivatives shall be chargeable to tax as short-term capital gain or loss.

9.2.1 Computation of Turnover

The Income-tax Act does not contain any provision or guidance for computation of turnover in Exchange traded derivatives trading. However, the Guidance Note on Tax Audit issued by the ICAI prescribes the method of determining turnover which shall be as under:

a) The total of favourable and unfavourable differences is taken as turnover.

b) Premium received on sale of options is also to be included in turnover.

c) In respect of any reverse trades, the difference thereon should also form part of the turnover.

The computation of turnover is a very important factor as the applicability of tax audit is determined on the basis of turnover. Also, if the taxpayer is opting for the presumptive taxation scheme under section 44AD (subject to total turnover not exceeding Rs. 2 crores), he can declare the profit at the rate of 6% of such turnover in case of receipts in cheque or any digital modes or 8% of turnover in case of cash receipts. Further, A tax audit will be mandatory if the turnover or income arising from trading of Exchange traded derivatives is above and beyond Rs 2 crore. The Union Budget for FY 2024-25 has increased the turnover limit to Rs. 3 crore subject to a condition that 95% of the receipts must be through online modes.

9.2.2 Scheme of Taxation

The income from Exchange traded derivatives trading can be offered to tax under the normal scheme of taxation or the presumptive scheme of taxation under Section 44AD (subject to total turnover not exceeding Rs. 2 crores). Under the presumptive scheme, the investor can choose to declare the profits at the rate of 6% of turnover as the payment is always received through banking channels. The presumptive income computed as per the prescribed rate is the final income and no further expenses will be allowed or disallowed. Also, the person opting for this scheme is not required to maintain the books of accounts prescribed under section 44AA and get them audited. Further, he can pay 100% of the advance tax in a single instalment up to 15th March of the relevant financial year. As mentioned above, the Union Budget for FY 2024-25 has increased this turnover limit to Rs. 3 crore subject to a condition that 95% of the receipts must be through online modes.

9.2.3 Set-off and Carry Forward of Losses

The losses from the trading of Exchange traded derivatives, if treated as a normal business loss, can be set off against the income from the other heads. However, the business loss cannot be set off against the income from salary. The unabsorbed loss can be carried forward up to 8 assessment years. It can be set off only against the business income in the subsequent years. It is important to note that the assessee is entitled to carry forward the business loss provided the return of income is filed on or before the due date. If such return is not filed within the prescribed due date, the right to carry forward and set-off is lost.

Sample Questions and Answers

1. Guidance Notes on Accounting for Derivatives Contract recognize following type of hedging for hedge accounting.
    a. fair value hedge accounting model
    b. The cash flow hedge accounting model
    c. The hedge of a net investment in a foreign operation
    d. All of the above

2. Which of the following accounting standards of Institute of Chartered Accountants of India (ICAI) defines the accounting for derivatives?
    a. AS 6
    b. AS 10
    c. AS 9
    d. AS 30

3. Usually, income from Exchange traded derivatives is treated as _____.
    a. Business income
    b. Income from other sources
    c. Salary income
    d. None of the above

4. Loss on derivative transactions which are carried out in a "recognized stock exchange" can be set off against any other income during the year except _____.
    a. Business income
    b. Income from other sources
    c. Salary income
    d. None of the above

5. Loss on derivative transactions which are carried out in a "recognized stock exchange" can be carried forward for period _____ assessment years
    a. 5
    b. 6
    c. 7
    d. 8

CHAPTER 10: CODE OF CONDUCT AND INVESTOR PROTECTION MEASURES

LEARNING OBJECTIVES:

After studying this chapter, you should know about following:

- Code of Conduct for Broker
- Investor Grievance Mechanism
- Arbitration Mechanism
- Risk Disclosure to Client and KYC

10.1 SEBI's Code of Conduct for Brokers

Schedule II of the SEBI (Stock Brokers) Regulations, 1992 prescribes a code of conduct for securities brokers, which is discussed below:

A. General

1. Integrity: Shall maintain high standards of integrity, promptitude and fairness in the conduct of all its business.
2. Exercise of Due Skill and Care: Shall act with due skill, care and diligence in the conduct of all its business.
3. Manipulation: Shall not indulge in manipulative, fraudulent or deceptive transactions or schemes or spread rumors with a view to distorting market equilibrium or making personal gains.
4. Malpractices: Shall not create a 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.
5. Compliance with Statutory Requirements: Shall abide by all the provisions of the Act and the rules, regulations issued by the Government, the Board and the stock exchange from time to time as applicable.

Duty towards the Investor

1. A stock-broker, in his dealings with the clients and the general investing public, shall faithfully execute the orders for buying and selling of securities at the best available market price and not refuse to deal with a small Investor merely on the ground of the volume of business involved.
2. A stock-broker shall promptly inform his client about the execution or non-execution of an order and make prompt payment in respect of securities sold and arrange for prompt delivery of securities purchased by clients.

3. A stock-broker shall issue without delay to his client a contract note for all transactions in the format specified by the stock exchange.
4. A stock-broker shall 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.
5. A stock-broker shall not encourage sales or purchases of securities with the sole object of generating brokerage or commission. He shall 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 in particular securities and enabling himself to earn brokerage or commission thereby.
6. A stock-broker shall 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 stock-broker.
7. A stock-broker, when dealing with a client, shall disclose whether he is acting as a principal or as an agent and shall 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 shall inform the client accordingly and shall not seek to gain a direct or indirect personal advantage from the situation and shall not consider clients' interests inferior to his own.
8. A stock-broker shall 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.
9. A stock broker or any of his employees shall 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 the interest of his dependent family members and the employer including their long or short position in the said security has been made, while rendering such advice. In case an employee of the stock broker is rendering such advice, he shall 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.
10. A stock-broker should have adequately trained staff and arrangements to render fair, prompt and competence services to his clients.

Duty towards Other Stock-Brokers

1. A stock-broker shall co-operate with the other contracting party in comparing unmatched transactions. A stock-broker shall not knowingly and wilfully deliver

documents which constitute bad delivery and shall co-operate with other contracting party for prompt replacement of documents which are declared as bad delivery.

2. A stock-broker shall extend fullest co-operation to other stock-brokers in protecting the interests of his clients regarding their rights to dividends, bonus shares, right shares and any other right related to such securities.
3. A stock-broker shall carry out his transactions with other stock-brokers and shall comply with his obligations in completing the settlement of transactions with them.
4. A stock-broker shall not advertise his business publicly unless permitted by the stock exchange.
5. A stock-broker shall not resort to unfair means of inducing clients from other stock-brokers.
6. A stock-broker shall 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 SEBI and the stock exchange.

10.2 Investor Grievance

Investors are the backbone of the securities market. Protection of the interests of investors is of paramount importance for the intermediaries, stock exchanges and the regulators associated with the markets. Regulations and compliance efforts have been put in place to protect the investors against any intentional or unintentional wrong-doing or activities of any of the participants in the market. However, there may be occasions when the investors have grievances against a) intermediary/broking firm through which it is carrying out the transactions or/and (b) against the company of which it is a shareholder. In the event of any grievance(s), the investor is first required to approach the concerned intermediary/trading firm/company for settling his/her grievance. If the investor is not satisfied, then he/she can approach the stock exchange(s) of which the broking firm is a member and/or the investor can approach the securities market regulator-SEBI. The stock exchange(s) and SEBI then independently take up the grievances against its registered intermediaries and advises the registered trading member to redress the investor grievance.

10.2.1 Online Dispute Resolution in the Indian Securities Market

According to the current system of complaint resolution, any investor having a complaint can first approach the stock exchange for resolution of the complaint and if not satisfied, lodge a complaint with the SCORES. After exhausting these avenues, any complainant who is not satisfied, may opt for the arbitration mechanism of the exchanges. Stock exchanges and depositories, together known as 'Market Infrastructure Institutions'

(MIIs), have a robust and time-bound grievance redressal process. The current mechanism caters to disputes between stock brokers and their clients.

SEBI has proposed the strengthening of the existing mediation/conciliation and arbitration mechanism administered by the MIIs and extending the mechanism to the resolution of complaints against all intermediaries in the Indian securities market. With this view, SEBI has directed the MIIs to establish a common Online Dispute Resolution (ODR) portal[47]. The ODR portal harnesses online conciliation and online arbitration for resolution of disputes arising in the securities markets.

Disputes between Investors/Clients and listed companies (including their registrar and share transfer agents) or any of the specified intermediaries/regulated entities in securities market may be resolved through the ODR portal. Listed companies / specified intermediaries / regulated entities OR their clients/investors (or holders on account of nominations or transmission being given effect to) may also refer any unresolved issue of any service requests / service-related complaints[48] for due resolution through the ODR portal.

The following is a list of specified intermediaries and regulated entities against whom investors may invoke the ODR process:

1.AIFs- Fund Managers
1A. Banker to an Issue and Self-Certified Syndicate Banks
2. CIS –Collective Investment management company
2A. Commodities Clearing Corporations
3. Depository Participants
4. Investment Advisors
5. InvITs -Investment Manager
5A. Merchant Bankers
6. Mutual Funds -AMCs
7. Portfolio Managers
8. Registrars and Share Transfer Agents
9. REITs –Managers
9A. Research Analyst
10. Stock brokers (including Online Bond Platforms & Online Bond Platform Providers).

[47] SEBI Circular No. SEBI/HO/OIAE/OIAE_IAD-1/P/CIR/2023/131 dated Jul 31, 2023, Online Resolution of Disputes in the Indian Securities Market

[48] Service-related complaints shall include non-receipt/ delay of account statement, non-receipt/ delay of bills, closure of account/branch, technological issues, shifting/closure of branch without intimation, improper service by staff, freezing of account, alleged debit in trading account, contact person not available, demat account transferred without permission etc.

Disputes between institutional or corporate clients and specified intermediaries / regulated entities in securities market can be resolved, at the option of the institutional or corporate clients. :

a. in accordance with this circular and by harnessing online conciliation and/or online arbitration as specified in this circular, OR

b. by harnessing any independent institutional mediation, independent institutional conciliation and/or independent arbitration institution in India. The seat and venue of mediation, conciliation and/or arbitration shall be in India and can be conducted online.

10.2.2. Empanelment of an ODR institution

An MII shall empanel one or more ODR Institutions as a service provider and enter into relevant agreements with such ODR Institution(s) in accordance with guidelines issued by the SEBI. MII should ensure that the primary/first ODR Institution to be empaneled with it, is not empaneled as the primary/first ODR Institution with any other MII. An MII shall collect requisite information of a ODR Institution desirous of being empaneled for providing ODR services for the Indian Securities Market. Such information shall include: copies of registration certificate, memorandum of association and articles of association/ constitutional documents, rules governing conciliation and arbitration, PAN, Legal Entity Identifier number, composition of its board of directors, governing bodies and advisory councils, if any, and details of its shareholders and investors, and list of its authorized officials / signatories. An ODR institution shall also furnish other credentials such as details of conciliators and arbitrators empaneled by the ODR institution, norms of such empanelment, fees, costs and charges levied for conduct of online conciliation and arbitration etc. An ODR Institution empaneled by an MII should be/become a member of association/trade body having as its members MII empaneled ODR Institutions for the Indian Securities Market.

10.2.3 Introduction of the common Online Dispute Resolution Portal

- The MIIs shall, in consultation with their empanelled ODR Institutions, establish and operate a common Online Dispute Resolution Portal ("ODR Portal"). The MIIs will make joint efforts to develop and operationalize the ODR Platform.
- The MIIs shall enter into an agreement amongst themselves, which will, inter alia, outline the nature of their responsibilities, the cost of development, operating, upgradation, maintenance and for inspection and/or audit of the ODR Platform.
- SEBI shall from time to time, undertake inspection in order to ensure proper functioning of ODR Portal and MIIs shall provide complete cooperation to SEBI in this regard.

- Each MII will identify and empanel one or more independent ODR Institutions which are capable of undertaking time-bound online conciliation and/or online arbitration (in accordance with the Arbitration and Conciliation Act, 1996 and any other applicable laws) that harness online/audio-video technologies and have duly qualified conciliators and arbitrators. ODR Portal shall establish due connectivity with the SEBI SCORES portal / SEBI Intermediary portal.
- All the MIIs shall participate on the ODR Portal and provide investors/clients and listed companies, their specified intermediaries access to the ODR portal for resolution of disputes between an investor/client and listed companies and the specified intermediaries / regulated entities in the securities market, through time bound online conciliation and/or online arbitration**.**
- All Market participants in the securities market shall enroll on the ODR Portal within the timelines specified in SEBI circular and shall be deemed to have been enrolled on the ODR Portal at the end such specified timeline.

10.2.4 Initiation of the dispute resolution process

Under the new regulations, an aggrieved investor or client must take up his grievance by directly lodging a complaint against the market participant. If the grievance is not resolved satisfactorily, the investor or client may escalate the same directly to MIIs (Exchanges or Depsositories) or through the SCORES portal of SEBI. If the grievance is not resolved through these means, the investor or client may initiate the dispute resolution process through the ODR portal.

Alternatively, the investor/client can initiate resolution through ODR portal if the grievance lodged against the market participant was not satisfactorily resolved or at any stage of the subsequent escalations mentioned earlier. The market participants can also initiate resolution through ODR portal after giving at least 15 days' notice to the investor/client.

10.2.5 ODR Portal and Allocation System

The ODR Portal shall have the necessary features and facilities to, inter alia, enrol the investor/client and the Market Participant, and to file the complaint/dispute and to upload any documents or papers pertaining thereto. Along with an complaint the claimant may need to submit necessary document / record which include:

- Statement explaining the dispute and the nature of transactions, separating delivery-based transaction and squared-off transactions.
- Contract Notes pertaining to the transaction in dispute.
- Bills issued/received by the applicant.
- Copy of the accounts statement given by broker.

- Documents pertaining to receipt/delivery of shares.
- Any other documents in support of the claim.
- An accurate list of the documents produced.
- PAN/ GIR No. of the applicant.
- Certified copy of the Balance Sheet of the applicant showing the dues.
- Copy of acknowledgement of the latest Income Tax Return.
- Margin Statement
- Member Constituent Agreement
- Risk Disclosure Document etc.

The ODR portal shall also have a facility to provide status updates on the complaint/dispute which would be obtained from the ODR Institutions.

A complaint/dispute initiated through the ODR Portal will be referred to an ODR Institution empaneled by a MII and the allocation system on a market-wide basis will be a round-robin system to govern the allocation of each such dispute among all such empaneled ODR Institution/s. References to ODR Institutions shall be made after a review of such complaint/dispute by the relevant MII with the aim of amicable resolution and such review shall be concluded within 21 calendar days.

10.2.6 Conciliation

- The ODR Institution that receives the reference of the complaint/dispute shall appoint a sole independent and neutral conciliator from its panel of conciliators. Such conciliator shall have relevant qualifications or expertise and should not be connected with or linked to any disputing party. MIIs shall ensure that appropriate measures are put in place regarding appointment of conciliators by the ODR Institutions.
- The conciliator shall conduct one or more meeting/s for the disputing parties to reach an amicable and consensual resolution within 21 calendar days (unless extended for a maximum period of 10 calendar days by written or electronic consent of the disputing parties) from the date of appointment of conciliator by the ODR Institution, which shall do so within 5 days of receipt of reference of the complaint/dispute by the ODR Institution.

If the process of conciliation is successful, the same shall be concluded by a duly executed settlement agreement between the disputing parties. Such an agreement shall be executed and stamped through an online mode, as permissible in law.

In case the matter is not resolved through the conciliation process within the 21 calendar days (or within the extended period of 10 calendar days):

a. the conciliator should ascertain the admissible claim value of the complaint/dispute that the conciliator determines is payable to the investor/client and notify the disputing parties as well as the ODR Institution and the MII of the same.
b. An investor/client may pursue online arbitration (which will be administered by the ODR Institution which also facilitated the conduct of conciliation) on or after the conclusion of a conciliation process.
c. In case the Market Participant wishes to pursue online arbitration, then the Market Participant must deposit 100% of the admissible claim value with the relevant MII prior to initiation of the online arbitration.

In case the Market Participant fails to deposit the amount then they may not initiate online arbitration and they may also face consequences as determined necessary or appropriate by the Stock Exchange. On an application made by the investor/client in this behalf to the relevant MII, the MII may, from the deposit received, release such amount to the investor/client not exceeding Rs 5,00,000/- (Rupees Five lakhs) or such sum as may be specified from time to time. On or before release of the said amount to the investor/client, the MII shall obtain appropriate undertaking/ indemnity / security in such form, manner and substance from the investor/client to ensure return of the amount so released, in case the arbitration proceedings are decided against the investor/client.

10.2.7 Fees and charges

The fees as stipulated in the SEBI circular may be borne by the MIIs and will be recoverable by them from the concerned Market Participant against whom the complaint/dispute is raised. Such fees shall be borne directly by the concerned Market Participant if it is initiating the dispute process. The Market Participant shall not shift the incidence of such fees to the investor/client at any time.

Unsuccessful Conciliation: In the event the disputing parties are not able to arrive at a settlement within the stipulated time (or such extended period as agreed to by them) it shall be said to be unsuccessful conciliation.

Late Fees: Initiation of conciliation process after six months from the date of transaction/dispute arising will require payment of Rs 1000/- by the initiator of the complaint/dispute (whether such initiator be the investor/client or the Market Participant) and shall be collected by the MIIs and applied as specified by the Board from time to time.

10.2.8 Arbitration

Arbitration, which is a quasi-judicial process, is an alternate dispute resolution mechanism prescribed under the Arbitration and Conciliation Act, 1996. When the investor/client and/or the Market Participant pursue online arbitration, the ODR Institution shall appoint a sole independent and neutral arbitrator from its panel of arbitrators within 5 calendar days of reference and receipt of fees, cost and charges as applicable. Such arbitrator shall have relevant qualifications or expertise and should not be connected with or linked to any disputing party.

In the event that the aggregate of the claim and/or counter-claim amount exceeds Rs 30,00,000/- (Rupees Thirty Lakhs) or such amount as specified from time to time, the matter shall be referred to an **Arbitral Tribunal consisting of three Arbitrators** (within 5 calendar days of reference) and receipt of fees, cost and charges as applicable. MIIs shall ensure that measures are put in place regarding appointment of arbitrators by the ODR Institutions.

- Value of claim and/or counter-claim being in excess of Rs 1,00,000/- (Rupees One Lakh), the Sole Arbitrator or Arbitral Tribunal shall conduct one or more hearing/s and pass the arbitral award within 30 calendar days (or such other period as the Board may specify) of the appointment in the matter.
- When the value of claim and/or counter-claim is Rs 1,00,000/- (Rupees One Lakh) or below (or such other sum as the SEBI may specify from time to time), the Sole Arbitrator shall conduct a document-only arbitration process and pass the arbitral award within 30 calendar days (or such other period as the Board may specify) of the appointment in the matter[49].However, the arbitrator, for reasons to be recorded in writing/electronically , may grant a hearing to the parties to the dispute. The Sole Arbitrator or Arbitral Tribunal shall be at liberty to extend such time for disputes exceeding claims and/or counterclaims of Rs 1,00,000/- (Rupees One Lakh) (or such other sum as the Board may specify from time to time), upto a further period of 30 calendar days (or such other period as the Board may specify) and for reasons to be recorded in writing/electronically, when the matter requires detailed consideration. The Sole Arbitrator or Arbitral Tribunal may, having regard to the nature of the claim and/or counterclaim, provide interim relief as may be required for reasons to be recorded after affording hearing to the parties to the dispute. The parties may make an application under the relevant section of the Arbitration and Conciliation Act, 1996 for correction/rectification of the award.

[49] If parties to the dispute do not provide any representation in the arbitral proceedings, the arbitrator may pass an ex-parte order after giving a notice of 7 calendar days to the concerned non-cooperative party(ies).

Upon the conclusion of the arbitration proceedings and issuance of the arbitral award, subject to the terms of the arbitral award, when such arbitral award requires payment of any amount by the Market Participant or performance by it of a certain nature, then such payment shall be made by the Market Participant within a period of 15 calendar days from the date of the arbitral award (unless such award requires payment sooner), and/or performance within such period as specified by the arbitral award. MII shall provide necessary assistance to the investor/client for enforcement of the arbitral award.

Upon the issuance/pronouncement of the arbitral award, the party against whom order has been passed, will be required to submit its intention to challenge the award under Section 34 of the Arbitration Act within 7 calendar days in the ODR Portal for onward notification to the party/ies in whose favour the arbitral award has been passed and the relevant MII. Further, in the course of such a challenge, if a stay is not granted within 3 months from the date of the receipt of award, complete adherence to the terms of the arbitral award must be done.

If the Market Participant wishes to challenge such an arbitral award, then the Market Participant must deposit 100% of the amounts payable in terms of the arbitral award with the relevant MII prior to initiation of the challenge. In case the specified intermediary/regulated entity fails to deposit the amount then they may also face consequences as determined necessary or appropriate by the Stock Exchange. The MII shall also monitor the due compliance by the Market Participant with the terms of the arbitral award/judgement of the appellate forum.

10.2.9 Form of Proceedings for Conciliation and Arbitration

The ODR Institutions shall conduct conciliation and arbitration in the online mode, enabling online/audio-video participation by the investor/client, the Market Participant and the conciliator or the arbitrator as the case may be. The investor/client may also participate in such online conciliation and arbitration by accessing/utilizing the facilities of Investor Service Centers (ISCs) operated by any of the MIIs. The venue and seat of the online proceedings shall be deemed to be the place:

a) In case of disputes between investor/client and listed companies (including their registrar and share transfer agents) or any of the specified intermediaries / regulated entities in securities market: where the investor resides permanently or, where the investor is not an individual, the place where it is registered in India or has its principal place of business in India, as provided in the relevant KYC documents

b) In case of disputes between institutional or corporate clients and specified intermediaries / regulated entities in securities market:

(i) where the institutional or corporate clients has its registered in India or has its principal place of business in India, as provided in the relevant KYC documents, and

(ii) if in case the institutional or corporate client is not registered in India or does not have its principal place of business in India, then the place where the specified intermediaries / regulated entities in securities market as specified in Schedule B has its registered in India or has its principal place of business in India or

(iii) such court of competent jurisdiction in India as the institutional or corporate clients and specified intermediaries / regulated entities in securities market may agree upon.

10.2.10 Arbitration fees

The fees for the arbitration process will be as under:

Claim Amount	Rs 0 –1 lakh *	above Rs 1 lakh – 10 lakh	above Rs 10 lakh – 20 lakh	above Rs 20 lakh – 30 lakh	above Rs 30 lakh – 50 lakh	Rs 50 lakh – Rs. 1 Crore***	Above Rs One Crore
Arbitrator's fee (to be collected by ODR Institution and paid to Arbitrator)	4800	8000	12000	16000	600000**	120000**	1,20,000 or 1% of the claim value
ODR Institution's fees, in addition to the arbitrator's fees (to be collected by ODR Institution)	600	1000	1500	2000	7500	15000	35000
Applicable GST, Stamp Duty, etc. on actual outgoings							

* This slab will be applicable for service request related disputes also

** Fee for panel of arbitrators shall be split into a ratio of 40:30:30 with the higher proportion being payable to the arbitrator writing the arbitral award

*** For 1 crore & above advalorem fees @ 1% of the claim value towards arbitration fees and Rs. 35000 towards ODR institution's fees.

Late Fees: Arbitration initiated after one month of failure of conciliation and upto six months, the fees payable would be double of the non-refundable fees specified in the table above. Arbitration initiated after six months by a Market Participant will require payment of, additional fee of 50% of the fees, specified in the table above applicable per additional month of delay and which shall be on non-refundable basis. Such late fees shall be collected by the MIIs and applied in relation to operationalization and effective functioning of the ODR Platform.. The concerned ODR institution will collect the fees on behalf of MIIs.

10.2.11 Responsibilities of Market Participants under ODR

All agreements, contractual frameworks or relationships entered into by Market Participants with investors/clients in the Indian Securities market presently existing or entered into hereafter shall stand amended or be deemed to incorporate provision to the effect that the parties agree to undertake online conciliation and/or online arbitration by participating in the ODR Portal and/or undertaking dispute resolution in the manner specified in this Circular.

The Market Participants shall promptly attend to all complaints or disputes raised by its investors or clients in accordance with applicable SEBI rules, regulations and circulars. The communications shall clearly specify, the availability of the SCOREs portal and the ODR Portal to the investor/client and that the same could be accessed by such investor/client if unsatisfied with the response (or the lack thereof) of the Market Participant.

The Market Participants shall duly train their staff in attending to complaints/disputes and in handling the references arising from the SCOREs portal or the ODR Portal, and in participating in online conciliation and arbitration. Due cooperation and coordination with the MIIs and with the ODR Institutions shall be ensured by the Market Participants.

10.3 Handling of Investor's claims / complaints in case of default of a Trading Member / Clearing Member (TM/CM)

Default of TM/CM

Following steps are carried out by Stock Exchange for benefit of investor, in case stock broker defaults:

- Circular is issued to inform about declaration of Stock Broker as Defaulter.
- Information of defaulter stock broker is disseminated on Stock Exchange website.

• Public Notice is issued informing declaration of a stock broker as defaulter and inviting claims within specified period.
• Intimation to clients of defaulter stock brokers via emails and SMS for facilitating lodging of claims within the specified period.

Following information is available on Stock Exchange website for information of investors:
• Norms for eligibility of claims for compensation from IPF.
• Claim form for lodging claim against defaulter stock broker.
• FAQ on processing of investors' claims against defaulter stock broker.
• Provision to check online status of client's claim.

In order to bring about transparency in the Investor Grievance Redressal Mechanism, it has been decided that all the Stock Exchanges / Depositories / Clearing Corporations shall disclose on their websites, the data on complaints received against them and redressal thereof, latest by 7thof succeeding month, as per the format specified by SEBI.

10.4 Investor Protection Fund

The Central Government, vide notification No. F. No. 14/4/SE/85 dated August 22, 1985, has stipulated the setting up of the Investor Protection Fund (IPF) by Stock Exchanges. This fund should take care of legitimate investment claims which are not of speculative nature of the clients of defaulting member(s). The Investor's Protection Fund is a fund established and maintained by the Exchanges with an aim to protect the interests of the clients of the trading members of the Exchange, who may have been declared defaulters or who may have been expelled, under the provisions of the Rules, Bye-laws and Regulations of the Exchange. The Investor Protection Fund/Customer Protection Fund (hereinafter referred to as IPF/CPF) shall be administered by way of a Trust created for the purpose.

SEBI has laid down comprehensive guidelines for Investor Protection Fund and Investor Services Fund at Stock Exchanges and Depositories[50]. The salient features of the circular are given below.

1. All stock exchanges and depositories shall establish an Investor Protection Fund (IPF). The IPF of the stock exchange and depository shall be administered through separate trusts created for the purpose.
2. The following contributions shall be made by the Stock Exchange to the IPF:

[50] https://www.sebi.gov.in/legal/circulars/may-2023/comprehensive-guidelines-for-investor-protection-fund-and-investor-services-fund-at-stock-exchanges-and-depositories_71925.html

a) 1% of the listing fees received , on a quarterly basis.

b) 100% of the interest earned on the 1% security deposit kept by the issuer companies at the time of the offering of securities for subscription to the public, immediately on refund of the deposit.

c) Penalty collected by stock exchanges from Trading Members(TMs) for deficiency in modification of client code, if any, pursuant to SEBI Circular No.CIR/DNPD/6/2011 dated July 05, 2011.

d) Penalty collected by stock exchanges from TMs for default in pay-in for certain trades during periodic call auction for Illiquid scrips, if any, pursuant to SEBI Circular No. CIR/MRD/DP/ 6/2013 dated February 14, 2013.

e) Penalties collected by stock exchanges from their listed companies for non-compliance with various requirements of the SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 pursuant to SEBI Circular no. SEBI/HO/CFD/CMD/CIR/P/2020/12 dated January 22, 2020.

f) Penalty collected from TMs for default in pay-in by an investor in an Offer For Sale (OFS)transaction –10% of the order value pursuant to SEBI Circular No. SEBI/HO/MRD/MRD-PoD-3/P/CIR/2023/10 dated January 10, 2023.

g) Contribution towards the IPF based on the transaction charges collected from the members of the exchange, as per policy of the respective stock exchange.

h) At least 70% of interest or income received out of any investments made from the IPF.

i) Any other contribution as may be specified by SEBI from time to time.

3. The amount in IPF and any interest or income generated from the IPF of the stock exchanges shall be utilized to meet the legitimate investment claims of the clients of the defaulting TMs and to pay interim relief to investors, if any, in terms of paragraph-2(D) of circular No. SEBI/HO/MRD1/ICC1/CIR/P/2021/625dated September 02, 2021, if any.
4. At least 70% of interest or income from IPF received every year shall be ploughed back to IPF; 25% can be utilised for promotion of investor education and investor awareness.

5. The stock exchanges and depositories shall conduct half-yearly review (by end of March and September every year) to ascertain the adequacy of the IPF corpus. In case the IPF corpus is found to be inadequate, the same shall be enhanced appropriately.
6. The claims received against the defaulter TMs during the specified period shall be eligible for compensation from the IPF. Where the clients have dealt through the authorized persons of the defaulting TM, registered with the stock exchange, such clients will also be eligible for claims against the defaulting TM for compensation from the IPF. The claims of the investors or clients arising out of speculative transactions shall not be eligible for compensation from the IPF. Any claim received after three years from the date of expiry of the specified period may be dealt with as a civil dispute.
7. The stock exchanges shall fix suitable per investor compensation limits, in consultation with the IPF Trust and SEBI.
8. The Stock Exchanges shall ensure that once a TM has been declared defaulter, the claim(s)shall be placed before the Member Core Settlement Guarantee Fund Committee (MCSGFC)for sanction and ratification. MCSGFC's legitimate claims shall be sent to the IPF Trust for immediate disbursement of the amount.
9. The IPF Trust shall disburse the amount of compensation from the IPF to the investor and such a compensation shall not be more than the maximum amount fixed for a single claim of an investor.
10. The Stock Exchange will disclose the corpus of the IPF on its website and update the same on a monthly basis. It shall also disseminate the policy on processing investor claims from IPF.

10.5 Execution of Power of Attorney (PoA) by the Client in favour of the Stock Broker / Stock Broker and Depository Participant

SEBI vide circular no. CIR/MRD/DMS/13/2010 dated April 23, 2010, and circular no. CIR/MRD/DMS/28/2010 dated August 31, 2010, has issued guidelines and clarification for execution of Power of Attorney (PoA) by the client favouring Stock Broker / Stock Broker and Depository Participant to standardize the norms to be followed by stock brokers/ stock broker and depository participants while obtaining PoA from the clients. However, it has been observed that PoA is invariably obtained from the investor as part of the KYC and account opening process. Such PoA executed by clients has further found to have been misused by the stock brokers by taking authorization even for activities other than activities specified in SEBI circular. SEBI vide circular "Execution of Power of Attorney

(PoA) by the Client in favour of the Stock Broker / Stock Broker and Depository Participant" dated August 27, 2020, has reiterated the following:

I. PoA is optional and should not be insisted upon by the stock broker / stock broker depository participant for opening of the client account.

II. PoA executed in favour of stock broker / stock broker depository participant by the client shall be utilized

   a. For transfer of securities held in the beneficial owner accounts of the client towards Stock Exchange related deliveries / settlement obligations arising out of trades executed by clients on the Stock Exchange through the same stock broker.
   b. For pledging / re-pledging of securities in favour of trading member (TM) / clearing member (CM) for the purpose of meeting margin requirements of the clients in connection with the trades executed by the clients on the Stock Exchange.
   c. For limited purpose to apply for various products like Mutual Funds, Public Issues (shares as well as debentures), rights, offer of shares, tendering shares in open offers etc.

III. For limited purpose to transfer of funds from the bank account(s) of the clients for the following:

   a. For meeting the settlement obligations of the client(s)/ margin requirements of the client(s) in connection with the trades executed by the clients on the stock exchange through the same Stock Broker.
   b. For recovering any outstanding amount due from the client(s) arising out of clients trading activities on the stock exchanges through the same Stock Broker.
   c. For meeting obligations arising out of the client subscribing to such other products/facilities/services through the Stock Broker like Mutual Funds, Public Issues (shares as well as debentures), rights, offer of shares etc.
   d. Towards monies/fees/charges, etc. due to the Stock Broker/Depository Participant/ Principal payable by virtue of the client using/subscribing to any of the facilities/services availed by the client at his/her instance.

IV. All off-market transfer of securities shall be permitted by the Depositories only by execution of Physical Delivery Instruction Slip (DIS) duly signed by the client himself or by way of electronic DIS.

10.5.1 Execution of 'Demat Debit and Pledge Instruction' (DDPI) for transfer of securities towards deliveries / settlement obligations and pledging / re-pledging of securities[51]

In order to make the process more transparent and simpler, the two conditions as specified in paragraphs II (a) & (b) of section 10.5, is made part of a separate document viz. 'Demat Debit and Pledge Instruction'(DDPI), under which the clients shall explicitly agree to authorize the stock broker/stock broker and depository participant to access their BO account for the limited purpose of meeting pay-in obligations for settlement of trades executed by them. The DDPI shall serve the same purpose of PoA and significantly mitigate the misuse of PoA. The use of DDPI shall be limited only for the two purposes as mentioned in paragraph II (a) & (b) of section 10.5. The client may use the DDPI or opt to complete the settlement by issuing physical Delivery Instruction Slip (DIS) or electronic Delivery Instruction Slip (eDIS) themselves. Hence, with the implementation of this circular, PoA shall no longer be executed for the conditions specified in paragraph II (a) & (b) of section 10.5. For further information participants may refer SEBI circular.

10.6 Risk Disclosure to Client and KYC

10.6.1 Client Onboarding and KYC

This refers only to the opening of accounts for new clients. There are certain procedures to be followed before the account can be opened and the broker can execute the orders of the client. The standard documents which form a part of the account opening kit are:

1) **Client Account Opening Form** which is in two parts. a) Know Your Client (KYC) form capturing the basic information about the client and instruction/check list to fill up the form and b) Additional Document capturing additional information about the client related to trading account.
2) Document stating the **Rights & Obligations of stock broker** and client for trading on Exchanges (including additional rights & obligations in case of internet/wireless technology based trading).
3) Uniform Risk Disclosure Documents (RDD) for all segments/Exchanges detailing risk associated with dealing in the securities market.
4) Guidance Note detailing Do's and Don'ts for trading on Exchanges for the education of the investor.
5) Document describing the Policies and Procedures of the stock broker

[51] https://www.sebi.gov.in/legal/circulars/apr-2022/execution-of-demat-debit-and-pledge-instruction-ddpi-for-transfer-of-securities-towards-deliveries-settlement-obligations-and-pledging-re-pledging-of-securities_57546.html

6) A tariff sheet specifying various charges, including brokerage, payable by the client to avoid any disputes at a later date.

KYC is an acronym for “Know your Client”, a term commonly used for Customer Identification Process. SEBI has prescribed certain requirements relating to KYC norms for Financial Institutions and Financial Intermediaries including Mutual Funds and Stock Brokers to ‘know’ their clients. This entails verification of identity and address, financial status, occupation and such other personal information as may be prescribed by guidelines, rules and regulation.

SEBI in consultation with Unique Identification Authority of India (UIDAI) also allows brokers to accept e-KYC service provided by UIDAI as a valid process for KYC verification. The information containing relevant client details and photograph made available from UIDAI as a result of e-KYC process shall be treated as sufficient Proof of Identity and Address of the client. However, the client shall have to authorize the intermediary to access his data through UIDAI system. The intermediary shall perform verification of the client with UIDAI through biometric authentication (fingerprint or iris scanning).

Know Your Customer (KYC) and Customer Due Diligence (CDD) policies as part of KYC are the foundation of an effective Anti-Money Laundering process. The KYC process requires every SEBI registered intermediary to collect and verify the Proof of Identity (PoI) and Proof of Address (PoA) from the investor. The provisions as laid down under the Prevention of Money-Laundering Act, 2002, Prevention of Money-Laundering (Maintenance of Records) Rules, 2005, SEBI Master Circular on Anti Money Laundering (AML) dated October 15, 2019, and relevant KYC / AML circulars issued from time to time shall continue to remain applicable. Further, the SEBI registered intermediary shall continue to ensure to obtain the express consent of the investor before undertaking online KYC. The broker must ensure that the clients fill-up the KYC form and submit it to them. There are separate forms for individuals and non-individuals. Brokers must also ensure that the documents like PAN, proof of address document, proof of identity, bank account details, authority letter to settle account etc. are submitted along with the KYC forms by the clients. PAN is the sole identification number for all participants transacting in securities market, irrespective of the amount of transactions. The Broker while onboarding a client should satisfy himself about Know your Customer (KYC) norms and KYC documents of the client.

With a view to allow ease of doing business in securities market, SEBI vide its circular has allowed use of technology innovations which can facilitate online KYC.[52] Some of them are given below:

- The eSign mechanism of Aadhaar shall be accepted in lieu of wet signature on the documents provided by the investor. Even the cropped signature affixed on the online KYC form under eSign shall also be accepted as valid signature.
- Investor's KYC can be completed through online/App based KYC, in-person verification through video, online verification of Officially Valid Document (OVD) / other document under eSign as per procedure laid down the in the above circular.
- SEBI registered intermediaries are allowed to implement their own Application (App) for undertaking online KYC of investors.
- To enable ease of completing IPV (In person verification) of an investor, intermediary may undertake the VIPV (Video IPV) of an individual investor through their app.
- IPV/ VIPV would not be required when the KYC of the investor is completed using the Aadhaar authentication / verification of UIDAI. IPV / VIPV shall not be required by the Registered Intermediaries when the KYC form has been submitted online, documents have been provided through digi-locker or any other source which could be verified online.

The stock broker shall have documentary evidence of financial details provided by the clients who opt to deal in the derivative segment. In respect of other clients, the stock broker shall obtain the documents in accordance with its risk management system.
List of Illustrative documents

- Copy of ITR Acknowledgement
- Copy of Annual Accounts
- In case of salary income - Salary Slip, Copy of Form 16
- Net-worth certificate
- Bank account statement for last 6 months
- Copy of Holding statement of de-mat account
- Any other relevant documents substantiating ownership of assets
- Self-declaration along with relevant supporting documents

[52]https://www.sebi.gov.in/legal/circulars/apr-2020/clarification-on-know-your-client-kyc-process-and-use-of-technology-for-kyc_46565.html

SEBI Master Circular on Anti Money Laundering (AML) dated October 15, 2019, has advised member to categorized client as Low Risk, Medium Risk and High Risk based on the due diligence or KYC documents. By classifying the clients under various risk categories, effective monitoring and due diligence can be applied to thwart any illegal/unlawful transactions. The risk category of the client is based on several parameters such as location of client, nature of business activity, volume and value of turnover, nature of transaction, manner of payments, etc. Low risk clients are those who have a respectable social and financial standing and transactions and dealings are satisfactory with timely payment and delivery. Medium risk clients are generally those who indulge in speculative transactions in excess of their known sources of income. High risk clients are those with a history of default and their financial status is suspect. The following clients' onboarding need enhanced due diligence and close monitoring:

(1) Non-face to face client

(2) Clients with multiple accounts in similar names and large number of accounts having common parameters such as common partners/ directors/ promoters/ address/ email address/ telephone numbers or authorized signatory

(3) Unexplained transfers between such multiple accounts

(4) Unusual activity compared to past transactions and use of different accounts by client alternatively

(5) Sudden activity in dormant accounts.

The list is not exhaustive. It is upon member to have a robust framework to identify clients with high risk which may need to go through enhanced due diligence.

Following are the additional requirements as per current regulatory framework of SEBI (KYC Registration Agency) Regulations, 2011:

- All members have to be registered with any one or more KRAs registered by SEBI as per the SEBI KRA Regulations 2011.
- KYC for New Clients: a) The Member is to perform the initial due diligence of the new client whose KYC data are not available with the KRAs, upload the KYC information for both individuals and non-individuals with proper authentication on the system of the KRA, furnish the scanned images of the KYC documents to the KRA, and retain the physical KYC documents.
- The Member is to furnish the physical KYC documents or authenticated copies thereof to the KRA, whenever so desired by the KRA.
- A new client can be allowed to start trading / dealing on the exchange platforms through the member as soon as the client is registered by completing the necessary KYC documentation process. However, the Member shall be under obligation to

upload KYC details with proper authentication on the system of the KRA, within 10 days of receipt of the KYC documents from the client.

- KYC for existing Clients: (a) With respect to the existing clients, who are presently registered with the members but whose KYC data are not available with any of the KRAs, the member shall upload the KYC information with proper authentication on the system of the KRA, furnish the scanned images of the KYC documents to the KRA and retain the physical KYC documents.
- The members shall also upload the KYC details about their existing clients which are missing/not available with them by calling for the same from their clients.
- The member shall not use the KYC data of a client obtained from the KRA for purposes other than it is meant for; nor shall it make any commercial gain by sharing the same with any third party including its affiliates or associates.
- The Member shall have the ultimate responsibility for the KYC of its clients, by undertaking enhanced KYC measures commensurate with the risk profile of its clients.
- The member shall, at all times, have adequate internal controls to ensure the security and authenticity of data uploaded.

Central Know Your Client (CKYC)

Government of India has authorized the Central Registry of Securitization and Asset Reconstruction and Security interest of India (CERSAI), set up under subsection (1) of Section 20 of Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002, to act as, and to perform the functions of, the Central KYC Records Registry under the PML Rules 2005, including receiving, storing, safeguarding and retrieving the KYC records in digital form of a "client", as defined in clause (ha) sub-section (1) of Section 2 of the Prevention of Money Laundering Act, 2002 . As per the 2015 amendment to PML (Maintenance of Records) Rules, 2005 (the rules), every reporting entity shall capture the KYC information for sharing with the Central KYC Records Registry in the manner mentioned in the Rules, as per the KYC template for "individuals" finalised by CERSAI. CKYC refers to Central KYC (Know Your Customer), an initiative of the Government of India which aims to have a system which allows investors to complete their KYC only once before interacting with various entities across the financial sector. CKYC is managed by CERSAI (Central Registry of Securitization Asset Reconstruction and Security Interest of India), which is authorized by Government of India to function as the Central KYC Registry (CKYCR). Thus, CKYCR will act as centralized repository of KYC records of investors in the financial sector with uniform KYC norms and inter-usability of the KYC records across the sector. CKYC requires additional information (for e.g. - investor's maiden name, mother's name, FATCA information etc.) to be collected and submitted to CERSAI for completion of the CKYC formalities of an investor. Initially, CKYC is applicable only to Individuals (both Resident Individuals and Non-Resident Individuals (NRIs)).

CKYCR, in its communication no. CKYC/2020/11 dated January 04, 2021, has specified that since CKYCR is fully operational for individual clients, it has been decided to extend CKYCR to Legal Entities (LE) as well. Accordingly, trading members required to upload the KYC records of LE accounts opened on or after April 01, 2021 on to CKYCR in terms of Rule 9 (1A) of the Prevention of Money Laundering (Maintenance of Records) Rules, 2005.

Unique Client Code (UCC)

In 2001, SEBI made it mandatory for brokers to use unique client codes for all clients.[53] Once the formalities of KYC and other details thereon are complete, each client is assigned a unique client code (UCC) by the broker. This acts as an identity for the client with respect to the broker. SEBI has made it mandatory for all the brokers to use unique client codes for all clients while entering orders on their behalf. It is also mandated by SEBI, that the unique client code should be mapped with the PAN number of the client.

The broker has to provide the Stock Exchange(s) with the UCC and the PAN details of the client(s) before entering into any trade for the client. The Stock Exchanges provide an upload facility to the brokers through which the UCC and other client details are uploaded on the stock exchange platform on a regular basis. If the broker fails to register the unique client code with the Exchange, he is liable to be penalized.

10.6.2 Risk Disclosure

There are many risks involved while trading in Exchange traded derivatives market. It is very important that client should undertake transactions only if understand the nature of the relationship into which you are entering and the extent of their exposure to risk. Client should make aware that trading in Equity shares, derivatives contracts have varying element of risk and is generally not an appropriate avenue for someone of limited resources/limited investment and/or trading experience and low risk tolerance. Client needs to carefully consider whether such trading is suitable for him in the light of his financial condition. Further, client is solely responsible for adverse consequences or loss while trading on stock Exchanges. Client should be aware that there can be no guarantee of profits or no exception from losses while executing orders for purchase and/or sale of a derivative contract being traded on stock exchanges. Hence, it is very important that before onboarding client, member should ensure that the client signs a Risk Disclosure Document. By signing, client agrees that he is aware of all the risks involved in derivatives trading.

[53] SEBI Circular no: SMDRP/Policy/CIR-39/2001 dated July 18, 2001

The Risk Disclosure Document should specify broadly all the key risks while dealing / trading in derivatives markets, specifically mentioning about the following:

a. Price Fluctuation / Market Risk in Spot, Futures, Options or any other derivatives markets
b. Macroeconomic scenarios leading to unexpected price movement arising out of foreign exchange movement, government / central bank policy, global scenario's, etc.
c. Sudden liquidity dries down on any contract leading to adverse movement in prices or higher transaction costs or inability to unwind the position
d. Basis risk vis-à-vis spot prices/rates
e. Risks of position remaining unhedged
f. Risk in short positions in options
g. Broker's credit risk i.e., Counterparty risk
h. Risks arising out of technical snags, operational issues or technology related issues at the brokers' end, Exchange's servers or connectivity related issues in web trade
i. Other penalties which may arise due to open position limit breaches or margin short fall arising out of sharp fluctuation in market prices

10.6.3 Risks faced by investors trading in Exchange-Traded Currency Derivatives Markets

- Market Risk: Market risk is the risk of losses on financial investments caused by adverse movement of currency prices.
- Liquidity Risk: Liquidity refers to the ability of market participants to buy and/or sell securities / derivatives contracts expeditiously at a competitive price and with minimal price difference. There may be a risk of lower liquidity in some derivatives contracts as a result, client order may only be partially executed, or may be executed with relatively greater price difference or may not be executed at all.
- Leverage Risk: In Exchange Traded Currency Derivatives (ETCD), the amount of margin is small relative to the value of the derivatives contract, so the transactions are 'leveraged'. ETCD, which is conducted with a relatively small amount of margin, provides the possibility of great profit or loss in comparison with the margin amount. Due to which transactions in derivatives carry a high degree of risk.
- Execution Risk: There is risk that the buy or sell order placed in ETCD may not get executed at the desired price due to higher price volatility or due to type of order place. This may result in slippages.
- Basis risk: Basis risk is the potential risk that arises from mismatches in a hedged position. Basis risk occurs when a hedge is imperfect, so that losses are not exactly offset by the hedge. Basis risk can arise from standardization of derivatives contract for amount and expiry date. For example, you need to hedge an exposure of USD

9500, which requires the futures contracts of 9500 / 1000 = 9.5. Since we can buy or sell only in integral multiples, we need to buy or sell either nine or ten contracts. The former leads to under-hedging and the latter, to over-hedging. Second, the derivatives contract expires on every Friday day of the week or two working days prior to the last business day of the expiry month. If the exposure to be hedged has maturity of some other day in the month, there will be mismatch in the maturity. The discrepancy in the amount and maturity of exposure and the derivatives contract leaves a residual risk called basis risk. The basis risk may also arise in case the price movement in derivatives contract is not in proportionate to price movement in underlying asset.

- Risk due to cash settlement: Current ETCD contracts are cash settled, leads to imperfect hedging or arbitrage.

The list is not exhaustive. It is upon member / client to have a robust framework to identify various risk which may need to go through enhanced due diligence.

10.6.4 Suspicious Transaction Reporting (STR) to Financial Intelligence Unit (FIU)

SEBI Intermediaries including brokers shall monitor transactions of the client to ensure that those are not suspicious from money laundering or tax evasion point of view. The trades like reversal trade, profit transfer trades or trades associated with dabba trades are some of the examples of suspicious trades. FIU is a separate intelligence arm under finance ministry. The brokers are expected to report such transactions to FIU through online mechanism provided by FIU. Though, the Exchange through its surveillance mechanism may raise a suspicion about a client's transactions, it is the duty of the concerned broker to identify those suspicious transactions through its regular monitoring and report them to FIU. The brokers are not supposed to inform the client about this reporting, as it will lead to tipping-off information to the client, which is illegal and not allowed. At the same time, members should not depend solely upon the direction from Exchanges' surveillance mechanism but are required to have their own robust controls and procedures.

Intermediaries shall carefully go through all the reporting requirements and formats that are available on the website of FIU – IND under the Section Obligation of Reporting Entity – furnishing information – reporting format.
(https://fiuindia.gov.in/files/downloads/Filing_Information.html).These documents contain detailed directives on the compilation and manner/procedure of submission of the reports to FIU-IND. The Suspicious Transaction Report (STR) shall be submitted within 7 days of arriving at a conclusion that any transaction, whether cash or non-cash, or a

series of transactions integrally connected are of suspicious nature. The Principal Officer shall record his reasons for treating any transaction or a series of transactions as suspicious. It shall be ensured that there is no undue delay in arriving at such a conclusion. The Non-Profit Organization Transaction Reports (NTRs) for each month shall be submitted to FIU-IND by 15th of the succeeding month.

Sample Questions and Answers

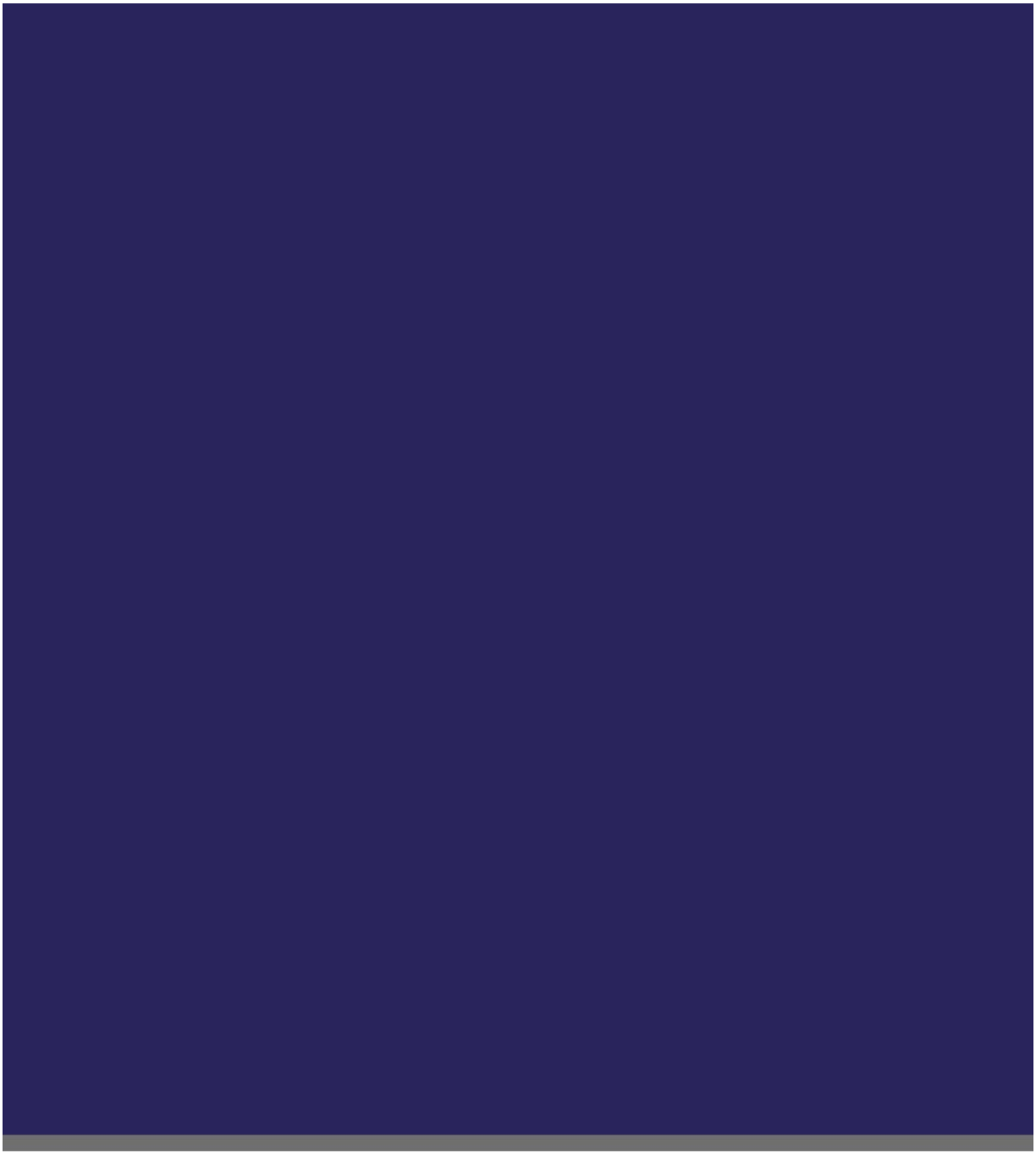
1. Investors can have grievances against _____.
    a. Brokers
    b. Intermediaries
    c. Company
    d. All of the above

2. Fund created to take care of legitimate investment claims
    a. Investor protection fund
    b. Investor grievance fund
    c. member default fund
    d. Core settlement guarantee fund

3. Arbitration is a _____ judicial process.
    a. Quasi
    b. Fully
    c. Non
    d. None of the above

4. Execution of Power of attorney by the client in favour of stock broker is _____.
    a. Mandatory
    b. Mandatory at the time of KYC
    c. Optional
    d. Not applicable

5. Subsequent to KYC, broker has to upload the KYC information in following system
    a. Depository
    b. KRA
    c. Clearing Bank
    d. SEBI



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